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Report Highlights:

Taiwan's wheat market remains stable at 1.0 mmt a year. Taiwan's corn market has fallen from highs, which once averaged 6.0 mmt a year, to 4.8 mmt in 1999, and 4.7 mmt projected for both 2000 and 2001. Corn demand is down because Taiwan's pig sector shrunk by one-third after the March 1997 Foot and Mouth Disease outbreak, due to which Taiwan lost its pork export market in Japan. The US is the dominant supplier of both wheat and corn, with limited competition from Canada and Australia for wheat, and from South America for corn. After Taiwan and the PRC enter the WTO, US corn may also have to compete with PRC corn in this market. Imports of PRC corn are currently banned.

Includes PSD changes: Yes
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GENERAL SUMMARY

All of the wheat, and nearly all of the corn, consumed on Taiwan are imported. Annual wheat imports, which are mostly from the US, are usually about 1.0 mmt, with only small year-to-year variations in quantity. In 1999 Taiwan imported 990,000 mt of wheat worth \$169 million, with the US supplying 92 percent, Australia 4 percent, and Canada 4 percent. Wheat imports are expected to remain in the neighborhood of 1.0 mmt in 2000 and 2001. Taiwan is a mature market and therefore, significant per capita increases in the consumption of wheat-derived products are not expected. In 1999 Taiwan's corn imports were 4.8 mmt, worth \$533 million. Prior to 1997 Taiwan's annual imports of corn were about 6.0 mmt. After the 1997 Foot and Mouth (FMD) epidemic Taiwan lost its export markets, and pig production declined by about a third, with a resultant decline in the demand for feed corn. Total corn imports for 2000 and 2001 are expected to stabilize at about 4.7 mmt. This slight decline, as compared with 1999, is expected because increased use of rice in formulations is likely for reasons discussed below. In 1999 virtually all of Taiwan's corn imports were from the US. In general, Taiwan feed millers prefer US corn, but they will import South American corn when its prices are lower than US prices by \$5 per mt or more. Given current market conditions, it is expected that the US will have the lion's share of the market again in 2000 and continued dominance in 2001 as well. After Taiwan and the PRC enter the WTO, which could happen soon, it is likely that Taiwan will eliminate its ban on PRC corn imports. When this happens, depending on the price of PRC corn, there is likely to be some experimentation with PRC corn, during which time the impact on US market share could be considerable.

WHEAT

Situation and Outlook

Taiwan continues to import about 1.0 mmt of wheat a year. Imports were slightly below 1.0 mmt in 1999 because in 1995 central authorities lowered required food security stocks from three to two months' consumption, and end-of-year stocks have declined steadily ever since. Despite the change in stock requirements, imports are expected to increase this year because the Taiwan wheat buyers' group, made up of 32 independent importers, split into two groups resulting in some extra purchases during the first half of 2000 and a forecast of 1.1 mmt for the year. The forecast for 2001 is 950,000 mt because increased buying in 2000 will lead to high end-of-year stocks, which will, in turn, lead to some reduction in imports next year. Continuing demand for Japanese-style noodles will guarantee the importation of the usual quantities of Australian and Canadian wheat which is preferred for that product. Regardless of Australian and Canadian exports, the US continues to dominate the Taiwan wheat market with, on average, a 90 percent market share. Taiwan is a mature market, and growth in the consumption of wheat-derived products will likely be limited to the rate of growth of the population which is 0.7 percent a year.

Wheat Statistical Tables

Table 1. Wheat Production Supply and Demand

PSD Table						
Country:	Taiwan					
Commodity:	Wheat					
		1998		1999		2000
	Old	New	Old	New	Old	New
Market Year Begin		01/1999		01/2000		01/2001
Area Harvested	0	0	0	0	0	0
Beginning Stocks	250	282	230	271	200	363
Production	0	0	0	0	0	0
TOTAL Mkt. Yr. Imports	998	990	1000	1100	0	950
Jul-Jun Imports	998	985	1000	1100	0	950
Jul-Jun Import U.S.	914	926	0	990	0	855
TOTAL SUPPLY	1248	1272	1230	1371	200	1313
TOTAL Mkt. Yr. Exports	7	0	10	0	0	0
Jul-Jun Exports	7	0	10	0	0	0
Feed Dom. Consumption	45	0	45	0	0	0
TOTAL Dom. Consumption	1011	1001	1020	1008	0	1015
Ending Stocks	230	271	200	363	200	298
TOTAL DISTRIBUTION	1248	1272	1230	1371	200	1313

