Required Report: Required - Public Distribution **Date:** April 10,2020

Report Number: TW2020-0019

Report Name: Grain and Feed Annual

Country: Taiwan

Post: Taipei

Report Category: Grain and Feed

Prepared By: Lucas Blaustein and Troy Lai

Approved By: Mark Petry

Report Highlights:

Taiwan's demand for grain and feed is forecast to slow over the coming year as the economic impacts of the novel coronavirus outbreak bite. Wheat consumption and imports are projected to fall as social distancing decreases the foot-traffic at the cafes and bakeries that dot every street corner of the island. Taiwan authorities are encouraging livestock production to slow as consumers avoid dining out and lower catering activity depresses meat consumption and correlated feed demand. Rice production is also forecast to modestly decrease as farmers fallow land and convert fields to other row crops, but at rates too low to impact imports. In spite of these headwinds, Taiwan has been a world leader in the fight against COVID-19 and consumption and trade is expected to recover next year.

Sources and Common Terms

Common Terms in this Report Include:
AFA – Agriculture and Food Agency of Taiwan
AIT – American Institute in Taiwan
ASF – African Swine Fever
BOFT – Bureau of Foreign Trade
COA – Council of Agriculture of Taiwan
COVID-19 – Coronavirus Disease
CSQ – Country Specific Quota
DDGS – Distillers' Dried Grains with Solubles
FAS – Foreign Agricultural Service
FMD – Foot and Mouth Disease
FSI – Food, Seed and Industrial
GADAS – Global Agricultural & Disaster Assessment System
MT – Metric Ton
MMT – Million Metric Ton
MOEA – Ministry of Economic Affairs of Taiwan
MY – Marketing Year
SAM – South America
TFMA – Taiwan Feed Manufacturers' Association
TRQ – Tariff Rate Quota
TY – Trade Year
TDM – Trade Data Monitoring
USAID – U.S. Agency for International Development
USDA – U.S. Department of Agriculture

All COA data in this report is from 2018 unless otherwise noted. COA national grain and feed data lags one year behind and is updated annually in August or September. All import data is taken from BOFT/MOEA unless otherwise noted. Annual rice production is based upon AFA's annual rice survey report. All maps were created using USDA FAS GADAS. Other data sources in the report are referenced directly.

For any questions on any information found in this report, please contact the Agricultural Section at the American Institute in Taiwan.

Agricultural Section
No. 100, Jinhu Road, Neihu District, Taipei City 11461, Taiwan
Tel: +886 (2) 2162-2316
Fax: +886 (2) 2162-2238
E-mail: agtaipei@fas.usda.gov

WHEAT

Production

MY2020/21 wheat production is forecast to remain flat at MY2019/20 wheat production is forecast to decrease 1,000 MT to 6,000 MT primarily due to abnormally dry weather in Taiwan's major production areas (Exhibit 1). Despite supportive policies by Taiwan authorities, domestic wheat production remains negligible given limited arable land and an unsuitable climate. Domestic wheat planting is usually in November, with harvest in March of the following year.

