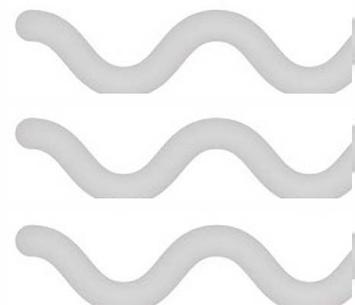
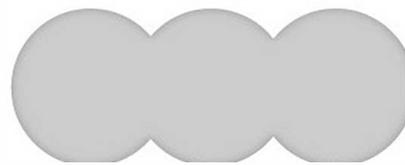
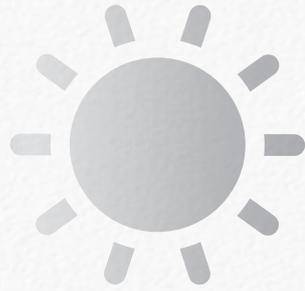


Council of Agriculture
Executive Yuan
Annual Report 2021





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Executive Yuan
Annual Report 2021





In 2021 the world continued to face the global COVID-19 pandemic and frequent extreme weather events. There were new records set repeatedly for high temperatures, heavy rains, and cold damage. The epidemic limited people's movements and severely impeded international trade and supply chains, while extreme weather impacted agricultural production and food security. The Council of Agriculture (COA) of the Executive Yuan continued to promote the "New Innovative Agriculture Program" with three main axes: enhancing farmers' welfare, improving infrastructure, and upgrading competitiveness. The COA worked closely with everyone involved in agriculture from relevant government agencies, local governments, and the corporate sector to promote a variety of agricultural measures with the core goals of increasing farmers' incomes and supplying consumers with safe agricultural products.

Over the year 2021 the COA implemented many important agricultural policies and measures. These included steps to build a

complete farmers' welfare system, including the inauguration of the "Agricultural Insurance Act" and the "Farmer Pension Act" as well as comprehensive farmers' occupational injury insurance covering everything from injuries to illnesses. These steps marked major milestones in Taiwan's agricultural history. Meanwhile, after China unilaterally barred some fruit imports from Taiwan, the COA, in order to diversify overseas markets and open up new sales channels, used primary processing and multiple marketing channels to transform this crisis into an opportunity, seizing the chance to guide industrial transformation and upgrading. In addition, in the first half of the year Taiwan experienced a once-in-a-century drought, and although irrigation had to be halted on over 70,000 hectares of farmland, through subsidy measures for farmers whose irrigation was suspended the COA guaranteed farmers' livelihoods and helped them through the water shortage. Moreover, the UN's Intergovernmental Panel on Climate Change issued its sixth assessment report and the 26th Conference of the Parties (COP26) to

the United Nations Framework Convention on Climate Change confirmed the rapid worsening of global warming and declared that the key measure for reversing the climate crisis is "Net Zero" emissions. To lessen the impact of climate change on agriculture, on September 1, 2021, the COA formally established a "Special Office for Climate Change Adaptation and Net Zero Emissions," then convened a national conference, and actively introduced policies and roadmap plans to upgrade industrial competitiveness while taking into account environmental sustainability. Major accomplishments in 2021 included the following:

Enhancing farmers' welfare, giving farmers protection and peace of mind

On May 1, 2021, farmers' occupational injury insurance (FOII) was expanded to enable more people to be covered by the program and raise payments for injuries and illnesses, and as of September 10, 2021, "occupational illnesses" were incorporated into the scope of FOII payments. These steps enhanced occupational safety protections for farmers. As of the end of 2021, more than 300,000 people had signed up for FOII, making the enrollment rate 30%, and there had been more than 10,000 cases of payments totaling over NT\$190 million. The "Agricultural Insurance Act" came into effect on January 1, 2021, and the Taiwan Agricultural Insurance Fund was founded. The COA has comprehensively promoted agricultural insurance, and there are now 38 kinds of policies covering 25 products; more than 90,000 policies have been taken out and the insured amount has reached NT\$40.3 billion. The "Farmer Pension Act" also came into effect on January 1, 2021, and about 84,000 people are paying into pension accounts. The COA also refined policy-oriented special agricultural loans, assisting farmers to access needed capital; about 56,000 farm and fisheries operators benefitted from such loans totaling NT\$41.4 billion, an

increase of 37% over 2019, thereby supplying operational capital for agriculture through the COVID-19 pandemic period.

Improving infrastructure, accelerating industrial adjustment and transformation

The COA comprehensively promoted "direct payments on farmland" (also known as "green environmental payments"). About 135,000 hectares of farmland were under contract cultivation, and 74,000 hectares were being used for cultivation of green manures or scenic crops to maintain the production environment. Moreover, beginning in the first crop season of 2021 the COA implemented the "choose three out of four" measure for paddy rice farmland (under which farmers can only grow paddy rice in three out of four crop seasons), and through the promotion of the "big area rotation system" combined with "paddy income insurance," accelerated the restructuring of the rice industry.

The COA also continued to prevent African swine fever from entering Taiwan and brought an outbreak of lumpy skin disease under control within one month. Moreover, after Taiwan was officially declared a zone free of foot and mouth disease after a space of 24 years of not being such a zone, exports of Taiwan pork and processed pork products continually increased. The COA also promoted a program for the comprehensive transformation and upgrading of the pig-raising industry and implemented eight major measures including stabilizing production and marketing of pigs and guaranteeing pig farmers' incomes, modernizing slaughterhouses and pig farms, and expanding exports of Taiwan pork. The goals are to accelerate the solution of problems related to industrial transformation and environmental protection and upgrade the export competitiveness of domestic pork.

In coordination with Taiwan's renewable energy policy, the COA adopted a policy of "agriculture as the base, green energy



as value added." We prioritized installation of solar power panels on the rooftops of agricultural facilities, then steadily developed ground level combinations of green energy with aquaculture; as of the end of 2021, total installed capacity was two GW. The COA also provided irrigation services tailored to the needs of local crops and land and expanded the area covered by irrigation by 26,000 hectares while completing survey planning for 23 priority areas. In the future we will continue to give priority to rural community industries and, in combination with food policy, will expand the area covered by irrigation services based on the "one district, one bright spot" system, in order to uphold the water-use rights of farmers.

Upgrading competitiveness, advancing towards sustainable agricultural development

The COA continued in 2021 to promote organic agriculture and eco-friendly farming. In 2021 a total of 17,000 hectares of land were certified as organic or eco-friendly, for a coverage rate of 2.1%, the highest rate of any Asia-Pacific country. In coordination with amendments to the "Agricultural Production and Certification Act," on March 30, 2021, the COA permitted one Traceable Agricultural Products accreditation institution to complete evaluations of 16 certification bodies, and about 60,000 hectares of land were certified for growing Traceable Agricultural Products, with 4,135 households still in their validity period and total production value of NT\$13.9 billion. We also continued to promote the policy of using only domestic traceable ingredients in school lunches, benefitting about 1.52 million students. The percentage of lunch ingredients registered as meeting the "Three Labels and One QR Code" standard reached 90%, a considerable increase over the 2020 figure of 61%. In August of 2021 Taiwan adopted the "Taiwan Good Agricultural Products (TGAP) 2020 PLUS" standards for bananas, successfully supplying them to the athletes' village at the Tokyo Olympic Games,

thereby marking an important milestone for Taiwan's Traceable Agricultural Products in conforming to international standards.

The COA strengthened infrastructure and industrial development for the fisheries industry. We established 52 aquaculture production areas and five aquaculture industrial cluster areas, while renovation and construction work was successively completed on the Qian-Zhen Fishing Harbor and the Woo-Chi Fishing Harbor as well as the deep-water wharf at Dong-Gang. These steps can energize local economies and upgrade the value and competitiveness of seafood products. The COA also completed the registration system for 5,244 gill-net fishing vessels as well as digitization and diversification of channels for declarations of fish offloading by coastal fishing vessels. We furthermore improved treatment of foreign fishing boat crews and promoted an action plan to ensure human rights in the fisheries industry, while also expanding friendship associations for young fishermen in order to drive regional value-added innovation in this industry and maintain sustainable fisheries operations.

Also in 2021, the COA continued to promote the plan to reduce pesticide use by half over a ten-year period and set up demonstration sites for integrated pest management (IPM) for 12 crops, with pesticide use declining by an average of 36% at these sites. Moreover, on July 1, 2021, we implemented a registration system for purchasing of pesticide in order to ensure that only actual cultivators of the land can buy it and to facilitate traceability of agriproducts with pesticide residue, thereby enhancing food safety. The COA also implemented animal protection and pet management, and the percentage of pet dogs registered nationwide increased from 45% in 2015 to 87% as of the end of 2021. We also newly established the Pet Administration Section to implement pet registration and animal welfare policies. The COA furthermore refined egg traceability labeling management and production and

marketing adjustment and on September 17, 2021, issued the "Designation of Fresh Washed Egg as the Agricultural Product Item of Registration for Traceable Information and Its Labeling Method" which went into effect on January 1, 2022. We also implemented support measures like exemption from the operations tax for imports of animal feed raw materials, production incentives, and market mechanism subsidies to guide industrial upgrading.

Although Taiwan was still suffering from the impact of COVID-19 in 2021, as alert restrictions and controls were lifted, economic and trade activities recovered, and exports of agriproducts from Taiwan grew to US\$5.67 billion, an increase of 15% over 2020. Also, the COA promoted diversified marketing domestically and established the "farmersbuy.cas.org.tw" online purchasing platform, bringing together more than 90 domestic e-commerce firms and mediating between farmers and e-commerce firms to establish supply chains for online purchases. In this way we enabled people to sit out the pandemic at home while shopping with peace of mind. In addition, in response to China's unilateral temporary halt on imports of sugar apples and wax apples from Taiwan, the COA set up special areas on the website for these fruits and coordinated with the "rural travel vouchers" promotional activity to relieve pressure on domestic production and marketing and to enable even more agriproducts to be sold through the new sales channel of e-commerce.

In 2021 we together passed through an important time for agriculture, dealing with continual changes and challenges from the internal and external environments. The COA continued to refine agricultural policies and administration and assisted all agricultural industries to build high-quality production-and-marketing environments.



In the future, besides continuing to promote or expand existing policies, the COA will adopt important new measures. 2022 will be an important year for improvement of Taiwan's agricultural infrastructure as we will continue to construct a national cold-chain logistics system and promote the four-year program for use of labor-saving machinery and equipment modernization. 2022 will also be Year One of "Net Zero" emissions, and we will actively take concrete actions in the areas of climate change adaptation, carbon reduction, green energy, carbon sinks, and circular agriculture to guide the agricultural sector to achieve the goal of net zero emissions as quickly as possible. Moreover, the impacts of the COVID-19 pandemic, the Ukraine-Russia war, and inflation on global supply chains and food security are not to be underestimated. Agricultural agencies have already laid out countermeasures to increase safe purchasing and storage capacity, stabilize prices of animal feed, develop alternative animal feed formulas, and expand consumption of rice, in order to ensure Taiwan's food security. The COA will continue to expand domestic and foreign marketing channels, assist industries to upgrade competitiveness, enhance the quality of agriproducts, and work with other stakeholders to create a win-win-win situation for farmers, consumers, and agriculture.

Chi-chung Chen
Minister
Council of Agriculture
April, 2022



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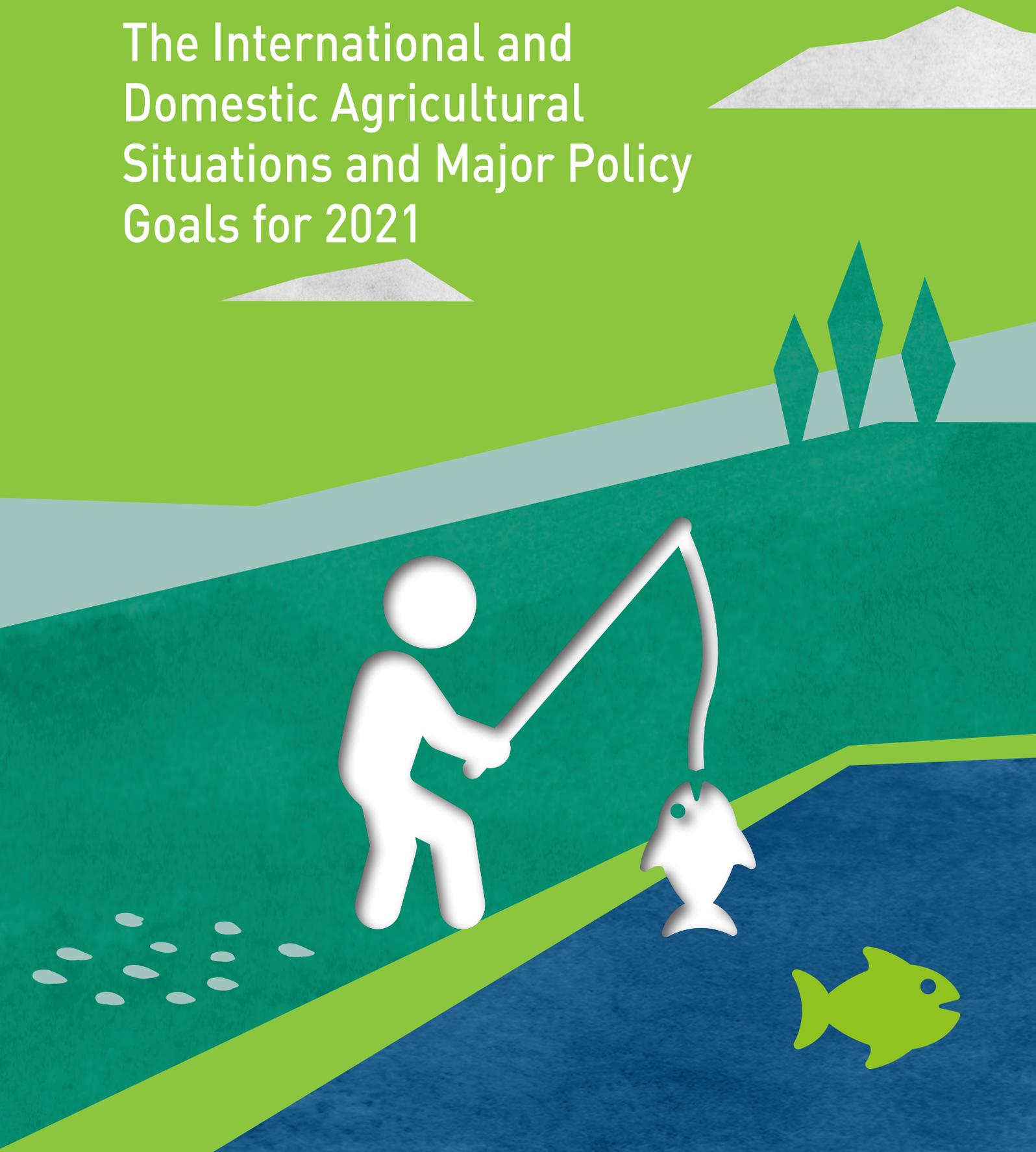
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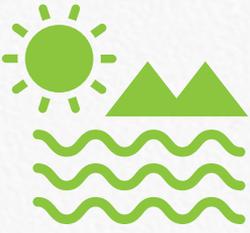
Chapter

01

The International and Domestic Agricultural Situations and Major Policy Goals for 2021







Chapter 01

The International and Domestic Agricultural Situations and Major Policy Goals for 2021



1 、 The International Agricultural Situation

The new Director-General of the World Trade Organization (WTO), Ngozi Okonjo-Iweala, took office on March 1, 2021 and actively worked with members of the WTO to alleviate the economic impact of the COVID-19 pandemic as quickly as possible. The 12th WTO Ministerial Conference scheduled for November 30 to December 3, 2021 was cancelled due to the severity of the pandemic, but members continued to pursue negotiations in hopes of attaining a concrete outcome on fisheries subsidies. The UK, China, Taiwan, and Ecuador successively applied to join the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and it was anticipated that global economic and trade linkages would become increasingly close. Following Brexit, the UK actively sought to sign trade agreements and agreements in principle with 69 countries including Japan and Australia. Meanwhile, in addition to altering the patterns of production and consumption in various industries, the COVID-19 pandemic also caused high international transportation costs, obstructed harbor and customs operations, and then resulted in increasing international trade barriers. Given the continuous evolution of the virus and little alleviation of the pandemic, it was necessary to continue thinking about how to conduct international agricultural trade in a post-pandemic future.

2 、 The Domestic Agricultural Situation

The preliminary estimate of the total value of agricultural production in 2021 is NT\$514.5 billion, an increase of 2.75% compared with 2020. Of this figure, farming, forestry, fisheries, and animal husbandry accounted for 50.23%, 0.05%, 15.44%, and 34.28% respectively. The preliminary estimate of the agricultural production index for 2021 is 101.5 (with 2016 as the base year). Production volume declined by 1.65% compared with 2020. Crop production declined by 3.55%, whereas fisheries production rose by 15.33% and animal husbandry production fell by 1.37%. In terms of agriproduct prices, with 2016 as the base year, in 2021 the average wholesale price index for all agricultural products was 101.82, an increase of 10.39 compared to 2020, with



the index for farm products rising by 14, that for animal husbandry products by 7.82, and that for forestry products by 16.73, while that for fisheries products rose only slightly by 0.97.

In terms of trade in agriproducts, in 2021 the total value of agriproduct imports was US\$17.986 billion, an increase of 17.04% compared to 2020. Imported products were led by bulk grains (oilseeds, soybeans, and corn), frozen or chilled beef, and dairy products. The total value of agriproduct exports was US\$5.668 billion, an increase of 15.39% compared to 2020. The most significant increases for export products were in squid, bonito (skipjack tuna), feathers and down, and Phalaenopsis orchids.

3 \ Major Policy Goals for 2021

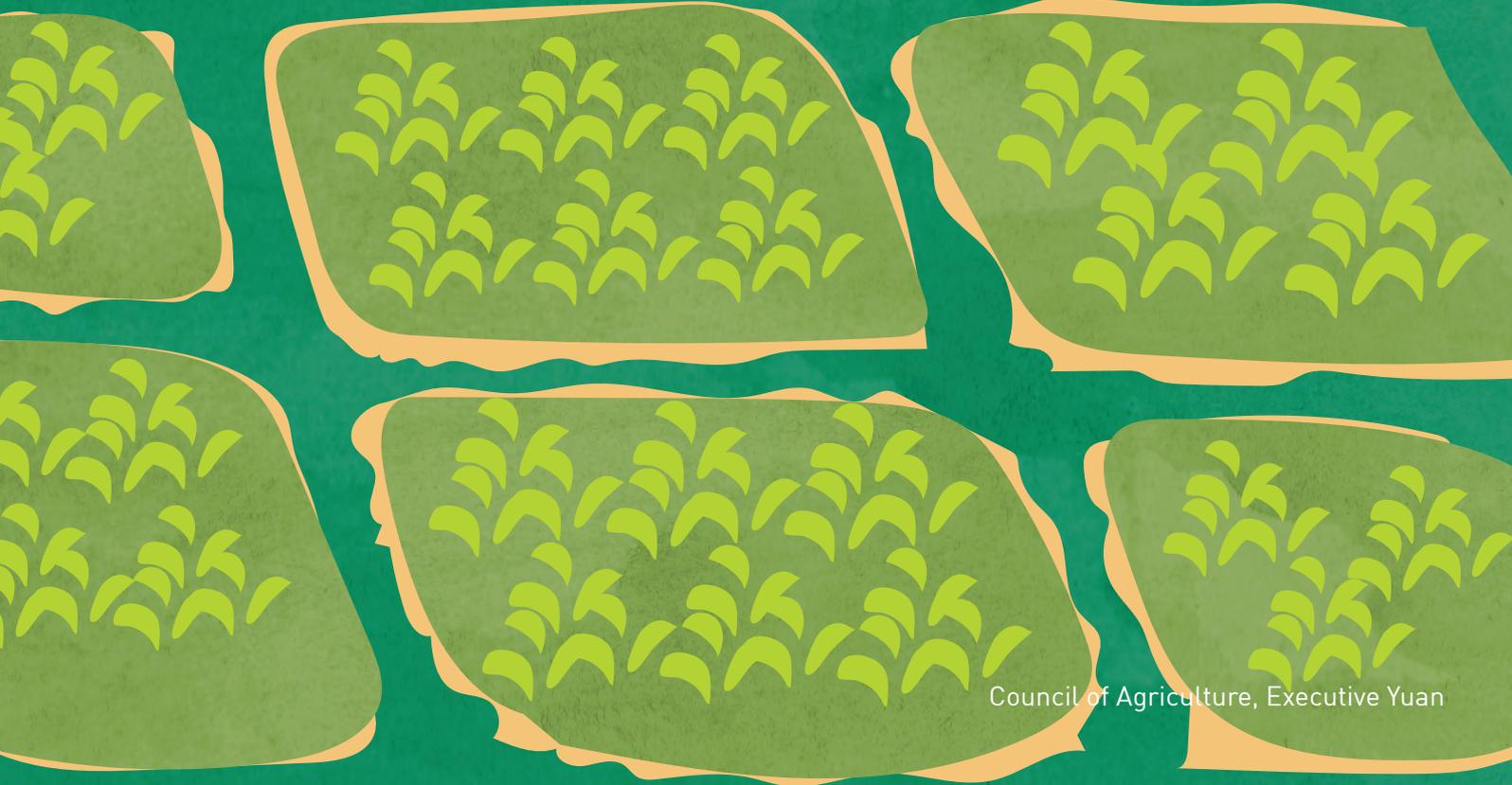
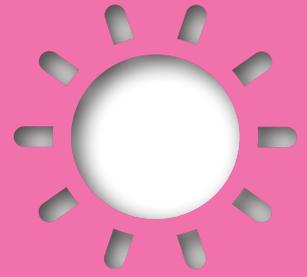
- Comprehensively promote agricultural insurance and strengthen the natural disaster relief system to reduce operational risks and stabilize farmers' incomes; refine farmers' health insurance and farmers' occupational-injury insurance and steadily expand coverage to protect farmers' rights and interests; build a farmers' pension system; complete the farmers' welfare system.
- Promote direct payments on farmland, ensure agricultural use of arable land; promote conservation of farmland resources, cultivate suitable crops for each area and expand irrigation services; create rural communities with sustainable development and easy access to jobs and resources for daily life; strengthen guidance measures for entrepreneurship by young farmers, provide a reassuring and healthy environment for careers in agriculture; accelerate the promotion of smart agriculture and digital services, use smart technology to adjust the rural industrial structure.

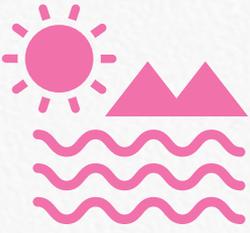
- Ensure the food supply, improve the production early warning mechanism, strengthen production-and-marketing adjustment measures, stabilize supply of and demand for agriproducts; strengthen international marketing of agriproducts, develop new markets; promote safety management of agriproducts, improve systems for supply of premium quality food ingredients from farm to table; expand food and agricultural education, promote "local production, local consumption," encourage expansion of organic agriculture.
- Strengthen the effectiveness of health inspection and quarantine, prevent the cross-border spread of diseases and insect pests; introduce smart precision livestock raising management, lower the costs of raising livestock; implement animal protection and accelerate the reduction and control of stray dogs.
- Continue to implement responsible fishing, strengthen management of fisheries resources; promote facilities aquaculture and intelligent aquaculture, build a sanitation and hygiene system for sales channels for the fisheries industry; create an environment friendly to fisheries production and the fisheries labor force, strengthen facilities and functions of fishing harbors, ensure the sustainable development of the fisheries industry.
- Optimize rural tourism services, expand the domestic and international markets for rural tourism; drive industrial development and value-added through rural regeneration, assist in developing local sustainable operations; promote an integrated system of mountain management and disaster prevention; enrich forestry resources; maintain biodiversity; promote the "Salute to the Mountains" policy, provide activity-friendly venues in mountain forests.

Chapter / 02

Enhancing Farmers' Welfare







Chapter 02

Enhancing Farmers' Welfare



1、Implementing Farmers' Occupational-injury Insurance

To improve occupational safety for farmers and create a comprehensive social insurance system for them, the COA, acting on the basis of amendments to the "Farmer Health Insurance Act" that were promulgated on July 13, 2018, began offering farmers' occupational-injury insurance (FOII) on a trial basis on November 1, 2018. During the initial trial period for FOII the COA adopted "first injuries, later disease," giving priority to "occupational injuries" (which have relatively clear-cut cause-and-effect relationships). On August 7, 2019 and May 1, 2021, we adopted refinement measures including expanded eligibility for coverage under FOII and increased injury or disease payments. Moreover, starting on September 10, 2021 the COA began incorporating "occupational diseases" within the scope of FOII payments, so that farmers can enjoy even better protections of their occupational safety.

At present, farmers voluntarily apply to join FOII, and after making a basic premium payment, farmers enjoy basic occupational accident compensation. Premiums are partially subsidized by the government, with farmers' premiums starting at NT\$15 per month. This entitles participating farmers to four types of insurance payments: injury or disease payments, medical care allowances, disability payments, and funeral and interment allowances. As of the end of 2021, more than 300,000 people were enrolled in FOII; there were a total of 10,275 cases of payments totaling over NT\$190 million.

Through promotion of FOII, the COA has continued to accumulate precedents and data on farmers' occupational accidents which will be the basis for strengthening policy planning for dealing with occupational injuries among farmers and creating a friendly working environment for them.



◎ COA Minister Chen Chi-chung announced at a press conference that starting from September 10, 2021 farmers' occupational-injury insurance would be expanded to incorporate insurance payments for "occupational diseases."

2、Upgrading Farmers' Health Insurance

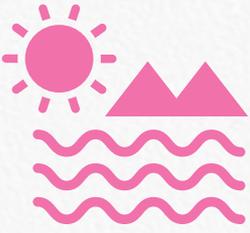
To enable young people who have been discharged from military service and return to the countryside to take up agricultural work to enjoy corresponding protections, and at the same time to upgrade the rights of farmers to participate in farmers' health insurance (FHI), the COA promoted amendments to the "Farmer Health Insurance Act," which were promulgated by the President on December 22, 2021. Main points of the amendments were as follows:

- Article 5-1 was added to stipulate that for young people under 50 discharged from the military who have not collected the pension for military personnel and who are making a living by actually practicing agriculture will no longer be subject to the restriction against collecting retirement payments under insurance for military personnel and will still enjoy the protection of FHI.

- Article 7 was amended to stipulate that persons whose farmland has been expropriated may continue to participate in FHI for a certain period of time, and that persons 65 years old or older who have participated in FHI for a total of at least 15 years will not be subject to the restriction of "a certain period of time," in order to protect the rights of elderly farmers who have been engaged in farming for many years to participate in FHI.
- Article 23 was amended to extend the time limit on exercising the right of claim for insurance payments from two years to five years.
- Article 24 was amended to eliminate the requirement for the number of days a person must have participated in FHI in order to collect the procreation payment, in order to avoid cases in which farmers do not meet the requirements for number of days of participation as a result of changing job venues, which would thereby have made them ineligible to collect the procreation payment.
- For other amended provisions, please refer to relevant provisions of the "Labor Insurance Act" and the "National Pension Act" which make the farmers' health insurance system more inclusive.

3、Comprehensive Promotion of Agricultural Insurance

Since 2017 the COA has continually expanded promotion of agricultural insurance, developing products that cover farming, fisheries, and animal husbandry. The "Agricultural Insurance Act" took effect on January 1, 2021, and the Taiwan Agricultural Insurance Fund (in charge of risk aversion and management) was founded at the same time. These steps facilitate the development of Taiwan's agricultural insurance system. At the end of 2021, there were 25 items covered by



agricultural insurance and 38 types of policies available, with a total of 91,519 policies taken out, a total insured area of 133,474 hectares, and a total insured amount of NT\$40.317 billion. Following the promotion of mandatory pig death insurance in 2021, the coverage rate reached 25.94%. There has been a steady year-on-year increase in the number of policies taken out.

In order to encourage people to purchase agricultural insurance, the COA subsidizes one-third to one-half of premiums for approved insurance products, while county and city governments also provide subsidies. In addition, the COA offers "agricultural insurance loans" to assist farmers and fishermen in getting the money needed for premiums, thereby reducing their financial burden and raising their willingness to take out insurance policies. Moreover, to ensure the security of assets of fishermen during at-sea operations, the COA also encourages owners of motorized fishing boats (rafts) of less than 100 metric tons to take out fishing boat insurance and provides subsidies for premiums. In 2021, 9,472 fishing boats (rafts) benefitted, with subsidies totaling about NT\$39.95 million.

To meet the needs of industrial policy, in recent years the COA has successively come out with policy-oriented insurance, with farmers' associations acting as the insurer and assisting the government to promote sales of such insurance. The main points have been as follows:

- Sugar apple insurance: Besides continuing to promote existing sugar apple income insurance, in coordination with the domestic demand strategy for atemoya, the COA came out with a new type of atemoya income insurance in October of 2021. There are two options, providing income guarantees of NT\$400,000 and NT\$450,000 per hectare, thereby insuring farmers against loss of their production costs. Farmers have been very active in enrolling, with the rate of enrollment being 60.1%.
- Banana income insurance: In 2021 the COA expanded trial implementation of banana income insurance, with 99 townships, sub-

county cities, and districts in 13 counties and cities participating. More than 12,000 hectares of land were planted with bananas in the trial implementation areas, accounting for more than 70% of the total area nationwide. The insured area was 409 hectares, multiple times what it was in 2020.

- Livestock insurance: To prevent the illegal circulation of deceased livestock, the COA strengthened promotion of livestock insurance to cover dairy cow deaths, pig deaths, and pig deaths while being transported, of which insurance for pig deaths has been made available across the entire country (including offshore islands) and the COA has made such insurance mandatory. In 2021 a total of 11.79 million pigs were covered by death insurance, 700,000 pigs were covered for death while being transported, and about 40,000 dairy cows were covered by death insurance.
- Paddy rice income insurance: In coordination with adjustment of the rice industrial structure, the COA plans to implement paddy rice income insurance in 2022. It will come in two forms, "basic" and "enhanced." All legally cultivated paddy rice is eligible for the "basic" insurance, which allows farmers to collect NT\$18,000 per hectare when production volume losses reach 20%; the premiums are subsidized by the COA. Meanwhile "enhanced" insurance will be made available for voluntary enrollment by farmers who have not signed up for selling their rice as public grain. This encourages farmers to cultivate premium-quality rice and enhance the competitiveness of the rice industry.



© The "Agricultural Insurance Act" officially came into effect on January 1, 2021.



◎ The situation with respect to promotion of agricultural insurance.



◎ On April 19, 2021 the Taiwan Banana Research Institute held an educational seminar on banana income insurance.



◎ Information card for paddy rice income insurance.

4、Building a Farmers' Pension System

The "Farmer Pension Act" was promulgated on June 10, 2020, and by order of the Executive Yuan came into effect on January 1, 2021. President Tsai Ing-wen attended a ceremony to mark the launch of the farmers' pension system on January 4, 2021, at which she said that the initiation of farmers' pensions is significant in two ways: First, it shows that the government fulfills its promises and demonstrates its determination to look after farmers. Second, it represents the

comprehensive completion of pension systems across Taiwan. This system makes "agriculture" into a profession that people can do until they retire with peace of mind.

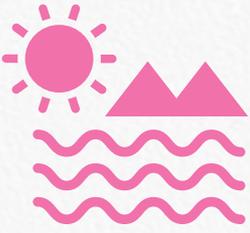
The farmers' pension system allows for creation of individual farmers' pension accounts, with farmers and the government making monthly payments into these accounts. Farmers can collect their pensions when they reach age 65 or meet specified criteria. This system and the welfare allowance for elderly farmers together form an economic safety net for elderly farmers.

In order to encourage young people who have served in the military to return to the countryside to take up farming, on December 22, 2021 the President promulgated a new article (Article 3-1) to the "Farmer Pension Act," which allows such people to participate in the farmers' pension system despite collecting retirement payments under insurance for military personnel. (Such persons are also allowed to participate in the farmers' health insurance system.)

The farmers' pension system enables elderly farmers to maintain appropriate standards of living, and is very helpful in terms of encouraging young people to devote themselves to agricultural production, adjusting the agricultural labor structure, and indirectly enabling elderly farmers to retire with peace of mind while revitalizing the use of their farmland. As of the end of December of 2021, about 84,000 people had opened pension accounts.



◎ President Tsai Ing-wen attended a ceremony to mark the launch of the farmers' pension system on January 4, 2021, at which she said the system shows that the government fulfills its promises and demonstrates its determination to look after farmers, and that it represents the comprehensive completion of pension systems across Taiwan.



5、Improving the Well-being of Farmers

(1) The welfare allowance for elderly farmers

To ensure the quality of life of elderly farmers, the government has long been issuing a welfare allowance to elderly farmers aged 65 and over who meet the legal criteria to participate. Starting January 1 of 2020, the COA began issuing NT\$7,550 per person per month; total payments in 2021 reached NT\$51.357 billion, benefiting a total of 596,408 elderly farmers.

Also, to facilitate funerals for elderly farmers who have participated in farmers' health insurance (FHI) for a long period of time, in cases of farmers at least 65 years old who participated in FHI for 25 years who are unable for some reason to apply for the FHI funeral subsidy, the COA has issued "funeral condolence funds" of NT\$102,000. In 2021 there were 1,485 beneficiaries of this policy, with total payments of NT\$151.47 million.

(2) Educational subsidies for farmers and fishermen whose children study at high schools or colleges

In order to ensure that the children of farmers and fishermen do not, for economic reasons, miss out on the chance to get high-school and college educations in Taiwan, a program was launched in September of 2003 to provide financial support to these farmers and fishermen. In 2019 the COA increased the amounts to be given out and eliminated the academic achievement criteria. In February of 2020 we amended and renamed the "Operational Directions for Grants to Farmers or Fishermen Whose Children Study in Universities or Senior High Schools" to define the payments as grants. During 2021 a total of NT\$1.057 billion was paid out, benefiting 97,200 children of farmers and fishermen.



© The application conditions for educational subsidies for the children of farmers and fishermen.

(3) Promoting the "demonstration program for green care for the elderly in farming and fishing communities"

The COA in 2021 continued to guide farmers' and fishermen's associations to arrange "green care demonstration stations," bringing together local green elements (including agricultural resources and the natural environment) to realize the vision of healthy aging for the elderly in these communities. In 2021 we guided 76 farmers' and fishermen's associations to set up green care demonstration stations (including 69 at farmers' associations and seven at fishermen's associations). During 2021 services including innovative learning for the elderly, mutual aid collective dining, and concern services were provided a total of 389,444 man-times.



© A "green care demonstration station" holds a class on decorating with flowers and plants to strengthen elderly people's hand-eye coordination through an activity that is physically and psychologically therapeutic.



(4) Fuel subsidies for farmers and fishermen

As of the end of 2021 a total of 348,102 valid certifications for use of agricultural machinery had been issued. During the year 77,000 kiloliters of fuel needed for agricultural machinery was purchased, with an exemption from the 5% business tax saving NT\$94.8 million. Also, the COA guided the purchase of about 485,289 kiloliters of diesel fuel for 6,231 fishing vessels, with subsidies totaling NT\$1.171 billion. In addition, we provided subsidies of NT\$104.05 million for 6,640 gasoline powered fishing boats.

(5) Stabilization of supply and demand for fertilizers

The COA promoted a registration system for purchase of fertilizers, encouraging farmers to buy reasonable amounts of fertilizer in accordance with the amounts suggested by District Agricultural Research and Extension Stations per unit of land area for various crops. The COA also provided total subsidies of NT\$200 million to encourage farmers to use 400,000 metric tons (MT) of compound fertilizer containing organic materials such as peat, with the goal of replacing traditional chemical fertilizers and reducing the volume of chemical fertilizers used. In addition, we provided NT\$16 million to subsidize the costs of transporting 32,000 MT of fertilizer to Taitung and Hualien counties and offshore islands, in order to protect the right of farmers in remote areas to have access to fertilizer and ensure that the end-user fertilizer costs for farmers tended to be uniform. The COA moreover guided 48 farmers' organizations to warehouse 14,000 MT of chemical fertilizer in order to meet farmers' demand for fertilizers during peak use periods.



© Warehousing of fertilizers ensures that farmers' demand for fertilizers during peak use periods can be met.

(6) Subsidies for big and small agricultural machinery

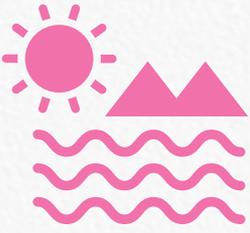
The COA guided farmers to purchase 7,122 pieces of small agricultural machinery including power cultivators and small agricultural transporters, as well as developed 39 pieces of new agricultural machinery and 27 unmanned aerial vehicle (UAV) pesticide sprayers. We also subsidized the purchase of 584 big agricultural machines including tractors and combine harvesters, in order to help farmers to raise efficiency, help compensate for the rural labor shortage, and assist farmers to harvest crops during flood season. Currently Taiwan has 1,100 vessels engaged in deep-sea fishing operations, and 566 deep-sea fishing vessels have passed hygiene evaluations to be registered as Type B export vessels (with installed continuous temperature recorders), while subsidies have been granted to 260 vessels. Moreover in 2021 the COA subsidized fishermen to purchase 781 pieces of high-efficiency and smart aquaculture machinery, with subsidies totaling NT\$73.45 million.



© A hands-on demonstration of a newly developed agricultural machine (tea planting machine); such machines will help relieve the shortage of agricultural labor.



© The farm machinery exhibition on Ketagalan Boulevard on National Day demonstrated the dynamism and vitality of agriculture.



(7) Natural disaster relief for agriculture

The COA worked with the Central Weather Bureau to set up 163 agricultural weather stations to provide precise weather forecasting and disaster early warning alerts in 121 production areas for important crops across Taiwan. Furthermore, we worked with the National Science and Technology Center for Disaster Reduction to establish a systematic agricultural disaster response mechanism, providing real-time disaster information, the scope of the area covered by warnings, types of crops affected, and disaster prevention suggestions. The COA also set up a platform (website) for disaster early warnings for agricultural crops as well as a mobile application, to provide relevant prevention and response information before, during, and after natural disasters. In 2021 we held 60 lectures on disaster prevention for farmers and compiled the "2021 Agricultural Disaster Yearbook" to systematically record disaster information and agricultural losses from major events during the year. In addition, we made daily agricultural weather videos and broadcast them through social networking services including the COA's official Facebook page, Youtube, the Virtual Museum of Taiwan Agriculture, and the electronic bulletin boards at farmers' and fishermen's associations, etc. The total number of video exposures and views for the year exceeded 6.5 million.

Besides providing cash relief and low-interest loans to help farmers who have suffered losses from natural disasters to resume operations, on June 29, 2021 the COA amended the "Agricultural Natural Disasters Relief Regulations" to incorporate weather parameters into the bases for relief triggering and surveys, in order to enhance the efficiency of agricultural natural disaster relief triggering and surveying work. In 2021 Taiwan was impacted by a number of natural disasters that caused losses to agriculture, including: low temperatures from December 30, 2020 through early January, 2021; a weather front in March; high temperatures and drought from March to

May; strong winds on April 17; torrential rain from late May to early June and again in late June; a tornado on July 15; Typhoon In-fa in July; torrential rain in early August; Typhoon Chanthu in September; Typhoon Kompasu in October; drought from June through August and again in September to October; high temperatures in August to September and again in September to October; and rain damage in early October. On the basis of the "Agricultural Natural Disasters Relief Regulations" the COA arranged NT\$3.884 billion in cash relief for 122,023 households and low-interest loans totaling NT\$277.21 million for 352 households.

(8) Fishermen's and fishing boat relief

The COA pays out relief funds for fishermen who are killed, missing, or disabled while doing coastal fishing. (Fishermen are only eligible if they are working at sea on Taiwan-registered fishing vessels or if they have Class 1 member qualifications in a fishermen's association.) In 2021 funds totaling NT\$36 million were paid out in 24 cases.

In addition, on the basis of the "Directions on Succoring for Fishing Vessels in Maritime Disaster," the COA paid out relief of NT\$395,000 for 6 vessels that were destroyed or could no longer operate as a result of damage caused by fire or force majeure during operations at sea.

(9) Strengthening the effectiveness of farmers' and fishermen's associations

The COA issued amendments to Article 23 of the "Regulations Governing Personnel Management of Farmers' Associations" and Article 40 of the "Enforcement Rules of the Farmers Association Act." In addition, the COA (i) completed the selection process for new general managers at 299 farmers' associations; (ii) held two training sessions for public servants doing farmers' association guidance in governments at various levels; (iii) held 10 training sessions for employees of farmers' associations; (iv) commissioned accountants to do financial audits of 20 farmers' associations; (v) subsidized 45 farmers' associations in



expanding their extension and education facilities, promoting high-quality agricultural scenery, and improving their farmers' association services; and (vi) guided 15 farmers' associations with their economic enterprise plans.