Table 2. Import Trade Matrix for Wheat (Calendar Year)

Import Trade Matrix			
Country:		Units:	1,000 mt
Commodity:			
Time period:	01/1998		
Imports for	1998		1999
U.S.	963	U.S.	910
Others		Others	
Australia	54	Australia	44
		Canada	36
Total for Others	54		80
Others not listed			
Grand Total	1017		990

Table 3. Exchange Rates (NTD per \$1.00)

	1997	1998	1999
January	27.51	33.24	32.26
February	27.53	33.33	32.33
March	27.57	32.39	33.16
April	27.63	32.96	33.07
May	27.75	33.19	32.79
June	27.92	34.30	32.66
July	27.94	34.49	32.35
August	28.50	34.57	32.20
September	28.70	34.71	31.86
October	28.61	33.81	31.83
November	30.76	32.75	31.79
December	32.41	32.40	31.72
Average	28.57	33.51	32.34

The exchange rate on April 20, 2000 was: \$1=NTD 30.50

The average exchange rate for July 1998/June 1999 was: \$1=NTD 32.25

The average exchange rate for October 1998/September 1999 was: \$1=NTD 32.64

Production

Taiwan's climate is not suitable for growing wheat. Nonetheless, in the past the Taiwan Tobacco & Wine Board (TTWB), Taiwan's centrally-owned monopoly manufacturer and importer of tobacco, tobacco products, and alcoholic beverages, contracted local farmers to produce between 3,000 and 5,000 mt of wheat a year for use in the production of beer, and grain-based alcohol. Contract prices were high and included a sizeable subsidy. As a requirement for membership in the WTO, the TTWB will be privatized in the near future. Therefore, in 1996 TTWB stopped contracting for local wheat because after privatization it will no longer be able to afford to subsidize the producers of its inputs. Thus, wheat production on Taiwan has all but disappeared.

Consumption

Taiwan's demand for wheat is now entirely supplied by imports. In 1999, 92 percent came from the US. All wheat was ground into flour, except 1,000 mt that was used for beer and grain-based spirits, and 15,000 mt that was used for soy sauce. (Note: Wheat consumption for grain-based spirits is usually 3,000 mt a year. Last year it fell to below 1,000 mt because the September 21, 1999 earthquake damaged the Shaohsing Wine factory, Taiwan's largest wine manufacturer, which was located at the earthquake's epicenter.) No wheat is used directly for animal feed. Import permits are not issued for feed grade wheat for fear that it will be milled for human consumption. Some off-grade wheat flour, referred to as *clear flour*, is used for fish feed.

The Department of Statistics of the Ministry of Economic Affairs, in *The Industrial Production Statistics Monthly*, puts 1999 wheat flour production at 738,000 mt, equivalent to 985,000 mt of wheat. (Note: the flour

extraction rate used in this report is 0.75.) Another 16,000 mt of wheat was used in alcohol and soy sauce, which yields a total wheat consumption estimate of 1,001,000 mt. In 2000 and 2001 wheat consumption is expected to grow at the rate of population growth which, according to the Directorate General of the Budget, Accounting and Statistics, *Monthly Statistics of the Republic of China, February 2000*, was 0.7 percent in 1999. Therefore, wheat consumption in 2000 and 2001 is forecast at 1,008,000 mt and 1,015,000 mt, respectively.

Taiwan mills use approximately 50 percent US Dark Northern Spring (DNS), 35 percent to 40 percent US Hard Red Winter (HRW), 15 percent to 10 percent US Western White/Soft White (WW), and small amounts of Australian Prime Hard Wheat (APH) and/or Canadian Western Red Spring Wheat. One mill uses about 3,000 mt of durum wheat annually to make Western-style pasta.

Wheat flour is used almost exclusively for the manufacture of food. However, about 6 percent of the 738,000 mt of locally milled flour is used to make wheat starch and wheat gluten products for use in industrial products. In addition, small amounts of clear flour are used in fish feed formulations and in non-food products such as adhesives.