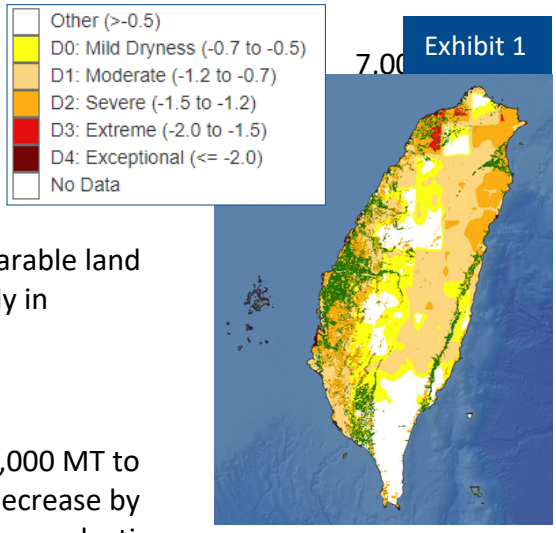


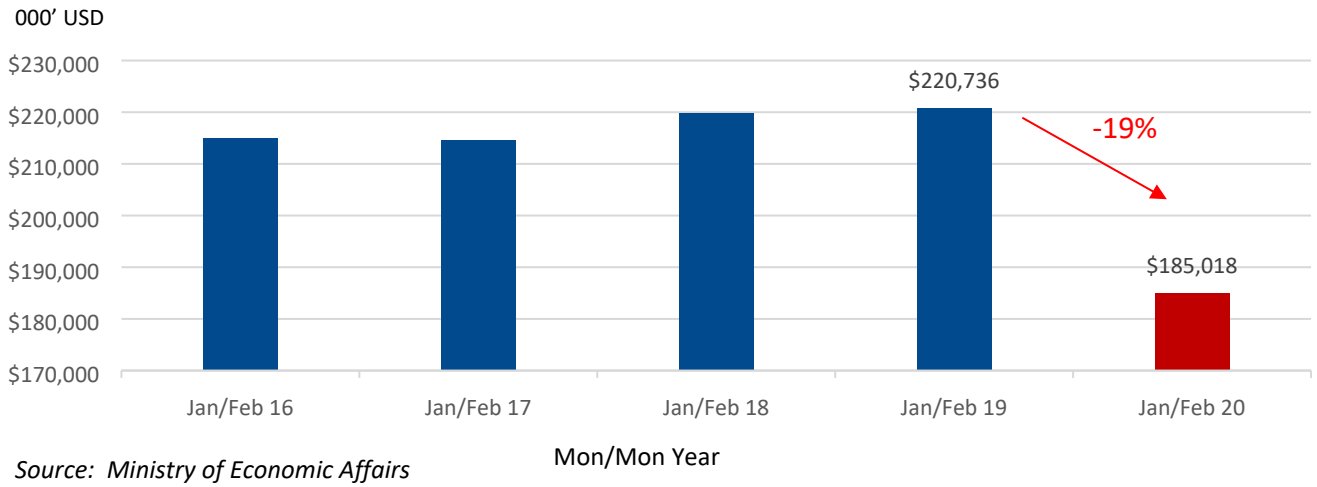
Exhibit 1

Source: GADAS CHIRPS 6-months

Consumption

MY2020/21 wheat consumption is forecast to increase by 79,000 MT to 1.329 MMT. MY2019/20 wheat consumption is forecast to decrease by 175,000 MT to 1.25 MMT based on COA statistics, MOEA flour production statistics, and consumption trends. MY2018/19 wheat consumption is increased by 21,000 MT to 1.426 MMT based on COA statistics. Overall wheat consumption has slowed since January 2020 due to the spread of COVID-19, as consumers opt to eat at home and cancelation of large events drags down overall growth. Normally Taiwan's catering and other food service activity peaks from January to February around Lunar New Year, but COVID-19 caused a 19 percent decline in seasonal food service and catering activity in 2020 (Exhibit 2). AIT's Agricultural Section anticipates negative consumption effects due to COVID-19 to linger throughout the first quarter of 2020 or even longer despite a robust public health response by Taiwan authorities.

Exhibit 2: Jan-Feb 2016 to Jan-Feb 2020 Catering and Other Food Service Activity



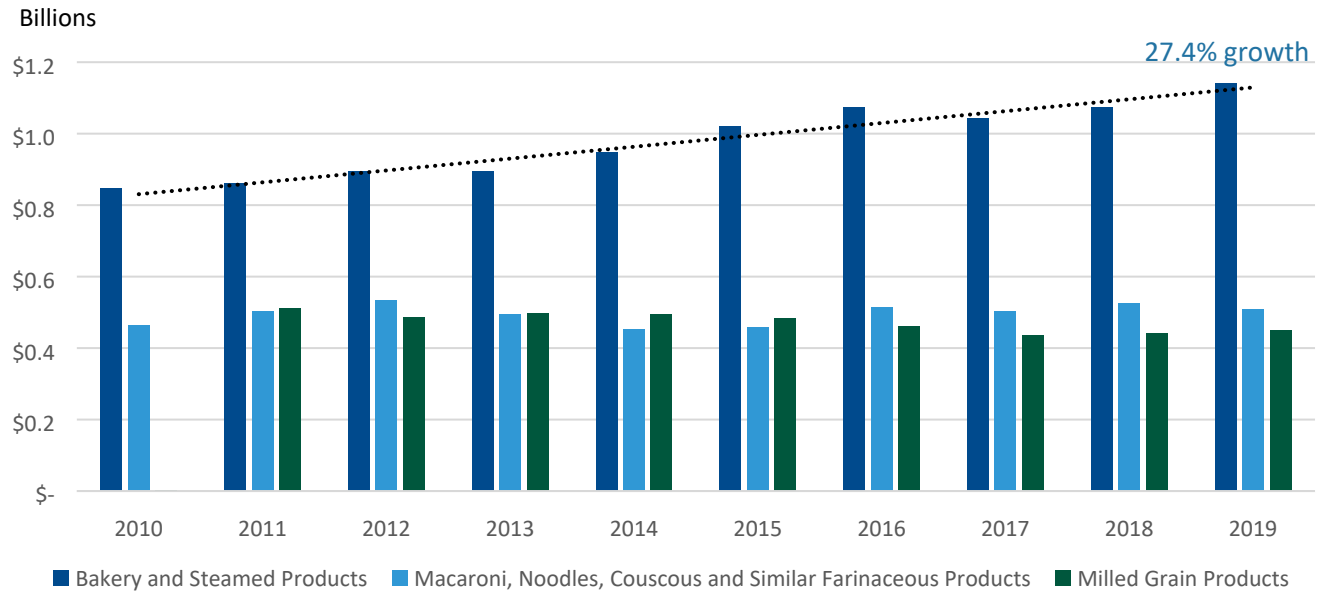
Source: Ministry of Economic Affairs

Strong wheat-based food consumption in Taiwan traces its origins to habits developed following USDA and USAID food aid programs after the end of the Chinese Civil War in 1949. Over the past 70 years, wheat consumption has steadily grown to become a staple of the Taiwan diet. In an effort to decrease

