

AGRICULTURAL OUTLOOK



Economics Editor
Randy Schnepf (202) 219-1281
rschnepf@econ.ag.gov

Associate Editors
Dennis A. Shields (202) 219-0649
Anne B. W. Effland (202) 501-8448

Managing Editor
Mary Reardon (202) 219-0566

Commodity Coordinators
Field Crops: Mark Simone
Livestock: Leland Southard
Specialty Crops: Charles Plummer

Design Coordinator
Victor Phillips, Jr.

Statistical Coordinator
David Johnson (202) 219-0663

Chart Production
Wynnicie Napper

Tabular Composition
Victor Phillips, Jr., Ciliola Peterson

2 Commodity Briefs

Field Crops: 1997/98 Winter Wheat Seedings Down Sharply • Exports Spur Rally in Soybean Prices

Livestock, Dairy, & Poultry: Lower Hog Inventory to Strengthen Prices in 1997 • Beef Herd Downsizing Tightens Feeder Cattle Supplies

Specialty Crops: Florida Freeze Reducing Supplies of Fresh Vegetables

11 Commodity Spotlight

U.S. Sugar Consumption Continues to Grow

Ron Lord

15 World Agriculture & Trade

Food-Aid Grain Needs Are Down—In the Short Run

May Mercado Peters & Michael Trueblood

Egypt's Poultry Industry at a Turning Point

Fawzi A. Taha

21 Resources & Environment

Incentives for Sustainable Agriculture

Utpal Vasavada, Jim Hrubovcak, & Joe Aldy

26 Special Article

China: Is Current Ag Policy a Retreat from Reform?

Frederick W. Crook

Statistical Indicators

The Statistical Indicators section is in the printed version of the March 1997 issue of *Agricultural Outlook*. For more information, please contact Randy Schnepf at (202) 219-1281.

Published monthly (except February) by the Economic Research Service, U.S. Department of Agriculture. Materials may be reprinted without permission.

Contents have been approved by the World Agricultural Outlook Board and the summary released February 20, 1997. Price and quantity forecasts for crops are based on the February 12 World Agricultural Supply and Demand Estimates.

To renew—Call 1-800-999-6779. Subscription expires in month and year indicated on top line of address label.

Subscription: \$42 per year (\$52.50 for foreign addresses, including Canada); single issue \$9. Order from ERS-NASS, 341 Victory Drive, Herndon, VA 20170. Or call 1-800-999-6779 (U.S. and Canada). All other areas, call (703) 834-0125. Checks payable to ERS-NASS.

The next issue (AO-239) is scheduled for mailing on April 6, 1997. If not delivered by April 27, call (202) 219-0566 (please have mailing label handy). The full text will also be distributed electronically; call (202) 219-0515. The text of current and back issues is available on the ERS Home Page on the Internet at <http://www.econ.ag.gov/>

Cover Photo: Sugarcane harvest, Louisiana

The Florida Freeze . . . China's "Grain Bag" Policy . . . U.S. Sugar Output & Consumption . . . & Egypt's Poultry Industry

Florida Freeze Heats Up Vegetable Prices

Mother Nature delivered the latest in a series of setbacks for growers of Florida winter vegetables, with a devastating freeze the mornings of January 18 and 19. The freeze caused substantial damage to U.S. supplies of tender warm-season winter vegetables (e.g., squash, snap beans, bell peppers, eggplant, and tomatoes). Losses in Dade County alone were estimated close to \$100 million.

The freeze impact on retail prices is likely to last until late April. The revised USDA forecast for consumer prices in first-half 1997 indicates a rise of 6-7 percent compared with a year earlier. The CPI rise is moderated by stable prices for a number of fresh vegetables largely unaffected by the freeze.

U.S. Sugar Consumption Continues to Grow

U.S. sugar consumption is forecast at 9.8 million short tons (raw value) in 1996/97, up from 9.6 million last year. If the forecast is realized, sugar consumption will have risen by about 1 million tons in 6 years, implying a per capita increase of 2.5 pounds. Continued growth in domestic sugar consumption has become more important for domestic producers since passage of last year's Farm Act, which suspended USDA's authority to restrict marketings of domestic sugar when supplies depressed prices. Combined with changes to the price support loan program, this means prices could drop if production outpaces consumption.

U.S. sugar production for 1996/97 is projected at 7.29 million tons (raw value), down about 80,000 tons from last year. Beet sugar production is projected to be 55 percent of the total, at 4 million tons, well below the record 4.5 million tons 2 years earlier. U.S. sugar beet acreage is likely to rise in 1997/98, with prices at planting time higher than the previous year.



China: Retreating from Ag Reform?

While market forces are increasingly important in China's economy, the government since 1994 has intensified its role in the markets for several basic agricultural commodities. This policy reversal—which has boosted grain production and reduced imports—was a response to higher inflation, concerns for food self-sufficiency, and a decline in grain acreage. With the success of China's policy turn at boosting grain production, world demand for these crops may dampen in the short run. But based on projected gains in population and grain demand for the next decade, China's demand for grain will outpace production, requiring expanded imports.

Sustainable Agriculture Incentives

The concept of sustainable agriculture integrates technologies and practices that are as profitable as conventional farming methods but more environmentally responsible. The 1996 Farm Act created new programs and extended existing ones, providing incentives to farmers to adopt sustainable practices. Several other policy options could also bolster incentives. For example, more sustainable

technologies might be adopted more quickly if farmers could purchase insurance to offset any risks that accompany the application to particular sites. Or, farm credit policies could be restructured so that farmers could finance the costs of switching to a new technology regime.

Egypt's Poultry Industry Drives Feed Imports

Egypt is the Middle East's fastest growing and largest market for U.S. agricultural exports, with purchases of \$1.5 billion in fiscal 1996, up from \$613 million in 1994. The substantial increase is due partially to higher global prices of wheat and feed grains, but also to increased shipments of feed grains and of oilseeds and products. Import demand has grown as Egypt's poultry industry expanded in the 1990's.

Egypt's per capita poultry consumption (5.8 kilograms in 1996) has been climbing steadily the past 5 years, driven by rising incomes. Egypt's feed import requirements may decline on or before 2000 when it is expected to lift a ban on poultry imports—a commitment under acceptance into the World Trade Organization. The U.S. is likely to continue to supply much of Egypt's feed grain needs and be in a good position to tap the poultry meat market when the ban is lifted.

Food-Aid Grain Needs Are Down

Sixty-five developing countries would need 9 million tons of grain food aid in 1996/97 to maintain per capita consumption at the previous 5-year average. But that figure is down 5 million tons from 1995/96 aggregate needs. In a study of 65 major food-aid recipient countries, USDA's Economic Research Service also found that the "grain deficit" is down in all eight regions covered by the study. Favorable weather and expanded plantings allowed most low-income countries to maintain recent consumption levels while reducing imports and avoiding high global grain prices in 1996.

Commodity Briefs



Jack Harrison

Field Crops

1997/98 Winter Wheat Seedings Down Sharply

Winter wheat plantings for the 1997/98 crop fell to 48.2 million acres, the lowest since 1978 and well below market expectations, according to USDA's January 10 *Winter Wheat and Rye Seedings* report. Winter wheat acreage normally accounts for more than 70 percent of U.S. wheat planted area, with spring wheat comprising the remainder. The January 10 report represents the first indication of planted winter wheat acreage, and therefore gives the first clue to the size of the 1997/98 U.S. wheat crop.

Despite the 7-percent drop in winter wheat planted acreage, the year-to-year decline in harvested acreage is not expected to be as severe as a year earlier, assuming normal weather conditions in coming months. In 1996, drought and winterkill prevented an unusually large portion of the planted crop from being harvested.

Among the factors in the decline in winter wheat seedings are the late soybean harvest, adverse weather at planting, and disease concerns in the eastern Corn Belt;

the late sorghum harvest in Kansas; dry soil conditions at planting in Montana and Washington; and increased planting flexibility in the 1996 farm legislation for farm program participants. Also, in contrast to the fall of 1995 when wheat prices were rising, cash prices in the autumn of 1996 were falling rapidly, and new-crop futures prices indicated sharply lower harvest-time prices than in 1996. Most states that had expanded winter wheat acreage in 1995 in response to rising wheat prices in the fall, scaled back wheat plantings in 1996.

The U.S. winter wheat crop includes three principal classes: Hard Red Winter (HRW) grown mainly in the Southern Plains; Soft Red Winter (SRW) grown across the Delta, Midwest, East, and Southeast; and white winter, grown mainly in the Pacific Northwest and Michigan.

HRW wheat plantings are estimated down 5 percent to 34.1 million acres. The 1996 farm legislation freed producers from base acreage restrictions, allowing them to plant other crops. In addition, growing demand for feed grains in the Southern Plains, the late sorghum harvest in Kansas, and dry soil conditions in Montana contributed to the drop in HRW plantings.

Feed grain acreage has been expanding in the Central and Southern Plains in recent years, and increased planting flexibility is likely to hasten the shift. Relative net returns favor corn over wheat in many areas. Favorable returns from sorghum in 1996 and the new planting flexibility will encourage producers in dryland areas to incorporate sorghum into crop rotations in 1997. Sunflowers will also be an attractive rotation crop in northwestern Kansas.

Wet weather delayed planting in the Southern Plains. The resulting favorable soil moisture meant that planting conditions were much improved over a year ago when drought hindered planting and germination. However, farmers in Kansas (the largest wheat producing state in most

years) planted only 11.4 million acres, 3 percent less than a year earlier and the lowest since 1988 when 3.4 million acres were idled under annual programs.

Producers in Oklahoma reduced winter wheat acreage 3 percent to the lowest since 1973. In Texas, winter wheat plantings remained unchanged from a year earlier. Nebraska winter wheat area continues to trend downward, and HRW plantings in Montana dropped 23 percent because of dry weather. Plantings in South Dakota are down 17 percent to a more normal level after unusually large HRW plantings last year.

SRW plantings are estimated down 15 percent (1.8 million acres) to 9.97 million acres, the lowest since the 1994 crop. Wet, cool weather at planting in the fall of 1996 explains much of the decline, particularly in Arkansas and Missouri, where wheat planted area is estimated down more than 30 percent from a year earlier. By the time the fields had dried out enough to plant, temperatures were too cold.

Wet weather was also a factor in the acreage decline in the three largest SRW producing states: Illinois (down 30 percent), Indiana (18 percent), and Ohio (11 percent). The late row-crop harvest prevented some producers from getting into their fields in time to plant wheat, and disease outbreaks in those states in recent years likely discouraged some producers from planting wheat again. Spot shortages of seed were also reported. Some SRW area increases occurred in the southeastern states, but the declines in the Corn Belt overwhelm these small gains.

The aim of China's "grain bag" policy is self-sufficiency. How is this likely to affect international grain markets?

Special Article
Page 26

Commodity Briefs

U.S. Field Crops—Market Outlook

	Area		Yield	Output	Total supply	Domestic use	Exports	Ending stocks	Farm price
	Planted	Harvested							
	— Mil. acres —		Bu/acre	— Mil. bu —					\$/bu
Wheat									
1995/96	69.1	60.9	35.8	2,183	2,757	1,140	1,241	376	4.55
1996/97	75.6	62.9	36.3	2,282	2,738	1,314	950	474	4.20-4.40
Corn									
1995/96	71.2	65.0	113.5	7,374	8,948	6,294	2,228	426	3.24
1996/97	79.5	73.1	127.1	9,293	9,729	6,870	1,900	959	2.55-2.85
Sorghum									
1995/96	9.5	8.3	55.6	460	532	316	198	18	3.19
1996/97	13.2	11.9	67.5	803	821	529	225	67	2.20-2.50
Barley									
1995/96	6.7	6.3	57.3	360	513	351	62	100	2.89
1996/97	7.2	6.8	58.5	397	536	401	35	100	2.70-2.80
Oats									
1995/96	6.3	3.0	54.7	162	343	275	2	66	1.68
1996/97	4.7	2.7	57.8	155	322	240	3	79	1.85-1.95
Soybeans									
1995/96	62.6	61.6	35.3	2,177	2,516	1,481	851	183	6.77
1996/97	64.2	63.4	37.6	2,382	2,570	1,526	905	140	6.75-7.25
Rice			Lbs./acre	— Mil. cwt (rough equiv.) —					\$/cwt
1995/96	3.12	3.09	5,621	173.9	212.6	104.5	83.0	25.0	9.15
1996/97	2.82	2.80	6,121	171.3	204.1	104.8	75.0	24.3	9.30-10.00
Cotton			Lbs./acre	— Mil. bales —					c/lb.
1995/96	16.9	16.0	537	17.9	21.0	10.6	7.7	2.6	75.4
1996/97	14.7	12.8	709	19.0	22.0	11.0	6.5	4.5	*

Based on February 12, 1997 World Agricultural Supply and Demand Estimates.

*USDA is prohibited from publishing cotton price projections.

See table 17 for complete definition of terms.

Economic Research Service, USDA

In the eastern Corn Belt, corn and soybeans were likely attractive alternatives to wheat, with higher expected net returns, although by September the prices of all three crops were clearly in decline. Producers' experience with low wheat yields in 3 out of the last 5 years may have been a deciding factor in the shift away from wheat.

In the fall of 1995, planting conditions had generally been favorable, prices were rising, and total SRW wheat area increased 11 percent. But in 1996, harvested yields plunged, and this, together with declining wheat prices, likely prompted some farmers to scale back wheat acreage in favor of planting corn and soybeans next spring.

White winter wheat planted acres are estimated down 5 percent to 4.19 million. Most of the drop was in Washington (down 6 percent), where dry weather in the fall hindered planting.

For all wheat, the surprisingly low level of winter seedings was expected to be bullish for new-crop prices, but the projected increase in beginning stocks was largely offsetting. Average monthly farm prices are expected to continue declining as they have since May. Weather over the rest of the winter and spring will be critical to the development of the 1997 crop, and given the small planted area estimate, new-crop futures prices could become more volatile in reaction to weather developments or unexpected changes in demand.

Sara Schwartz (202) 219-0768;
schwartz@econ.ag.gov

Commodity Briefs

Field Crops

Exports Spur Rally In Soybean Prices

U.S. cash soybean prices rallied in January, despite the second-largest harvest in history, owing to a robust increase in demand and a slow delivery pace from farmers. Thriving U.S. soybean and soybean meal exports are largely responsible for the rally. However, soybean prices may soften by spring with an expected increase in farm-level sales.

China has substantially increased its soybean meal purchases this year. Total Chinese production of oilseeds is down more than 4 million tons from a year ago, while consumption continues to expand. China's 1996/97 soybean meal imports are projected at 2.1 million metric tons, up from 0.9 million in 1995/96. A half-million-ton reduction in European Union (EU) oilseed harvests, and firmer wheat prices compared with corn, are also encouraging the EU to import more soybean meal. To date, U.S. export commitments of soybean meal to the EU are 260 percent above a year earlier.