The COA completed the 2021 elections for personnel at farmers' association, with voting for farming task force chiefs and deputy chiefs as well as member representatives at base-level farmers' associations completed on February 21, and re-election work was completed at the National Farmers' Association, ROC on April 22. On March 20 voting was completed for member representatives and task force chiefs and deputy chiefs of fishermen's associations, while re-election work was completed at the National Fishermen's Association, Taiwan, ROC on April 6.

(10) Innovating in agricultural financial services

● Diversification of agricultural financial services

In order to strengthen the quality of services and competitiveness of farmers' and fishermen's associations (hereafter F/FAs), the Agricultural Bank of Taiwan (ABT) integrated services and channels at the credit departments of F/FAs. The ABT signed contracts with F/FAs for payment collection services covering 1,247 items including insurance premiums for national pensions and payments for water, electricity, natural gas, telecoms, cable TV, credit cards, tuition and school expenses, property management fees, and group membership dues. As of the end of 2021, F/FAs had collected 187.83 million payments totaling NT\$728.052 billion, thereby providing farmers and fishermen with diversified and convenient payment services. Moreover, to satisfy demand from customers for wealth management services, the ABT continued to guide the credit departments of F/FAs in offering "gold passbook services"; as of the end of 2021 43 credit departments had been authorized to provide such services. In addition, in order to increase the prevalence of the use of mobile payment tools by farmers and fishermen, by the end of 2021 the COA had approved the offering of mobile payment services by 250 F/FAs.

● The credit departments of farmers' and fishermen's associations

The COA continued to take measures to improve the operational structure of the credit departments of farmers' and fishermen's associations. As of the end of 2021, total deposits at all credit departments were NT\$2.143 trillion, with outstanding loans of NT\$1.276 trillion. Before-tax net profit was NT\$5.047 billion. The non-performing loan ratio was 0.32%, indicating that loan quality was quite high. To strengthen supervision, we have been conducting inspection visits to these credit departments since 2009, and as of the end of 2021 such visits had been made to 907 such departments. The COA will continue to maintain a firm grasp of the operational situation at credit departments, understand problems and offer assistance, and strengthen supervision and guidance to continue to assist these departments to ensure sound operations.

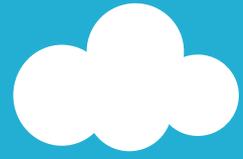
● The policy-oriented special agricultural loan

To provide farmers and fishermen with capital, coordinate with policies like training young rural manpower and New Agriculture, and meet practical needs, the COA continued to promote the "policy-oriented special agricultural loan." In 2021, we provided 56,432 farmers and fishermen with NT\$41.36 billion in loans. Since the launch of these loans, the COA has provided 1.286 million farmers and fishermen with NT\$721.114 billion in loans. The COA will continue to coordinate with agricultural policy objectives, and will adjust the types of loans and their content in due course, in order to upgrade industrial competitiveness and promote agricultural development.



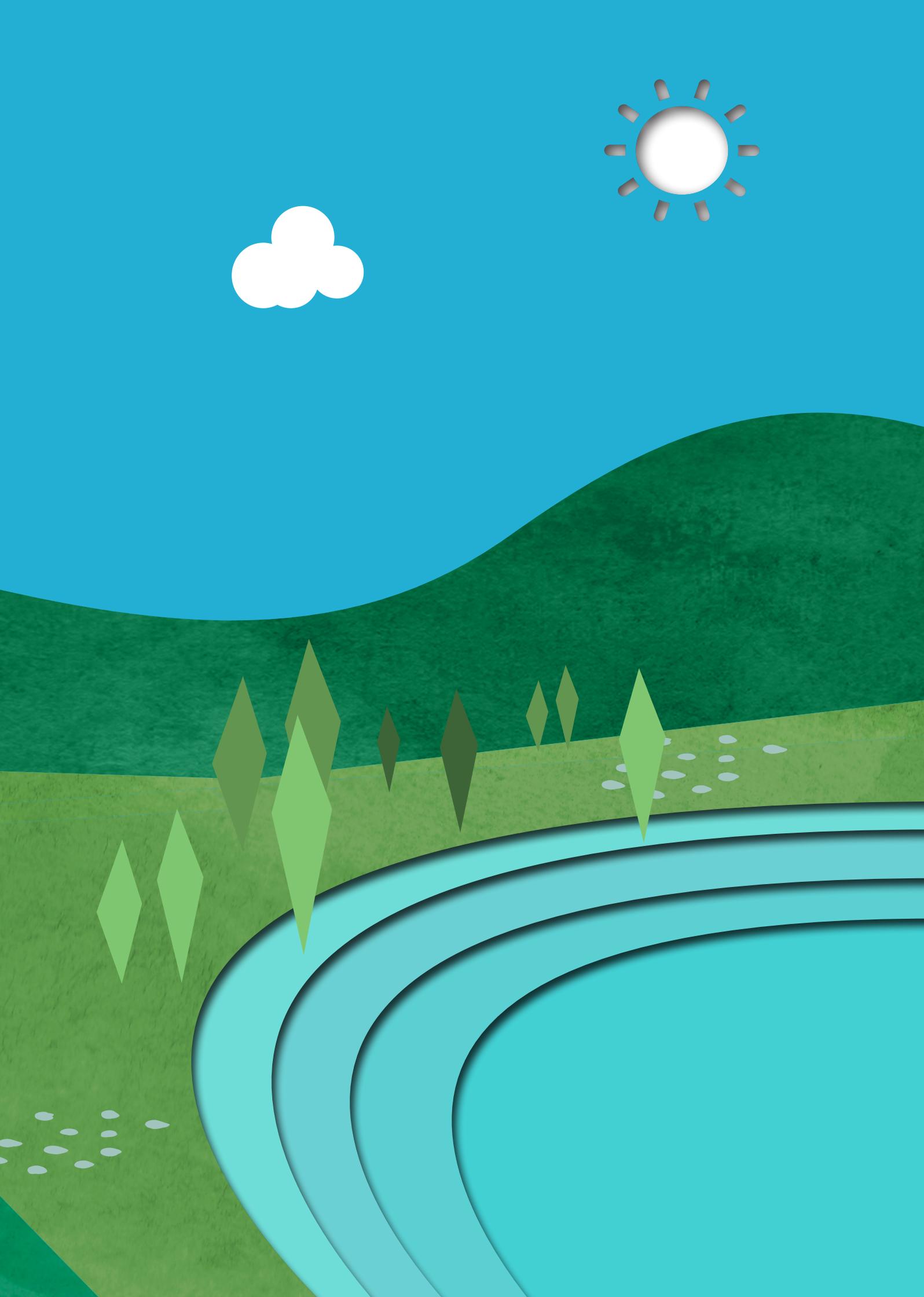
◎ Through promotion of the "policy-oriented special agricultural loan," the COA provides needed capital for agricultural operations.

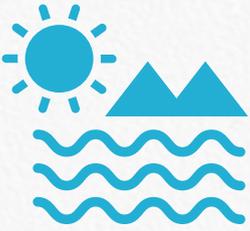
Chapter / 03



Improving Agricultural Infrastructure







Chapter 03

Improving Agricultural Infrastructure



1 、 Expanding Direct Payments on Farmland

To adjust the rice production structure and increase the supply of domestically produced foods, the COA has been implementing "direct payments on farmland" since 2018. (Note that these are also called "direct payments on rice" because they are targeted at rice growers and "green environmental direct payments" because they include extra incentives for eco-friendly farming.) Through incentives, the COA has encouraged farmers to switch over to import-substitution crops, crops with potential for export, and niche local crops, while simultaneously implementing "direct payments on farmland" and "guaranteed prices purchasing for public stocks." We have also undertaken measures such as annual maintenance of the production environment in each farmland district, guided farmers to cultivate crops suited to their location, and encouraged the sustainable development of agriculture.

The COA has simultaneously implemented "direct payments on farmland" alongside "guaranteed prices purchasing for public stocks" to guide farmers to cultivate high quality paddy rice that they can sell on the open market, in order to provide farmers with an option other than selling their rice to the government. We hope that through the direct payments system we can guide farmers to sign contracts with the operating authorities in "rice contract production-and-marketing group production areas" to produce high quality rice to meet market demand. In 2021 applications for direct payments were filed for 63,400 hectares of land, accounting for 42.75% of the 148,300 hectares of rice farmland approved for the program. This indicates that the first steps have been taken to reduce the dependence of rice farmers on the "guaranteed prices purchasing" system.

In 2021 a total of 134,900 hectares of land were cultivated under contract, effectively



increasing the supply of domestically produced foods. Production environment maintenance measures, such as (i) planting green manure or scenic crops and (ii) plowing fields under, were undertaken on 73,500 hectares of land, building a rational model of cultivation of the land in one crop season and maintenance of the production environment in the other. Besides encouraging rational use of farmland, these programs also benefit farmers who cultivate high quality paddy rice and mixed staple crops, and have the effect of guiding rice farmers to switch over to incentivized crops and upgrade the quality of rice sold on the open market.

To conserve Taiwan's limited agricultural production environment resources, manifest the multi-functional values of farmland, and conform to the conclusion of the 6th National Agriculture Congress to "expand the recipients of direct payments on farmland by incorporating land not included in the base year of the program that is suitable for agricultural production," starting in 2020 and within the "direct payments on farmland" program, the COA began to issue an "agricultural environment basic payment" with priority for agricultural and pasture land in ordinary agricultural zones and specified agricultural zones in non-urban areas and to support users of land for staple crop production. We thereby hope to encourage "agricultural uses for arable land" and highlight the government's multiple policy objectives for farmland maintenance. At the same time this policy will be helpful to the future designation of "agricultural development zones" in the National Spatial Plan. In 2021 the agricultural environment basic payment was given out for 211,000 hectares of land.



© The cultivation of ornamental crops makes agricultural communities more scenic.



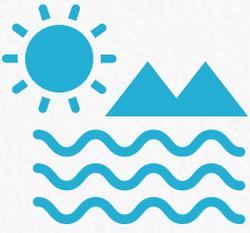
© The COA encourages a shift in the use of rice farmland to growing mixed staple crops or niche local crops (above, buckwheat; below, leafy vegetables) in order to meet domestic demand.

2 - Conservation of Agricultural Resources

(1) Inventorying of agricultural and farmland resources and value-added usage of the data

In order to maintain a firm grasp of the situation with regard to use of farmland, the COA completed its 2021 updating of the "national agricultural and farmland resources survey" and integrated the results into the "searchable map of the results of the national agricultural and farmland resources survey" (<https://map.coa.gov.tw>). The updated results show 2.779 million hectares (ha) of land legally defined as land for agricultural use, of which flatland accounted for 616,900 ha and slopeland for 2.162 million ha, and there were 700,600 total ha available for food production. Of land legally defined as land for agricultural use, 591,600 ha were being used for actual crop production, 42,900 for aquaculture ponds, 13,500 for raising livestock, and 1.779 million for forestry. In addition, with respect to land for agricultural use that was being used for non-agricultural purposes, flatland accounted for 48,200 ha while slopeland accounted for 57,700 ha.

To assist in agricultural policy-making,



© An aerial photo of the current farmland situation.

the above-mentioned inventory data has been provided for reference in a variety of policy areas including promotion of the "big area rotation system," location analysis for expanding irrigation services, land use planning for plains afforestation, regional planning for promotion of green energy policies, and location review for installation of solar power panels, thereby enhancing the precision of agricultural policy-making. In addition, the survey results have also been provided to other ministries and agencies to assist in their promotion of matters under their jurisdiction, including establishment of a food safety information platform, auditing for reductions or exemptions from farmland taxes, management and supervision of state-owned land, and planning and founding of technology parks and industrial parks. In cooperation with the demarcation work of municipality, city, and county spatial plans and to ensure that agricultural guidance resources are invested in high-quality agricultural production areas, the inventory data has been provided to local governments in demarcating "agricultural development zones" in order to conserve the overall agricultural production environment and put into effect the policy principle in the "Spatial Planning Act" of pro-actively protecting important agricultural production environments.

The COA has also pro-actively conducted agricultural and farmland resources inventories in order to strengthen participation of all citizens in the policy of not permitting new factory construction on farmland. In coordination with amendments by the Ministry of Economic Affairs to the "Factory Management Act" the COA incorporated the location of unregistered

factories newly built since May 20, 2016 and the status of their investigation and punishment by local governments into the searchable map of the results of the national agricultural and farmland resources survey, in order to facilitate monitoring work by all citizens. The survey includes the geographic distribution of unregistered factories and the nearby land use situation, and has assisted the COA to adopt principles for management of unregistered factories on 234,800 hectares of agricultural industrial cluster areas; these principles have been provided to local governments to assess guidance plans for specific factories. Relevant inventory data is also used to assist local governments in strengthening farmland management work, reviewing of applications for hooking up electricity for farmland, and investigating illegal use of farmland, in order to implement "agricultural use for arable land" and maintain the integrity of the agricultural production environment.

(2) Maintaining the quality and quantity of irrigation water

Before the reorganization of irrigation associations, irrigation services were only provided to farmers on 310,000 hectares (ha) in irrigation areas. After the reorganization, in order to fulfill promises to expand irrigation services, the COA's Irrigation Agency adopted the principles of "retaining water, irrigating the land" and coordinated three major strategies: "water storage," "broadening water delivery," and "smart irrigation." Based on the principle of "the appropriate crop for the appropriate land," the goal is to use high-tech precision irrigation

● 遠端水閘門遙控系統

- 透過遠端遙控即時調整閘門，提升供水穩定度及灌溉配水精準度
- 降低人力操作成本及減少水閘操作損失，解決配水經驗傳承問題



© A sluice gate remote control system.



to enable all farmers nationwide (both those within and those outside of irrigation areas) to enjoy irrigation services provided by the government. In 2021 this policy benefitted a total of 26,146 ha (beyond the original 310,000 ha in irrigation areas) as well as 32,426 farming households.

Combining comprehensive irrigation and drainage facilities with Internet information and communications technology and automated control systems can make the supply of water for agricultural use more precise. Given climate change and worsening extreme weather and the wide disparity in precipitation volume between rainy and dry seasons, the effective use of agricultural water resources not only provides a stable supply of water to ensure agricultural production and improve farmers' incomes, it can also serve other purposes.

In 2021, the COA: (i) renovated or improved 202 kilometers (km) of irrigation and drainage channels; (ii) completed 218 water conservancy infrastructure projects and structures; (iii) renovated or improved irrigation canals on 1,049 hectares (ha) of readjusted farmland and early readjusted farmland; (iv) set up irrigation water quality monitoring sites in 2,393 locations; (v) conducted 17,220 tests of irrigation water quality; and (vi) promoted interagency coordination to reduce the risks of pollution to irrigation water. In addition, we assisted in renovating and improving 30 km of water channels and constructing 133 water conservancy structures for farmland irrigation facilities outside of irrigation areas, thereby improving 2,911 ha of farmland outside of irrigation areas. Through facilities operations and environmental construction, the COA was also able to achieve the functions of irrigation in terms of production, daily life, and the ecology, as well as achieve its disaster prevention and mitigation functions. Finally, we also improved 283 km of emergency irrigation canals in readjusted farmland areas to ensure smooth water flow in the irrigation canals in these areas. All these measures have improved the operational environment for farming as well as the quality of life in rural areas.

Given the increasing severity of water resources shortages under extreme weather conditions, the COA guided farmers to install pipeline irrigation, storage adjustment controls, and motorized pumping equipment over 2,355 ha, in order to upgrade the technology and efficiency of irrigation and achieve the goals of reducing labor use and saving time.

In 2021 the COA moreover undertook renovations or improvements on automated water-testing systems in 16 locations, and continued to update basic farmland irrigation cartographic data and keep a complete set of basic data. Through technology like the Internet of Things and simulation algorithms, we provided information such as opening and closing strategies for remote watergates, suggestions for water storage in ponds, and forecasts of droughts or torrential rain. At the same time, though technology such as real-time imaging and visualization of operating interfaces, the COA facilitated water use management and effectively controlled the distribution of agricultural water resources.

● 布建智慧灌溉系統

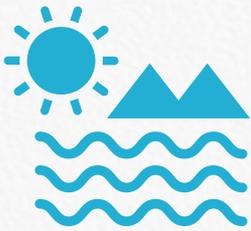
- 豐水期間可藉由水量監測，預先將水資源貯存於埤塘系統。
- 乾旱期間可將埤塘蓄水資訊回饋上游水庫，適度調節水庫供水。



◎ Extension of smart irrigation systems.



◎ Green energy facilities installed on livestock and poultry structures.



(3) Promoting green energy in combination with rural industries

In coordination with the government's policy of promoting renewable energy, the COA is developing agricultural green energy under the preconditions of not adversely affecting (i) the rights and interests of farmers and fishermen, (ii) the development of the farm and fisheries sectors, and (iii) the environment. With "agriculture in the main, green energy as value-added" as the main axis, we have prioritized the installation of solar power panels on the roofs of agricultural facilities, and gradually developed the ground-level combination of green energy with aquaculture. Major measures in 2021 included the following:

- Installation of solar power panels on the rooftops of agricultural facilities: Green energy facilities attached to the rooftops of livestock and poultry buildings accounted for 1,204 MW of power. Also, the COA amended the "Standards of the Principal Facilities of the Farm" to enable those who install green energy facilities on rooftops to expand the maximum construction area by 30%, while in combination with the "NT\$10 Billion Pig Farming Industry Fund" we have assisted in the renovation of livestock and poultry buildings and provided special agricultural loans. In addition, installation of solar power panels on the rooftops of storage and marketing facilities for staple crops accounted for 313 MW of power.
- Acceleration of the combination of aquaculture with power generation: In 2021 the COA expanded the area for promotion of this policy, identifying environmental and social issues and holding joint review meetings for "the program to combine aquaculture operations with green energy facilities" for major aquaculture areas in six cities and counties: Changhua, Yunlin, Chiayi, Tainan, Kaohsiung, and Pingtung. Thereafter we announced "priority areas" of 4,384 hectares (ha) for the combination of aquaculture and green energy in these

localities and approved 2,764 ha of "areas of concern with moderate pacing" under this policy. In addition, approval had previously been given to seven projects in Chiayi and Tainan covering 649 ha (449 MW). In combination with the 4,702 ha of pilot-project areas announced in 2020, the total area reached 12,499 ha.



© Indoor fish farm combined with rooftop green energy facilities.

- Combination of agricultural water resources with green energy: The COA completed installation of solar power in combination with agricultural water resources at 67 locations (119 MW). In terms of small and micro-hydropower facilities on irrigation channels, we have completed one small hydropower plant (250 kW) and two micro-hydropower demonstration sites on irrigation channels. The COA has effectively used agricultural water resources to coordinate with the development of green energy.



© Solar power facilities at the north shore channel in Changhua (installed capacity of 5.87 MW).



© Testing of the turbine at the Linnei micro-hydropower demonstration site in Yunlin (installed capacity 20 kW).

3 \ Watershed Management, Erosion Control, and Water Environment Infrastructure Improvement

(1) Construction of a large-scale landslide disaster prevention and mitigation system under climate change

In 2021 the COA handled numerous disaster prevention and mitigation tasks, including "refining evaluation and monitoring technology," "constructing an integrated response and independent disaster prevention system," "mitigating disaster occurrences and impacts," "enhancing the effectiveness of disaster prevention and mitigation," and "promoting soil and water conservation management in areas prone to large-scale landslides."

On the basis of the results of determination of areas prone to large-scale landslides and in coordination with the refinement of relevant research methods, the COA continued to implement previously stipulated disaster prevention and mitigation countermeasures in high-risk areas. Over the years we have steadily strengthened disaster response mechanisms and "independent disaster prevention communities" to minimize the adverse impact of disasters and improve the prevention and rescue mechanism for large-scale landslide disasters. In 2021 the COA conducted 16 construction projects, organized

early warning and response mechanisms in 12 areas prone to disasters, upgraded the protection capabilities of 518 households, and offered education and awareness-raising 5,587 man-times.

(2) Comprehensive watershed management and erosion control

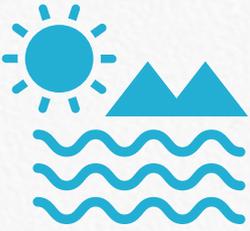
Based on the concepts of overall planning and management of watersheds, and taking into account the principles of national land restoration—including respect for nature and not resisting the forces of nature—in 2021 the COA implemented disaster prevention and mitigation measures including (i) debris flow disaster prevention, (ii) conservation of reservoir watersheds, (iii) regional soil and water conservation, (iv) construction of green environments, and (v) management of "designated soil and water conservation areas." The objectives of these measures are to conserve soil and water resources, protect water sources, improve the surrounding scenery, avoid or mitigate disasters, maintain the safety of slopeland, and encourage the rational use of land.



© Phase 2 of infrastructure work for torrent management downstream from the Chuhuo Bridge (torrent check dam project).



© Phase 2 of infrastructure work for torrent management downstream from the Chuhuo Bridge.



The COA undertook 454 construction projects for debris flow disaster prevention in important reservoir watershed areas, stabilizing about 6.18 million cubic meters of soil. We also completed 15 watershed survey projects. The result of these measures was to effectively reduce debris flow disasters and to conserve soil and water resources.

In addition, the COA improved roads outside of readjusted farmland areas. Taking the roads most in need of improvement as the focus, in 2021 we undertook 525 construction projects and improved about 329 kilometers of road. These projects included strengthening soil and water conservation facilities, maintaining slope stability, and improving road drainage facilities, in order to maintain the stability of the road bed and smoothness of traffic flow.

(3) Water environment infrastructure

In 2021 the COA worked on the "program to strengthen conservation and management of reservoir watersheds" under the "Water and Development" policy axis of the "Water Environment Infrastructure" part of the "Forward-looking Infrastructure Development Plan." Work mainly involved strengthening restoration of landslide areas and prevention of debris flow disasters in reservoir watersheds, using landslide handling engineering methods to strengthen vegetation growth on bare land in order to stabilize landslide areas and reduce debris flow disasters. At the same time, with respect to changes in torrents, we adopted appropriate sediment control measures to effectively block the production and movement of sand and soil, to reduce scouring and collapse of banks, and to reduce the flow of sediment into reservoirs, thereby extending the operating life of reservoirs. While managing this work, the COA also implemented the "public participation mechanism" and the "ecological screening checklist mechanism," to take into account environmental protection and build diversified ecological habitats. A total of NT\$410 million was appropriated for this program in 2021 under the Phase 3 special budget for the Forward-looking Infrastructure Development Plan. We stabilized 3.277 million cubic meters



- ◎ A torrent management project downstream from the Shenyi Bridge in the Alishan Forest Recreation Area; the project utilized 66,100 square meters of collapsed rock to reduce the amount of concrete used and achieve the dual goals of disaster prevention and creating new scenery in the Area.

of soil and restored 115.5 hectares of landslide areas, thereby strengthening soil conservation and water storage in reservoir watersheds.

In addition, in the upstream sections of reservoir watersheds, in order to accelerate handling of landslide restoration in national forest as well as torrent management (with the goal of reducing the flow of sediment into reservoirs and extending their operating life), the COA strengthened soil conservation and water storage in national forest in upstream sections of reservoirs. In 2021 we conducted 38 infrastructure projects, handled about 64.8 hectares of landslide land, and stabilized about 1.271 million cubic meters of sand and soil with potential for downward movement; the total cost of implementation was roughly NT\$350 million.

The COA also implemented the "Overall Improvement Plan of County and City Management of Rivers and Regional Drainage," which is under the policy axis of "Water and Safety" of the "Water Environment Infrastructure" part of the "Forward-looking Infrastructure Development Plan." In terms of farmland water conservancy, this involved flood prevention work while also taking into account improvement of the environment. The budget for the COA is NT\$1.24 billion, and the plan will run from 2017 through 2025. We also implemented "improvement of farmland drainage, ponds, and irrigation channels" in coordination with management of rivers and drainage by local governments (municipalities, cities, and counties). For a given watershed area, if improvement of agricultural production area



drainage, ponds, and irrigation channels can help reduce flooding, consideration is given to increasing the drainage capabilities for floodwaters in that agricultural area, to maintain the smooth functioning of farmland drainage channels during flood season. Such measures can reduce flood damage to farmland and minimize flooding time as well as ensure food security for citizens and stabilize summer vegetable production. Thus far the COA has already improved 132.5 kilometers of drainage channels.



◎ Improvement project for the downstream section of drainage facilities in Shazigang, Yilan County.



◎ Improvement project for irrigation control watergates in Xizhouwei, Nantou County.



◎ Improvement project for the Babao 1 main irrigation trunk line in Changhua County (Phase 6 of work on the Ershui section).

Moreover, with respect to soil and water conservation on upstream slopeland for flood mitigation from rivers and drainage systems managed by local governments around Taiwan, the COA undertook management and restoration work for landside areas and areas with high risk of debris flow in watershed areas. Also, with respect to torrents beyond river boundary points, we undertook conservation and management work in order to increase the

stability of waterway banks and flood drainage capacity. In 2021 NT\$452 million was budgeted to slopeland soil and water conservation work; it was estimated that 520,000 cubic meters of soil would be stabilized, but in fact stabilization was completed on 666,000 cubic meters, or 128.07% of the original estimate. In this way the COA has effectively mitigated flooding that can be caused by debris flow during typhoons or torrential rain.

With regard to environmental improvement infrastructure projects in aquaculture areas, in 2021 the COA invested NT\$356 million and approved subsidies to five local governments (including Yilan County) to do improvement infrastructure projects for connections for regional drainage management in nine locations in aquaculture areas and to purchase 21 mobile water pumps, increasing the protected area in aquaculture areas by 285 hectares.

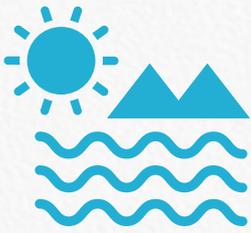


◎ Improvement project for the 8th central drainage channel for the Shuangchun aquaculture area in Tainan City.



◎ Improvement project for the north side drainage channel for the Haiwei drainage system.

As for the policy axis entitled "Water and Environment" under the "Water Environment Infrastructure" part of the "Forward-looking Infrastructure Development Plan," the COA conducted fisheries environmental construction work. From 2017 to 2021 subsidies were approved for a total of 29 projects of the governments of Keelung City and 12 other local governments, with subsidies totaling NT\$1.805 billion and the overall completion



rate reaching 94.65%. In 2021 three "water environment bright spots" and 1.01 hectares of water recreation space were constructed. In all a total of 35 water environment bright spots, four "peripheral water environment bright spots," and 49.05 hectares of water recreation space have been constructed and 736 meters of natural seacoast have been restored.



© Improvement project for water area peripheral services facilities in Hsinchu City.



© Improvement project for water area peripheral services facilities in Hsinchu City.

(4) Dredging of torrents

In order to avoid channel fill deposit caused by earthquakes and typhoons that could lead to losses of life and property among citizens, in 2021 the COA conducted 57 torrent dredging projects, dredging up 2,412,000 cubic meters of soil and debris and restoring their capacity to drain floodwater.

The COA continued, on the basis of the strategies and methods in the "Program to Strengthen Dredging in Rivers, Torrents, and Reservoirs," and with attention to torrent management and dredging in national forest, to manage torrents and handle landslides (i) at bottleneck sections of rivers urgently in need of attention and (ii) at important areas where infrastructure or the safety of Indigenous peoples' communities can be affected. We observed the principle of "dredge in the right places, dredge at the right times" and kept a firm grasp on the progress of the work. The goal for 2021 was set at 1 million cubic meters, but in fact the COA actually dredged 1,000,400 cubic meters, exceeding the original target.

(5) Debris flow monitoring and large-scale landslide prevention

The COA announced 1,726 rivers and waterways across Taiwan that have the potential for debris flow, and reexamined and updated the threshold value for debris flow warnings. We also supervised local governments in updating the "2021 debris flow disaster evacuation plans" for 690 communities in 159 townships in 17 counties and cities and approved the "list of protected targets in the impact range of rivers with potential for debris flow," listing data on 46,864 people to be protected near such rivers.

The COA also announced the impact range for areas with potential for large-scale landslides and rainfall warning thresholds for 12 locations (Category 1), and conducted evacuation tasks in coordination with the announcement of debris flow warnings.

In addition, the COA trained 386 specialists in debris flow natural disaster prevention, and currently there are 3,254 such specialists in Taiwan. We assisted local governments at all levels in debris flow disaster prevention work including autonomous rainfall measurement, disaster situation reporting, and identifying persons who need protection and evacuation. We promoted the formation of "independent disaster prevention communities 2.0," holding 184 war games and 56 actual exercises, while upgrading independent disaster prevention equipment in 50 locations. Moreover, the COA completed instrument testing and operational maintenance tasks for 76 debris flow observation stations and 64 automated rainfall stations, integrated the 572 automated rainfall stations on slopeland in Taiwan, and interfaced with the Central Weather Bureau's precipitation forecasts, in order to announce debris flow warning information to local governments in a timely manner.



© The 2021 flag presentation and awards ceremony for specialists in debris flow disaster prevention.



(6) Watershed management and disaster prevention in national forest

In 2021 the COA appropriated NT\$764 million to complete 150 construction projects (i) to handle landslides in upstream sections of national forest; (ii) to build sedimentation prevention infrastructure; and (iii) to conduct maintenance and emergency response measures for forest roads. These projects were conducted by taking the watershed as the unit of management and were based on the results of watershed risk evaluations and surveys of landslides in national forest. They were also conducted in coordination with the implementation of eco-friendly mechanisms and efforts to reduce the environmental impact of infrastructure projects as well as the comprehensive implementation of ecological review for the complete life cycle of projects. They aimed at the same time to deal with disasters caused by typhoons. We handled a total of 87.14 hectares of landslides, did maintenance work on forest roads and slope management over 68.62 kilometers, and stabilized about 3.136 million cubic meters of soil and sand from shifting downward.



© 2021 management project for gullies in forest compartment No. 5 in the Luanda area; work was done to consolidate the waterway bed to guide water flow in the right direction and was conducted in coordination with the policy of making good use of thinned Japanese cedar to maintain the surrounding habitat.

(7) Management and supervision of utilization of slopeland

Categorizing slopeland by the limitations on its permissible use, setting norms for agricultural activities on slopeland, and pragmatically reassessing the scope of slopeland, in 2021 the COA completed comprehensive reassessment of the scope of

slopeland in Chiayi County, Changhua County, Yunlin County, Hualien County, Pingtung County, and Keelung City. We have also demarcated "designated soil and water conservation areas," for which we devise long-term soil and water conservation plans to strengthen soil and water conservation work. In 2021 the COA completed comprehensive reassessments of long-term soil and water conservation plans for five areas and abolished 20 areas.

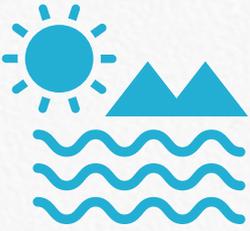
The COA gave approval in 2021 to 4,831 soil and water conservation plans (including simplified soil and water conservation statements), and there were a total of 4,302 inspections. Since 2019, the frequency of satellite monitoring reports has been increased to once a month. As for investigation and banning of illegal slopeland use, in 2021 there were reporting and crackdowns in 2,173 cases, with administrative fines totaling NT\$107.77 million, and 102 cases transferred to judicial authorities for investigation. The COA also strengthened the public's concepts about maintaining safety in the development and utilization of slopeland.

4 · Preventive Measures against Major Animal and Plant Diseases and Pests

(1) Response to African swine fever

Since the reporting of the first case of African swine fever (ASF) emerged in mainland China on August 3 of 2018, there have been outbreaks of ASF in 14 Asian countries. Prevention measures in Taiwan in 2021 were focused on "keeping the disease outside the nation's borders, taking preventive measures within the nation's borders."

In terms of "keeping the disease outside the nation's borders," the COA coordinated with border agencies to strengthen inspection and guidance tasks for all high-risk channels for the transmission of ASF into Taiwan, including inbound travelers, goods, express delivery and



postal parcels, e-commerce platforms, and fishing boats.

In terms of "taking preventive measures within the nation's borders," the Central ASF Emergency Operation Center was founded to coordinate with local governments in conducting simulation exercises about situations they might face in the event of an outbreak of the disease. The COA also adopted a number of important measures, including creating an early warning system, performing on-site visits and providing disease prevention guidance at livestock farms, promoting the use of livestock health declarations, strengthening sanitation inspections at slaughterhouses, and guiding the transformation of farms that feed pigs with swill.

In order to monitor and control the movement of pigs at livestock farms in a timely manner in the event of an outbreak of ASF, the COA required the compulsory installation of GPS on transport vehicles for live pigs and pig carcasses, viscera, and cut parts. The COA also pro-actively conducted checks in order to track the movements of live pigs and pork products in real time.

In February of 2020, the GPS data interfacing of rendering material transporting vehicles between the Environmental Protection Administration's information system and the COA's integrated GPS information platform was completed via interagency cooperation to share GPS data. This completed the construction of a comprehensive GPS monitoring system for vehicles transporting "pigs, pig carcasses, and dead pigs."



© Random inspection of the installation and use of a GPS system on a pig transport vehicle.

(2) Eradication of classical swine fever

There have been no confirmed cases of

classical swine fever (hog cholera) in Taiwan since 2006, indicating that the risk of the occurrence and transmission of this disease is low. To achieve the goal of eradicating classical swine fever, in 2021 the COA adopted the "program for eradication of classical swine fever and inspection and quarantine for prevention of major pig diseases." The program will be implemented in three phases. In Phase 1 (2021-2022), the main strategic points are comprehensive immunization, environmental risk monitoring, and communication with the pig industry. According to the monitoring results for 2021 (including sentinel pig experiments and tests on dead pigs in rendering plants, culled sows at slaughterhouses, wild pigs, and the semen of breeding males) no cases of classical swine fever in the field were observed. The COA will continue communicating with the industry about the aforementioned scientific data in order to steadily reach a consensus on stopping vaccinations for classical swine fever.



© Protective barriers used to prevent birds from entering livestock farms.

(3) Prevention of avian influenza

Based on the principles of epidemiology, the COA continued active surveillance for avian influenza (AI) viruses at poultry farms and handling centers for native chickens and among pet birds, migratory birds, and wild birds. A total of 34,638 samples were collected and examined in 2021. From October to March, when there is higher vulnerability to AI outbreaks, we implemented strengthened surveys of wild birds, migratory birds, and domestic poultry, to facilitate the effectiveness of early warnings. Moreover, industry associations supervised strengthened cleaning and disinfection of poultry farms within AI hotspots, while disinfection of



areas surrounding these farms was performed by vehicles belonging to local animal disease control centers. At the same time the COA used tracking and analysis to improve the disinfection effectiveness of disinfection vehicles. We also initiated joint inspections by the central and local governments to audit biosecurity of poultry farms, with punishments for those who do not conform to the regulations, to ensure that poultry farms can meet the biosecurity criteria during the raising term, thereby reducing the incidence of AI infections. In 2021 a total of 25 farms were infected with high pathogenicity avian influenza (HPAI) outbreaks, and 239,179 poultry were culled. These figures decreased by 56.9% and 62.2%, respectively, compared to 2020, and were the lowest since 2015, indicating that disease prevention measures were effective.

was completed. The Bureau of Animal and Plant Health Inspection and Quarantine coordinated with faculty and students at schools of veterinary medicine at universities as well as with private veterinarians to organize vaccination teams, and by May 7 vaccinations had been completed for 167,650 head of cattle on 1,292 farms on the island of Taiwan and in the Penghu Islands. On June 4 Kinmen County completed booster shots for 5,503 head of cattle aged six months or older at the appropriate stage in the immunization cycle. The dairy industry also cooperated to strengthen disease prevention measures, and there were no severe side effects in the production or health conditions of vaccinated cows. During this period the supply of dairy products to the market was stable, and after the outbreak was under control, the COA notified the Executive Yuan to disband the Central LSD Emergency Operation Center.



© President Tsai Ing-wen conducts an on-site inspection of the lumpy skin disease situation.

(5) Monitoring, early warning, and prevention of plant disease and pests

In 2021, the COA conducted monitoring and surveying for early warnings and alerts for plant diseases and pests, including rice blast and the oriental fruit fly, on 92,934 occasions. Based on the results of this monitoring, we



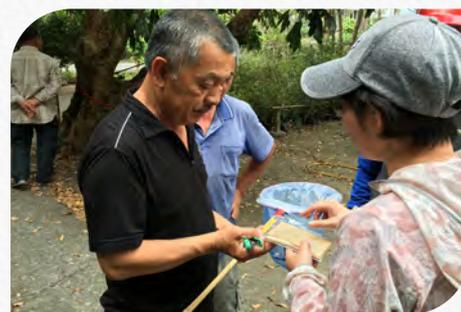
© Launching of the Central Lumpy Skin Disease Emergency Operation Center.



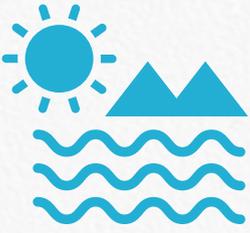
© The *Anastatus japonicus* wasp: natural enemy of the lychee giant stink bug.

(4) Controlling lumpy skin disease

On April 15 of 2021 cases of lumpy skin disease (LSD) were confirmed at a cattle farm in the Linkou District of New Taipei City. The COA immediately reported to the Executive Yuan to establish the Central LSD Emergency Operation Center, and on April 31 culling of 31 head of cattle that had or were suspected of having LSD



© The Miaoli District Agricultural Research and Extension Station guided farmers in releasing *Anastatus japonicus* wasps.



issued 101 early warnings and alerts, and through the "Field-Side Assistance" system sent 21,491 emails, 45,467 text messages, and 10,433 faxes to remind farmers to prevent damage from these diseases and pests. We also monitored and surveyed fall armyworms using sex pheromones in production areas of high-risk host crops, issued early warnings based on the density of adult fall armyworms, and enhanced guidance of farmers in doing field surveillance in new crop seasons so they could discover armyworms early on and take emergency preventive measures. In 2021 control tasks were done on 3,666 hectares of land. Moreover, we organized 100 educational and lecture events to instruct farmers in integrated pest management techniques.

The COA also promoted integrated control measures to control lychee giant stink bugs in agricultural areas. These included collecting 2.52 million stink bug egg masses by offering rewards, releasing 5.03 million *Anastatus japonicus* wasps (natural enemy of the stink bug), and holding 39 lectures and demonstrations. The COA also designated synchronized control periods for four zones (Kaohsiung-Pingtung, Chiayi-Tainan, Taichung-Changhua-Nantou-Yunlin, and Miaoli) in which we strengthened cooperative control across cities and counties and worked with relevant ministries and agencies to simultaneously promote relevant measures to raise the overall effectiveness of prevention work. Analyses showed that in 2021 the average density of adult lychee giant stink bugs was 11.37% lower than in 2020, indicating the effectiveness of control measures.

(6) Preventing invasion by major diseases and pests from abroad

The COA amended the inspection and quarantine requirements for the importation of animals, plants, and their products in response to international epidemic conditions. We conducted quarantine inspection on 208,685 batches of imported plants and their products and 201,719 such inspections on animals and their products. Our 56 quarantine detector-dog teams conducted border inspections and intercepted illegal agricultural products in 3,200

cases, totaling 7.9 metric tons. In addition, in response to the COVID-19 pandemic, the COA authorized the national phytosanitary agencies in exporting countries to handle inspection and quarantine treatment of export products and production area audits. These included cherries from Türkiye; blueberries from Peru; betelnuts and mangosteens from Thailand; apples from the USA, Canada, Australia, New Zealand, France, Germany, Poland, Italy, Chile, and South Africa; fresh fruits that are host to the peach fruit moth from Japan and Korea; muskmelons from Honduras; pear scions from China and Japan; lily bulbs from the Netherlands and Chile; anthurium nursery stock from the Netherlands; and carrots from Australia. The COA also adopted enhanced measures for inspection and quarantine of imported agricultural products.

5 、 Training New Farmers and Diversifying the Use of Rural Labor

(1) Training new farmers

● Strengthening training at the school side

The COA has built a cooperation mechanism with agricultural schools and in 2021 provided "agricultural career exploration" to 578 students at nine schools. The COA also continued to conduct the "incentive program for high school students to go into agriculture," with 738 high school students signing up for agricultural career exploration from September of 2020 through October of 2021 (the 2020 academic year). We also sponsored publicly funded classes of university students studying agriculture, and so far 236 graduates of such classes have gone into agricultural operations. For the 2021 academic year there were a total of eight classes, with 250 students, at six schools.