large domestic rice production and stockpiles, COA is engaged in a multi-year campaign to promote rice consumption and emphasize rice-based products that cater to Taiwan's rapidly aging population. These promotion policies appear to be having their intended effect in recent years. According to 2018 COA statistics, per capita annual wheat consumption decreased 0.2 percent to 37.97 kilograms, while per capita annual rice consumption increased 0.4 percent to 45.61 kilograms.

Taiwan has a long-established bakery culture on island and the sector continues to perform well. According to MOEA, Taiwan's bakery and steamed wheat product manufacturing has grown by 27.4 percent since 2010 (Exhibit 3). Bakeries are prevalent throughout Taiwan on almost all major thoroughfares and coffee culture has saturated the island with growing demand for new wheat products. Despite the health of the overall sector, COVID-19 is negatively impacting demand; MY2019/20 FSI consumption is forecast to decrease 175,000 MT to 1.225 MMT. A recovery to trend is expected early in MY2020/21, with FSI consumption forecast to increase 54,000 MT to 1.279 MMT.

Exhibit 3: Manufacture of Selected Wheat Products (Value in USD)



Source: MOEA

Feed and residual in MY2019/20 are unchanged at 25,000 MT due to continuing challenges in the livestock sector (refer to Corn Consumption on page 7); MY2020/21 is raised 25,000 MT to 50,000 MT based on a forecasted recovery post COVID-19.

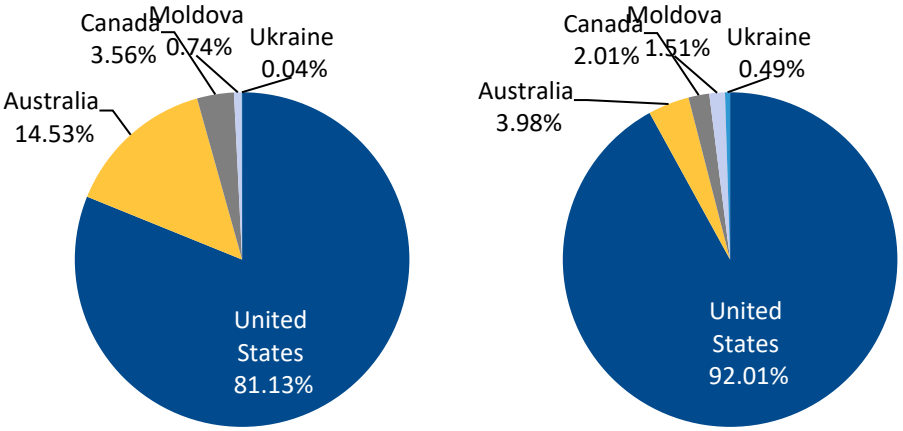
Trade

MY2020/21 wheat imports are forecast to increase 50,000 MT to 1.4 MMT. MY2019/20 imports are revised down by 100,000 MT to 1.35 million MT based on COA statistics and impacts of COVID-19. MY2018/19 imports have been adjusted up by 42,000 MT to 1.399 MMT based on custom's data. Imports closely track consumption given nominal domestic production.

The United States has historically held around 80 percent of Taiwan's wheat market, followed by Australia. As forecasted by USDA FAS Canberra, "[Australian] wheat exports are expected to fall for the third straight year." This has allowed the United States and Canada to increase their market shares in Taiwan (Exhibit 4). The United States is forecasted to remain Taiwan's primary supplier in MY2020/21. However, Taiwan millers regularly express a preference for Australian wheat for use in traditional Chinese baked products. Unless products are reformulated or U.S. exporters increase offerings of containerized wheat and other wheat classes, AIT's Agricultural Section projects that U.S. market share will fall to historical levels once Australian production resumes as normal.

Exhibit 4: Wheat Market Share in Taiwan (by Trade Year (TY) Value in USD)

-10% year-over-year decline in Australian market share



Source: TDM

TFMA has been the governing tender body for Taiwan since its founding over 50 years ago and most of Taiwan's U.S. wheat imports are conducted via an open tender process through TFMA. Taiwan's remaining wheat imports arrive in container outside of TFMA's tender process. In 2019, the breakdown by wheat classes imported from the United States was as follows: 53 percent Dark Northern Spring; 35 percent Hard Red Winter; and 12 percent low protein wheat.

