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# ECONOMIC POLICIES FOR AGRICULTURE IN THE 1960's

## Implications of Four Selected Alternatives

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## MATERIALS PREPARED FOR THE JOINT ECONOMIC COMMITTEE CONGRESS OF THE UNITED STATES

Printed for the use of the Joint Economic Committee

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II

# LETTERS OF TRANSMITTAL

*To Members of the Joint Economic Committee:*

Transmitted herewith for use by the Joint Economic Committee and other Members of the Congress is a series of papers prepared by leading agricultural economists, presenting a review of the current status of agriculture and four alternative economic policies for agriculture in the 1960's. This report has been prepared in accordance with the instructions to the staff in the program of work set forth in the committee's annual report filed with the Congress on February 29, 1960 (S. Rept. 1152, 86th Cong., 2d sess.).

The Joint Economic Committee carried out the first of its first special studies in agriculture in 1957. At that time a series of hearings were held and a compendium of technical papers and a report on "Policy for Commercial Agriculture," prepared under the direction of the Subcommittee on Agricultural Policy, were published. Since that time the Senate Agriculture Committee has arranged for a staff analysis of probable levels of production, prices, and farm incomes in 1960–65 if production controls were removed and price supports lowered to market levels. This report was published as Senate Document 77 (86th Cong., 2d sess.). The papers in this current study for the Joint Economic Committee synthesize the latest research and best professional thinking on the economic implications of various alternatives to such a free market policy.

PAUL H. DOUGLAS,
*Chairman, Joint Economic Committee.*

DEAR MR. CHAIRMAN: The attached staff report on "Economic Policies for Agriculture in the 1960's" has been prepared in accordance with your instructions and the directions of the Joint Economic Committee. The report contains papers by four agricultural economists at the land-grant colleges: John A. Schnittker, Kansas State University; Dale E. Hathaway, Michigan State University; Harlow W. Halvorson, University of Wisconsin; and George E. Brandow, Pennsylvania State University. Walter W. Wilcox of the Legislative Reference Service, Library of Congress, prepared the first section of the report and gave general guidance to the entire study.

An advisory panel was appointed to work with the authors and the committee staff on the formation and development of the study, although it should be made clear that the panel was not asked to accept any responsibility for the final product. Members of the panel were Edward Bishop, North Carolina State College; Earl Heady, Iowa

State University; Maurice Kelso, University of Arizona; and Stanley Seaver, University of Connecticut. Technicians from various Government agencies were also invited to meet with the panel and the authors, and the assistance given in their special fields has been most helpful.

As farm families entered the 1960's their incomes were lower relative to nonfarm incomes than at any time since the 1930's. Key factors expected by the authors to affect commercial agriculture in the coming decade are:

Possibilities exist for increasing the demand for food in commercial markets both at home and abroad, but demand increases will be limited largely to meeting expanding population needs;

A moderate expansion in industrial demand for farm products may be partially or fully offset by further development of industrial substitutes such as synthetic fibers, plastics, and detergents;

Expansion in production may continue faster than market outlets expand at stable prices because of advancing technology on the farm;

Farmers' production expenses are expected to continue to increase; and

Rural people may face continuing difficulties in obtaining employment in nonfarm industries because of educational deficiencies, distance from employment centers, cultural differences, and insufficient growth in job opportunities.

They find farm prices and income would fall sharply if current farm price support, production control, and conservation reserve programs were dropped and not replaced by an alternative program or combination of programs.

Projections for 1965 with price supports and production limitations removed indicate prices for the more important farm products which compare with 1959 as follows:

|  | 1959 | Projected 1965, no controls or price supports | Percent decline |
|---|---|---|---|
| Cattle_____hundredweight__ | $22.50 | $17.08 | 24 |
| Hogs_____do____ | 14.20 | 10.95 | 23 |
| Eggs_____dozen__ | .31 | .26 | 16 |
| Milk_____hundredweight__ | 4.16 | 3.67 | 12 |
| Corn_____bushel__ | 1.07 | .77 | 28 |
| Wheat_____do____ | 1.75 | .87 | 50 |
| Cotton_____pound__ | .32 | .21 | 34 |
| Rice_____hundredweight__ | 4.79 | 3.49 | 27 |

According to these projections net farm income could be expected to drop from $11.3 billion in 1959 to $7.2 billion in 1965 of which $3.1 billion is imputed income from rental of the farm dwellings, and from home produced food and fuel. Allowing for trends in farm consolidation, net income per commercial farm with sales of $2,500 or more in 1965 would be 30 percent lower than in 1959.

If the general policy decision is to maintain or somewhat improve current incomes for farmers, particularly the 2 million commercial farmers who produce over 90 percent of our farm products, programs enabling farmers to produce at less than capacity or increased Government payments will be needed. This report presents an analysis of four alternatives.

Part II presents an anlysis of a voluntary land retirement program as one method of bringing farm output closer to expected levels of demand. Such a program would require retirement of 15 to 25 percent of the land used for crops and would cost about $2 billion a year in the early years. Continued yield increases might require larger acreage retirement and higher costs in later years.

Part III presents an anlysis of the effects of improved production limitations for the basic commodities and feed grains. Merely developing improved production controls for the basic commodities will not maintain farm income at recent levels. However, a program which combines improved production controls with a reduction in feed grain output might maintain or slightly improve farm income with the same or lower farm program costs.

Part IV indicates that direct management of market supplies on a national basis offers possibilities for stabilizing and improving the incomes of certain livestock producers, especially dairymen, but programs of this type involve a number of problems and probably cannot be developed rapidly. They may be utilized to supplement land retirement programs.

Part V deals with direct payments as a means of maintaining farm income. Because of current and prospective overabundant production in relation to markets, *without* production controls direct payment programs to maintain current levels of farm income would cost about $5 billion in the mid-1960's. Payments could be held to about $2 billion by using low price objectives and limiting payments to individual farm operators in certain ways; but commercial farmers' incomes would fall substantially below current levels under such a program.

Analyses of these alternatives were conducted on fully comparable bases. They are presented by competent economists as estimates of the magnitude and cost of programs to achieve specific levels of farm prices and income for a period in the 1960's centering on 1965. No attempt is made to demonstrate the superiority of one program alternative over another.

Farm programs in the 1960's may indeed combine features found in each of these alternatives. For example, from the analyses in parts III and V, it appears that farm income could be increased above 1959 levels by combining improved production limitations for basic commodities and a feed grain acreage retirement program, with land retirement rental payments of about $1 billion and supplemental income payments of $1 billion. Incomes moderately above 1959 levels appear possible by utilizing a combination of these programs with savings of approximately $1 billion a year as compared with continuing existing programs. By combining production limitations and higher support levels for the basic commodities, restricting feed grain production 15 percent and using direct government payments of about $1 billion, net cash farm income might be increased over 30 percent and cash plus imputed income 20 percent above 1959 levels. This would involve total farm program costs approximating $3 billion a year, about the same as current farm program costs.

Any sharp or dramatic increase in farm income probably would require even more effective and extensive production and/or marketing limitations with some form of land retirement and selective direct payment programs. For example, the adoption of compulsory limi-

tations on acreages used for feed grain production, limiting production 20 percent or more and national marketing orders for dairy and poultry producers would increase farm income further, while holding government program costs to about $3 billion.

The analyses are intended to be helpful to committee members, Members of Congress, and others in their efforts to find the most desirable combination of programs in the 1960's to reduce Government farm program costs and reduce existing farm surpluses while maintaining or improving farm incomes.

JOHN W. LEHMAN,
*Clerk and Acting Executive Director.*

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### PART I

### AGRICULTURE'S INCOME AND ADJUSTMENT PROBLEM

(Walter W. Wilcox, Legislative Reference Service, Library of Congress)

As farm families entered the 1960's their incomes were lower relative to nonfarm incomes than at any time since the 1930's.

Low farm incomes persist at the present time in spite of:

(1) A net migration of 7.2 million people from farms in the past 10 years and a decline of 4.8 million in farm population;

(2) A 1.1 million reduction in number of farms; and

(3) Farm price support, soil bank, and surplus removal programs, which increased farm income several billion dollars in each of the past 8 years.

The purpose of this study is to illuminate the farm income and adjustment problem in the 1960's and to analyze the economic implications of alternative policies for dealing with it. Part I is an analytical description of the problem and of the implications of a policy of reliance on relatively free market policies in the 1960's. Part II analyzes the economic implications of a voluntary land retirement program. Part III analyzes the economic effects of improved production controls for basic commodities and feed grains. Part IV describes the key features and economic implications of direct management of market supplies for dairy producers and other commodity groups. Part V appraises the probable government cost and improvement in farm income resulting from two types of direct payments to farmers.

The four policies for supplementing individual production and marketing decisions analyzed in this report do not encompass all aspects of a desirable policy for agriculture in the 1960's. Policies relating to improved food distribution, credit, cooperatives, and improved educational and vocational training programs in rural areas, while important could not be covered. The policies discussed are, however, those believed to hold most promise for improving farm income and facilitating desirable adjustments, especially in the commercial sector of agriculture in the years immediately ahead.

#### FARM FAMILY INCOMES VARY WIDELY

In 1958, the latest year for which data are available, over a million farm families had incomes of less than $2,000. Family income takes into account income from all sources, including home-produced food,

1

fuel, and shelter.  Farm production expenses are deducted.  Only 336,000 farm families had incomes of $10,000 or more.  The number of farm families in each of 5 income groups in 1958 is shown below:

|  | *Number of farm families* |
|---|---|
| Farm family personal income from all sources before income taxes: | |
| Under $2,000_____ | 1, 177, 000 |
| $2,000 to $2,999_____ | 834, 000 |
| $3,000 to $4,999_____ | 1, 242, 000 |
| $5,000 to $9,999_____ | 1, 160, 000 |
| $10,000 and over_____ | 336, 000 |
| Total_____ | 4, 749, 000 |

Source: U.S. Department of Commerce.

In 1947, farm families made up 47 percent of those in the lowest income fifth of all families in the United States.  Although there were over 1 million fewer farm families in 1958, their relative income position had worsened—50 percent were in the lowest income fifth of all families.  The percentage of farm and nonfarm families in specified personal income classes in 1958 is shown below:

| Family personal income class before income tax | Farm families (percent) | Nonfarm families (percent) | Farm families as percentage of total |
|---|---|---|---|
| Under $2,000_____ | 25 | 6 | 33 |
| $2,000 to $2,999_____ | 18 | 6 | 26 |
| $3,000 to $4,999_____ | 26 | 24 | 12 |
| $5,000 to $9,999_____ | 24 | 47 | 6 |
| $10,000 and over_____ | 7 | 17 | 5 |
| Total_____ | 100 | 100 | ------------ |

Source: U.S. Department of Commerce.

Wide variations in incomes persist in agriculture primarily because of the range in size and productivity of farms.

In 1954, the latest year for which comparable data are available, 12 percent of all farms—those with sales of $10,000 or more—marketed 58 percent of all farm products.  At the other extreme, families obtaining most of their income from farming but on small farms with sales of $2,500 or less—43 percent of the total—produced only 9 percent of the products marketed.  A full 30 percent of the farms were part-time farms or country residences, and produced only 2 percent of the farm products marketed.

Because of the wide range in the size and productivity of farms, it is helpful to divide them into two major groups—commercial farms with $2,500 or more products marketed—and all others, often referred to as low income farms.[1]

In spite of a decline of almost 2 million farms in the past 15 years, the number of commercial farms with sales of $2,500 or more has remained remarkably constant at about 2.1 million.  With the trend in farm consolidations continuing, a decline of perhaps 5 percent in number of commercial farms may occur by 1965.

The worsening relative income position of families on commercial farms in recent years is illustrated by figure 1.  Taking into account income from all sources, families on commercial farms in the period 1949–52, received incomes approximately equal to those of all nonfarm

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[1] The noncommercial, or low-income farms with less than $2,500 of farm product sales produce less than 10 percent of the products marketed.

families. Although data on income from off-farm sources are not available for recent years, it appears that in 1959–60 average income of nonfarm families may have been 30 percent higher than the average income of families on commercial farms.

Trends in the return to labor on farms and in other industries also indicate increasing disparities. In 1951–52, workers on farms, including owner-operators, received a return of $0.90 an hour for their labor as compared with $1.63 for manufacturing employees.

In 1959, returns to labor on farms was $0.75 an hour, only one-third of the $2.22 received per hour by workers in manufacturing.

FIGURE 1.—Estimated average net income of farms with sales over $2,500 and average family personal income of nonfarm families, 1949–59.[1]
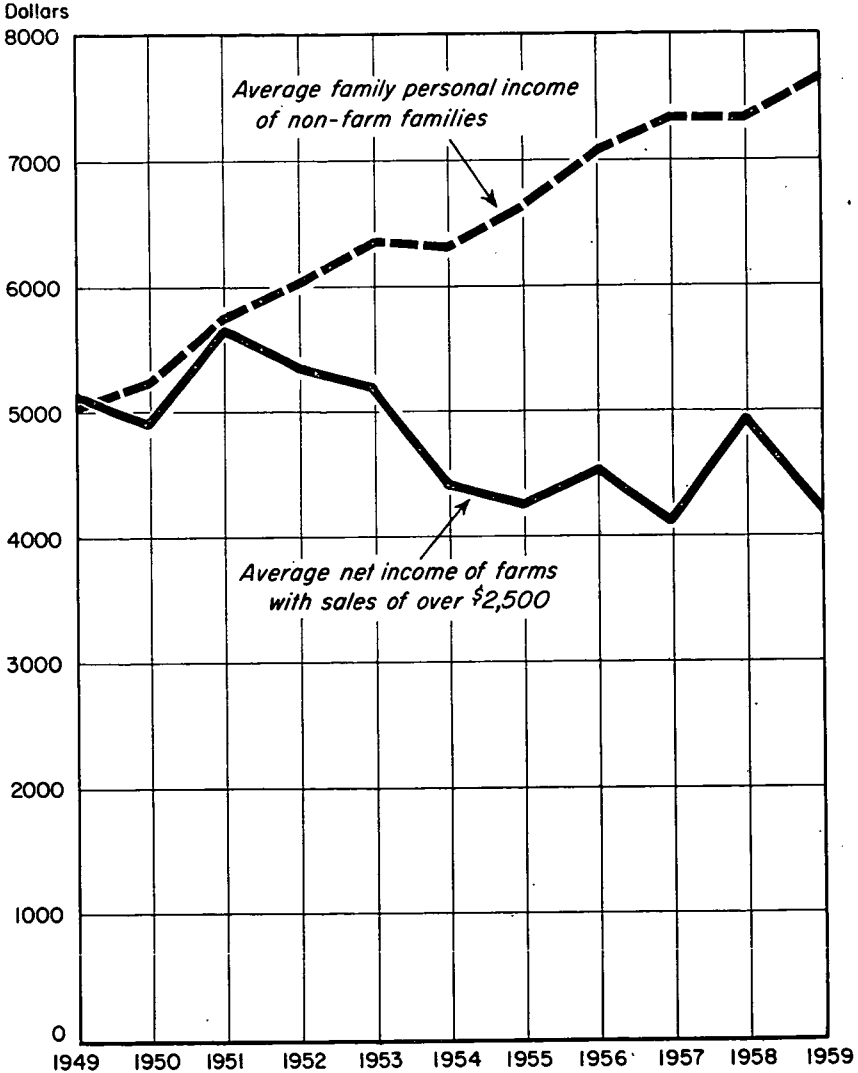
## DYNAMIC FORCES IN AGRICULTURE

It is the dynamic forces in operation in agriculture which will give rise to continuing income and adjustment problems in the 1960's.

Farm output per man-hour increased threefold in the past 20 years, and almost doubled in the last 10. Utilizing about the same cropland area, farm output increased 60 percent in the past 20 years and 25 percent in the last 10. Increased crop production per acre accounted for almost two-thirds of the increase in farm output in recent years. The average annual change in farm production and source of change is shown below:

*Average annual change in factors contributing to farm output, 1947–49 to 1957–59*

| Source of change | Index points | Percentage of total |
|---|---|---|
| Reduction in farm-produced power | 0.33 | 16 |
| Increase added by livestock and pasture | .83 | 39 |
| Decrease in cropland used | −.40 | −19 |
| Increase in crop production per acre | 1.37 | 64 |
| Average annual change in farm output | 2.13 | 100 |

Source: Agricultural Research Service.

Since 1947–49:

> Farm output per unit of input has increased 24 percent;
> Production per breeding unit of livestock has increased 25 percent;
> Feed consumption per 100 pounds of broilers produced has declined 30 percent;
> Output of all livestock and livestock products per hour of labor has increased 44 percent;
> Output of all crops per hour of farm labor has tripled;
> The rate of increase in farm output per hour of labor has been three times the rate of increase for nonfarmworkers.

Dynamic forces affecting agricultural production in the 1960's include rapid technological advances in production practices, sweeping changes in organization of farm production and marketing, and continued growth in use of nonfarm inputs. Most increases in farm production have resulted from purchases of nonfarm items such as fertilizer, machinery, fuel, and pesticides. If innovations were to stop today, purchases of nonfarm inputs would continue to increase for several years. Farmers have just started using many of the new pesticides, new feed additives, and the newest farm equipment. Fertilizer use is still less than optimum. Even though farm prices decline further, increased fertilizer use would still be profitable for many crops on many farms.

Added production achieved by using new technology costs less per unit of output than when using previous production practices. Farm technological advances typically involve increased quantities of nonfarm resources, increased farm output, and lower costs per unit of output. Under these conditions, with unrestrained price competition, increases in total farm output depends primarily on the rate of adoption of new technologies and on the upward trend in the use of

fertilizers, weed killers, pesticides, feed additives, and other nonfarm inputs.