In spite of an improved price-to-feed-cost ratio, the lower U.S. hog and pigs inventory will restrain 1996/97 domestic use of soybean meal to 1 percent above last season's level. It is the strong export trade that is supporting year-to-date prices for soybean meal. USDA forecasts an average price range of \$230-\$245 per short ton, little changed from \$236 last year.

Firm protein meal prices have pushed monthly gross crush margins to the highest since early 1995. Projected 1996/97 U.S. soybean crush is 1,410 million bushels, slightly more than the 1994/95 record. U.S. soybean exports this fall and winter have also been very strong, running over 100 million bushels ahead of the pace a year earlier.

World Commodity Market Outlook

	Year	Production ¹	Exports ²	Consumption ^{1,3}	Carryover ¹
<i>Million tons</i>					
Wheat	1995/96	536.8	93.2	551.0	103.7
	1996/97	581.0	90.9	572.8	111.9
Corn	1995/96	515.8	65.9	545.7	64.1
	1996/97	576.0	63.4	565.2	74.9
Barley	1995/96	141.5	12.3	149.3	18.3
	1996/97	154.9	14.8	150.5	22.8
Rice	1995/96	370.9	19.0	369.9	50.5
	1996/97	377.3	18.1	376.4	51.3
Oilseeds ⁴	1995/96	256.1	43.7	216.5	22.2
	1996/97	257.3	45.3	215.1	19.8
Soybeans ⁴	1995/96	124.4	31.7	112.1	17.1
	1996/97	132.8	34.4	114.1	16.1
Soybean meal ⁴	1995/96	89.0	32.6	88.8	4.2
	1996/97	90.4	32.9	90.9	4.1
Soybean oil ⁴	1995/96	20.2	5.4	19.8	2.3
	1996/97	20.4	5.7	20.4	2.3
<i>Million bales</i>					
Cotton	1995/96	92.0	27.4	84.5	36.3
	1996/97	86.4	26.9	85.8	36.8

1. Aggregate of local marketing years. 2. Wheat, July-June; coarse grains, October-September; cotton, August-July. Rice trade is for the second calendar year. All trade includes trade among countries of the former Soviet Union. All grain trade excludes intra-EU trade; oilseed and cotton trade include intra-EU trade. 3. Crush only for soybeans and oilseeds. 4. Brazil and Argentina adjusted to October-September.

Economic Research Service, USDA

Based on USDA's *Grain Stocks* report, the rapid first-quarter (September-November) disappearance has drawn down December 1 soybean stocks to 1,823 million bushels, about 11 million below a year earlier. The increase in crush and exports, with the downward revision in the final soybean production estimate released in January, would cut 1996/97 ending stocks to 140 million bushels, which represents the lowest stocks-to-use ratio since 1972/73.

Within weeks, importers will begin to purchase supplies to meet their near-term requirements and start switching to South American origins as Southern Hemisphere supplies begin to reach the market. There should be an unusually abrupt shift in seasonal exports this year as competing foreign supplies surge from a very slim amount. In spite of the recent dry spell in southern Brazil, the large planted area and recent rainfall is expected to produce a record harvest. This, coupled with tight U.S. supplies, should sharply curtail U.S. soybean export potential in the last half of 1996/97.

Commodity Briefs

Adding to the competitive pressure is new Brazilian legislation that exempts exports of raw materials and semi-manufactured products from state sales taxes. Previously, the differential export taxes—which included maximum taxes of 13 percent on soybeans, 11.1 percent on soybean meal, and 8 percent on soybean oil—favored Brazilian exports of soybean products and provided Brazilian farmers a great incentive to sell soybeans to domestic crushers rather than to export. These reforms now make Brazil more competitive with the U.S. in the world soybean market.

Heavy domestic and foreign demand for U.S. soybeans and soybean products has kept farm prices steady so far. The combination of a large harvest and strong prices will propel soybean crop value to a record \$16.76 billion in 1996/97. USDA forecasts a 1996/97 season-average farm price range of \$6.75-\$7.25 per bushel, compared with the 1995/96 average of \$6.77. Current prices should persist as long as meal demand and anticipated oil demand from China hold up.

However, farm sales should soon accelerate and weaken prices somewhat by spring. A later-than-usual U.S. harvest combined with a withholding of sales for tax deferment slowed farm marketings last fall. Over half of the December 1 soybean stocks was held on farms, the highest proportion in a decade. Some slippage in corn prices may yet occur, which would add to downward pressure on soybean prices. Rising expectations for large U.S. soybean plantings, and improving yields again in 1997, could also put pressure on producers to market the remainder of the 1996 crop.

Soybean oil prices remain soft, dampened by a large inventory from last season that threatens the profitability of crushing. A below-average oil yield is also affecting U.S. crushers. Current prices for soybean oil (around 22 cents per pound) are very competitive, which is attracting substantial export trade. The projected average price range of 22.75-24.25 cents per pound suggests that USDA anticipates significantly higher prices in coming months. Futures prices also indicate that

a stronger soybean oil market may be imminent, as growth in oil supplies slows and export demand accelerates.

Several factors are behind this outlook. This year's smaller supplies of competing Northern Hemisphere vegetable oils are quickly disappearing. China, the world's largest vegetable oil importer, is forecast to expand purchases from last year's 2.8 million metric tons to 3.7 million in 1996/97. Robust world demand has drawn down palm oil inventories faster than they can be replaced, further enhancing opportunities for U.S. soy oil exports. *Mark Ash (202) 219-0712*

mash@econ.ag.gov

For further information, contact:

Sara Schwartz, domestic wheat; Ed Allen, world wheat and feed grains; Allen Baker and Pete Riley, domestic feed grains; Nathan Childs, rice; Scott Sanford and Mark Ash, oilseeds; Steve MacDonald, world cotton; Bob Skinner and Les Meyer, domestic cotton. All are at (202) 219-0840. **AO**

Commodity Briefs

Livestock, Dairy & Poultry**Lower Hog Inventory to Strengthen Prices In 1997**

Hog producers continue to reduce their herds despite relatively favorable returns in 1996. The December 1, 1996, hogs and pigs inventory totaled 56.2 million head, the lowest December inventory since 1990. The market hog inventory, at 49.5 million head, was 4 percent below last year and the previous quarter.

Breeding hog numbers plunged to the lowest December on record. While June-November sow and boar slaughter declined sharply from a year earlier, it was not enough to offset a slowdown in additions to the breeding herd. The March 1 *Hogs and Pigs* report will be released on March 28. This report will provide indications of pork production for the remainder of the year.

Based on the market hog inventory, pig crops, and farrowing intentions reported in December, pork production should be about 17.1 billion pounds in 1997, about the same as in 1996. Lower per capita supplies (from population gains), along with continued moderate economic growth and an expected sharp increase in exports, are expected to boost average hog prices to \$55-56 per cwt, about \$2 higher than last year's average. Retail composite pork prices are expected to average 2-4 percent above last year's average of \$2.21 per pound. The farm-retail spread widened to \$1.36 per pound in 1996, compared with \$1.28 in 1995. Spreads are expected to widen 3-4 percent further in 1997.

Total U.S. exports are expected to rise about 20 percent to 1.1 billion pounds in 1997, due largely to expected increases in shipments to Japan, Korea, Hong Kong, Mexico, and Russia. This follows a hefty gain in 1996. The U.S. exported 868 million pounds of pork during January-November 1996, 22 percent more than a year earlier, with Japan accounting for more than 80 percent of the increase.

Japan remains the preeminent U.S. customer, accounting for almost 55 percent of total U.S. pork shipments. The pattern of exports to Japan in 1996 was driven largely by WTO-sanctioned Safeguard (SG) mechanisms imposed by Japan. U.S. exports to Japan were up dramatically in the first half of 1996, in anticipation of the SG, and then receded after the SG was in place. The SG mechanisms will continue to be major factors in trade with Japan this year.

Japan protects domestic pork producers from significant import surges by using SG mechanisms to raise the minimum price of imported pork (AO June 1996). When the quarterly and/or annual SG is imposed, the minimum price of imported pork increases by 24 percent. Under certain conditions, the "Special" SG (SSG) can be imposed, which increases the existing import tariff on pork cuts from 4.8 percent to 6.4 percent.

U.S. Livestock and Poultry Products—Market Outlook

		Beginning stocks	Production	Imports	Total supply	Exports	Ending stocks	Consumption Total	Per capita	Primary market price
		Million lbs.						Lbs.		\$/cwt
Beef	1996	519	25,526	2,079	28,124	1,872	377	25,875	67.7	65.21
	1997	377	25,482	2,125	27,984	2,045	400	25,539	66.2	65-69
Pork	1996	396	17,118	620	18,134	924	364	16,846	49.2	53.39
	1997	364	17,088	605	18,057	1,110	380	16,567	48.0	54-57
Broilers*	1996	560	26,085	0	26,645	4,523	637	21,485	70.3	61.2
	1997	637	27,772	0	28,409	5,075	675	22,659	73.5	58-62
Turkeys	1996	271	5,400	0	5,671	437	328	4,906	18.5	66.5
	1997	328	5,559	0	5,887	495	300	5,092	19.0	65-70
Eggs**		Million doz.						c/doz.		
	1996	11.2	6,358.3	5.4	6,374.9	257.9	8.6	5,246.5	237.1	88.2
	1997	8.6	6,600.0	4.0	6,612.6	280.0	12.0	5,410.6	242.3	81-86

Based on February 12, 1997 World Agricultural Supply and Demand Estimates.

*Cold storage stocks previously classified as "other chicken" are now included with broiler stocks. **Total consumption does not include eggs used for hatching. See tables 10 and 11 for complete definition of terms.

Economic Research Service, USDA

Commodity Briefs

Since the SG was imposed on July 1, 1996, U.S. pork exports to Japan have averaged about 32 million pounds (carcass weight) per month, compared with 51 million pounds per month in first-half 1996. Total pork shipments are expected to begin climbing again this spring when the SSG expires in April (after being in effect for 3 months) and shippers begin to anticipate the lifting of the annual SG on July 1. The SG will likely be reimposed in October.

U.S. imports of Canadian hogs surged to a record 280,000 head in October, impelled by relatively high U.S. prices. Following established seasonal declines, live hog imports were almost 226,000 head in November. Seventy-five percent of Canadian hogs imported are slaughter animals, while feeder pigs make up the balance.

Total U.S. imports were likely more than 2.8 million hogs in 1996, over 1 million above 1995. Relatively strong U.S. prices, favorable exchange rates, and low countervailing duties continue to provide strong incentives to trade. Imports from Canada are expected to climb higher this year.

Commodity Briefs

Livestock, Dairy & Poultry

Beef Herd Downsizing Tightens Feeder Cattle Supplies

The January 1997 cattle inventory was down 2 percent from last year to 101.2 million head. The current cattle cycle began with 95.8 million head of cattle and calves in inventory on January 1, 1990, peaking in January 1996 at 103.5 million head. The cattle cycle typically is 7 to 10 years from one high point to the next. Cow slaughter is expected to drop sharply as spring grazing season approaches and to remain low for the next couple of years, setting the stage for yet another cattle cycle likely beginning about the turn of the century.

Cow and heifer herd downsizing started in mid-1995, with about 16 percent of the total cow herd slaughtered last year. Beef cow slaughter was up 24 percent, while dairy cow slaughter rose 6 percent. Steer slaughter in 1996 declined more than 2 percent, while heifer slaughter rose over 3 percent. The strong slaughter numbers suggest fewer heifers have been bred to calve in 1997. Heifer slaughter will remain large through winter, the result of 15 percent more heifers on feed on January 1, 1997 in the seven monthly reporting states. Steers on feed were down 3 percent.

Poor fall pastures and declining grain prices led to large feedlot placements this past fall. The increased placements and continued large calf slaughter (up 24 percent) will cause feeder cattle supplies to tighten and likely create very strong demand for feeder cattle this spring. The impact of tightening feeder cattle supplies will affect beef production in late 1997 and over the next couple of years. Tighter feeder cattle supplies should result in fed-cattle prices averaging above \$70 per cwt by late 1997 and well into 1998.

Winter Storms Hit Western Milk Production

The December-January storms that hit the West could have a significant effect on U.S. milk production through most of 1997, although the disruptions could be short-lived and local. The potential impact is substantial because the areas most affected produce 15 to 20 percent of the national milk supply. The extent of damage to western milk production is unlikely to be known for several months.

Heavy precipitation occurred in Washington, Idaho, and Oregon in late December, causing mud problems, flooding, and snow-blocked roads. Some milk had to be dumped because of closed roads, and a number of cows were stressed. However, precipitation was normal in January and the episode passed with probably few persistent effects.

Many California milk producers may not be as fortunate as their northern counterparts. A series of heavy January rains covered most of central and northern California, causing flooding along rivers, and mud problems everywhere. Cows that were moved away from flooded farms probably were stressed considerably, but they represented less than 2 percent of the state's cow herd.

Widespread muddy conditions represent the greatest likely threat to milk production. Mud increases mastitis and other diseases and disrupts milking routines, as well as directly stressing cows. If the stress on the cows has been severe, the effects on milk production may last 6 to 12 months, leading to increased culling and lost milk per cow.

Flooding will also aggravate an already tight supply of dairy-quality alfalfa. Stored feed was destroyed, established alfalfa stands were damaged or destroyed, and reseeded probably will be delayed. Under normal conditions, the extent of the damage initially estimated would not have much effect on the regional feed situation. However, because supplies of good hay had been stretched even before the rains, some farmers may have to shift to lower quality hay.

Even as feeder cattle prices rise, fewer cattle will be available from Mexico, where drought over the past several years has sharply reduced the cattle inventory. Mexican producers are expected to rebuild their herds and retain steer calves for more weight gain before exporting them. Larger grain supplies at lower prices in Canada will result in continued expansion of cattle feeding activities there, and likely continued large shipments of slaughter cattle to the U.S.

Cattle slaughter continues to increase following the large second-half 1996 feedlot placements and seasonally large cow slaughter, but weights remain well below a year earlier. Many cattle are likely being marketed ahead of schedule, and light slaughter weights suggest supplies of Choice beef likely remain tight. Larger fed-cattle inventories will hold down prices near the mid-\$60's per cwt

in the first half of the year, about \$2-\$5 higher than a year earlier.

Export demand will hold an important key to fed-cattle price strength this spring. Exports to Japan are likely to remain sluggish until April 1 when the Japanese import tariff declines. In addition, overcoming the *E. coli* problem in Japan's food sector would help return U.S. beef exports to the strong levels that existed prior to mid-1996.

For further information, contact:
Leland Southard coordinator; Ron Gustafson, cattle; Leland Southard, hogs; Milton Madison, poultry; Jim Miller, dairy; David Harvey, aquaculture. All are at (202) 219-0713. **AO**

Commodity Briefs

Specialty Crops

Florida Freeze Reducing Supplies Of Fresh Vegetables

Mother Nature delivered the latest in a series of setbacks for growers of Florida winter vegetables, with a devastating freeze the mornings of January 18 and 19. The freeze caused substantial damage to U.S. supplies of tender warm-season winter vegetables (e.g., squash, snap beans, bell peppers, eggplant, and tomatoes). Florida accounts for about one-third of fresh-market supplies of warm-season vegetables during the late-fall to early-spring period. U.S. supplies of cool-season crops (e.g., lettuce, broccoli, and cauliflower) were largely unaffected, since these are produced mainly in California and Arizona.