The tariff on wheat is 6.5 percent, but the tariff on flour (HS 1101) is kept high at 17.5 percent in order to protect the domestic milling industry. Due to the high tariff, flour and other processed wheat products account for only four percent of Taiwan's wheat imports.

Stocks

Taiwan Millers usually hold only one to two months of stocks to avoid issues of scarcity. Taiwan importers use ocean vessels and bulk containers as auxiliary storage given Taiwan's limited commercial grain storage capacity. Therefore, stocks tend not to go below or above two vessels in quantity and are forecasted to again stay in between 300,000 to 400,000 MT in MY2020/21 and MY2019/20.

Wheat	2018/2019		2019/2020		2020/2021	
Market Begin Year	July 2018		July 2019		July 2020	
Taiwan	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested	3	3	3	3	0	3
Beginning Stocks	450	450	327	347	0	371
Production	6	6	7	6	0	7
MY Imports	1357	1399	1450	1350	0	1400
TY Imports	1357	1399	1450	1350	0	1400
TY Imp. from U.S.	1180	1193	0	1250	0	1300
Total Supply	1813	1855	1784	1703	0	1778
MY Exports	81	82	75	82	0	82
TY Exports	81	82	75	82	0	82
Feed and Residual	25	25	25	25	0	50
FSI Consumption	1380	1401	1400	1225	0	1279
Total Consumption	1405	1426	1425	1250	0	1329
Ending Stocks	327	347	284	371	0	367
Total Distribution	1813	1855	1784	1703	0	1778
Yield	2	2	2.33	2	0	2
(1000 HA), (1000 MT), (MT/HA)						

CORN

Production

MY2020/21 and MY2019/20 corn production are both forecast flat at 80,000 MT based on COA estimates and production trends. COA policies continue to encourage farmers to move away from rice and into wheat, soybeans, and corn production. However little arable land, an unfavorable climate, and poor returns on corn relative to other crops have stymied expanded production.

Consumption

MY2020/21 total corn consumption is forecast to increase 150,000 MT to 4.5 MMT as the livestock sector is expected to recover from the COVID-19 related demand shock. MY2019/20 total corn consumption is revised lower 300,000 MT to 4.35 MMT due to impacts from COVID-19. Key indicators showing impact on consumer behavior and consumption (see Exhibit 1) will ripple outward to impact meat consumption and feed production (Exhibit 5). As corn consumption is closely correlated to total feed production in Taiwan, demand for feed is projected to decrease in 2020 but forecasted to rebound in 2021. Thus, feed production in 2020 is projected 350,000 MT lower at 7.45 MMT. Feed production in 2019 is estimated at 7.8 MMT based on COA preliminary hog and poultry production numbers.

Exhibit 5: Feed Production (MMT)

	2015	2016	2017	2018	2019*	2020*
Total Feed	7.38	7.52	7.62	7.71	7.8	7.45
Hog Feed	3.26	3.26	3.21	3.20	3.30	3.15
Poultry Feed	3.29	3.48	3.66	3.76	3.7	3.6
Others	0.83	0.78	0.75	0.75	0.75	0.70

*Sources: Council of Agriculture (2015-2018). * AIT estimates (2019-2020)*

According to COA preliminary poultry production estimates, poultry production decreased by 13 million birds to 380 million birds in 2019. COA lowered the 2020 production target by another seven million birds to 373 million birds. Due to the fall in expected demand, poultry feed production is forecast to decrease 100,000 MT to 3.6 MMT in 2020.

According to COA preliminary hog production estimates, hog production decreased by 23,000 head to 8.05 million head in 2019. Hog numbers remain steady because COA has implemented successful control measures to prevent ASF and as of this report date had no confirmed cases on Taiwan's main island. One of these measures was a new feed rule implemented in January 2019 that prohibits hog farms from using food scraps in hog feed rations without special permits. By factoring this feed use limitation into the 2019 hog feed estimates, feed demand marginally increased despite a decrease in the size of Taiwan's hog herd due to the increased use of commercial feed.

Additionally, Taiwan's veterinary service and industry have worked together to keep Taiwan FMD free without vaccine for over one year. As a result, Taiwan is expected to receive World Organization for Animal Health recognition as FMD-free without vaccination in May 2020. Taiwan President Tsai has made it a priority to regain market access for exported pork products, especially to Japan, where Taiwan had a long history of export. However, other bilateral trade issues with Japan continue to complicate ongoing market access discussions, with progress on market access for Taiwan pork product exports unlikely to happen in the near term.

Without new export demand to offset decreasing domestic consumption, hog production numbers will continue to fall. COA lowered the 2020 production target by 200,000 head to 7.85 million head due to weakening demand around COVID-19 (Exhibit 6). Prices have also further disincentivized expanded hog production; market prices for hogs dropped from about TWD80 per kilogram in July/August 2019, to about TWD60 per kilogram in February 2020[1] – the lowest price in over ten years. Due to weak demand and low prices, hog feed production is forecast to decrease 150,000 MT to 3.15 MMT in 2020.