● Applying guidance resources at the workplace side

The COA promoted guidance of the "Top 100 Young Farmers," helping a total of 589 people in five groups. In addition, in 2021



we guided 17 local platforms for exchanges of information among young farmers and 196 branch associations, with a total of 6,182 people participating, thereby guiding cooperative improvement among young farmers. Also, in 2021 the COA set up "training bases" at the Taiwan Agricultural Research Institute, the Hualien District Agricultural Research and Extension Station, and National Ilan University. In addition, we subsidized 63 purchases of updated agricultural production and marketing facilities (equipment) by 30 of the Top 100 Young Farmers.

- Establishing a learning network and improving the management skills of young farmers

The Farmers' Academy offered introductory, basic, advanced, and high-level training courses, training 2,653 participants in 113 sessions, as well as priority courses for different groups (including women, farmers in the prime of life and middle age, indigenous peoples, and new immigrants) that trained a total of 465 participants in 18 sessions. We also organized four sessions of courses on smart agriculture, training 113 participants, and eight sessions on e-commerce, training 339 participants.

- Expanding the program "Loan for Young and Middle-aged Adults Working in Agriculture" to provide needed capital for agricultural operations

The COA continued to provide the "Loan for Young and Middle-aged Adults Working in Agriculture" to ordinary young farmers and the Top 100 Young Farmers, offering a maximum of five-year interest-free loans of NT\$2 million and NT\$5 million, respectively. The COA provided interest subsidies during the interest-free period, and the interest rate was 0.54% after the relief period. In addition, to assist middle-aged farmers (aged 45 to 55) to continue to farm for a living, on August 1, 2021 they were incorporated into the list of potential loan recipients. In 2021 the COA provided NT\$4.825 billion in capital for 3,351 young farmers and NT\$299.19 million in capital for 274 middle-aged farmers.



◎ Students at the Farmers' Academy learn how to operate agricultural machinery.



◎ The publicly funded class for students of agriculture at National Pingtung University of Science and Technology.

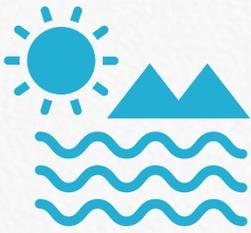
(2) Strengthening manpower guidance

- The "Agricultural Elitist Training Project"

In 2021 the COA's "Agricultural Elitist Training Project" sent 14 persons overseas (13 for study abroad, one for short-term research) to countries including the USA, Japan, Germany, France, the UK, and Norway. Research projects covered topics including breeding technology, strategies to cope with climate change, post-harvest handling of crops, prevention of disease and insect pests, and sustainable agricultural development.

- Use of overseas Chinese and foreign manpower

In conformance with the New Southbound Policy, the COA has recruited young people from New Southbound Policy partner countries to come to Taiwan to take agriculture-related courses in universities or colleges, with agricultural career exploration combined into the curriculum. We also made it possible for these students to do part-time agricultural work outside of class or during winter or summer vacation, enabling them to learn about farm operations and management,



while facilitating the recruitment of talent by agribusinesses and farms. In 2021, 180 overseas Chinese and foreign students took part in agricultural career exploration.

- Providing "agricultural operational preparatory funds" and guiding new farmers to stabilize their operations

To stabilize the lives of new farmers, lower operating risks, and create a positive agricultural operating environment, starting in the second half of 2020 the COA began promoting the program for "agricultural operational preparatory funds" for young farmers. These are available to new farmers who have graduated from publicly funded agricultural classes, have graduated from departments of agriculture, or who have been through professional agricultural training. These farmers can receive a maximum of NT\$360,000 or NT\$720,000 in preparatory funds over two years, to help them remain in farming as a profession. As of 2021 payments were made to a total of 349 persons.

- Agricultural lectures

To develop manpower for rural communities, the COA conducted eight sessions of grass-roots agricultural lectures to strengthen competency in areas including agricultural aesthetics, e-commerce marketing, and financial management. The lectures increased the efficiency of agricultural workers; improved the marketing, management, and creative thinking of agricultural production-and-marketing groups; and cultivated talent for agricultural transformation.

(3) Use of diversified agricultural labor to deal with the agricultural labor shortage

With "increasing the supply of manpower" and "reducing the demand for manpower" as the main strategies, the COA has adopted multiple measures to diversify sources of labor. In terms of "increasing the supply of manpower," the COA organized a variety of agricultural manpower teams to draw domestic manpower into agriculture. In

2021 the COA formed 42 agricultural technical teams, agricultural cultivation teams, industrial expert teams, and open-prison teams, with 1,968 participants who worked over 310,667 man-days, providing services to over 6,134 farms.

In addition, the COA began permitting the hiring of "agricultural foreign workers," under the principle that such workers should only be used in a supplementary fashion, to meet demand for agricultural labor in Taiwan and undertake work in the "Outreach Agricultural Services Program," animal husbandry, farming (orchids, edible mushrooms, and vegetables), and aquaculture. With respect to seasonal labor shortages, we approved hiring of 981 foreign workers in 138 cases under the Outreach Agricultural Services Program; they are assigned to farms to help with agricultural work. As for industries with long-standing labor shortages, including farming (orchids, edible mushrooms, and vegetables), animal husbandry, and aquaculture, operators were allowed to independently hire foreign workers; in 2021 approval was given for such hiring in 1,350 cases.

In terms of "reducing demand for manpower," the COA promoted outsourced mechanized cultivation services and developed labor-saving assistive devices, in order to reduce the burden on human labor. Following assessments of regional industrial demand, we introduced labor-saving agricultural machinery, as well as planned for human-machine collaboration and human-machine sharing economy services, in order to construct a labor-saving environment. In 2021 the COA expanded the organization of outsourced mechanized cultivation teams and extended this service to industries including miscellaneous grains, vegetables, tea, carrots, fruit trees, taro, and outsourced unmanned aerial vehicle pesticide spraying. In all 12 teams were formed, and they provided outsourced cultivation services on over 2,802 hectares in 2021.

The COA also optimized, on a rolling basis, the allocation and management functions of the "Agricultural Human Resources" platform, and used informatized and systematized methods with respect to the use of databases



for agricultural machinery and human resources in order to effectively keep a handle on labor shortage statistical data and accelerate manpower matchmaking. In 2021, in response to expanded promotion of outsourced mechanized cultivation teams and follow-up demand for allocation of agricultural machinery, we added new functions to and optimized the existing special area on the website for agricultural machinery matchmaking. Farmers experiencing labor shortages or in need of outsourced cultivation can use the Apps on their mobile phones or their computers to conveniently access outsourced mechanized cultivation services or to apply for assistance in finding additional agricultural manpower.



© Outsourced mechanized cultivation teams provide agricultural services.



© Members of agricultural technical teams undergo specialized training to improve service quality.

based agribusinesses and guide industrial transformation, the COA has integrated the Kaohsiung Customs office of the Customs Administration of the Ministry of Finance, the COA's Bureau of Animal and Plant Health Inspection and Quarantine, the COA's Animal Health Research Institute, and logistics firms into the Pingtung Agricultural Biotechnology Park (PABP). They provide services including import and export customs clearance, inspection and quarantine, warehousing, and transport. The goal is to create an optimal investment environment for an agricultural technology industrial cluster that combines R&D, production, and foreign and domestic marketing. As of the end of 2021, 113 firms had moved into the PABP, bringing investment of NT\$14.066 billion and creating about 2,600 jobs.



© The Pingtung Agricultural Biotechnology Park occupies nearly 400 hectares of land, and has already attracted 113 firms to move in, bringing NT\$14.066 billion in investment and creating about 2,600 jobs. It is an important bastion for the industrialization of agricultural technology.

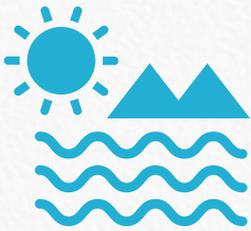


© On November 2, 2021 the COA and the Academia-Industry Consortium for Agricultural Biotechnology Park held a meet-and-greet for businesses, at which awards were presented to 14 firms who participated in green beautification activities. The public and private sectors are working together to create a green biotechnology park in harmony with nature.

6 · Using Smart Technology to Develop Innovative Agriculture

(1) Promotion of agricultural technology industrial clusters

In order to encourage the development of skilled agricultural talent and technology-



More than 90% of the 233 hectares of phase 1 of the PABP was occupied by companies and within the first year since the opening of the 165 hectares of phase 2, one-third of this land has been occupied or pre-leased. In the future the PABP will continue to upgrade its software and hardware services capabilities and implement the "New Agriculture" policy to attract high value-added enterprises such as those practicing smart agriculture and/or energy-saving circular agriculture to move in. The PABP has become Taiwan's one and only technology industrial cluster with "agriculture" as the main axis of development.

Meanwhile, the Taiwan Orchid Plantation (TOP) occupies 175 hectares of land, with greenhouse construction over 95 hectares. As of the end of 2021, 84 businesses had moved into the TOP and built greenhouses, bringing cumulative investment of NT\$21.1 billion. All 84 businesses were operating, with total revenues for the year of NT\$3.6 billion.

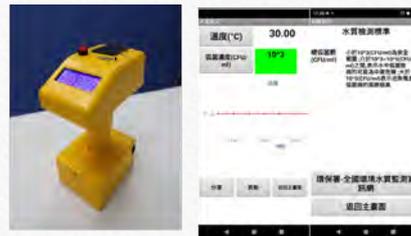
(2) Promotion of smart agriculture

To promote the development of smart agriculture, the COA has built up "smart production" and "digital services" for ten leading industries since 2017. As of 2021 we (i) raised output value by over NT\$1.6 billion in agricultural sites where smart agriculture was introduced; (ii) encouraged industries to invest in innovative R&D through the "Industrial Technology Development Program," with a total of over NT\$610 million invested by businesses participating in the program; (iii) encouraged agribusinesses to invest in the software and hardware of smart agriculture, with total investment thus far over NT\$1.9 billion; and (iv) set up a total of 268 demonstration sites to lead industries to actively participate and invest.

Of the smart agriculture projects, Taiwan's first smart and fully automated production system for PP-bag mushroom cultivation was developed for the mushroom industry. It can stably produce about 26 to 30 bags for mushroom cultivation per minute, saving about three to four workers per production line compared to the traditional production



© Taiwan's first smart and fully automated production system for PP-bag mushroom cultivation.



▲可攜式光學數位病原辨識系統

▲系統APP圖示

© The multiple light source automatic detection device for seafood pathogens.

method. The products are of high and stable quality, and the new technology improves the traditional bag production environment. In addition, the mushroom industry has combined a common information platform with digital twin technology and artificial intelligence as well as the human intelligence of agricultural experts and skilled cultivation practitioners to create innovative management models, passing along the experience of these experts and skilled practitioners in a digital format. Meanwhile, the "multiple light source automatic detection device for seafood pathogens" has been developed for the aquaculture industry. It can automatically detect pathogens without using human observation, and moreover can precisely determine the concentration of pathogens within four to nine hours, much faster than the approximately 30 hours required for the traditional colorimetric method. Results of testing can be directly uploaded to remote servers through the Internet of Things, so that aquaculture operators can immediately access data and respond to it. The device provides early warning 20 hours before the outbreak of a disease, at which time operators can implement preventive water quality management in a timely manner and prevent the outbreak of disease. For the poultry industry, an expert decision-making subsystem offering digital services for production management was constructed. Through expert databases and



system integration, as well as coordinated use of a services interface, inexperienced poultry raisers can be assisted and guided in their management tasks. Through the application of natural language processing, it is hoped that poultry raisers can dispense with the old single point of control App management method and instead adopt a method in which they interact with the system.

(3) Promoting industrialization and valorization of agrotechnology R&D results

In 2021 the COA completed the signing of 553 technology transfer contracts, earning NT\$100.72 million from R&D. Of these, there were 15 technology transfer cases with royalties over NT\$1 million, including the transfer of "highly stable subunit vaccine technology for porcine circovirus type 2," worth NT\$3.333 million. In terms of technology marketing and business matchmaking, in October the COA along with 10 ministries (including the Ministry of Economic Affairs and the Ministry of Science and Technology) jointly held the "2021 Taiwan Innotech Expo," which was held both in-person and online. By combining 3D technology and audio-visual information sharing, the event displayed 35 technologies and eight technology products, and there were 45 business matchmaking discussions. In addition, in November the COA organized the "2021 Asia Agri-Tech Expo and Forum," bringing together 24 agribusinesses from the farming, fisheries, and animal husbandry industries to showcase technologies/products made using commercialized transferred technology that has the potential to be sold internationally. Besides exhibiting technologies/



© The opening ceremony of the "2021 Taiwan Innotech Expo."

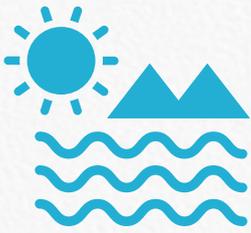


© The opening ceremony of the "2021 Asia Agri-Tech Expo and Forum."

products on the Expo website, we also used the "Asia Livestock Hub—365 eMarket" to enable international buyers to conveniently contact Taiwanese agribusinesses 24 hours a day, thereby assisting in developing overseas markets for outstanding agricultural technology from Taiwan.

(4) Improvement of facilities for basic research

In order to expand services for farmers and upgrade R&D, besides getting funding for scientific research, the COA has also received funding from the Executive Yuan to support medium- and long-term infrastructure projects. The COA has a budget of NT\$1.415 billion for a four-year program launched in April of 2021 for medium- and long-term projects to set up facilities to breed stress-tolerant plant varieties in response to climate change. We implemented multiple projects for the construction of research facilities including a phenomics center, a beneficial insects germplasm and breeding facility, an aquatic germplasm bank, and greenhouses for modeling stress tolerance in multiple environments. The goals are to rectify the problem of the aging of institutional laboratory facilities as well as (i) build upgraded breeding facilities, (ii) strengthen R&D capabilities, (iii) upgrade the level of agricultural technology, (iv) promote the transformation and upgrading of agriculture, (v) increase farmers' incomes, (vi) enable agriculture in Taiwan to transform from "traditional production" to "new value chain industries," and (vii) move in the direction of making agriculture in Taiwan into industries that are technology intensive, high in value-added, and low in pollution.



(5) Providing integrated services for agricultural digital information

● Making agricultural information available to the public

To enhance the transparency of government administration, the COA has continued to collect, collate, and release information to the public, providing it for non-governmental interface applications. By the end of 2021, the COA had provided over 10 million pieces of information in 1,551 categories. We also continued to maintain 40 Open APIs. In 2021 the COA won the Executive Yuan's "Quality Progress Award," while winning "Government Open Data Popularity Awards" for "pet adoption" and "the agriproducts trading situation." In 2021 we organized an open data competition and held an agricultural open data workshop, drawing proposals from more than 60 teams. Through methods such as data mining, data reorganization, and mixing and matching with non-agricultural data, creative products and services with practical value were developed.



© A group photo of all participants in the 2021 agricultural open data workshop.



© A graphic of digital services for matchmaking between agriproduct producers and consumers on the "Agri Beta" platform.

Through the "Agri Beta" platform (the "smart agriculture common information platform"), the COA provided traceability data interface services for farm, fisheries, and animal husbandry products used in school lunches in 3,916 elementary and secondary schools nationwide, building a management mechanism for tracing school food ingredients back to their place of production. We also created digital services for a food ingredients recommendation system ("smart menus") using ingredient names, menus, market conditions, and pesticide residue testing results gathered for statistical compilation and analysis, and the results are already being applied on the "Taoyuan Food Safety Information Platform."

● Building a cooperative platform for agricultural spatial information

The COA's "cooperative platform for agricultural spatial information" incorporates technologies including a mobile App for on-site crop surveys, remote imaging interpretation for crops, and electronic maps. It uses a module for geocoding photographs for location as well as a module for AI interpretation of crop photographs to upgrade the effectiveness of on-site farmland surveys, and provides the COA with ground truth information needed for interpretation of satellite imaging, aerial photographs, and remote sensing data. When an agricultural natural disaster occurs, besides being able to initiate the production of aerial photographs through emergency missions by manned aircraft, at the same time we can use local flights by unmanned aerial vehicles (UAVs) innovatively developed by the COA and the parallel map-making mechanism, as well as on-site survey App location technology. By integrating applications for disaster relief with on-site survey photographs and image interpretation results, the review process for disaster relief can be shortened.

From the second crop season of 2020 through the first crop season of 2021, Taiwan experienced a once-in-a-century drought and launched compensation measures for suspension of irrigation and leaving fields fallow. We also used relevant



© Photograph location module technology.



© Map of the results of on-site surveys of farmland where irrigation was suspended or which had been left fallow.

technology to create a "map of the survey of suspended irrigation and fallow farmland and interpretation results," integrating real-time imaging maps, application data, interpretation results, and photographs from on-site surveys. The survey covered farmland water conservancy operations areas including Taoyuan, Shimen, Hsinchu, Miaoli, and Taichung, producing aerial orthophotos covering 194,000 hectares (ha) and UAV orthophotos covering 17,400 ha, 79,665 farmland on-site survey photographs, and 271,000 items of cadastral data for farmland crop interpretation. An electronic map was provided as the basis for reviews for compensation for farmers whose irrigation was suspended, which not only sped up the process of review and approval, it decreased disputes over crops and land area eligible for compensation, allowing farmers to claim compensation as quickly as possible. It is anticipated that in the future the use of related technology will be expanded to cover applications related to land surface surveys including patrols of irrigation channels, crop surveys, forest protection patrols, and surveys of invasive plants, thereby strengthening the efficiency of on-site surveys of farmland resources.

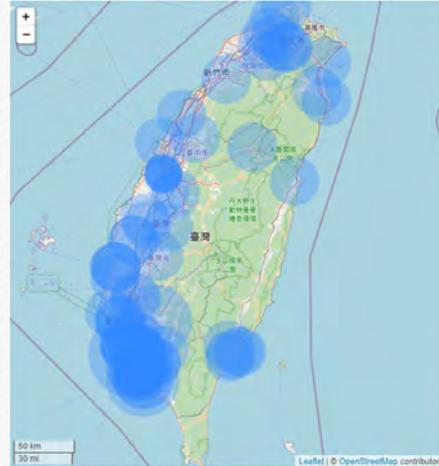
- Modernization of agricultural information
In order to use information technology to assist farmers to access production-and-marketing information, the COA continued to

use the multiple distribution channels of, and cell phone App for, "Field-Side Assistance" to take the initiative to send out customized agricultural information to individuals, such as the transaction prices for fruits and vegetables, reports on the agricultural situation, and information about plant diseases; in 2021 this service was provided over 2.23 million man-times. Moreover, each day, through electronic bulletin boards, we used methods such as audio-visual, picture cards, and electronic scrolling text to transmit information to the operations offices of farmers' and fishermen's associations at all levels, to farmers' service centers, and to supermarkets and other locations. This service supplied information on matters such as important agricultural policies and measures, real-time weather reporting for agriculture, production and marketing, and farmers' welfare. In addition, in 2021 the "agriculture and food production-and-marketing information integrated platform" added an advanced search function for major imported and exported agriproducts, which can be analyzed separately using the CCC Code or the trading country. This enables users to get an in-depth understanding of trade volume and shares from different statistical perspectives, and it uses stacked bar graphs to provide agriproduct operators with diversified search services.

In order to improve the efficiency of agricultural work, the COA developed the "Farm Production Management System" fieldwork mobile management system, and pro-actively promoted it for use by agribusinesses and farm households. As of 2021 this system was being used at a total of 14,900 farms, with 17,800 users, with the managed area of cultivated land reaching 103,000 hectares, and it has effectively increased farmers' competitiveness. As for the livestock industry, in order to promote informatization of operational management in pig-raising, we also developed the "Pig Farm Production Management System," which provides services including real-time work records and reminders of irregularities, and which can also produce multiple data



© Equipment for manufacturing of fertilizer processed from chicken manure.



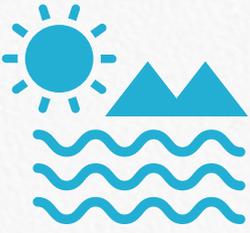
© "Hot spot" implementation chart.

7、Putting Animal Protection into Practice

(1) Source management of dogs and cats

In response to the adoption of a "No Kill" policy at animal shelters and in order to remedy gaps between rural and urban areas and differences in resources, the COA continued to refine its systematic and scientific stray animal control measures to control dog and cat populations. In 2021, we guided 22 local governments to demarcate 162 "hot spots" with risk of human-dog conflict. Within the hot spots, personnel visited each household, reporting on pet registration, neutering, or neutering waivers for domestic dogs. In addition, homeless dogs were caught and neutered, while dogs that posed a public safety problem were taken into public animal shelters. As of the end of 2021, government personnel had completed 6,080 home visits, inventoried 1,596 domestic dogs, and found 9,965 homeless dogs, thereby dealing with 90.79% of all dogs in hot spots.

序號	縣市	鄉鎮	熱點名稱	熱點範圍	熱點數量	熱點面積	熱點人口	熱點狗數	熱點貓數	熱點狗貓總數	熱點狗貓總數佔比
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shelters by citizens. In 2021, we assisted in the construction (or renovation) of public animal shelters in 16 locations, and upgraded one shelter to an environmental education venue. In 2021 the government caught 21,333 dogs, a decline of 6,181 compared to 2020. Meanwhile, 22,286 animals were adopted from shelters, an adoption rate of 69%, which was 19% higher than in 2020.

(3) Humane management of economic and experimental animals

In 2021 the COA supervised local governments in making inspections of animal transport and slaughtering operations on 245 occasions, and held 73 lectures for animal transport personnel and slaughtering personnel, with 990 people earning lecture-attendance certificates. Moreover, the COA continued to undertake education and training related to humane management at institutions that use animals for scientific purposes, and in 2021 conducted 71 on-site inspections of such institutions and held three lectures to promote the principle of the 3Rs (reduction, replacement, and refinement), with a total of 489 attendees. In addition, the COA continued to conduct inspections and guidance for performing animals nationwide, doing so on 58 occasions.

8 \ Promoting Rural Regeneration

(1) Continued support for the program "Social and Cultural Survey of Rural Taiwan"

The COA partnered with the Academia Sinica to continue the program to do a long-term field survey of rural Taiwan based on the four main aspects of "the environment," "making a living," "society," and "culture and daily life" and 24 fundamental topics. The program has collected more than 8,978 questionnaires and conducted in-depth interviews more than 3,055 man-times. Results of the survey will contribute to concrete reform advice and serve as reference in the government's rural policy making process.

(2) Rural manpower training and education extension programs

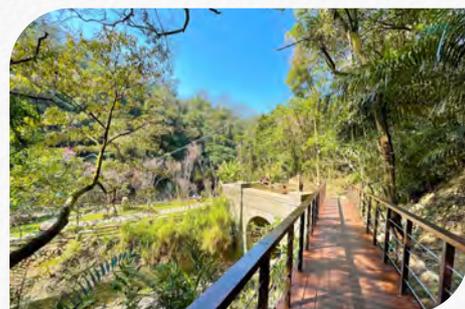
In order to deepen the supply of skilled people at the local level, the COA has offered training 163,282 man-times in 2,675 communities (63.21% of all rural communities in Taiwan), and has approved 967 Rural Regeneration plans. Moreover, through grass-roots education and programs such as the "Rural Up" project for college and university students returning to rural communities, the COA has assisted a total of 836 young people to create new value with innovative operating models.

(3) The "Cross-regional Rural Industry Plan and Regional Shining Spot Plan in Rural Area"

The COA has approved 36 "Shining Regions" for themed development, combining resources of rural industries, academia, communities, and government for rural development, including 122 environmental improvement projects, 13 agricultural production technology projects, and 262 software projects.

(4) The "Integration Counseling Program on Rural Community Enterprise"

For this program the COA has selected outstanding agricultural production or operating entities with potential and guided them to transform into the organizational forms of companies or cooperatives. We strengthened their commercial business operations and upgraded their capacity for innovation, broadening their impact on society and the environment. The COA has increased the overall production capabilities and production value of rural industries by guiding



© The project to improve the environment along the Xingsheng Railway in Sanyi Township won a Golden Quality Award for Public Construction.



◎ A group photo of representatives of award-winning communities at the awards presentation ceremony for the "2nd Golden Village Competition."

a total of 155 outstanding rural enterprises, and it is expected that businesses to be guided in 2022 will be chosen in January of that year.

(5) The "2nd Golden Village Competition" activity and awards presentation ceremony

On February 24, 2021 the COA launched the "2nd Golden Village Competition" activity. A total of 784 rural communities participated, with 23 winning awards. The awards presentation ceremony was held on December 21 of the same year. President Tsai Ing-wen personally attended to present awards, affirming the value of the Golden Village Competition and the joint efforts of the central and local governments. It is expected that efforts will continue to be made in the area of Rural Regeneration and that the development experiences of other countries will be taken into account, to create new value and well-being. In the future, arrangements will be made for representatives of award-winning communities to go to Germany to engage in exchanges with rural communities there.

(6) Guidance of fishing communities to implement community sustainable development

The COA commissioned universities to form guidance teams which visited 52 fishing communities to guide their community development associations and industry and fishermen's organizations to engage in community revitalization, strengthen the ability of residents to take autonomous action, deepen community organizational capabilities, and increase willingness to revitalize fishing communities. Moreover, we provided particular "main point" guidance in 16 fishing communities, providing them with assistance in three phases (preliminary phase, robust phase, mature phase) depending on their individual development conditions. Based on the special character of local resources, the COA created "bright spots" for development of fishing community tourism, training of youths, and aqua-food education, with the goal of improving fishing community economies and the quality of life of their residents.



◎ The "fisherman's lifestyle" experiential activity in the Xingang Community in Kaohsiung.



◎ An experiential aqua-food education activity jointly held by the Kaohsiung Mituo Fisheries Association and the Nanliao Community.

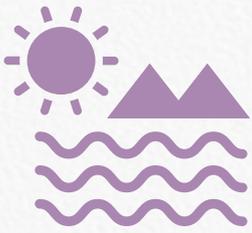
Chapter

04

Upgrading Industrial Competitiveness







Chapter 04

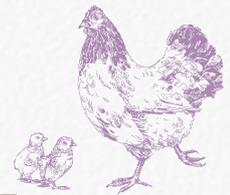
Upgrading Industrial Competitiveness



1 、 Expanding Organic Agriculture and Eco-Friendly Farming

Faced with major environmental issues like climate change and net zero emissions, organic agriculture will play a critical role in agricultural adaptation strategies. In terms of production guidance, the COA, in accordance with the legislative intent of the "Organic Agriculture Promotion Act," has continued to offer guidance policies including incentives and subsidies for organic agriculture, organic certification and testing fees, agricultural machinery and processing equipment, and greenhouses and net greenhouses. In 2021 6,857 households benefitted from such policies. In terms of marketing and promotion, the COA has guided the setting up of special areas for organic agriproducts in 204 sales outlets, the founding of organic farmers' markets in 14 locations, and the establishment of 112 e-commerce businesses for organic agriproducts. We have also incentivized the expanded use of domestic organic food ingredients in the food and beverage industry, with restaurants participating in three systems for safe food ingredients: "Organic Gourmet Restaurant," "Green Dining Guide," and "Traceable Agricultural Products Restaurant." In addition, with respect to student lunches, organic ingredients are used in the lunches for 1.52 million students in 2,842 middle and primary schools in 21 localities (municipalities, cities, and counties), with weekly supply volume exceeding 232 metric tons. The use of diversified methods to expand consumption of organic foods has provided impetus to the growth of organic agriculture.

As of the end of 2021, a total of 11,765 hectares (ha) of farmland had been certified as organic, with a further 5,162 ha registered as being under "eco-friendly farming," for a total of 16,927 ha, which accounted for 2.14% of all cultivated land in Taiwan. For the year chemical fertilizer use was reduced by 20,000 metric tons and pesticide use by over 220 metric tons.



Taiwan has signed organic equivalency agreements with countries including New Zealand, Australia, Japan, the US, Canada, and India, indicating that organic agriculture in Taiwan is up to international standards and we are able to promote international cooperation and exchanges on issues related to organic agriculture and trade in organic agriproducts.

In terms of livestock, the COA has announced the "Animal-friendly Pig Raising System Definition and Guideline," the "Animal-friendly Egg Production System Definition and Guideline," and the "Animal-friendly Dairy Production System Definition and Guideline" and provided these to businesses for reference in investing in animal-friendly production, thereby guiding industrial transformation. In 2021 one dairy farm applied and met the criteria, while 45 layer hen farms were certified as having an Animal-friendly Egg Production System. Moreover, the COA continued to arrange for policy-oriented special agricultural loans for the Animal-friendly Egg Production System to meet the development needs of this industry. In addition, three producers were certified as producing organic livestock products (covering three products) and one organic livestock processing business was so certified (covering two products). In addition, the COA conducted 58 reviews of documents for label approval for imported organic livestock products, with import volume of about 422.9 metric tons, as well as 20 tests of organic livestock products on sale to the public, with all tested products being up to standards.



◎ A sales outlet holds a promotional activity in its special area for sale of organic products.

2、Promoting Sustainable Fisheries and Improving Fishing Harbor Infrastructure

(1) Conservation of oceanic fisheries resources and management of coastal fishing fleet activities

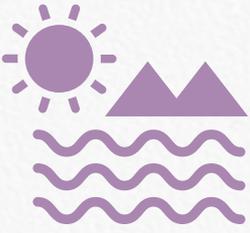
The COA maintains a firm grasp on information related to fishing boat operations through the Fisheries Monitoring Center. In 2021, the COA upgraded overall system functions, including the following supervisory functions: (i) alert for failure of the "Vessel Monitoring System" to report vessel location on stipulated frequencies and alert for E-logbook reporting anomalies, (ii) alert for ports, Exclusive Economic Zones, and ocean regions that pose potential problems, (iii) alert for catch quota usage, (iv) alert when fishing vessels enter designated ports, (v) detection of potential unauthorized transshipments at sea, and (vi)



◎ The COA promotes the setting up of organic farming clusters to create an environment conducive to organic operations.



◎ The COA provided subsidies for fishing boats (rafts) to install "automatic identification system" (AIS) devices.



alert for Transshipment Notification or Landing Declaration reporting deadlines. These upgrades have enhanced the effectiveness of Taiwan's fisheries management.

The COA has also guided fishing vessels engaged in coastal fisheries in installing "Voyage Data Recorders" (VDRs), in order to collect information on the positions and movements of vessels. These data are used as reference for fuel subsidies, at-sea incident investigations, and scientific research. Moreover, in order to enhance the safety of the operational environment for coastal fishing boat crews, we have provided subsidies to 4,146 fishing boats (rafts) to install "automatic identification system" (AIS) devices, improving the safety of at-sea navigation and the ability to avoid collisions.

(2) Promotion of eco-friendly fishing methods

The COA continued to promote "measures for demarcating areas where gillnet fishing is banned and for guiding transformation of the gillnet fishing industry." In 2021 we guided the Kinmen County government in stipulating its fisheries management regulations, and thus far the COA has guided 16 local governments (municipalities, cities, and counties) in demarcating areas (time periods) where/when gillnet fishing is banned. In addition, in 2021 we guided 508 fishing vessels (rafts) that had been engaged in gillnet fishing to switch over to line fishing or trolling; thus far 2,742 gillnet fishing boats (rafts) have been guided to switch over to other methods.



© A fisherman attaches a tag that marks the fishing vessel ID number on a gillnet.



© Clearing away lost or abandoned fishing nets from reefs.

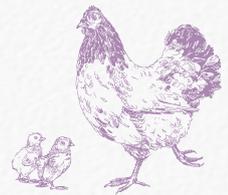
To solve the problem of abandoned, lost, or otherwise discarded fishing gear, the COA promoted a gillnet marking policy which gives users responsibility for managing their gillnets. In 2021 the COA held 16 explanatory meetings nationwide about the gillnet marking policy and reporting of lost gillnets, and 5,244 gillnet fishing vessels completed their fishing gear marking.

The COA also cleared away abandoned fishing nets in artificial reef areas, strengthening clearing in "hot spots" chosen based on scientific research. In 2021 the COA subsidized three local governments and four district fishermen's associations to clean up four artificial reef areas, in order to maintain the ecology on artificial reefs and the effectiveness of their fish aggregation functions.

(3) Upgrading of fisheries industries

To expand offshore net cage aquaculture and promote industrial upgrading, in 2018 the COA set up a disaster-resistant smart net cage aquaculture demonstration site in the seas off of Pingtung County. We invested in scientific R&D to introduce automated and intelligent systems to build a positive management system (germplasm management, disease prevention, use of probiotics), and combined this with submersible assemblies to effectively reduce risk and enhance operational effectiveness. As of the end of 2021 the COA had successfully driven investment in 21 net cage sites in those seas, which are estimated to increase the production value in the aquacultural industrial chain and local fishing communities by NT\$445 million.

In order to encourage the transformation of the traditional aquaculture model, the COA has been guiding aquaculture operators to adopt a scientific aquaculture management model. In 2021 we worked through aquaculture organizations to subsidize 257 sets of demonstration smart equipment. Through real-time information in the cloud, operators can get up-to-the-minute information about their fish ponds, and through a mobile phone App can freely adjust equipment operations. This will help aquaculture operators optimize their production management processes and upgrade the efficiency of their operations.



◎ A depiction of the multi-functional crew services center at Qian-Zhen Fishing Harbor.



◎ A depiction of the multi-functional seafood logistics and marketing center at Qian-Zhen Fishing Harbor.

(4) Improvement of infrastructure at fishing harbors

The Qian-Zhen Fishing Harbor in Kaohsiung was built more than 50 years ago, and its facilities have become dilapidated. In order to provide fishermen with a healthy and safe operating venue and take care of foreign migrant fishing crew in their onshore lives, on December 11, 2020 the Executive Yuan approved the "medium and long-term special infrastructure project at Qian-Zhen Fishing Harbor." The project will include a multi-functional seafood logistics and marketing center, a multi-functional crew services center, improvement of the wharfs, construction of scenery and the recreational environment, and sewer construction.

The Woo-Chi Fishing Harbor in Taichung is the most important coastal fishing base in central Taiwan, and NT\$1 billion was set aside for its improvement and beautification as well as the installation of cold chain, processing, and other equipment. The improvement project for the seaside arts plaza within Woo-Chi Fishing Harbor was completed on December 10, 2020. In addition, detailed design work has been completed for a newly added auction area as well as freezer and ice-making facilities which were added during the basic design review phase. It is expected that when work is complete the whole project will drive growth in the local economy and upgrade the value and competitiveness of seafood products.

The project to build a deep-water wharf at Dong-Gang in Pingtung County called for a wharf of 1,093 meters, as well as anchorages and navigation dredging six meters in depth. The entire project was completed in March of 2021.



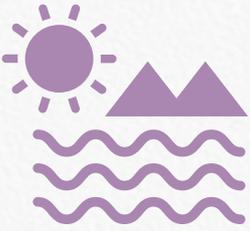
◎ Industry and non-governmental groups were invited to discuss matters related to the rights of foreign fishing vessel crew employed overseas.



◎ The COA invited the Taipei Economic and Trade Office in Jakarta, Indonesia to discuss enhancing the rights of foreign fishing vessel crew employed overseas.

(5) Protection of the human rights of fishing workers

In order to prevent human trafficking, in 2021 the COA incorporated specific indicators of forced labor into reporting processes to serve as reference in making overall determinations as to whether there are cases of human trafficking. Moreover, in June the COA amended the



"Regulations on the Management and Approval of Foreign Flag Fishing Vessels Entering into Ports of the Republic of China," so that if fishing vessel operators are involved in cases of forced labor or human trafficking and charges have been filed by domestic judicial organs or notifications have been made by international fisheries organizations or foreign governments, these vessels will not be granted approval for port entry.

In order to better understand the situation with respect to legal compliance, in 2021 the COA undertook inspection visits of 109 vessels (602 man-times) with foreign crew employed overseas. Violations were discovered in 50 cases, with total fines of NT\$6.15 million and total license suspension time of three months. The COA also evaluated 54 crew recruitment agencies, of which 20 were categorized as Grade A, 28 as Grade B, three as Grade C, and three as Grade D.

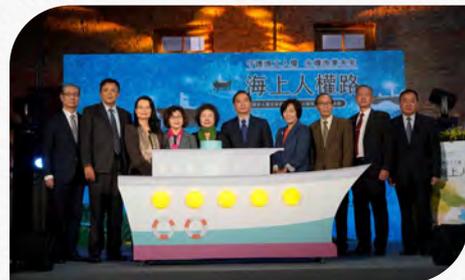
In order to continue to promote the rights of foreign crew employed overseas, in 2021 the COA amended its "Onboard Living Care Service Plan for Foreign Crew Employed Overseas" to clearly stipulate that each crew member is entitled to two liters of drinking water per day and a personal bunk. We also continued to establish recreational centers in fishing ports with relatively more foreign crew for these foreign crew to use when they return to port. In addition, in November the COA commenced a period of public comments for amendments to the "Regulations on the Authorization and Management of Overseas Employment of Foreign Crew Members" to clearly stipulate new measures such as the methods for payment of remuneration, increased amounts of insurance, clear requirements that working hours be recorded in a chart, and increasing the amount of minimum rest hours to 77 per seven days.

The "Action Plan for Fisheries and Human Rights (Draft)" produced by the COA's Fisheries Agency was submitted to the Executive Yuan in May of 2021. The Executive Yuan has already invited its Coordination Committee on Prevention of Human Trafficking and Elimination of Racial Discrimination and the non-governmental members of its Human Rights Promotion Task

Force to discuss this Action Plan, and there have been 13 seminars regarding the draft Action Plan with industry representatives and non-governmental organizations.



◎ The "Seminar on Development of Taiwan's Distant Waters Fisheries and Labor Conditions for Migrant Fishermen."



◎ The National Human Rights Commission of the Control Yuan and the Executive Yuan cooperated to hold an exhibition of achievements of the "Collaboration Program on Improving Fishing Crews' Human Rights."

3、Upgrading of Animal Husbandry

(1) Upgrading the quality and safety of domestic fresh pork

- Separate track management and signage for domestic vs. imported pork

In order to safeguard the rights and interests of consumers, the COA continued to strengthen use of traceability codes on domestic pigs to indicate the source farm in order to differentiate domestic pork from imported frozen meat. In addition, in 2021 we incorporated pigs sold directly to slaughterhouses (without passing through meat wholesale markets) into traceability information. The cumulative coverage rate of domestic fresh pork traceability signage reached over 90% as of the end of 2021.



- Modernizing the transport and marketing of meat products

The COA continued to assist with the improvement of cold chain equipment for the animal slaughtering, transport, and marketing system. In 2021 we completed guidance of the construction of a "meat market cold chain logistics system" at the Nantou Meat Market Company as well as installation of temperature control equipment on 58 carcass transport vehicles and at 145 traditional butchers' stalls. By building a cold chain logistics system the COA can ensure the freshness of domestic pork and extend its shelf life for end users. These measures have all upgraded the quality and safety of domestic fresh pork and enhanced the competitiveness of the domestic livestock industry.

Japan stipulated that as of June 1, 2021 the slaughterhouses, cutting plants, and processing plants in the production process for all meat products exported to Japan must implement the "Hazard Analysis and Critical Control Point" (HACCP) food safety system. The COA issued the "Operation Directions for the Implementation and Measurement of the Certification for the HACCP for Slaughterhouses" and the "Guideline for the Implementation of HACCP for Slaughterhouses" on December 15, 2020, and Taiwan's first HACCP slaughterhouse was certified on April 19, 2021. On May 26, Japan's Ministry of Health, Labour, and Welfare recognized Taiwan as a country implementing HACCP food safety management. By the end of 2021 eight slaughterhouses had received HACCP certification, and another two had completed their documentary reviews. The COA will continue to encourage slaughterhouses to upgrade their sanitation standards for meat products and apply for certification to build high-quality brand names, in order to provide consumers with safe and sanitary meat products.

(2) Stabilization of the supply and marketing of pigs

- Raising the survival rate of pigs

In order to encourage pig farmers to use new production system management models, the COA commissioned the Agricultural Technology Research Institute to produce

a relevant handbook. As of the end of 2021 guidance had been provided to pig farms 1,081 times to promote batch production and target management and ensure accurate production records, in order to use feedback to ensure precise data for decision-making. Pig farmers were also guided to introduce appropriate new facilities (equipment) based on their actual conditions, to effectively launch a positive improvement cycle in the on-site production process for pigs and steadily upgrade production efficiency. There was an increase of 4% in the number of "Marketed-pigs per Sow per Year" (MSY) (an increase of about 0.5 head).