Usual supply and demand forces do not achieve equilibrium in agriculture at satisfactory price and income levels under conditions of rapid technological advance. The extremely inelastic demand for farm products causes sharp price declines when supplies increase faster than population growth. Previously committed resources—tractors, improvements in land, specialized machinery and most farm operators—cannot shift out of agriculture in response to price declines. Thus the addition of new output increasing practices becomes the most profitable alternative to the individual farmer in spite of low prices.

As an industry agriculture differs from most others. Relatively little labor is hired and purchased supplies are a smaller part of total costs than in manufacturing. Economic incentives encourage the full use of all land, labor, equipment, and unit cost-reducing technologies as long as the family continues to farm. In the present state of agriculture's development farm output may be increased with fewer farm operator families and workers as mechanization of crop and livestock production continues.

With rapid technical advance the cost-price squeeze drives those with capital available into output-expanding, cost-reducing investments. Eventually, however, farmers are unable to replace wornout equipment or purchase needed current supplies, and farm production fails to increase. But under such conditions a long period of depressed farm income, falling land values, and farm financial distress appears probable.

Agriculture has greater difficulties than manufacturing industries in assimilating rapid technological change. Farmers are price takers under current market organization in contrast to industrial firms which typically establish sales prices and produce to supply their markets at stable prices. Manufacturers typically make differentiated, trademarked products, often using patented processes. They utilize purchased materials and hired labor. New technological processes are adopted to lower costs. But, utilizing purchased materials and hired labor for the most part, they limit production to amounts that can be sold at prices in line with costs.

Workers displaced by labor-saving equipment suffer income losses but are cared for by unemployment insurance and welfare services until they find new employment. Industrial workers usually have less difficulty than farmworkers in finding new employment, since they usually live in urban areas accessible to new employment opportunities. Also, their experience better fits them for other industrial employment than the experience of farmworkers. It is these differences in economic organization of the industries which make it possible for most manufacturers to operate profitably at less than full capacity while assimilating rapid technological change and prevent agriculture from following similar practices.

*Farm youth have limited income earning opportunities.*—Agriculture has other critical problems resulting from dynamic forces. Approximately 220,000 farm boys reach working age each year, yet there are only about 23,000 openings for new farmers on farms offer-

ing promise of a net income of $1,500 for the farm family.[2]   Approximately 90 percent of the young male workers in farm families must look forward to nonagricultural careers or to low levels of income from farming.

Looking forward in the 1960's, one finds no evidence that increases in farm output will soon level off.   Unless the rate of growth in job opportunities increases substantially, however, farmworkers' difficulties in finding nonfarm jobs may increase.   Because of the higher birth rate in the 1940's, young workers will enter the labor force in the 1960's at the rate of 2,600,000 a year, a 40-percent increase as compared with the 1950's.

In the past 6 years the net increase in employees in nonagricultural establishments was 2,294,000.   Changes in the number of employees engaged in various occupations are shown below:

| | Change in number of employees in 1959 as compared with 1953 | |
|---|---|---|
| | Number | Increase or decrease |
| Government | 1,482,000 | Increase. |
| Service and miscellaneous | 987,000 | Do. |
| Wholesale and retail trade | 858,000 | Do. |
| Finance, insurance and real estate | 387,000 | Do. |
| Contract construction | 145,000 | Do. |
| Mining | 176,000 | Decrease. |
| Transportation and public utilities | 319,000 | Do. |
| Manufacturing | 1,070,000 | Do. |
| Increase in employees in nonagricultural establishments | 2,294,000 | Increase. |
| Change in workers employed in agriculture (B.L.S. labor force series) | 719,000 | Decrease. |

Source: Employment and Earnings, vol. 7, No. 1, U.S. Department of Labor.

Ewan Clague, Commissioner of Labor Statistics, foresees an increase in professional, clerical and sales jobs in the coming decade, but no increase in jobs for unskilled workers in industry.   This, he points out, could lead to a condition of substantial unemployment existing at the same time that shortages of skilled labor occur.[3]  These observations are particularly relevant in considering the opportunities of farmworkers, many of whom are unskilled.

*Farm youth have educational and geographic disadvantages.*— Rural areas have not shared fully in the improvement in education in the past 40 years.

Small school districts, low density and lower income have produced a quality of rural education which, by all available measures * * * is less adequate than education provided in urban systems.[4]

Although much progress has been made in rural education in recent years, further improvement is urgently needed.   All measures of education reported in the 1959 census show a wide disparity between farm and nonfarm people.   Educational deficiencies of rural youth place them at a disadvantage in obtaining nonfarm employment.

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[2] From Karl Shoemaker, "Opportunities and Limitations for Employment of Farm People Within and Outside Agriculture," cited by Ernest J. Neslus in "Opportunities and Limitations in Programs for Younger More Flexible Persons Now in Agriculture." "Problems and Policies of American Agriculture," Iowa State Center for Agricultural and Economic Adjustment, 1959, p. 360.
[3] New York Times, Aug. 22, 1960.
[4] Warren Rovetch, "Opportunities and Limitations in Education of Farm Youth," "Problems and Policies of American Agriculture," Iowa State Center for Agricultural and Economic Adjustment, 1959, p. 340.

Farm youths face other disadvantages in their shift to nonfarm employment. The growth in job opportunities has not been rapid enough to provide off-farm jobs for all who are willing to work at prevailing wages. The greater distances of farm people from employment centers make farmworkers less readily available for the limited number of newly opening nonfarm jobs.

Farmworkers also often have differences in cultural backgrounds which cause them to be discriminated against when the demand for labor is smaller than the potential supply. These dynamic forces result in agriculture bearing a large share of the economy's underemployment. Whether this situation improves or becomes more serious in the 1960's depends primarily on general economic policies, the rate of economic growth in the economy, and on improvement in education and training of rural youth.

Two aspects of agriculture are worthy of special note in considering the dynamic forces affecting resource adjustments in the 1960's. The first relates to the fixity of both labor and capital in agriculture, once they have been committed. Most of the labor used in farm production is that of farm operators and their families. For very good reasons most farm operators, after reaching 35 or 40 years of age, continue farming even though incomes are discouragingly low. At the same time, many retiring operators are replaced by sons and sons-in-law who will inherit all or a large part of the farm, thus predisposing them toward a farming career. These patterns of behavior slow adjustments in farm size and in the labor employed in agriculture in response to technical innovations and low returns from farming.

Capital investments in farming, once made, also tend to be committed for their entire productive life. As pointed out earlier, individual farmers continue to invest in output-expanding, cost-reducing equipment even though farm prices and incomes are relatively low; and improvements in land, specialized equipment and tractors seldom can be shifted to alternative employment even though returns from their use turn out to be far less than anticipated at the time of the investment.

At the other extreme, few industries are as easy to enter as agriculture. In the subhumid areas, small, low-productivity farms can be purchased or leased with little capital. Families who lose out in nonagricultural industries often migrate to rural communities and eke out an existence from farming. Thus there are a number of dynamic forces which lead to overinvestment in capital equipment in agriculture in periods of rapid technological change, retard the rate of increase in farm size, delay the reduction in number of farm operator families, seriously delay adjustments in farm production to market outlets available and add to the difficulties of commodity supply-management programs.

*Production cost trends will be important in the 1960's.*—Increases in farm production expenses are fully as important as sinking farm prices in creating the serious cost-price squeeze now gripping all farmers. Farm prices fell 12 percent from 1947–49 to 1959 while production expenses increased 45 percent. About half the increase in production expenses was the result of increased quantities of production supplies used, and half was caused by price increases. The trends in prices paid for farm machinery and for motor vehicles are shown in figure 2.

FIGURE 2.—Prices received by farmers and prices paid for farm machinery and motor vehicles, 1947–60.
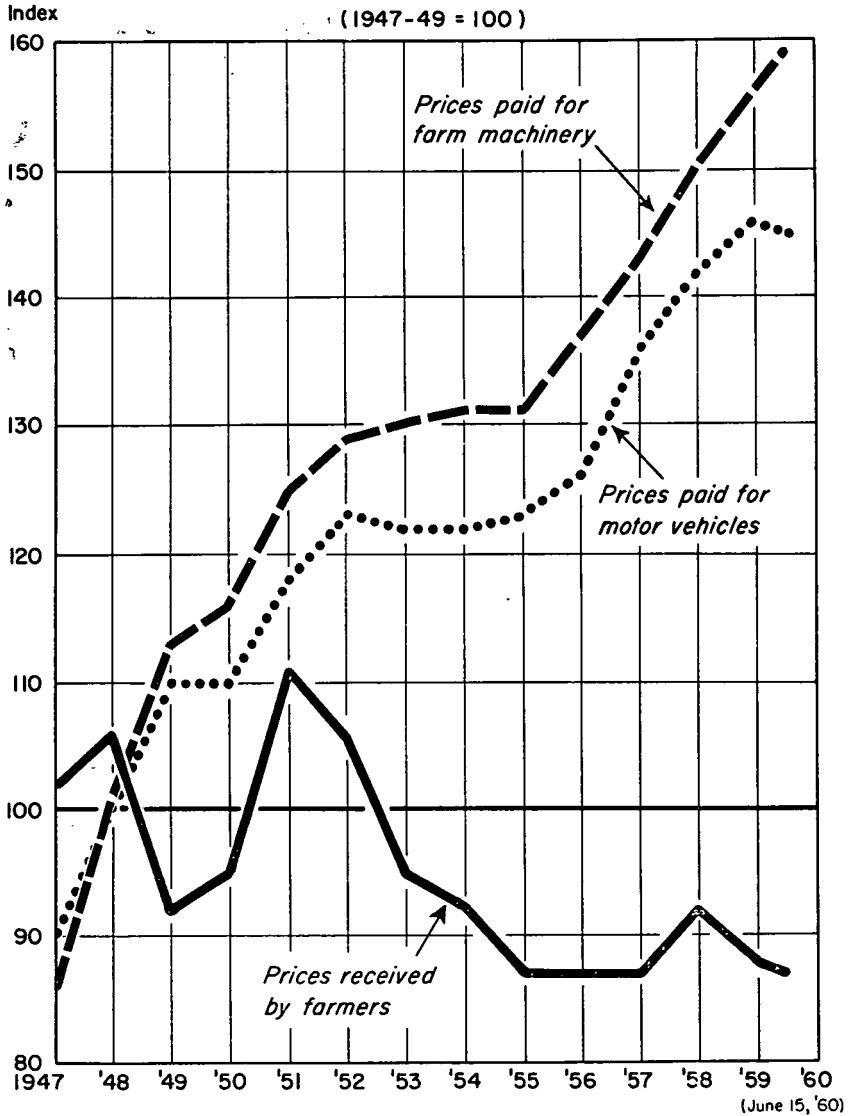


Source: Agricultural Marketing Service, U.S. Department of Agriculture. (Rising prices paid for farm machinery and motor vehicles in part reflect quality improvements in the items priced.)

*Price increases for industrial products purchased by farmers, 1947-49 to
June 15, 1960*

Percent

Farm machinery_____ 59
Motor vehicles_____ 45
Motor supplies_____ 24
Building and fencing materials_____ 33
Farm supplies_____ 12
Fertilizer_____ 6

Wage rates also increased 51 percent, farm real estate taxes increased
90 percent, and interest payments on farm mortgage debts increased
170 percent.

Manufactured product prices have been rising almost steadily in
recent years. Price increases since 1947-49 accounted for $4.4 billion,
or 17 percent, of farmers' production expenses in 1959 (table 1 and
fig. 3). It is disturbing to note that production expense increases due
to price increases more than doubled in the last 5 years, increasing
throughout the business recession in 1957 and 1958.

TABLE 1.—*Production expenses, increases due to price increases, realized net
farm income and related data, 1949-59*

[Dollars in billions]

| Year | Production expenses | | Increase in production expenses due to price increase since 1947-49 | Realized net farm income | Production expenses due to price increases as percent of net farm income |
|---|---|---|---|---|---|
| | Current dollars | 1947-49 dollars | | | |
| 1949_____ | $18.0 | $17.8 | $0.2 | $13.8 | 1 |
| 1950_____ | 19.3 | 18.6 | .7 | 13.2 | 5 |
| 1951_____ | 22.2 | 19.3 | 2.9 | 15.2 | 19 |
| 1952_____ | 22.6 | 19.3 | 3.3 | 14.4 | 23 |
| 1953_____ | 21.4 | 19.3 | 2.1 | 13.9 | 15 |
| 1954_____ | 21.7 | 19.5 | 2.2 | 12.2 | 18 |
| 1955_____ | 21.9 | 19.9 | 2.0 | 11.5 | 17 |
| 1956_____ | 22.6 | 20.4 | 2.2 | 12.0 | 18 |
| 1957_____ | 23.4 | 20.5 | 2.9 | 11.0 | 26 |
| 1958_____ | 25.2 | 21.5 | 3.7 | 13.1 | 28 |
| 1959_____ | 26.2 | 21.8 | 4.4 | 11.3 | 39 |

Source: Agricultural Marketing Service, U.S. Department of Agriculture.

FIGURE 3.—Increase in farmers' production expenses due to price increases since 1947–49 as a percentage of net farm income.
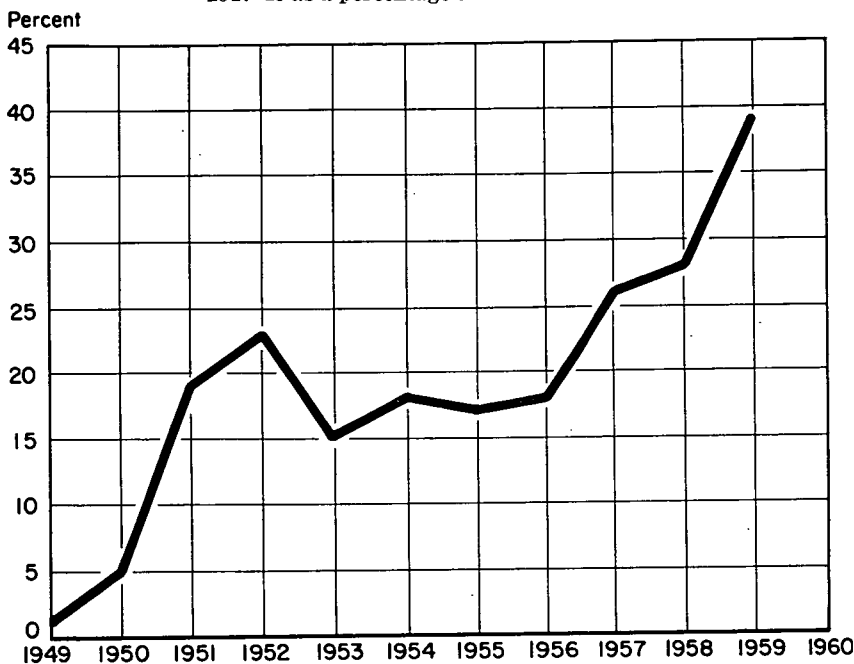


Source: See table 1.

AGRICULTURE AND INTERNATIONAL TRADE

Farm price-support and supply-management policies in the 1960's will have important effects on international trade. The United States is by far the world's largest exporter and is the second largest importer of agricultural products. In value terms, imports at times exceed exports. The value of agricultural exports and imports in recent years is shown below:

[In billions]

| Fiscal year | Exports | Imports for consumption | Fiscal year | Exports | Imports for consumption |
|---|---|---|---|---|---|
| 1955 | $3.5 | $4.1 | 1958 | $4.0 | $3.9 |
| 1956 | 4.7 | 3.8 | 1959 | 3.7 | 4.0 |
| 1957 | 4.0 | 3.9 | | | |

Traditionally the major U.S. agricultural exports have been wheat, feed grains, cotton, tobacco, and lard. More recently rice, vegetable oils, and oilseeds have become important export items while animal products, fruits, and vegetables have been major items in years of surplus.

Approximately 60 percent of our exports in recent years have moved under Public Law 480 and related programs or have been subsidized if sold for dollars. Exports of agricultural products in the fiscal

years 1958, 1959, and 1960 classified as to conditions of sale are shown below:

[In billions]

|  | Fiscal year 1958 | Fiscal year 1959 | Fiscal year 1960 |
|---|---|---|---|
| Exports under International Cooperation Administration and Public Law 480 programs | $1.2 | $1.3 | $1.3 |
| Sales for dollars (involving some subsidy) | 1.2 | .8 | 1.3 |
| Subtotal | 2.4 | 2.1 | 2.6 |
| Nonsubsidized sales for dollars | 1.6 | 1.6 | 1.9 |
| Total agricultural exports | 4.0 | 3.7 | 4.5 |
| Estimated subsidy in sales for dollars involving some subsidy | .3 | .2 | .3 |

Source: Foreign Agricultural Service, U.S. Department of Agriculture.

Traditionally, the major U.S. agricultural imports have been sugar, coffee, bananas, rubber, cocoa, vegetable oils, and wool. More recently imports of cattle and meats have assumed increased importance. Approximately half of the agricultural imports, such as cattle, meats, fruits, vegetables, sugar, grains, cotton, wool, and vegetable oils are directly competitive with domestic production. The others complement, rather than compete directly with, domestic production. These products include coffee, natural rubber, cocoa beans, bananas, tea, spices, and cordage fiber.

Import quotas under the Sugar Act limit imports of sugar. No other import quotas limit physical quantities of imports of farm products except those under section 22 of the Agricultural Adjustment Act of 1933, as amended. This act authorizes the use of import quotas to limit imports which materially interfere with farm price support programs. Imports at present controlled under section 22 are wheat and wheat flour, cotton and cotton waste, certain dairy products, rye and rye flour and meal, flaxseed and linseed oil, peanuts and peanut oil, and tung nuts and tung oil.