Exhibit 6: Pork and Poultry Production (Animals Slaughtered)

Year	Pork (1,000 head)	Poultry (million birds)
2014	8,067	370
2015	8,200	357
2016	8,144	379
2017	7,947	376
2018 (revised)	8,073	393
2019	8,050	380
2020 (target)	7,850	373

Source: Council of Agriculture

Trade

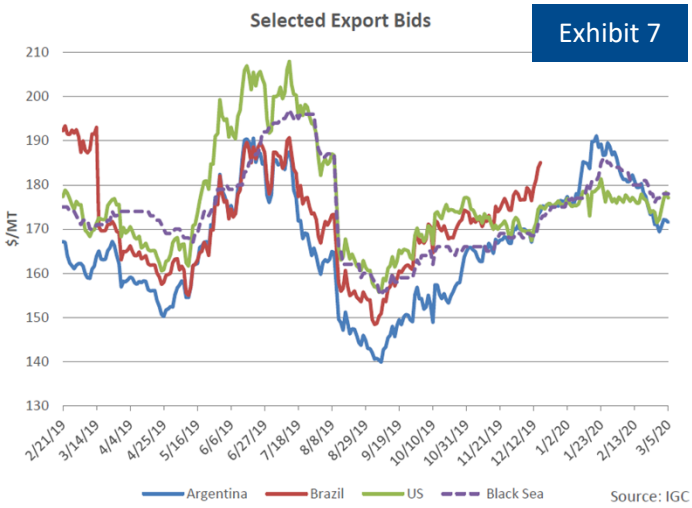
MY2020/21 corn imports are forecast to increase 300,000 MT to 4.3 MMT. MY2019/20 corn imports are revised lower 300,000 MT to 4.0 MMT based on COA production forecasts for livestock and poultry, COA statistics, and import trends. Since January 2020 the import pace of corn has slowed as feed mills try to draw down existing stocks and the market anticipates that feed demand will decrease due to lower livestock and poultry production. Imports are expected to return to normal in late 2020 or early 2021, when consumer demand recovers for livestock products from the coronavirus outbreak.

Argentina has emerged as a major corn shipper to Taiwan, going from zero percent market share in MY2015/16 to over 13 percent market share in MY2018/19. Argentina has maintained its export presence in MY2018/19, however tax changes in Argentina may make their corn less price competitive in late MY2018/19 and MY2019/20. From October to January MY 2019/20, Brazil became Taiwan's number one source of corn as U.S. shipments have precipitously fallen. As of March 12, U.S. current marketing year commitments were only 421,000 MT, which is a decrease of 1.29 MMT or down 75 percent from the same time the previous year. Such a precipitous drop in exports noticeably lowered total U.S. agricultural exports to Taiwan in calendar year 2019. Major reasons for declining U.S.

[1] *Exchange rate: USD1 to TWD30 on 03/01/2020*

shipments include the normalization of trade following the U.S-China economic and trade agreement and much cheaper South American (SAM) corn prices in the fall of MY2019/20 during the U.S. seasonally peak shipment period, (see Exhibit 7 graph from Grain: World Markets and Trade, and Exhibit 8).

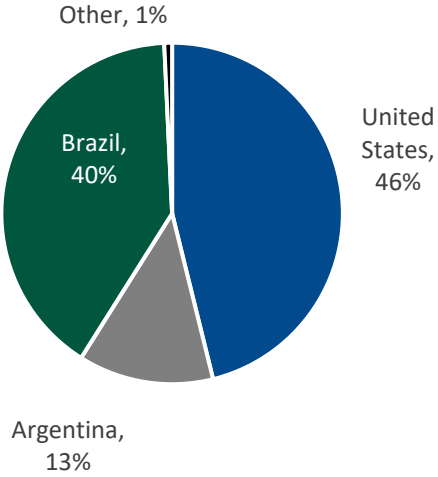
Exhibit 7



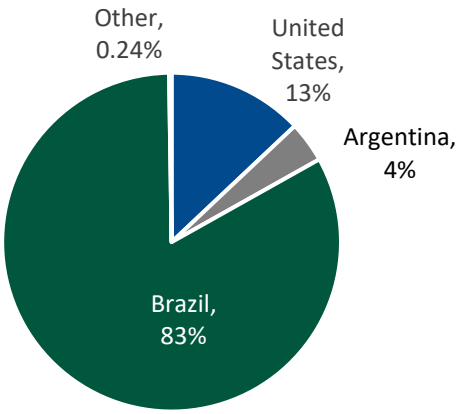
Container exporters from the United States to Taiwan are an important mode of export. About 16 percent of corn imports were shipped via container in 2019 and the majority of those came from the United States. The United States has a comparative advantage to SAM in containerized shipments given higher availability and lower costs due to a larger consumer economy.