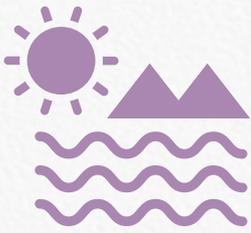
The COA's Livestock Research Institute guided 73 pig farms in 2021 (including ten with low survival rates), with the average pig survival rate reaching 85.68%. The number of weaned piglets produced per sow per year and the MSY were on average 19.73 and 17.57. The MSY at guided farms increased by 1.92 over 2020. On average each farm raised 380 sows, with earnings of NT\$1,500 per pig sold for meat, so that on average each guided pig farm increased its earnings by over NT\$1 million.



© On-site visit to provide guidance to a pig farm.

- The transformation and upgrading of the pig-raising industry

In 2021 the "program for comprehensive transformation and upgrading of the pig-raising industry" employed methods including source adjustments and total volume management to keep the wholesale price of pigs within a reasonable range. For the year the average wholesale price for pigs was NT\$76.7 per kilogram. On May 1, 2021 the "Regulations Governing Mandatory Insurance and Premium Subsidy of Pig Death Insurance" came into effect,



and by the end of the year insurance had been taken out for 11.79 million pigs for a 100% insured rate. In addition, the COA continued to develop export markets for Taiwan pork, and in 2021 Taiwan exported 3,753 metric tons of live pigs, pork, and related products with production value of NT\$829 million. We also promoted modernization of slaughterhouses and upgrading of cold chains, with six pig slaughterhouses receiving HACCP certification and five simultaneously introducing new slaughtering facilities (equipment). The COA moreover guided the modernization and upgrading of pig farms, guiding the installation of modernized equipment on 802 farms at a cost of NT\$762 million, with excellent results.



© A team of experts guides a pig slaughterhouse in introducing new slaughtering, butchering, and processing facilities (equipment).



© A pig farm introduces automated labor-saving equipment (an automated group feeding system).

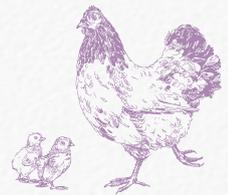
(3) Measures to transform livestock and poultry excreta into resources

The COA in 2020 continued to promote measures to transform livestock and poultry excreta into resources in order to expand the effective usage of such resources. Important accomplishments included the following:

- Wider use of fertilizer products made from livestock and poultry manure: In 2021 9,920 metric tons (MT) of such fertilizers were used (9,434 MT domestically, 486 MT abroad), increasing market pull for them and thereby driving the expansion of livestock and poultry manure processing capabilities while also contributing to raising soil fertility.
- Reuse of livestock excreta as a resource: As of the end of December of 2021 the COA permitted a total of 750,000 MT of livestock excreta water to be used in irrigation. This reduced use of nitrogen fertilizer by 299,000 kilograms, and reduced livestock farms' water pollution control fees while decreasing effluent discharge.
- Reuse of seed sludge from livestock farms in wastewater treatment systems for the petrochemical and optoelectronic industries: 16,970 MT of seed sludge were reused, increasing the effectiveness of wastewater treatment at livestock farms and in industry.
- Reuse of biogas from pig farms for power generation: As of the end of 2021, there were 2.7 million pigs involved in this program. Calculating based on substitution for natural gas, each year NT\$460 million in costs can be saved.

In addition, the Livestock Research Institute and its subordinate branches formed eight livestock pollution prevention guidance teams, providing on-site guidance and consultations for production operations management technology and techniques in areas that include waste reduction at the source at livestock farms, renovating livestock buildings, rearing management, and pollution prevention. In 2021 they guided livestock farms on 575 occasions. They also coordinated with local governments on review and guidance for reuse of 77,000 metric tons of biogas residue for irrigation, as well as coordinated with local governments or industrial groups to hold relevant explanatory meetings, lecture classes, and hands-on demonstrations on 20 occasions.

On November 29, 2021 the Livestock Research Institute and the Trade Council of



Denmark, Taipei jointly held an international conference entitled "Denmark-Taiwan Net Zero Agriculture 2050 Part II: Biogas and Its Application." At the event there was cross-ministerial discussion of how to transform livestock and poultry excreta into a resource and on carbon reduction strategies. More than 20 organizations and businesses from Taiwan and Denmark (including the Environmental Protection Administration of the Executive Yuan, Taiwan Sugar Corporation, the Industrial Technology Research Institute, the Circular Taiwan Network, and the COA) attended and more than 10 papers, plans, or reports on accomplishments were presented. More than 150 people participated in person or online, and through sharing of their policies and precedents and mutual learning, the two countries acquired reference material for policy promotion.



© Electrical power generated from biogas is used to warm pig buildings.

(4) A vertically integrated operating model for production and marketing in the poultry industry

As a result of the introduction of fast food into Taiwan in 1984 and increasing demand from outside diners (people who buy cooked food outside the home) which arose as a result of urbanization, demand arose in the food-and-beverage industry for standardization and a high level of sanitation for upstream raw materials, causing the broiler chicken, native chicken, and water fowl industrial chains to move in the direction of vertical integration combining upstream and downstream links. Contracts are used to require poultry farm operators to produce chickens that meet the specifications of slaughterhouses. These contracts can be divided into three types: outsourced raising, guaranteed price, and market price. Statistics show that in

2021 over 95% of broiler farm operators and contract raising operators signed contracts, while the figures for native chickens, ducks, and geese were 90%, 90%, and 87%, respectively. Over the entire year nearly 400 million poultry were supplied to the market.

(5) Washing and grading of chicken eggs

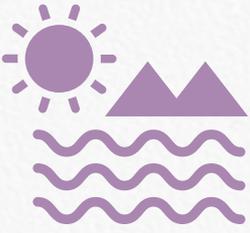
The COA continued to promote the policy of washing and grading chicken eggs, guiding production-and-marketing groups, cooperatives, farmers' associations, and production-and-marketing operators to continue to establish regional egg washing and grading venues. We also promoted the "all in/all out" rotating rest system at chicken farms, in order to upgrade egg production efficiency and egg quality. In addition, we listed washed and graded eggs as an agricultural product for which there must be registered traceability data and well as the items to be registered and labeling methods. Moreover, basic information about the washing and grading operator as well as the farm of origin was printed on egg shells. The goal was to increase the market share for washed and graded chicken eggs. At present the COA has guided industry to reach the goal of washing and grading capacity reaching 85% of total production volume. We will continue to promote the industrial goal of comprehensive washing and grading of eggs.



© The process of washing and grading fresh eggs.

(6) Automation of the dairy industry

In order to increase operating efficiency in the dairy industry, the COA has pro-actively assisted dairy farmers to introduce automated and intelligent labor-saving equipment, including colostrum pasteurizers, total mixed ration



equipment, teat scrubbers, and automated loaders. In addition, the COA has been promoting the integration of separate herd rearing, diet control during the transition period, and remote monitoring and management technology, in order to effectively strengthen lactation production capacity and improve the quality of raw milk. These measures can ensure the sustainability of the dairy industry.



© The COA guided dairy farmers to introduce automated and intelligent labor-saving equipment.

4 Sustainable Forestry Development

(1) Plantation and afforestation

In order to promote sustainable forestry operations, the COA's Forestry Bureau has set separate operational objectives for economic forest and conservation forest to protect important ecosystems and their service value. The Bureau continued to stay up-to-date on changes in forest resources, promoted an increase in the land area covered by forest, strengthened operational management of forests as carbon sinks, and enhanced tasks related to use of domestic timber. It completed afforestation on 1,101.04 hectares (ha), thinned 333.25 ha, and produced 48,000 cubic meters of timber.

In order to stimulate the development of the domestic bamboo materials industry, the COA laid out a cross-ministerial "Outline Program for Development of the Emerging Bamboo Industry," which was approved by the Executive Yuan on October 4, 2021. The program, for which implementation will begin in 2022, will

link together the production side, the processing side, the industry side, the technology side, and the regulatory side to nurture development of the bamboo industry.

To enhance identification of legal domestic timber and suppress illegal logging, the COA's Forestry Bureau has utilized block chain technology to set up the "Taiwan Forest Products Production Traceability System," which has thus far certified 109 businesses, 1,090 products, and about 40,000 cubic meters of domestic timber.

The COA's Taiwan Forestry Research Institute is implementing the "demonstration project of forest diversified development model" to promote three research projects: long-term development strategies for tree growth and landscapes, management of forest health, and innovations and applications by forest owners and community industries.

(2) Protection of forest

The work of protecting forest includes three main tasks: preventing illegal logging; investigating and interdicting illegal cultivation (occupation) of land; and preparation for, prevention and mitigation of, and responses to, forest fires. There are 1,040 forest rangers who conduct forest patrols and protection. Moreover, using modern technology, stronger inter-agency cooperation, and amendment of the "Forestry Act," the COA has built systems for production-and-marketing traceability certifications and QR Code production traceability management for legal sourcing of domestic timber in order to prevent illegal logging, with the rate of people being caught with illegal goods being 56.63%. In terms of forest fires, the COA has introduced various capabilities including upgraded disaster prevention equipment, periodic exercises, use of new science and technology, and an optimized response system, to minimize losses of forest resources. Moreover, we have combined social resources including 82 communities located near national forest, five college and university hiking clubs, and 249 volunteer forest rangers to collectively protect and patrol forests; in 2021 there were 15,500 patrols and reports were filed on 383 cases of illegal activities.



(3) Development of the under-forest economy

To simultaneously pursue forest conservation and forest farmers' economic profits, since 2019 the COA has conducted reform of forest operation to permit appropriate operations in the under-forest economy. "Shiitake mushrooms and wood ear fungus grown on wood logs," "Taiwan jewel orchid," and "forest beekeeping" were the first group of items for which applications were accepted, creating over NT\$20 million in economic earnings from green industries near mountain and indigenous communities. On November 19, 2021 Taiwan indigenous wild tea was announced as the next item. In coordination with the addition of territory security lands (production forest areas) in which items of the under-forest economy are permitted (done by the Ministry of the Interior on July 15, 2021), the COA simultaneously announced that applications would be accepted for under-forest economic activities in these locations, in order to share the benefits of the diverse service values of forest ecosystems and ensure sustainable economic development.



© Taiwan indigenous wild tea: one-tip two-leaf fresh tea leaves.

(4) Promotion of conformance of productive forest management with the norms of the Forest Stewardship Council

To encourage sustainable forest management operations that are eco-friendly, beneficial for society, and economically feasible, the COA's Forestry Bureau has guided forest farmers to adopt the principles of sustainable forest operations for their production operations, and continued to encourage businesses to apply for Forestry Stewardship Council (FSC)

certification (with subsidies covering 50% of fees). Moreover, the Chiayi Forest District Office earned FSC Forest Management/Chain of Custody Certification for 120,000 hectares of national forest in its district, while other Forestry District Offices are actively engaged in preparatory work.

(5) Promotion of environmental education

The COA's Forestry Bureau has established several Nature Centers as platforms for promoting forest environmental education, biodiversity conservation, and advocacy of forestry policy. A series of courses entitled "Wisdom among the mountains and forests" were offered that combined indigenous wisdom, community development, and environmental interactivity. A total of 126,613 learning opportunities from 423 teaching activities were provided during 2021.

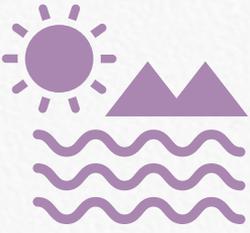
(6) Promotion of nature conservation

● The "Taiwan Ecological Network Program"

The COA has promoted the "Taiwan Ecological Network Program." Through inventorying and analyzing of spatial data such as animal diversity hot spots, distribution of animals of concern, important habitats of endangered and threatened plants, landscapes of concern, and issues of concern, the Forestry Bureau has designated 44 areas of concern on land, 98 rivers of concern, and 56 rivers that are important corridors for migratory fish. Moreover, we completed 107.45 hectares of restoration of native plants, promoted Satoyama biodiversity-friendly environments in 29 locations, and created 691.4 hectares of habitat-friendly farmland. The COA not only reconnected fragmented habitats, but also protected 42 protected, rare, or indicator species, strengthening the sustainable operating model combining production, living, and ecosystems.

● The "Payments for Ecosystem Services for Endangered Species and Critical Habitat Promotion Program"

The COA continued promotion of the program for "leopard cat-friendly farmland



ecological services compensation" in Nantou County, Miaoli County, and Taichung City, and in 2021 launched the "Payments for Ecosystem Services for Endangered Species and Critical Habitat Promotion Program" to offer ecological payments for important habitats in wet paddy fields, terraced rice fields, fish ponds, and privately owned protection forest for four animals: the leopard cat, the eastern grass owl, the otter, and the pheasant-tailed jacana. Nine city and county governments have participated, there are nearly 600 hectares of habitat-friendly farmland, patrol teams from 63 communities have participated in habitat protection patrols for endangered species, habitat construction work has been undertaken on farmland in 291 locations, and there has been further habitat observation and record-keeping on farmland in 164 locations.



© Map of areas of concern designated under the "Taiwan Ecological Network Program."



© A patrol team from the Qingshui Community of Zhongliiao Township in Nantou County conducts a protective patrol of leopard cat habitat.

(7) Promotion of the Satoyama Initiative

By working through the Rural Regeneration program and overall community construction and using industrial guidance resources,

the COA has constructed an organic cultivation environment, and by combining natural resources and the human cultural environment, has put into practice the concept of combining production, living, and ecosystems. Accomplishments in 2021 included the following:

- With the theme of "a commercial operations and marketing model," the COA conducted issue inventories and strategic planning for four regional interaction bases for the "Taiwan Partnership for the Satoyama Initiative" and held four interaction workshops. Moreover, various Forest District Offices of the COA's Forestry Bureau worked together with local communities or indigenous communities to undertake a series of resiliency evaluation workshops and completed preliminary resiliency evaluations in eight locations.
- The COA held an international conference entitled "Decade of the Satoyama Initiative in Taiwan: Past, Present, and Future" in 2021 to look back over the initial adoption of the Satoyama Initiative in Taiwan, its progress, and its achievements and to look forward to important issues and development trends with regard to biodiversity and the Satoyama Initiative in Taiwan and worldwide.
- The COA proactively participated in the "International Partnership for the Satoyama Initiative" (IPSI). Already 18 governmental and non-governmental organizations in Taiwan have joined IPSI, and case studies from Taiwan were published as part of IPSI's 2021 collection of case studies. The COA's Soil and Water Conservation Bureau also published a set of illustrated books about outstanding Taiwan case studies selected by IPSI.



© An international conference entitled "Decade of the Satoyama Initiative in Taiwan: Past, Present, and Future" held in 2021.



© Book release event for the set of illustrated books *Satoyama Initiative: Taiwanese Cases of Knowledge-Based Action* held by the COA's Soil and Water Conservation Bureau on December 12, 2021.

(8) Prevention of foreign invasive species

The COA adheres to the principle of "discovery at the earliest possible moment, response at the earliest possible moment" and uses eco-friendly methods to eradicate invasive species and rigorous monitoring to minimize damage. In 2021 we (i) eradicated 4,001 African sacred ibises and 33,751 common green iguanas; (ii) cleared 384 hectares of land of the river tamarind, 1,261 hectares of mile-a-minute vine, 352 hectares of the Santa Maria feverfew, and 21 hectares of giant sensitive trees; and (iii) eradicated a total of 93,664 fish of invasive species including the suckermouth catfish, common snakehead, crayfish, giant snakehead fish (juveniles), and bristlenose catfish.



© The emerging invasive species "bristlenose catfish."

5. Enhancing Food Security

(1) The Agricultural Adaptation Action Plan on Climate Change

In recent years, agricultural production has faced severe challenges because of climate change. According to the latest special report issued by the Intergovernmental Panel on Climate Change, over the next 20 years the

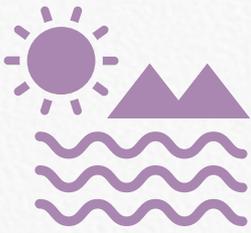
temperature will increase by over 1.5 degrees Celsius and we are in the midst of changing patterns of precipitation (dry periods will become drier, wet periods wetter) and the shortening of winters and lengthening of summers. All of these factors will have a negative impact on agricultural production.

In response, under the "Agricultural Adaptation Action Plan on Climate Change" (2019-2022) drawn up as part of the "National Climate Change Adaptation Action Plan," the COA has laid out six main strategies: (a) Conserve agricultural production resources and their environment to create a foundation for a resilient agricultural system. (b) Develop climate-smart agricultural technology and practices to enhance the capacities of agricultural industries to cope with adverse impacts. (c) Adjust agricultural operations and strengthen early-warning systems and adjustment mechanisms for production and sales to stabilize agriproduct supply. (d) Construct early-warning and response systems for disasters to reduce climate risks and minimize damage to agriculture. (e) Strengthen agricultural disaster relief and insurance systems to increase risk management capabilities. (f) Regularly monitor protected areas and strengthen their management to preserve biodiversity. In these ways the COA will continue to implement climate change adaptation work.

In order to strengthen adaptation capabilities and minimize the vulnerability of agricultural production, the COA will continue to use advanced agricultural technology and policies to enhance the resilience of the agricultural production system and ensure food security.

(2) Participation in APEC initiatives related to food security

On July 30, 2021 Chinese-Taipei hosted the 25th meeting of the "APEC Agricultural Technical Cooperation Working Group" (activities were held online as a result of the impact of the COVID-19 pandemic). A total of 16 economies participated, discussing policies related to the digital transformation of agriculture, climate change, and sustainable development. Also, COA Minister Chen Chi-chung led a delegation



attending the virtual "Ministerial Meeting on Food Security" where he shared the outcome of capacity building to reduce food losses and waste in Chinese-Taipei as well as our goal of net zero emissions and work on the "net zero roadmap" for the agricultural sector. He expressed the hope of working with other economies to build toward a future of sustainable development.



© The annual meeting of the "APEC Agricultural Technical Cooperation Working Group."



© An APEC workshop on reducing food losses and waste.

(3) Promotion of reinforced facilities agriculture

In order to reduce the impact of climate change; upgrade agriproduct disaster prevention and production efficiency; produce high-quality fruits, vegetables, flowers, special crops, and seedlings; guide the upgrading of operational efficiency; and stabilize market supply and demand, the COA promoted a facilities agriculture program running from 2017 to 2021. We guided farmers to construct structurally reinforced net greenhouses, and made subsidies available for up to 50% of costs in western Taiwan and up to 60% in eastern Taiwan, offshore islands, and indigenous areas, with maximum subsidies ranging from NT\$1 million to NT\$7.8 million per hectare. The COA also introduced smart environmental control equipment and guided farmers to undertake

automated labor-saving cultivation in these facilities. We also assisted farmers in applying for policy-oriented special agricultural loans to deal with the problem of finding investment capital for facilities.

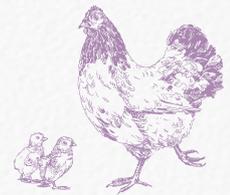
In 2021 the COA guided the construction of reinforced net greenhouse facilities on 552 hectares of land; introduced smart environmental control and automated equipment (facilities); optimized the net greenhouse production environment; and guided the cultivation of vegetables, fruit trees, and flowers in net greenhouses. We combined these measures with certifications of food grown in these facilities as "Taiwan Organic" or as "Traceable Agricultural Products," in order to promote eco-friendly cultivation, reduce the use of pesticides, improve the quality of agriproducts, and stabilize their supply. The COA guided clustering and economies of scale in the facilities industry and promoted smart, labor-saving cultivation to attract young people to come back to, or remain in, their rural communities to take up farming as a profession and advance the development of rural communities. We also guided the Taiwan Agricultural Structures Association to hold two



© The introduction of environmental control equipment into greenhouses optimizes the production environment.



© Facilities cultivation of fruit trees in net greenhouses protects them from rain and natural disasters, raises quality, and stabilizes production volume.



conferences on new greenhouse technology and two hands-on demonstrations of smart greenhouses, organized skilled people and resources in the field of agricultural facilities, and strengthened the design and development capabilities of businesses in this field. The COA moreover conducted structural member analysis of the safety of facilities structures to strengthen greenhouse structures and enhance the safety of agricultural facilities in Taiwan.

(4) Promotion of innovative agricultural technology

Given the complex and variable natural environment and market conditions, the COA holds fast to the spirit of innovative smart technology, safety, and sustainable circular agriculture to develop diversified applications of new products and new technologies. The aims are to overcome difficulties in the post-pandemic era, strengthen competitiveness, and develop potential markets home and abroad.

The COA brings together the innovative technologies developed by itself and its subordinate agencies, colleges and universities, and juridical persons to pro-actively promote the application of R&D results by industries. In order to undertake promotion and diffusion of agricultural technology, the COA organized the first and second waves of online exhibitions for the "Agricultural Technology Pavilion" at the "2021 Bio Asia Taiwan" exhibition, the "Agricultural Health Pavilion" at the "2021 Healthcare+ Expo Taiwan," the "Sustainability Pavilion" at the "2021 Taiwan Innotech Expo," and the "365 eMarket" virtual agricultural technology pavilion at the "2021 Asia Agri-Tech Expo and Forum."

In 2021 the COA continued to develop innovative technologies with special features. These included: (i) the "electric tracked aerial work vehicle," which can enhance the efficiency of agricultural work and conforms to trends in environmental protection; (ii) "propagation and breeding technology for the peppermint shrimp," which has ornamental value and can maintain aquarium ecology; (iii) "development of sweet potatoes not up to market standards

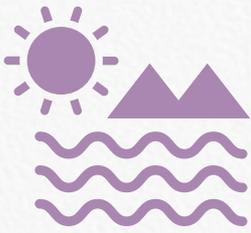
into raw materials for industrial fermentation carbon sources and PHA biomaterials," which combines circular agriculture and bioeconomy technology; and (iv) "first formula for canned cat food with silkworm chrysalises," which can effectively control the growth of harmful bacteria in animal intestinal tracts and promote pet health. In addition, in response to demand from industry, the COA developed a "glove device for classifying pineapples by touching them and interpreting the resulting sound" and a "passion fruit pulp extraction device." Besides increasing operational efficiency, these have received utility model patents. The passion fruit pulp extraction device even won a gold medal in the invention competition at the 2021 Taiwan Innotech Expo. The practical application in agricultural industries of technology that is based on the concepts of innovative agricultural development and sustainable operations can achieve the goals of adding value and industrial upgrading.



- © Canned pet food made with silkworm chrysalises offers a new choice to control the growth of harmful bacteria in the intestinal tracts of companion animals and promote pet health.



- © Pineapple meat sound and drum sound fruit classification and interpretation device: The measured value is obtained by directly pressing the fruit surface through the sensing electrode installed on the glove surface.



© The technical design and overall function of the passion fruit pulp extraction device won the "Gold Medal Award" in the 2021 "Taiwan Innotech Expo" competition.

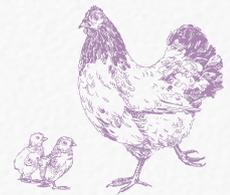
(5) The "Big Granary Project"

The main mixed staple crops (MSCs) in Taiwan include soybeans, peanuts, sweet potatoes, corn, Chinese pearl barley, etc. In 2021, 76,232 hectares of land were planted with MSCs, with production value of about NT\$12 billion and production volume of about 500,000 metric tons. More than 50,000 farm households were involved in MSCs cultivation. Production areas are concentrated in Changhua, Yunlin, Chiayi, Tainan, Kaohsiung, and Pingtung. The COA has been promoting the "Big Granary Project" to reduce the area of land cultivated with wet paddy rice and to revitalize fallow land. Under this Project we have undertaken guidance in numerous areas including production, product handling and concentration, processing, marketing, and food and agricultural education. Results of its implementation include the following:

- The COA formed an MSCs technical services team, which held lectures and hands-on demonstrations for field cultivation management, safe use of pesticides, and operation of agricultural machinery on 35 occasions. We also (i) guided the creation of collective production zones for domestically produced MSCs in 68 places, covering 6,873 hectares (ha) of land; (ii) established post-harvest handling and distribution centers in 15 locations; (iii) subsidized the purchase of 170 pieces of production-and-marketing equipment and built an MSCs outsourced cultivation system; (iv) guided 11,565 ha of MSCs to get "Traceable Agricultural

Product" certification and of 11 locations to get geographical indication labels for their MSCs, to strengthen differentiation between domestic and imported products in the market; and (v) developed 47 new products made by processing domestically produced MSCs (sometimes in cooperation with well-known brands).

- The COA held a competition for the top ten grain products and a cooking competition using domestically produced MSCs in order to encourage R&D into innovative products. We also promoted the consumption of more than five million servings of domestic soy milk in schools. In addition, the COA guided cooperation between the MSC "national team" and 318 sales channels, and held marketing activities including exhibition and sales events and business matchmaking meetings on 112 occasions, creating earnings of over NT\$200 million, thereby opening up market sales channels and building a brand image of quality and safety for domestic MSCs.
- The COA created a standardized module for the production management process for seeds for sorghum used to brew kaoliang liquor, promoted the cultivation of new varieties of sorghum on 480 hectares, and arranged for contracts with Kinmen distilleries to create NT\$15 million in production value.
- The COA arranged for instructional curriculums for "MSC classes" and entry into courses for nutritionists at ten primary and secondary schools and brought students from five agricultural technical high schools into production areas for hands-on learning visits. We also guided farmers' organizations to hold 20 food and agricultural education experiential events, and optimized the content of experiential tourism featuring domestic MSCs to attract travelers into production areas. The COA moreover set up a website for MSC food and agricultural education and published an illustrated children's book on red beans (azuki beans). These measures all aimed to encourage the development of the domestic MSC industry.



◎ The COA organized a learning visit to MSC production areas for agricultural technical high school students so they could get first-hand experience in agricultural operations.



◎ Promotion of consumption of domestic soy milk at schools.



◎ An exhibition of the results of creative MSC travel itineraries and food and agricultural education.

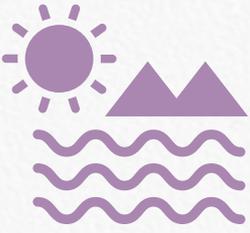


◎ The COA published an illustrated children's book on red beans (azuki beans) to make learning fun and enhance children's knowledge of general scientific information.

(6) Using traceable domestically produced ingredients in nutritious school lunches and non-staple foods for the military

In 2016 the Executive Yuan proposed the "Five-point Food Safety Policy," and incorporated agriproducts with certification labels (marks) into the "Contract Template for School Lunch Boxes (Buckets) Procurement," thereby promoting the use of domestically produced traceable ingredients in school lunches. Also, the COA finalized the "Implementation Directions for Subsidies from Central to Local Governments to Promote the Use of Domestically Produced Traceable Ingredients in School Lunch" to serve as the basis for COA subsidies to city and county governments (appropriated out of general educational subsidy funds since 2018) for implementing this policy. Starting on January 1, 2021 the COA began comprehensive promotion of the use of domestically produced traceable ingredients in school lunches, with subsidies for ingredients increased from NT\$3.5 per person per meal to NT\$6, while these subsidies were further increased to NT\$10 for schools in remote areas as of April 1, 2021. In 2021, 90.17% of registered lunch ingredients used in 22 cities and counties across Taiwan had "Three Labels and One QR Code" certification marks.

To ensure the safety of food served in the military, in September of 2017 the COA began promoting the use by the military of traceable vegetables (including ones with "Traceable Agricultural Product" and "Taiwan Organic" certifications) provided by farmers' groups as non-staple foods. During the early trial period 16.08% of purchased ingredients met this criterion and this number reached 50.69% in 2020, showing concrete progress. In terms of seafood, the COA guided the National Fishermen's Association to organize fishermen's groups to supply seafood directly to the military. This cuts down on the transport and marketing process for such products, reducing costs and stabilizing seafood prices. At the same time this policy protects the interests of both military personnel and fishermen. Already QR Code traceability management has been introduced for 29 items including tilapia, fresh squid, and whiteleg shrimp. In 2021 about 1,100 metric tons of seafood were sold to the military, with sales totaling NT\$190 million.



In terms of livestock and poultry products, in order to implement supervision of incentives and subsidies for use of "Three Labels and One QR Code" livestock and poultry products in school lunches, the COA used education and training to build up the auditing skills of city and county auditors and upgraded the ability of food providers to inspect their ingredients. We used the auditing mechanism to ensure that domestically produced livestock and poultry products were actually being supplied for school lunches and avoid the misuse or mixing up of such products. The COA audited and did sample testing of livestock and poultry products used in school lunches, conducting 813 tests for drug residues, with 99.6% of tested products being up to standards. Also, the military was supplied with CAS-certified, TAP-certified, and washed and graded fresh eggs that can be traced back to their farm of origin from their package labeling.



© The government and school lunch workers work together to ensure the health of Taiwan's schoolchildren.

(7) Strengthening food and agricultural education

The COA, promoting the idea of "constructing excellent agricultural production and its environment" and in coordination with concepts like healthy dietary lifestyles and dietary culture, has developed systematic "food and agricultural education" (FAE). In 2021 we guided 100 units to develop 244 sets of course materials for farming and fisheries education programs, and held 525 experiential activities with 27,374 participants, encouraging all citizens to make an effort to undergo FAE. The COA has also set up the "food and agricultural education resources platform," where people can search for FAE-related information. We moreover added

a new "map of production areas in Taiwan" to the platform, introducing 60 types of special local agricultural, fisheries, or animal husbandry products (including passion fruit, avocados, clams, Pacific saury, chicken meat, and duck eggs); as of 2021 the webpage was browsed 668,264 times.

In terms of staple foods, in 2021 the COA's rice education extension program, with the main theme of "domestic rice," promoted "rice campuses" in 53 locations, with about 8,000 students participating. Also, the COA held the "2021 Creative Rice Culinary Competition" to promote the use of domestic rice and rice flour. We also promoted organic FAE, holding 194 activities at 24 community organizations and enterprises as well as 39 schools, with a total of 6,261 participants.

In terms of fisheries, in 2021 the COA organized 24 marketing activities for seafood and 37 visits to production areas. We also held an educational performance series to promote food and fisheries culture at 20 primary schools around Taiwan, urging the wider use of premium domestic seafood for school lunches and at family dining tables, with 4,707 participants. The COA moreover held one large-scale outdoor family seafood culture activity, inviting food and fisheries education firms to set up stalls to enable families to learn about seafood while having fun. We also held seafood culture learning activities for teachers and nutritionists in northern, central, and southern Taiwan, inviting nutritionists and school cafeteria staff to get to know and learn how to prepare domestic seafood. In addition, the COA introduced methods for front-line food and fisheries education; a total of 248 teachers and nutritionists participated.

In terms of livestock, to promote a correct understanding of domestic livestock and poultry products among citizens, in 2021 the COA (i) held four events on poultry FAE; (ii) held 38 activities to promote consumption of "two servings of milk per day" for elementary school children to get in the habit of drinking domestic milk; and (iii) held 30 promotional activities for "local production, local consumption" of domestic pork. The goal was to build up a high-quality image for domestic livestock and poultry.



© The COA promotes rice education experiential camps to inculcate students with correct ideas about rice nutrition, food safety, and "local production, local consumption."



© The "2021 Creative Rice Culinary Competition."

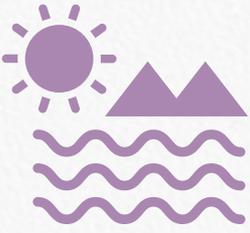
6 · Ensuring the Safety of Agricultural Products

(1) Strengthening the management of pesticides

In promoting the policy for reducing chemical pesticide usage by 50% within ten years, the COA has adopted various strategies including strengthening integrated pest management (IPM) and encouraging eco-friendly farming. We conducted demonstration projects for IPM for 12 crops (including kidney beans, scallions, papaya, and passion fruit) and promoted low-risk plant protection products while guiding farmers to use pesticides economically, rationally, and safely. The policy was implemented on about 1,000 hectares of farmland in 2021, with pesticide use reduced by 36% over this area. The COA also held the "2nd IPM Award" to recognize outstanding farmers doing crop IPM and to encourage mutual learning among farmers. We also accelerated the development of biological plant protection products and arranged subsidies

for eco-friendly plant protection materials, subsidizing biopesticides on 8,692 hectares and plant protection products that are exempted from registration on 8,249 hectares. The goal of these measures is to upgrade domestic agricultural production technology and techniques as well as food safety, and move in the direction of sustainable agriculture. In 2021 achievements in the implementation of pesticide management policy included:

- ID-based registration system for pesticide purchasing: To enhance the safety of agriproducts for human consumption, guide farmers in the correct use of pesticides, and ensure that pesticide dealers follow the rules in selling pesticides, on July 1, 2021 the COA announced amendments to the "Format, Content, Frequency and Manner of Reports from the Agro-pesticide Manufacturer or Dealer Regulated by Paragraph 2 of Article 35 of Agro-pesticides Management Act," adding a requirement for registration of the ID number or Resident Certificate number for purchasers of pesticides. In addition, we promoted the use of the point-of-sales (POS) management system for pesticide sales by businesses and the implementation of an ID-based registration policy for purchases of pesticides. These measures facilitate traceability of agriproducts with pesticide residues and verification of the actual cultivators of the land, to guide farmers to use pesticides properly.
- Upgrading the qualifications and training for pesticide dealers: In 2021 the COA worked with local governments in offering 179 sessions of refresher training to pesticide management personnel in order to enhance the professional qualifications and competency of pesticide dealers. In addition, to promote use of the point-of-sales (POS) system for management personnel and the implementation of rules for regular reporting of sales, in 2021 the COA held 36 training sessions for the pesticide POS system, thereby increasing the familiarity of pesticide dealers with use of this system as well as their willingness to install it.
- Promotion of a pesticide spraying service



provider system: Given the demand for agricultural labor and also considering that the routine application of pesticides by pesticide spraying service providers exposes these providers to high exposure risks, in 2000 the COA began restricting pesticide spraying service provider application to pesticide application technicians who meet standards for professional training. As of 2021 the COA completed professional training of 2,791 pesticide spraying service providers, and there were 655 registered businesses in this field. In 2021 the COA held six courses of common training, with 739 participants, and 15 courses of professional training, with 550 participants. A total of 320 people have received professional licenses to be pesticide spraying service providers.

- Elimination of high-risk pesticides: On November 30, 2021 the COA completed preliminary identification of 48 highly hazardous pesticides (HHPs) that are widely used in Taiwan, and screened out 16 to be listed as HHPs. In the future priority will be given to conducting exposure evaluations and studying risk reduction measures to maintain environmental protection and the health of pesticide users.
- Refinement of the plant doctor system: To expand services, the COA hired an additional 46 reserve plant doctors and posted them to farmers' associations, township and district governments, and the COA's District Agricultural Research and Extension Stations to provide guidance to farmers. They assisted in promoting IPM against harmful organisms affecting crops, issued 4,444 customized proposals for prevention of plant disease and insect pests, and held 105 education and training sessions for farmers. In this way the use of chemical pesticides was reduced, and training of professional manpower was strengthened, as was policy awareness-raising. In addition, the COA continued to develop the legal framework, sending the "Plant Medical Practitioner Act" to the Executive Yuan, which reviewed the Act and confirmed the need for promoting this system.



© Training for pesticide spraying service providers: practical learning and testing for compounding pesticides.

(2) Strengthening the management of veterinary drugs

In 2021 the COA held 3,172 audits of locations where veterinary drugs were manufactured, sold, or used, handing out penalties for legal violations in 57 cases with fines totaling NT\$6.2 million. In addition, we cooperated with judicial agencies in investigating and interdicting illegal veterinary drugs on three occasions and tested 63 items of suspected counterfeit or banned veterinary drugs, and sent 75 cases of counterfeit or banned veterinary drugs to the judicial system for prosecution.

The COA also issued 125 veterinary drugs licenses; conducted 21 audits of veterinary drugs manufacturing plants; and conducted 450 sample tests of veterinary drugs on the market, with 98% being up to standards.

The COA moreover conducted drug monitoring of samples of livestock and poultry at farms and at swine auction markets. There were 34,544 sample tests, with 99% being compliant with the "Veterinary Drugs Control Act." Farmers violating the Act were fined by local governments. Furthermore, the local governments assisted



the farmers in violation of the Act to implement corrective action and adopted follow-up action.

(3) Strengthening the monitoring and control of agriproduct safety and quality

The COA has adjusted, on a rolling basis, the items for and frequency of sample testing for pesticide residues for agriproducts that are high risk, have a high rate of violations, or are the subject of widespread attention. In 2021 the COA conducted 20,645 sample tests for pesticide residues at the production end, with 97.53% being up to standards. In cases in which the tested products were not up to standards, the farmers were forbidden from selling their crops, while the relevant local governments did guidance in safe use of pesticides, as well as investigation and punishment under the law.

In addition, in 2021 the COA conducted 527 sample tests for heavy metal content in food crops in farmland with high potential for pollution, and there were 18 cases in which heavy metal content surpassed the limits stipulated in the "Act Governing Food Safety and Sanitation." In total 2.08 hectares of crops that failed to meet standards were eradicated to prevent them from entering the market, while the environmental authorities were notified to investigate the polluted soil and follow up to cut off the sources of the pollution. Local governments guided farmers to leave such land fallow, switch over to non-food crops, cultivate crops (varieties) that absorb heavy metals, and use horticultural management methods to reduce the risk of pollution from heavy metals like lead, cadmium, and inorganic arsenic.

In terms of seafood, the COA promoted the "Five-point Food Safety Policy," upgraded safety risk management for aquatic products and expanded testing for drugs used for aquaculture-raised aquatic products. There were 2,223 sample tests of aquatic products that had not yet come onto the market, with 99.19% being up to standards. We also conducted 24,496 sample tests of aquatic products at wholesale fish markets, with 99.89% being up to standards. Cases in which the tested products did not meet standards were transferred to local governments to hand out punishments and conduct guidance

and improvement on the basis of relevant regulations.



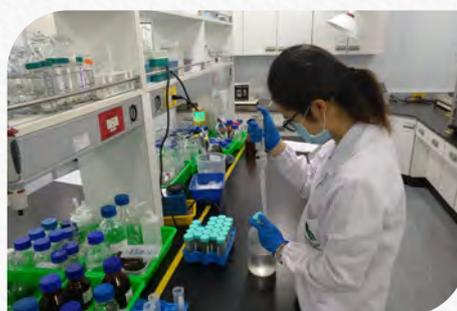
◎ Sampling for field tests of pesticide residues.



◎ Sampling for testing of pesticide residues at produce markets.

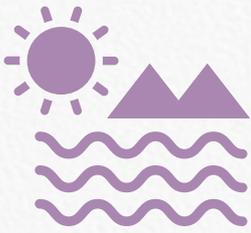


◎ Sampling for testing of aquatic products that had not yet come onto the market.



◎ Testing of aquatic products that had not yet come onto the market.

As for livestock and poultry products, the COA implemented the "Agricultural Production and Certification Act." As of the end of 2021 we conducted 635 sample tests of TAP, CAS, and traceable domestic poultry products, all of which



were up to standards, as we ensured public trust in certified poultry products and upheld consumer rights and interests.

(4) Strengthening the slaughterhouse inspection system

In order to ensure the safety and hygiene of domestic meat products, the COA commissioned 667 meat inspectors hired, trained, and licensed by the National Animal Industry Foundation to work under the supervision of the Bureau of Animal and Plant Health Inspection and Quarantine (BAPHIQ) and its branches to conduct meat inspections in 176 slaughterhouses nationwide. In 2021, over 8.12 million head of livestock and 399.56 million poultry were inspected. BAPHIQ also supervised local governments in pro-actively investigating and stopping illegal slaughtering activities, and selected two days per month for simultaneous interdiction of such activities across the country. Staff were assigned by BAPHIQ and its branches to participate in these actions, and conducted 2,033 investigations in which 38 illegal slaughtering cases were uncovered. One livestock carcass, nine kilograms of livestock meat, 1,027 poultry carcasses, and 27 kilograms of poultry meat were destroyed.

(5) Promoting traceability systems for various agriproducts

The COA has been promoting production traceability systems for agriproducts using QR Codes, which use information and communications technology to reveal information about producers. Consumers can use their mobile devices to scan QR Codes or go online to the "Traceability Agricultural and Food Products Retrospective System" and input the traceability number to search for data on the agriproduct operator, place of production, the products themselves, and pesticide residue test results. This meets the need for consumers to do real-time searches. As of the end of 2021, the System covered 60,596 hectares of agriproducts.

In addition, given how easy it is to mix up domestic with imported products or have inaccurate labeling on loosely packaged crops like mushrooms, jujubes, and chrysanthemums, the COA has actively worked with the Office of Food



© A press conference on traceability of aquatic products.