Most wheat is ground to make flour for use in bakery goods and instant noodles. The baked goods sector on Taiwan is innovative in sustaining consumers' interest in its products. Since 1998 it has engineered three successive crazes; first for Portuguese egg tarts, which led to widespread egg shortages; then for Japanese style dome-shaped breads; and finally, this year, for bagels and muffins. Bagels are now available in most of Taiwan's 2,000 plus 7-eleven stores, and muffins can be found in most supermarkets and bakeries. Instant noodle manufacturers are also looking for ways to increase sales. They are developing new flavors and new *bite* characteristics to entice increased consumption. In early 1999 noodle manufacturers came out with two new-to-market wheat noodle products, a frozen instant noodle product and a Japanese-style instant noodle product called *wagamma*. The increased popularity of Japanese instant noodle products has led to the appearance, this year, of numerous Japanese-style fresh noodle restaurants.

Price

Flour imports were liberalized in 1995 but wheat imports are still managed under the Wheat Stabilization Program, which is supposed to protect the Taiwan market from destabilizing fluctuations in world wheat prices. When world prices exceed the *Wheat Base Price* (analogous to the landed price of imported wheat), which is set by the COA, importers are reimbursed the amount of the difference with funds from the Wheat Stabilization Fund. The base price has been \$245 per mt since 1995. In 1999, because the average CIF price for wheat was \$170 per mt, no fund payments were made to importers. Because importers never pay more than \$245 per mt for wheat, Taiwan has set ceiling prices of NTD 334, NTD 321, and NTD 315 for 22 kg bags of high, medium, and low protein flour respectively. (See TW6023 and TW8037.) Market prices have never reached these ceiling prices. In 1998, market prices for 22 kg bags ranged from NTD 280 to NTD 300; and in 1999 they ranged from NTD 250 to NTD 280 depending on protein levels.

In order to reduce transaction costs, Taiwan's 32 flour mills have traditionally imported wheat collectively under the leadership of the Taiwan Flour Millers' Association (TFMA). In February 2000, four of the 32 mills broke away to form a new buyers' group. The new group is represented by the Chia Hsin Food & Synthetic Fiber Co., Ltd. Unexpected purchases of this new group led to a spike in imports during the first half of 2000, and to import estimates of 1.1 mmt for 2000, 12 percent higher than in 1999. The large wheat inventories resulting from these additional imports have led to lower flour prices. In March 2000, on average, the price of a 22 kg bag of flour was NTD 10 lower than a year ago. Additional current downward pressure on flour prices exists due to

high flour inventories resulting from large flour imports which, in 1999, reached 22,000 mt. This is 140 percent more than in 1998 when just 13,000 mt were imported.

Trade and Stocks

Wheat Imports

Wheat imports in 1999 were 990,000 mt, worth \$169 million. The US had a 92 percent import share, and Australia and Canada had 4 percent each. Imports in 1999 declined by 3 percent, as compared with 1998, due to a general trend within the industry to maintain ever decreasing wheat inventories (see below). In 1999, the US lost 4 percent of its 1998 market share to Canada. Current demand for Australian and Canadian wheat remains the same because demand for Japanese-style noodles, for which wheat from those countries is used, is strong but not growing. Therefore, US wheat continues to dominate the Taiwan wheat market, and is expected to enjoy a 90 percent, or greater, share of the market in both 2000 and 2001.

In the first trimester of 2000 Taiwan contracted for seventeen 34,000 mt shipments of US wheat, one 34,000 mt shipment of Canadian wheat, and one 28,000 mt shipment of Australian wheat all for delivery before July 2000. This is 3 more shipments of US wheat than were purchased during the same trimester in 1999. Each of the three additional shipments were purchased by the splinter buyers' group discussed above. The current wheat import estimate for 2000 is at 1.1 mmt. The forecast for wheat imports for 2001 is placed at 950,000 mt. Large stocks resulting from this year's high import levels will likely overhang the market next year, resulting in some decline in imports.

