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## THE UNITED STATES' GRAIN SITUATION 1950 TO 1970

The following paper has been received from the United States delegation in connexion with the discussion on item (ii) of document TN.64/Ce/W/1.

The prices that were obtained during the past fifteen years by United States and other grain producers were bolstered substantially by United States efforts to manage supplies and stimulate demand. This has been achieved through a variety of programmes that have reduced acreage and regulated national stocks.

Developments during the next five years depend to a large degree upon the kinds of programmes legislated by the United States Congress. Current indications are that the Congress may continue to authorize the machinery necessary to continue to curb the production of grains for the next four years. These programmes would continue to 1970 the principles of the current voluntary programmes; (1) that the marginal return to producers should be at or near world trading prices, and (2) that additional income supports should be contingent upon acreage reduction.

The continuation of programmes to develop markets and to allow concessional sales are considered on a year-by-year basis. However, it seems unlikely that these programmes would be discontinued completely, yet the size of the 1970 effort would be difficult to project at this time.

Although one might assume that the current types of programmes will continue, the level of prices which they obtain in 1970 is very much in doubt. The administrators of the farm programmes have a degree of discretionary power to set the economic incentives that are offered to farmers to curb their production. They will also have some discretionary power in determining the appropriate levels of stocks to be maintained. However, the administrators do not have a free licence to obtain any desired level of grain prices and producer income. Both of these methods of supply management are costly to operate and costs are increasing year by year as technology further expands the capacity of United States farms to produce grain. These costs added to the mounting costs of operating demand expansion programmes tend to temper the intensity with which they are used to support the domestic and world level of grain prices.

There is at best a great deal of uncertainty in projecting the United States grain situation to 1970. The economic and natural factors that influence consumption and production are difficult to predict. The political factors are even more elusive. The incentives to comply are usually set to remove enough area from production so that the remaining acreage will just produce the expected distribution to domestic consumption, concessional sales and donations, and commercial exports. Underlying this is the objective that an appropriate balance can be obtained between farm income, Treasury outlays, stock adjustments, and world prices.

#### The Situation 1950-1965

The decade of the 1950's marks the first important attempt by the United States to manage the supply of grain entering domestic and foreign markets. Although consumption and exports of grains continued to rise through the decade of the 1950's the increases in yield dictated that supply-control measures had to be taken to prevent disastrous declines in United States and world grain prices. From 1954 to 1960 the major effort was directed toward wheat. The area in wheat was reduced drastically but the retired acres were allowed to spill over to feed grains, particularly grain sorghums; only a moderate effort was made to control the area in feed grains. The remaining area still produced more grain than could be marketed and large quantities had to be held in storage. After 1960 the control of area in grains, especially feed grains, was tightened as farm programmes evolved to their current production-negative form. The effectiveness of these programmes and increase in demand enabled a moderate reduction in stocks.

The domestic utilization of wheat changed very little in the past fifteen years and held in the vicinity of 16 million tons. In 1964-5 there was, however, a substantial rise to 17.5 million tons, reflecting the increased utilization for feed as a result of reduced market prices.

Shipments of wheat to foreign destinations increased sharply in this same period, but only because of increases in concessional sales and donations to less-developed countries (Table 1). For example, in 1950 to 1952 commercial exports averaged about 7 million tons while concessional sales averaged just over 3 million tons. But, in the past three years commercial sales were down to an average of less than 6 million tons while concessional exports had risen to an average of more than 14 million tons.

Domestic consumption of feed grains rose by steps. There was virtually no gain in the first half of the 1950's as domestic feed grain consumption held near 100 million tons. There was a sharp and persistent rise during the latter half of that decade and consumption leveled off again at about 120 during the 1960's.