Safety of the Executive Yuan to do inspections. For example, from December of 2020 to February 10, 2021 joint auditing teams, acting on the basis of the "2020 place-of-production label inspection program for dried mushrooms on sale in the market" approved by the Consumer Protection Committee of the Executive Yuan, audited places selling loosely packed dried mushrooms. Audited areas included Taipei City, Hsinchu City, Taoyuan City, Taichung City, Tainan City, Kaohsiung City, Nantou County, Yunlin County, and Yilan County. In addition, these teams conducted at least one audit during the period when shops were selling products for the Lunar New Year, with at least two audits in Taipei City, Tainan City, and Yunlin County. In addition, the COA asked the Office of Food Safety to incorporate the main production areas and sales locations for products like jujubes and chrysanthemums into their list of annual interagency joint audit items and locations.

In terms of livestock and poultry, the COA has launched production traceability systems for domestically produced pork, beef, poultry meat, and poultry eggs. (In particular, we refined chicken egg traceability management, promoting the printing of traceability information on each egg.) These systems provide consumers with searchable information on domestic pig and cattle farms and slaughterhouses and on the source farms and washing and grading operators for chicken eggs, thereby helping consumers differentiate between domestic and imported products. As of the end of 2021, the coverage rate for signage for the "Domestic Fresh Pork Traceability System" was 90%, the ratio of the elimination of sales numbers and the number of slaughtered head of cattle reached 100% under



the "Taiwan Beef Traceability System," and the coverage rate for traceability of domestic poultry exceeded 85%. In addition, under Paragraph 4 of Article 32 of the "Animal Industry Act" BAPHIQ requires slaughterhouses to clearly label animal carcasses and viscera or their containers which have passed inspection with a label including the "INSPECTED ANA PASSED" symbol, the slaughterhouse code, and the slaughtering date. Only with such a label can the animal carcasses and viscera be transported out of the slaughterhouse. Moreover, in coordination with the trial program implemented by the Ministry of Health and Welfare to promote voluntary labeling of the date of slaughtering of chicken meat, for slaughtering businesses that need to change their packaging, following an application by the slaughtering business to a meat inspector to change its packaging, the COA will issue a sufficient quantity of new labels with the quantity depending upon the actual number of birds slaughtered and the format of their packaging.

To enhance the traceability of aquatic products, strengthen producers' self-management responsibility, introduce the dining concept of "enjoying local, enjoying fresh," promote "local production, local consumption," and increase citizens' acceptance of domestic fisheries and aquatic products, the COA has been working on a traceability system for such products. We combined this traceability system with information systems, so that consumers can conveniently look up information about the product and the producer by scanning the QR Code on the product right where it is sold. By the end of 2021 the COA guided 2,721 producers (with approximately 81,630 metric tons of output) in getting QR Codes.

(6) Building dependable labeling systems

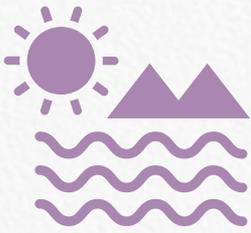
Since 2016, the COA, in order to increase consumers' understanding and trust of the various labeling systems, has continued to refine Taiwan's three certification systems: "Taiwan Organic," "Traceable Agricultural Products," and "Certified Agricultural Standards."

In terms of the "Taiwan Organic" certification system, in 2021, 4,436 households were certified as organic, with a production area of 11,765 hectares. Working with volunteers and consumer groups, the COA has worked to educate the public about the "Taiwan Organic" label in order to increase consumers' knowledge and acceptance of organic agriproducts.

As for the "Traceable Agricultural Products" (TAP) certification system, in 2021 4,135 agricultural product operators had TAP certification, with a production area of 59,637 hectares (an increase in area of 51.45% over 2020) and production value of over NT\$27.5 billion. Also, the COA issued the "Directions for Entrusting TAP Aquatic Products Processors and Manufacturers" to encourage primary processing of aquatic products and develop the domestic market for TAP aquaculture products.

As for the "Certified Agricultural Standards" (CAS) certification system, in 2021, the scope of the system included 247 participating companies that were certified to use the CAS label, with production value over NT\$66.6 billion. Its purpose is to certify that a product's raw materials are domestically produced, as well as to certify that product hygiene and safety, quality specifications, and packaging labels comply with relevant laws and regulations. In 2021 the COA guided two firms to receive CAS certification for wood products, with everything from raw materials, production processes, and product quality all meeting national standards, thereby enhancing the international competitiveness of domestically produced wood.

Following the amending of the "Agricultural Production and Certification Act" on December 25, 2019 and the establishment of a specific law governing labeling of organic agriproducts on June 25, 2021, the COA announced amendments to the "Regulations for Management of Agricultural Marks" and renamed them the "Regulations for Management of Certified Agricultural Marks." These amendments, based on industry needs, changed the



usage and printing methods for TAP and CAS labels.



© An educational activity to teach people about the "Taiwan Organic" label for certified organic agriproducts.



© The 2021 awards presentation ceremony for "Traceable Agricultural Products Masters."

7、Strengthening International Agricultural Cooperation

(1) The negotiation and signing of free trade agreements

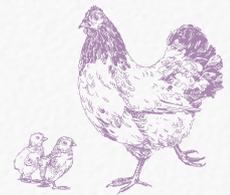
Negotiation and signing of free trade agreements is the trend in global economic and trade relations. The "Comprehensive and Progressive Agreement for Trans-Pacific Partnership" (CPTPP) came into effect on December 30 of 2018, and Taiwan formally applied to join the CPTPP on September 22, 2021. As for the agricultural sector, the COA has continued to gather relevant data and stay abreast of the progress of negotiations and has worked out negotiating positions and adaptation strategies. Meanwhile the government has continued appropriating money for the "Fund for Redressing

Damage to Farmers Caused by Agriculture Imports," in order to accelerate the structural transformation of agriculture, enhance agricultural competitiveness, and ensure farmers' incomes.

(2) Active participation in international organizations

In 2021 the COA continued to participate in the operations of international organizations including the World Trade Organization (WTO), the Asia-Pacific Economic Cooperation (APEC) forum, the Asian Productivity Organization (APO), the Asia-Pacific Association of Agricultural Research Institutions (APAARI), the African-Asian Rural Development Organization (AARDO), and the World Organisation for Animal Health (WOAH). We also assisted organizations based in Taiwan including the World Vegetable Center (WorldVeg), the Food and Fertilizer Technology Center for the Asian and Pacific Region (FFTC), and the International Center for Land Policy Studies and Training (ICLPST), to maintain their operations. In terms of fisheries cooperation, the COA also participated in the annual meetings and relevant working group meetings of major regional fisheries management organizations, including 12 meetings of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC), 10 meetings of the Inter-American Tropical Tuna Commission (IATTC), 11 meetings of the Western and Central Pacific Fisheries Commission (WCPFC), 19 meetings of the Indian Ocean Tuna Commission (IOTC), six meetings of the International Commission for the Conservation of Atlantic Tuna (ICCAT), 11 meetings of the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), eight meetings of the South Pacific Regional Fisheries Management Organization (SPRFMO), 19 meetings of the North Pacific Fisheries Commission (NPFCA), and nine meetings of the Southern Indian Ocean Fisheries Agreement (SIOFA).

The COA also participated in the 19th and 20th meetings of the APEC "Expert Group on Illegal Logging and Associated Trade" (EGILAT), sharing our experiences in combatting illegal logging and exchanging information on legal trade in timber. We also attended relevant activities of other international organizations including



the Committee on Sanitary and Phytosanitary Measures (SPS Committee) of the WTO, the WOAAH, and the International Cargo Cooperative Biosecurity Arrangement (ICCB).



© Director Weng Yi-tzu (above right) and Section Chief Juan Fu-kuan (middle left) of BAPHIQ attended the "Workshop on Risk Assessment, Risk Management, and Risk Communication" organized by the SPS Committee of the WTO, where they shared Taiwan's experiences.

Moreover, the Livestock Research Institute held the "2021 Taiwan and Poland Bilateral Animal Industry International Video Conference," while the Fisheries Research Institute promoted expert dialogues and technical exchanges on aquaculture with Honduras and Eswatini (diplomatic allies of Taiwan).



© The "10th Meeting of the Taiwan-Philippines MECO-TECO Technical Working Group on Agricultural Cooperation."



© Director General Tu Wen-jane of BAPHIQ, Taiwan's permanent delegate to the WOAAH, spoke at the "88th General Session of the World Assembly of WOAAH Delegates" in support of listing the infectious disease "decapod iridescent virus 1" (DIV1) as a notifiable disease.

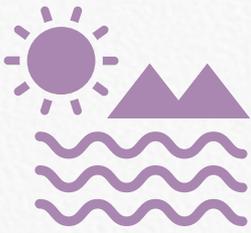


© Taiwan and the UK signed a "Memorandum of Understanding on Agricultural Cooperation."

(3) Promoting agricultural cooperation

In 2021, the COA convened bilateral agricultural cooperation meetings with a number of nations, including India, Indonesia, Australia, the Philippines, the UK, France, South Africa, Canada, and Thailand. (As a result of the COVID-19 pandemic, these meetings were held by videoconference.) In those meetings, we discussed and resolved over 20 agricultural and trade issues. Taiwan signed a "Memorandum of Understanding on Agricultural Cooperation" with the UK. Also, in order to encourage international exchanges between agribusinesses, the COA organized a dialogue on the premium food industry at the "Taiwan-Australia Agricultural Working Group Meeting," the "Taiwan-Philippines B2B Forum on Agricultural Mechanization," and the "2021 Taiwan-Thailand Circular Agriculture Business Forum."

In 2021 six cooperative projects approved by the "2020 Bilateral Cooperation Meeting on Agricultural Science and Technology between USDA-ARS/AIT and COA/TECRO" continued to progress. These included epidemiological research on Seneca Valley virus in pigs and R&D for testing reagents, development of new microorganic animal feed additives as part of a precision resistance-reduction strategy to enhance livestock sustainability, research into strategies for managing invasive harmful organisms and insect pests, technology for biorefining wastewater from the animal husbandry industry to recover nitrogen and phosphorus, enhancing the accuracy of field applications of simulations of corn and soybean growth, and research into prevention of infection by foodborne pathogens at livestock farms and poultry slaughterhouses. Taiwan and the US held regular videoconferences and exchanged emails to ensure



progress in these projects. Also, the Livestock Research Institute organized an online conference to which it invited experts from the US Agricultural Research Service (of the USDA) to participate, while in January of 2021 the Bureau of Animal and Plant Health Inspection and Quarantine dispatched staff to the University of Maryland in the US to study the prevention of infection by foodborne pathogens at livestock farms and poultry slaughterhouses.



© Dr. Hyun Lillehoj, an expert from the USDA Agricultural Research Service, delivered a keynote address on using antibiotic alternative strategies to reduce economic losses from livestock necrotic enteritis.

In addition, COA Deputy Minister Chen Junne-jih held a videoconference with David Hazlehurst, deputy secretary of the Australian Department of Agriculture, Water, and the Environment, to sign the "Taiwan-Australia Agricultural Working Group Terms of Reference." These build on the existing foundation of Taiwan-Australia agricultural cooperation to provide a framework and direction for bilateral agricultural interactions. Besides raising the level of the dialogue and expanding participation by industry, government, and academia, the Terms strengthen bilateral links in terms of agricultural trade, investment, and technical exchanges.



© Taiwan and Australia signed the "Agricultural Working Group Terms of Reference."

(4) Promoting cross-strait agricultural interactions

In 2021, as a result of the COVID-19 pandemic, interactions between people from agricultural agencies and the private sector from the two sides of the Taiwan Strait were suspended. With respect to routine matters including cross-strait trade in agriproducts, disease prevention and testing, management of fishing boat workers, and management of agricultural intellectual property rights, the COA continued to act on the basis of the principles of equality and mutual benefit and, within the framework of existing cross-strait agreements, pragmatically handled various tasks.

In response to the mainland's new system of registration of overseas enterprises producing food and importing it into mainland China, the COA worked with the Ministry of Health and Welfare and the Ministry of Economic Affairs to hold seven educational meetings to explain the mainland's new regulations to exporters, producers, and farmers' organizations. We also guided relevant businesses, including those involved in rice, meat products, and seafood (including fishing vessels), to be included in the submitted recommendation list.

In 2021 mainland China unilaterally suspended imports of pineapples, sugar apples, and wax apples from Taiwan, thereby affecting farmers' incomes. The COA, acting in accordance with the principles of equality, mutual benefit, and steadfast diplomacy, engaged in exchanges and trade discussions with mainland China. Besides aiming for an early positive response and friendly treatment from the mainland, we also called on them to act in accordance with relevant cooperation agreements and provide information on plant and animal diseases, abide by investment guarantees, and respect technology licensing rules, in order to prevent agricultural production and marketing in Taiwan from being negatively impacted, and to ensure the rights and interests of farmers and the development of agriculture.

(5) Agricultural aspects of the New Southbound Policy

The COA has pro-actively promoted agricultural aspects of the New Southbound Policy (NSP), whose main axis is the flagship project of "Regional Agricultural Development." In 2021 Taiwan exported



US\$1.34 billion in agriproducts to NSP partner countries, and exported a further US\$220 million in fertilizer, pesticides, and agricultural machinery to them (an increase of 52.8% over 2020).

The COA continued to promote the Taiwan-Indonesia "Modern Agriculture Demo Farm in Karawang." We assisted Indonesia to build four small river weirs, guided cultivation management on 500 hectares of wet paddy rice, did trial cultivation of vegetables, and built a center for breeding ducks. The COA also planned to introduce rice seedling transplanters, duck egg incubators, and related equipment to assist in creating a highly efficient production model. Moreover, through exchanges and technical consultations between experts in Taiwan and the Philippines, we assisted the Philippines to construct a "Button Mushroom Demonstration Farm," in order to enhance farmers' production capabilities and incomes in part of the Philippines while at the same time developing the overseas market for agricultural machinery and materials from Taiwan. We also arranged for young farmers from the Philippines to come to Taiwan for internships to assist in training agricultural talent for that country and to help Taiwanese business in the Philippines to recruit needed agricultural talent.

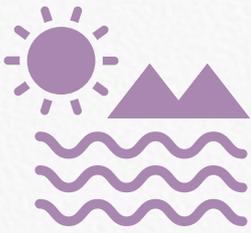
To assist Taiwanese enterprises in their overseas deployments, the COA set up an Agricultural New Southbound Policy one-stop services window, which in 2021 provided services in over 50 cases. It offers Taiwanese businesses that aim to operate in NSP partner countries critical information and services on subjects like capital requirements, investment and trade, technical support, patent licensing, certification, and manpower regulations.

8 · Promoting Primary Processing, Cold Chains, and Diversified Marketing Channels

(1) Promoting primary processing for agricultural products

In terms of agricultural products, under the provisions of the "Regulations Governing Primary Agricultural Products Processing Yards" and the "Specific Products and Processes Applicable to Primary Agricultural Products Processing Yards" the COA continued to supervise management of primary processing yards belonging to farmers and farmers' organizations. We promoted a unified management system for primary processing of agricultural products. Achievements in 2021 included the following:

- The COA issued guidelines for a production and manufacturing program for primary processing of agricultural products linked to Traceable Agricultural Products (TAP) certification, guided industrial upgrading, and guided two operators of agricultural product processing businesses to acquire TAP certification.
- The COA held 12 explanatory meetings on regulations governing farm products and aquatic products, with 494 participants; held 15 sessions of education and training on processing technology and food safety and sanitation for farm products, aquatic products, and forestry products, with 642 attendees, in order to enhance farmers' processing skills and professional competency in food safety; and held six sessions of advanced education and training on subjects like farm product sanitation and hazard controls, with 130 persons undergoing training.
- The COA assisted 19 processing operators to complete improvements in accord with the Good Hygiene Practices standards and to apply for registration with local governments as agricultural product primary processing yards; 13 businesses (in farm products and aquatic products) received registration certificates.
- The COA assisted businesses with registration certificates to market their products through sales channels, at both brick-and-mortar outlets including Jian Mart, Santa Cruz, Funcom Supermarket, Cotton Field Organic, Leezen, and Eslite Flavor and e-commerce channels including Country U



Box, PChome, News & Market, Rakuten, momo, and Yahoo!, thereby increasing farmers' incomes.

- With respect to forestry products, the COA (i) stipulated administrative standard operating procedures for applications for primary processing yards for forestry agriproducts and for verifying the applications by local governments, as well as the necessary forms; (ii) held four education and training sessions for local government officials handling applications and policy explanatory meetings; and (iii) held safety and sanitation training for persons involved in forestry production, primary processing technology, and operations, as a result of which 30 persons received certificates indicating that they received training and were qualified.
- With respect to aquatic products, the COA created a uniform management system for the process from production to primary processing. We organized education and training and on-site consultations for seafood businesses to assist fishermen and fishermen's organizations doing primary processing of aquatic products to meet the criteria to apply for registration certificates as agricultural product primary processing yards and come under management as "Agricultural Products Primary Processing Yards." On October 14, 2021 the Pingtung County government issued the first registration certificate for an agricultural product primary processing yard for aquatic products.



© Taiwan's first agricultural product primary processing yard for aquatic products, belonging to fisherman Zheng Ruilong.



© An education and training session on processing technology and food safety and sanitation.



© A press conference to announce that farm products that have undergone primary processing will be sold through the "Jian Mart" supermarket.

(2) Promoting regional agricultural processing centers

● Regional agriproduct processing centers

The COA has selected agricultural processing factories with a certain scale of operations and production capacity located in major crop production areas and that coordinate with policy as subjects for guidance to establish regional agriproduct processing centers. We have assisted them with measures such as expanding production capacity and ensuring that their factories conform to hygiene and food safety regulations, in order to meet demand from farmers for outsourced processing, stabilize production and sales of agriproducts, and increase their value-added. In 2021 we guided the Guanxi Township Farmers' Association and the No. 4 production-and-marketing group for bitter tea in Emei Township (both in Hsinchu County) to complete planning for two processing centers and build the plants, while introducing ISO22000 certification for traceable processed products, thereby building a traceability system for agriproduct raw materials and processed products. The COA also brought together farmers, production-and-marketing groups, and farmers' organizations to expand the area of land producing products under contract for processing to 150 hectares and use about



500 metric tons of domestic raw materials including Chinese mesona and tea oil seeds.

● Regional seafood processing centers

In 2021 the COA guided the Su'ao District Fishermen's Association and the Xingang District Fishermen's Association to construct processing factories. We also assisted the processing factories of fishermen's and fishing industry groups including the fishermen's associations in Chiayi, Ziguan, Linyuan, Hualien, and Penghu as well as the Limited Responsibility Tainan No. 1 Yu Quan Hui Fisheries Production Cooperative to purchase processing and related peripheral equipment (facilities), in order to assist local fishermen to have nearby and immediate access to factories to handle their catch. Using freezer warehousing, it is possible to balance production and sales and promote diversification of sales channels and markets.



◎ The Xingang District Fishermen's Association processing factory.



◎ A fisherman's association processing factory handles catch.

(3) Creating "Agricultural Products Value-Added Prototyping Centers"

To promote a uniform management system for agriproducts from production to primary processing, COA has set up nine "Agricultural Products Value-Added Prototyping Centers" and one "Aquatic Products Value-Added Prototyping Center" in District Agricultural Research and

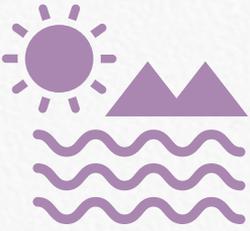
Extension Stations. We have also brought together local universities and prototyping centers to form three regional processing alliances, which link primary processing to high value-added industry to help farmers access new and diversified commercial opportunities. The COA also established the "Agricultural Products Processing Integrated Services Center" to provide one-stop consultation services. In 2021 these institutions provided farmers with processing consultation services 2,166 man-times, prototyping services in 948 cases, and packaging prototyping services in 93 cases.



◎ A group photo of COA Minister Chen Chi-chung and staff from the agricultural products processing integrated services system at the opening of the "Aquatic Products Value-Added Prototyping Center."

(4) Upgrading the quality of agriproducts

In terms of farm products, the COA guided the establishment of large-scale fruit and vegetable product handling and packaging venues that conform to international standards and issued the "Operating Procedures for Guidance of the Establishment of Large-Scale Fruit and Vegetable Product Handling, Concentration, and Packaging Sites." We strengthened the cold chain facilities (equipment) at product concentration sites as well as incorporated operating systems conforming to international inspection and quarantine rules. The COA introduced corporate-style operational scales and assisted these sites in getting international certification. In addition, with respect to demand in target markets, we (i) strengthened self-management and sample testing for pesticide residues; (ii) improved fruit orchard environments and facilities; (iii) upgraded the quality of fruit; (iv) introduced team services for various types of fruit; and (v) guided supplier fruit orchards and product concentration and packaging venues to improve



management of product safety, hygiene, and quality. As of the end of 2021 the COA guided 14 agribusinesses to establish large-scale fruit and vegetable handling, concentration, and packaging sites.

With respect to aquatic products, the COA continued to guide fish markets to improve their hardware and equipment and operational environment to control all possible sources of contamination with the aim of upgrading the quality and sanitation of seafood products from the source and ensuring the domestic and international competitiveness of domestic fisheries products. In 2021 we guided the purchase and installation of equipment needed for the "fish off the ground" policy at the west side auction venues of the Penghu Fish Market of the Penghu District Fishermen's Association and the fish market of the Mituo District Fishermen's Association. We also completed new construction at the Nanfang'ao Fishing Harbor Number 1 Fish Market, as well as the construction project for introducing the HACCP food safety management system at the Donggang sakura shrimp auction venue, and in future will guide the fishermen's association to install a strict sanitation management system.



© Guidance of a pineapple concentration and packaging venue to improve the hygiene, safety, and quality of its products.

(5) Constructing a modernized cold chain logistics and trading system for agriproducts

In order to (i) develop the cold chain logistics infrastructure and its operational capabilities for domestic farm, fisheries, and livestock products; (ii) upgrade production-and-marketing quality and reduce losses; (iii) bring into play the ability to adjust product supply to help stabilize prices of domestic agriproducts; and (iv) increase the types of products exported and develop international markets, the COA won approval from the Executive Yuan for the medium- and long-term infrastructure program "Building an Agricultural Products Cold Chain Logistics and Quality Assurance Demonstration System." The goal is to use smart production and new cold chain technology at each step from production and transportation to processing and sales in order to improve the environment for production and supply of agriproducts and upgrade the quality of their delivery and logistics.

In terms of farm products, in June of 2021 the COA issued operational norms for subsidies for regional cold chain logistics centers and cold chain facilities (equipment), which served as the basis for guiding local governments and farmers' organizations in setting up regional cold chain logistic centers and assisting farmers' organizations and agribusinesses in purchasing cold chain facilities (equipment). Moreover, in order to introduce cold chain management facilities and improve existing cold chain equipment, the COA provided a series of cold chain logistics services from post-harvest handling, washing and grading, and cutting to processing, packaging, cold chain warehousing, and logistical delivery in order to enhance product handling and storage and transportation capabilities for fresh agriproducts. In this way we can stabilize fruit and vegetable supply, upgrade agriproduct quality, and strengthen



© The Donggang sakura shrimp auction venue was completed on November 21, 2021.



© The Donggang sakura shrimp auction venue is the first low-temperature indoor auction site in Taiwan.



exports. As of the end of 2021 we also completed the building structure for an International Freshness Logistics Center in the Pingtung Agricultural Biotechnology Park.

With respect to aquatic products, the deep-sea fishing, coastal fishing, and aquaculture industries all face different cold chain preservation and production-and-marketing issues. Existing cold chain equipment is outdated or inadequate, and cold chain requirements differ in each region, while the scale of such equipment is unable to handle large amounts of raw material in a timely manner. After doing a survey of equipment needs and the freezing and processing capabilities in each district, we continued to construct or upgrade freezing and processing systems in various fisheries industry industrial clusters. In addition, taking into account factors including the distance to production areas and land transport, the COA set out plans to build logistics centers and develop cold chain equipment and assisted various industrial groups to arrange for processing and frozen storage of bulk seafood, in order to stabilize production and sales. In these ways we upgraded the processing and handling capabilities for aquatic products and improved the cold chain system for these products.

In terms of animal husbandry products, the COA completed the "Operating Rules for Subsidies for Cold Chain Facilities (Equipment) for Animal Husbandry Products." We inventoried the shortcomings in cold chain systems in 12 meat markets (10 local meat markets and two regional meat markets), and completed the upgrading of cold chain facilities and equipment in one meat market.

In addition, the COA continued to guide the Tainan City government in the relocation and reconstruction of the Xinhua fruit and vegetable market, which is expected to open in October of 2022. It will become a major fruit and vegetable wholesale market in southern Taiwan, providing citizens with safe and hygienic fruit and vegetables. At the same time the market will introduce electronic auction trading to raise trading efficiency, stabilize the prices of agriproducts, and guarantee the rights and interests of producers and buyers.

In order to increase the proportion of domestic agriproducts sold online, the COA

guided farmers to take courses in development trends in agriproduct e-commerce, norms governing the listing of products for sale, product grading and packaging, and online marketing. We also implemented the "Project to Guide Packaging and Branding of Agricultural Products for e-Commerce," guiding 10 small farmers to become e-commerce brand operators. The COA moreover organized the "Taiwan Agricultural Products Celebration" online sales event, in which over 90 e-commerce platforms participated and total sales in 2021 surpassed NT\$1.4 billion. Also, we strengthened business matchmaking to construct online purchasing supply chains and increase sales channels.



© Premier Su Tseng-chang visits the International Freshness Logistics Center in the Pingtung Agricultural Biotechnology Park.

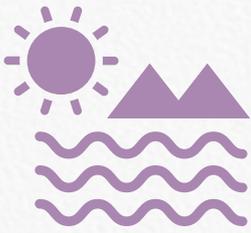


© The International Freshness Logistics Center.

(6) Promotion of international marketing of agriproducts

In 2021, despite the impact of the COVID-19 pandemic, the total value of agriproduct exports from Taiwan grew to US\$5.668 billion, an increase of 15.4% over 2020. Among important export markets, exports to the US, Hong Kong, Australia, and Malaysia increased by 36.66%, 20.58%, 29.1%, and 27.31%, respectively. In addition, there was growth in exports of major export products such as pork and its processed products, sugar apples, wendan pomelos, Phalaenopsis orchids, and grouper.

In 2021 the Mitagri Company founded under the guidance of the COA exported



products including bananas, pineapples, mangoes, lychee, lettuce, jujubes, oranges, paddy rice, pumpkins, pomelos, red beans, and processed agriproducts, with revenues nearly doubling in comparison with 2020. Also in 2021, the Taiwan Agricultural Investment and Development Company (TAIDC) invested money to found firms including the Shiun Yuan Biotechnology Company and the Agroest Agricultural Products Company to assist in stabilizing supply and demand and prices for domestic agriproducts. TAIDC also actively promoted international agricultural cooperative projects, including one for investment in the avocado industry in Honduras and one for investment in the orchid industry in Paraguay.

In terms of developing export markets, the COA provided additional export incentives to encourage businesses to expand into markets other than mainland China. We also guided farmers' groups and farmers to sign letters of intent to cooperate with exporters to establish orchards for fruit grown for export and do contract production and contract sales for collective production areas, thereby building a robust export supply system. The COA improved the export supply chain system by introducing graded packaging and facilities (equipment) needed for cold chain logistics in order to expand into emerging markets. In 2021 we opened up the Japanese market to exports of pineapples from Taiwan, with export volume of 17,850 metric tons, an increase of 726% over 2020. The COA also (i) guided domestic industry associations and farmers' organizations to participate in three overseas exhibitions; (ii) held 33 overseas activities to advertise or develop sales channels for agriproducts; (iii) maintained the "Special Area for Taiwan Agricultural Products" in a HAO Mart supermarket in Singapore as a long-term overseas agriproduct display and sales center; (iv) carried out the "Taiwan Good Agriculture Agricultural Product Exporters Brand Counseling Project"; and (v) promoted the founding of strategic alliances for fruit, vegetables, and aquaculture products to consolidate major existing export markets and develop emerging sales channels.

(7) Building direct sales and multiple sales channels for agriproducts

In order to assist farmers to develop multiple sales channels, the COA has guided the setting up of holiday or weekend farmers' markets at regular intervals at two locations in the Taipei metropolitan area: the Taipei Hope Plaza Farmers Market and the Taipei Expo Farmers Market. We hold exhibition and sales activities for in-season agriproducts on Saturdays and Sundays in order to raise farmers' incomes. In 2021, we organized farmers' markets at the Hope Plaza on 39 occasions, with total sales of NT\$198.08 million; we also organized 34 events at the Taipei Expo, with total sales of NT\$99.34 million.

In order to provide consumers with agriproducts that are fresh, safe, eco-friendly, high quality, and have local characteristics, since 2013 the COA has guided the setting up of "farmers' markets" and "direct sales points for farmers." In 2021 we newly established or continued to guide existing rural community agriproduct sales points in 100 locations, to encourage "local production, local consumption" and energize local rural economic development. Total revenues reached NT\$600 million.

In order to provide diversified sales channels for domestic wood and establish a platform for matchmaking of supply and demand for such wood, the COA's Forestry Bureau set up the "Taiwan Wood" information platform. Already data has been gathered on 34 firms providing forestry operational services and 129 firms producing products made from domestic bamboo or wood. A total of 61 cases of forestry operational services matchmaking have been arranged, with transactions of about 15,000 cubic meters of domestic wood.

In order to change consumer perceptions about domestic wood and bamboo, since 2017 the COA's Forestry Bureau has been holding annual "forest markets." The Bureau has also set up a "Taiwan Pavilion" in the annual "Taipei Building Show," with the number of exhibiting firms increasing from eight in 2017 to 28 in 2021. Through market-driven forces, production volume of domestic wood businesses increased



by 30-40%, and new opportunities were created for jobs in the forestry industry and related innovative industries, with each firm adding on average two to three new employees.



© The direct sales point of the Dongshan Township Farmers' Association in Yilan County: Farmers can set their own prices, sell what they want, and provide fresh and safe agriproducts.



© The direct sales point of the Qionglin Township Farmers' Association in Hsinchu County: Farmers and consumers can meet face to face and producers can directly provide production information to shoppers.

(8) Promoting premium agriproducts

The COA has guided farmers' associations, rural communities, and related organizations to use local agricultural resources to develop rural economic enterprises and rural travel products and construct sales channels. In 2021 we selected 190 premium agricultural products from 83 farmers' associations, 11 fishermen's associations, and 15 young farmers. Moreover, the COA has highlighted a total of 271 "Rural Good Products" to encourage rural communities to develop innovative products that reflect the unique characteristics of the locality, increase the value-added of agriproducts, and boost rural economies.

In 2021 the COA selected 163 value-added elderly-friendly foods processed from premium local farm, fisheries, and animal husbandry raw materials, to meet the dietary needs of the elderly in an aged society.

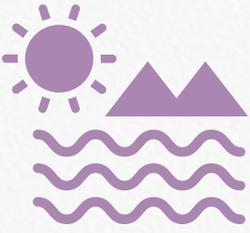


© A business matchmaking event for winners of the "Fine Rice Awards" and premium rice baked goods.

The COA's Agriculture and Food Agency (AFA) guided the construction of collective production zones for production and marketing of rice under contract in 81 locations, and successfully established 75 independent brands. It also (i) held competitions for the "Fine Rice Awards" and "Fine Rice Gift Box Awards"; (ii) guided 11 businesses in optimizing packaging and the image of 90 products related to domestically produced rice; and (iii) developed product sales points in 2,700 locations, with total sales surpassing NT\$300 million. Moreover, the AFA held the "Taiwan Fried Rice King" contest and used co-branding to get champion fried rice mass produced and sold in the market; right now champion fried rice products are sold in 6,000 convenience stores and supermarkets, with more than 1.3 million boxes sold during 2021 and more than 200,000 kilograms of Traceable Agricultural Products-certified rice used. Moreover, the COA set up the "Rice Bakery Boutique Pavilion" at the "Taipei International Bakery Show," assisting over 50 producers of premium rice products to expand domestic and international sales channels.

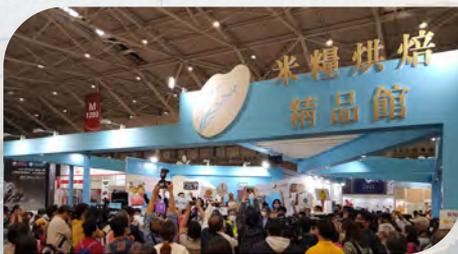
In 2021 the COA guided 11 rural wineries to pass their evaluations, while wineries produced 190,000 liters of wines and liqueurs. Since 2007 the COA has selected outstanding domestic wineries and alcoholic beverages to participate in international competitions, and as of 2021 Taiwan won a total of 30 golds, 55 silvers, and two bronzes, effectively shaping a reputation for quality for rural wineries and alcoholic beverages.

The COA's Fisheries Agency guided 11 fisheries (or fishermen's) organizations (including the National Fishermen's Association, Taiwan, ROC) to develop unique seafood products that are representative of the locality or the fishing season, and through refinement



of packaging, create a reputation for quality for Taiwan seafood products. These steps made it possible to raise the price of seafood products and increased job opportunities in fishing communities and raised fishermen's incomes. Moreover, the Agency set up a seafood pavilion at the "Taiwan International Food Industry Show 2021," bringing together outstanding fisheries companies to enhance the exposure and marketing of Taiwan premium aquatic products, enable citizens to come into contact with Taiwan premium seafood through more diverse channels, assist companies to meet with international buyers, and increase Taiwan's exports of seafood. In addition, the COA continued to hold activities on the theme of "mullet roe industry culture" in six major mullet roe producing areas including Hsinchu, Changhua, Yunlin, Chiayi, Tainan, and Kaohsiung, in order to continue to develop the special features of this culture and promote economic development in fishing communities.

The COA's Forestry Bureau set up a pavilion with the theme "Dream Building with Taiwan Wood & Bamboo" at the 33rd "Taipei Building Show," winning an "Excellent Exhibitor Image Award" for the 5th straight year. The design for the pavilion was a response to the "Glasgow Leaders' Declaration on Forest and Land Use" at the 26th Conference of the Parties (COP26) of the United National Framework Convention on Climate Change, which emphasized the importance of sustainable management of manmade forest and diversified uses of bamboo with respect to global carbon neutrality and forest conservation. The pavilion drew the public's attention to Taiwan timber and enhanced the international profile of Taiwan wood and bamboo.



© The "Rice Bakery Boutique Pavilion" attracted consumers by offering demonstrations and instruction.



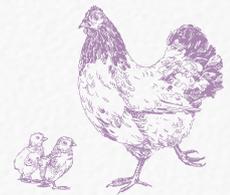
© A press conference for the launching of sales for champion products from the 3rd "Taiwan Fried Rice King" contest.

9、Development of Leisure Agriculture and Agrotourism

(1) Agricultural tourism

The COA has encouraged localities to adopt a regional outlook to develop rural leisure and tourism. As of 2021, the COA designated a total of 104 "recreational agriculture areas," guided 507 leisure farms in getting licenses, founded 114 "Tian Mama's cuisine units," and developed and optimized 25 agro-gift and souvenir items, thereby enriching agrotourism. We built the "Farmtour Market" e-commerce platform, organizing 173 agrotourism businesses to participate in developing agricultural experiential activities, down-home rural cuisine, farmhouse accommodations, and package tours. The platform promotes more than 500 travel products to facilitate the enjoyment of exciting farming and fishing community tours by visitors. In 2021 the number of travelers participating in rural leisure and tourism reached 22.26 million man-times, creating production value of NT\$8.794 billion.

The COA also conducted an evaluation of rural community experiential travel, evaluating rural community experiential services capabilities on the four criteria of experiential environment infrastructure; content and special features of itineraries; experiential operations, marketing, and management; and social responsibility. We provided communities with guidance to build outstanding rural community experiential brands. In 2021, 144 organizations participated in the evaluation, and 62 outstanding organizations passed. In addition,



in response to implementation of the post-pandemic stimulus package, the COA promoted its own "Agriculture Vouchers" guidance and marketing program, guiding rural experiential businesses in offering special rates on 78 tours in order to stimulate consumption in post-pandemic rural communities.



◎ The first online platform specializing in marketing rural leisure and tourism: the Farmtour Market.



◎ A recreational agriculture area: agricultural experiential activities in an indigenous community.



◎ An ecological guided tour at the Good Times Farm.



◎ A group photo taken at the Good Times Farm (ecological education).



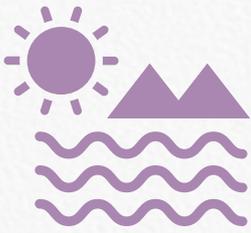
◎ A group photo of a rural community experiential activity at the Greenunion leisure farm.

(2) Fisheries-related leisure and tourism

In 2021 the COA guided local governments, fishing industry (fishermen's) groups, or community development associations to inventory fishing communities, fishing harbors, aquaculture production areas, and seafood direct sales centers, and combined these resources with ecological and environmental assets (such as wetlands and intertidal zones) as well as fishing industry culture, arts, and crafts to organize a variety of industrial culture and fisheries eco-tourism experiential activities with special local characteristics. We rolled out six videos on fisheries-related tourism corridors and produced one illustrated book about Taiwan fishing communities called *Come to Fishing Village*, *Fishing Community Life* in order to market and promote Taiwan's fishing village culture and fisheries-related tourism. The COA's promotion of such tourism led to 8.91 million visits by tourists and NT\$3.9 billion in production value.



◎ The COA produced an illustrated book about fishing community life to promote fishing village culture and tourism.



© The "2021 Pingtung BlueFin Tuna Cultural Festival" highlighted and marketed unique aspects of the fisheries industry.



© A food and fisheries education class at an experiential summer leisure camp for young people organized by the Keelung District Fishermen's Association.



© The 2021 "Love of Kezailiao" marine culture and fishing community industries marketing activity organized by the Ziguan District Fishermen's Association in Kaohsiung.

(3) Forest eco-tourism

By strengthening the maintenance and management of forest recreational venues, the COA's Forestry Bureau continued to upgrade the quality of visits to the nation's 18 National Forest Recreation Areas, three Forest Parks, and four Forestry Culture Parks. Forest recreational venues continued to cooperate with mountain villages and indigenous communities, and linked up with the network of nature trails, to come up with experiential activities for visitors. In 2021, as Taiwan felt the impact of the COVID-19 pandemic,

the COA coordinated with the Executive Yuan in promoting domestic tourism measures as the domestic epidemic situation tapered off as well as permitted use of Quintuple Stimulus Vouchers and related coupons. We promoted a number of sales activities starting on October 8, 2021, including buy-one-get-one-free electronic tickets and discounts on parking at National Forest Recreation Areas and offering discounts to people holding Quintuple Stimulus Vouchers when buying tickets on-site, staying in directly operated mountain accommodations, and purchasing cultural and creative products. In 2021 there were 5.92 million visits to forests during the period that forest recreational venues were open, enabling citizens to experience nature and enjoy better physical and mental health.

10、Strengthening Communication about Rural Policies

(1) Diversified channels of communication for major policies

In order to improve citizens' understanding and acceptance of agricultural policies, the COA uses diversified methods to inform people about important rural policies. In 2021, besides continuing to hold press conferences and issue press releases, we continued to work through diverse channels like print media, television, radio, the Internet, and exhibition and sales activities in order to promote the three main policy axes of enhancing farmers' welfare, improving agricultural infrastructure, and upgrading industrial competitiveness, and to demonstrate COA successes in policy implementation.

With the rise of new media, the COA continued to undertake integrated communications about agricultural policies through new social media. In 2021 we produced videos on subjects including the four major farmers' welfare systems, cold chain logistics systems, agricultural policy accomplishments, agricultural adaptation to climate change, and freezing and processing technology for atemoya. Besides



© A press conference for Tainung No. 1 coffee, Taiwan's first home-bred coffee variety.



© An informational picture card about "thousand-year eggs."

broadcasting videos on the COA's official Facebook fans page, YouTube channel, and electronic bulletin boards of farmers' and fishermen's associations, we also produced educational spots which were played on broadcast networks and local radio stations in central and southern Taiwan, and were also broadcast using loudspeaker vehicles, in order to reach all townships in northern, central, and southern Taiwan. We also produced 10-second commercial inserts for broadcast on TV channels and broadcast them in buildings with elevators in urban areas. The goal of these measures was to increase citizens' understanding of rural policies and their participation in related activities, increase the effectiveness of COA policy information dissemination, and expand the distribution of relevant information.

(2) Diverse new media communications platforms

The COA provides a rich variety of agriculture-related information on new media like its Facebook fans page, its Youtube channel, and Line@ group. There is information on agricultural policy, technology R&D, press conferences, presentations of policy achievements, agricultural weather reports, and agriculture, which is shown through diversified and lively means such as videos, picture cards, and direct feeds in order to help citizens understand important agricultural issues. Also, each month the COA holds interactive activities for Facebook fans, effectively informing people about policies and other matters. We

also rapidly reply to questions from citizens, providing immediate services. In 2021 the number of people on the COA's Facebook fans page increased by over 42,000, a growth rate of about 114%, and the number of Line@ friends increased by 2,983, while there were 50 live feeds of events on Facebook. In total we reached 754,791 people.