Few areas of Florida were spared, as below-freezing temperatures occurred as far south as Dade County at the southern tip. Temperatures sank lower and damages were reportedly far more severe in Gulf Coast areas of the state than in eastern areas. The cold temperatures caused some excess fruit drop in low-lying citrus groves, especially in southwest Florida, but not enough to significantly affect the 1996/97 citrus crops (now midway through this season's harvest).

Although Florida winter-season vegetable growers historically face a high risk of freeze damage, this freeze apparently caught many growers by surprise since it was not predicted in weather forecasts. There was little time to implement frost protection strategies like running irrigation systems and spreading plastic covering over fields.

Grower prices for tomatoes and other tender fresh vegetables grown in Florida will be generally up from February through April, spiking as supply gaps develop following the Florida freeze as well as the unusually cold temperatures that struck Mexico's major vegetable area in Sinaloa. Although plants across the border gener-

ally received little damage, bloom drop was prevalent for most tender vegetables. This eventually showed up as reduced volume in mid-February and is leading to further increases in market prices.

Before the winter damage, USDA had forecast a 2- to 3-percent increase in consumer prices for fresh vegetables during January-June 1997 compared with a year earlier. The revised forecast indicates the fresh-vegetable consumer price index (CPI) is likely to increase 6-7 percent during the 6-month period. The rise in the CPI is being moderated by stable prices for a number of fresh vegetables largely unaffected by the freeze, including potatoes, lettuce, onions, celery, broccoli, cauliflower, spinach, and cabbage. The fresh-vegetable CPI accounts for only about 4 percent of the CPI for food, so the impact on the all-food CPI is minimal.

The freeze impact on retail prices for fresh-market vegetables is expected to end by late April, with the largest year-over-year rise expected during February. Changes in retail prices for fresh-market vegetables typically lag changes in grower prices by 1 to 2 months. The year-over-year increase will appear small in March, since prices were very high in March 1996 (following a February freeze in southwestern Florida). If growers replant lost acreage, a supply glut could develop in April and May, forcing grower prices to very low levels.

Tender Vegetables Bear the Brunt

The freeze caused shipping-point prices for most tender warm-season crops in Florida to increase substantially, as fields in the large producing area in the southwest (Ft. Myers/Immokalee) and the Homestead area in Dade County received heavy damage. Losses in Dade County alone were estimated at close to \$100 million for vegetables and tropical fruits. In addition, many vegetables and melons had just been transplanted from greenhouses for early spring-season production in this area and areas to the north. Growers had to repeat the process. The east coast area around Palm Beach was not hit as hard by the cold and reported less damage.

Snap beans and squash reportedly suffered the greatest losses, with all acreage reported destroyed in the southwest areas of the state and 80 percent or more destroyed in Dade County. Dade County accounts for the majority of snap bean production in the state, with Palm Beach County in the east coast area accounting for a smaller percentage. About half of Florida's snap bean production is marketed during the January-March (winter) season.

Florida accounts for about two-thirds of the domestic market volume of fresh snap beans during the winter months, so price impacts from reduced Florida output are substantial. About 40 percent of Florida's combined squash and snap bean output is sold during the winter season, with most of the volume coming from Dade County and the southwestern areas of Florida. However, for squash, the price impact has been less severe since three-quarters of the squash marketed during the winter season is imported (largely from Mexico). The annual farm value of the Florida squash crop is about \$50 million, while the state's fresh-market snap bean crop is valued at about \$64 million.

Peppers also sustained heavy damage. Bell peppers, which have an annual farm value of \$195 million in Florida, suffered a reported 60- to 80-percent loss in both Dade County and the southwestern counties. The southwest area accounts for close to half of the state's bell pepper crop, followed by the east coast area with about a third. Dade County reported a loss of \$1 million in bell peppers and \$12 million in chile peppers. In recent years, 60 to 70 percent of U.S. bell pepper volume has been imported during the winter season, so the impact on pepper prices, as with squash, is less severe than on snap beans.

Fresh-Market Tomatoes Also Hit Hard

About half of Florida's fresh-market tomatoes suffered frost damage, ranging from complete defoliation to loss of blooms on plants. Bloom loss affects the market about a month later, as supplies are delayed while plants produce new blooms and set fruit. Dade County, where vegetable acreage has been under

Commodity Briefs

Where Are Vegetables Grown in Winter?

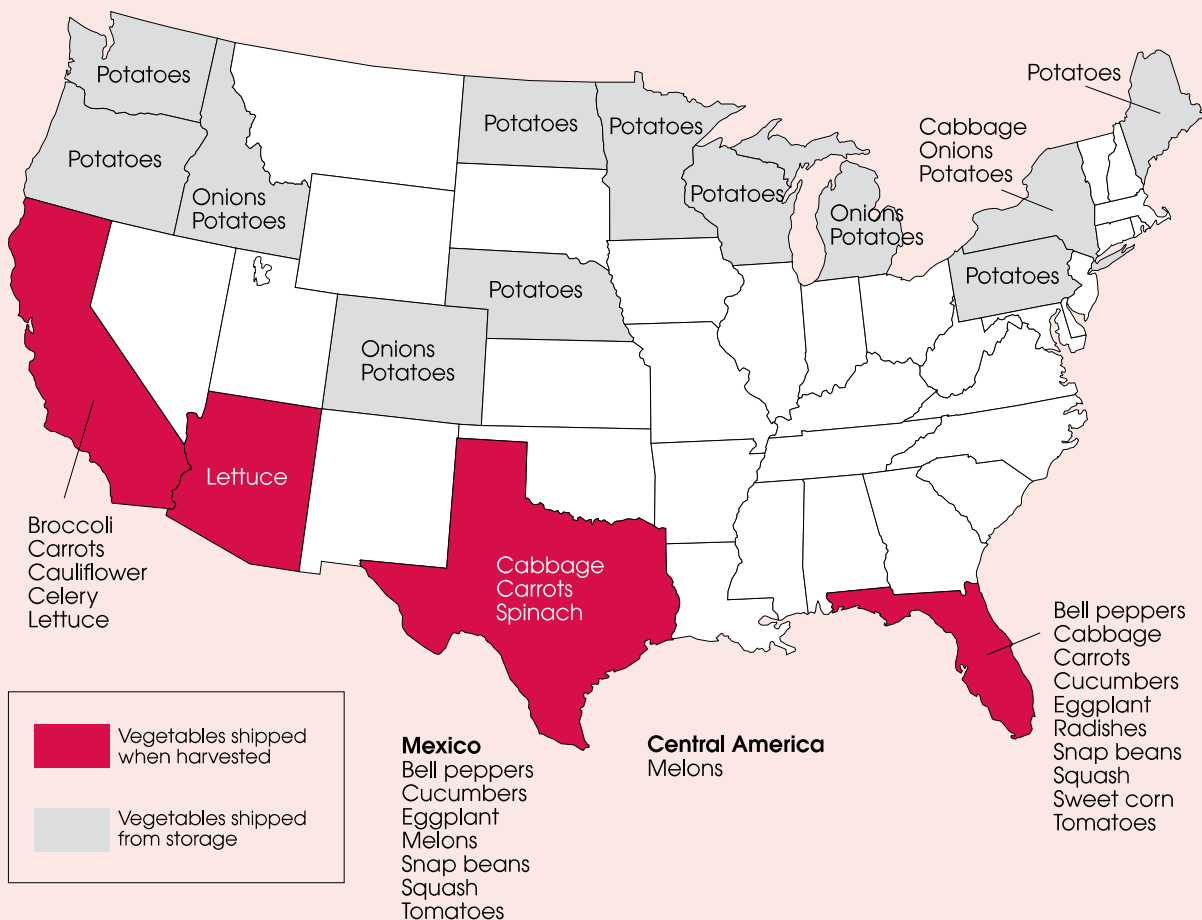
U.S. consumers have come to appreciate—and expect—a wide range of top-quality choices in supermarket produce sections throughout the year. Providing a consistent array of vegetables is sometimes a challenge, especially during the winter. U.S. vegetable suppliers are geographically concentrated during the winter season. The primary sources are California, Mexico, Florida, Arizona, and Texas, with smaller volumes imported from several other countries.

When an event such as a freeze in Florida or a swarm of white flies in California reduces supplies, the alternative sources of supply are fewer than during the summer when most states produce vegetables. As a result, vegetable prices tend to be higher and more variable during the winter months than during any other season. The lack of alternatives is most apparent when there is a problem in California, because imports of the kinds of fruits and vegetables grown in California are generally small. In the case of Florida, Mexico can sometimes help limit price increases by stepping up shipments to the U.S.

Within the U.S., the states of California, Florida, Arizona, and Texas tend to concentrate on commodities that grow best in their respective winter environments. Florida, which tends to be the warmest state during the winter, generally grows tender warm-season crops like tomatoes and peppers. California, Arizona, and Texas grow the cool-season crops (e.g., cabbage, carrots, and spinach). Although the freeze in Florida crippled supplies of tender vegetables like snap beans, squash, and peppers, the supplies of lettuce, broccoli, and cauliflower remain ample since these are produced largely in southern California and Arizona.

During the winter, between one-half and two-thirds of the U.S. supply of tender fresh vegetables is imported, largely from Mexico. Supplies of fresh potatoes and onions are shipped from storage (produced during the fall) from states like Idaho, Colorado, and New York (which also ships cabbage).

Winter Season Vegetable Suppliers to the U.S. Market



pressure from urban growth and where tomato acreage has been in a long-term decline, had about 3,100 acres of tomatoes growing in good condition at the time of the freeze. About 25 percent was being harvested or close to being harvested. An estimated 40 percent of all acreage was damaged.

Southwestern Florida now accounts for almost three-fourths of Florida's tomato acreage during the winter months. Over 13,000 acres of tomatoes were in the ground, with about 8,000 acres being harvested or within 2 weeks of harvest. Damage was severe in this area, as loss estimates exceeded 50 percent. In the Palm Beach area on the east coast, about 2,800 acres of tomatoes were planted, with about a third being harvested at the time of the freeze. Minimal damage was reported in this area.

Although tomato plants may have been severely damaged, a portion of the fruit was salvaged for sale. With this volume on the market, tomato prices initially did not rise as much as might be anticipated following such a severe weather event. However, after the salvage volume moves through the market, a gap exists during the time these vegetables would normally be marketed. Thus, the largest rise in market prices has been delayed until late February or March.

By April, most of the impact from the January freeze will be over as production recovers. By May, other states (California, South Carolina, Georgia) will supplement Florida produce in the market.

The Florida fresh-market tomato crop has an average annual farm value of about \$420 million, with the winter season accounting for roughly one-third. Due to poor weather in Florida and recent changes in tomato trade (AO June 1996), around two-thirds of fresh-market toma-

Why Did Forecasters Miss the Florida Freeze?

When the National Weather Service (NWS) terminated all operational agricultural weather programs in 1996, it saved taxpayers approximately \$2.3 million (annual cost). It accomplished this by discontinuing a national program of agricultural forecasts, eliminating agricultural weather advisories, and curtailing interactions between NWS and several Federal and state agencies. Four NWS agricultural weather centers closed down, four NWS weather service offices were consolidated, all district frost monitoring offices were eliminated, and staff dedicated to agriculture was downsized at four other weather offices.

Despite the downsizing, NWS intended to continue to collect weather observations in agricultural areas. However, a reduction in data was unavoidable—hourly data from agricultural areas, for example, are no longer available. The subsequent data losses have not been recovered by the private sector.

During the Florida freeze, NWS forecasters and private weather forecasters used available information to monitor the situation—observations from urban areas and airports. City and airport-site temperatures are generally higher than rural areas, but this relationship was not taken into account since NWS no longer places an emphasis on specialized service (e.g., agricultural forecasts). In addition, forecasters' reliance on computer-generated guidance cannot capture local temperature effects that are crucial in forecasting regional freezes.

Throughout the night of January 18, the temperatures from city and airport sites in south Florida remained in the mid- to upper 30's. Temperatures in the outlying agricultural areas were significantly lower. By the time NWS forecasters realized the considerable difference and updated the forecasts, it was too late for many growers to respond to the warning.

*Albert Peterlin, USDA Chief Meteorologist (202) 720-8651
apeterlin@oce.usda.gov*

atoes are now sourced from Mexico during the winter months (Florida used to command half of the market). A majority of the fresh-market tomatoes now shipped from Florida reportedly go to the food-service industry, with Mexico and other importers now supplying the bulk of the retail markets.

In addition, the small but expanding domestic greenhouse/hydroponic tomato industry is shipping increasing retail volume. Because of a generally cooler climate, California raises only greenhouse

tomatoes during the winter.

*Gary Lucier (202) 219-0117 and John Love (202) 219-1268
glucier@econ.ag.gov
jlove@econ.ag.gov*

For further information, contact:

Linda Calvin, noncitrus fruit; Susan Pollack, citrus fruit; Gary Lucier, vegetables; Ron Lord, sweeteners; Doyle Johnson, tree nuts and greenhouse/nursery; Tom Capehart, tobacco; Lewrene Glaser, industrial crops. All are at (202) 219-0840. **AO**

For the Latest in Commodity, Country, & Regional Coverage...

Visit the *ERS World Wide Web site* for up-to-date situation and outlook coverage of major commodities and U.S. farm income and finance, and for key country and regional agricultural reports with an emphasis on trade.

To access these reports go to the ERS Home Page on the World Wide Web at <http://www.econ.ag.gov>, select **Products & Services**, then select **Periodicals** under **ERS Publications**.

For the latest news on a specific item, select from the **Situation and Outlook** reports. These include monthly electronic releases for the major field crops and animal products, and periodic reports for specialty crops, U.S. farm income and finance, and international coverage.

For a roundup of the current marketing year's events, select from the **Annual Yearbooks and Reports** on a number of major crops. These reports also feature special articles on timely topics, and statistical tables with official government data on prices, production, use, and trade.

Free e-mail subscriptions are also available. For information on how to subscribe, send an e-mail to usda-reports@usda.mannlib.cornell.edu with no subject and the word "lists" as the body of the message (entered without quotes)—or select **E-mail subscriptions** under **Periodicals** on the Home Page and choose from list.

For non-Internet users, ERS also provides AutoFAX transmission of many of these reports. Use the telephone attached to your FAX machine to call (202) 219-1107. Follow the voice prompts.