Wheat Stocks

Formerly, as part of the Wheat Stabilization Program, Taiwan's central authorities required that wheat millers maintain stocks equal to a three months' supply. This requirement was relaxed in 1995 when millers asked to lower inventories to cut costs. As a result, during the past few years stocks have gradually declined. This trend notwithstanding, Taiwan's wheat stocks are currently up due to the extra wheat imported by the newly formed wheat buyers' group. Two other trends are also counteracting the trend toward maintenance of lower inventories. First, several mills that manufacture specialty flours tend to keep larger wheat inventories to ensure sufficient inventories of the various types needed to manufacture tailor-made flours. Second, some quality conscious mills have found that they must have greater inventories on hand to ensure consistent quality.

The Wheat Stabilization Fund

In the past wheat importers contributed to the Wheat Stabilization Fund when import prices fell below the wheat base price, and were paid from the fund when import prices exceeded that price. However, in January 1996 it was decided to retire the fund. Since then, no contributions have been required when prices are low, but importers are still eligible for payments if prices are high. This policy will be followed until the NTD 300 million (\$9.8 million), currently in the Fund, is exhausted. Given recent low wheat prices, no payments from the Fund have been made in over three years. The wheat base price, which is set by COA, has been \$245 per mt since November 1995.

Wheat Import Contacts

As mentioned above, 28 of Taiwan's mills import wheat collectively under the auspices of the TFMA, and four

import as a group under the auspices of the Chia Hsin Food & Synthetic Fiber Co., Ltd. Contact information for these two entities follows:

Taiwan Flour Millers Association

6th F/6 Tunhwa N. Rd.,
Taipei, Taiwan
Tel: 886-2-2751-2181
Fax: 886-2-2741-0803

Chia Hsin Food & Synthetic Fiber Co., Ltd.

6th F/219 Chung Hsiao E. Rd., Sec. 4,
Taipei, Taiwan
Tel: 886-2-2752-5321
Fax: 886-2-2721-5825

Flour Imports

In 1995 Taiwan authorities liberalized wheat flour imports and in 1998 they cut wheat flour tariffs from 30 to 20 percent. From 1995 through 1997 wheat flour imports fluctuated between 3,000 mt and 5,000 mt annually. In 1998 they increased to 9,000 mt, and in 1999 they surged to 22,000 mt worth \$4.5 million. Despite recent growth, wheat flour imports are still minuscule when compared with the 738,000 mt of flour that are produced locally from imported wheat. Locally ground flour will probably retain its commanding dominance in the market because the tariff on wheat is 6.5% whereas the tariff on flour is 20 percent. Furthermore, as long as the Wheat Stabilization Fund continues to exist, wheat importers are somewhat insulated from high wheat prices, a luxury that flour importers do not have. In 1999 Australia supplied 57 percent of Taiwan's flour imports; Japan 31 percent; and the remaining 12 percent came from other countries. Recent growth in the popularity of Japanese-style white noodles (udon) and stretched noodles (ramen) has led to increased flour imports from Australia and Japan. The flour import estimates for 2000 and 2001 remain at 22,000 mt because no additional growth in demand for white noodles is foreseen.

Taiwan Wheat and Flour Standards

Current Taiwan standards for wheat were last revised in 1996. No amendments to wheat standards have been proposed recently. The standards for flour were established in 1980. Currently, flour is divided into five classes according to protein and ash content. Recently, the TFMA has suggested that more classes be introduced to provide greater refinements particularly with regard to ash content. This proposal has been hotly debated. Smaller, traditional mills feel they will be disadvantaged if modern, large-scale mills market low ash flours that they are unable to manufacture. Wheat food manufacturers also oppose amending ash content standards because they regard them as a barrier to flour imports. Given this opposition, it is unlikely that the new standards will be adopted any time soon.

Tariffs

The tariffs on wheat and flour remain at 6.5 percent and 20 percent respectively.

Wheat Import Regulations

Wheat importers need a food dealers' license in accordance with The Food Administration Law. The Regulations Governing the Stabilization Fund for the Importation of Wheat Imports require that importers receive prior approval from the Council of Agriculture (COA) and an import permit from the Bureau of Foreign Trade (BOFT) for each shipment. Imported wheat is subject to mandatory food safety and quarantine inspection. The Bureau of Standards, Metrology, and Inspection (BSMI) and the Bureau of Animal and Plant Health Inspection and Quarantine (BAPHIQ) conduct on-board visual inspections of all shipments. About 1 in 20 shipments is sampled and tested for aflatoxin. BSMI reports that historically there have been almost no instances of aflatoxin in wheat from any of the three countries currently supplying wheat to Taiwan (i.e., the US, Australia, and Canada). Almost all shipments, even those sampled for aflatoxin, are released by food safety and quarantine officials within 30 minutes. BSMI also monitors wheat, corn and soybeans for 112 pesticides residues. BSMI reports that pesticide residue problems with imported wheat, corn, and soybeans are infrequent.