*If price support and production controls were removed.*—Farm price support programs have been criticized for interfering with the freer foreign trade policies advocated by the United States. They have given rise to Government-subsidized exports and to quota limitations on imports as indicated above; and future farm income improvement measures may not permit the removal of existing export subsidies and import quotas.

With this in mind, it is important to appraise the extent to which exports have been expanded by subsidies in recent years and the extent to which usual imports have been restricted by quotas to protect domestic price support programs. Most of the present barriers to imports and the current export subsidy programs only offset the special market conditions created by price support programs. If all domestic price supports and limitations of imports were abandoned, imports would not be increased importantly. In some cases they might even decline.

If agricultural price support and control programs were abandoned, prices of several American farm products would drop sharply. Dairy products and wheat prices now substantially above foreign market levels, e.g., would quickly drop, effectively shutting out imports. Even more important, the elimination of price supports and pro-

duction controls might have serious disruptive influences on world price levels. It is probable that domestic prices would fall below current world prices and exports would increase beyond present subsidized levels.

In the longer run it appears that in the absence of domestic price support and production control programs U.S. producers would either continue recent levels of commercial exports of cotton, wheat, tobacco, vegetable oils, and several other products or expand rather than contract them. Hence it is probable that restrictions on agricultural imports, subsidies on commercial exports, and Public Law 480 programs associated with domestic price support have not greatly altered the normal volume of trade in agricultural products. If more extensive and more effective domestic price and income support programs are adopted in the future, it is doubtful that any of the present quotas and subsidies can be discontinued. It may be necessary to add to the present list. However, if care is exercised in the administration of quotas and subsidies in the future, as in the past, normal volumes of imports and exports may be maintained.

INCREASED EXPORTS ALONE WILL NOT SOLVE FARM PROBLEM IN THE 1960'S

Increasing agricultural production is now almost worldwide and is particularly evident in the major food importing and exporting countries of Western Europe, Canada, Australia, and New Zealand. In some lines, such as the production and export of broilers and feed grains, U.S. production costs are sufficiently lower than those elsewhere as to assure expanded exports without subsidy. With farm production in industrialized countries increasing faster than population, opportunities for expanding exports to these countries may be largely in feed grains to support expanded livestock industries, specialty products adding variety to national diets, and nonfood products such as tobacco and cotton.

Less industrialized countries with rapidly expanding economies and populations may be expected to increase commercial imports of a number of products, especially cereals. Foreign-trade specialists, however, foresee only moderate increases in commercial imports of farm products by these countries in the near future. In short, prospects for sharply increased commercial exports of farm products by the United States are not good.

With hunger and malnutrition widespread in the less developed areas of the world, opportunities for expanding Public Law 480 exports might appear almost unlimited. However, without collateral development programs in these countries, this is not the case. Transportation and distribution systems are inadequate to handle greatly increased quantities of food. Governments also are reluctant to accept substantial special imports of food for a few years without assurance with respect to future supplies.

In the longer run, it is probable that most of the increased food in the less-developed areas must come from increased domestic production. These countries must fit food imports acquired under Public Law 480 programs into development plans which assure adequate future food supplies from home production and commercial imports. Expanded imports under Public Law 480 programs might, under some

circumstances, delay and weaken increased home production programs. Responsible governments in underdeveloped countries are unwilling to assume the risks involved in becoming heavily dependent on non-commercial food exports from the United States.

This is not to prejudge the extent to which abundant food supplies in industrialized countries can be utilized effectively to wipe out hunger and malnutrition in underdeveloped areas. Nor does it deny the possibility of increased utilization of abundant foods in speeding economic development in the free world. But there is a definite limit to the quantities that can be used in an orderly manner even in countries where hunger and malnutrition are widespread.

A total of $7.9 billion of farm products (food, livestock feeds, and fibers) have been disposed of in the 5 years of Public Law 480 programs. This rate of disposal was too slow, however, in relation to current production. Even though production was held partially in check by soil bank programs, stocks continued to accumulate. Expansion of Public Law 480 disposal programs sufficient to reduce stocks to desirable levels, without reducing current production or price levels, does not appear feasible.

#### DOMESTIC DEMAND FOR FARM PRODUCTS

The market for all farm products, food and nonfood, is increasing year by year. It is expected to grow only slightly faster, however, than the increase in population in the 1960's. Supplies have been more than ample to meet all market demands for the past 9 years. Consumers have upgraded their diets, substituting animal products for cereals. In recent years, consumption of red and poultry meats increased 24 pounds per capita and consumption of cereal foods declined by an equal amount. An uptrend in the per capita consumption of fresh and frozen fruits and vegetables also is in progress.

Increasingly, food consumption is based on personal preferences rather than on satisfying hunger at least cost. Nevertheless, demand for all food is limited by family income levels and by the physical capacity to enjoy food.

Although Americans would consume larger quantities of the higher priced cuts of meat and fresh and frozen fruits and vegetables if the prices were lower, few would increase their total consumption of food in response to lower prices. As a result of sharply higher weekly wages and only slightly higher retail food prices, expenditures by urban wage earners' families for a fixed basket of farm-produced food dropped from 32 percent of weekly earnings in 1950 to 24 percent in 1959. Food costs in relation to workers' earnings at the beginning of the 1960's are the lowest on record and probably lowest in the world.

Only 10 to 12 percent of the nonfarm population need to spend 40 percent or more of their income for food to achieve an adequate diet. University of Minnesota studies indicate if food purchased by these families were raised to the level of all nonfarm families, market demand for food would be increased only 1 to 2 percent.

Also, fewer than 6 percent of the nonfarm families received incomes of less than $2,000 in recent years—fewer than 4 percent of the people are receiving welfare assistance either from States or under social

security.  More generous food distribution programs for these people, while important to their welfare, would increase food consumption relatively little.

At the present level of economic development in the United States the demand for food increases primarily with the increase in population.  With stable prices, per capita income increases of 10 percent may increase the market demand for food only 1 to 2 percent.

Increases in food supplies in excess of population increases cause sharp farm price declines.  A 5-percent increase in supplies results in farm prices dropping 15 to 20 percent or more.

*Demand for nonfood products limited by substitutes.*—Demand for nonfood products such as timber, cotton, and wool is not limited by physiological needs as in the case of food.  Rather, it is limited primarily by the cost and substitutability of competitive products.  Research carried on by the Agricultural Research Service and the land-grant colleges discovers and develops new uses for farm products.  In 1959 patents were issued on 96 new processes or new products developed by the utilization research staff of the Agricultural Research Service.

Over a period of years, however, farm products have lost ground in competition with products of nonfarm origin.  Forty years ago some 85 million acres of cropland were devoted to the production of feed for horses doing the work now performed by motor power on farms and in cities.  Rayon and other manmade fibers have displaced cotton and wool in many industrial and clothing uses.  Synthetic detergents have displaced farm-produced animal fats in the soap market; industrial products are taking the place of farm-produced drying oils in paints.  Plastics, and paper products from forests, have displaced leather and cotton from farms in many uses.

The goal of farm utilization research—the discovery of new products useful to society—is most commendable.  Research is a long-run activity.  It is important in holding and expanding existing markets for farm products.  New industrial uses for farm products are unlikely, however, to provide large-scale outlets in the near future for farm products now in overabundance.

FARM INCOME WITH PRICE SUPPORTS REMOVED IN THE 1960'S

In the past 7 years an average of $2.2 billion, or 7 percent of total farm marketings, were removed from commercial channels by surplus disposal and storage programs.  If these programs were dropped without replacement by others, farm income would drop several billion dollars.  Projections of farm production, prices and income for 1965 indicate a drop in net income of 36 percent from 1959 and 45 percent from 1958 if production controls and price supports are discontinued.  Prices of the price-supported crops of cotton and wheat would drop 30 to 50 percent.  Prices of the uncontrolled feed grains and livestock also would drop 10 to 30 percent below recent levels.  The index of prices received by farmers would decline 21 percent from 1959.

These projections provide (1) that existing surplus stocks be isolated and disposed of outside usual markets, and (2) that Public Law 480 exports from 1965 production be continued at about recent levels. They also provide for a conservation reserve of 30 as compared with 28.7 million acres in 1960. Marketing quotas for tobacco are assumed to continue.

*Projections assume continued economic growth.*—These projections are estimates of the probable situation in 1965 under specific assumptions. They are not forecasts of expected prices and incomes. The latter would require estimates of probable changes in Government programs. Stability in the international situation and continued upward trends in population, productivity, and real income per capita are assumed. The specific projections for population, disposable personal income, and per capita disposable income which were used in estimating the demand for farm products in 1965 are as follows:

| Year | Population | Disposable personal income (1959 prices) | Per capita disposable income (1959 prices) |
|------|-----------|---------|---------|
|      | (*Millions*) | (*Billions*) |         |
| 1958 | 174.1 | $318.4 | $1,846 |
| 1959 | 177.0 | 337.3 | 1,906 |
| 1960 | 1 180.1 | 1 350.0 | 1 1,943 |
| Projections: |  |  |  |
| 1961 | 2 183.2 | 2 362.4 | 2 1,978 |
| 1962 | 186.2 | 375.0 | 2,014 |
| 1963 | 189.3 | 388.1 | 2,050 |
| 1964 | 192.5 | 401.7 | 2,087 |
| 1965 | 195.7 | 415.9 | 2,125 |

1 Estimated.
2 Projections from S. Doc. 77, 86th Cong.

The projections of prices and incomes for 1965 are based on analyses utilizing an as yet unpublished demand model developed at Pennsylvania State University by George Brandow as a contribution to an interregional policy research project designated in the Office of Experiment Stations as IRM–1.[5] The projections indicate that the expected increased production of crops and livestock in 1965 selling at lower prices would lower cash receipts as compared with 1959.

Allowing for lower feed and livestock prices, and assuming physical quantities and prices of purchased supplies will continue to increase at half their longtime trends, higher production expenses are projected in 1965. Allowing for an expected small decline in commercial farms with sales of $2,500 or more, projected net income per enlarged commercial farm in 1965 would be about 30 percent less than in 1959.

The detailed projections of crop acreages harvested, acre yields, livestock production, prices, exports, cash receipts and production expenses, together with similar data for 1959 are shown in tables 2, 3, 4, 5, 6, and 7, which follow:

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[5] A general description of this model and the analytical methodology involved in its use is presented in appendix A. Comparisons are also made in the appendix between these projections and those made by U.S. Department of Agriculture technicians, reported in S. Doc. 77, 86th Cong., 2d sess., utilizing slightly different assumptions and methods.

TABLE 2.—*Acreage harvested, 1959, and projections for 1965 with price supports and production limitations removed*

[In millions of acres]

| Crops | 1959 | Projected 1965 |
|---|---|---|
| Wheat | 53. 0 | 54. 0 |
| Corn | 84. 6 | 80. 0 |
| Oats | 28. 5 | 26. 0 |
| Barley | 15. 1 | 10. 0 |
| Grain sorghums | 15. 6 | 11. 0 |
| Soybeans | 22. 4 | 26. 0 |
| Rice | 1. 6 | 1. 6 |
| Cotton | 15. 2 | 18. 0 |
| Hay | 69. 4 | 73. 0 |
| All other | 20. 0 | 19. 4 |
| Total, 59 crops | 324. 8 | 319. 0 |

TABLE 3.—*Yield per harvested acre, 1959, and projections for 1965 with price supports and production limitations removed*

| Crops | | 1959 | Projected 1965 |
|---|---|---|---|
| Wheat | bushels | 21. 3 | 25. 0 |
| Corn | do | 51. 5 | 53. 0 |
| Oats | do | 37. 7 | 39. 0 |
| Barley | do | 27. 9 | 32. 0 |
| Grain sorghums | do | 37. 2 | 35. 0 |
| Soybeans | do | 24. 0 | 24. 0 |
| Rice | pounds | 3, 349. 0 | 3, 570. 0 |
| Cotton | do | 465. 0 | 500. 0 |
| Hay | tons | 1. 6 | 1. 7 |

TABLE 4.—*Production, 1959, and projections for 1965 with price supports and production limitations removed*

[In millions]

| | | 1959 | Projected 1965 |
|---|---|---|---|
| **CROPS** | | | |
| Wheat | bushels | 1, 128. 0 | 1, 350 |
| Corn | do | 4, 361. 0 | 4, 240 |
| Oats | do | 1, 074. 0 | 1, 014 |
| Barley | do | 420. 0 | 320 |
| Grain sorghums | do | 579. 0 | 385 |
| Soybeans | do | 538. 0 | 624 |
| Rice | hundredweight | 53. 1 | 57. 1 |
| Cotton | bales | 14. 7 | 18. 75 |
| Hay | tons | 112. 8 | 124 |
| **LIVESTOCK** | | | |
| Cattle and calves, slaughter | pounds | 29, 546. 0 | 34, 149 |
| Hogs, slaughter | do | 21, 442. 0 | 23, 827 |
| Sheep and lambs, slaughter | do | 1, 676. 0 | 1, 615 |
| All chickens | do | 7, 172. 0 | 8, 260 |
| Turkeys | do | 1, 392. 0 | 1, 701 |
| Eggs | dozen | 5, 196. 0 | 5, 699 |
| Milk | hundredweight | 1, 244. 0 | [1] 1, 438 |

[1] For technical reasons involving use of milk for various purposes, projected production may be somewhat too high.

TABLE 5.—*Exports from current production projected for 1965 with price supports and production limitations removed* [1]

|  | Commercial | Public Law 480 | Total |
|---|---|---|---|
| Wheat_____bushels__ | 175 | 275.0 | 450.0 |
| Feed grains_____tons__ | 15 | 0 | 15.0 |
| Rice_____hundredweight__ | 19 | 10.0 | 29.0 |
| Cotton_____bales__ | 7 | 1.5 | 8.5 |
| Soybean oil_____pounds__ | [2] 2,000 | [3] 625.0 | 2,625.0 |

[1] Public Law 480 exports in addition to those listed would be required to reduce surplus stocks now on hand.
[2] Includes oil equivalent of soybeans exported.
[3] Also 160,000,000 pounds cottonseed oil.

TABLE 6.—*Prices received by farmers, 1959, and projected for 1965 with price supports and production limitations removed*

|  | 1959 | 1965 | Percent decline |
|---|---|---|---|
| Cattle_____hundredweight__ | $22.50 | $17.08 | 24 |
| Calves_____do____ | 27.10 | 18.39 | 32 |
| Hogs_____do____ | 14.20 | 10.95 | 23 |
| Sheep and lambs_____do____ | 17.94 | 16.78 | 6 |
| All chickens_____pound__ | .15 | .14 | 7 |
| Turkeys_____do__ | .24 | .19 | 21 |
| Eggs_____dozen___ | .31 | .26 | 16 |
| Milk, wholesale_____hundredweight__ | 4.16 | 3.67 | 12 |
| Corn_____bushel__ | 1.07 | .77 | 28 |
| Oats_____do____ | .62 | .41 | 34 |
| Barley_____do____ | .88 | .62 | 30 |
| Grain sorghums_____hundredweight__ | 1.68 | 1.21 | 28 |
| Wheat_____bushel__ | 1.75 | .87 | 50 |
| Soybeans_____do____ | 2.02 | 1.35 | 33 |
| Rice_____hundredweight__ | 4.79 | 3.49 | 27 |
| Cotton_____pound__ | .32 | .21 | 34 |

TABLE 7.—*Income and production expenses, 1959, and projected for 1965 with price supports and production limitations removed*

|  | 1959 | Projected 1965 | Percent change |
|---|---|---|---|
| Cash receipts from marketings: | *Millions* | *Millions* | |
| Cattle and calves | $7,893 | $7,044 | −11 |
| Hogs | 2,806 | 2,504 | −11 |
| Sheep and lambs | 337 | 268 | −20 |
| All chickens | 1,038 | 1,096 | +6 |
| Turkeys | 329 | 317 | −4 |
| Eggs | 1,489 | 1,420 | −5 |
| Milk and cream | 4,617 | 4,965 | +8 |
| Corn | 1,508 | 1,002 | −34 |
| Other feed grains | 860 | 381 | −56 |
| Wheat | 1,986 | 1,093 | −45 |
| Rice | 224 | 195 | −13 |
| Cotton lint | 2,385 | 2,008 | −16 |
| Cottonseed | 218 | 204 | −6 |
| Soybeans | 952 | 818 | −14 |
| All other | 6,504 | 7,542 | +16 |
| Total receipts | 33,146 | 30,857 | −7 |
| Other income: | | | |
| Government payments | 662 | 662 | 0 |
| Food and fuel used in the home | 1,628 | 1,063 | −35 |
| Rental value of dwellings | 2,012 | 2,012 | 0 |
| Total other income | 4,302 | 3,737 | −13 |
| Total income | 37,448 | 34,594 | −8 |
| Production expenses: | | | |
| Purchased feed | 4,623 | 4,403 | −5 |
| Purchased livestock | 2,727 | 2,260 | −17 |
| Hired labor | 2,929 | 2,929 | 0 |
| Real estate taxes and mortgage interest | 2,025 | 2,600 | +28 |
| All other | 13,855 | 15,200 | +10 |
| Total production expenses | 26,159 | 27,392 | +5 |
| Realized net income | 11,289 | 7,202 | −36 |

The implications of the decline in farm income projected for commercial agriculture are serious. In spite of the isolation of existing surplus stocks, a conservation reserve of 30 million acres, and continuation of Public Law 480 exports from current production, prices for farm products would decline sharply in 1965 in the absence of programs to balance supplies with market outlets available. Producers financially able to make investments in new output-increasing, cost-reducing technologies would attempt to meet the painful cost-price squeeze in this way. Land and capital investment values generally would shrink. Industries and financial institutions serving farmers in the towns and cities would feel the financial pinch in the rural areas. A prolonged period of severely depressed farm incomes adversely affecting all who deal with farmers appears probable if agriculture's full production potential is utilized in the 1960's.