Situation & Outlook reports

Month released

Agricultural Exports	.Feb, May, Aug, Dec
Agricultural Income & Finance	.Feb, Jun, Sep, Dec
Agricultural Trade Update	.Monthly
International Agriculture & Trade Reports	
APEC	.Jul
China	.May
Europe	.Dec
Europe Update	.Apr, June, Sep
Newly Independent States and the Baltics (formerly Former USSR)	.May
NIS Update	.Mar, Oct
NAFTA	.Mar
Aquaculture	.Mar, Oct
Cotton & Wool	.Monthly
Feed	.Monthly
Fruit & Tree Nuts	.Mar, Aug, Oct
Livestock, Dairy, Poultry	.Monthly
Oil Crops	.Monthly
Potato Facts	.Apr, Nov
Rice	.Monthly
Sugar & Sweeteners	.Jun, Sep
Tobacco	.Apr, Sep, Dec
Vegetables & Specialties	.Apr, Jul, Nov
Wheat	.Monthly

Annual Yearbooks & Reports

Month released

Cotton & Wool	.Nov
Feed	.Mar
Floriculture & Environmental Horticulture	.Oct
Food Aid Needs Assessment	.Nov
Industrial Uses of Agricultural Materials	.Jul
Oil Crops	.Oct
Rice	.Dec
Wheat	.Mar

Economic Research Service, U.S. Department of Agriculture

Commodity Spotlight



Florida Sugar Cane League

U.S. Sugar Consumption Continues To Grow

The U.S. sweetener market is the largest and most diverse in the world. The U.S. produces more sugar than all but three other countries—Brazil, India, and China—and is one of the few countries with significant production of both sugar beets and sugarcane. Since 1995, U.S. production of high-fructose corn syrup has outstripped sugar, and the U.S. also produces and consumes large amounts of high-intensity (low-calorie) sweeteners.

Sugar consumption has been rising at over 1.7 percent a year for the last decade, higher than the U.S. population growth rate of about 0.8 percent. For 1996/97, U.S. sugar consumption is currently forecast at 9.8 million short tons, raw value, up from 9.6 million last year. If the forecast is realized, sugar consumption will have risen by about 1 million tons in 6 years, implying a per capita increase of 2.5 pounds.

Consumers' concerns in recent years to avoid fat has benefited sugar, which is often a key ingredient in products promoted as "fat-free." Sugar also appears to have a more positive image than was the case a decade or two ago.

The annual increase in U.S. sugar consumption over the past decade is slightly more than the output of an average U.S. sugar beet factory in 1996. USDA projects that sugar consumption will continue to rise in the next few years, but at rates slightly lower than the trend of 160,000 tons a year achieved in the last 10 years.

Changes in the U.S. Sugar Program

Continued growth in domestic sugar consumption has become more important for domestic producers since passage of last year's Farm Act, which suspended USDA's authority to implement domestic sugar marketing allotments. The marketing allotments were used in some years to restrict marketings of domestic sugar when supplies were depressing prices. With this policy lever removed, and with

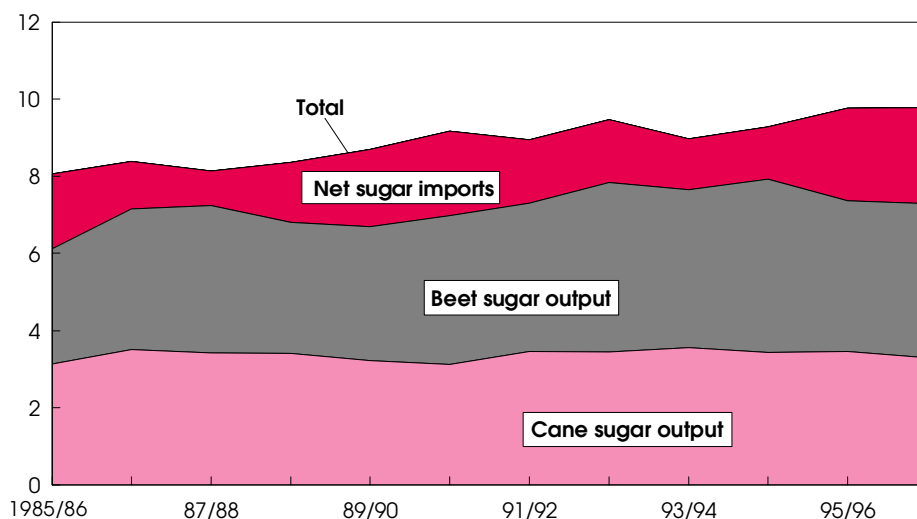
changes to the loan program, prices could drop if domestic sugar production increases more rapidly than consumption.

Price-supporting policy mechanisms now consist only of the loan program and restrictive import tariff-rate quotas (TRQ's). Under the raw sugar TRQ, 40 quota-holding countries are each allocated a fixed amount which they may ship to the U.S. in a fiscal year (October-September) at a zero or low duty. Any sugar which enters the U.S. above the quota pays a duty of just under 17 cents per pound—high enough to be generally prohibitive. U.S. sugar imports have trended downward since the early 1980's, but have risen in the last 2 years as U.S. production declined while consumption grew.

As a result of the Uruguay Round of trade negotiations, the U.S. is committed to allowing low-duty sugar imports of a minimum 1.256 million short tons, raw value, each fiscal year. While the TRQ in both 1996 and 1997 has been above 2 million tons, for the 3 previous years it averaged about 1.3 million tons, and in the late 1980's was below 1 million

Net U.S. Imports of Sugar Increase As Production Dips

Million short tons



Raw value. Total excludes stocks (13 percent of 1996/97 supply).

Fiscal year beginning October 1. 1996/97 forecast.

Economic Research Service, USDA

Commodity Spotlight

Sweet Competition

U.S. sugar consumption declined between 1974 and 1986 as *high-fructose corn syrup* (HFCS) replaced sugar in most sweetened liquid products. Since then, the growth of HFCS consumption has not let up, expanding an average of 3.5 percent a year, or almost twice the growth rate of sugar. U.S. consumption of all caloric sweeteners has risen from 127 pounds per capita in 1986, to 153 pounds in 1996, a 20-percent increase in 10 years.

Crystalline fructose is another potential substitute for sugar in some uses and has been commercially available for at least 10 years. It is slightly sweeter than sugar. However, crystalline fructose behaves differently from sugar in most baking and other manufactured food uses, limiting its use as a sugar substitute. While little information is available about the price of crystalline fructose, it is likely still more expensive than sugar.

High-intensity low-calorie sweeteners, such as aspartame, tend to boost overall use of sweeteners, although they also have drawn market share from the caloric sweeteners, especially HFCS. At present saccharin and aspartame are widely used in the U.S. Acesulfame-K is allowed in many, but not all foods, and is awaiting U.S. Food and Drug Administration (FDA) approval for use in soft drinks. Cyclamates are banned. Sucralose is a high-intensity sweetener which has been approved in Canada and some other countries, but is awaiting FDA approval. Alitame is also awaiting FDA approval but is already used in Australia, Mexico, and several other countries.

An interesting industry development is the blending of different sweeteners, which becomes more feasible as more high-intensity sweeteners are approved for general use. Blends of different sweeteners often have synergistic effects, which means the sweetness of the blend is higher than either sweetener by itself. These synergies can allow the manufacturer to cut costs. As new products are introduced, some will likely contain blends of sweeteners. Blends may be particularly effective in soft drinks and other beverages. If so, the greatest impact of increased blending would be on HFCS, since almost no sugar is used in beverages.

(before the minimum access agreed to in the multilateral trade agreement). Another TRQ—currently set at 24,251 short tons, raw value, the minimum level agreed to in the Uruguay Round—applies to refined and specialty sugars, currently operated on a global first-come, first-served basis.

The total TRQ (for raw and specialty/refined sugar) is established annually (and sometimes adjusted within a given year) to control supply. First, an estimate is made of the gap between the forecast of domestic utilization and production for the coming year. The TRQ is set to fill that gap. If it is set too high, U.S. prices could decline below the price support level. If it is set too low, prices could rise to unacceptably high levels.

The level of price support is based on loan rates legislated in the 1996 Farm Act. Sugar processors (not farmers, whose crop can't be stored) can take out price support loans from the government, with sugar as collateral. The loan rate borrowers receive for raw cane sugar is 18 cents a pound (national average), and for refined beet sugar the rate is 22.9 cents a pound (national average).

The Farm Act stipulates that when the TRQ is higher than 1.5 million short tons, the loans are nonrecourse—the processor may forfeit the collateral in lieu of repaying the loan, and the government has no recourse but to accept the sugar as full payment. Nonrecourse loans can, in theory at least, help support the sugar price, since forfeited sugar is effectively taken off the market in the near term.

But if the TRQ is less than 1.5 million tons, the loans will be recourse, which like ordinary loans are repayable in cash only. Under the previous Farm Act, all sugar loans were nonrecourse.

The current program virtually eliminates the risk of Treasury costs. If the TRQ is set closer to the minimum level as over-supply threatens, sugar loans must be repaid even if the price falls. The TRQ's price support function is effective only so long as the gap between U.S. sugar utilization and production remains higher than 1.5 million tons. Although imports seem likely to remain well above the minimum WTO level of 1.256 million tons and the nonrecourse loan trigger of 1.5 million tons for at least the next several years, the likelihood of lower prices is greater under the current program than before.

Lower Output In 1996/97

U.S. sugar production for 1996/97 is projected at 7.29 million tons, raw value, down about 80,000 tons from last year and well below the 1994/95 record of 7.93 million. The share of U.S. sugar consumption provided by domestic production rose from 55 percent in the early 1970's to about 85 percent in the early 1990's, dropping to about 75 percent the last 2 years as bad weather and lower acreage cut U.S. output.

Beet sugar production is projected to be 55 percent of the total, at 4 million tons, well below the record 4.5 million tons 2 years earlier. In 1996/97, harvested sugar beet area was only 1.32 million acres, with much of the 100,000-acre decline due to farmers switching to corn, wheat, and other commodities that commanded

high prices in 1996. Sugar beet acreage expanded from about 1 million acres in the early 1980's to the 1994/95 peak of 1.44 million acres, as the U.S. sugar program provided relatively stable prices while productivity gains lowered costs and raised yields.

The average sugar beet yield is forecast at 20.2 tons per acre in 1996/97, comparable to the longrun average. Although wet

Commodity Spotlight

weather hampered field work last spring and some planting was as late as any year on record, favorable weather in the fall allowed yields to recover.

Sugar beets can be grown in many climates, but are most often found in temperate zones in 14 states, from Michigan and Ohio in the east, across the Northern and Central Plains to the Northwest, California, and Texas. The leading sugar beet producing states are Minnesota, North Dakota, Idaho, Michigan, and California.

Sugarcane can grow only where the climate is tropical or subtropical, and in the U.S. grows in Florida, Louisiana, Texas, Hawaii, and Puerto Rico. Cane sugar production in 1996/97 is forecast at 3.29 million tons, raw value, down from 3.45 million last year. U.S. acreage is forecast at 846,000 acres, down 6 percent from last year.

Florida, the largest cane producing state, is forecast to produce 1.76 million tons, about the same as last year and similar to the 5-year average. This level of output would be about 54 percent of total cane sugar output. Although Florida's sugarcane yield is projected to be 34 tons per acre, down from 34.6 tons per acre last year, sucrose content of the cane is reported to be higher than last year, yielding a similar volume of sugar per acre. The area harvested for sugar in Florida is forecast at 420,000 acres, up slightly from a year earlier.

Sugarcane acreage in Florida expanded from 300,000 acres in 1978/79 to a peak of 428,000 acres in 1991/92, and since then has varied little. Freezes in January this year put some of the crop at risk, but it appears that most of the cane will be harvested and production is not likely to be affected. However, freeze damage to sugarcane plants needed for planting new fields may have been more extensive, which could affect next year's crop. Florida plans to finish harvesting by mid-March.

Louisiana is the second-largest cane sugar producing state, and usually harvests during a short season between October and December. This year's harvest continued

into the first week of January, and total production was 1.045 million tons, not far from last year's record 1.06 million tons.

A freeze in Louisiana in early 1996 damaged many acres which had to be abandoned, and early forecasts assumed a lower crop. But fall weather was excellent, the sugarcane was able to continue adding sugar, and the abandoned fields were the lowest yielding, so that average cane yields were 27 tons per acre, 2 tons higher than expected earlier in the fall. Two new varieties were helpful, with some fields getting over 50 tons per acre.

Total harvested area was 335,000 acres in Louisiana, down from the previous year's record 368,000 acres, with much of the decline due to abandonment of freeze-damaged fields. Sugar yield per acre was a record 3.12 tons, far above the previous high of 2.9 tons per acre in 1994/95. The fields intended for harvest in 1997 have survived the freezes up to the middle of February and look promising for a good crop.

Sugar production in Hawaii has been declining, from over 1 million tons in 1985/86 to a forecast 370,000 tons in 1996/97. Costs for labor, transportation of sugar to the mainland, and environmental compliance are high. Six of 12 mills have closed since 1992, with 2 mills closing in 1996. Some of the remaining mills have been losing money in recent years.

Unlike sugarcane crops on the mainland, Hawaii's are grown for almost 2 years before being harvested. Thus, Hawaii's cane yields—forecast at 87 tons per acre this year—are among the highest in the world. Hawaii's sugar yield is forecast at 10.9 tons per acre, up slightly from recent years but lower than the yields of over 12 tons of sugar per acre achieved in the mid-1980's.

In Texas, irrigation water has been very short for the 1996/97 season, and even with recent rains, there was not enough moisture for a good crop. Sugar production in 1996/97 is forecast at 85,000 tons from 34,000 harvested acres. Texas has one sugar mill in the southern Rio Grande Valley, a cooperative which for the last 5

years has produced over 100,000 tons of sugar, with a record 146,000 tons in 1994/95. Puerto Rico, which has two mills, is forecast to produce 30,000 tons of sugar.

Sugar Processors Consolidate

The number of companies producing and selling refined sugar in the U.S. continued to decline in the 1980's and 1990's. Twenty years ago, 28 companies produced and sold refined sugar, but by 1996 there were only 9. Consolidation has included the merger of cane refiners with beet processors, and currently 3 of the 4 largest sugar sellers are companies with both beet and cane refining facilities.

The number of beet processing facilities has declined, but the 30 beet factories in 1996 could slice more beets in a day than the 36 factories that were operating in 1992. On the farm, improved genetics and cultural practices allow for more extractable sugar in the sugarcane and sugar beet plants, and factories are using new technology to extract more sugar.

In early 1997, a Florida cane processing company, U.S. Sugar Corporation, announced that it will build a sugar refining factory adjacent to an existing raw sugar processing mill. This will mark the first new entrant into the refined cane sugar market in many years, and will raise the number of U.S. cane refining companies to seven (three of these also process and sell refined beet sugar). The facility is expected to be operational in 1998.

The beet sugar processing industry is also gaining a new plant. A sugar beet factory being constructed in Washington will be the first new sugar beet factory built in the U.S. since 1974. It is also expected to be producing sugar next year.