Marketing

Market Competition in the Milling Industry

The total number of wheat mills on Taiwan is currently 32. In the past few years some older mills have closed, and others have merged with newer mills. As a result, in the last year Taiwan's annual milling capacity has fallen from 2.8 to 2.4 mmt a year (on a 24 hour-a-day, 365 day-a-year operational basis). Despite this reduction, given that Taiwan currently mills only about 1.0 mmt a year, there is still considerable unused capacity in the Taiwan flour milling industry. In an effort to increase sales, about one-third of Taiwan's mills have installed new bins and mixing facilities which enable them to produce specialty flours. These mills can now provide up to 40 different types of flour. Some mills have installed new packaging facilities that pack several different size bags in addition to the traditional 22 kg bag. In order to increase economies of scale, four mills are enlarging their operations. In February 2000, these mills formed their own buyers' group to facilitate more frequent wheat imports. It is expected that these developments will lead to greater consolidation of the milling industry on Taiwan. Currently, the annual capacity of Taiwan's mills range from 4,000 to 110,000 mt of wheat.

Market Channels

Traditionally, mills have not communicated directly with end-users who dealt almost exclusively with wholesalers. Nowadays, many mills provide flour directly to end-users, meeting customized specifications, providing individualized service, and giving preferred-customer discounts. Flour wholesalers are being forced to look for new sources of flour and new markets. As a result, they have begun importing types of flour that are not produced on Taiwan for niche markets such as the market for flour to make white noodles. However, Taiwan millers are aware of the growing importance of niche markets, and are increasing production of speciality flours in order to compete with flour imports.

CORN

Situation & Outlook

In 1999 corn imports totaled 4,823,000 mt. Imports are expected to be 4.7 mmt in both 2000 and 2001. A slight decline is anticipated because, for reasons discussed below, it is likely that the inclusion rate of rice in feed rations will rise for at least the next two years. Taiwan corn imports plunged in 1998 because, after FMD broke out in 1997, Taiwan lost its export markets and hog production fell by over one-third. Before FMD, Taiwan produced about 14.2 million pigs a year. Current production is about 9.0 million, which most observers feel is adequate to meet domestic demand. Poultry production was about 429 million birds in 1999, and is expected to remain there in 2000 and 2001. In 1999 US corn accounted for virtually 100 percent of the market. Argentina, which competes with the US for this market when its prices are between \$5 and \$6 per mt below US prices, exported only 9,000 mt to Taiwan in 1999. It is not expected that Argentina will figure significantly in the market in 2000. US market share in 2001 will be determined by South American and US prices. After Taiwan enters the WTO it is likely that PRC corn, which is currently banned, will be allowed into the Taiwan market. Once this ban is removed, the US could lose some market share to the PRC if it's corn is competitively priced.

Feed Corn Statistical Tables

Table 4. Feed Corn Production, Supply and Demand

PSD Table						
Country:	Taiwan					
Commodity:	Corn					
		1998		1999		2000
	Old	New	Old	New	Old	New
Market Year Begin		01/1999		01/2000		01/2001
Area Harvested	24	20	5	17	0	15
Beginning Stocks	1500	1578	1475	1590	1175	1525
Production	90	89	24	75	0	65
TOTAL Mkt. Yr. Imports	4575	4823	4700	4700	0	4700
Oct-Sep Imports	4575	4699	4700	4700	0	4700
Oct-Sep Import U.S.	4537	4634	0	4400	0	4400
TOTAL SUPPLY	6165	6490	6199	6365	1175	6290
TOTAL Mkt. Yr. Exports	0	0	0	0	0	0
Oct-Sep Exports	0	0	0	0	0	0
Feed Dom. Consumption	4400	4600	4750	4540	0	4540
TOTAL Dom. Consumption	4690	4900	5024	4840	0	4840
Ending Stocks	1475	1590	1175	1525	1175	1450
TOTAL DISTRIBUTION	6165	6490	6199	6365	1175	6290