Programs to prevent excessive farm output or increased Government payments appear to be required to prevent further worsening of commercial farmers' incomes in the 1960's. Supply management programs to hold farm output below full capacity are of two types—those which limit inputs of resources, and those which deal directly with market supplies.

No one has seriously proposed placing limitations on development of new technology. The long and uncertain time periods involved in discovering and perfecting production innovations make it impossible to manage market supplies of farm products by varying investments

in technological research.    In fact, from a practical standpoint, crop-
land appears to be the only resource input susceptible of direct man-
agement by Government programs.

Land management programs may be either voluntary or compul-
sory.    They also may be limited to acreages used for specific crops
or they may be applied to cropland without reference to specific crop
acreages.    The tobacco, wheat, cotton, rice, and peanut marketing
quota programs are compulsory land management programs applied
to specific crops.    Producers, by a two-thirds majority, voted to limit
production to allotted acreage of these crops.    In this way they man-
age supplies of the products moving to market.    Producers who over-
plant their allotments are subject to heavy taxes on the extra
production.

When the only inducement for planting within the allotment is an
adjustment payment or the availability of a Government price-
supporting loan (as in the case of the corn program prior to 1959),
it is a voluntary land management program.    The present conserva-
tion reserve program, with Government rental of 28.7 million acres
of cropland for 3- to 10-year periods is also a voluntary land manage-
ment or land retirement program.    It is designed to reduce the aggre-
gate volume of farm products marketed.

Supply management programs which deal directly with market
supplies also have been operated on a limited scale since the 1930's.
They have been applied to fresh fruits and vegetables, tree nuts, and
fluid milk in urban markets.    Market order or direct market supply
management programs, under legislation passed in 1937, among other
things may regulate the grade, size, quality, maturity, quantity, and
rate of shipment of the product from specified production areas to
market.    Marketing orders for specified products are issued by the
Secretary of Agriculture under legislative authorization, when re-
quested by a two-thirds majority of the producers of the commodity.

Three different supply management programs and the use of direct
payments as means of improving commercial farmers' incomes are
analyzed in parts II, III, IV, and V of this study.    Part II is con-
cerned with voluntary land retirement programs.    Part III deals
with improved production controls for the basic commodities and
feed grains.    Part IV analyzes direct management of market supplies.
Part V is concerned with direct payments to farmers.

Analyses of these alternative policies utilize the same basic assump-
tions as were used in making the price and income projections for
1965 with full utilization of resources and price supports removed.
They utilize the same estimates of demand elasticities, livestock feed-
ing rates, yields, and production expense trends.    These analyses are
presented by competent economists as estimates of the magnitude and
cost of alternative programs to achieve specific levels of farm prices
and income for a period in the 1960's centering on 1965.

They are not intended to demonstrate the superiority of one alterna-
tive over others.    Rather, it is expected that farm programs in the
1960's may combine features outlined in several of these alternatives.

# PART II

## VOLUNTARY LAND RETIREMENT

(John A. Schnittker, Kansas State University)

Voluntary land retirement as a means of holding production in check, and therefore, of holding farm product prices above free-market levels in the 1960's, is the subject of this report. Two alternatives are described. One would maintain the 1959–60 price level and price relationships. The second would support the prices of cotton and feed grains near 1959–60 levels, but would price wheat as a feed grain. There are large differences between the two in the location of idled land and in regional income effects.

### GENERAL IMPLICATIONS OF VOLUNTARY LAND RETIREMENT

Land retirement is one of many production control and price support techniques. As described here, it would be a substitute for acreage allotments, marketing quotas, and stock accumulation, all of which support prices now. Land retirement, operating with a price-stabilizing loan and storage program (as assumed here), would continue one serious flaw of earlier programs—the commitment to support the price of "all output from a given acreage." A second major shortcoming in acreage allotment programs to date—failure to reduce total resource use—could be remedied, however.

Land retirement, in effect, introduces a new farm enterprise in competition with others. Since this program would be voluntary, it would have to be more attractive from an income standpoint than production, or it would not be used.

By reducing the supply of land for cultivation, land retirement increases the intensity of competition for agricultural land, especially for farm enlargement. It may increase, or at least support land prices for a given product price level. Whatever the system—whole farms or part farms—it reduces opportunities for farm operation without seriously affecting opportunities to earn income from investment in land.

*Land among farm inputs.*—To maintain the 1959–60 farm price level without adding to stocks would require that farm resource use (thus output) be reduced at least as much as output is now excessive, or by 6 to 8 percent. This prospect—reducing aggregate resource use now, and allowing moderate increases to begin, perhaps by 1964 or 1965—must be faced in all systems of agricultural production control. But land retirement deals directly with resources, while other systems would affect marketings directly and resources indirectly.

Only 15 percent of all farm resources are land and buildings (fig. 4). However, any system of land retirement will reduce not only land use, but also labor, fuel, and machinery use.

Whatever the method of administration of a land retirement program or the location of idled acreage, the volume of business of farm suppliers must fall if output is to be cut significantly. Clearly, contracting entire farms would remove labor and capital from agricultural production and would minimize the possibility of more intensive practices on remaining lands held by others. Other things being equal, idling entire farms would minimize the effect on land remaining in cultivation and increase the impact on farm supplies, whatever the scope of the program.

Contracting part farms would leave open two immediate possibilities to offset reduced acreage. First, fertilizer and other resource use per acre might be increased on farms where capital had been limited. Second, where machinery or labor had been limited, cultivation or labor use per acre might be increased. Both possibilities would increase the acreage which would have to be retired to achieve any price support level.

FIGURE 4.—Major input groups in agricultural production.

PERCENTAGES OF TOTAL INPUTS
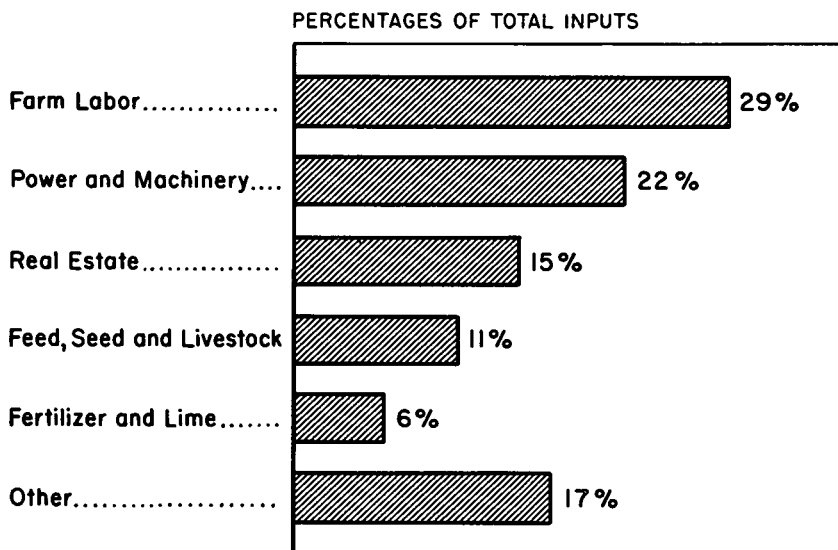


Source: Agricultural Research Service, U.S. Department of Agriculture.

Because resource use per acre would increase in a part-farm land-retirement program, the effect on land use would be greater and that on farm supplies smaller than if entire farms were idled, for any net reduction in output.

Declines in consumer spending—apart from production expenditures—in rural communities would probably be greater if entire farms were contracted, since former operators might change residence. But if substantial and rather uniform shares of cropland were retired across the country in the 1960's, expenditures for farm supplies would decline somewhat whether entire farms or part farms were contracted. We should not, for example, expect to see important differences between 2 counties, one with 10 percent of cropland idled on all farms and the other with 1 (average) farm in 10 completely idle.

*Duration of land retirement.*—Public demands for reduced farm output and higher farm prices arise out of agriculture's great output potential and full use of it.

As pointed out in part I, a large backlog of farm technology almost assures excessive production in the 1960's if prices are as high as in 1960 or even somewhat lower. To maintain current price and income levels, land retirement must be considered as a long-range program, not a temporary expedient.

### FARM PRODUCTION AND PRICES WITHOUT PRODUCTION RESTRICTIONS

As outlined in part I, with no restraints on farm production and no accumulation of farm commodity stocks by the Federal Government, farm output would increase, its composition would change, and prices and incomes would decline sharply in the early 1960's.

Those were short-run estimates; they assume an agricultural economy geared for high production, using its resources fully through several unfavorable years. Capital losses, farm consolidation, and reduced resource use would surely follow at some time.

Whatever the nature and timing of adjustments which might occur in 5 or 10 years, there is little reason to expect returns to farm resources during the 1960's to be as high as in the late 1950's. If improved methods of production and farm credit remain available, any substantial improvement in prices and incomes would set off a new tendency toward greater output and lower prices.

### A PROGRAM TO MAINTAIN 1959–60 PRICES

Two voluntary land retirement programs are discussed below. One would maintain prices near 1959–60 levels; the other would raise average prices slightly but permit wheat to sell at feed prices. Stock accumulation would end under either.

To maintain roughly 1959–60 prices would require that land retirement be located much like acreage allotments in the 1950's, but that it be more extensive. It would focus on wheat and cotton directly and on feed grains indirectly. Acreages and production would be about as in table 8.

TABLE 8.—*Acreage harvested and production with retired land concentrated in wheat and cotton regions to hold prices near 1959–60 levels* [1]

[In millions]

| Crops | Acreage harvested | | | Production | | | |
|---|---|---|---|---|---|---|---|
| | 1959 | 1960 | Pro-jected, 1965 | Unit | 1959 | 1960 | Pro-jected, 1965 |
| Corn | 84.6 | 83.7 | 82.0 | Bushel | 4,361 | 4,379 | 4,320 |
| Oats | 28.5 | 27.4 | 25.0 | ___do___ | 1,074 | 1,178 | 1,053 |
| Barley | 15.1 | 13.9 | 9.0 | ___do___ | 420 | 415 | 288 |
| Grain sorghum | 15.6 | 15.3 | 7.0 | ___do___ | 579 | 618 | 245 |
| Total feed grains | 143.8 | 140.3 | 123.0 | Ton | 165.6 | 168.7 | 152 |
| Wheat | 53.0 | 53.0 | 44.0 | Bushel | 1,128 | 1,368 | 1,100 |
| Cotton | 15.2 | 15.5 | 14.4 | Bale | 14.7 | 14.3 | 14.4 |
| Rice | 1.6 | 1.6 | 1.4 | Hundredweight | 53.1 | 53.6 | 50.0 |
| Soy beans | 22.4 | 23.6 | 23.0 | Bushel | 538 | 560 | 550 |
| Peanuts | 1.5 | 1.4 | 1.4 | Pound | 1,602 | 1,766 | 1,680 |
| Tobacco | 1.2 | 1.1 | 1.1 | ___do___ | 1,800 | 1,952 | 1,900 |
| Flaxseed | 3.1 | 3.4 | 2.7 | Bushel | 22.7 | 30.6 | 24.3 |
| Hay | 69.4 | 69.6 | 70.0 | Ton | 112.8 | 119.0 | 119.0 |
| Subtotal (8 crops) | 167.4 | 169.2 | 158.0 | | | | |
| Total (12 crops) | 311.2 | 309.5 | 281.0 | | | | |
| Other | 13.7 | 12.0 | 10.0 | | | | |
| 59 crops | 324.9 | 321.5 | 291.0 | | | | |
| Soil bank | 22.4 | 28.7 | 59.4 | | | | |
| Grand total | 347.3 | [2] 350.2 | 350.3 | | | | |

[1] Assumes average productivity on cropland retired, except for present conservation reserve.
[2] About 3 million acres not harvested in 1959 apparently were in 1960 soil bank.

Prices in the 1950's were favorable to greater wheat and cotton production than was possible with acreage allotments enforced by marketing quotas. Land diverted from wheat, cotton, and corn in 1953 was put to other crops also under price support and in excess supply. These diverted areas would have to be idled so that as acreage controls were lifted producers would not return to preallotment patterns of production.

In addition, acreages which have produced additions to stocks since 1953 would have to be retired. Wheat, cotton, and feed grains are involved here. Resources diverted to maintain the price of one commodity could not be transferred to production of another as in the 1950's.

A reasonable point of departure for this land-retirement program, if enacted in 1961 for 1962 and subsequent crop years, would be to begin regional land retirement concurrent with the end of allotments, so that preallotment patterns would not reappear. It is assumed that the conservation reserve, of 28.7 million acres of somewhat below average quality land including little wheat or cotton land, would be continued.

*Wheat.*—With 1959 prices (table 9) but no acreage allotments, 75 million acres or more would be planted to wheat, and perhaps 67 to 70 million acres harvested in 1965. Such a harvest would depress wheat prices severely unless stocks increased. Enough land would have to be retired, therefore, where wheat growing is most advantageous at stated prices, so that only 50 million acres remained in those

areas to be planted to wheat (44 million acres or 1.1 billion bushels harvested; appendix B, table A.)

TABLE 9.—*Prices received by farmers, projections under no controls and under two land retirement programs, with comparisons*

| Commodity | Unit | Average, 1955-57 | 1959 | No production control programs | 59 million acres retired land concentrated in wheat and cotton areas | 48 million acres retired land distributed among all grain and cotton areas |
|---|---|---|---|---|---|---|
| Livestock: | | | | | | |
| Cattle | Hundredweight | $15.90 | $22.51 | $17.08 | $18.30 | $19.22 |
| Calves | ___do___ | | 27.10 | 18.39 | 19.61 | 20.53 |
| Hogs | ___do___ | 15.70 | 14.20 | 10.95 | 13.85 | 16.44 |
| Sheep and lambs | ___do___ | | 17.94 | 16.78 | 18.02 | 18.97 |
| Milk, wholesale | ___do___ | 4.12 | 4.16 | 3.67 | 4.10 | 4.32 |
| Eggs | Dozen | .38 | .31 | .26 | .32 | .37 |
| Broilers | Pound | .21 | | .15 | .18 | .21 |
| Turkeys | ___do___ | | .24 | .19 | .23 | .27 |
| Crops: | | | | | | |
| Corn | Bushel | 1.25 | 1.07 | .77 | 1.00 | 1.23 |
| Oats | ___do___ | .66 | .62 | .41 | .53 | .65 |
| Barley | ___do___ | .95 | .88 | .62 | .80 | .98 |
| Sorghum grain | Hundredweight | 1.93 | 1.68 | 1.21 | 1.57 | 1.93 |
| Wheat | Bushel | 1.96 | 1.75 | .87 | 1.75 | 1.35 |
| Rice | Hundredweight | 4.93 | 4.79 | 3.49 | 4.42 | 4.42 |
| Cotton | Pound | .31 | .32 | .21 | .28 | .28 |
| Soybeans | Bushel | 2.16 | 2.02 | 1.35 | 2.23 | 2.36 |
| Peanuts | Pound | .11 | | | .10 | .10 |
| Cottonseed | Ton | 49.70 | | 28.29 | 55.33 | 59.54 |

This would require that up to 17 or 18 million acres, diverted from wheat chiefly to feed grains after 1953, be idled. Otherwise, the land would be planted to wheat. In addition about 8 million harvested acres (of average quality of the land producing wheat in the late 1950's), the recent average acreage producing wheat for stocks, would also need to be retired. This would leave 50 million acres of the 75 to 80 million acre wheat base of 1953 available to be planted to wheat.

The larger acreage to be retired is now mostly in feed grains. It might reasonably be distributed among regions and farms according to wheat planted for 1953 harvest (the last preallotment harvest), or from a similar preallotment base. Acreages to be retired, based on 1953 wheat planted by States, are in appendix B, table D, column 2. Seventy-two percent of this land would be in the Northern and Southern Plains States where wheat production is concentrated.

Eight million acres currently producing wheat for stocks are located chiefly in the Southern and Central Great Plains and the Western corn belt, which makes up the Hard Red Winter wheat belt. Most recent stock additions have been of that class of wheat. There is some logic but little practical appeal in concentrating land retirement in the Hard Red Winter wheat area, rather than distributing it over all wheat growing regions. Further, concentrating land-use changes in the Plains would tend to be compatible with widely accepted, but not unanimous, public views on the longrun future of cultivation in the Plains.

Farm program history, however, points away from a refinement such as retiring acreages (or allotting them) by classes of wheat. The Great Plains would be seriously affected by the concentration of idled land shown in appendix B, table D. With 23 percent of North Dakota cropland idled, for example, many counties with large wheat

acreages would have more than one-third of all cropland idle. The 8 million acres (about 160 million bushels) to be retired, were distributed among States according to shares of production in 1950–59, weighted by average yields.

*Cotton.*—The land use problem for cotton is similar to that for wheat. Twenty-four million acres were harvested in 1953. But it is estimated that only 20 million acres would be harvested in the 1960's at prices assumed here, and without acreage allotments. Only 5 million acres of 8 or 9 million diverted from cotton since 1953 need be retired in a program supplementary to the conservation reserve, therefore, to assure a harvest geared to demand at 1959 prices. This diversion, based on 1950–59 production and yield history, falls heavily on the Southern Plains and the Southeast.

Since the trend in cotton production is westward, table D may show acreages which would be retired in the Southeast to be larger than the increase which could be expected in cotton acreage if allotments were ended with prices as in table 9. Similarly, acreages to be retired in the West might need to be larger than shown, if cotton production is to be held between 14 and 15 million bales (acres) in the 1960's.

Total land retirement by States and the percentages retired of all cropland used for crops in this program, including the 1956–60 conservation reserve, the two wheat area diversions, and the cotton area diversion described below are in appendix B, table D.