One of the biggest risks facing a sugar beet processing company is whether or not there will be an adequate supply of beets each year. But when the farmers own the processing company, the risk of inadequate supply of sugar beets is very low, since the farmers themselves suffer when the factory is not operating efficiently. Acreage could grow in Idaho

Commodity Spotlight

and Oregon in the next few years where a grower-cooperative just purchased four factories from the Amalgamated Sugar Company. In North Dakota, a cooperative is in the second year of a 3-year expansion that will add about 10,000 acres of sugar beets next year.


Sugar beet acreage has been down in California, Michigan, Ohio, and some Western and Northern Plains states in recent years, well below factory capacity in many areas. But if sugar prices remain strong relative to alternative crops this year, farmers could return to sugar beets and increase production in the coming

year. With the recent excess rains in northern California, however, there is concern that moisture might still be too high in the spring for good sugar beet planting.

Overall, conditions in early 1997 indicate that total U.S. sugar beet acreage is likely to rise in 1997/98. The 1996/97 decline in sugar beet harvested acreage was due in part to the high prices of alternative crops such as wheat and corn, and reduced sugar beet prices in the previous year. By spring, wholesale refined beet sugar prices will have been 29 cents per

pound or higher for over a year, and the most recent sugar beet payments for many farmers were higher than the previous year. The *Prospective Plantings* report, scheduled for release on March 31, will provide the first USDA survey of sugar beet acreage for the 1997/98 crop.

Sugarcane acreage may rise in Louisiana, remain stable in Florida, and fall marginally in Hawaii and Texas. USDA's first harvested acreage report for sugarcane will be released June 30 (in the *Acreage* report).

Ron Lord (202) 219-0888
rlord@econ.ag.gov 

World Agriculture & Trade



Food-Aid Grain Needs Are Down—In the Short Run

Sixty-five developing countries would need 9 million tons of grain food aid in 1996/97 to maintain per capita consumption at the previous 5-year average. But that figure is down 5 million tons from 1995/96 aggregate needs. In a study of 65 major food-aid recipient countries, USDA's Economic Research Service also found that the "grain deficit" is down in all eight regions covered by the study.

Favorable weather and expanded plantings allowed low-income countries to maintain recent consumption levels while reducing imports and avoiding the high prices in international grain markets in 1996. Concomitantly, several donor countries have recently reduced their food aid commitments, due mostly to tight budgets.

Despite narrower grain deficits, the magnitude of some regional grain deficits remains high. In 1996/97, the greatest aggregate deficit (reflecting the amount of grain needed to maintain per capita cereal

consumption at the recent 5-year average) is expected in *Asia* at an estimated 3.5 million tons. This is down from 4.6 million tons a year earlier, due to strong economic growth, favorable agricultural policies, and good weather. *Sub-Saharan Africa's* estimated grain gap of 3.4 million tons is down sharply from last year's 6.2 million tons due to a record grain harvest, particularly in southern Africa, and to the end of civil strife and the re-emergence of agricultural production in Ethiopia and Mozambique.

The expected grain gap for *Latin America and the Caribbean* countries is down from 1.4 to 0.8 million tons, reflecting strong economic growth and the growing ability to import food on a commercial basis. *North Africa* is not expected to have a grain deficit this year, due primarily to a large recovery in grain production, which increased from 18.4 to 31.2 million tons.

Assessing the Problem

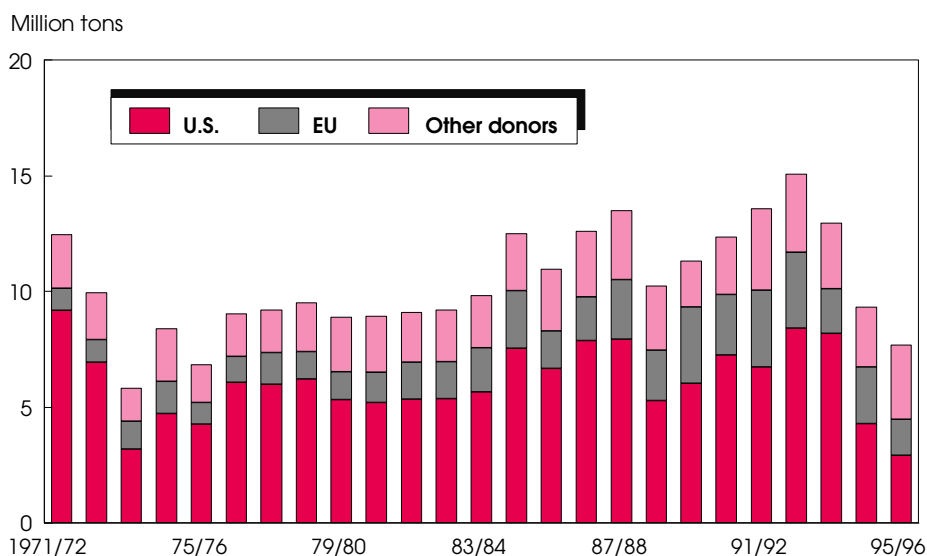
Despite the widespread reduction in grain deficit, many low-income countries remain highly vulnerable to food shortages, in both the long- and short-term, indicated by low and often declining per capita grain consumption and high con-

sumption variability. Although aggregate consumption from 1980 to 1995 grew steadily in all the study countries except those experiencing civil disorder (e.g., Burundi, Rwanda, and Afghanistan) or major economic disruptions, per capita consumption of cereals fell in nearly half (30) of the countries.

Falling per capita grain consumption is primarily a result of rapid population growth outpacing the growth in aggregate supply, due in part to slow or declining growth in agricultural productivity and poor economic growth. In the short run, declining per capita consumption likely indicates that a country lacks the resources to cope with shortages caused by temporary declines in domestic production or increases in world grain prices. As a result, aggregate grain consumption can vary considerably.

Another measure of a country's vulnerability to food shortages is the estimated grain gap expressed as a percent of the grain required to maintain per capita cereal consumption. A high percentage indicates that a country's domestic cereal supply (including commercial imports) is insufficient to maintain recent consumption levels. The higher the percent, the more vulnerable the country, and the

Food Aid Donations of Grain Have Fallen Sharply Since 1992/93



Marketing year (July-June); 1994/95 and 1995/96 estimates.

Source: FAO Agrostat.

Economic Research Service, USDA

World Agriculture & Trade

Sub-Saharan African Countries Report the Largest Grain Deficits

Region Country	Per capita grain use		Grain gap 1996/97	Grain share of diet	Region Country	Per capita grain use		Grain gap 1996/97	Grain share of diet
	5-year average	1996/97				5-year average	1996/97		
	Kg	% of 5-year average*		%		Kg	% of 5-year average*		%
North Africa					Southern Africa				
Algeria	170	100	0	56	Angola	73	84	16	35
Egypt	192	100	0	64	Lesotho	116	88	12	78
Morocco	181	100	0	57	Madagascar	113	89	11	55
Tunisia	214	100	0	54	Malawi	164	100	0	70
Central Africa					Mozambique	69	97	3	36
Cameroon	80	94	6	39	Swaziland	161	74	26	51
Cent. Afr. Repub.	38	90	10	19	Zambia	142	100	0	70
Zaire	36	92	8	16	Zimbabwe	163	100	0	59
West Africa					Asia				
Benin	107	92	8	37	Afghanistan	169	61	39	76
Burkina Faso	202	97	3	76	Bangladesh	156	93	7	84
Cape Verde	224	19	81	57	India	156	93	0	63
Chad	138	95	5	55	Indonesia	179	100	0	66
Cote d' Ivoire	93	96	4	37	Nepal	181	99	1	77
Gambia	190	82	18	65	Pakistan	154	100	0	56
Ghana	84	90	10	31	Philippines	130	96	4	55
Guinea	129	88	12	52	Sri Lanka	143	92	8	58
Guinea-Bissau	186	88	12	64	Vietnam	184	100	0	73
Liberia	88	14	86	45	Latin America & Caribbean				
Mali	194	96	4	73	Bolivia	91	87	13	40
Mauritania	167	81	19	55	Colombia	99	99	1	32
Niger	240	99	1	74	Dom. Repub.	58	100	0	31
Nigeria	164	100	0	43	El Salvador	142	100	0	56
Senegal	162	93	7	56	Guatemala	128	86	14	60
Sierra Leone	79	70	30	54	Haiti	102	80	20	43
Togo	115	89	11	48	Honduras	89	80	20	50
East Africa					Jamaica	89	77	23	34
Burundi	41	66	34	20	Nicaragua	122	81	19	48
Eritrea	100	58	42	73	Peru	90	96	4	43
Ethiopia	114	95	5	69	Newly Independent States				
Kenya	119	93	7	50	Armenia	134	55	45	45
Rwanda	41	31	69	19	Azerbaijan	121	71	29	57
Somalia	63	69	31	55	Georgia	143	52	48	52
Sudan	144	93	7	59	Kyrgyzstan	138	100	0	48
Tanzania	114	100	0	46	Tajikistan	115	50	50	59
Uganda	73	100	0	35					

* The previous 5-year average per capita grain consumption (1991/92-1995/96) represents the target for 1996/97. The 1996/97 per capita consumption rate and grain gap are measured as a percent of the 5-year average consumption.

Economic Research Service, USDA

more likely it is to require external assistance to maintain recent consumption levels. Nearly three-fourths (48) of the 65 study countries had a grain gap in 1996/97. Of these, 13 countries have a grain-gap-to-consumption ratio greater than 25 percent, indicating significant vulnerability to a food shortage.

The grain gap of many low-income countries varies from one year to the next, reflecting high consumption instability. During 1960-95, grain consumption instability tended to be highest among the countries of Sub-Saharan Africa—where countries experiencing declines in per capita cereal consumption are also concentrated—followed by the countries in North Africa, Latin America and the Caribbean, and Asia.

Several factors, such as declines in domestic production which lead to a combination of declining growth and high variability in grain consumption, make Sub-Saharan Africa highly vulnerable to

food shortages. In Lesotho, for example, annual per capita grain consumption is expected to fall from 141 kg in 1995/96 to 116 kg in 1996/97. The high degree of

variability in consumption could cause it to fall by as much as 30 percent once every 6 years.

Production variability is a major factor in the instability in cereal consumption in most low-income countries. Production variability (via swings in both yield and cultivated area) is the result of weather variability, civil strife, and/or shortage of important inputs such as fertilizer. Large and frequent below-trend deviations in cereal production pose a significant problem, especially for countries with a history of chronic food deficit and where cereals comprise a large share of the average diet.

Over the 1980-95 period, production variability was highest in North and Sub-Saharan Africa, followed by Latin America and the Caribbean, and Asia. Asia's relatively lower production variability can be attributed in part to more widespread use of irrigation. In 1992, 38 percent of arable land in Asia was irrigated, while in Latin America and Africa the proportions were only 12 and 7 percent.

Variability of production increases the vulnerability of countries that are already experiencing a declining per capita consumption trend. For example, Somalia's high variability in production can be expected to cause its grain gap to range from 3 to 59 percent of the amount of grain needed to maintain average consumption. The problem is often complicated by lack of resources and infrastructure needed to deal with large grain shipments.

Shortfalls in domestic production can be offset by commercial food imports, when viable, thereby easing the effect on food consumption. For example, a rise in export earnings from 1990-94 has permitted Indonesia to increase imports and raise grain consumption by 5 percent per year despite declining domestic grain production.

However, many developing countries lack the financial capacity to undertake needed commercial imports, with export earnings low relative to import expenditures. Export earnings by Sub-Saharan Africa declined by 0.4 percent per year from

Measuring the Grain Gap

The grain gap, or grain deficit, is calculated as the difference between target grain consumption—based on the most recent 5-year average per capita consumption—and available grain supplies. Grain supplies combine the current year's domestic production and a country's financial ability to import on a commercial basis after adjusting for stock changes and nonfood use.

In a series of food aid needs assessments, USDA's Economic Research Service (ERS) provides estimates of the grain deficits of 65 selected historical food aid recipient countries, in eight regions: Central Africa (3 countries), East Africa (9), North Africa (4), Southern Africa (8), West Africa (17), Asia (9), Latin America (10), and the Newly Independent States of the former Soviet Union (5).

The estimates include only the major grains (i.e., barley, corn, millet, oats, rice, rye, sorghum, wheat, and other minor coarse grains), referred to as "grains" or "cereals," for which data are readily available. Thus, only the major cereals' share of a country's diet is evaluated for changes. Accurate estimates of the supplies of noncereal foods such as grain legumes (or pulses), roots and tubers, vegetable oils, milk, and other animal products frequently are not available for many countries. However, these commodities play a crucial role in the average household diet in many less developed countries, particularly in the lower income strata that are generally the most vulnerable to food shortages.

The grain deficits are reported by ERS as the assessed shortrun food needs of the 65 study countries. Since noncereal foods are excluded, the grain deficit serves as an indicator of the potential food needs of a country, but falls short of measuring the actual food needs and may overstate or understate the magnitude of food shortfalls. However, in many low-income countries cereals account for at least 50 percent of all calories consumed. In addition, the bulk of food imports by the countries, as well as international food aid, is in the form of cereals.

1990 to 1994. During this period, for example, Rwanda's export earnings declined by 10 percent per year, severely reducing its import capacity at a time when domestic food production was contracting. As a result, Rwanda's dependency on food aid to meet its grain gap grew substantially. By 1994, food aid receipts accounted for nearly 84 percent of Rwanda's grain supply, up sharply from only 5 percent in 1990.

Food Aid Funding Declines

In many low-income countries, food aid assistance is often needed to cushion a decline in consumption caused by food shortages and to help bridge the estimated grain gap. While food aid plays an important role in reducing food insecurity in developing countries, it often remains inadequate to offset the full magnitude of need. In 1995/96, grain shipments received as food aid accounted for only

47 percent of the estimated grain required to maintain per capita grain consumption.

Production in many of the historical food-aid-recipient countries rebounded at the time when import prices increased sharply and food aid budgets were being reduced. The U.S. and the European Union (EU) historically have supplied about 75 to 85 percent of the world's grain food aid—grain generally accounts for more than 80 percent of total food aid. Japan has supplied nearly 10 percent, while Canada accounts for less than 5 percent, and Australia ships around 2 percent.

Budgetary pressures in the major donor countries have been evident in the steadily declining food aid shipments over the past 3 years. In the U.S., funding for the P.L. 480 program in fiscal 1996 was about \$1.2 billion, down by 8 percent from 1995. In fiscal 1997, appropriations

World Agriculture & Trade

are down another 7 percent to \$1.1 billion. Other major food aid donors have also reduced their food aid budgets.

The declining trend in food aid funding is aggravated by price spikes that result from unexpected production shortfalls. Price increases imply a smaller volume of food aid shipments. It is relatively easier for donors to provide food aid when international commodity prices are lower than their domestic support prices, as was the case with the U.S. in the early 1980's and the EU in most years. When international commodity prices increase and stocks are low, food aid becomes more costly for the donors.