(3) Disseminating the policy of "Agriculture for All"

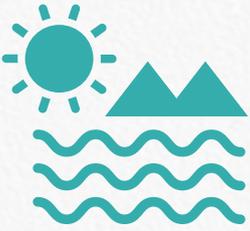
The COA continued to promote the main policy axes of "happy farmers, safe agriculture, and prosperous villages" and strengthened policy visibility, so that citizens will more deeply identify with local agriculture as we disseminated information on the policy of "Agriculture for All." We also showed the COA's concrete policy accomplishments, including completion of the four major farmers' welfare systems, incorporation of occupational illnesses into the scope of farmers' occupational-injury insurance, improvements with respect to the labor shortage, promotion of the use of agricultural machinery, implementation of disease prevention at livestock farms, comprehensive industrial upgrading, construction of agriproduct cold chains, building of infrastructure for the fisheries industry, expansion of international trade, promotion of rural travel vouchers, and promotion of mass spectrometry rapid testing for pesticide residues. We enlarged the promotion of COA policies and used multi-media resources to upgrade the effectiveness of information dissemination.

Chapter / 05

Agricultural Response Measures to the COVID-19 Pandemic







Chapter 05

Agricultural Response Measures to the COVID-19 Pandemic



1 \ Implementing Epidemic Prevention Management

In response to the COVID-19 pandemic, in 2020 the COA took early steps to inform people about the ongoing pandemic situation and relevant matters, and mapped out manpower deployments and conducted simulations of response measures. Main tasks included the following:

(1) Strengthening epidemic prevention measures in response to the Level 3 alert

On May 19, 2021 the epidemic alert level was raised, and the COA immediately implemented epidemic prevention measures including separate-area working and (for some employees) work from home, in order to reduce the incidence of cluster infections, while also taking into account our ability to provide services and perform basic functions. We also stipulated guidelines for the handling of COVID-19 outbreaks in the COA and subordinate agencies as well as set up task forces to do reporting and handling in response to an outbreak. In 2021 we held 11 conferences on COVID-19 response measures to intensively discuss relevant COA response actions.

(2) Implementation of epidemic prevention work at venues under COA jurisdiction and for operational staff

To assist agricultural, fisheries, and animal husbandry product wholesale markets to reduce the risks of transmission of COVID-19, the COA and the Central Epidemic Command Center (CECC) jointly issued the "Suggested Guidelines for Epidemic Prevention Management Measures at Wholesale Markets." The COA asked local governments to supervise the markets in their jurisdictions and, based on their actual operating patterns, to formulate implementation plans and operational rules conforming to the six major epidemic prevention orientations of these Guidelines, in order to facilitate compliance by market management units, operational staff, and buyers. In addition, we asked local governments to supervise the implementation of various measures at venues, to safeguard venue safety, and to ensure that trading in farm, fisheries, and animal husbandry products continued uninterrupted. To reduce the risk of an outbreak of the pandemic at wholesale markets and minimize the scale of any such outbreak and the risk of community transmissions, while also ensuring epidemic prevention preparedness at wholesale markets, the COA continued to subsidize local governments in (i) supervising the implementation of epidemic prevention measures (such as disinfection of the environment) at wholesale markets within their jurisdiction, (ii) purchasing



epidemic prevention materials, and (iii) strengthening relevant protective measures.

The COA also issued the "Guidelines for Epidemic Prevention Management Measures at Slaughterhouses in Response to COVID-19" and the "Guidelines for Epidemic Prevention and Safety with Continued Operations at Livestock Farms in Response to COVID-19," to strengthen management at these venues.

In terms of the fisheries industry, in 2021 the COA completed disinfection of 220 fishing harbors on more than 2,000 occasions. In addition, we strengthened border controls of fishing boat workers. Taking into account the risks of transmission and the operations of the fisheries industry, the COA researched epidemic prevention measures in cooperation with the CECC, and reassessed (on a rolling basis) quarantine measures for crew of distant-water fishing vessels and fish carrier vessels operating between the two sides of the Taiwan Strait. We added a requirement that vessels involved in coastal fishing should take the initiative to report on at-sea contacts with fishing vessels from other countries. Supervision of vessels included the following:

- Distant-water fishing vessels: There were 979 reported cases of fishing vessels returning to port. The COA enforced compulsory health management of crew on their original vessels, home quarantine, and full-vessel quarantine 14,768 man-times, of which there were 10,475 cases of people living in quarantine hotels.
- Live fish carrier vessels: The COA enforced compulsory health management of crew on their original vessels and home quarantine for 283 vessel arrivals, totaling 1,534 man-times.
- Foreign-flag vessels: A total of 1,036 foreign crew from 73 vessels applied to enter Taiwan and departed after completing their quarantine.
- Coastal fishing vessels: There were reports from two vessels with 13 persons.

In addition, the COA received permission from the CECC to list front-line staff in key venues under COA jurisdiction as priority recipients of vaccinations and actively compiled



◎ Epidemic prevention slogans in multiple languages at a quarantine wharf.



◎ After fishing vessels enter port, the crew must have their temperature taken and disinfection must be carried out.

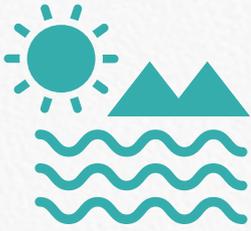


◎ Coast Guard personnel assist in sterilization and a safety inspection for a live fish carrier vessel.



◎ Nursing staff at the Xinyuan Township Public Health Center in Pingtung County do inspection and quarantine and make preliminary health assessments for crew members.

a register of staff to receive vaccinations while encouraging them to get vaccinated. We sequentially ensured vaccination of persons that are intensively active in vegetable and fruit wholesale markets, fish markets, meat markets, and slaughterhouses (including staff, sales agents, and market workers), including 18,608 man-times at fruit, vegetable, and flower wholesale markets; 8,171 man-times at 35 wholesale fish markets; 9,647 man-times at slaughterhouses; and 6,396 man-times at meat markets, in order to ensure the safety of staff at farm, fisheries, and animal husbandry wholesale markets and slaughterhouses.



2 \ Agricultural Relief Measures

In order to minimize the impact of COVID-19 on agriculture, on June 3, 2021 the COA issued amendments to the "Regulations for Relief and Revitalization Measures for Agriculture in Response to the Impact of Severe Pneumonia with Novel Pathogens." The main relief measures were as follows:

- (1) Under the framework of relief measures adopted in 2020, the COA continued to provide "Loans for Agricultural Industry and Entities Affected by Severe Pneumonia with Novel Pathogens" and amended relevant regulations. We exempted recipients of policy-oriented special agricultural loans from interest payments until the end of 2021 (automatically, without the recipient needing to apply). In addition, to provide financing, we budgeted an additional NT\$22.8 billion for relief loans, with exemption from interest payments until June 30, 2022. These measures helped farmers and fishermen get through hard times. In 2021 relief for old loans was approved in 179,644 cases, with loans totaling NT\$99.641 billion, while new relief loans were approved in 34,582 cases, with loans totaling NT\$21.354 billion.
- (2) In order to ameliorate the pressure on livelihoods of farmers and fishermen, the COA approved living subsidies for them and also provided subsidies (i) for recreational farms and "Tian Mama's cuisine units," (ii) for the operating expenses (rent, management fees, polluted water handling fees) of firms operating in related industrial parks, and (iii) for fees arising from the implementation of epidemic prevention regulations on fishing vessels. We also provided three months of relief funds for 365 recreational fishing boats. The total approved amount for these various measures was NT\$17.761 billion, and 1,497,064 farmers, fishermen, and rural business operators benefited.

3 \ Agricultural Stimulus Measures

In 2021 the COA launched a number of agricultural stimulus and marketing measures, the most important of which were as follows:

- (1) The COA guided flower industry associations and groups and coordinated with local governments to collectively promote four major stimulus activities: "delivering flowers to front-line staff working in COVID-19 immunization stations," "delivering flowers to healthcare workers with direct shipment of floral gift boxes from production areas," "promotion of flower breeding at schools," and "coordination with localities to promote purchasing of flowers." These measures stabilized flower production and sales. We also guided flower industry groups to continue to build convenient sales channels for flowers, with fresh flowers sold at 80 PX Mart supermarkets. In 2021 total sales reached 227,255 bunches of flowers and 139,724 potted flowers, effectively driving flower consumption. The COA also implemented programs to promote sales of flowers and agricultural niche products over the Lunar New Year and to use flowers to celebrate association anniversaries in order to energize the domestic flower market, as well as a program to sell domestic flowers through supermarkets to build a new sales channel with the logistics model of making flowers available on store shelves for customers to buy.
- (2) In 2021 the COA provided incentives to market pineapples, sugar apples, wax apples, citrus fruit, jujubes, bananas, guavas, dragon fruit, lychees, mangoes, lemons, pomelos, flowers, and their seedlings, increasing exports 65,000 metric tons. In addition, with respect to cut flowers and greens for export, we provided incentives for export packaging using cardboard boxes to guide flower farmers selling to the domestic market to switch to the export market. The COA also organized more than 90 e-commerce firms in Taiwan to participate in the "Taiwan Products Agricultural Celebration" online platform, further facilitating online sales of agriproducts.
- (3) Through diversified sales channels, we promoted market circulation of 887.5 metric tons (MT) of bulk



aquaculture products, with sales totaling over NT\$75 million. We set up the "FISH GO" and "GOFISH" e-commerce platforms to help the industry change their sales channels, with sales of nearly 540 MT of domestic seafood worth NT\$122 million. The COA also incentivized the export of over 6,500 MT of seafood products, and encouraged 838 fishing vessels to operate at sea and marketed 42,899 MT of catch. In addition, we completed production adjustment guidance measures (including cleaning and disinfecting of aquaculture ponds, decreasing released density, and delayed stocking of fish ponds) for 5,281 households in 11 cities and counties covering 11,000 hectares of aquaculture areas, thereby stabilizing supply and demand of bulk aquaculture fish varieties.



© Press conference for the program to encourage online group buying of aquatic products by corporations through the newly launched "GOFISH" platform at Mid-Autumn Festival.

- (4) The COA promoted the sale of goat milk, selling 158 metric tons (MT) through sales channels and doing emergency processing of dairy products for 397 MT, while accelerating the slaughter of 2,000 goats to process 14 MT of mutton. We offered incentives to deer farms to harvest antlers (subsidies of NT\$400 per head for bucks one year old or older) with subsidies for 9,234 deer in total. We also incentivized processing of fresh deer antler (NT\$500 per 0.05 kilograms), processing a total of 545 kilograms, while assisting deer farms to diversify marketing in order to stabilize their revenues.
- (5) The COA promoted an incentive program for marketing of agrotourism venues via self-media, assisting 222 agrotourism businesses to strengthen their online visibility. We encouraged travel agencies, schools, and businesses to arrange for group tours on weekdays to agrotourism venues or experiential activity sites, incentivizing such tours by 681 groups from 144 businesses or organizations with a total of 40,705 visitors. We guided agrotourism businesses to sell agrotourism products through the e-ticket

platform Farmtour Market, and arranged discount activities using Quintuple Stimulus Vouchers and agricultural tourism vouchers, while also cooperating with the travel, transport, food, and accommodation industry to do marketing, with more than 12 million cases of exposure.

- (6) In coordination with Quintuple Stimulus Vouchers the COA promoted the second round of agrotourism vouchers. We issued 1.46 million such vouchers with a face value of NT\$888 each in two stages. The first stage was in 2021 when the COA coordinated with the Executive Yuan on a common platform to hold a drawing for 884,791 vouchers. It is anticipated that 580,000 vouchers will be issued in the second stage in 2022, in coordination with additional weekly prize drawings, thereby providing further stimulus to the rural economy.



© The logo for agrotourism vouchers.



© A press conference for weekly drawings for rural gift products in combination with the drawing for NT\$888 agrotourism vouchers.

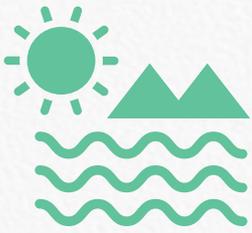
- (7) From October 8, 2021 to April 30, 2022 the COA promoted a special buy-one-get-one-free program for purchasing of full-price e-tickets to 12 National Forest Recreation Areas (NFRAs). We also implemented the "Forest Tourism with Niche Agricultural Products Program," under which we provided cooperating tourism businesses with NFRA entry tickets and discounts on accommodations, with more than 6,000 tour participants. In addition, the COA provided nature education and outdoor instructional activities 824 man-times, outdoor instruction to preschool children 678 man-times, institutional empowerment learning 214 man-times, and citizen leisure about 76,000 man-times.

Chapter / **06**

Major Events in 2021







Chapter 06

Major Events in 2021



1 、 A Look Back at Key Events in 2021

(1) Promotion of modernization of the pig farming industry

In response to Taiwan's permitting the import of pork with Ractopamine in 2021, in order to upgrade the competitiveness of Taiwan's pig farming industry and give that industry peace of mind, the COA fully promoted the "Comprehensive Transformation and Upgrade Plan of the Pig Industry in Response to Trade Opening" (2021-2024). We implemented measures to ensure the incomes of pig farmers and stabilize production and sales, and guided modernization and upgrading of pig farms, slaughterhouses, and processing factories. Through clear labeling of domestic pork, as well as awareness-raising at diverse sales channels, the COA shaped product differentiation for consumers. The pork self-sufficiency rate remained at over 90%. The COA also enabled the pig raising industrial chain to link up from the production end to the slaughtering and processing end to the logistics and sales end to create more value added, effectively enhancing the sustainable competitiveness of Taiwan's pig farming industry and advancing towards international markets.

In 2021 the COA implemented a program of subsidies for introducing new facilities (equipment) on pig farms. These included three subsidy items: introduction of new integrated pig buildings and improved water treatment facilities; the adoption of a pig raising model by batches, age, different sites, and multiple sites; and introduction of automated, labor-saving equipment. Pig farms can simultaneously apply for all subsidy items, with an upper limit of NT\$10 million in total. Implementing organizations include the Central Region Campus of the Industrial Technology Research Institute, the Agricultural Technology Research Institute, the National Animal Industry Foundation, and the COA's Livestock Research Institute.



© The "Guidance to Modernization and Transformation of Pig Farms" program will enhance the sustainable competitiveness of Taiwan's pig raising industry.



Also in 2021 the COA implemented the "Guidance to Modernization and Transformation of Pig Farms" program, under which guidance was offered to 890 pig farms, the authorities undertook actual guidance on 845 pig farms, and guidance was completed on 802 farms. Total funding was NT\$755.885 million, with a budget implementation rate of 97.50%.

(2) Prevention of the transmission of African swine fever into Taiwan

In 2021 incidents including the discovery of remains of a pig corpse with African swine fever (ASF) washed up by the ocean in New Taipei City and the discovery of ASF virus nucleic acids through testing of pork manufactured products smuggled from Vietnam demonstrated that vigilance against ASF needs to stay high. To prevent the transmission of ASF into Taiwan, the COA worked through an interagency mechanism to jointly strengthen and implement measures including border inspections of transport, postal packages, and travelers' luggage; interdiction of smuggling by sea; interdiction at the place of food storage or sale; and management and awareness-raising at e-commerce platforms. In addition, with respect to domestic ASF prevention preparations, we implemented stronger management measures for pigs fed with kitchen waste.

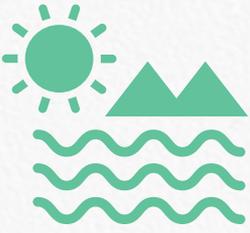
In 2021, with the aim of strengthening border controls, the COA continued rolling reassessments of ASF defense measures. Given increases in online shopping as a result of the COVID-19 pandemic, it became extremely important to block transmission of ASF from overseas through shipped packages, express delivery, and postal packages. The Customs Administration opened incoming packages from high-risk countries to do testing, while the COA's Bureau of Animal and Plant Health Inspection and Quarantine analyzed businesses with customs clearance irregularities and a list of recipients of shipped, express delivery, and postal packages, sharing the information with the Customs Administration to strengthen inspections, while also educating businesses with violations of regulations and



© Premier Su Tseng-chang and COA Minister Chen Chi-chung inspect quarantine operations for international postal packages at the Taipei Post Office.

citizens in general. In terms of inspecting online sales, the COA strengthened searches for advertisements for illegal overseas animal quarantine items published on e-commerce platforms and notified the platforms to hide or remove the advertisements. On average the monthly rate of illegal advertisements discovered fell from 7.4% in 2019 to 0.1% in 2021, indicating success. In addition, we coordinated with local governments to continue to undertake joint market audits to interdict the sale of illegally imported meat products in markets. By using a multi-level network to block the transmission of ASF into Taiwan, we have collaboratively kept Taiwan free from the disease.

In order to avoid the risk of ASF transmission from feeding pigs with kitchen waste that includes illegal meat products with the ASF virus, on September 29, 2021 the COA announced: "As of October 1, 2021 the transport of kitchen waste, animal waste, and scraps of slaughtered livestock and poultry to pig farms is prohibited, and these may not be used as animal feed or animal feed additives. However, pig farms that conform to the proviso of Item 1 of this announcement are exempt from these restrictions." In addition, the COA issued the "Punitive Standards for Cases of Violating the Announced Ban on Transport of Waste Products Made under Subparagraph 1, Paragraph 1, Article 28 of the Statute for Prevention and Control of Infectious Animal Diseases." The new rules ban pig farms with 199 head of pigs or fewer from using kitchen waste to feed pigs and strengthen related investigation and interdiction work and provide for punishments under the law. At the same



time, we strengthened monitoring for ASF, including monitoring of discarded pig corpses, pig corpses at rendering plants, pigs at slaughterhouses with inspection irregularities, and wild pigs.

Through multiple disease prevention measures both internal and external, accompanied by rolling reassessments, the COA strengthened Taiwan's border control measures and all types of domestic disease prevention preparatory tasks, in order to achieve seamless prevention of ASF and effectively keep it out of Taiwan, thereby protecting the sustainable development of the domestic pig farming industry.

(3) Measures in response to the once-in-a-century severe drought

Each year Taiwan experiences an average of 3.5 typhoons, but 2020 was the first year since 1964 that there were no typhoons in Taiwan. This caused the rainfall levels in reservoir watersheds in the first half of 2021 to be only 20-60% of the historical average, creating the worst drought in 56 years. This had a major adverse impact on agriculture, industry, and the use of water in daily life.

The COA began closely monitoring and controlling the water situation starting in July of 2020, and worked with the Ministry of Economic Affairs, the Ministry of Science and Technology, and local governments to launch drought response mechanisms. As the drought worsened, in irrigation areas where evaluations concluded that local reservoir water resources were insufficient for irrigation (covering about 74,000 hectares in the Chianan, Hsinchu, Miaoli, Taichung, and Taoyuan irrigation areas), irrigation was suspended. Moreover, based on the principles of speed and preferential treatment the COA provided irrigation suspension compensation to reduce the impact of the drought and ensure farmers' incomes.

With respect to demand for irrigation water for 7,174 hectares of land in irrigation area 3 in Taoyuan City (in the Xinwu and Hukou districts) for the first crop season of 2021, the Taoyuan Management Office of the COA's Irrigation Agency (IA) adopted proactive use of pond

water resources, drew on rivers and regional drainage, extended the time between peak periods of field preparation, staggered field preparation periods, and distributed irrigation water on a rotating basis. Moreover, the COA coordinated with the Shimen Management Office of the IA to use water channels under its jurisdiction to draw water from the Shezi River to accelerate the supplementing of pond water from the Guangfu irrigation system. At the same time, with the help of the Taoyuan City Government and the Water Resources Agency of the Ministry of Economic Affairs, we set up water pumping stations on the Laojie and Xinjie rivers to draw water resources to the main Taoyuan irrigation channel. Through optimal use of ponds, rivers, regional water resources, and effective rainfall, we successfully provided sufficient irrigation water.

There were 236,000 hectares of farmland in irrigation areas in the first crop season of 2021. Faced with a historically severe drought, as a result of drought response measures by the COA including irrigation in different districts by rotation, intermittent irrigation, use of reserve wells, and use of return flows, the actual supply of water provided was only 50-60% of the planned water use volume. It is estimated that the volume of irrigation water used was reduced by 408 million metric tons, thereby saving precious water resources for the whole country and ensuring that citizens had adequate water. We helped all citizens to get through the drought without serious problems, while satisfying demand from farmers for irrigation water, thereby surviving this severe drought.



© Interagency cooperation to draw river area drainage water resources to provide more water for irrigation.



© The COA pro-actively held local seminars before providing irrigation water.



© Ears of grain form during the first crop season of 2021 in Taoyuan irrigation area 3.



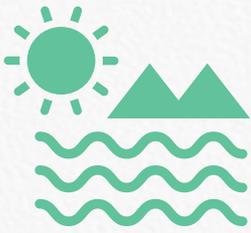
© An image of the harvest at the end of the first crop season of 2021 in Taoyuan irrigation area 3.

(4) Response measures to mainland China's suspension of imports of fruit from Taiwan

On March 1, 2021 mainland China prohibited the import of pineapples from Taiwan, and on September 20 of the same year announced a suspension of imports of fresh sugar apples and wax apples from Taiwan. Besides planning measures to strengthen systematic management of orchards and packaging venues for fruit grown for export, the COA also used the cross-strait platform to send mainland China a draft proposal for quarantine management requirements for Taiwan pineapples, sugar apples, and wax apples to be exported to China. We also proposed numerous times that the mainland undertake substantive discussions to solve any problems. Moreover, at the 81st regular meeting of the Sanitary and Phytosanitary Committee of the World Trade Organization, Taiwan raised a "specific trade concern." However, Taiwan has yet to receive a positive response from the

mainland side. Various response measures were as follows:

- **Strengthened production management:** The COA promoted the supply chain for fruit grown for export as well as traceability and safety management systems, guiding farmers and exporters to sign contracts for production and sale of fruit, and planning which types of products to cultivate based on demand in export markets. We promoted the Traceable Agricultural Products certification system and the three-tier quality control system and tested for pesticide residues in supplier orchards and product concentration venues as well as at the border, in order to ensure fruit safety. We also strengthened fruit selection operations at product concentration venues to ensure the quantity and quality of supplied products.
- **Pro-active penetration of overseas markets:**The COA continued to promote market diversification measures and develop emerging markets to reduce reliance on trade with a single market. We also constructed a comprehensive export cold chain system in order to ensure the quality of exported products and enhance export competitiveness.
- **Development of diversified processed products:** The COA extended the shelf life of agriproducts and increased their value-added, for example by overcoming quarantine restrictions on frozen sugar apples and selling them to Japan and other emerging markets and by developing diversified consumer products including dried pineapples and wax apple juice concentrate and promoting these to new target groups of consumers in order to expand consumption.
- **Sales promotion activities:** Through creative marketing programs the COA stimulated the consumer market and ensured that the price of domestic fruit remained at the average level. These programs included purchasing of fruit by hypermarts and drinks shops. The COA also commissioned the Agricultural Technology Research Institute to set up online purchasing platforms for sugar apples,



wax apples, and pineapples, with simple methods for businesses to place orders. We moreover established an online platform for direct sale of agriproducts (afasale.tw), for which we worked with farmers to enable direct purchases of agriproducts and ensure the quality of the products themselves and post-sales services. The COA also encouraged local governments to hold marketing activities for their local production areas to increase sales volume, and asked the military, prisons, and farmers' association supermarkets to increase purchases. In addition, we guided regional marketing and exhibition activities and strengthened marketing at agriproduct markets held at regular times and in regular places. These approaches drove sales of 12,432 metric tons.

- Measures to purchase pineapples and atemoya for processing: The COA announced that it was seeking processing companies to increase purchases of fruits and to use processing technologies to not only extend the shelf life of agriproducts but also to increase their value-added. In 2021 a total of 7,798 metric tons of agriproducts were handled in this way.



© A press conference to launch an online sales event for sugar apples and wax apples.



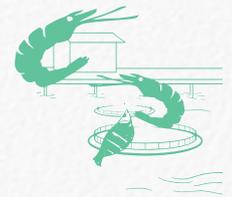
© A ceremony held in 2021 to thank enterprises for supporting Taiwan fruit sales and all citizens for supporting Taiwan agriproducts.

(5) Promotion of an ID-based registration system for pesticides

To enhance the food safety of edible agriproducts, guide farmers to correctly use pesticides, and strengthen compliance with regulations by pesticide dealers, on July 1, 2021 the COA announced amendments to the "Format, Content, Frequency, and Manner of Reports from the Agro-pesticide Manufacturer or Dealer Regulated by Paragraph 2 of Article 35 of Agro-pesticides Management Act." A new provision was added requiring the registration of the ID number or Residence Certificate number of pesticide buyers, and the new rules also strengthen promotion of the use of point-of-sale (POS) systems by dealers to manage pesticide sales as well as implementation of a pesticide purchasing ID-based registration system. There was a guidance period ending on December 31, 2021 and the new rules formally came into effect on January 1, 2022. Through traceability of agriproducts with pesticide residue and verification of the actual cultivators of the land, the COA enhanced the effectiveness of guidance of farmers' use of pesticides.

In order to efficiently promote the policy of using an ID-based registration system for purchases of pesticides, before announcing the coming into effect of the system, the COA first held 20 seminars for pesticide dealers and had farmers' associations do trial implementation to establish a model, steadily guiding about 480 farmers' association pesticide sales locations to cooperate. As of the end of 2021, the rate of reporting of ID numbers by farmers' associations was 98%.

To optimize the POS system and make reporting of sales data easier, during the guidance period the COA provided businesses with subsidies for computer equipment and hands-on training on real machines, and asked local governments to strengthen audits and guidance. We also adopted a multi-store purchasing bar code, so that farmers going to other sales locations to buy pesticide can use it instead of showing their ID. Moreover, the COA adopted "farmers' cards" on a trial basis,



© On September 11, 2021 the COA held a ceremony to unveil the Taiwan Agricultural Insurance Fund.

to simplify the process of data registration for farmers when buying pesticide. In addition, we held 385 policy awareness-raising seminars and distributed awareness-raising posters, and also used regional radio stations, vehicles with loudspeakers, LED scrolling text on TV, and loudspeakers on garbage trucks to enhance the effectiveness of awareness-raising.

With coordination among numerous measures, as of the end of 2021 the rate of reporting of ID numbers by pesticide retailers was 88%, while 90% of businesses had started using POS systems or interface methods of reporting. The COA will continue to work with local governments to strengthen guidance and implement the ID-based system for pesticide purchasing, in order to protect the rights and interests of farmers and reassure consumers.

(6) Establishment of the Taiwan Agricultural Insurance Fund

Based on the "Agricultural Insurance Act," on July 1, 2021 the Taiwan Agricultural Insurance Fund (TAIF) officially began operations. It has legally stipulated responsibility for implementing risk spreading mechanisms, stabilizing the operations and functions of agricultural insurance, training of loss adjusters, education and publicity, and establishment of a database. It acts as the agricultural insurance hub between farmers, insurers, and the government, and provides a large reserve fund for agricultural insurance, enabling its sustainable development.

To steadily implement various policies, the TAIF has worked with farmers' associations to promote income insurance for bananas and sugar apples as well as death insurance for pigs, cows, and pigs being transported, and assisted in other tasks including preparations for launching paddy rice income insurance, establishment of a paddy rice income insurance information

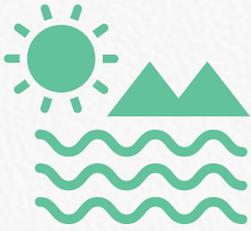
system, and education and awareness-raising about agricultural insurance. It has also assisted with the development and marketing of other types of commercial agricultural insurance. The goals have been to increase the coverage rate of agricultural insurance and spread the risks of agricultural operations.

(7) Establishment of a Special Office for responding to climate change

Global warming and climate change are becoming increasingly obvious, and the agricultural sector must bear the brunt of higher temperatures, changes in rainfall patterns, and increased frequency and intensity of extreme weather. In particular, these will adversely impact the agricultural production environment, the quality and supply of agriproducts, farmers' incomes, the industrial structure, and biodiversity and even threaten Taiwan's food security. To mitigate the impact of climate change on agriculture, on September 1, 2021 the COA formally established the "Special Office for Climate Change Adaptation and Net Zero Emissions." In conformity with international trends, the Special Office will plan and promote scientific studies, policy measures, and strategies for adaptation to climate change and a roadmap to net zero carbon emissions. Moreover, it will (i) continue to undertake rolling adjustments of the action plans for adaptation in fields related to the COA under the "National Climate Change Adaptation Action Plan"; (ii) review controls on emissions of greenhouse gases by the agricultural sector; (iii) compile a list of greenhouse gas emissions for each year; and (iv) draft, implement, and evaluate action plans for emissions controls in the agricultural sector.



© On November 3, 2021 the COA held a press conference on the series of seminars to be held on the subject of net zero emissions in agriculture.



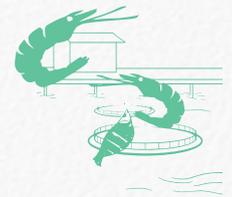
2 、 2021 Month by Month

▶ JAN

- ▷ The "Farmer Pension Act" came into effect, with farmers and the government jointly making deposits in farmers' pension accounts, to upgrade guarantees of the quality of life of retired farmers.
- ▷ The "Regulations for Implementation and Premium Subsidy of Livestock Death Insurance" came into effect, with death insurance for pigs while being transported and death insurance for dairy cows being handled in accordance with new stipulations.
- ▷ The COA held a ceremony to mark the launching of the farmers' pension system, which can enhance the quality of life of retired farmers and could potentially attract more young people to take up agriculture as a profession.
- ▷ Announced the suspension of irrigation and implementation of compensation measures for the Hsinchu, Miaoli, and Taichung areas, and also sub-areas No. 1 and No. 2 of the Taoyuan irrigation area as well as the Shimen irrigation area.
- ▷ Announced that fish ponds for raising milkfish (as working fish) along with clams in 13 townships in Yunlin County, Changhua County, Tainan City, and Chiayi County would be areas eligible for agricultural natural disaster cash relief and low-interest loans.
- ▷ Announced the "Regulations Governing Mandatory Insurance and Premium Subsidy of Pig Death Insurance," which took effect on May 1.
- ▷ Announced the "Guidelines for the Program for Processing of Farm Products at Primary Processing Yards," which were provided to agriproduct businesses with registered primary processing yards for agriproducts and third party certification institutions to serve for reference in applying for or implementing Traceable Agricultural Products processing certification.
- ▷ Announced that wax apple growers in Kaohsiung City and Pingtung County were eligible for agricultural natural disaster cash relief and low-interest loans in the wake of low temperatures in early January.
- ▷ Announced the deletion of recognition of Lithuania, the French departments of Pyrénées-Atlantiques, Gers, Haute-Garonne, and Lot-et-Garonne, and the Czech Republic as areas free of high pathogenicity avian influenza.
- ▷ Amended the "Regulations Governing Policy-oriented Special Agricultural Loan" and related loan regulations to raise the loan quota for agricultural insurance and provide interest relief measures, while adding provisions for dealing with farmers who have not taken out pig death insurance.
- ▷ Announced amendments to the methods and scope of use of the pesticide "Cyprodinil + Fludioxonil" and to the supplementary to Article 9 of the "Regulations of Agro-pesticides Application and Agro-pesticides Residual Inspection in Agricultural Products" to add maximum limits to "Cyprodinil + Fludioxonil" pesticide residue in betelnuts.
- ▷ Announced the "Regulations for the Marking of Fishing Gillnets," requiring fishermen involved in the gillnet fishery industry to mark fishing vessel ID numbers on their gear, and report the loss of fishing gear in the ocean as required by law.
- ▷ Announced emergency-use pesticides and the methods and scope of their use for the tomato pinworm in potatoes, sweet peppers, and chili peppers.
- ▷ Held a press conference on the signing of contracts for technology transfer for wearable labor-saving devices for agriculture, demonstrating the achievements of R&D into such devices.

▶ FEB

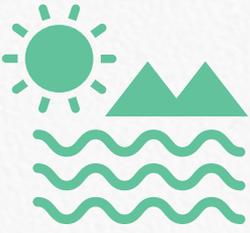
- ▷ The COA successively announced the deletion of recognition of the French department of Ardennes, Finland, and Estonia as areas free of high pathogenicity avian influenza.
- ▷ Based on the climate situation, differences in the growing seasons for lychee and longan, and the developmental situation of lychee giant stink bugs, the COA announced collective chemical prevention periods for various areas, integrating cross-regional resources to collaboratively reduce the impact of these insect pests.
- ▷ Amended some provisions of the "Regulations for Recreational Fishery," setting out rules for navigational safety of recreational fishing boats at sea, requiring installation of the automatic identification system (AIS), relaxing restrictions on areas of activity, and strengthening the inspection and reporting mechanism for recreational fisheries catch.



- ▷ Held an event to display achievements in integrated services for agriproduct processing, publicizing the COA's promotion of uniformity in primary processing of agriproducts as well as the results of integrated services to guide farmers from the production, processing (value-added), and brand-building stages to product marketing.
- ▷ Announced amendments to Paragraph 16 and its supplementary ("Quarantine Requirements for the Importation of Solanum spp. and Capsicum spp. Seeds") under Part B of the "Quarantine Requirements for the Importation of Plants or Plant Products into the Republic of China."
- ▷ With reference to prevention of large-scale landslide disasters in the Guanghai area of the Fuxing District of Taoyuan City, the COA used the cell broadcasting service (CBS) and location-based service (LBS) to send out daily reminders to road users to be cautious.
- ▷ Issued rules governing the use by slaughterhouses of food-grade disinfectants containing chlorine, clearly stipulating the scope of use of such disinfectants by slaughterhouses, their types and ingredients, the methods of their use, and their methods of handling and storage; these rules were provided to slaughtering businesses for compliance.
- ▷ Held elections for new farming task force chiefs and member representatives of base-level farmers' associations.
- ▷ Announced that three townships (including Donggang) in Pingtung County would be locations for trial implementation of banana income insurance in 2021.
- ▷ Held launch activities for the national finals of the "2nd Golden Village Competition."
- ▷ On March 1 mainland China announced that it was suspending imports of pineapples from Taiwan; the COA launched comprehensive responses as follows, which led to the sale of an estimated 50,000 metric tons of pineapples:
 - (1) Set up a special platform for online sales of fresh pineapples and provided enterprises with the opportunity for advance purchasing of fresh pineapples; launched a strategic alliance for the pineapple industry, mediating the setting up of direct sales channels between enterprises and production groups.
 - (2) Expanded cooperation with the processing and drinks industries to balance pineapple supply and sales.
 - (3) Worked through the "Taiwan Agricultural Products Celebration" website to enable citizens to purchase pineapples and related products online.
 - (4) Increased incentives for overseas sales and actively promoted entry into international markets including Japan and Australia.

▶ MAR

- ▷ In areas with rivers prone to debris flow and large-scale landslides, the COA recruited local debris flow disaster prevention specialists and held seven sessions of basic training for them.
- ▷ Announced "MSIG Mingtai Insurance poultry avian influenza insurance" and "MSIG Mingtai Insurance poultry avian influenza insurance, additional insurance for losses of income prior to restoration of operations (applicable to egg layer poultry)" as agricultural insurance products.
- ▷ Amended the "Regulations for Application and Issuance of Agro-pesticides Registration Certificates," liberalizing the required attachments for application, extension, or changes for import permits for technical grade pheromones.
- ▷ Organized a touring exhibition on water conservation.
- ▷ Pineapples, mangoes, and dragon fruit meeting the "Taiwan Good Agricultural Practices 2020 PLUS Standards" officially passed review by the Organizing Committee for the Tokyo Olympics, becoming foods that can be supplied to the Tokyo Olympics athletes' village.
- ▷ The COA announced the deletion of recognition of the French department of Haut-Rhin as an area free of high pathogenicity avian influenza.
- ▷ Announced the "Maximum Fees Charged by the Traceable Agricultural Product Certification Bodies for Livestock and Poultry Products" in coordination with the coming into effect of amendments to the "Agricultural Production and Certification Act," in order to ensure that the fees charged under contract by relevant certification institutions are reasonable.
- ▷ Amended the "Application Procedures and Audit Directions of Plant Protection Pesticides That Are Exempted from Registration."
- ▷ Amended Article 23 of the "Regulations Governing Personnel Management of Farmers' Associations" so that farmers' associations that received approval (from the competent authority) of their reports on management efficiency and personnel cost analysis in 2021 can calculate their total personnel costs based on the average total personnel costs for the previous three years.
- ▷ Organized the "Formosa Fish Spring Freshness" promotional activities for domestic seafood.



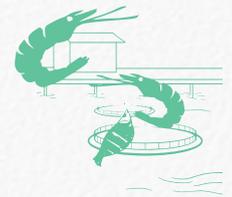
- ▷ Conducted quarantine operations for Taiwan's first shipment of decrowned pineapples to Australia.
- ▷ Announced that the exemption from interest payments for agricultural natural disaster low-interest loans would be extended one year, to April 14, 2022.
- ▷ The COA held a press conference in Tokyo, Japan to promote Taiwan pineapples and processed pineapple products.

▶ APR

- ▷ The subsidy for use of domestic traceable ingredients in school lunches in remote areas was raised from NT\$6 per meal to NT\$10 per meal, effective as of April 1.
- ▷ The COA set up an online activity to promote purchasing of domestic pineapples and support local farmers, with consumer rebates for purchases of fresh and fresh-frozen pineapples, thereby enabling collective support of high-quality and delicious domestic pineapples.
- ▷ Completed orientation training and matchmaking assignment tasks for 46 reserve plant doctors.
- ▷ Amended the "Regulations for Quarantine of Animal/Plant Carried by Passengers and Service Personnel on Vehicles"; such persons must handle quarantine matters for exported or imported animals/plants and their products in accordance with relevant regulations.
- ▷ Announced emergency preventive chemical agents and their methods and scope of use for tomato bacterial canker disease.
- ▷ Held the "2020 Assistance Award for Outstanding Achievements in Agricultural Products Marketing."
- ▷ Convened the "Preparatory Videoconference for the 5th Taiwan-Indonesia Agricultural Consultation Conference" at which a Memorandum of Understanding was signed on "Expanding High-Quality Rice Seed Production in South Sulawesi."
- ▷ Established the Central Lumpy Skin Disease (LSD) Emergency Operation Center and Local LSD Emergency Operation Centers in order to inventory and prepare materials and personnel and to undertake vaccination against LSD.
- ▷ Issued the "Animal-friendly Dairy Production System Definition and Guideline," which was provided to operators intending to utilize an animal-friendly dairy production system to serve as reference for introducing such a system.
- ▷ Announced the deletion of recognition of the French departments of Haute-Savoie and Bas-Rhin as areas free of high pathogenicity avian influenza.
- ▷ The Pingtung plant of the Cha I Shan Foods Company became the first slaughterhouse in Taiwan to receive HACCP certification.
- ▷ The COA held a seminar to explain the initiation of the Phase 1 irrigation engineering project and promotion of field pipe irrigation subsidies in Luona Village and Xinxiang Village in Xinyi Township to inform the public about the COA's expansion of irrigation services.
- ▷ Amended partial articles of the "Regulations for Implementation and Premium Subsidy of Livestock Death Insurance" and the "Regulations Governing Mandatory Insurance and Premium Subsidy of Pig Death Insurance" to add provisions on who is subject to the requirement for mandatory pig death insurance and to relax restrictions on farmers' associations where the insurance is taken out, and moreover to require that the applicant and the insured person be the same person.
- ▷ Issued the "Regulations for the Establishment and Management of the Aquaculture Production Area" in order to put into practice "special zones," "special water," and "special laws" for the aquaculture industry.
- ▷ Held the "5th APO International Conference on Biofertilizers and Biopesticides" (ICBB).
- ▷ Amended Articles 4, 5, and 6 of Appendix 2 of Article 5 of the "Regulations Governing the Capital Adequacy Ratio of the Credit Departments of Farmers' and Fishermen's Associations"; the title of the Appendix is "Standards Governing Credit Extension and Limitation to the Associated Members and/or Non-members for the Credit Departments of Farmers' and Fishermen's Associations."