TABLE 1

MARKETINGS OF WHEAT AND FEED GRAIN,  
AVERAGE 1935-9 AND 1950 TO 1965

Crop year beginning	Wheat			Feed grain		
	Domestic utili- zation	Commer- cial exports	Conces- sional exports	Domestic utili- zation	Commer- cial exports	Conces- sional sales
	<u>Millions of metric tons</u>					
1935-1939 Average	18.6	1.7	-	74.9	1.4	-
1950	18.8	5.3	4.7	99.5	3.7	2.0
1951	18.7	8.5	4.6	99.6	3.4	1.0
1952	18.0	7.8	1.0	91.2	3.6	1.2
1953	17.3	3.2	2.8	92.6	2.8	.5
1954	16.6	3.1	4.3	93.2	3.2	1.0
1955	16.5	2.9	6.6	100.1	3.1	4.6
1956	16.0	4.7	10.2	97.5	2.6	3.8
1957	16.0	4.2	6.7	103.7	6.4	2.0
1958	16.6	3.8	8.2	113.0	8.5	2.3
1959	16.3	3.7	10.2	118.6	8.5	3.1
1960	16.4	5.6	12.5	121.7	8.7	2.8
1961	16.6	6.2	13.4	124.8	11.6	3.1
1962	15.9	4.1	13.2	122.8	13.3	2.1
1963	15.8	9.7	13.7	121.2	14.3	1.8
1964	17.5	4.5	15.4	118.4	16.2	1.8
1965	-	-	-	-	-	-

The foreign sales of feed grains rose almost continuously throughout the period, slowly and erratically at first then rising persistently to a level of 18 million tons by 1964-5. There was very little trend in concessional sales, the amounts fluctuated between 1 and 3 million tons per annum.

Currently, therefore, nearly 175 million tons of total United States grain are being absorbed in all markets. Three bushels out of every four are consumed in the United States for food and feed and one bushel in ten is shipped to less-developed countries.

The production of grain

In the past fifteen years technological advances have increased the potential of agriculture in the United States and elsewhere to produce grains. Wheat yields in the United States in the mid-1960's averaged 65 to 70 per cent above the levels of the early 1950's while feed grains yields were almost twice as high. These sharp increases in yield contrasted with the modest increases in demand necessitated in the United States supply control measures that were taken. (Table 2)

TABLE 2

AREA, YIELD AND PRODUCTION OF WHEAT AND FEED  
GRAIN, AVERAGE 1935-9 AND 1950 TO 1965

Crop year beginning	Wheat			Feed grain		
	Harvested area	Yield	Production	Harvested area	Yield	Production
	Million hectares	Ton/ hectare	Million tons	Million hectares	Ton/ hectare	Million tons
1935-1939 Average	23.2	.89	20.6	53.9	1.39	75.0
1950	24.9	1.11	27.7	54.6	1.89	103.2
1951	25.0	1.08	26.9	51.0	1.87	95.6
1952	28.8	1.24	35.6	49.9	2.03	101.1
1953	27.4	1.16	31.9	50.5	1.94	98.2
1954	22.0	1.22	26.8	55.1	1.89	104.1
1955	19.1	1.34	25.5	55.4	1.99	110.4
1956	20.2	1.36	27.4	48.3	2.25	108.8
1957	17.7	1.47	26.0	54.0	2.24	120.9
1958	21.4	1.85	39.7	51.8	2.54	131.6
1959	21.0	1.45	30.5	53.3	2.56	136.3
1960	21.0	1.76	36.9	52.4	2.71	142.0
1961	20.9	1.60	33.6	43.7	2.94	128.3
1962	17.6	1.69	29.8	42.6	3.22	130.7
1963	18.3	1.69	31.0	44.1	3.22	142.2
1964	19.9	1.76	35.0	41.3	3.03	125.0
1965	20.2	1.86	37.5	40.7	3.51	142.7

Through the implementation of various types of programmes for wheat and feed grains, the area in wheat was reduced from nearly 28 million hectares in the early 1950's to a level of about 19 million hectares by 1955. In the next decade the area in wheat occasionally fell as low as 18 million hectares but in general held at a level of about 20 million hectares. In 1962 the area in wheat was dropped severely to allow a reduction in stocks. Since then further stock reductions have been possible while the area in wheat was allowed to increase moderately.

In the decade of the 1950's the area in feed grains did not decline importantly from a level of approximately 53 million hectares. However, since then more effective incentives have been provided so that the area was reduced to 40 million hectares by 1965.

Thus by a combination of efforts, the total area in grains was reduced progressively from about 79 million hectares in the early 1950's to 61 million hectares at the mid-point of the 1960's. However, yields continued to respond to technological progress causing the total production of all grain to increase by one third in this interval.