The most recent increase in international grain prices (1995/96) was caused by a combination of unexpectedly lower production—largely a result of removing a substantial share of 1995 acreage from production, shifts in acres to other crops, and poor weather conditions in several of the major grain exporting countries—and

a sharp reduction in global grain stocks. The hike in international grain prices coincided with favorable grain production performance in most of the 65 countries in the study. However, in eight countries the high food prices coincided with production shortfalls, causing greater food insecurity and raising the grain deficit.

Despite fiscal constraints and tightened commodity availability, the U.S. continues to give high priority to its food aid program and is expected to meet its commitment of 2.5 million tons in 1996/97 under the Food Aid Convention. Food aid donors are focusing their efforts on improving the cost-effectiveness of food aid by targeting the neediest groups and by looking for ways to reduce distribution costs so that a larger share of the budget can go toward purchasing food. Recipient countries will benefit most if food aid is specifically targeted to vulnerable segments of the population.

May Mercado Peters (202) 219-0608 and Michael Trueblood (202) 219-0652
mayp@econ.ag.gov; trueb@econ.ag.gov

AO

Upcoming Reports—USDA's Economic Research Service

The following reports will be issued electronically on dates and at times (ET) indicated.

March

- 3 *Wheat Yearbook**
- 4 *Aquaculture (3 pm)*
- 12 *Cotton & Wool Outlook (4 pm)***
- Feed Outlook (4 pm)***
- Oil Crops Outlook (4 pm)***
- Rice Outlook (4 pm)***
- Wheat Outlook (4 pm)***
- 19 *Agricultural Outlook**
- 20 *Livestock, Dairy, & Poultry (12 noon)*
- 21 *Feed Yearbook**
- 24 *U.S. Agricultural Trade Update (3 pm)*
- NAFTA**
- 25 *Fruit & Tree Nuts**
- 28 *Newly Independent States Update**

*Release of summary, 3 pm.

**Available electronically only.

World Agriculture & Trade

Egypt's Poultry Industry at a Turning Point

Egypt's highly protected poultry industry will face stiff international competition when the country lifts a ban on poultry imports on or before 2000—a commitment under the country's acceptance into the World Trade Organization (WTO). The ban has protected the poultry industry since a subsidy on imported corn was removed in 1988.

The subsidy removal caused an almost immediate jump in the price of imported yellow corn (the main component of poultry feed) from £E180 to £E500 per ton (\$53 to \$147 per ton) on the free market. Egypt imports most feedstuffs because land and water constraints limit domestic production.

A large shake-out followed the sharp rise in imported feed costs—50 percent of all broiler operation capacity shut down, the poultry feed milling industry collapsed, and the government initiated a privatization program to sell publicly held poultry operations. Retail prices for poultry meat rose, and per capita consumption dropped sharply.

In line with the country's continuing privatization and trade liberalization, the government freed up cotton and wheat planting requirements in 1994, and began a partial elimination of procurement policies which had forced farmers to sell output to the government at artificial prices. Farmers are now able to more closely follow market incentives to shift acreage to crops with relatively high returns, such as cotton and wheat, at the expense of corn and soybeans, making the poultry industry even more dependent upon feed imports.

The U.S. is likely to supply much of Egypt's feed grain needs, and should be in a good position to share in the poultry meat market when the ban is lifted.

Poultry Is a Major Protein Source

According to the latest household expenditure survey for Egypt, over half of per capita income is spent on food. Poultry products account for nearly a third of expenditures on animal protein products, which represent 31 percent of the total food bill. The other 69 percent is for items such as cereals, fats and oils, vegetables, and fruits.

Consumption of animal protein in low-income families is restricted by their budgets, and protein is provided mostly by lower cost items such as eggs, cheese, grains, and pulses. Popular Egyptian dishes such as falafel, fowl modames, and khoshari are prepared from protein-rich legumes, including faba beans, chick peas, and lentils.

Per capita consumption of poultry meat has fluctuated widely during the last 20 years, increasing from 3.2 kilograms in 1975 to 9.2 kilograms in 1985. A sharp increase in the early 1980's was due mainly to the government's large feed subsidy program, which increased poultry production and reduced poultry prices to consumers. However, when the subsidy was phased out and poultry meat prices rose, per capita consumption dropped sharply in the late 1980's. It bottomed out at just 4.4 kilograms in 1991 and climbed to 5.8 kilograms in 1996, as incomes rose and demand strengthened.

Egyptians have a preference for live birds—slaughtered immediately at the market or at home—over frozen meats. In 1996, about 280,000 tons of poultry meat (carcass weight) was sold live and only 80,000 tons sold processed (chilled or frozen). Demand for processed poultry is limited to some extent by the lack of storage facilities needed to maintain products at proper temperatures.

The preference for live birds is apparent in market price differentials. In 1995 the average retail price was £E5.2 (\$1.53) per kilogram for live broilers, or £E8 (\$2.35) dressed weight, compared with £E7

(\$2.06) for frozen whole birds. Prices for competing poultry are similar. Live-weight prices for turkey, ducks, and geese were about £E1-£E1.5 higher than for frozen birds.

Commercial Firms Dominate Broiler Sector

Approximately 70 percent of all broilers are produced by medium- to large-scale commercial enterprises. The rest is produced by small-scale, essentially non-commercial, village farms. More than one-third of Egypt's farmers keep a flock of about 20 birds. Farmers raise local chicken breeds which are well adapted to low nutritional standards, summer heat, and harsh environment.

The small-scale operators apply little technical know-how and add supplemental feed only as needed. As a result, yields are low (i.e., meat per bird) and feed conversion is poor. Chickens are kept mainly for egg production, and meat is produced as a secondary product. In addition, ducks, geese, and pigeons are kept for their meat, scavenging for food.

Forty years ago, village production was enough for the country's local consumption of poultry and eggs, and allowed for export of surplus eggs to neighboring countries. But village production has decreased over the years, and its contribution to Egypt's total production is declining to the point where most rural areas are now net importers of poultry.

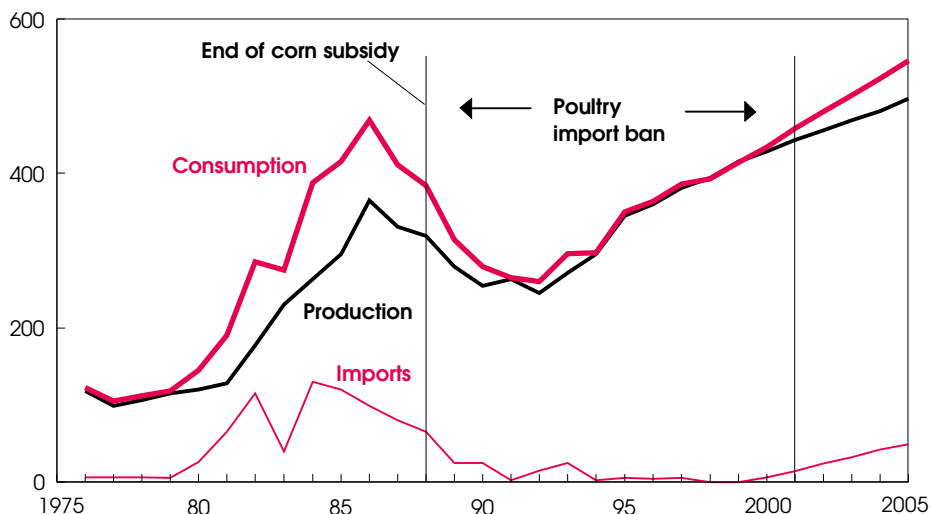
The medium- and large-scale commercial production comprises some 8,000 operations with an average of 5,000 birds each per cycle. The firms usually run 4-5 cycles per year, with 6-7 weeks per cycle. In addition to broiler operations, Egypt has 10 large duck operations, with annual production of 20,000 tons, and 50 turkey enterprises producing 20,000 tons.

Grower returns for poultry are reduced by high overhead costs due to expensive housing and low bird numbers per cage. The industry has a high average bird mortality rate due to diseases (between 3 and 10 percent compared with 2 percent in the U.S.).

World Agriculture & Trade

Egypt's Poultry Imports Likely to Resume After 2000

1,000 metric tons



Carcass weight. 1997-2005 projections.

Economic Research Service, USDA

Finally, feed conversion rates are relatively high (about 2.6 pounds of feed per pound of gain compared with about 2 pounds in the U.S.), due to primitive feed storage facilities that allow feed deterioration and vitamin loss. Feed costs make up about two-thirds of the total production costs.

Because most commercial poultry farmers are not equipped with bulk receiving equipment, bulk storage, or automatic feeders, a substantial amount of manual labor is necessary. A study by Winrock International in 1992 on Egypt's poultry industry indicated that inefficiencies were responsible for about 30-40 percent of total production costs in Egypt. Some efficiency gains have likely occurred, however, since the 1992 study.

Some large-scale companies have highly mechanized feeding, watering, and heating facilities, and apply high-technology production inputs such as superior chicks, feed additives, vitamins, vaccines, protein concentrates, and premixes. They raise 10,000 birds in a cycle and have their own feed mills, slaughterhouses, and processing, cooling, packaging, and marketing facilities.

Egypt's total annual commercial poultry meat capacity is 450,000 tons, but actual production levels have never exceeded 70 percent of capacity over the last 10 years. Total capacity of slaughterhouses has remained at about 110 million birds per year. Plant capacity has never been fully utilized because consumers prefer live birds. Size has also been a problem as many poultry farms do not produce birds of uniform size—due in large part to low-quality feed and unbalanced feed rations—that would facilitate processing.

The lack of production and marketing integration is perhaps the biggest constraint on the industry's competitiveness. Vertical integration can incorporate several stages, including hatcheries through processing and distribution. Increased vertical integration tends to reduce cost margins along the processing and distribution chain.

The Impacts of Policy Changes

By 1995, only 10 poultry feed mills (with an annual capacity of 1.4 million tons) had survived the removal of corn import subsidies, down from 50 mills (4.9 million tons) during the early 1990's. The collapse was due in part to declining demand for poultry meat as prices rose, but mostly to large commercial poultry producers cutting costs by preparing their own feed mixes.

Feed plants that survived the industry consolidation use modern technology, including fat-adding units, premixing systems for microingredients, and facilities to produce both mash and pellets. However, there is still much room for improving the quality of their feed.

Following the gradual liberalization of cropland allocations and the partial elimination of price controls and producer subsidies between 1986 and 1995, a new pattern of land and crop use is expected to emerge. Exposure to international prices after the elimination of government subsidies resulted in some crop acreage shifts that are based more on the relative profitability of each crop. The recent policy reforms in the crop sector favor the production of field crops with relatively high returns (e.g., cotton, rice, and wheat), making the poultry industry even more dependent on feed imports.

Very little additional land can be brought into cultivation because of water constraints. Short-term yield gains are expected to be minimal because yields are already high. Cropping intensity is already almost two crops per year. Consequently, Egypt is expected to continue to be an increasingly large importer of feedstuffs.

Opportunities for U.S. Exporters

Egypt is a large importer of agricultural commodities (\$5.34 billion in 1996). It is the Middle East's fastest growing and largest market for U.S. agricultural exports, rising to \$1.53 billion in fiscal 1996 from \$613 million in fiscal 1994. Nearly one-third of total U.S. agricultural exports to the Middle East went to Egypt in fiscal 1996.

The substantial increase has been due partially to higher international prices of wheat and feed grains, but also to increased shipments of feed grains and oilseeds and products. Import demand has grown as the poultry industry has expanded in the 1990's. In volume terms, U.S. feed grain shipments increased from 1.43 million tons in 1994 to 2.6 million in 1995, but declined to 2.1 million in 1996 as prices rose sharply. Likewise, oilseeds and products shipments increased from 176,000 tons in 1994 to 310,000 tons in 1995 and dipped to 165,000 tons in 1996.


The U.S. dominates the Egyptian import market for wheat and yellow corn, with shares ranging between 70 and 100 percent, and 25 percent of soymeal in recent years.

During the 1980's, Egypt imported between 40,000 and 130,000 tons of poultry annually—whole birds and parts. The peak was reached in 1984 and accounted for 34 percent of the country's total consumption. During this period, U.S. poultry shipments dominated Egypt's import market. Most U.S. poultry exports to Egypt were subsidized sales under the Export Enhancement Program (EEP), which was instrumental in keeping U.S. poultry competitive with subsidized European Union sales. After the 1988 ban, shipments gradually declined to only 5,000 tons by 1996, mostly serving the institutional market (e.g., hotels and military).

The poultry sector is expected to reduce production costs and become more efficient as management improves in the pri-

vate sector (about 80 percent of the industry) and as the rest of the public sector is gradually privatized. Experts from international poultry companies are providing management expertise or working directly with joint venture investors to provide the know-how in integrating poultry operations from production through marketing.

USDA projects that by 2005, Egypt's poultry production will increase by 35 percent from its 1996 level of 360,000 tons, while consumption rises 46 percent as population and incomes rise. Egypt will likely need to import 50,000 tons, or 9 percent of total consumption in 2005. As a low-cost producer of poultry, the U.S. is in a good position to capture part of that growing import market. And with imports of corn and soybeans expected to continue to rise, the U.S. share of Egypt's agricultural imports will likely remain high.

*Fawzi A. Taha (202) 501-8451
ftaha@econ.ag.gov* 

Resources & Environment



Incentives for Sustainable Agriculture

The concept of sustainable agriculture—which integrates technologies and practices that are as profitable as conventional farming methods but more environmentally responsible—has maintained its place at the policy table since the term became a catchphrase in the early 1990's. Three major goals are consistent with the range of strategies falling under the broad umbrella of sustainability: ensure the productivity and profitability of agriculture; conserve natural resources and the environment; and maintain economically viable rural communities.

Production agriculture is a major user of natural resources and environmental assets. A sustainable path of economic development for agriculture is one that will, at a minimum, balance use of these assets over time to meet the food and fiber needs of the present and all future generations and supply environmental services to a growing population (e.g., access to clean water, and reduced pesticides on food).

Historically, new technologies have served as an engine of output growth in U.S. agriculture, sometimes at the expense of eroding the environment and natural resource base. Today it is possible that the food and fiber needs of a growing population can be met by adopting new, output-enhancing, technologies that concurrently protect environmental quality and efficiently utilize natural resources.

Agricultural productivity growth in the U.S. has been impressive. During 1948-93, U.S. agricultural output grew at an annual average rate of 1.7 percent. A slight decline in input use accompanied this output growth, resulting in an annual productivity growth rate of 1.8 percent. By comparison, the annual productivity growth rate for the nonfarm sector was substantially smaller, at 1.1 percent over the same period.

For major U.S. field crops, yield growth paralleled this observed pattern of productivity growth. Yields for major field crops grew rapidly, ranging from 1 to 3 percent annually, with corn, sorghum, and potatoes exhibiting the most rapid growth. Since 1939, corn yields have grown at an impressive 3 percent per year while wheat yields have climbed approximately 1.8 percent. There is no strong evidence favoring the presumption of a plateau in overall field crop yields, although U.S. wheat yields have been relatively flat for 10-15 years.