▶ MAY

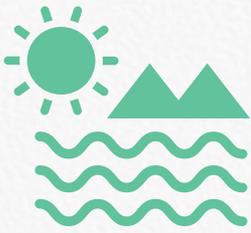
- ▷ The COA held the "Conference on Action to Conserve Endangered Wildlife."
- ▷ Announced amendments to the Appendix to Paragraph 1 of the "Plant Protection Products That Are Exempted from Registration" to amend the Chinese name of Item 16 to "wood vinegar, bamboo vinegar, and distilled vinegar from other plants" and moreover add a list of "other plants" in the Notes column of the chart to clarify the term.
- ▷ Approved the draft of the "Food and Agricultural Education Act" which provides funding and a legal basis for promotion of food and agricultural education (FAE) to enable improvement of the FAE system.



- ▷ Held a press conference and exhibition activities to mark the start of "2021 Soil and Water Conservation Month."
- ▷ Held the "2021 Awards Ceremony for Outstanding Traceable Agricultural Products Travel Organizations and Matchmaking with Master Chefs," to enable citizens to better understand high-quality food certified as Traceable Agricultural Products (TAP) and continue to support farmers producing outstanding local TAP-certified agriproducts.
- ▷ Held the "2021 Disaster Prevention and Response Exercises," doing drills testing the operations of independent disaster prevention communities as well as handling situations including debris flow warnings and evacuations.
- ▷ Convened a videoconference for the "National Agricultural Administrators Symposium" to discuss issues including agricultural guidance measures in response to the upgrading of the national alert level for COVID-19 and disease prevention management in the agricultural sector.
- ▷ Issued the "Epidemic Prevention Guidelines for Applications and On-site Investigation Tasks for Agricultural Natural Disaster Relief During the Pandemic," flexibly adjusting the agricultural natural disaster relief process.
- ▷ Issued the "Epidemic Prevention and Safety Guidelines for Wholesale Livestock and Poultry Markets in Response to COVID-19" to ensure the stability of the supply chain for livestock and poultry meat products.
- ▷ Extended the time period for applications for agricultural natural disaster loans from within 15 days of receiving a disaster verification certificate to 35 days.
- ▷ Participated via videoconference in the "88th General Session of the World Assembly of Delegates" of the World Organisation for Animal Health.
- ▷ Announced the "Items, Methods and Periods of the Data and Records Retained by the Certification Body of Premium Agricultural Products of Certified Agricultural Standards" to clearly stipulate the data that Certified Agricultural Standards certification bodies must preserve in the course of the certification process; this data must be made available to the central competent authority at any time and the certification body cannot evade, obstruct, or reject requests for data nor provide inaccurate data.
- ▷ Amended Paragraph 8 of the "Directions of Relief and Revitalization Measures for Livestock Industry and Business Operations Affected by Coronavirus" to extend the deadline for applications for relief and stimulus subsidies for the livestock industry.
- ▷ Received authorization from Japan and Korea to handle quarantine tasks for fresh fruit from Taiwan (including lychees, mangoes, papayas, dragon fruit, wendan pomelos, and jujubes) that is to be exported to Japan and Korea.
- ▷ Announced amendments to Supplementary 4-4 of Paragraph 8 of the "Quarantine Requirements for the Importation of Animals and Animal Products," entitled "Quarantine Requirements for the importation of deboned (chilled or frozen) beef from Paraguay into the Republic of China," to allow the import into Taiwan of Paraguayan beef viscera and beef offal that meets those quarantine requirements.

▶ JUN

- ▷ The COA amended Articles 5, 5-1, and 10 of the "Regulations for Relief and Revitalization Measures for Agriculture in Response to the Impact of Severe Pneumonia with Novel Pathogens" to protect the livelihoods of farmers and fishermen and reduce the impact of the pandemic on agriculture.
- ▷ Announced the "Certification Criteria for Crop Products of Premium Agricultural Products Certification System," "Certification Criteria for Livestock Products of Premium Agricultural Products Certification System," "Certification Criteria for Fishery Products of Premium Agricultural Products Certification System," "Certification Criteria for Forest Products of Premium Agricultural Products Certification System," "Certification Criteria for Processed Agricultural Products of Premium Agricultural Products Certification System," "Maximum Fees Charged by Certification Bodies of Premium Agricultural Products of Certified Agricultural Standards," and "Enquiry Channels for Certification Information and Its Method of Labeling of Premium Agricultural Products of Certified Agricultural Standards."
- ▷ Amended the "Directions of Loans for Agricultural Industry and Entities Affected by Severe Pneumonia with Novel Pathogens" and the "Directions for Funding Financial Institutions and Agricultural Credit Guarantee Institutions Implementing Relief and Revitalization Measures for Severe Pneumonia with Novel Pathogens," and announced the subjects of verification of operational difficulties and interest subsidy measures, providing relief loan and interest exemption measures for agricultural industries or entities affected by COVID-19.
- ▷ Announced the donation of NT\$200 million to the Agricultural Credit Guarantee Fund for relief measures.
- ▷ Amended the "Directions for the Green Bamboo Seedling Diseases Verification" and renamed them the "Directions for the Bamboo Seedling Diseases Verification."
- ▷ Terminated the Central Lumpy Skin Disease (LSD) Emergency Operation Center, as all cattle ranches in the country had completed booster vaccinations and there were no further cases of the disease.
- ▷ Successively issued the "Regulations of the Preserved Items and Preservation Method for Publishing Agricultural Products Advertisements" and amended the "Enforcement Rules of Agricultural Production and Certification Act" and the "Regulations for Awards for Reporting and Detecting Contravention of the Agricultural Production and Certification Act" to improve the agricultural product production and certification management system.



- ▷ Separately issued the "Regulations Governing the Qualified Damage Adjusters of Agricultural Insurance" and the "Implementation Regulations for the Risk Spreading and Managing Mechanism of Agricultural Insurance" to facilitate the promotion and operation of agricultural insurance.
- ▷ Amended certain articles of the "Veterinarian Act" to add a provision regarding requests from animal owners for veterinarians to provide a summary of medical records and image records; also stipulated rules for work by veterinary assistants without a background in veterinary medicine and increased fines for false representation of veterinary qualifications.
- ▷ Announced emergency preventive chemical agents and their methods and scope of use for strawberry leaf blight disease, adding 12 kinds of pesticides including "Thiabendazole + Oxine-copper 53% WP."
- ▷ Started a program for the rural elderly to "suspend congregating but continue eating," providing more than 700 boxed meals per day to the rural elderly so that they continued to have food during the pandemic.
- ▷ Announced emergency preventive agro-pesticides and their methods and scope of use for chrysanthemum ray blight disease.
- ▷ Amended the "Regulations for Approving Imports of Designated Plant Regulated Articles or other Articles," and renamed them the "Regulations for Approving Imports of Designated Plant Regulated Articles."
- ▷ Issued the "Regulations for Approving Imports of Designated Regulated Articles" to effectively manage special cases of approval of the import of articles for experiments, research, education, or exhibition; articles to be legally stored; and articles for producing products that are risk free of harmful pests; as well as cases of specified articles to be shared.

▶ JUL

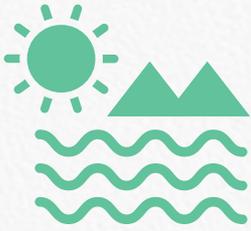
- ▷ The COA brought together 25 e-commerce firms to promote a "buy NT\$500 get NT\$50 free" promotional campaign for mangoes within the "Taiwan Agricultural Products Celebration" program.
- ▷ Announced the "Mandatory or Prohibitory Items in the Contracts Between the Certification Body and Agricultural Product Operators of Premium Agricultural Products of Certified Agricultural Standards."
- ▷ Promoted the ID-based registration policy for pesticides, adding a new requirement for retail pesticide dealers to report the ID number or Alien Resident Certificate number of purchasers when reporting sales information.
- ▷ The "Regulations Governing the Qualified Damage Adjusters of Agricultural Insurance" and the "Implementation Regulations for the Risk Spreading and Managing Mechanism of Agricultural Insurance" came into effect, strengthening the professional qualifications of damage adjusters and building a risk spreading mechanism.
- ▷ The COA promoted a gillnet marking policy, requiring all gillnet fishing vessels entering or departing from port to carry fishing gear marked with the fishing vessel's identification number.
- ▷ The strategy to prevent infestation by the fall armyworm entered Phase 3—farmers' self-management—with no need to report each outbreak in farmland.
- ▷ The COA began to sell paddy rice insurance for the second crop season of 2021, with the COA providing subsidies for one-half of premiums in order to reduce the burden of premiums on farmers.
- ▷ Announced amendments to the "Quarantine Requirements for the Importation of Plants or Plant Products into the Republic of China" to list the counties of Charleston and Dorchester in South Carolina, USA, as areas infested with the Asian longhorned beetle.
- ▷ Amended the "Directions for Quarantine Operations for Exports of Fresh Sugar Apples to Mainland China," requiring that exporters or their agents provide the "Information Form of Packaging Premises for Export of Sugar Apples to Mainland China" for each batch when applying for quarantine operations for export.
- ▷ Amended partial articles of the "Regulations for Implementation and Premium Subsidy of Sugar Apple Income Insurance" and the "Regulations Governing the Trial Operation and Premium Subsidy of Banana Income Insurance" to enlarge the area for trial implementation of banana income insurance, change the collective farmers' association mechanism to a single-level system for base-level farmers' associations, and have the Taiwan Agriculture Insurance Fund handle matters including re-insurance assumption of risk, risk spreading, and subsidies for insurance premiums.
- ▷ Announced the results of the "2021 Traceable Agricultural Products Masters" selection, in hopes of expanding the TAP system and having more outstanding farmers join it in the future to collectively promote sustainable agricultural operations.
- ▷ Attended (by videoconference) the "Ministerial Meeting on Fisheries Subsidies Negotiation" of the World Trade Organization.



- ▷ Amended Paragraph 7 of the "Administrative Directions for Management of Approved Orchid Facilities for Export Production" related to the calculating method for suspending exports to Australia from orchid facilities with excessively high quarantine failure rates.
- ▷ Amended the "Operating Methods for Subsidies for Agricultural Materials for Eco-Friendly Farming," including graded subsidies for domestically produced microbial fertilizers depending on whether or not they have fertilizer additives; also, in coordination with the ID-based registration system for pesticides, added a requirement that the purchasers of biopesticides must provide their ID numbers or Alien Residence Certificate numbers to the pesticide dealer for registration in the pesticide sales management system.
- ▷ Held a press conference to announce that Taiwan bananas had been selected as a food for the athletes' village for the Tokyo Olympics held in 2021.
- ▷ Announced that applications would be accepted for the "2022 Smart Agriculture Achievement Diffusion Program."
- ▷ Announced amendments to the "Regulations Governing the Content on the Internet Involving the Sale or Importation of Overseas Objects Which Shall Be Subject to Animal Quarantine" to stipulate the responsibilities of Internet businesses.
- ▷ Held the "2021 Videoconference on Protection of Results of Agricultural R&D" to strengthen awareness of protection of intellectual property rights among agricultural professionals and researchers.
- ▷ Amended the "Regulations Governing Policy-oriented Special Agricultural Loan" and related directions to (i) add measures for preferential loans for middle-aged farmers (aged 45 to 55), (ii) increase the loan quota for the livestock industry, and (iii) add new provisions for people who have acquired Traceable Agricultural Products certification to be eligible for loans.
- ▷ Held (via videoconference) the "10th Meeting of the MECO-TECO Technical Working Group on Agricultural Cooperation" between Taiwan and the Philippines along with a "B2B Forum on Agricultural Mechanization."

▶ AUG

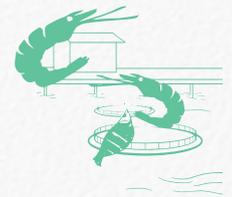
- ▷ The COA added new rules for the format of Traceable Agricultural Products labeling: Besides legally stipulated disclosure items, added new options for information fields for the disclosure of names of individual members of groups, their telephone numbers, etc.
- ▷ Amended Article 7 of the "Regulations for Registration and Administration of Livestock or Poultry Farming," permitting livestock or poultry farms that intend to invest in animal-friendly raising and moreover have registration certificates for raising livestock or poultry to improve their facilities (under the precondition of not exceeding the scale of facilities recorded in the original registration certificate).
- ▷ Amended the "Directions for the Disposition Principle of Fishing Vessels and Crew Involved in Smuggling Cases," adding a new provision that during the COVID-19 pandemic fishing vessels or crew caught smuggling will be given administrative punishments under Article 10 of the "Fisheries Act" depending on the severity of each individual case.
- ▷ In response to the serious agricultural losses caused by torrential rains in early August, the COA simplified relevant relief measures as follows:
 - (1) Successively announced that all products in all areas south from Changhua County and specified products from some cities and counties would be eligible for agricultural natural disaster cash relief and interest-free low-interest loans.
 - (2) Asked all relevant farmers' and fishermen's associations, the Agricultural Bank of Taiwan, and the Agricultural Credit Guarantee Fund to accelerate reviews of cases of agricultural disaster low-interest loans and guarantees, to assist farmers and fishermen affected by the disaster to access capital to resume operations and rebuild as quickly as possible.
 - (3) Announced that exemption from interest payments for agricultural natural disaster low-interest loans would be extended to April 14, 2022, with the COA subsidizing interest payments, in order to reduce the burden of interest on farmers and fishermen.
 - (4) Announced crops in central and southern Taiwan that had suffered serious losses as well as processes for exemption from damage inspection, to assist in simplifying investigation of agricultural losses.
- ▷ Participated (via videoconference) in the "APEC 6th Ministerial Meeting on Food Security."
- ▷ Announced the placing of *Muhlenbergia capillaris* and *M. reverchonii* on the list of harmful organisms (weed category) and banned their import pursuant to Article 15 of the "Plant Protection and Quarantine Act."
- ▷ With respect to the discovery by the Coast Guard Administration of the Ocean Affairs Council of smuggling of cats aboard fishing vessels, the smuggled cats were euthanized in order to block zoonoses from entering Taiwan.



- ▷ With respect to the discovery of the first case of smuggled meat products with the African swine fever (ASF) virus, the COA adopted the following emergency measures:
 - (1) Convened a meeting on handling of kitchen waste possibly contaminated by ASF and strengthened audits of pig farms where such waste had already been converted to feed to avoid having operators use kitchen waste illegally.
 - (2) Convened a meeting of the Central ASF Emergency Operation Center to comprehensively launch enhanced measures to prevent ASF and hold the line for Taiwan's 6,400 pig farms.
 - (3) Announced a ban on transporting kitchen waste to pig farms and using kitchen waste as pig feed or feed additives.
 - (4) In cases of illegal use of kitchen waste, offenders can be punished with fines of up to NT\$3 million under the "Feed Control Act"; also, the COA announced amendments to Paragraph 4 of Article 5 of the "Regulations of Rewards for Reporting of Feed Control Act Offenses," raising the total amount that any reporting individual can receive in any given year from the same competent authority to NT\$1.2 million.
- ▷ Issued amendments to Paragraph 2 of the "Fine Determination Criteria for Using Illegal Food Waste Governed by Subparagraph 2 of Article 29 of Feed Control Act" to add a definition of illegal food waste.
- ▷ Amended the "Regulations on the Management of the Crew of Fishing Vessels" so that fishermen must receive a recommendation from a fishery operator and sign up through a fishermen's association to participate in basic safety training, to avoid wasting training resources.
- ▷ Held the first live drill for a large-scale landslide disaster in Daniao Village, Dawu Township, Taitung County.
- ▷ In coordination with the planned issuance of Quintuple Stimulus Vouchers by the Executive Yuan, issued additional rural tourism vouchers.
- ▷ Held a ceremony to mark the opening of the Lianxing agricultural products primary processing yard.
- ▷ Cooperated with 28 domestic e-commerce firms to promote an online sales activity for the wendan pomelo season under the "Taiwan Agricultural Products Celebration" program.

▶ SEP

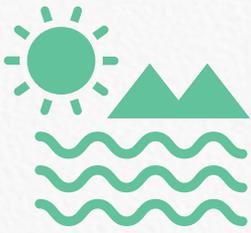
- ▷ The COA established the "Special Office for Climate Change Adaptation and Net Zero Emissions."
- ▷ Issued the "Directions for Coastal and Offshore Fishing Vessel Operation during the COVID-19 Pandemic" to protect the health and safety of fishermen and block COVID-19 from coming across the border into Taiwan.
- ▷ Handled reinsurance matters for banana income insurance and sugar apple income insurance, and also established an information management system for taking out policies and settlement of claims in order to simplify and accelerate the taking out of insurance and settlement of claims.
- ▷ Accepted applications for 2021 environmental subsidies for Traceable Agricultural Products farm crops.
- ▷ Provided pig farmers with price-differential subsidies of NT\$500 per head during the suspension of use of kitchen waste as pig feed, in order to relieve pig raising businesses that used kitchen waste of the extra costs of using animal feed.
- ▷ Amended Article 40 of the "Enforcement Rules of the Farmers Association Act" so that, with respect to the net profit of the Agricultural Bank of Taiwan (ABT) allocated to farmers' associations at all levels for guidance and extension expenses, the ABT will open special accounts and organize review committees to review and manage the expenditures, in order to enhance the efficiency of the use of the funding.
- ▷ Held a press conference to mark the launch of a campaign to increase cross-border e-commerce sales of Taiwan's wendan pomelos, adding the Japanese market this year, with total sales of about eight metric tons, an increase of more than 50% compared to 2020.
- ▷ Held awareness-raising activities for prevention of the mile-a-minute weed, inviting citizens to collectively work to prevent and eradicate the mile-a-minute weed in order to protect Taiwan's native ecology and environment.
- ▷ Incorporated occupational diseases into payments under farmers' occupational-injury insurance to provide more comprehensive guarantees of farmers' occupational safety.
- ▷ Held a ceremony to unveil the "Taiwan Agricultural Insurance Fund," which was a new milestone for agricultural insurance.
- ▷ Announced the beginning of acceptance of applications for "agricultural operational preparatory funds" for young farmers, offering a maximum of NT\$720,000 over two years to new farmers age 18 to 45 who have agricultural operational skills and venues.



- ▷ Began accepting applications for educational subsidies for farmers and fishermen whose children study at high schools or colleges for the first academic semester of 2021, in order to encourage those children to pursue advanced education in high schools, vocational high schools, colleges, and universities.
- ▷ Announced the "Designation of Fresh Washed Egg as the Agricultural Product Item of Registration for Traceable Information and Its Labeling Method."
- ▷ In response to mainland China's unilateral suspension of imports of sugar apples and wax apples from Taiwan, the COA, in addition to adopting multiple export, direct sales, and processing measures as well as coordinating with cold chain logistics systems and upgrading product quality to increase consumption, also launched the following five measures to uphold farmers' rights and interests:
 - (1) Adopted export incentive measures and expanded the holding of Taiwan fruit marketing activities in order to increase export volume to existing markets including Hong Kong, Singapore, Canada, and Malaysia, with targets set at 5,000 metric tons for sugar apples and 1,000 metric tons for wax apples.
 - (2) Adopted measures to adjust production seasons in order to spread supply to the market over a longer period of time.
 - (3) Held rural tourism voucher prize drawing activities, encouraging consumers to use Quintuple Stimulus Vouchers to purchase domestic sugar apples and wax apples, to provide nationwide support to farmers.
 - (4) Strengthened sales through e-commerce platforms.
 - (5) Set up a platform for corporate group purchasing to increase domestic demand and consumption.
- ▷ Announced the deletion of recognition of the French department of Aisne as an area free of high pathogenicity avian influenza.
- ▷ Listed the Republic of Haiti as the second country in the Caribbean region of North America (after the Dominican Republic) to have an outbreak of African swine fever (ASF), incorporating it into the list of countries (areas) that have had an outbreak of ASF within the last three years.

▶ OCT

- ▷ The COA continued to guide small-scale pig farms with a registered scale of 199 head or less to stop using kitchen waste or other waste products, and provided subsidies and incentives to small-scale pig farmers to halt operations, thereby guiding the comprehensive transformation and upgrading of the domestic pig farming industry.
- ▷ Amended Articles 3, 9, and 19 of the "Regulations Governing the Trial Operation and Premium Subsidy of Banana Income Insurance" to add Hsinchu County and Yilan County to trial implementation areas, and amended other provisions including relaxation of restrictions on items that shall not be underwritten.
- ▷ Announced the amendment of Subparagraph 3 of Paragraph 1 of plants or plant products whose import is prohibited under Part A of the "Quarantine Requirements for the Importation of Plants or Plant Products into the Republic of China."
- ▷ Announced that paddy rice (in Yuli and Fuli townships), bananas, corn for human consumption, and soybeans from Hualien County and paddy rice from Guanshan Township in Taitung County were eligible for agricultural natural disaster cash relief and low-interest loans.
- ▷ Came out with a new type of atemoya income insurance for Taitung County, providing atemoya farmers with coverage of their production costs.
- ▷ Organized the "Sustainability Pavilion" at the "2021 Taiwan Innotech Expo" and pledged that reduction of carbon emissions is and will in the future be an important policy goal.
- ▷ Amended Paragraph 2 of the "Feed Used for Livestock, Poultry, and Aquatic Animals" to add dried soldier fly as an animal feed.
- ▷ Announced France as an area free of Newcastle disease, and that poultry meat from French poultry meat production facilities designated by Taiwan (except for those located in departments not yet announced by the COA as areas free of high pathogenicity avian influenza) can resume exportation to Taiwan.
- ▷ Announced amendments of partial provisions of the "Commodities Subject to Animal Quarantine."
- ▷ Signed an organic equivalency agreement between Taiwan and India, establishing a bilateral partnership for trade in organic agriproducts and promoting agricultural exchanges between the two countries.
- ▷ Amended the "Directions Governing the Application for COVID-19 Subsidies on Onshore Quarantine, Specimen Collection and Diagnostic Tests for Fishing Vessel Crews" to add a new subsidy to cover the costs for crew doing onshore quarantine in quarantine hotels.



- ▷ Held the awards ceremony and market for the "2021 Traceable Agricultural Products Masters" to affirm the work of outstanding operators producing farm, fisheries, and animal husbandry Traceable Agricultural Products and to encourage consumers to actively buy and support Traceable Agricultural Products.
- ▷ Announced amendments to the "Declaration of Specified Breed Names of Animals Banned from Being Owned, Imported or Exported" and renamed them as "Specified Breed Names of Animals Banned from Being Owned, Imported or Exported," adding American pit bull terriers and American Staffordshire terriers to the list of banned animals.
- ▷ Held the "2021 International Conference on Smart Agriculture" and a joint exhibition of achievements.
- ▷ Held the "International Forum for Sustainable and Circular Agriculture" to expand the scope of cooperation with major economic entities from around the world on agricultural issues and to echo the call for sustainable development and expansion of the circular economy in the international community.
- ▷ Held the 2021 joint exhibition of achievements and sales event for graduates of the "Agricultural Innovation Incubation Center" to display the achievements of companies who received guidance at the Center.

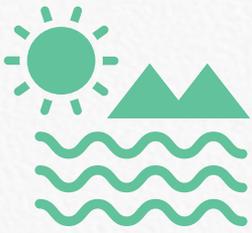
▶ NOV

- ▷ The COA held the "Exhibition of Achievements in Innovative Cross-Sector Cooperation Between Agriculture and Industry," displaying ways in which technology can be used to solve problems including the agricultural labor shortage and climate change.
- ▷ Amended the "Regulations Governing Mandatory Insurance and Premium Subsidy of Pig Death Insurance," so that the applicant must take out insurance based on the actual number of pigs raised; also, an exception provision was added under which applicants are exempt from taking out insurance covering the entire farm where there are special pig-raising formats.
- ▷ Amended the "Regulations of Required Vaccines and Their Management for Elimination of Classical Swine Fever and Foot and Mouth Disease" so that as of January 1, 2022, the use of lapinized classical swine fever vaccine was ended in Taiwan.
- ▷ Set up three pavilions (one on Taiwan agrotourism, one on national forests, and one on rural culinary gift and souvenir items) at the "2021 Taipei International Travel Fair" to raise the profile of rural tourism in Taiwan and promote local rural commercial opportunities.
- ▷ Announced amendments to certain articles of the "Quarantine Requirements for the Importation of Plants or Plant Products into the Republic of China" to prevent harmful organisms from being brought into the country with imported products and posing a hazard to the safety of the agricultural production environment.
- ▷ Held the first of a series of touring symposia on adaptation to climate change for the nation's agricultural sector, for reference in formulating concrete programs and roadmaps for adaptation to climate change and net zero carbon emissions in the agricultural sector.
- ▷ Held the 14th "Taiwan-Canada Agricultural Working Group Meeting" at which the two parties looked forward to strengthening agricultural linkages and creating collaborative commercial opportunities to promote the well-being of farmers and agricultural development in the two countries.
- ▷ Participated in the "2021 Asia Agri-Tech Expo and Forum," displaying results of commercialization of agricultural technology in Taiwan.
- ▷ Announced a lowering of the threshold for claims for new-type atemoya income insurance, and again extended the deadline for taking out such insurance to November 30.
- ▷ Announced "Cathay Century Insurance mango crop insurance (government disaster relief-linked insurance)" as an agricultural insurance product in 2022.
- ▷ Held oath swearing, certification, and team learning activities for agricultural service teams in order to put into practice the policy goals of revitalizing the agricultural labor force and improving the rural population structure.
- ▷ Announced the "Regulations of the Exportation of Trichiurus spp." with the goals of constructing a source traceability mechanism for the Trichiurus spp. genus of cutlassfishes and promoting sustainability of Trichiurus spp. resources.
- ▷ Announced the deletion of recognition of the French department of Nord as an area free of high pathogenicity avian influenza.



▶ DEC

- ▶ The COA cooperated with 23 domestic e-commerce firms to set up a special area for selling atemoya and wax apples on the "Taiwan Agricultural Products Celebration" online sales platform to encourage consumers to purchase delicious domestic atemoya and wax apples online and thereby support farmers.
- ▶ Set up the "Agricultural Health Pavilion" at the "2021 Healthcare+ Expo Taiwan," with health promotion as the core and linkages to the "green care" policy, to improve the national healthcare system.
- ▶ Attended (by videoconference) the "73rd Session of the Executive Committee of the African-Asian Rural Development Organization" (AARDO) and the "20th General Session of AARDO Conference."
- ▶ Successively held four press conferences and tourist hotel matchmaking events to promote the sale of atemoya and launched a variety of production-and-marketing measures for domestic atemoya.
- ▶ Abolished the "Tou-3 Landslide Designated Soil and Water Conservation Zone at Nanfong Village of Ren'ai Township, Nantou County" and "Tou-4 Landslide Designated Soil and Water Conservation Zone at Nanfong Village of Ren'ai Township, Nantou County" and the designation of the competent authority (Nantou County Government), which were delineated by announcement Nongshou Shuibao Zi No. 0921846874.
- ▶ Set up the "Taiwan Pavilion" at the 33rd "Taipei Building Show," with the theme of "Dream Building with Taiwan Wood & Bamboo" and winning an "Excellent Exhibitor Image Award."
- ▶ Held an exhibition of achievements of the guidance program for e-commerce packaging and brand building for agricultural products; the program aimed to market Taiwan agriproducts with design aesthetics, support local small farmers, and adapt to the new normal of online fresh agriproduct purchasing established during the COVID-19 pandemic.
- ▶ Announced that quail is a kind of poultry and that persons raising 500 or more quail should apply for animal husbandry farm registration; the rule took effect on January 1, 2022.
- ▶ Held the presentation ceremony for the "2021 2nd National Agricultural Science Award" to encourage team cooperation to stimulate creativity and make contributions to industry and recognize successful and key examples of Taiwan agricultural science.
- ▶ New Zealand agreed to resume imports of mangoes from Taiwan, and the administrative procedures were completed on December 22.
- ▶ Invited the Taiwan Fertilizer Company and other suppliers and dealers of fertilizer to discuss fertilizer supply stabilization measures and a flow traceability mechanism in order to strengthen fertilizer flow traceability and precisely meet demand for fertilizer from farmers.
- ▶ Announced "Shinkong Insurance pineapple crop insurance (regional harvesting insurance)" as an agricultural insurance product in 2022.
- ▶ New Zealand agreed to the import of canned meat products from Taiwan, as the COA successfully assisted businesses to enter the New Zealand market.
- ▶ The COA held the awards ceremony for the "2nd Golden Village Competition" with the expectation of continued commitment to Rural Regeneration and the creation of new value and well-being in rural areas.
- ▶ Amended partial articles of the "Farmer Health Insurance Act" and Article 3-1 of the "Farmer Pension Act" so that young persons under 50 discharged from the military who are not qualified to collect the pension for military personnel can participate in farmers' health insurance and the farmers' pension system.
- ▶ Set up the "Taiwan Pavilion" at the "Food Taipei 2021" international food exposition to display Taiwan's abundant niche products; the COA also set up a digital commerce and trade negotiations area to help agricultural producers from Taiwan to penetrate foreign markets and increase exports.
- ▶ Announced that the deadline for applications for the "NT\$10 Billion Agricultural Green Energy Loan Program" was extended from the end of 2021 to the end of 2022.



Appendix 1: Organizational Chart of the Council of Agriculture



Department of Planning

Department of Animal Industry

Department of Farmers' Service

Department of Science and Technology

Department of International Affairs

Secretariat

Personnel Office

Accounting Office

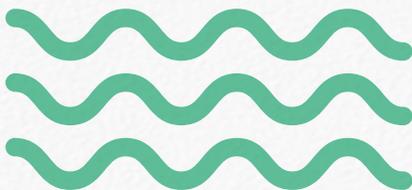
Statistics Office

Civil Service Ethics Office

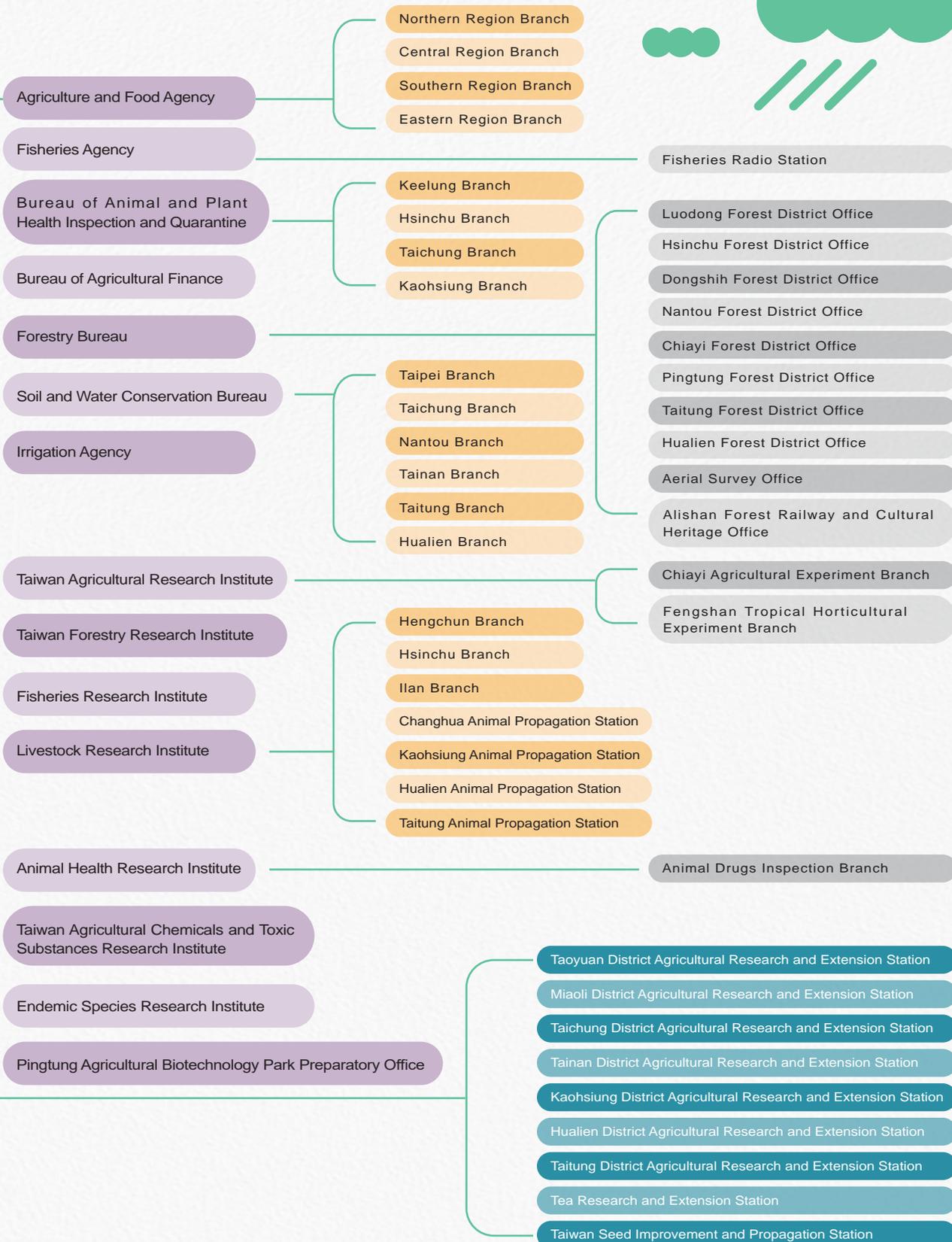
Information Management Center

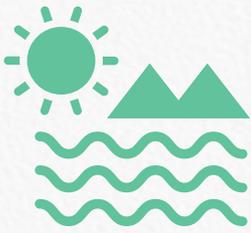
Legal Affairs Committee

Petitions and Appeals Committee



Note: The budget for 2021 for the COA and all affiliated agencies provided funding for a total of 7,657 persons including 4,767 full-time staff, 167 hirees, 922 contract employees, 3 security personnel, 1,515 technical staff, 95 drivers, and 188 custodial workers. The offices of the COA per se (i.e. excluding affiliated agencies) accounted for 387 of these persons, including 327 full-time staff, 21 hirees, 12 contract employees, 3 security personnel, 6 technical personnel, 5 drivers, and 13 custodial workers.





Appendix 2: Budgets and Final Accounting for 2021

(1) Budgets for 2021

A. Budget for the COA and affiliated agencies: The total budget for the COA and its affiliated agencies for 2021 was NT\$136.999 billion, a decrease of NT\$25.235 billion (15.55%) as compared to the 2020 figure of NT\$162.234 billion. The main reason is that appropriations from the treasury of NT\$150 billion for the Rural Regeneration fund came to an end, causing a decline of NT\$27.6 billion in the budget. Figures 1 and 2 show the allocations by function and agency, respectively.

Figure 1 Budget allocations by function, 2021

Unit: NT\$1 million

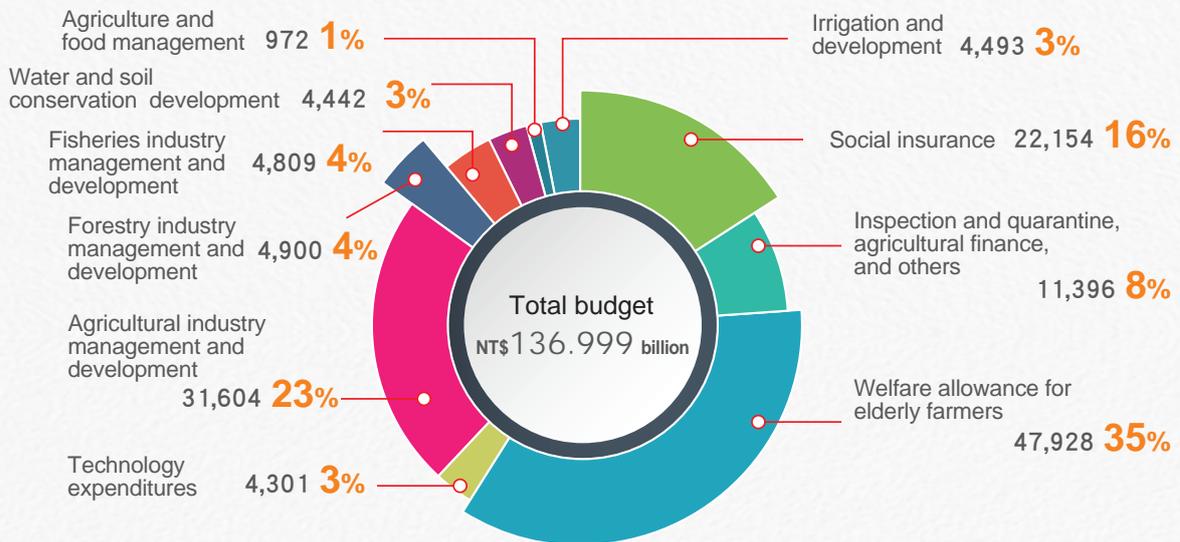
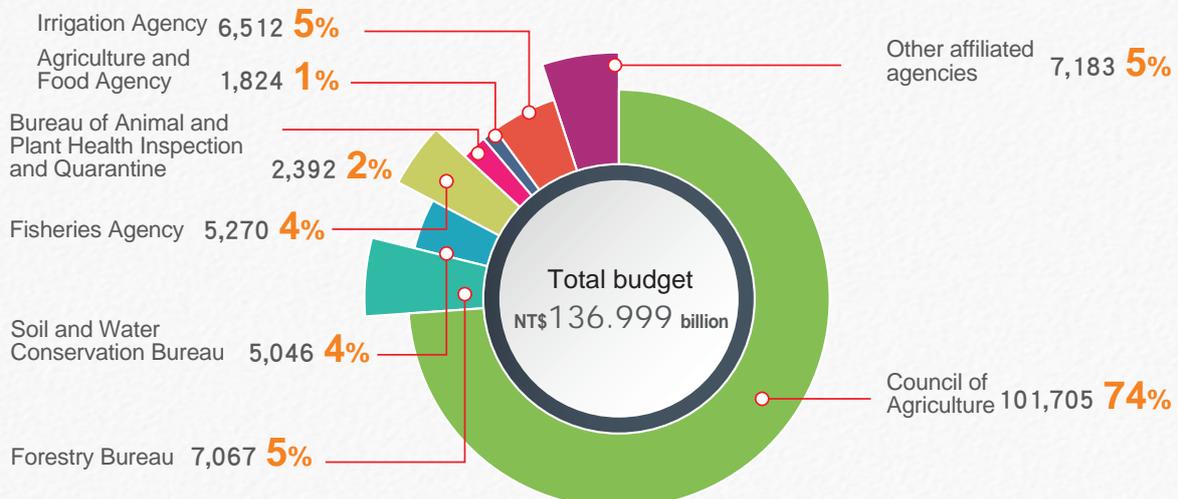
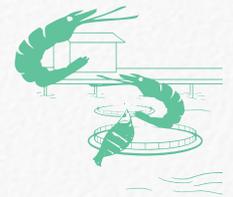


Figure 2 Budget allocations by agency, 2021

Unit: NT\$1 million





B. Special budget for the third phase of the Forward-looking Infrastructure Development Program: The special budget for the third phase of the Forward-looking Infrastructure Development Program for 2021 and 2022 managed by the COA totals NT\$6.573 billion, of which the budget for 2021 was NT\$3.197 billion. Figures 3 and 4 show the allocations by function and agency, respectively.