#### Stock management

While the acreage reductions retarded the rise in production, they were not always sufficient in themselves to achieve the desired price and income supports. Thus, the United States Government had to intervene and hold in storage the unmarketable excess. The period of sharpest stock increases occurred between 1952 and 1961; wheat stocks rose from an abnormal low of 7 million to an abnormal high of more than 38 million tons. Concurrently, feed grain stocks rose from 18 million tons to nearly 77 million tons. Since 1961 the United States Government has made a concerted effort to reduce stocks. By the beginning of the 1965 crop year wheat stocks were down to 22 million tons and feed grain stocks to just under 50 million tons. (Table 3.)

The current stock levels are still considered to be quite high and further attempts may be made to reduce them in the next five years. However, it should also be recognized that the commercial and strategic reserve requirements are much higher today than they were in 1952 so that such severe reductions are not likely to take place.

TABLE 3  
BEGINNING STOCKS OF WHEAT AND FEED GRAIN,  
AVERAGE 1935-9 AND 1950 TO 1965

Crop year beginning	Wheat		Feed grain	
	Stocks	Change in stocks	Stocks	Change in stocks
<u>Million of metric tons</u>				
1935-1939 Average	4.2	+ .6	10.0	+ 3.2
1950	11.6	- .7	27.7	- 1.8
1951	10.9	- 3.9	25.9	- 7.7
1952	7.0	+ 9.5	18.2	+ 6.3
1953	16.5	+ 8.9	24.5	+ 4.3
1954	25.4	+ 2.8	28.8	+ 6.7
1955	28.2	- .1	35.5	+ 3.7
1956	28.1	- 3.3	39.2	+ 5.1
1957	24.8	- .8	44.3	+11.2
1958	24.0	+11.3	55.5	+ 5.7
1959	35.3	+ .5	61.2	+ 6.5
1960	35.8	+ 2.6	67.7	+ 9.2
1961	38.4	- 2.4	76.9	-11.8
1962	36.0	- 3.4	65.1	- 7.1
1963	32.6	- 8.0	58.0	+ 4.3
1964	24.6	- 2.3	62.3	-13.0
1965	22.3	-	49.3	-

The Projected Situation to 1970

There are only two factors in the United States supply-distribution picture that can be projected to 1970 with some degree of confidence, these are yields (if one is allowed to assume away the influences of weather) and the level of domestic consumption. Neither of these are likely to be influenced importantly by administrative decision. On the other hand, acreage, stocks and concessional sales are to a large degree determined by domestic policy. Commercial exports

too are difficult to project partly because trade tends to be residual to other outlets and partly because the level of trade will depend importantly upon the outcome of a World Grains Arrangement.

In view of the difficulties, two situations are projected for 1970: one assumes that the area in grains will be held at about current levels; the other assumes that there will be no acreage restrictions. In both cases it is assumed for convenience that stocks will be held at current levels. However, this is not necessarily realistic in view of the pressures to reduce Treasury costs. It is also assumed that the marginal return to producers and the prices paid for grain by consumers will remain at the current levels or perhaps slightly lower. The yields are expected to be moderately lower when there is no acreage restriction than when there is.

#### Assuming continuation of acreage control

It is expected that the continued adoption of improved techniques will raise the yields of wheat and feed grain above their current levels by 1970. With the expectation of lower marginal returns than occurred prior to 1964, it is expected that yields will not rise quite as rapidly as they did then, especially for feed grain. Also the assumption of constant area means that the selective drift toward the use of more fertile land - which was possible in the era of acreage decline - cannot continue and therefore will not be a factor contributing to further yield increases.

Thus, it is anticipated that wheat yields may reach 1.9 tons per hectare and feed grain yields about 4.0 tons per hectare by 1970. These yields are largely consistent with the long-run linear trend and give only slight recognition to the unusually high yields of the current season. The assumption of constant acres means that there would be about 20 million hectares of wheat and 42 million hectares of feed grains so that the United States would produce some 38.0 million tons of wheat and 168.0 million tons of feed grains in 1970.

The domestic consumption of wheat is expected to rise somewhat above the current level of 16 million tons by 1970. This increase is expected largely because of the effect that wheat price reductions are likely to have on the quantity of wheat used for feed. It is, therefore, estimated that the new wheat-feed grain price policies will increase wheat consumption to 18 or 19 million metric tons by 1970.