*Major implications of a land retirement program to maintain 1959–60 prices.*—Acreage in the conservation reserve or soil bank would be increased from 28.7 million acres in 1960 to 59.4 in 1965. The burden of land-use adjustment would fall heavily on the Northern Plains, with 18 percent, and the Southern Plains with 26 percent of cropland idled. It would scarcely touch the corn belt, except for wheat-growing areas there. Feed grain production would be cut by retiring land diverted to feed grains after 1953 in the Plains and the Cotton Belt. This pattern of land retirement would be the result of trying to maintain wheat and cotton prices near present levels by land retirement alone.

Failure to concentrate contracted acreages even more heavily in the Hard Red Winter wheat belt would leave open the possibility that the composition of wheat production would be unchanged from the late 1950's, and that hard winter wheats would continue to be in excess supply. Requiring (or attracting) proportional participation of wheat producers in Soft Red and White regions would raise the possibility of temporary shortages of those classes. However, higher market prices for those classes might speed the shift from hard to soft wheats in some areas.

The 13 million ton decrease in feed grain output from 1960 would come from idling about 9 million acres largely in the Plains which were turned to sorghum grain and barley after 1953, 6 million acres in the Plains and Northwest which were planted to barley after 1953, some contracting of wheatland diverted to rye, flax, and oats after 1953, and from idling 5 million acres diverted from cotton partly to grains in 1954. A small decline in soybean acreage would also be expected.

Farm product prices to be expected with such a land retirement program are shown in table 9, column 4, and cash receipts from

marketings and net farm income estimates under the conditions de-scribed, are shown in table 10.

TABLE 10.—*Cash receipts, production expenses and net farm income under 2 land retirement programs*

| | 59 million acre program to maintain 1959–60 prices (millions) | 48 million acre program to hold prices except wheat slightly above 1959–60 (millions) |
|---|---|---|
| Cash receipts | $34, 154 | $35, 275 |
| Government payments | 1, 700 | 2, 100 |
| Value home used product | 1, 250 | 1, 325 |
| Rental value dwelling | 2, 012 | 2, 012 |
| Gross income | 11, 115 | 40, 712 |
| Expense: | | |
| Feed | 4, 586 | 4, 758 |
| Livestock | 2, 386 | 2, 480 |
| Labor | 2, 929 | 2, 929 |
| Property tax and interest | 2, 600 | 2, 600 |
| All other | 15, 200 | 15, 200 |
| Total | 27, 701 | 27, 967 |
| Net income of farm operators from farming | 11, 415 | 12, 745 |

*Treasury cost.*—Cost estimates are based on experience with the conservation reserve and on research studies showing that payments per acre to make land retirement attractive may need to be, on the average, about 60 percent of expected gross income.[6]   These costs would be applicable whether producers were compensated out of public funds or by payment "in kind" from commodity stocks.   The cost for the programs discussed can be estimated under four headings.

1. Estimated acreages and costs of continuing the 1960 conservation reserve under existing contracts:

| Calendar year | Contracted reserve acreage (million) | Rental obligation (million dollars) |
|---|---|---|
| 1960 | 28. 7 | 339. 5 |
| 1963 | 25. 2 | 301. 0 |
| 1965 | 14. 0 | 156. 2 |

If there were, as expected, a substantial return of contracted acreage to cultivation as present contracts expire, the declining cost shown would not materialize.   New acreages would have to be contracted to replace expirations if production were to be held down, and costs would continue at near $300 million a year.

2. Cost of retirement of 17.5 average quality acres in wheat regions would be based on prospective returns from continued feed-grain production or on expected returns from wheat.   About 13 to 15 million tons of grain production would have to be forestalled in either case. At $36 per ton for grain ($1 corn), average rental would be about $22 per ton or, $19 per acre; about $330 million a year would retire the acreage on a short-time basis.   If cost were based on the prospect of

producing wheat at $1.80 per bushel, it would be nearly twice as high.

3. For 8 million (average) acres now in wheat, the cost of land retirement would be about $220 million a year.

4. An average rental rate of about $80 per acre would be required to avoid production of 5 million acres (or bales) of cotton in 1965, with cotton at $0.28 per pound ($140 per bale). The cotton program would thus cost $400 million per year.

Total cost for annual rental payments, to idle 59.4 million acres of average quality in stated areas plus continuing the 1960 conservation reserve would be:

|  | *Millions* |
|---|---|
| Conservation reserve | $300 |
| Diverted wheat acres | 330 |
| Excess wheat acreage | 220 |
| Diverted acres (cotton) | 400 |
| Total | 1, 250 |

Cost might be lower if whole farms were contracted and higher if part farms were required. If 60 percent of gross value of output were not attractive enough to contract the necessary acreage in stated regions voluntarily, rates and costs would have to be increased.

Administration and assistance in establishing permanent cover on retired acres would be additional costs. Also, small programs to prevent expansion of rice, tobacco, and peanut acreage would be necessary. Total cost might exceed $1.5 billion a year.

*Costs in relation to past program costs.*—Presumably no net acquisitions of farm commodities would take place in this program. Recently acquisition costs have ranged from $2.2 to $3.3 billion a year when prices were somewhat above those assumed here. Storage, handling, transportation, and interest have ranged from $800 to $1,400 million per year recently.

Ultimately, most of those costs would be avoided by a land retirement program continued long enough to end acquisitions of stocks. At least on the basis of budget costs, land retirement appears to be a superior alternative to present programs. But its costs would be expected to increase over a period of years.

*Consumer costs.*—Food prices would not rise as a result of such a program, since farm prices would not be increased.

### A PROGRAM FOR SLIGHTLY HIGHER AVERAGE PRICES—ALLOWING LOWER WHEAT PRICES

Maintenance of wheat and cotton prices dictated the land retirement pattern just discussed. Now a program is outlined with a regional economic impact roughly the same as the distribution of production of feed grains, wheat, and cotton. The objective would be to maintain the corn price slightly above the 1959 level, with other grains at comparable price levels. Cotton would be near present prices. Rice and

peanut prices could be held near 1959–60 levels by modest land retirement. It is assumed that the conservation reserve ended and that most of that acreage returned to cultivation.

Critical questions on which one can only speculate now and experiment later are: (a) Would producers cultivate as much land, especially in wheat areas, as with higher wheat prices? (b) Would other resource use be reduced significantly when producers faced the prospect of selling wheat at feed prices? If the answer to the first question were affirmative, land abandonment would supplement land retirement in reducing farm output. If the second answer were "Yes," yield projections for wheat might be lower than were projections with a higher price.

Since average prices would be up slightly, it is expected that little land would be abandoned. Second, it is assumed that the wheat yield per acre would be only 23 bushels, not 25 as with wheat at $1.80 per bushel and a smaller acreage. For crops like corn, higher yields per acre might be expected, with higher prices and smaller acreages. However, yield assumptions were not raised. Land retired is again assumed to be of average quality.

*Acreages and production.*—Feed grains, wheat, and cotton cover 75 percent of all land used for crops excluding hay. These acreages would be cut back proportionally. However, with acreage allotments ended, there might be a change from 1959–60 in composition of farm output, especially an increase in wheat production.

In this situation, all grain could be treated about as a single commodity subject to the restriction that wheat production would need to be at least 1.1 billion bushels or 33 million tons (domestic consumption and export; app. B, table A). With that condition met, it would matter little whether wheat replaced feed grains in the Plains or not, since whatever the grain, it would sell on the feed-grain market.

The grain supply which would maintain the corn price near $1.25 per bushel, wheat near $1.35, and average farm prices up a little from 1960 would be:

|  | Million tons |
|---|---|
| Feed grains (including wheat) | 140 |
| Wheat (for food and export) | 33 |
| Total | 173 |

Grain production from a projected 209 million acre harvest, if there were no acreage limits, might be near 217 million tons, including 50 million tons of wheat (table 11). If 20 percent of average quality land were retired as assumed, the remaining acreage would provide wheat for food and export, and 140 million tons of grain, including 9 million tons of wheat, for feed. Total acreages and production of major crops are shown in table 11. Only grain, and ultimately, livestock output would differ materially from what was indicated in the previous discussion.

TABLE 11.—*Harvested acreage and production: Projections for 1965, with comparisons*

| | Actual acreage, 1960 | Estimated acreage without controls or soil bank[1] | With 48 million acre land retirement program[2] | |
| --- | --- | --- | --- | --- |
| | | | Acreage | Production |
| | *Millions* | *Millions* | *Millions* | |
| Corn_____ | 83.7 | 85.0 | 68.0 | 3,672 bushels. |
| Oats_____ | 27.4 | 30.0 | 24.0 | 936 bushels. |
| Barley_____ | 13.9 | 12.0 | 9.6 | 307 bushels. |
| Grain sorghum_____ | 15.3 | 12.0 | 9.6 | 336 bushels. |
| Wheat_____ | | | 56.0 | 1,288 bushels. |
| Total feed grain_____ | 140.3 | 139.0 | 167.2 | 173.2 tons. |
| Wheat_____ | 53.0 | 70.0 | _____ | |
| Cotton_____ | 15.5 | 18.0 | 14.4 | 14.4 bales. |
| Rice_____ | 1.6 | 1.6 | 1.4 | 50 hundredweight. |
| Soybeans_____ | 23.6 | 24.0 | 24.0 | 576 bushels. |
| Peanuts_____ | 1.4 | 1.9 | 1.4 | 1,680 pounds. |
| Tobacco_____ | 1.1 | 1.2 | 1.1 | 1,900 pounds. |
| Flaxseed_____ | 3.4 | 3.1 | 3.1 | |
| Hay_____ | 69.6 | 72.0 | 70.0 | 119 tons. |
| Total, 8 crops_____ | 169.2 | 191.8 | _____ | |
| Total, 12 crops_____ | 309.5 | 330.8 | 282.6 | |
| Other_____ | 12.0 | 16.0 | 16.0 | |
| 59 crops_____ | 321.5 | 346.8 | 298.6 | |
| Soil bank_____ | 28.7 | _____ | 48.0 | |
| Grand total_____ | 350.2 | 346.8 | 346.6 | |

[1] Prices near 1960 levels.
[2] Average quality land.

Smaller total output and a different composition of output of grains are major differences between the two programs. Another is that land retired, located heavily in the plains and Southwest in the first program, would fall heavily in the Midwest in the second (app. B, table E). One-third of all land idled would be in 8 Corn Belt States compared with 17 percent earlier; 40 percent would be in the northern and southern plains compared with 60 percent in the other program.

Two factors account for the larger harvested acreage, yet lower production projected in this program than in the other program. In the first program, half the total idled acreage was from the 1960 conservation reserve program, which included land of below average quality. Output reduction from that program was small—crop production was cut less than 3 percent in 1959 even though 7 percent of all cropland was idled. Also, the 30 million additional acres to be idled in the first program described were "average quality" land in wheat and cotton areas, where grain production per acre is far below 1 ton. Land retired in the second program is estimated to yield near 1 ton per acre.

*Program cost.*—Cotton production would be at the same level as in the other program, and land retirement in cotton regions would be at the same cost. Grain output would be reduced by about 27 million tons from 1959, and 12 million tons below the other program.

Rental payments each year should be expected to cost about $1.2 billion for grain land and $400 million for cotton acreage, or a total of $1,600 million for contract payments alone. Administrative and practice payments would be additional. Cost would vary somewhat depending on whether 48 million average quality acres were idled as assumed, or whether, for example, twice that acreage of much lower

quality land were contracted. Total costs near $2 billion a year might be expected for many years. These would be in lieu of higher present expenditures in loan and purchase programs.

In a longer run context, costs to maintain reduced acreages in either situation would rise or decline over time depending on the trend in yields per acre. Yield gains as large as recorded in the late 1950's may require larger acreages to be retired after 1965 than before, to maintain farm prices.

If such a situation is expected, serious consideration might be given at the start to long-term purchase of certain crop production rights on contracted land, by a lump-sum payment at the beginning of the contract period.

*Payment in kind.*—This second program would reduce grain production 45 million tons from expected production with full utilization of resources at 1960 prices. Producers might be compensated partly with grain from CCC stocks—say 10 million tons a year plus cash payments. But this would simply push the feed grain supply above 140 million tons, and make it necessary to idle 10 million more acres to hold prices at levels indicated in table 9.

### PRICES AND INCOMES

Aggregate price and income levels under either program would be near 1959–60 levels. In the first program, the distribution of income among regions would also be similar to the present, since prices would be unchanged, and producers with idle land would be compensated.

In the second program, gross income from wheat would be $400 million less than in the former and net income would be down substantially. Producers retiring wheat land would be compensated at reduced rates because of the lower wheat price. Hence, in the second program, specialized wheat areas would receive a smaller share of total farm income than in the former.

### ADMINISTRATIVE ARRANGEMENTS

If land retirement as a production control and price support device is to be useful, yet is to be voluntary, the program must bid against alternative uses of land, for genuine commercial farmers as well as for those wanting to retire or work in town.

Under either situation described here, or any combination between those extremes, land can be contracted only by making nonuse attractive. Retired acreages as large and as concentrated as considered here would require that more than one-fourth of all farms in many areas be completely retired, or that 10 to 25 percent of the cultivated land on every farm in many areas be retired.

The first program, whatever the price level intended, would concentrate retired land partly in the plains and in the subhumid Midwest. In either area, grass is the only feasible permanent cover. Yet grazing land can be cultivated at small cost, and so long as prices are maintained, even at levels somewhat below prices assumed here, this land would return to cultivation in the absence of a continued land retirement program.

Given an expectation of continued demands for price support and sharply rising yields per acre of crops, the most suitable long-run land

retirement approach appears to be the contract of whole or part-farms for nonuse for a brief period, but to require that the acreage so contracted be prohibited from certain uses indefinitely.

*Compliance and inspection.*—In computing acreages to be idled, it was assumed that land contracted would be of average quality. The acreage estimates of tables D and E are meaningful only with that qualification, and for the stated regional patterns. This requirement has not been used widely in any U.S. land retirement program. It probably would not be administratively feasible.

In practice, then, the acreage idled in either situation would have to be much greater than shown to achieve the required production decreases. Actual acreage idled would depend on the ratio of expected average yields on idled acreages to average yields.

### LAND RETIREMENT IN RETROSPECT

Extensive retirement of cultivated agricultural land has had three trials in the United States. All were designed chiefly as temporary expedients to reduce farm output and raise farm prices. All fell short of expectations. We have not yet had our heart in it in the United States.

In 1933, certain crop acreages were reduced, and for a time, virtually no harvesting from contracted acreage was permitted. In 1936 and 1937, payments were offered for reduction in soil-depleting acreages, and for increases in soil-conserving crops. There were no restrictions on harvesting.

The acreage reserve of the soil bank (1956–58) was to reduce output temporarily while wheat, cotton, and corn stocks were reduced. Lower prices and longer term land retirement were to restrain farm output when acreage reserve land was returned to cultivation. Grain stocks were near record levels when the acreage reserve was ended. The task of reducing farm output then fell to the conservation reserve, first directed at lands most needing conservation measures, not at production control.

### SUMMARY

To hold farm prices at 1959–60 levels by land retirement alone would require concentration of idle land in wheat and cotton regions. Farm incomes there and elsewhere could be maintained, but the community impact would be severe.

Any other land retirement plan not supplemented by acreage limitations would fail to hold wheat production low enough to maintain the present wheat-corn price differential. Thus, land retirement spread proportionally on all land in major crops would have a more serious impact in Cornbelt communities than the first example, and less serious in the plains. But income in the plains and other wheat regions would be a little less favorable, because of lower wheat prices.

Either program could cost near $2 billion a year with annual costs increasing over time under some administrative arrangements. Each should be less costly than present acquisition and storage programs.

# PART III

## IMPROVED PRODUCTION CONTROL FOR BASIC COMMODITIES—VOLUNTARY LAND RETIREMENT OF FEED GRAIN ACREAGES

### (Dale E. Hathaway, Michigan State University)

The program discussed in this section assumes that the first step in improving our agricultural policy requires an ending of the continued accumulation of CCC stocks of wheat, rice, cotton, tobacco, peanuts, and feed grains. In order to achieve this, it is assumed that the output of five basic commodities—cotton, wheat, rice, peanuts, and tobacco—would be subject to production or marketing controls which would effectively bring output in line with expected annual disappearance.

The difficulties of applying similar controls to the feed-livestock economy are recognized; and, therefore, three different situations are discussed in conjunction with the aforementioned controls for the basic commodities. They are: (1) No production controls or direct price supports beyond those for basic commodities; (2) a voluntary land retirement program for feed grains sufficient to reduce feed grain output about 10 percent from 1960 levels (to about 150 million tons); and (3) a voluntary land retirement program for feed grains sufficient to reduce feed grain output about 15 percent below 1960 levels, or to about 140 million tons.

All of the situations discussed in this section start with the same basic assumptions regarding the programs which would be maintained in conjunction with the price support programs.

First, it is assumed that the current level of price supports will be maintained for the five controlled crops and thus that the export subsidy and Public Law 480 programs would be required at about the present levels for wheat, cotton, rice, peanuts, and tobacco. Also, it is assumed that a Public Law 480 program would be continued at about present levels for soybean oil and cottonseed oil.

Second, it is assumed that a conservation reserve of 30 million acres would be continued, with the acreage in the program distributed about as at present.

Third, it is assumed that the present stocks of commodities held by CCC would be isolated from commercial markets so that any stock reduction would come via programs beyond the export programs mentioned above.

Finally, it is assumed that while CCC might offer price stabilizing loans, the program would be operated so that there would be no increase in stocks held by CCC.