Figure 3 Special budget for the third phase of the Forward-looking Infrastructure Development Program for 2021, by function

Unit: NT\$1 million

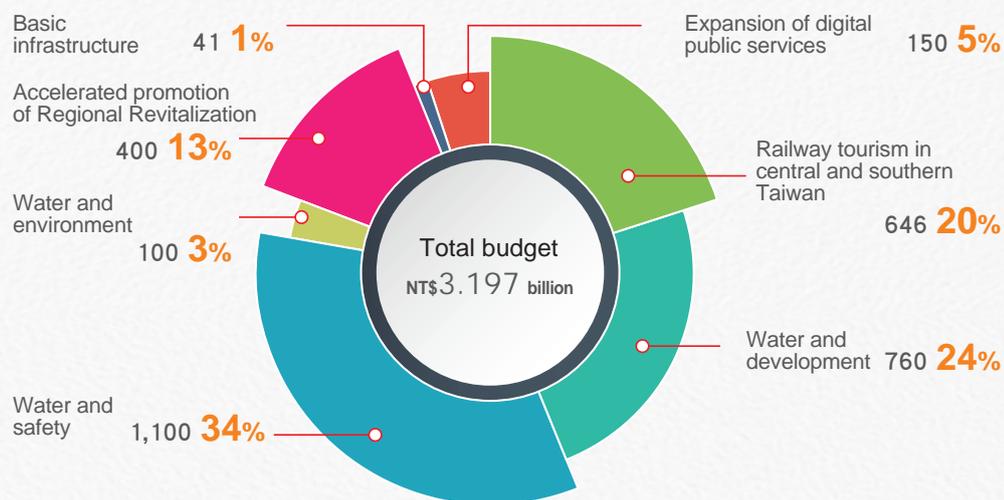
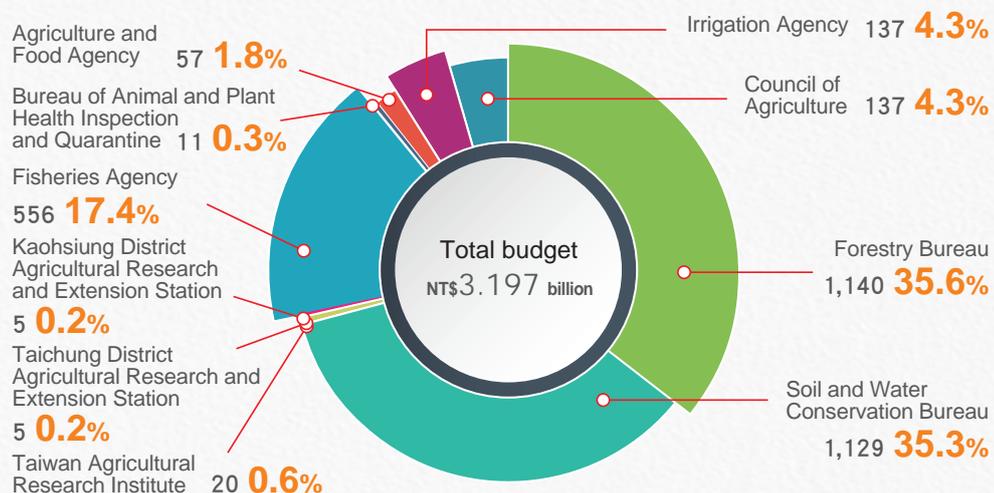
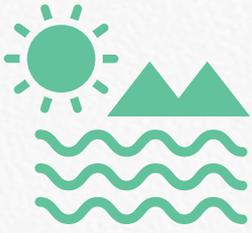


Figure 4 Special budget for the third phase of the Forward-looking Infrastructure Development Program for 2021, by agency

Unit: NT\$1 million





C. The special budget for Prevention, Relief, and Revitalization Measures for Severe Pneumonia with Novel Pathogens: The special budget for Prevention, Relief, and Revitalization Measures for Severe Pneumonia with Novel Pathogens managed by the COA between January 15, 2020 and June 30, 2022 totals NT\$45.88 billion. Figure 5 shows the allocations by function:

Figure 5 Special budget for Prevention, Relief, and Revitalization Measures for Severe Pneumonia with Novel Pathogens, by function

Unit: NT\$1 million

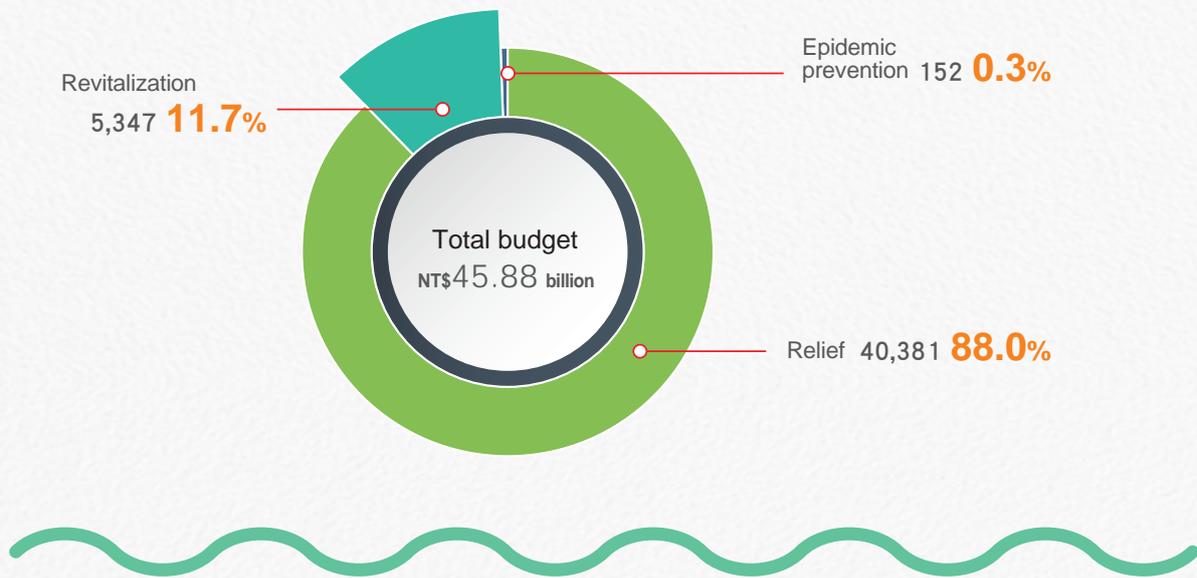
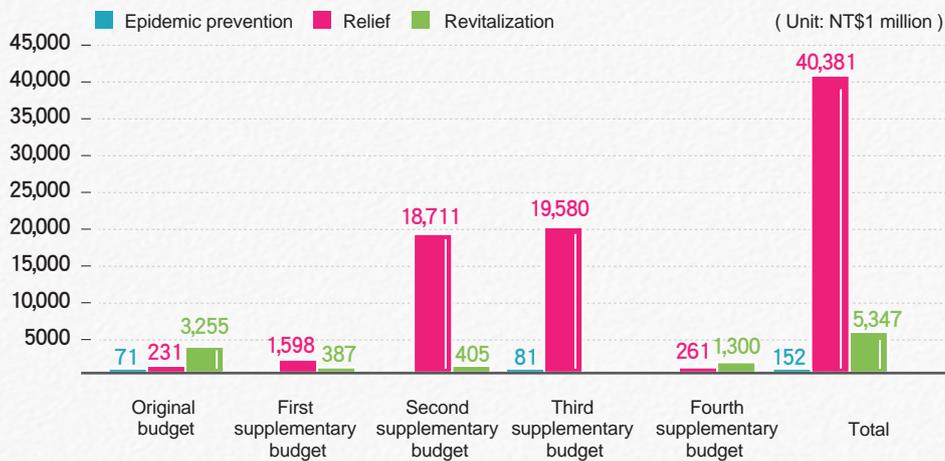


Figure 6 Allocation of the special budget for Prevention, Relief, and Revitalization Measures for Severe Pneumonia with Novel Pathogens



Total budget: NT\$45.88 billion



D. Budget for subsidiary agencies (including the Agricultural Special Revenue Fund and the Agricultural Operations Fund):

- (a) Total revenues were budgeted to be NT\$48.588 billion, a decrease of NT\$15.333 billion (23.99%) as compared to the 2020 figure of NT\$63.921 billion.
- (b) Total expenditures were budgeted to be NT\$59.338 billion, an increase of NT\$16.127 billion (37.32%) compared to the 2020 figure of NT\$43.211 billion.
- (c) The total balance was budgeted to be in deficit by NT\$10.749 billion. (See Figure 7.)

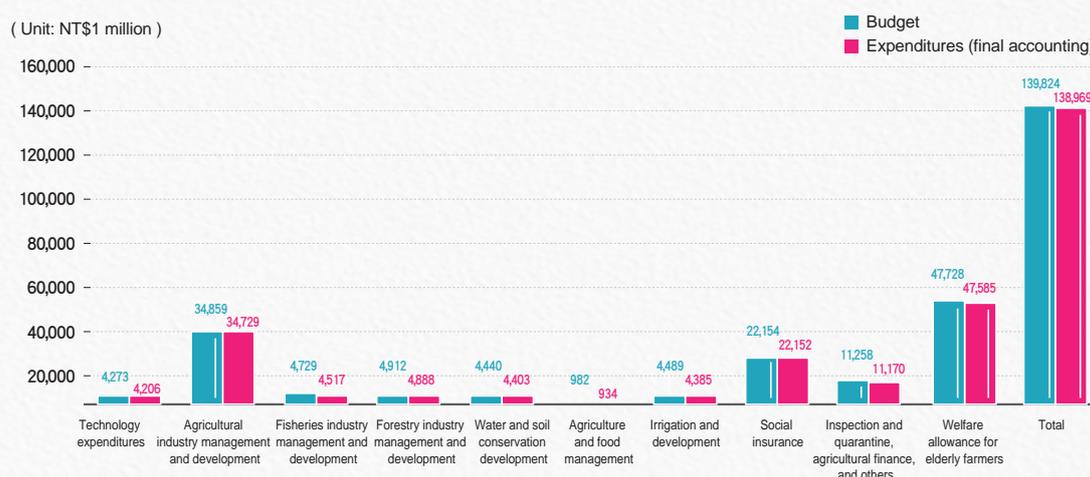
Figure 7 Comparison of the 2021 and 2020 budgets for subsidiary agencies

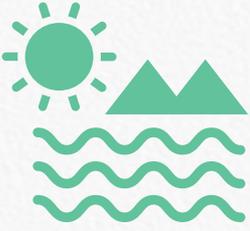


(2) Final accounting for 2021

A. Final accounting for the COA and affiliated agencies: In 2021 the budget for the COA and its affiliated agencies was NT\$136.999 billion. In addition, NT\$2.826 billion was mobilized from the Secondary Reserve Fund, bringing the total available to NT\$139.824 billion. The final accounting showed NT\$138.969 billion spent (including NT\$135.538 billion in actual expenditures, NT\$944.83 million payable, and NT\$2.487 billion reserved). There was a surplus of NT\$855.47 million. Actual expenditures accounted for 99.39% of budgeted funds. A functional breakdown is presented in Figure 8.

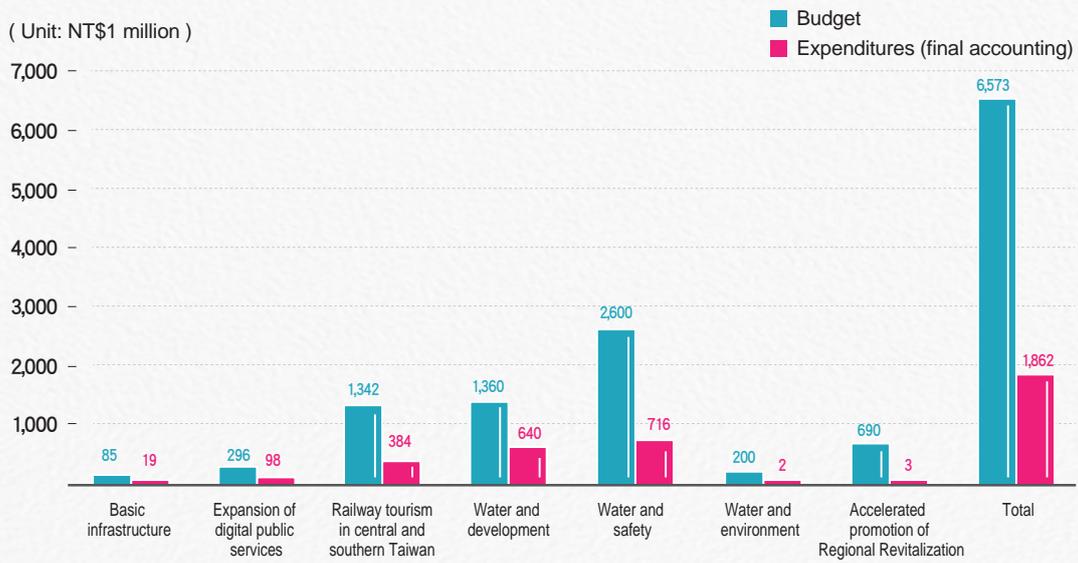
Figure 8 COA expenditures as compared to budget, 2021





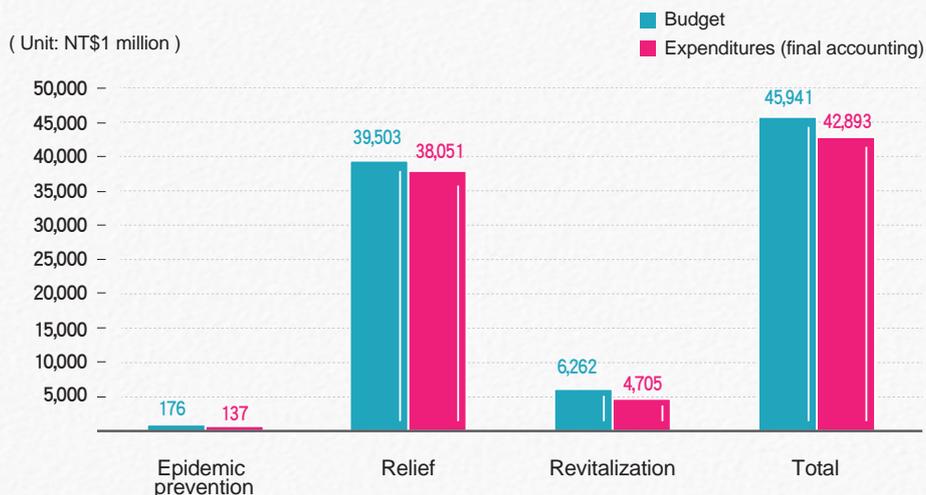
B. Implementation of the special budget for the third phase of the Forward-looking Infrastructure Development Program: The special budget for the third phase of the Forward-looking Infrastructure Development Program for 2021 and 2022 managed by the COA totals NT\$6.573 billion. The final accounting showed NT\$1.862 billion spent in 2021. A functional breakdown is presented in Figure 9.

Figure 9 Expenditures as compared to budget for the third phase of the Forward-looking Infrastructure Development Program, 2021



C. Implementation of the special budget for Prevention, Relief, and Revitalization Measures for Severe Pneumonia with Novel Pathogens: The special budget for Prevention, Relief, and Revitalization Measures for Severe Pneumonia with Novel Pathogens managed by the COA between January 15, 2020 and June 30, 2022 totals NT\$45.88 billion. The Ministry of Economic Affairs also released NT\$61.08 million in relief and revitalization funds to the COA, making the total budget NT\$45.941 billion. As of the end of 2021, NT\$42.893 billion was spent. A breakdown is presented in Figure 10.

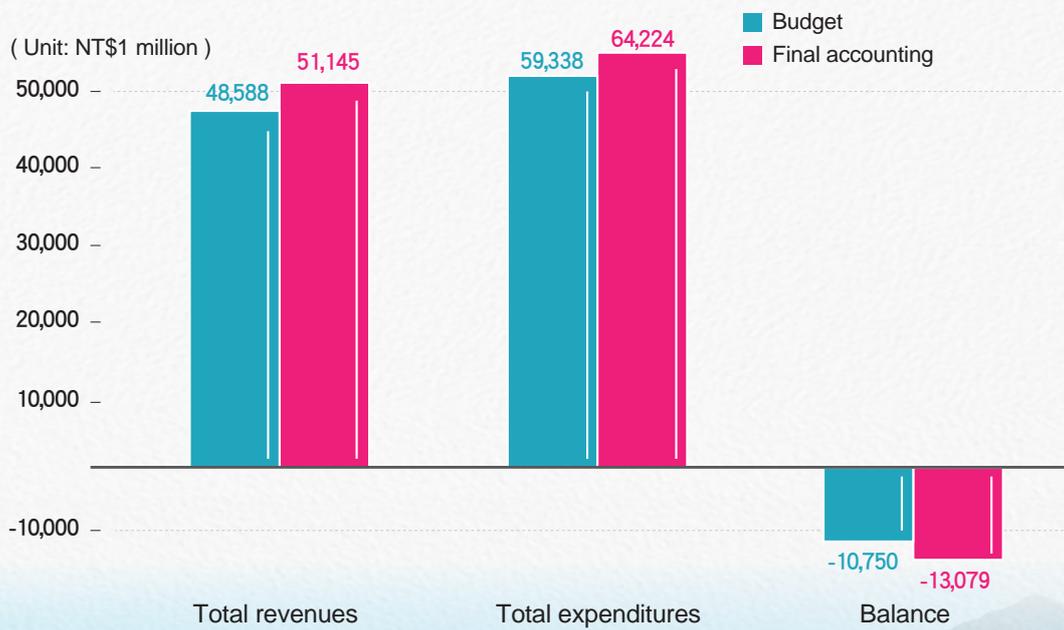
Figure 10 Implementation of the special budget for Prevention, Relief, and Revitalization Measures for Severe Pneumonia with Novel Pathogens

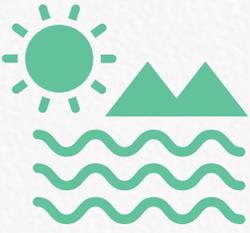




D. Final accounting for subsidiary agencies: Total budgeted revenues were NT\$48.588 billion, and the final accounting showed NT\$51.145 billion, so actual revenues were 105.26% of budgeted revenues. Total budgeted expenditures were NT\$59.338 billion, and the final accounting showed NT\$64.224 billion, so actual expenditures were 108.23% of budgeted expenditures. After comparing revenues and expenditures, the final accounting showed a deficit of NT\$13.079 billion. (See Figure 11.)

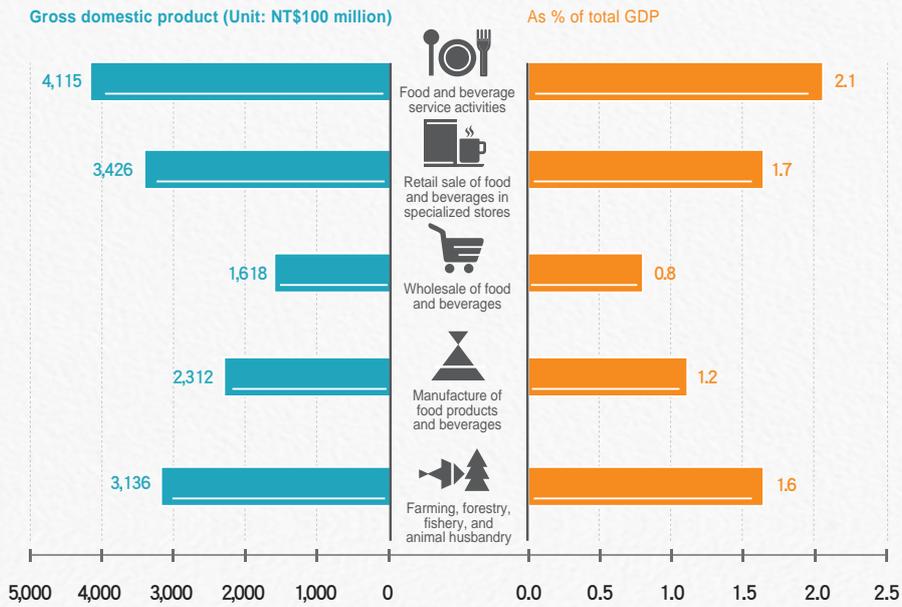
Figure 11 Comparison of the budget and final accounting for subsidiary agencies, 2021





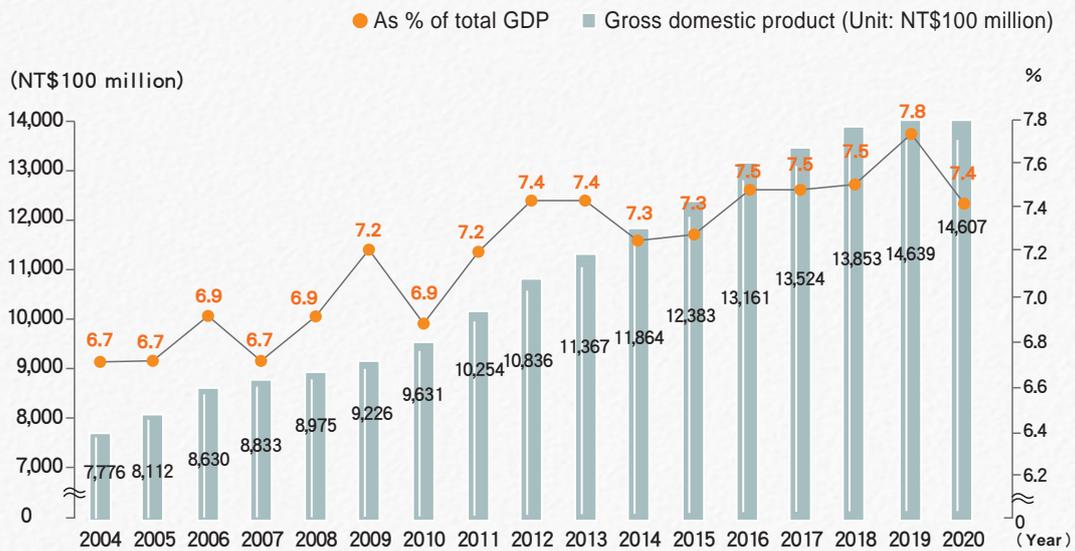
Appendix 3: Selected Agricultural Statistics

Figure 1 Value of agriculture and agri-food chains and their percentage of total GDP, 2020



Source: Statistics Office, COA

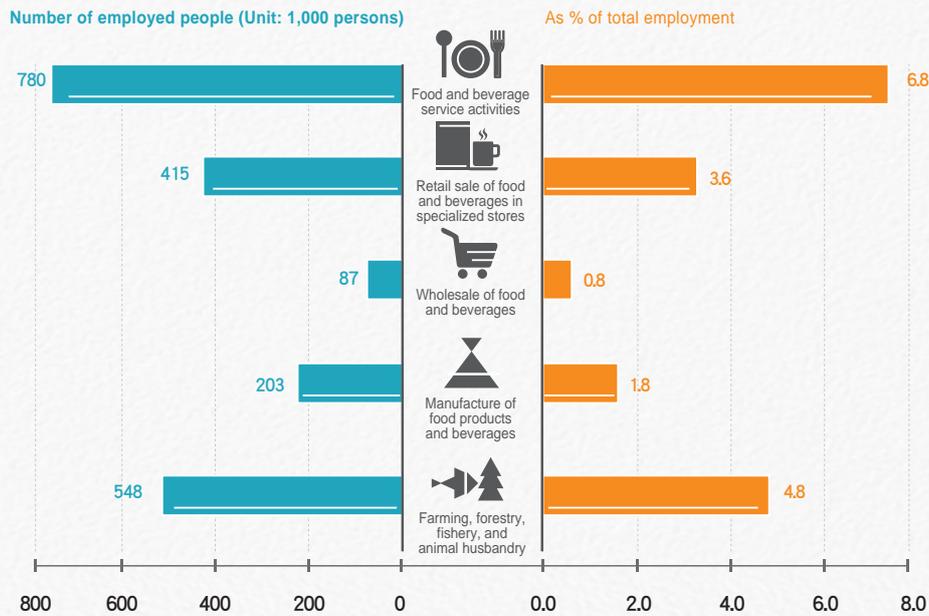
Figure 2 Value of agriculture and agri-food chains and their percentage of total GDP, 2004-2020



Source: Statistics Office, COA

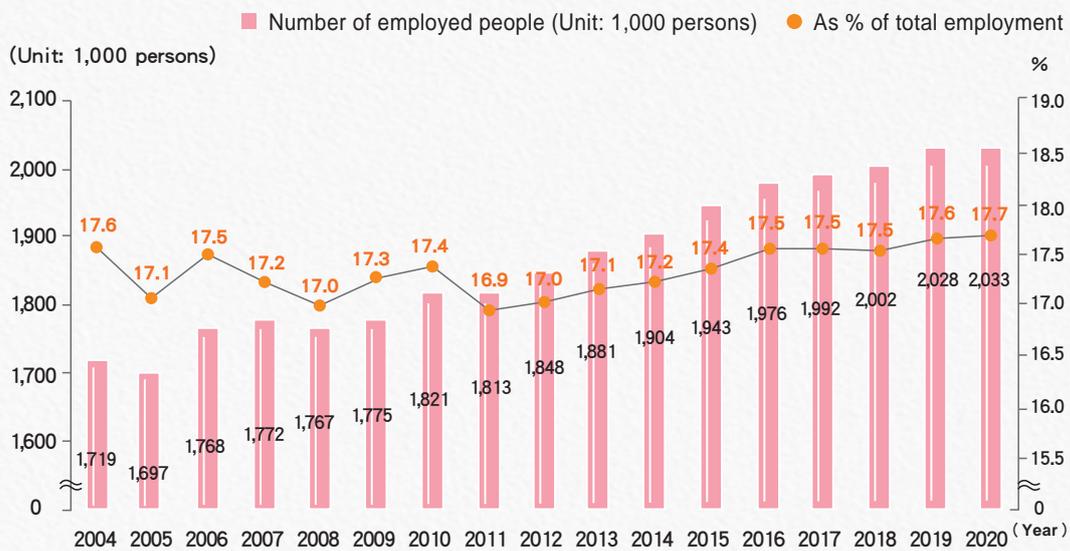


Figure 3 Employment in agriculture and agri-food chains and its percentage of total employment, 2020



Source: Statistics Office, COA

Figure 4 Employment in agriculture and agri-food chains and its percentage of total employment, 2004-2020



Source: Statistics Office, COA

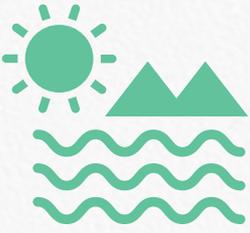
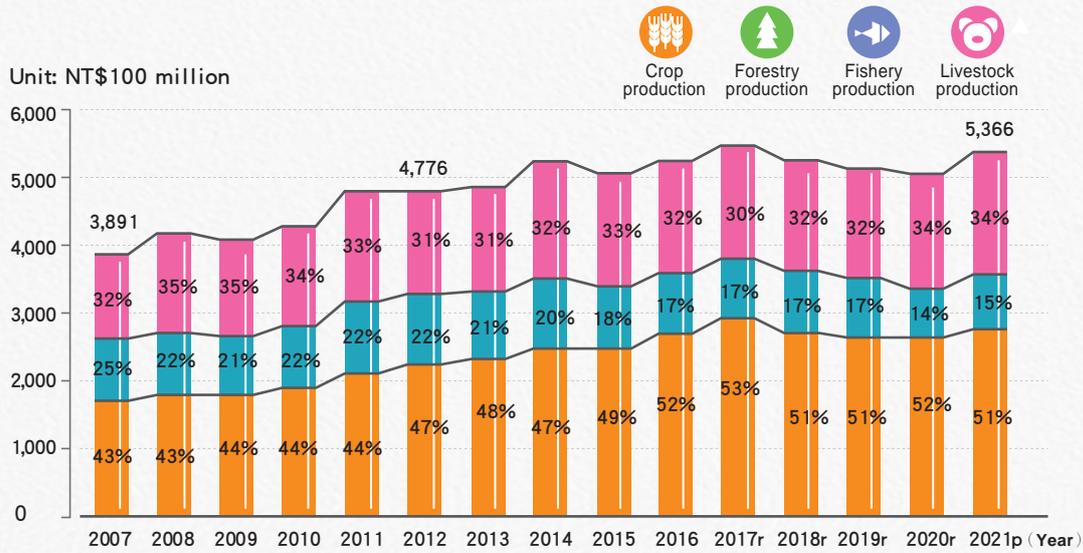
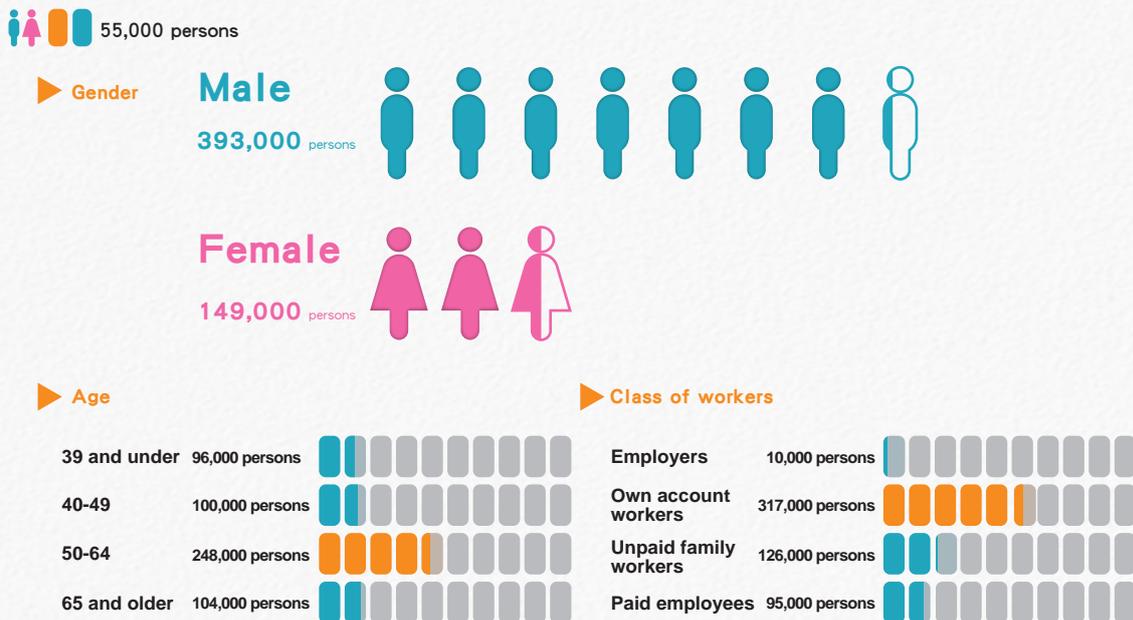


Figure 5 Value and composition of agricultural production, 2007-2021



Source: Agricultural Statistics Yearbook

Figure 6 Demographic characteristics of persons employed in agriculture, 2021



Source: Yearbook of Manpower Survey Statistics



Figure 7 Wholesale or farm prices of agricultural products, 2021 as compared to 2020

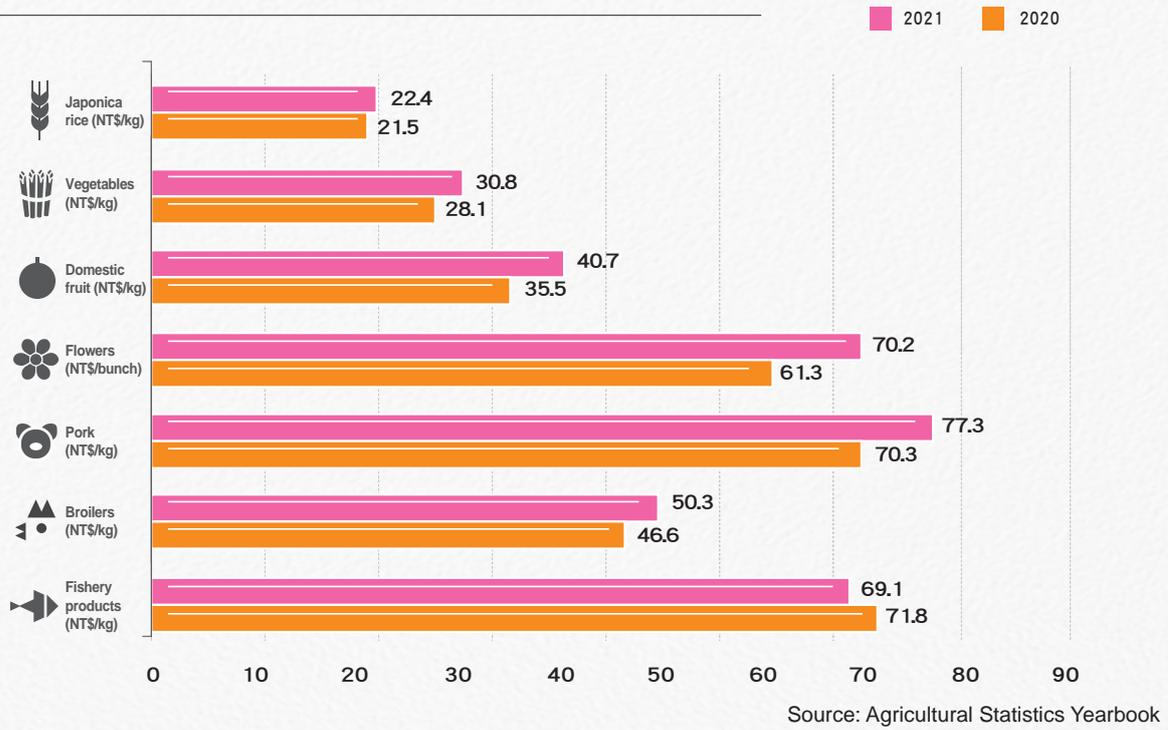
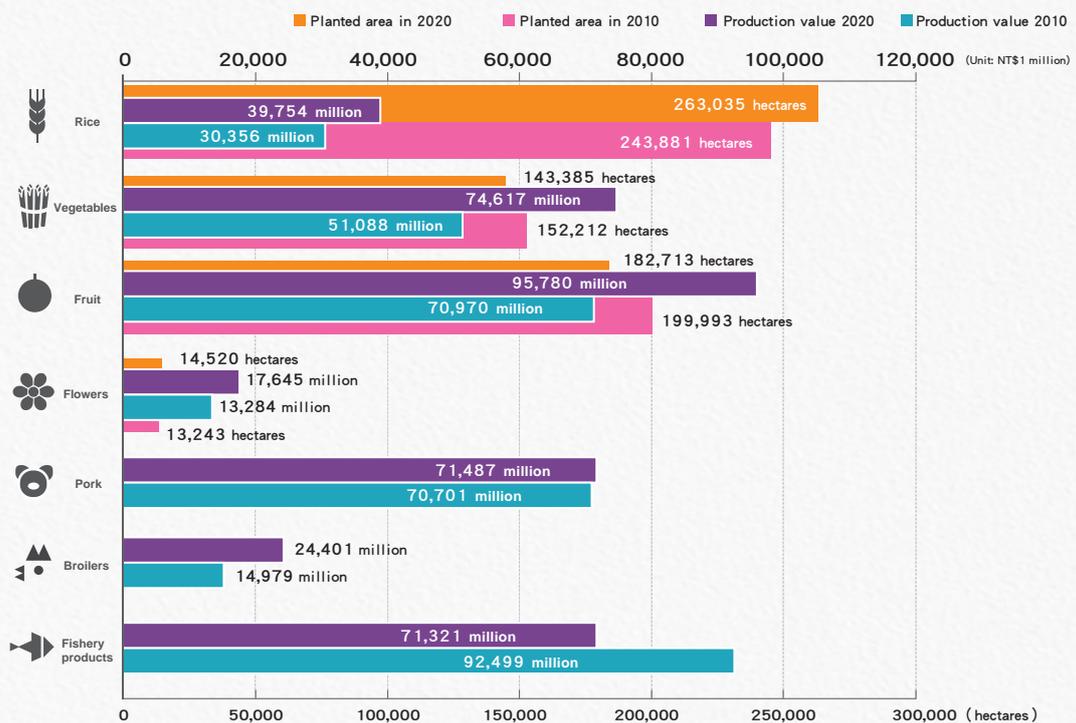


Figure 8 Production value and planted area of selected agricultural products, 2020 as compared to 2010



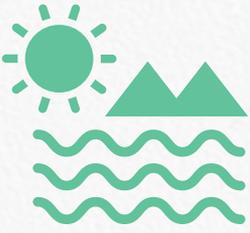
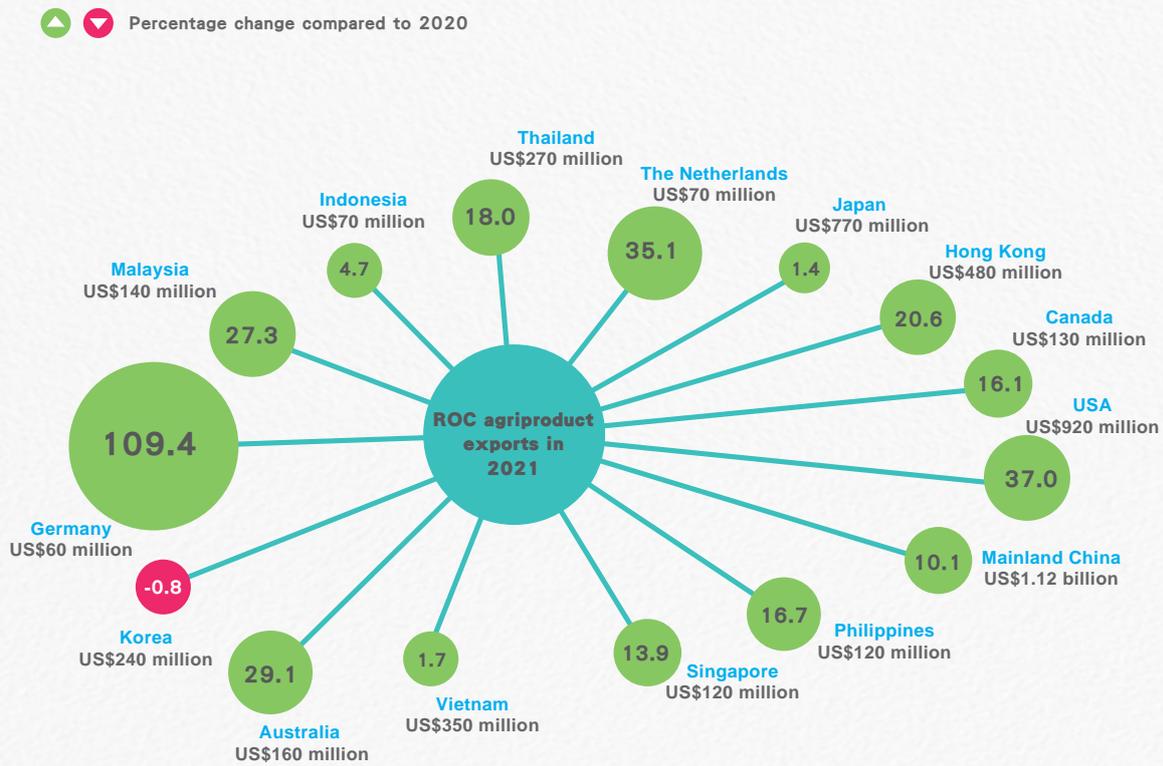


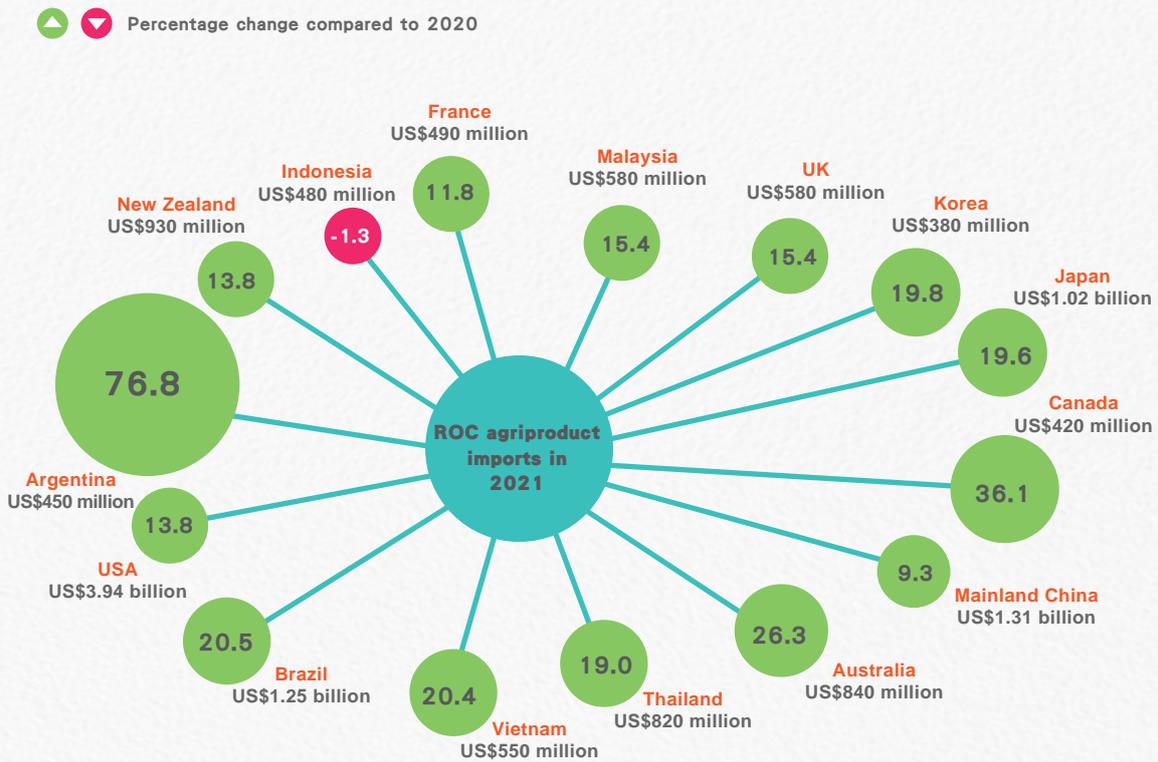
Figure 9 Exports of agricultural products, 2021



Source: Agricultural Trade Statistics of the ROC



Figure 10 Imports of agricultural products, 2021



Source: Agricultural Trade Statistics of the ROC

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