Exhibit 8: Corn Market Share in Taiwan (by TY Value in USD)

-33% decline in U.S. Oct. to Jan. market share



Oct. to Jan. TY 2018/19



Oct. to Jan. TY 2019/20

Source: TDM

Taiwan imports a mixed basket of other feed ingredients driven primarily by price (Exhibit 9). Given large domestic soybean meal production, corn gluten meal and DDGS can often struggle to compete in local feed rations. Both corn gluten meal and DDGS inclusion rates remain below averages in Asia. Additionally, imports of other feed grains have been significantly impacted by the drought in Australia. Meanwhile, Taiwan has increased imports of sorghum from China and barley from Europe in order to offset falling Australian production. The United States struggles to meet Taiwan's specifications for both grains at a competitive price, and thus has been largely unable to increase market share despite Australia's limited supply. Both barley and sorghum imports in Taiwan must be variety specific to meet importer specifications, with strict color and milling requirements that U.S. trade houses have trouble sourcing from producers.

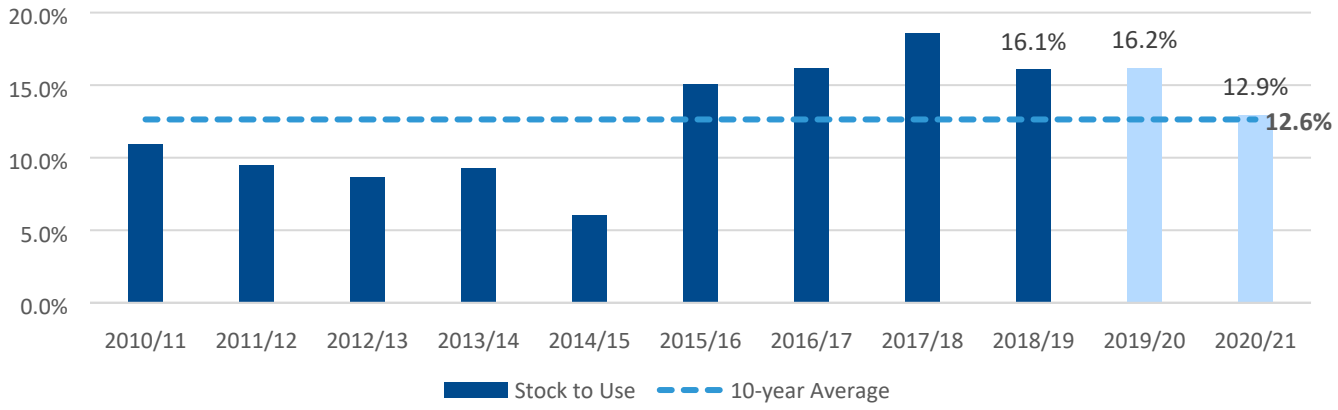
Exhibit 9: Imports of Other Feed Ingredients (thousand MT)			
Feed Ingredient/HS Code	MY2016/17	MY2017/18	MY2018/19
1003: Barley	55	39	32
1007: Sorghum	48	65	70
2302.10: Bran, sharps & residues of maize (corn gluten feed)	20	21	24
2303.10: Corn gluten meal and feed	41	42	39
2303.30: DDGS	255	204	219
Total	**419**	**371**	**384**

Source: Taiwan Customs

Stocks

MY2020/21 ending stocks are forecast to decrease 121,000 MT to 582,000 MT. MY2019/20 ending stocks are revised higher 226,000 MT to 703,000 MT based on COA statistics and import and consumption trends. Taiwan feed mills target around one to two months of stocks to ensure uninterrupted operation, importers use vessels and containers in order to offset limited domestic storage availability. However, slowing livestock production in Taiwan has raised the stocks-to-use ratio considerably in the last five years. Since 2015/2016, Taiwan's stocks-to-use ratio has been well above the 10-year average of 12.6 percent (see Exhibit 10). A recovery of domestic consumption post-COVID-19 and rising corn prices are forecasted to bring Taiwan's stock-to-use ratio back in line with the historic trend.