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ASSUMPTIONS REGARDING DOMESTIC CONSUMPTION AND EXPORTS OF
CONTROLLED PRODUCTS

The amount of wheat, cotton, rice, tobacco, and peanuts that would
be needed in 1965 under such a program rests partially upon the as-
sumptions relating to the level of domestic consumption and of exports
of these products. Therefore, it seems pertinent to briefly review
these assumptions. It was assumed that the per capita consumption of
wheat in 1965 would remain at approximately 1959 levels, which would
mean an ending of the long downtrend in per capita consumption of
wheat in the United States. Under such conditions, approximately
538 million bushels of wheat would be required for domestic food in
the United States by 1965. In addition, another 50 million bushels of
wheat would probably be needed for seed. Also, it was assumed that
some wheat would be fed on farm where it was raised and used in
mixed feed, and that these uses would continue at about the present
low levels since the price of wheat would be maintained high relative
to its feed value and to the price of other feed grains. The export
level for wheat was assumed to be about 450 million bushels, which
probably would require the continuation of Public Law 480 programs
at about the level of recent years. Altogether, the assumption is that
about 1.1 billion bushels of wheat would be needed in order to meet
these expected domestic and export demands. However, in order to
dispose of this much wheat annually, special export programs and
export subsidies would still be required for all of the wheat exported
from the United States.

The 1965 per capita consumption of cotton was projected at 24
pounds per person. This also is about the 1959 consumption level
and represents an end to the recent downtrend in domestic cotton con-
sumption. Taking into account the projected population growth, this
means that slightly more than 9 million bales of cotton would be con-
sumed in the domestic market. In addition, it was projected that
net exports of cotton would amount to 5 million bales annually. Since
this figure exceeds expected commercial exports, it is assumed that
some kind of subsidized export program and/or a Public Law 480
program would be continued in order to maintain this level of net
exports for cotton.

The per capita consumption of rice was also projected at about the
1959 level. This, taking into account the projected population
growth, would mean that the total domestic consumption of rice
would approximate 30 million hundredweight in 1965. The export
of rice was projected at 20 million hundredweight, which is approxi-
mately at the average level of recent years and would require the
continuation of the special programs that have been necessary in
order to achieve these exports.

In general, the assumptions relating to domestic consumption of the
price-supported products tend to be on the optimistic side. For most
of these products, domestic per capita consumption is projected at
about 1959 levels, whereas there has been a moderate downtrend
in the consumption of several of these products over the past dec-
ade. Turning to exports, in general it has been assumed that the
exports will continue at the high levels that have been achieved under
special programs in recent years. This, of course, assumes that some

kind of special export programs for wheat, cotton, rice, tobacco, and peanuts will be maintained.

It was assumed that the stocks now held by CCC would either move out under special export programs in excess of the export levels mentioned above, or that the stocks would be used to provide a special defense stockpile of food. Looking ahead, it seems improbable to assume that we will achieve farm income levels high enough so that it will be feasible to return the stocks now held by CCC to the commercial market in the near future. Therefore, the price and income estimates for this program were made assuming that these stocks would be isolated from the present markets but that no further stocks would be accumulated.

## THE IMPACT OF A PRICE-SUPPORT AND PRODUCTION-CONTROL PROGRAM LIMITED TO FIVE BASIC CROPS

In order to reduce the production of wheat, cotton, rice, tobacco, and peanuts to the levels which would bring their output in line with annual disappearance, it is assumed that some kind of quantity production controls would be placed upon these commodities. These would consist of bushel quotas for the grains and poundage quotas for the other controlled crops. These quotas are assumed to be allocated to States, counties, and farms in approximately the same manner as are the present marketing quotas for these crops; i.e., using historical acreage as a base. The difference, however, would be that the farmer would be allocated a maximum sales quota rather than an acreage allotment.

The allocation of sales quotas on the basis of historical acreage allotments would create some problems, particularly in wheat. The present stocks of surplus wheat are not distributed equally among classes of wheat since most of the current excess production is of Hard Red Winter wheat. Also, the 15-acre exemption has allowed wheat producers in the humid regions to maintain output of certain types of wheat by planting in excess of their acreage allotments. The application of across-the-board cuts from acreage allotments thus will create many problems of equity between regions. Any decision as to how to apply quantity quotas ultimately must be a political decision. Since the way in which the reductions are achieved would have relatively little effect upon total U.S. agricultural income and prices, a flat percentage reduction from present acreage planted was assumed.

Under a program which applied quantity controls to wheat, cotton, rice, tobacco, and peanuts, farmers probably would reduce the acreage planted to those controlled commodities to levels which would approximately produce the output to fill their marketing quota. A storage program would be required for controlled commodities to allow farmers to store excess production arising from unexpected variations in yield. Excess production in one year could then be counted against their crop production quotas in a future year. Thus, over 2 or more years production and disappearance would be approximately in balance, and there would undoubtedly be a reduction in the average acreage planted to the controlled and price-supported commodities.

In the first situation, it is assumed that the price supports for all other commodities would be ended and that crop acreage could be used as farm producers saw fit.   The rationale for such a program runs as follows:  the commodities having quantity controls—wheat, cotton, rice, peanuts, and tobacco—are commodities for which the domestic demand for human consumption is highly inelastic and which depend partially upon export markets.   Excessive production of these commodities drives prices very low in the absence of price-support programs.   However, price-support programs without quantity quotas have allowed continued stock buildups by CCC despite extensive foreign disposal programs.

Therefore, in order to reduce excessive program costs and prevent stock accumulations, quantity quotas would be used to bring the annual production of wheat, cotton, rice, and peanuts in line with the expected annual disappearance.   The rest of the farm production plant presumably would then be used to produce commodities which are largely consumed in the United States and for which the elasticity of demand in the domestic market is somewhat higher.

Under such a program, most of the land taken from the controlled crops would be diverted to the production of feed grains and soybeans.   This is because the anticipated reduction in acreage under such a program would be largely acreage that is now planted to wheat. Over the area where most of the wheat is grown, the best alternative for wheat is either feed grains or soybeans.

With a program where production controls and price supports were applied only to the basic crops, it is anticipated that the land-use patterns would be approximately those shown in table 12.   It can be seen in table 12 that the diversion of land from wheat is assumed to go primarily to the production of feed grains.   The diversion of wheatland in the Corn Belt was assumed to be about equally divided between additional acreage in corn and in soybeans.   The acreage diverted from the production of rice, cotton, and peanuts was assumed to be diverted to the production of feed grains and to minor specialty crops.   It was also assumed that some of this land might be retired from agricultural production.

TABLE 12.—*Acreage planted and harvested: Projected acreage in 1965 with price supports and controls on only the 5 basic crops compared with 1959 and 1960*

[In million acres]

| Crops | Actual | | | | Projected 1965 | |
| --- | --- | --- | --- | --- | --- | --- |
| | 1959 | | 1960 | | Planted | Harvested |
| | Planted | Harvested | Planted | Harvested | | |
| Corn | 85.5 | 84.6 | 84.8 | 83.7 | 85.5 | 83.9 |
| Oats | 36.1 | 28.5 | 33.1 | 27.4 | 33.0 | 26.9 |
| Barley | 17.0 | 15.1 | 15.8 | 13.9 | 17.5 | 15.2 |
| Grain sorghums | 19.9 | 15.6 | 18.7 | 15.3 | 22.0 | 14.9 |
| Total, feed grains | 158.5 | 143.8 | 152.4 | 140.3 | 158.0 | 140.9 |
| Wheat | 58.0 | 53.0 | 56.6 | 53.0 | 49.3 | 43.9 |
| Rice | 1.6 | 1.6 | 1.6 | 1.6 | 1 1.4 | 1.4 |
| Cotton | 15.8 | 15.1 | 16.3 | 15.5 | 15.0 | 14.4 |
| Soybeans | 1 22.4 | 22.4 | 1 23.6 | 23.6 | 1 25.0 | 25.0 |
| Peanuts | 1 1.5 | 1.5 | 1 1.4 | 1.4 | 1 1.4 | 1.4 |
| Tobacco | 1 1.2 | 1.2 | 1 1.1 | 1.1 | 1 1.2 | 1.2 |
| Hay | 1 69.4 | 69.4 | 1 69.6 | 69.6 | 1 69.8 | 1 69.8 |
| Total | 169.9 | 164.5 | 170.2 | 165.8 | 163.1 | 162.5 |
| Other | 9.2 | | 9.0 | | 9.0 | |
| Total, 59 crops | 337.6 | | 331.6 | | 330.0 | |
| Soil bank | 22.4 | | 28.6 | | 30.0 | |
| Total acreage | 360.0 | | 360.2 | | 360.0 | |

1 Acreage harvested.

The continuation of a 30-million-acre soil bank is assumed throughout the life of such a program. Therefore, the total harvested crop acreage would be expected to be slightly below that of 1960 and the total acreage planted to crops plus soil bank would remain at approximately the 1960 acreage actually used for these purposes.

The estimated crop yields and production under such a program are shown in tables 13 and 14. The production of wheat would be reduced to about 1.1 million bushels in order to bring output in line with expected disappearance. The production of rice would be reduced to approximately 50 million hundredweight. It is estimated that the annual production of cotton would be required to be reduced to about 14.4 million bales, slightly below the 1960 crop output. The production of peanuts would be reduced to slightly below the 1960 crop output level also, while that of tobacco would be expected to be some 10 percent higher than the output in 1960, even though the acreage used probably would be about the same.

TABLE 13.—*Projécted yields per harvested acre, 1965 compared with actual yields in 1959 and 1960*

| Crops | Actual | | Projected [2] 1965 |
|---|---|---|---|
| | 1959 | 1960 [1] | |
| Corn_____bushels__ | 51. 5 | 52. 3 | 53. 0 |
| Oats_____do____ | 37. 7 | 43. 0 | 39. 0 |
| Barley_____do____ | 27. 9 | 30. 0 | 32. 0 |
| Grain sorghum_____do____ | 37. 2 | 40. 4 | 35. 0 |
| Wheat_____do____ | 21. 3 | 25. 8 | 25. 0 |
| Rice_____hundredweight__ | 3, 349. 0 | 3, 399. 0 | 3, 570. 0 |
| Cotton_____pounds__ | 462. 0 | 442. 0 | 500. 0 |
| Soybeans_____bushels__ | 24. 0 | 23. 7 | 24. 0 |
| Peanuts_____pounds__ | 1, 096. 0 | 1, 263. 0 | 1, 200. 0 |
| Tobacco_____do____ | 1, 563. 0 | 1, 701. 0 | 1, 725. 0 |
| Hay_____tons__ | 1. 62 | 1. 71 | 1. 70 |

[1] Based on Nov. 1, 1960, crop report.
[2] Projected on the basis of the type of program being discussed in this section.

TABLE 14.—*Projected crop production in 1965 compared with 1959 and 1960*

[In millions]

| Crops | Actual | | Projected 1965 |
|---|---|---|---|
| | 1959 | 1960 [1] | |
| Corn_____bushels__ | 4, 361. 0 | 4, 378. 7 | 4, 446. 7 |
| Oats_____do____ | 1, 074. 0 | 1, 178. 1 | 1, 049. 0 |
| Barley_____do____ | 420. 0 | 414. 9 | 486. 4 |
| Grain sorghums_____do____ | 579. 0 | 617. 5 | 521. 5 |
| Total feed grains_____tons__ | 165. 6 | 168. 7 | 167. 5 |
| Wheat_____bushels__ | 1, 128. 0 | 1, 368. 2 | 1, 100. 0 |
| Rice _____hundredweight__ | 53. 1 | 54. 2 | 50. 0 |
| Cotton_____bales__ | 14. 6 | 14. 3 | 14. 4 |
| Soybeans_____bushels__ | 538. 0 | 560. 0 | 600. 0 |
| Peanuts_____pounds__ | 1, 592. 0 | 1, 766. 1 | 1, 680. 0 |
| Hay_____tons__ | 112. 8 | 118. 7 | 119. 0 |

[1] Based on Nov. 1, 1960, crop report.

The major changes in crop production that would be anticipated under such a program would arise in feed grain production. Corn production probably would exceed the record 1960 level and amount to 4.4 billion bushels. Oats production could be expected to be slightly below 1959 and 1960 levels. Barley production might be expected to increase from the levels of the past 2 crop years. A continuation of the high level of grain sorghum output also would be expected. As a result, feed grain production might total 168 million tons, compared with the record high of 168.7 million tons in 1960.

Such an output level for feed grains seems likely even in the absence of price supports for feed grains. The projected yields of feed grains for 1965 have been equaled or exceeded in the past 2 years. Moreover, the projected yields for feed grains in this situation are lower than those projected with programs that would maintain feed prices. Also, the abandonment projected in this situation for 1965 is higher than at present, so that harvested acreage of feed grains is above that of 1960 only modestly despite a significant increase in projected planted acreage. Thus, in light of recent experience the projected output may be conservative rather than excessive.

*Farm prices and income under such a program.*—Estimated farm prices and incomes under such a program are shown as in tables 15

and 16, together-with estimated free prices using the same statistical model and the same assumptions regarding Public Law 480 programs and nonfarm costs.

TABLE 15.—*Estimated farm prices of major farm commodities in 1965 under different situations*

| | | No price support or control program | Price supports and control for 5 basic crops |
|---|---|---|---|
| Wheat | bushels | $0.87 | [1] $1.75 |
| Cotton | pounds | .21 | [1] .28 |
| Rice | hundredweight | 3.49 | [1] 4.42 |
| Peanuts | pounds | | [1] .10 |
| Cattle | hundredweight | 17.08 | 16.77 |
| Calves | do | 18.39 | 18.06 |
| Milk, wholesale | do | 3.67 | 3.70 |
| Hogs | do | 10.95 | 10.23 |
| Sheep and lambs | do | 16.78 | 16.44 |
| Broilers | pounds | .15 | .14 |
| Turkeys | do | .19 | .18 |
| Eggs | dozens | .26 | .25 |
| Corn | bushels | .77 | .71 |
| Oats | do | .41 | .38 |
| Barley | do | .62 | .57 |
| Sorghum | hundredweight | 1.21 | 1.12 |
| Cottonseed | tons | 28.29 | 40.03 |
| Soybeans | bushels | 1.35 | 1.70 |

[1] Assumed support prices.

TABLE 16.—*Estimated cash receipts, production expenses and net farm income in 1965 under different situations*

[In millions of dollars]

| | No price supports or control programs | Price supports and controls for 5 basic crops |
|---|---|---|
| Cash receipts: | | |
| Wheat | 1,093 | 1,768 |
| Rice | 195 | 217 |
| Cotton | 2,212 | 2,244 |
| Tobacco | 1,149 | 1,149 |
| Cattle and calves | 7,044 | 6,944 |
| Hogs | 2,504 | 2,400 |
| Dairy products | 4,965 | 5,035 |
| Sheep and lambs | 268 | 263 |
| All chickens | 1,096 | 1,061 |
| Turkeys | 317 | 308 |
| Eggs | 1,420 | 1,357 |
| Corn | 1,002 | 984 |
| Other feed grains | 381 | 492 |
| Soybeans | 818 | 985 |
| Fruit | 1,596 | 1,592 |
| Vegetables, potatoes beans, peas, etc | 2,697 | 2,691 |
| All other | 2,100 | 2,100 |
| Total | 30,857 | 31,590 |
| Government payments | 662 | 662 |
| Value of home used products | 1,063 | 1,119 |
| Rental value of dwellings | 2,012 | 2,012 |
| Gross income | 34,594 | 35,383 |
| Expenses: | | |
| Feed | 4,403 | 4,396 |
| Livestock | 2,260 | 2,228 |
| Labor | 2,929 | 2,929 |
| Property tax and interest | 2,600 | 2,600 |
| All other | 15,200 | 15,200 |
| Total | 27,392 | 27,353 |
| Net income of farm operators from farming | 7,202 | 8,030 |

Prices received by farmers would average about 17 percent below the 1959 level, with livestock and livestock product prices down about one-fifth and crop prices down 11 percent. The average decline in crop prices would be less because the basic crops are supported and controlled.

Cash receipts from farm marketings would be about 5 percent below 1959 levels. This, plus the higher expenses projected for 1965, would result in net farm income of about one-fourth lower than in 1959. However, the program for basic crops would result in a net farm income about 11 percent higher than might be obtained if all support and control programs were dropped.

The distribution of farm income under such a program would be different from the distribution of income that might be expected if all price supports and production controls were removed. The income of the producers of controlled crops would decline somewhat from 1959 levels, because output would be the same or lower and prices would be no higher. However, the greatest relative decline would be in the income of feed grain and livestock producers. Probably the greatest income decline would be experienced by pork producers, with the producers of beef, poultry, and eggs experiencing somewhat lesser declines. The producers of soybeans, cash corn, and other cash feed grains also might expect sharply lower prices and incomes.

The adoption of a program of tighter controls for wheat, cotton, rice, tobacco, and peanuts and the removal of all other price supports probably would increase the pressure for adjustment in agriculture rather than diminish it. The low prices and incomes expected to result, especially for livestock producers, would probably retard investment in agriculture. Such a reduction in prices would also impose large capital losses on the owners of livestock breeding herds, and upon the owners of farmland devoted to the production of feed grains and forage crops. Over time, it is probable that the lower prices and incomes would result in somewhat lower yields of unsupported crops using heavy inputs of commercial fertilizer. It also is likely that marginal land would be retired from the production of unsupported crops. It is unlikely that the rate of decline in yields or retirement of land would be rapid enough, however, to appreciably improve the income position of farm people in the short run.

Given the expected rise in nonfarm incomes, together with the projected lower farm incomes, the greatest pressure under such a program would be for farmers who could find alternative employment to leave agriculture. This pressure would be especially great upon younger farmers and those with better educational background, whereas for older farmers and those who are less well educated, the off-farm opportunities would be limited and they generally would remain in agriculture despite their adverse income positions.