Table 5. Import Trade Matrix for Corn (Calendar Year)

Import Trade Matrix			
Country:	Taiwan	Units:	1,000 MT

Commodity:	Corn		
Time period:	01/1998		
Imports for	1998		1999
U.S.	3698	U.S.	4800
Others		Others	
Argentina	1046	Argentina	9
Thailand	11	Thailand	9
Australia	1	Australia	3
		Myanmar	2
Total for Others	1058		23
Others not listed	2		0
Grand Total	4758		4823

Table 6. Wholesale Corn Prices

Prices Table			
Country:	Taiwan		
Commodity:	Corn		
Year:	1999		
Prices in (currency)	NTD	per (uom)	100 kilogram
Year	1998	1999	% Change
Jan	537	482	-10.2%
Feb	560	493	-12.0%
Mar	558	476	-14.7%
Apr	549	485	-11.7%
May	564	506	-10.3%
Jun	555	496	-10.6%
Jul	546	497	-9.0%
Aug	549	490	-10.7%
Sep	511	480	-6.1%
Oct	503	485	-3.6%
Nov	491	482	-1.8%
Dec	483	486	0.6%

Table 7. Feed Production 1997 & 1998, Estimates for 1999-2001 (1,000 mt)

Feed Production	1997 (revised)	1998 (revised)	1999 (revised)	2000 (estimate)	2001 (forecast)
Hog	3,285	2,891	2,649	2,700	2,700
Poultry	4,248	3,616	3,586	3,586	3,586
Cattle	187	220	222	222	222
Fishery	530	437	404	404	404
Others	142	117	108	108	108
Total	8,392	7,281	6,969	7,020	7,020
Note: Feed production estimates for 2000 and 2001 are based on revised data for 1999. <i>Source: Data for 1997-1999 feed production are official numbers from the Council of Agriculture</i>					

Table 8. Animal & Aquiculture Production 1996 - 1999, Estimates for 2000 - 2001

Production	Pigs (1,000 heads)	Poultry (1,000 birds)	Cattle, Dairy & Beef (1,000 heads)	Aqui- & Marine- culture (1,000 mt)
1996	14,310 (+1%)	394,700 (+6)	163	272
1997	11,400 (-20%)	439,054 (+11%)	166	272
1998	9,800 (-14%)	433,630 (-1%)	165	253
1999	8,980 (-8%)	428,700 (-1%)	150	253
2000 (estimate)	9,000 (+2%)	428,700 (-0%)	150	253
2001 (estimate)	9,000 (+0%)	428,700 (-0%)	150	253
Note: Poultry & Pigs numbers are slaughter figures. Cattle numbers are stock figures. Source: 1999 Taiwan Agriculture Book, and official hog and chicken census results				

Production

Taiwan feed corn production in 1999 was 89,000 mt from 20,000 hectares, a 26 percent drop from the previous year. Feed corn production has been falling steadily since July 1997 when subsidy cuts, needed to meet WTO accession commitments, began. Prior to July 1997 farmers could sell three corn crops a year to the COA for guaranteed prices under the COA's guaranteed purchase program. (In Taiwan farmers can produce three crops a year.) In July 1997 through 1998, eligibility was reduced to two crops a year, and beginning in 1999, it was reduced to only one crop a year. The guaranteed purchase price for corn is NTD 15 per kilo and will remain at that level until the guaranteed purchase program is revised in June 2001. Corn not sold under the guaranteed purchase program must be sold on the open market at prevailing prices. Corn is mostly grown by Taiwan's aboriginal tribes on hillsides unsuitable for other crops. The subsidy program is being slowly phased out to provide these farmers time to adjust. The feed corn production estimate for 2000 is 75,000 mt from 17,000 hectares; and for 2001 it is 65,000 mt from 15,000 ha.