Agricultural research and development (R&D) is perhaps the most important factor in the steady growth in U.S. agricultural productivity. Public research expenditures rose by 3-4 percent in real terms until approximately 1980; since then, growth has slowed to 0.7 percent per year. While Federal expenditures have remained flat since 1976, expenditures by the private sector have grown rapidly.

Most of the post-1980 growth has resulted from increased contributions from the private sector. The private sector now accounts for more than 50 percent of all agricultural research funds. A continuation of past patterns of R&D will contribute to an increased availability of food and fiber to future generations.

Environmental Damage Is Slowing

The inputs of agricultural commodity production include synthetic products (e.g., fertilizers and pesticides), natural resources (e.g., soil and water), and environmental assets (e.g., wetlands and water quality). Depleting environmental assets and natural resource inputs can reduce the availability of both food and fiber as well as environmental services to future generations. Data suggest that agriculture has made significant strides in reducing the rate of depletion of environmental assets.

Soil erosion has decreased substantially since the Dust Bowl period. Since 1938, soil erosion has declined by an estimated 40 percent, and most of the decline has occurred since 1982. This trend of reduced soil erosion resulted, in large part, from the 1985 Food Security Act, which established the Conservation Reserve Program and the conservation compliance provisions for farm program participants.

Due to this trend, threats of reduced farm productivity from excessive soil erosion do not appear to be significant. New programs place a greater emphasis on the off-site effects of soil erosion and seek to minimize the offsite damages to rivers, lakes, and estuaries. Given the time lag in sediment transport and biological

This article summarizes a workshop entitled "Economics of Sustainable Agriculture," held in Washington, D.C. on October 21-22, 1996 and cosponsored by USDA's Economic Research Service (ERS) and the Farm Foundation. The goal was to solicit input on the complex issue of sustainable agriculture from a diverse group of that included farmers, representatives of public interest organizations, academic and government economists, and current and former policy makers. A forthcoming ERS report, "Green Technologies for a More Sustainable Agriculture," will provide a detailed overview of the workshop.

Resources & Environment

response, the benefits of any soil erosion reduction programs may start accruing well after implementation of the program.

Wetlands supply critical environmental services, such as wildlife habitat, flood control, and water filtration. The lower 48 states have lost almost one-half of all wetlands since 1780, but the rate of wetland losses associated with agricultural production has decreased significantly. The rates of wetland loss from agriculture since 1980 are dramatically lower than in earlier decades.

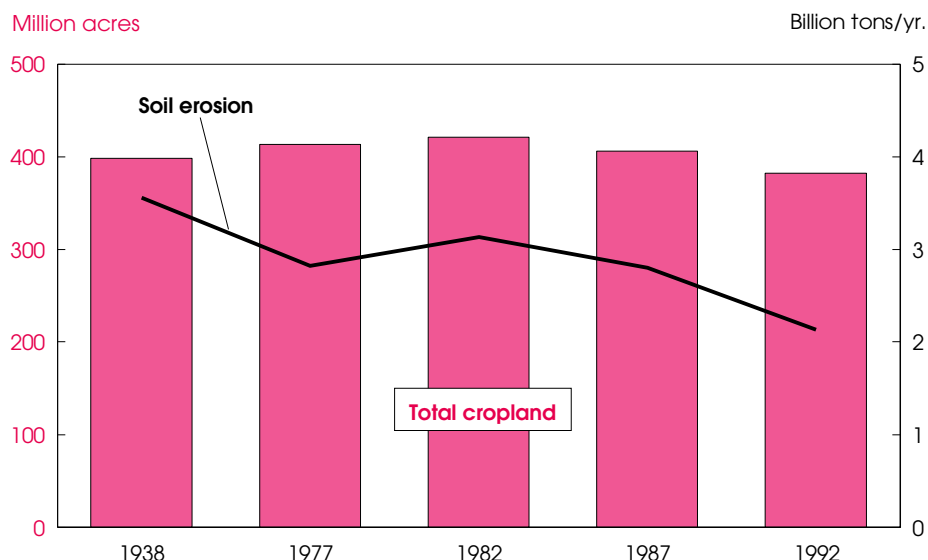
Improvements in the agricultural sector's environmental performance can be attributed partially to activities of environmental interest groups and partially to a willingness of farmers to address food safety and environmental concerns. While agricultural production has improved its environmental performance without major effects on output, continued growth in the demand for food and fiber as well as for environmental goods and services will likely place additional competing pressures on environmental protection.

Demand for environmental services (e.g., access to pesticide-free food and clean water) can be inferred from a number of recent patterns. First, a small portion of the market enables some individuals to pay price premiums in exchange for organic products free of pesticide residue. The willingness to pay more for such products demonstrates demand for foods that are perceived to reduce health risks and/or even provide greater water quality protection.

Second, many individuals express their value of the environment by contributing to nonprofit environmental organizations. Since 1987, the percentage of U.S. households contributing to such organizations has fluctuated from 11 to 16 percent. Average annual contributions have ranged between \$87 and \$99 per household.

Such studies typically provide some indication of demand for many environmental services affected by agriculture, including the protection of ground water quality, wetlands, surface water quality, wildlife habitat, and open space.

Soil Erosion Is Down Sharply Since the 1930's



Economic Research Service, USDA

Technology & Sustainability

New technologies have the potential to reduce the loss of environmental and natural resource assets as well as improve agricultural productivity. Two key issues are the availability of new technologies (which depends on the extent and quality of investment) and their adoption in the market.

Underinvestment in sustainable technology can occur for two reasons. First, firms cannot fully capture the benefits of developing and implementing a new technique, given that competitors can often mimic a successful new technology. Second, new technology development, while addressing issues of cost and yield, is less concerned with objectives that are commonly associated with more sustainable practices (e.g., environmental quality and food safety).

Private-sector R&D usually focuses on practices that conserve scarce production inputs and that push down costs or improve returns by capturing a market niche. For example, if labor in agriculture is scarce, and hence a relatively expensive input, private-sector R&D will focus on practices that are labor saving. Similarly, because fertilizer has a market price, the private sector has some incen-

tive to conduct R&D to reduce use of fertilizer and thus reduce costs.

On the other hand, the private sector has had little economic incentive to conduct R&D on practices that produce improved habitat for wildlife, or a more scenic landscape, because these goods have usually lacked market prices or other mechanisms to provide returns. The private sector will invest in R&D on the efficient use of natural resources only to the extent that it is profitable.

The lack of market incentives can also slow adoption of more sustainable practices by farmers. Until farmers have an economic incentive for more sustainable practices, the agricultural sector will not provide a mix of food and environmental services which reflects public preferences. The lack of private market incentives both for the development of more sustainable practices (the supply side) and for the adoption of more sustainable practices (the demand side) suggests a positive role for government.

A number of management practices often considered to be more sustainable than many conventional agricultural practices are already *available* to producers. These practices include, among others, conservation tillage (AO August 1996), preci-

Resources & Environment

A Selection of Sustainable Agricultural Practices

Enhanced nutrient management involves the efficient use of plant nutrients from commercial fertilizers, animal wastes, and municipal wastes. The primary goal is to sustain an increase in agricultural production and to minimize the environmental damage from residual nutrients. Enhanced nutrient management includes a broad set of agricultural practices.

Farmers can more effectively manage the nutrients on their farms by developing a better understanding of nutrient inputs, outputs, storage, and crop uptake. For example, with a better understanding of a field's nutrient requirements through soil testing, a farmer can match fertilizer and manure applications to the crops' needs and decrease the amount of residual nutrients lost to the environment. Further, matching the timing of applications to particular stages in the growing season decreases nutrient escape. More efficient and location-specific applications of nutrients can reduce farmers' fertilizer costs as well.

Better management of nutrients serves to ensure the quality of downstream waters and to prevent the mining of nutrients in the field. For the farmer, improved applications can decrease the time and energy expended on crop management by reducing the number of trips across fields.

Wen-Yuan Huang (202) 501 8289; whuang@econ.ag.gov

Integrated pest management (IPM) includes an assortment of techniques designed to maintain pest infestation at an economically acceptable level rather than attempting to completely eradicate all pests. IPM monitoring methods include scouting or regular and systematic field sampling to estimate pest infestation levels; soil testing for pests such as nematodes; the use of pheromone odors and visual stimuli to attract target pests to traps; and recording environmental data (e.g., temperature and rainfall) associated with the development of some pests. Pest management practices include biological controls such as natural enemies and biopesticides; cultural controls such as hand hoeing, mulching, and crop rotation; strategic controls such as planting dates and timing of application and harvest; and use of crops developed to be resistant to certain pests.

While IPM does not exclude the use of synthetic pesticides, the pesticides used in IPM often differ from those used on a preventative or routine schedule. Where possible, IPM uses pesticides that target specific pests and are less toxic to beneficial organisms. To the extent IPM decreases pesticide use, reduces toxicity, and optimizes timing, gains in environmental benefits can occur in terms of improved water quality, decreased probability of wildlife poisonings, and decreased probability of negative health effects on applicators.

In some cases, IPM increases crop yields. But even when yields remain unchanged, farmers can still profit if a decrease in pesticide expenditures is larger than the increase in expenditures on other inputs (e.g., labor).

Jorge Fernandez-Cornejo (202) 219 0463

jorgef@econ.ag.gov

Rotational grazing involves the management of livestock on a series of pastures. Farmers effectively rotate herds across these pastures throughout the year to maximize production. A key component to the success of rotational grazing is planting forage crops that mature at different times throughout the year. Both dairy and beef cattle farmers have employed rotational grazing.

Pastures that are on rotational grazing tend to have rapid regrowth and recovery potential, generally higher quality forage, decreased weed and erosion problems, and more uniform soil fertility levels. A well-managed rotational pasture system allows a farmer to reduce labor and purchased feeds by substituting forage crops for feed. Assuming the farmer moves the herd from field to field, this substitution can be sustainable if grazing does not exceed a field's rate of regrowth. Several researchers have experimented with rotational grazing as an alternative to row-crop agriculture on erosion-prone land, finding that rotational grazing ensures soil cover and that in some locations, it yields greater profits than row crops. In this way, erosion-prone land could return to active agricultural production while providing environmental benefits of erosion control.

Joe Aldy (202) 219-0408; jaldy@econ.ag.gov

sion agriculture (AO May 1995), integrated pest management (AO May 1994), enhanced nutrient management, and rotational grazing. However, barriers exist that slow the *adoption* of available technologies.

Risks associated with alternative production technology can be a primary deterrent. A more sustainable technology that carries higher risks than a conventional

technology may not be adopted because farmers often take actions to minimize these risks.

For example, a farmer may find it economically optimal to "over-apply" nitrogen prior to planting, a practice which increases as it becomes more likely that inclement weather will preclude access to the field during the growing season.

Nitrogen applied in advance of the growing season is more susceptible to runoff and poses a more serious environmental threat than when applied during the growing season. In cases like these, farmers may not realize the profit and environmental quality gains expected for a sustainable technology.

Resources & Environment

Site specificity of many environmental problems, as well as the diversity of the resource base, has implications for technology adoption—and for policy implementation. Research results from USDA's Economic Research Service indicate that for vegetable growers, for example, farm location—a proxy for climate and soils—has a significant effect on pesticide demand, yields, and farm profits. Soil fertility, rainfall, and temperature also influence profitability among farms. The physical environment of the farm may affect profitability directly through greater fertility, and indirectly through its effect on pests.

All else being equal, a farm located in a dry, infertile area is less likely to adopt IPM than one located in an adequately wet, fertile area. Similarly, conservation tillage practices may not perform well in areas with poorly drained soils, short growing seasons, and high rainfall. As soil becomes finer and denser, adoption of no-till may decrease. Although many areas of commonality do exist, there is clearly no “one-size-fits-all” solution to the issue of sustainability, and policies must be flexible enough to recognize the diversity of the natural resource base as well as region-specific environmental issues.

Restructuring Incentives For Sustainability

The 1996 Farm Act created new programs that advance the goals of sustainability, such as the Environmental Quality Incentives Program, the Wildlife Habitat Incentives Program, and the Farmland Protection Program (AO November

1996). The act also extended programs such as the Conservation Reserve and Wetlands Reserve Programs. A number of other policy options, are in various stages of adoption, that would further promote agricultural sustainability.

Insurance could encourage the adoption of sustainable practices. An impediment to adoption of more sustainable practices (e.g., integrated pest management) is the risk associated with switching from time-tested conventional modes of production. Further analysis of the feasibility of providing insurance against such risks is needed.

Access to credit can also be a factor in farmers' willingness to adopt sustainable production practices. Policy could be restructured so that farmers could finance the costs of switching to a new technology regime (e.g., precision agriculture).

Market development for more environmentally safe crop production is a key to moving towards a more sustainable agriculture. The development of nationally accepted organic standards, for example, will spur markets for fruits and vegetables produced using techniques that optimize agro-ecosystem health. By developing markets, especially for specialty products, producers who utilize sustainable production practices can obtain a premium for choosing to exercise environmental stewardship.

Local flexibility in the implementation of Federal programs is needed to target specific environmental problems, because the nation's natural resource base is so diverse. A “one-size-fits-all” approach to sustainability will not work, because there is a need to customize programs to match locally diverse needs. The 1996 Farm Act, which allowed greater planting flexibility to farmers, sets an example for tailoring programs to the real needs of farmers.

Research and development could focus on problems faced by producers who adopt sustainable technologies. Greater emphasis could be placed on interdisciplinary research and on evaluating tradeoffs between environmental quality and profitability in both conventional and alternative technologies.

Utpal Vasavada (202) 219-0773, Jim Hrubovcak (202) 219-0657, and Joe Aldy (202) 219-0408

vasavada@econ.ag.gov; jimhru@econ.ag.gov; jaldy@econ.ag.gov **AO**

March Releases—USDA's Agricultural Statistics Board

The following reports are issued electronically at 3 p.m. (ET) unless otherwise indicated.

March

- 4 Dairy Products
Egg Products
Poultry Slaughter
- 5 Broiler Hatchery
- 11 Crop Production (8:30 a.m.)
- 12 Broiler Hatchery
- 14 Cattle on Feed
Livestock Slaughter, Annual
Milk Production
Potato Stocks
Turkey Hatchery
- 19 Broiler Hatchery
- 21 Chickens & Eggs
Cold Storage
Livestock Slaughter
- 24 Catfish Processing
- 25 Cotton Ginnings (8:30 a.m.)
Hop Stocks
- 26 Broiler Hatchery
Wool & Mohair
- 27 Agricultural Prices
Hogs & Pigs
- 31 Grain Stocks (8:30 am)
Prospective Plantings
(8:30 am)
Rice Stocks (8:30 am)
Peanut Stocks & Processing

Special Article



Frederick W. Crook

China: Is Current Ag Policy A Retreat from Reform?