Exhibit 10: Taiwan Corn Stock to Use Ratio (last 10-MY)



AIT estimates (MY2019/20 and MY2020/21)

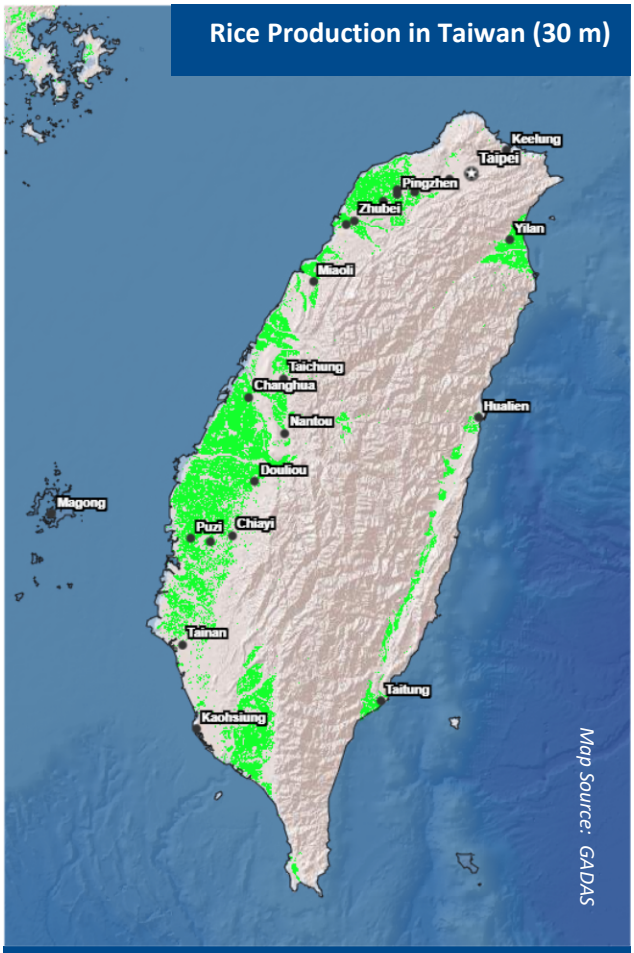
Corn	2018/2019		2019/2020		2020/2021	
Market Begin Year	October 2018		October 2019		October 2020	
Taiwan	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested	14	14	14	14	0	14
Beginning Stocks	809	809	747	974	0	703
Production	80	80	80	80	0	80
MY Imports	4508	4506	4300	4000	0	4300
TY Imports	4508	4506	4300	4000	0	4300
TY Imp. from U.S.	1724	2082	0	0	0	0
Total Supply	5397	5395	5127	5054	0	5083
MY Exports	0	1	0	1	0	1
TY Exports	0	1	0	1	0	1
Feed and Residual	4500	4270	4500	4200	0	4350
FSI Consumption	150	150	150	150	0	150
Total Consumption	4650	4420	4650	4350	0	4500
Ending Stocks	747	974	477	703	0	582
Total Distribution	5397	5395	5127	5054	0	5083
Yield	5.71	5.71	5.71	5.71	0.00	5.71
(1000 HA), (1000 MT), (MT/HA)						

RICE

Production

According to reporting from COA's AFA, rice acreage is forecasted to decline by 10,000 hectares in MY2020/21 leading to a four percent decline in milled rice production to 1.136 MMT. MY2019/20 rice production is increased 46,000 MT to 1.182 MMT based on preliminary AFA statistics. MY2018/19 rice production is increased 46,000 MT to 1.227 MMT based on AFA rice production surveys.

Rice is the primary staple grain in Taiwan and traces its history back as far as the first ethnic Chinese settlements on the island. Following the end of the Chinese Civil War, Taiwan authorities put in place a system of subsidies and stocks to stabilize prices and guard against supply shocks. In March 2007, the system of subsidies changed following Taiwan's accession to the World Trade Organization. Since that time, Taiwan authorities have struggled in attempts to balance the competing forces of subsidized domestic production with liberalized trade. In February 2018, COA attempted to break a vicious cycle of increasing production and rising stocks by encouraging farmers to sell rice directly to the market as opposed to Taiwan authorities. This policy change was coupled with cash incentives to fallow land and switch production to other primarily imported row crops such as wheat, corn, and soybeans. COA has also engaged in a concerted effort to market the health benefits of rice consumption, resulting in a slight recovery of per capita consumption in 2018.



Rice production is mostly concentrated in Taiwan's Eastern coastal plains. Taiwan has two rice crops annually, except in Northwestern Yilan, where seasonal cloud cover prevents year-round growing conditions. The most sought-after rice in Taiwan comes from its mountainous Western region.

Consumption

MY2020/21 and MY 2019/20 rice consumption are forecast flat at 1.16 MMT based COA forecasted consumption trends. In 2018, per capita rice consumption increased 0.4 percent to 45.61 kilograms. However, given Taiwan's shrinking population, the slight per capita increase was not enough to compensate for falling demand.

Trade

MY2020/21 rice imports are forecast flat at 110,000 MT. MY2019/20 rice imports are forecast to decrease 10,000 MT to 110,000 MT based on import trends. MY2018/19 imports are estimated at 110,000 MT based on customs statistics. Taiwan's negotiated worldwide tariff rate quota (TRQ) for rice is 126,000 MT. Generally, out-of-quota imports are not commercially viable due to prohibitively high tariffs. The tariff rates are $1.50 USD per kilogram (or 45 TWD) for brown rice and milled rice and $1.63 USD per kilogram (or TWD49) for processed rice products[1]. The TRQ is divided into private sector imports (35 percent) and public sector imports (65 percent). The public sector quota is divided by country of origin and tender type. In 2018, Taiwan failed to fill its U.S. country specific quota (CSQ). However, Taiwan filled its entire CSQ for U.S. rice in 2019, totaling 64,634 MT on a brown equivalent basis (See GAIN Report TW2019-0038).