Consumption

Domestic Livestock and Poultry Sectors

In 1999 Taiwan's hog and poultry production fell by 8 and 1 percent, respectively, as compared with 1998. (*Taiwan Agricultural Yearbook*, 2000 edition, preliminary statistics). In early 1999 hog production did not meet domestic demand which led to high prices and production increases. In May the standing hog population was 6.79 million head and by November it had risen to 7.24 million. Total hog production in 1999 was 8.98 million head. Production estimates for 2000 and 2001 have been placed at 9.00 million, a production level which observers feel represents a demand/supply equilibrium. Poultry production for 2000 and 2001 is estimated at 429 million birds, which is also the number of birds that were produced in 1999.

From 1998 through July 1999 small and inefficient livestock and poultry producers could choose to participate in a buyout program designed to encourage them to get out of production before Taiwan joins the WTO and competition becomes stiffer. As a result of that program, most small producers are gone. In 1999 there were 16,000 pig farmers, down from 17,000 a year earlier. The exodus of small producers will lead to decreases in

on-farm feed production. Currently, only about 25 percent of feed is mixed on-farm. Most feed consumed is produced commercially using lowest-cost formulation.

Demand for Corn

Feed production in 1999 was about 7.0 mmt and it is expected that production will remain near that level in 2000 and 2001. In 1999 the average CIF price of corn was \$114 per mt versus \$127 per mt in 1998 (see Table 6). Due to these low prices, the average corn inclusion rate in feed rations increased from 0.58 to about 0.65. In 1999, feed corn demand was 4.6 mmt. Feed corn demand for 2000 and 2001 is forecast at between 4.5 and 4.6 mmt. Feed corn consumption is expected to fall slightly because it is likely that the substitution of rice for corn in feed rations will increase in 2000 and 2001 (see below). In addition to use in feed, each year between 200,000 and 300,000 mt of corn is wet milled to produce about 155,000 mt of high fructose corn syrup. Total corn consumption was 4.9 mmt in 1999 and is expected to fall to between 4.8 and 4.9 mmt in 2000 and 2001.

Taiwan mostly mills US#2 yellow corn, or the equivalent South American grade, for feed. In 1998 about 104,000 mt of US high oil corn was purchased for use in poultry rations. In 1999 that amount increased to 200,000 mt. Use of high oil corn in poultry feed is still in its trial phase. Consumption could increase substantially in the future if trial results are positive.

Substitution

Rice. Taiwan is in the process of reducing centrally held rice stocks to make room for rice imports that will begin entering Taiwan after it joins the WTO (see TW0015). The COA released about 66,000 mt of old rice for feed use in 1999. The COA expects to release about 150,000 mt for feed in 2000 and again in 2001. Additional use of rice in feed rations will displace corn.

Sorghum. In 1999, Taiwan imported 43,000 mt of sorghum, down 46 percent from the previous year. Imports fell because world sorghum prices were \$32 per mt higher than corn. In 1998, corn and sorghum prices were the same at \$127 per mt. In 1999 sorghum imports came from Australia (49 percent), the PRC (35 percent), and Thailand (16 percent). None came from the US; however, in some years the US exports sorghum to Taiwan. All sorghum imports are used in feed.

Barley. In 1999 Taiwan imported 232,000 mt of barley, roughly the same as the year before. The US supplied 2 percent, and Australia supplied the rest. Of the 232,000 mt, 91,000 mt were used to make beer; 20,000 mt were used in food processing; and 121,000 mt went for animal feed. According to the Taiwan Barley Industry Association (TBIA), in 1999 the average price of imported barley was about the same as corn's. Local feed millers prefer corn to barley because barley processing costs are higher, and its feed efficiency is lower. It becomes economically feasible to substitute barley for corn when barley prices are lower than corn prices by \$5 or more per mt. In 2000, given world prices, barley is not expected to substitute for corn.

Stocks

In 1999 end-of-year stocks were lowered to reduce storage costs, a move necessitated by the increased

competition in the pig, poultry, and feed sectors. Lower stock holdings are expected for 2000 and 2001 for the same reason. (See *Marketing* below.)