The consumption of feed grains should also continue to grow consistent with the growth in the production of meat and livestock products. Thus by 1970 it is likely that about 138 million metric tons of feed grains will be needed in the United States. (Table 4.)

TABLE 4

THE PROJECTED UNITED STATES GRAIN SITUATION 1970  
COMPARED WITH AVERAGES FOR 1963-1964

Item	Supply		Production	Domestic consumption	Production in excess of consumption	Total exports
	Area	Yield				
	<u>Mil. ha.</u>	<u>Tons/ha.</u>	<u>Mil. tons</u>	<u>Mil. tons</u>	<u>Mil. tons</u>	<u>Mil. tons</u>
1963/4 and 1964/5 crop year:						
Wheat	19.1	1.7	33.0	16.6	16.4	21.6
Feed grain	42.7	3.1	133.6	119.8	13.8	17.1
1970 assuming constant area:						
Wheat	20.0	1.9	38.0	18.0	20.0	---
Feed grain	42.0	4.0	168.0	138.0	30.0	---
1970 assuming no acreage control:						
Wheat	25.5	1.80	46.0	19.0	27.0	---
Feed grain	50.0	3.90	195.0	150.0	45.0	---

Considering the complete supply-distribution balance, it means that production of wheat would exceed consumption by about 20 million tons in 1970. This is nearly 4 million tons more than the comparable figure for the past two years and slightly less than the total amount exported at that time. In feed grains the surplus over consumption would amount to about 30 million tons, more than twice the average of the past two years and 13 million metric tons in excess of exports at that time.

Thus, even with continued United States control programmes at current levels, there will be need for continued growth in, and access to, the major grain markets of the world. By 1970 this effort will cost the United States Government probably 20 to 25 per cent more than the current \$2 billion. In addition, concessional sales would have to remain at the current high level and stocks could not be reduced importantly.



Assuming no acreage control

If all acreage restrictions and price supports were removed in the United States the production of wheat and feed grains would mount to unprecedented heights and United States and world grain prices would be depressed as much as 30 per cent. This means that wheat prices could be reduced to less than 90 cents per bushel (\$33 per metric ton) and feed grain prices to less than 75 cents per bushel (\$29.50 per metric ton). This would have serious income consequences for all farmers throughout the world and would be especially serious for wheat and feed grain producers. In the United States this would likely lead to the greater use of payments to maintain the incomes of grain producers.

A programme of unrestricted grain production would cause increases in the acreages of most of the important crops grown in the United States. It is estimated, however, that by 1970 there would be about 25.5 million hectares in wheat and some 50.0 million hectares in feed grains. The yields under these conditions would not be as high as estimated under the continued controls assumption. The increased area would bring in lands that are lower in productivity than those used currently and the price reductions would cause some reduction in the intensity of practices and the applications of yield increasing methods. Thus, it is estimated that wheat yields would be reduced to perhaps 1.8 tons per hectare and feed grain yields to about 3.9 tons per hectare. Thus, the combination of acreage advances and yield reductions would cause the production of wheat to rise to about 46.0 million tons and feed grains to 195 million tons.

The price reductions would, of course, have some influence on consumption. With respect to wheat there would be very little if any effect on consumption for food; however, the uses for industrial purposes, seed and feed would probably rise. Assuming a price elasticity of about -0.5 for these lesser uses, it would mean that roughly one million tons more wheat would be consumed at the lower prices.

In terms of quantity the consumption of feed grains would increase more dramatically in response to price reductions. Assuming a price elasticity of about -0.3 the consumption effect on feed grains in the United States would be close to 12 million tons, thereby, raising the total feed grain demand to 150 million tons.

In spite of the effects to increase consumption and decrease yields, the surplus grain situation in the United States and in the world would be far worse under a programme of no price supports, no acreage restrictions than it would be with a continuation of the present level of supply control. For wheat the excess of production over consumption in the United States would be increased to 27 million tons and for feed grains to about 45 million. Each of these amounts exceed substantially the comparable figures for the past two years and are considerably higher than they would be if the current level of supply control were to be maintained by the United States.