MY2020/21 and MY2019/20 rice exports are forecast at 90,000 MT, including food aid. MY2018/19 exports are increased 11,000 tons to 91,000 tons based on customs statistics, including 22,190 tons of food aid (Exhibit 11). In recent years, food aid has become more important to Taiwan both politically due to increased international isolation and as an outlet for excess supply.

Exhibit 11: Taiwan 2019 Food Aid Shipments

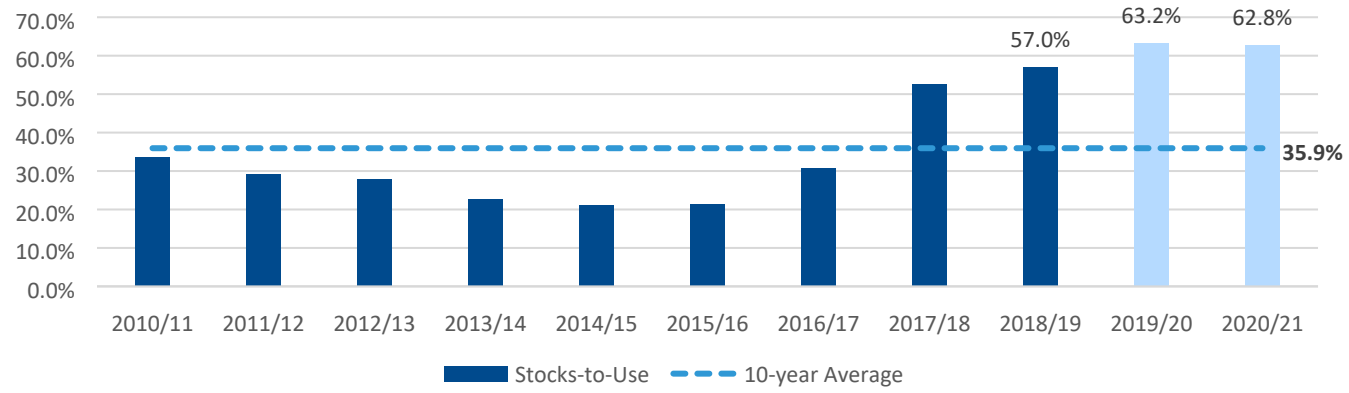
Recipient Destination	Tons
Haiti	9,500
Honduras	3,400
Philippines	2,700
Nicaragua	2,300
Guatemala	1,000
South Africa	700
Sierra Leone, Rep. of	600
Cambodia	500
Other countries	1490
Total	**22,190**

Source: COA

Stocks

MY2020/21 ending stocks are forecast to reach 729,000 MT as supply continues to exceed demand. MY2019/20 ending stocks are forecast to increase by 21,000 MT to 733,000 MT based on supply and demand trends as well as media and industry reports. Taiwan has a complicated historical relationship with rice stocks inherited from China. Its management system is based upon concerns that no longer are relevant to the wealthy society it has become. This old system of reserves is struggling to match modern needs, as several bumper crops beginning in MY2015/16 and a shrinking population have created a system in which production has well outpaced consumption.

Exhibit 12: Taiwan Rice Stock to Use Ratio (last 10-MY)



AIT estimates (MY2019/20 and MY2020/21)

[1] *Exchange rate: USD1 to TWD30 on 03/01/2020*

Rice, Milled	2018/2019		2019/2020		2020/2021	
Market Begin Year	January 2019		January 2020		January 2021	
Taiwan	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested	260	270	250	260	0	250
Beginning Stocks	605	605	666	691	0	733
Milled Production	1181	1227	1136	1182	0	1136
Rough Production	1687	1753	1623	1688	0	1623
Milling Rate (.9999)	7000	7000	7000	7000	0	7000
MY Imports	120	110	120	110	0	110
TY Imports	120	110	120	110	0	110
TY Imp. from U.S.	0	56	0	60	0	0
Total Supply	1906	1942	1922	1983	0	1979
MY Exports	80	91	50	90	0	90
TY Exports	80	91	50	90	0	90
Consumption and Residual	1160	1160	1160	1160	0	1160
Ending Stocks	666	691	712	733	0	729
Total Distribution	1906	1942	1922	1983	0	1979
Yield (Rough)	6.49	6.4925	6.49	6.4925	0.00	6.4925
(1000 HA), (1000 MT), (MT/HA)						