China's leaders are transforming their centrally planned economy into a "socialist market economy," allowing markets to guide producer and consumer decisions while the central government retains political control and manages the general economy. In the agricultural economy, markets and market forces have become increasingly important, but the government's role has intensified since 1994 in the markets for several basic commodities. This policy reversal—intended to boost grain production—is a response to higher inflation, concerns for food self-sufficiency, and a decline in area sown to grains.

In a retreat from the relative liberalization of a few years ago, the government now restricts grain market operations. Its policies emphasize self-sufficiency, control of the grain economy, and urban food security. A return to the old policy of greater intervention in agriculture also indicates China will purchase less grain in world markets, at least in the short term.

China is the world's largest producer and consumer of grain and the largest consumer of cotton. As a result, any major change in its supply and demand situation can significantly affect world markets for corn, wheat, barley, oilseeds, rice, and cotton.

Policies Change, Objectives Remain

While China has liberalized much of its economy—including agriculture—since the early 1980's, its food policy objectives have changed little over the past 40 years. The objectives are to insure adequate urban food supplies (food security), accumulate sufficient grain reserves, stabilize food prices, promote food self-sufficiency, participate in world trade, and improve farm income.

Like the food policy objectives of many countries, some of China's are difficult to accomplish simultaneously. At various times over the past 40 years, the central government has emphasized the achievement of certain goals while neglecting others. And changes in policies have sometimes had dramatic effects on China's agricultural economy and on agricultural imports and exports.

From the mid-1950's to the early 1980's, China's rural economy was organized into people's communes that controlled all aspects of rural life. Government-owned institutions managed the circulation of agricultural products from farm gate to consumers, ending the century-old free market system. The government's Grain Bureau purchased, transported, stored, milled, and retailed all grain leaving the farm, primarily to feed urban residents.

In the early 1980's, the government disbanded the commune system and instituted reforms, giving markets a greater role in the rural economy. By the end of 1993, these market reforms accelerated, as 28 out of 31 provinces began to phase out the Grain Bureau's ration system that allowed urban consumers to purchase grain at low fixed prices. To many observers it appeared that China would steadily pursue an economic course based on free markets. However, this has not occurred.

Three factors are likely to have pushed China's leaders to reassert government control over grain markets since 1994, veering away from a policy of letting the market allocate the country's resources to the most efficient uses.

First, inflationary pressures in late 1993 to early 1994, and a sharp rise in grain prices in 1994, undermined the government's resolve to carry out market reforms. A driving force in the general rise in prices was the large increase in the money supply, when the Ministry of Finance issued more money to bail out inefficient state-owned enterprises and to increase wages and bonuses, largely to urban workers. In 1994 and 1995, anti-inflationary measures were instituted, including price controls.

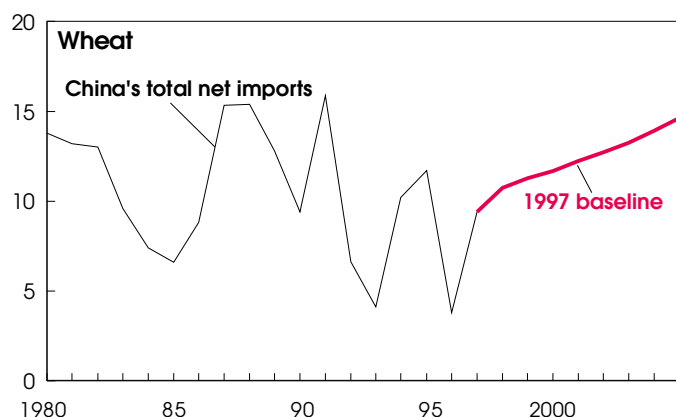
Price stability has always been important to China's central leaders, many of whom recall the devastation of hyperinflation at the end of World War II and are wary of civil unrest that rising prices might invoke. When the objective of price stability came into conflict with raising farm incomes, China's leaders exhibited their traditional urban bias of pursuing price stability.

The second factor in the reassertion of central control was that the relatively rapid increases in grain production that followed rural reforms in the 1980's began to slow in the 1990's. Leaders became concerned about the decrease in area sown to grains.

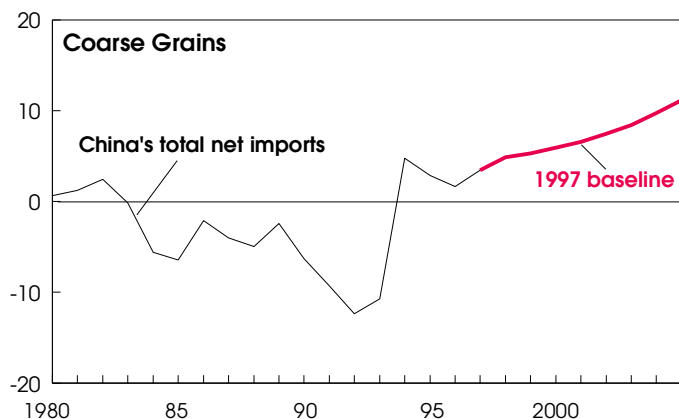
Third, in 1994 and 1995, analysts within and outside China questioned the country's capacity to produce enough grain to meet growing consumption requirements. It is possible that these reports had a sobering effect on the central leaders, pushing them to limit market reforms and initiate the "governors' grain bag responsibility system," a policy designed to promote adequate supplies of domestic grain at provincial levels. Even so, China has publicly announced that it has the ability to meet all of the country's consumption needs.

China's Grain Trade Is Projected to Grow

Million metric tons



Million metric tons



Economic Research Service, USDA

"Grain Bag" Policy Aims at Self-Sufficiency

In early 1995, the central government initiated a new grain policy giving provincial governors the responsibility of maintaining the "grain bag." The policy applies to all grain crops (wheat, corn, and rice) and some oilseed crops.

Governors are responsible for: a) stabilizing area sown to grains, b) guaranteeing investment in inputs like chemical fertilizer to stimulate grain production, c) guaranteeing that certain quantities of grain are put into stocks, d) insuring that scheduled transfers of grain in and out of a province are completed, e) allaying urban residents' concerns by supplying grains and edible oils, and f) stabilizing grain and edible oil prices. Additional responsibilities include developing a means to control grain markets, controlling 70 to 80 percent of commercial grain sales, controlling grain imports and exports, and raising the level of grain self-sufficiency.

Provincial governors implement the policy by drawing up a grain output-and-demand balance sheet for each county. The county balance sheets are sent to the provincial Grain Bureau office, which estimates and plans grain transfers between deficit and surplus counties within the province. The governor then estimates the province's total grain output and demand and determines its surplus or deficit. These balance sheets are sent to the Ministry of Internal Trade, which organizes a national grain balance sheet to estimate potential grain transfers between provinces and to calculate potential grain exports and imports.

If a province is grain-deficit, the governor must first attempt to increase supplies by stabilizing or increasing the area sown to grain, increasing inputs to raise yields, and/or providing subsidies to grain producers. Second, the province provides a list of the amounts and kinds of grains to be purchased domestically or to be imported. Third, the governor purchases domestic grain through wholesale markets or receives imported grain from the central government. If the province succeeds in producing a grain surplus, the governor maintains surplus production to support sales to grain-deficit provinces.

The financial responsibility for managing grain and edible oil supply and demand balances has been transferred from the central government to the provincial level. In the case of natural disasters, local resources should be used first to offset any grain losses. The central government chose this course of action to reduce its financial exposure. If a local government cannot handle a disaster situation, the State Administration for Grain Reserves provides assistance.

To carry out their new responsibilities, governors use provincial Grain Bureaus, which perform both state and commercial operations. State operations consist of forcing farmers to sell grains and oilseeds at fixed quota prices (below market prices), and transporting, storing, milling, transferring, and retailing the grain. Losses incurred by Grain Bureaus while performing these operations are subsidized by the central government. For 1996,

Special Article

the central government planned to purchase 50 million tons of grain via this operation.

Once a local state quota has been met, grain markets can function. Government-owned commercial grain companies (county and provincial level), feed mills, and private grain traders purchase grain from farmers and participate in local village and township grain markets. These firms compete with one another once the government quotas are filled and can participate in county, provincial, wholesale, cash, and futures markets.

The central government's planned purchases account for about 10 percent of China's grain output. Another 10 percent is purchased at market prices by the government-owned commercial grain companies. Farmers sell the rest in local urban and rural markets or consume it on-farm.

Under the old system of rationing grain and edible oil—in operation from 1953 to 1993—urban families were issued coupon books that entitled them to purchase fixed quantities of grain and edible oils at low fixed prices from government-operated grain stores. In 1995, various provinces used different systems, such as grain books, grain coupons, or controlled markets, to help low-income families obtain low-priced grains in government-owned grain stores. In making these purchases, low-income families have few consumption choices—they buy whatever is on the shelf—and the grain tends to be older and of lower quality than grain sold elsewhere. Higher income urban residents shop in open markets where the grain is fresher and of better quality.

“Grain Bag” Policy Appears to Meet Objectives

Because the “grain bag” policy has been in effect for less than 2 years, little information has been published as a basis for evaluating its success. However, initial observations indicate that the policy appears to be accomplishing what it set out to do.

The policy stimulated provincial governors to use financial and administrative means to push farmers to expand area sown to grain crops. At the same time, the governors used their political and administrative powers to insure that appropriate quantities of inputs were available to farm families to grow grain crops. Chemical fertilizer supplies, for example, increased by 8 percent from 1994 to 1995, and increased again in 1996, boosting output prospects. Favorable weather conditions led to excellent grain crops in 1995 and 1996.

Provincial governors insured that financial assets were available for their state-owned Grain Bureaus to purchase grain and edible oil seeds from farmers. Both on-farm and state-owned grain stocks rose. The implementation of the “grain bag” policy created conditions that raised China's self-sufficiency rate.

Through administrative measures, local government authorities were able to halt the downward trend of area sown to grains. Plantings for all grains increased from 109.5 million hectares in

1994 to 110.1 million in 1995. Local leaders were encouraged to pay increased attention to grain production in 1995 and 1996, which led to greater government investment in the grain economy. Total grain production increased from 445 million tons in 1994 to 467 million in 1995 and to a projected record of more than 480 million in 1996.

China's Vice Premier made a rare comment on China's grain stock situation in January 1997, noting that at year-end China's state grain reserves totaled a record 148.5 million tons, up 34.4 million from year-end 1995. (In 1991, state grain reserves were reported to be around 120 million tons.) The total grain stock report gave no breakdown of wheat, rice, and corn, the primary grains held in state stocks. The increase in state-owned wheat and corn stocks, which are primarily used to meet consumption requirements in urban areas, probably was one factor for the downturn in China's wheat and corn imports for 1996/97.

In 1996, world corn prices soared, and China's corn producing provinces wanted to export corn to capture profits from the international market. Officials in Beijing, however, placed a ban on corn exports and promoted the shipment of corn from Manchuria to feed deficit provinces in central and south China to meet their grain security requirements. China is now exporting some corn, but missed a major market opportunity.

Based on visits to urban areas by USDA's Economic Research Service analysts in 1995 and 1996 and on reports in China's domestic press, grain and edible oil supplies for urban residents appear to have stabilized. Through administrative measures, government authorities were able to halt increases in grain prices and stabilize grain markets.

One of the big concerns in China last summer was whether or not the government-managed grain procurement system would purchase all the wheat that it had contracted with farmers. Authorities worried that if the central government failed to allocate sufficient funds to support wheat purchases, or if the Grain Bureaus offered lower prices, issued IOU's to farmers, or voided contracts, then farmers would be less responsive to directives in planting wheat for the 1997 harvest.

From available evidence, it appears that at least for the wheat crop, Grain Bureaus were able to purchase all the wheat that was contracted (purchases for other crops are not yet known). Given the fact that the 1996 crop was a record, purchases likely were greater than consumption, which means that some of this year's wheat crop very likely ended up boosting government-owned and -controlled wheat stocks.

The government now has control over wholesale grain markets as well as local grain marketing. The central government continues to maintain a tight grip on grain imports and grain exports through its state trading corporation, COFCO (China National Cereal, Oils, and Foodstuffs Import and Export Corporation). The state is in the process of strengthening its control over state-owned grain stocks through the State Administration for Grain Reserves.

The end result of the policy change has been to raise the level of grain self-sufficiency and reduce imports. China's participation in international grain trade decreased in the last 2 years. In 1994/95, China imported 18.78 million tons of grain and exported 1.66 million. In 1995/96, China imported 15.95 million tons and exported 860,000 tons. In 1996/97 China is projected to import only 7.2 million tons and export 1 million.

The drive to increase self-sufficiency has been costly. Considerable resources were expended by government administrative entities to implement the policy. Large sums of money were required to underwrite the grain storage system. Some of the grain stored on-farm or in state-owned bins is damaged each year and continues to be an economic loss for consumers and producers.

Moreover, land that could have been planted with more competitive crops such as fruits and vegetables, spices, and nuts, ended up in grain, delaying China's transition to producing a mix of

agricultural products in which it has a comparative advantage. By overallocating resources to grain production, China foregoes an opportunity to produce other goods (including labor-intensive manufacturing goods) that could be sold in the world market. The drive toward grain self-sufficiency, to the extent that it distorts market forces, reduces China's gains from international trade, undermines its participation in organizations like the Asia-Pacific Economic Cooperation (APEC), and weakens China's case to join the World Trade Organization (WTO).

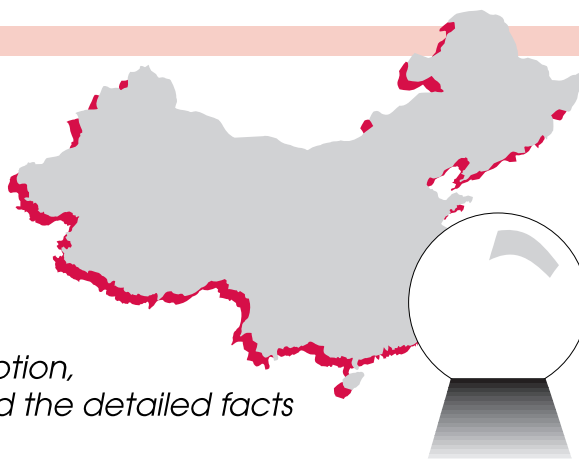
With the success of China's policy turn to boost grain production, world demand for these crops may dampen somewhat in the short run. But based on projected gains in population and grain demand for the next decade, China's demand for grain will outpace its production, requiring it to import a projected 28 million tons of grain annually by 2005.

Frederick W. Crook (202) 219-0002

fwcrook@econ.ag.gov **AO**

What lies ahead for U.S.-China grain trade?

USDA's projections on China's output, consumption, and import needs in the coming decade—and the detailed facts and figures behind the projections.



The Future of China's Grain Market

An Economic Research Service Report

To order a copy call 1-800-999-6779 in the U.S. and Canada
Other areas call 1-703-834-0125.

Stock #AIB-730

\$9.00 (add 25% for non-U.S. addresses)