Trade

In 1999 corn imports totaled 4,823,000 mt (worth \$533 million) up 1 percent, or 65,000 mt, as compared with a year earlier. (Between October 1998 and September 1999, Taiwan imported 4,699,000 mt of corn worth \$523 million.) Before FMD hit Taiwan in 1997, and Taiwan lost its Japan export market, Taiwan's corn imports were about 6.0 mmt a year. In 1999, US corn had virtually 100 percent of the market. Argentina, which is, on occasion, a serious competitor for the Taiwan market, supplied only 9,000 mt in 1999. If prices are right, Taiwan can be expected to import corn from South America again in the future. Since the FMD outbreak and the liberalization of meat imports (one of the concessions Taiwan granted its trading partners to obtain their support for its entry into the WTO) Taiwan's pork and poultry sectors have become more conscious of the need to lower costs of production, and, all other factors being equal, feed millers will buy corn from the cheapest supplier. In 1999, in addition to US and Argentine corn, 9,000 mt of corn were imported from Thailand, 3,000 mt from Australia, and 2,000 mt from Myanmar. According to the Taiwan Feed Industry Association (TFIA), corn from non-US, non-Argentine sources is used primarily in bird feed.

This year, as of April, Taiwan had contracted for approximately 1,640,000 mt of corn for delivery before July 2000. This is double the amount for the corresponding period in 1999, and 20 percent more than in 1998. The number of contracts is up this trimester because importers stayed out of the market in late 1999 waiting for prices to bottom out, and came back into the market when corn and ocean freight prices began rising in early 2000. Most contracts are for 54,000 mt, although some contracts are for 56,000 mt. So far this year all purchases have been US corn, and feed millers believe that all 2000 imports will be from the US. Imports from South America usually occur only when South American corn is \$5 to \$6 per mt cheaper than US corn, and current US prices are only about \$1 per mt higher than the South American competition. Taiwan pig producers prefer US corn because South American corn is harder and less digestible. South American corn is mostly used in poultry feed. US market share in 2001 will depend on relative US and South American prices. Overall import estimates for 2000 and 2001 remain at the 1999 level.

Impact of WTO Accession on Corn Imports

After Taiwan enters the WTO, meat imports will rise, and some additional declines in poultry and pork production are possible. Increased post-WTO accession competition from meat imports will likely lead to additional attempts to reduce costs of production which may lead to further reductions in feed inventories and a one-time decline in corn imports. After Taiwan and the PRC are in the WTO, Taiwan will, most likely, remove its ban on imports of PRC corn. Several feed millers have already indicated that they will import PRC corn as soon as the ban is lifted if the price is right. These three factors all suggest that in the mid- to long-run, US corn exports to Taiwan could decline.

Tariffs

The current tariff on corn and sorghum is 0.5 percent ad valorem CIF, and on barley it is 0.8 percent ad valorem CIF. These tariffs have been in place since 1997 when they were lowered from 1.0 and 1.5 percent respectively

as a temporary measure to help farmers recover from economic losses resulting from the FMD outbreak. Since then these temporary tariffs have been renewed each year by the Ministry of Finance (see TW9007). The Ministry of Finance will continue to extend the temporary rates on a yearly basis until legislation to make them permanent is passed by the Legislative Yuan.

Marketing

Local feed millers and corn importers are increasingly willing to purchase cheap corn from non-US sources if the price is right. In order to retain market share, the US is promoting the use of US high-oil corn for poultry feed; the use of US value-added corn grit for beer brewing; and the use of US corn in the manufacture of biodegradable plastics and gasohol, two non-traditional uses.

Market Competition in Feed Industry

The total number of feed mills on Taiwan is over 150. Of these, 35 mills import corn directly. Previously, these 35 mills were divided into two buyers' groups. In 1999, in an effort to lower costs, they merged to form one buyers' group. Taiwan purchases corn on both basis and futures, and C&F flat bases. In 1999, about 40 percent of Taiwan corn imports were imported as parcel trade, and 55 percent were imported directly by the 35 mills mentioned above. Tai Sugar, a central-authority-owned company that has invested in pig production, also imported some corn which amounted to about 5 percent of the total. Taiwan's commercial feed milling capacity is estimated at 23 mmt on a 24 hour-a-day and 365 day-a-year operation basis. Taiwan produced about 5 mmt of commercial feed in 1999, of which 4.4 mmt were produced by the 35 mills that also import corn. These mills use about 88 percent of their installed capacity. The five largest mills have recently expanded their operations and now have a combined annual installed capacity that exceeds 500,000 mt. Inventory reductions are being implemented by these mills as an additional cost cutting measure.