Finally, such a program would not mean an end to Federal expenditures for price support programs. The present export subsidy programs for wheat and cotton would have to be continued if the income of producers of these crops were to be maintained even close to recent levels. The projected Public Law 480 program would have to be maintained at about present levels and the present soil bank expenditures would be required. The major gains would be the reduction of losses on the feed grain price support program and the reduction of storage costs as inventory accumulation was ended.

*Consumer prices and consumption patterns.*—In general, the output pattern achieved in the situation under discussion would appear to be highly desirable to consumers. It would alter agricultural production heavily toward increased output of livestock and livestock products, with relatively lower meat prices as one of its results.

The situation under discussion would result in per capita consumption of red meat and poultry well above any previous level on record. Red meat consumption would exceed 1959 levels by one-fifth and record 1956 levels by 16 percent. Poultry consumption would exceed the record 1959 levels by 15 percent. The consumption of dairy products and eggs would also be well above recent levels.

Assuming that marketing margins for these products did not increase and offset the lower farm prices, retail food prices slightly lower than 1960 could be expected. However, since the farm price makes up only a portion of the retail price, even the sharply lower livestock prices would mean only moderately lower retail prices. The projected decline in food prices would probably mean a modest but perceptible lowering of the retail price index assuming other prices constant.

Since livestock products make up an important portion of the U.S. consumer food budget, such a program would provide a diet very heavy in livestock products at a lower price to consumers.

### MAINTAINING FARM INCOME LEVELS

Although the income levels implied in the program just discussed are not likely to be appealing to most farmers, the illustration serves a useful purpose. It suggests that in order to maintain farm income at anything approaching recent levels, a program must do more than provide protection for the producers of wheat, cotton, rice, tobacco, and peanuts. The inherent dangers of overcapacity in our feed-livestock economy have not been adequately recognized in most discussions of the farm problem, and to date the accumulation of feed grain stocks has prevented a major prolonged deterioration of prices and incomes in the livestock sector of the farm economy. Potentially, however, this danger must be faced and dealt with unless we are willing to continue to accumulate stocks of feed grains for which there are no observable outlets that will not increase domestic livestock output.

Therefore, assuming that there is general agreement that feed grain stocks cannot be accumulated indefinitely, attention must be given to other methods of maintaining the price and income levels in the feed-livestock sector of the farm economy. Moreover, the possibilities of using foreign disposal programs as an outlet for excessive feed grain production appear limited. Therefore, the problem must be solved largely within the context of the U.S. economy.

Without resorting to attempting production controls on livestock, there would appear to be two ways to maintain the income of livestock producers in the face of the potential feed-grain livestock output in the years ahead. These are (*a*) a direct income compensation program, and (*b*) a program which achieves a reduction in the output of feed grains.

## DIRECT INCOME SUPPLEMENTS FOR LIVESTOCK

There are a variety of ways in which a direct income supplement to livestock producers could be operated. One would be merely to announce a price level for each livestock product and then to supplement each livestock producer's income by the difference between the average market price and the desired price. Such a program might encourage even higher production of feed grains and livestock than the already excessive supplies which are anticipated. However, this problem might be handled by limiting the payments to a specified quantity of livestock so that further expansion would be limited by the profitability of production at the unsupplemented market price. Brandow discusses a program to achieve such a result in the part V of this report.

If the target price for livestock were set at $14 per hundredweight for hogs and $20 per hundredweight for beef cattle, the payments required would probably amount to $1 billion for cattle and calves and about as much for hogs. As much as $1 billion more might be required to maintain comparable price levels on the other livestock products. It should be recognized, however, that payments on this basis would result in a higher net income than in 1959 for livestock producers, since they would be receiving about the same prices as in 1959 on a greater volume of production. Therefore, about $2 billion in direct income supplements, distributed to feed grain and livestock producers upon some portion of their total output would probably maintain net farm income for this group at about 1959 levels.

It should be noted that the maintenance of farm income through a combination of quantity controls on basic crops and direct payments for livestock products would result in significantly lower Treasury costs than are estimated by Brandow for a program using direct payments for all commodities. Moreover, a given expenditure for such programs, say $2 billion, would more nearly maintain farm income levels in a combination program than if payments alone were used.

Finally, it should be recognized that merely adding some kind of cross-compliance to a quantity control program would not provide a solution to the farm income problem. Such a requirement would prevent further diversion of wheat and cotton acreage to the production of feed grains, but it would not be sufficient to maintain farm income at anywhere near 1959 levels. The effect would be to increase net farm income no more than 5 percent above the level expected in the absence of such a requirement, but prices and incomes would be well below 1959 levels.

## REDUCING FEED GRAIN OUTPUT

Another method of maintaining farm income in the absence of CCC accumulation of feed-grain stocks, is to induce lower feed grain output. This might be accomplished either by a voluntary program restricting resource inputs or by marketing controls of the type discussed by Halvorson.

Voluntary reduction of feed grain acreage could be achieved by either general land retirement of the type discussed by Schnittker in part II or by land retirement directed specifically at feed grain acreage. General land retirement has many facets, as discussed earlier, but for the purposes of this discussion, only a few need restating.

First, general land retirement will require that a good deal of marginal land and land not used to produce feed grains will be removed before any appreciable reduction in feed grain acreage and production are achieved. However, the retirement of much marginal land might be economically desirable in many areas.

Second, general land retirement, especially of whole farms, often induces the retirement of other agricultural resources with it. Many older farmers have used the soil bank program as an opportunity to cease active farming, thus reducing the agricultural labor force and idling some capital equipment. Thus, the substitution of other inputs for land is less likely.

Third, the general land retirement is relatively easy to administer, especially where entire farms are involved.

A program dealing specifically with the income problems of the feed-livestock economy is not simple to devise. The outlet for feed grains other than for use as feed for domestic livestock is limited. Since much of the feed is used on farms where it is produced, the problems of enforcing an effective production control program are great. Moreover, a price support program which diverts feed grains to CCC and improves the market prices of feed and livestock, reduces the incentive for compliance, as was illustrated by the corn acreage allotment program a few years ago.

Thus, the problem becomes one of inducing feed grain producers to reduce output voluntarily by some method which will reward those who cooperate more than those who fail to cooperate. A price-support program of the type presently operated will not do this.

One possible way of inducing a reduction in feed grain output would be to offer adjustment payments to farmers who voluntarily reduced feed grain acreage by some predetermined percentage or more. Such a program would require the following features:

(a) Each farm would be allotted a base acreage of feed grains based upon recent production history. This base would not be merely in terms of total acreage, since an acre of corn usually produces more feed than does an acre of other feed grains.

(b) Farmers who voluntarily reduce the acreage planted to feed grains by some predetermined percentage of their feed grain base or more, would receive adjustment payments to compensate them for their adjustment. This would be paid to all compliers whether they sold or fed the feed grains on their farms.

(c) Farmers who chose not to comply with the voluntary acreage reductions could raise all of the feed grains and livestock they chose. However, since they were not participating in the needed adjustment program, they would receive no price supports or adjustment payments.

Such a program would have several advantages over price support and land retirement programs of recent years. First, no price supports, storage costs, or export subsidies would be required for feed grains. Second, it would recognize that merely retiring land from one crop is not equivalent to the same amount of land retired from another crop.

To illustrate this latter point, in 1959, the average acre of corn grown in the United States produced 1.44 tons of feed grain, whereas the average acre of oats and barley produced about two-thirds of a

ton and the average acre of grain sorghum about 1 ton. Thus, a program which induces a farmer to reduce oats acreage without affecting corn acreage has much less effect on reducing total feed grain production.

Third, the program would allow farmers to participate or not as they saw fit. More important, it would allow participating farmers to adjust their individual crop rotations to meet their individual needs without imposing internal restrictions upon their managerial choices.

The program has some obvious problems, also. It probably would encourage complying farmers to boost yields on their reduced acreage, but there are limits beyond which this would not be economical. Anyway, nothing short of quantity controls will completely remove this incentive.

A second disadvantage is that the incentive for compliance would depend largely upon the size of the adjustment payment, since all feed grain producers would share in the benefits of higher feed grain and livestock prices. Therefore, these adjustment payments would have to be high enough to provide ample incentive for participation.

Third, the program would require the establishment of feed grain base acreages and measurement to verify compliance for farmers participating in the program. Also, it probably would be necessary to allow the land to be pastured, which would offset in part the reduction in the output of feed grains.

A program which attempts to maintain farm prices and incomes by reducing feed grain output will have the greatest impact upon improving that sector of agriculture which produces feed grains or feed grains and livestock on the same farms. It will do relatively little to increase income on farms or in areas primarily dependent upon purchased feeds.

The reduction of feed grain output would restrict livestock output by reducing profit margins in livestock production to the extent that marginal production would be dropped. Most of the initial pressures would be on producers and production areas where most feed is purchased. This is in contrast to direct marketing controls on livestock, discussed in the next section, which would tend to back up resources in the feed-grain economy and might even widen the margins of profit for individuals or areas which purchase feed grains.

*Farm price and income levels that might be achieved adjusting feed grain output.*—An idea of the magnitude of the adjustment required in the feed-livestock economy can be obtained by observing the price and income levels that might be expected in agriculture if feed grain production could be reduced to about 150 million tons in 1965. This is shown in tables 17 and 18.

TABLE 17.—*Estimated farm prices of major farm commodities in 1965 with 2 levels of feed grain production*

| Farm price | Feed grain production held to 150,-000,000 tons | Feed grain production held to 140,-000,000 tons |
|---|---|---|
| Wheat_____bushels__ | [1] $1.75 | [1] $1.75 |
| Cotton_____pounds__ | [1] .28 | [1] .28 |
| Rice_____hundredweight__ | [1] 4.42 | [1] 4.42 |
| Peanuts_____pounds__ | [1] .10 | [1] .10 |
| Cattle_____hundredweight__ | 18.30 | 19.22 |
| Calves_____do____ | 19.61 | 20.53 |
| Milk, wholesale_____do____ | 4.10 | 4.32 |
| Hogs_____do____ | 13.85 | 16.44 |
| Sheep and lambs_____do____ | 18.02 | 18.97 |
| Broilers_____pounds__ | .18 | .21 |
| Turkeys_____do____ | .23 | .27 |
| Eggs_____dozen__ | .32 | .37 |
| Corn_____bushels__ | 1.00 | 1.23 |
| Oats_____do____ | .53 | .65 |
| Barley_____do____ | .80 | .98 |
| Sorghum_____hundredweight__ | 1.57 | 1.93 |
| Cottonseed_____tons__ | 55.33 | 59.54 |
| Soybeans_____bushels__ | 2.23 | 2.36 |

[1] Assumed support prices.

TABLE 18.—*Estimated cash receipts, production expenses and net farm income in 1965 with 2 levels of feed grain production*

[Millions of dollars]

| Cash receipts | Feed grain production held to 150,-000,000 tons | Feed grain production held to 140-,000,000 tons |
|---|---|---|
| Wheat_____ | 1,768 | 1,768 |
| Rice_____ | 217 | 217 |
| Cotton_____ | 2,331 | 2,355 |
| Cattle and calves_____ | 7,438 | 7,730 |
| Hogs_____ | 2,902 | 3,233 |
| Dairy products_____ | 5,423 | 5,623 |
| Sheep and lambs_____ | 288 | 303 |
| All chickens_____ | 1,227 | 1,331 |
| Turkeys_____ | 351 | 376 |
| Eggs_____ | 1,664 | 1,869 |
| Corn_____ | 1,220 | 1,355 |
| Other feed grains_____ | 525 | 617 |
| Soybeans_____ | 1,219 | 1,290 |
| Fruit_____ | 1,613 | 1,625 |
| Vegetables, potatoes, beans, peas, etc_____ | 2,719 | 2,734 |
| All other_____ | 3,249 | 3,249 |
| Total_____ | 34,154 | 35,675 |
| Government payments_____ | 1,040 | 1,390 |
| Value of home used production_____ | 1,250 | 1,325 |
| Rental value of dwellings_____ | 2,012 | 2,012 |
| Gross income_____ | 38,456 | 40,402 |
| Expenses: | | |
| Feed_____ | 4,586 | 4,758 |
| Livestock_____ | 2,386 | 2,480 |
| Labor_____ | 2,929 | 2,929 |
| Property tax and interest_____ | 2,600 | 2,600 |
| All other_____ | 15,200 | 15,200 |
| Total_____ | 27,701 | 27,967 |
| Net income of farm operators from farming_____ | 10,755 | 12,435 |

Assuming that feeding rates returned to about their long-time average the prices received by farmers under such a situation would still average about 6 percent below their 1959 level. However, with the projected increased output offsetting the lower prices, total cash receipts from farm marketings are projected at just slightly above 1959

levels. Assuming that Government payments would increase to slightly over $1 billion to compensate farmers for a voluntary reduction in feed grain acreage, and the same increase in costs used earlier, net farm income would be about 5 percent below 1959. Thus, even this significant reduction in feed grain output would not quite maintain farm income.

The magnitude of the problem of merely maintaining farm income should not be underestimated. Feed grain output would have to be reduced by about 10 percent from 1959 and 1960 levels and even more from the levels projected for 1965. While the income and price levels are not high enough to induce a rapid rate of new investment in agriculture or a rise in the rate of adoption of new technology, neither are they low enough to really retard the continuation of present rates. Any program which maintains prices and improves certainty will tend to encourage individual farmers to increase output. As long as the program is voluntary, significantly higher prices will lower participation and tend to be self-defeating.

The difficulty of using such a program to increase farm prices and incomes appreciably above present levels is illustrated by the example of what might be expected by using the same approach to reduce feed grain output to 140 million tons. The projected prices and incomes that would result also are shown in tables 17 and 18.

Again assuming a return to average feeding rates, a reduction of feed grain output to 140 million tons would maintain the average price received by farmers at just about the same average price level received in 1959. These prices would mean that cash receipts would be about 8 percent above the 1959 level. Higher cash receipts, together with higher Government payments required to achieve the acreage reduction, would result in a net income about 10 percent above 1959 levels.

Achieving higher prices and incomes via this type of voluntary program is not easy. First, payment rates would certainly have to be increased in order to achieve the necessary participation by feed grain producers. There would be additional incentive to increase yields on acreage remaining in feed grains. Moreover, there would be a tendency to substitute hay and pasture for feed grains in the production of those classes of livestock where substitution is possible. The projected higher soybean prices and reduction of feed grains would encourage increased output of these products, and there probably would be some substitution of protein feeds for other feed grains.

Thus, it does not appear feasible to expect to use a voluntary program of reduction of feed grain acreage to achieve a farm price level significantly above present price levels. Higher prices will (1) reduce participation, and (2) increase the incentive to increase output on the reduced feed grain acreage, and (3) encourage the substitution of forage and protein for feed grains in livestock production.

In general, it appears that a program of some type which will retire acreage from feed grain production is needed to avoid disastrous declines in the income of livestock producers if the present feed grain support programs were ended. A program that would absorb the present excessive feed grain production now going to CCC would appear manageable and the costs should not be in excess of the pres-

ent program costs. However, it appears difficult to use such a program to achieve farm prices and incomes appreciably above present levels. If significantly higher prices and incomes are the goal, it is likely that direct income payments on livestock products or some type of nonvoluntary production or marketing controls will be required to achieve these goals for the feed-livestock sector of the agricultural economy.

*Consumer prices and consumption levels.*—A reduction of feed grain output to either of the two levels just discussed does not imply a reduction in food supplies available to consumers or higher consumer prices. On the contrary, the consumer supply of meat would be higher than at present and prices about the same.

The output of meat animals implied with a feed grain output of 140 million tons would amount to about 10 percent more red meat per capita than was consumed in 1959 and would exceed slightly the record high meat consumption of 1956. The red meat output implied in the example reducing feed grain output to 150 million tons is even higher. The projected per capita consumption in that case would be 13 percent above 1959 levels.

If marketing costs did not rise, consumer prices for food would average about the same as in 1959 if feed grain output were reduced to 140 million tons. The higher output projected with the lesser reduction would result in slightly lower prices for livestock and livestock products at the farm than in 1959.

Thus, even a program that succeeded in maintaining or slightly improving farm income in the years ahead would not have to reduce food supplies per capita or result in significant increases in consumer prices. Actually, the problem is restraining the rate of increase in the output of food so as to avoid serious farm price declines or further stock accumulations by the Government.

# PART IV

# DIRECT MANAGEMENT OF MARKET SUPPLIES

(Harlow W. Halvorson, University of Wisconsin)

Parts II and III have analyzed measures which limit the use of one of the resources required in production and thus tend to achieve desirable supply levels for specific commodities and for agriculture as a whole. Such programs do not ordinarily include marketing restrictions on the products from these limited resources.

Direct management of market supplies is another method of maintaining a continuing balance between demand and market supplies. It is a means which offers more promise in the 1960's for some commodities than for others. Under direct management of market supplies, national rates of marketings would be established for individual commodities and translated to individual producers, perhaps in somewhat the same way national acreage allotments are currently allocated to farmers. But unlike programs which limit use of resources, market control programs contemplate little or no supervision of on-the-farm management decisions of farmers.

### SOME PRELIMINARY CONSIDERATIONS

Several preliminary points are perhaps worth noting when considering the relative merits of programs to restrict use of resources and programs to restrict marketings directly.

(a) Present programs incorporate features involving both approaches, but their initial and primary focus is on restricted use of resources. It seems likely that future programs will continue to include combinations of both approaches. More to the point, however, is the question of whether conditions which seem to lie ahead call for more emphasis on direct management of marketings or a continuation and expansion of emphasis on programs to restrict use of resources.

(b) So-called voluntary programs to restrict use of resources require creation of a sufficiently attractive alternative use for these resources to result in their diversion from agricultural production. Thus a new farm enterprise, namely idle land, has been created under the soil-bank program to compete with wheat, corn, and other farm enterprises. Such programs expand the demand for land and have long-run implications which should not be ignored.

(c) Both the resource restriction and market control approaches necessarily subject farmers to certain disciplines which are necessary to achieve price and income goals. Each type of program tends to be applied at the individual farm level. Nonvoluntary programs to limit use of resources intervene directly in the farm production process and only indirectly in the marketing process. Programs for direct man-

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agement of market supplies impose limits on amounts which can be marketed but leave farmers free in their management decisions to achieve production levels consistent with programed rates of marketings.

Reliance on the resource control approach in the past may imply to some the belief that farmers object less to measures which interfere primarily with farm management decisions than to interferences with volume of marketing decisions. Or it may suggest to some that resource use controls may achieve supply objectives more effectively than direct management of marketings. Neither inference seems warranted.

(d) In practice, resource use control programs deal only with land inputs. Programs to limit use of fertilizer, machinery, labor, antibiotics, etc., have not been considered seriously. Neither public water policies nor land use in the public domain are keyed to existing supply management programs.

Programs for direct management of market supplies would be most practicable where applied on an individual commodity basis. This approach would permit each commodity program to be so designed as to take into account the special circumstances surrounding its production and marketing. In addition this would permit programs to be developed and adopted by producers of a given commodity whenever they felt existing or prospective conditions warranted such a step.

Such programs would usually be most effective if conducted on a national basis. Because of demand and supply interrelationships and for other reasons, it seems desirable that such programs be consistent with some broad general framework.

Where significant and prolonged price improvement is desired, it is likely that semipermanent institutional arrangements will have to be provided through which individual producers can act collectively to allocate among themselves shares of the national market. Such determination should be subject to general requirements specified by the Congress or some body designated by it which are designed to protect the public interest. A national level of marketings consistent with specified price levels could then be reflected to individual producers in the form of market bases. Individual producer marketings in excess of this rate could either be prohibited or penalized by levying a fee against excessive marketings. In this way the full price consequences of surplus production could be reflected to each individual producer. Within this context, individual producers would have freedom to manage available resources as their circumstances warranted.

Provision for transfer of market rights among producers will have to be made under any such program since farmers die, retire, sell their farms, or wish to shift production from one enterprise to another. Production rights under acreage allotment programs must deal with this problem as well. Provisions for transfer of market rights might be closely supervised and regulated or might leave farmers relatively free to transfer such rights among themselves. There are sound economic reasons for suggesting that, subject to minimum restrictions, rather easy transfer of such market rights will tend to promote efficient use of farm resources. But it should also be noted

that, with rather easy transfer, such rights would also tend to gravitate toward the larger producers.

Under an active program for a commodity, a national price goal would probably be established each year. This decision might be based on an estimate by the administrative agency of the national level of marketings which would be consistent with each of several alternative price goals and a formal review of recent and prospective market and production developments. The alternative price goals considered would probably include an estimate of a national average price which would yield an income to typical producers of this commodity for their management, labor, and capital comparable with that which could be earned by similar resources in nonfarm employment.

The present form of price-support program, perhaps suitably modified for the purpose, would be an essential part of such a supply-management program. However, reliance on existing price-support programs could be gradually reduced with corresponding reductions in cost. After a few years of orderly transition it seems reasonable to expect that price-support purchase programs would be a relatively minor part of the agricultural program. Each individual producer would make his own adjustments in use of the resources at his command as he saw fit, in the circumstances faced by him. As demand for the commodity increased with the growth of population and improvement in consumer incomes, suitable increases in national marketing rates could be made and allocated pro rata among all producers.

A comprehensive program of direct management of market supplies which could be applied to a large number of agricultural products appears to be administratively feasible. But this approach to supply management, as distinct from land-retirement programs, raises a number of difficult questions which probably can best be answered by an illustrative example.

The outlines of a program of direct management of market supplies of milk are presented in the following section to illustrate the manner in which the general approach might be implemented. In the course of this illustration, several controversial questions are dealt with at some length.

This is followed by a second illustration of a possible supply-management program for poultry products which is designed to achieve more limited objectives. In the final section, the feasibility of widespread application of direct market supply-management programs is considered along with some consideration of their relation to several other programs.

A SUGGESTED PROGRAM OF COMPREHENSIVE SUPPLY MANAGEMENT FOR MILK [7]

Dairy farmers have been troubled with persistent surpluses of milk and consequent low prices during much of the postwar period. It is evident to most dairy economists that the potential for continued rapid

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[7] Most of the discussion of program details which follow is based on "Dairy Supply and Price Policies," a report released by the National Milk Producers Federation, 1960, prepared by a committee consisting of C. E. French, V. H. Nielsen, Leland Spencer, and myself. My colleagues on this committee, of course, should not be considered in any way responsible for this summary of our proposals.

growth in milk output is great and that continued adoption of output increasing technology will result in price depressing surpluses for a number of years. The demand for milk and dairy products is growing slowly and quite steadily, based largely on population growth and rising consumer incomes. But there seems to be little prospect of any dramatic improvement in demand in the foreseeable future. It is likely, therefore, that unless positive steps are taken to check the rate of growth of output, milk supplies will tend to grow at a rate faster than demand with persistently low prices during most of the next decade.

The technical staff of the USDA [8] estimated that under conditions of relatively free production and marketing, milk production in 1965 could approximate 140 billion pounds with prices averaging about $3.60 per hundredweight. This compares with 1959 levels of 124.3 billion pounds and a price of $4.16 per hundredweight. A production rate of about 137.5 billion hundredweight in 1965 would maintain 1955–57 levels of per capita consumption. Thus a program of direct market supply management offers considerable promise of forestalling the price impact of this potential for expanded output.

The present price support program gives some protection to dairy farmers. Support price objectives are announced annually by the Department of Agriculture and are implemented by CCC offers to purchase certain manufactured dairy products at prices which are designed to reflect the support price to producers. At the announced support prices, which have recently been near 75 percent of parity, supplies have been in excess of demand by from 2 to 8 percent in recent years. The Federal milk marketing order program, designed to insure an adequate supply and orderly marketing of fluid milk in certain markets, specifies minimum prices which handlers shall pay producers for several classes of milk. These local programs, in effect, constitute supply management programs for class I milk by enforcing the payment of specified class I prices and affording an opportunity for handlers to dispose of excess milk in lower classes. There is also some State regulation of milk prices and marketing.

The most logical and equitable administrative arrangement for keeping milk marketing from outrunning the growth in demand for the next few years seems to be that of assigning base quantities to each producer and assigning any expansion in demand among producers in proportion to their bases. The base for an individual producer might be the average of his marketings during the last 2 or 3 years. The total of such bases for recent years would approximate 112 billion pounds of milk. (In 1959, production was 124.3 billion pounds of which 112.6 was sold by farmers. The remainder was used on farms.)

Prior to the beginning of each marketing year a determination would be made of the national level of marketings which would be consistent with the specified price objective or price goal. From this the approved level of marketing as a percent of the national base could be determined and translated into a current marketing base for each producer.

[8] S. Doc. 77, report from the U.S. Department of Agriculture, and a "Statement From the Land Grant Colleges, IRM-1 Advisory Committee on Farm Price and Income Projections, 1960–65, Under Conditions Approximating Free Production and Marketing of Agricultural Commodities," 86th Cong., 2d sess., Jan. 20, 1960.

Marketing certificates would be issued to each producer base holder in amounts reflecting the approved percent of base. Thus if approved marketings were to be reduced 2 percent below the national base, a farmer having a base of 1,000 hundredweight would be issued marketing certificates for 980 hundredweight of milk or its equivalent in farm-separated cream.

When farmers sold their milk they would be required to surrender marketing certificates to handlers in an amount equal to the amount of milk marketed to receive full price for such milk. Handlers would be authorized to deduct a fee or penalty for excess milk not covered by marketing certificates. Such fees would be remitted to the administering agency. The records of handlers would have to be audited much as they now are under Federal milk marketing orders, to insure that the sum of fees deducted from farmers corresponded with handlers' milk receipts not covered by marketing certificates.

Important practical reasons exist for permitting excess milk to be marketed but reducing the return from such milk. A number of fortuitous developments such as bad or good weather, disease, etc., can intervene to prevent actual milk production from corresponding with planned or approved levels. It seems desirable to process this excess production, but through the use of the marketing fee to keep returns from the part in excess at a level barely sufficient to cover direct costs. Use of a fee seems preferable to a procedure of specifying the prices to be paid by handlers for surplus milk. The latter course would give rise to numerous complications and many of these can be avoided by use of a fee. The fee might be specified either as so many cents per hundredweight or as a percentage of the current price. The latter course has some merit since fairly large regional differences in milk prices are usual, but it may complicate administration. A given absolute fee would tend to bear more heavily on the producers in regions of lower prices. But whatever procedure is used, the primary consideration in setting such fees should be that they be large enough to discourage increases in milk production beyond levels consistent with the price goals.

All producers who market milk should be required to participate in the program. There would be no prohibition against marketing milk. Established producers who wished to expand production and marketing would be free to do so subject to the fee assessed on non-certificate milk. New producers without a base would have to be prepared to sell their production subject to the fee. Thus the fee is a discouragement to expanded production of established producers as well as to the entry of new producers. Such arrangements are not uncommon either in the dairy industry or in many nonagricultural sectors. In many fluid milk markets, for example, new producers are required to sell their milk at the surplus price for a probationary period before acquiring full marketing rights. The classified pricing plan itself is an arrangement for sharing among producers the lower returns on surplus milk.

One of the first steps in getting such a program started is to establish producer bases. This is feasible but becomes increasingly difficult if records for more than the last 1 or 2 years are required. The work of preparing for inauguration of such a plan probably would take at least a year with the most difficult part being determination of producer bases.

Present dairy programs make significant distinctions between milk for fluid use and milk used for manufacturing purposes. While the market characteristics on which such a distinction rests are significantly different for the two types of outlet, the conditions under which milk is produced and the quality of the resulting product are such that an increasingly large proportion of milk meets requirements which make it eligible for fluid use. Thus there is a very large volume either presently graded for fluid use or which could qualify for this outlet with very little change in production practices. Thus the distinction is tending to rest more on market characteristics than on significant quality differences in many areas of the country.

A supply management program for milk which distinguished between fluid and manufacturing grade milk would tend to perpetuate the somewhat artificial nature of present regulatory practices. A significant portion of milk delivered into regulated markets is being diverted into manufactured dairy products. A supply management program which dealt only with manufactured milk, in fairness, should contain provisions which prevented the disposal of milk from fluid markets into manufactured uses or the program might be jeopardized. It was the judgment of dairy economists who formulated this plan that there would "be no serious conflict between this supply adjustment plan and continuation of the Federal milk order program." Thus it is suggested that the most desirable arrangement would be to apply such a program to all producers of milk and its equivalent in farm-separated cream.

Many of the administrative arrangements necessary to carry on such a program are already widely used in the dairy industry and fairly well understood by farmers. It probably would be necessary for Congress to pass enabling legislation to permit development and adoption of a plan for direct management of market supplies, although it should be noted that the basic objectives of such a plan would not represent any drastic departure from the objectives of existing legislation.

The administrative framework and procedures presently used in the Agricultural Marketing Agreement Act of 1937 might well be expanded to provide for such a program. Hearing procedures similar to those used in Federal milk marketing orders provide an important and desirable framework through which producer recommendations for program improvements may be considered. The referendum of producers necessary before final adoption of recommended decisions constitute an important test of the continuing adequacy and acceptance of any such program. There will be better likelihood of successful programs if producers know that their suggestions for change will receive a fair hearing and if they know the decision to accept or reject the program depends on them as well as on the Secretary.

*The problem of base transfers*

As indicated previously, any continuing supply management program whether it be one of restricting use of land or one directly restricting marketings, must include some arrangement for transfer of bases among producers. Under acreage allotment programs, bases are tied to the land and a producer ordinarily acquires a base when he purchases a farm with a base. In some instances the administering agency may have authority to issue bases to new producers, but obvi-

ously extensive use of this device can defeat the purpose of the program.

The longer a supply management program operates, the more intimately the base transfer provisions become bound up in issues of efficient use of farm resources and adjustment of such resources to changing patterns of demand, technology, and market structures. One of the most serious objections to use of acreage allotments is that in some cases they have slowed down the adoption of more efficient methods of production. A program which attempted to perpetuate some given geographical pattern of production in the face of significantly different rates of population growth in various parts of the country could indeed lead to considerable inefficency. Base transfers must be provided for; the significant question is whether arrangements for such transfer will be such as to promote both equity and efficiency.

. Since the administrative agency must know, for administrative purposes, the amount of base held by each producer, the simplest arrangement would be to allow producers complete freedom in holding or transferring bases among themselves so long as titles to bases were registered with the agency. Thus when marketing certificates were issued each year under a direct market supply management program they would be issued to base holders of record at that time in the amounts indicated. On the other hand, the agency might have complete responsibility, subject to general policies spelled out by the Congress, for making base transfers among present holders and new applicants. There are many complex and controversial issues bound up in how this issue is decided.

If producers are free to transfer bases among themselves in whole or in part at their discretion, such transfers will occur at a price, since the base will have a value depending on the effectiveness of the program. Thus a producer wishing to acquire market rights or to expand his rights to sell without penalty will have to purchase such rights from other producers (or their estates) who wish to reduce or discontinue milk production. The efficiency with which such transfers take place will depend on whether efficient market arrangements are developed to handle these transfers. Rather easy base transfer arrangements would permit producers to adjust the size of their respective dairy operations to. their current resources and inclinations and could facilitate shifts in production of approved supplies from region to region in response to changes in demand and technology, but within the total supply limitations imposed by the national plan. Thus a relatively free market in bases would be relied upon to modify the initial base allocations as market conditions changed. Particularly during the early stages of such a program it would be important to insure that rights of mortgage holders and other equity interests are adequately protected.

Many responsible people would not be satisfied that market forces, otherwise undirected, would do an adequate job of allocating bases throughout the Nation. Furthermore, matters of public interest arise in conduct of such a supply management program which the program itself should deal with positively. For example, some midwestern dairy farmers have expressed the view that unrestricted transferability would permit a large interregional outmigration of bases from

the Midwest primarily in response to lucrative eastern and southern markets. At the same time, some eastern dairymen have suggested that lower production costs would give Midwest producers an advantage in base purchases.

Ordinarily it could be expected that producers would find it in their interest to transfer such bases with the farm at the time of its sale, since a farm without accompanying base would sell for less. Thus a requirement of this nature would be superfluous and would merely prevent other transfers which might be desirable. In view of some uncertainty about the geographic distribution of market forces which could be generated by such a program, and to allay doubts of producers, it would do little damage in the early stages of any program, and probably would be desirable, to set some upper limit on such interregional transfers. The program could require that bases offered for sale be made available to local producers for some short period before sale outside the region were permitted.

Some rather complex questions are involved when considering the desirability of permitting value to accrue in bases and be reflected in the price at which they transfer. When farm prices and incomes improve, this is ordinarily reflected in both higher land values and in higher levels of living for farm families. Objection to a direct market supply management program with transferable bases seems to arise out of the fact that some of the effect of improved incomes, program generated, will show up in base values rather than in land values. Some concern has also been expressed that a part of present land values may be transferred to base values. This transfer, from a real to a personal property basis, might pose revenue problems to local units of government if it were very large. At the same time, however, if the objective were to minimize program generated capitalization of base values, it would be possible to devise a tax program to tax base transfers in a way which would return part of lost revenues to local units of government.

As a supply management program becomes increasingly effective, the value of bases will increase. But with the gradual turnover of farms and bases, the cost of a base now becomes an additional cost of production to new producers. Since the price goal of the program may be that of yielding a fair return on capital and labor for typical farms, the higher cost of production attributable to the cost of purchasing a base will have to be reflected in the price goals which are established. Following this line of reasoning it has been argued that such a program is essentially self-defeating and merely sets up arrangements for a windfall gain to those producers who are in operation when the program begins.

While this argument might have considerable relevance under purely static demand and technological conditions, the dynamic conditions of the real world make it much less relevant. It should not be assumed, for example, that the increase in income generated by the program will be capitalized into value of bases at a high rate, since there will be some uncertainty about the future of the program and of the income increases causing them to be discounted heavily. At the same time, adoption of new technology which a transferable base program will encourage will be resulting in more efficient producing units. This, in turn, will tend to offset the effect of base values on costs. This is

really what the program is all about—to permit the orderly adoption of new technology without generating such a large flow of output that, in view of highly inelastic demands, the market for all producers is destroyed. Thus, while base values will show up in subsequent costs, income increases will be heavily discounted and such cost increases are likely to be offset by the adoption of new technology.

It is perhaps worth noting that the cost of purchasing a base is in reality a price to be paid for the right to participate in higher and more stable incomes. Producers would be free to market milk without a base if they wished to do so, but would not be able to receive the benefits of the program by following this course.

An alternative base transfer procedure which required producers to meet continuing tests to qualify as a base holder (e.g., be a bona fide producer by some definition) and in which bases reverted to the agency for reallocation either when the holder died or failed to meet established requirements would, of course, not result in their acquiring market value. At the same time, this procedure would require that the agency establish rules of priority and be prepared to ration bases among the applicants. This might be a very difficult task and, because of problems which could develop, might jeopardize the program.

It seems likely that some combination of the two approaches—relatively free transfer and direct administrative allocation—might be used. It would be possible, for example, for the agency to maintain a market for bases at some established price with relatively free transferability at higher prices, and even purchase sufficient bases to shrink approved supplies of milk if this were desired. Administratively held bases could be reissued to applicants under prescribed rules if this seemed desirable.

Whatever arrangement is developed to handle the base transfer problem, it is suggested that there be no restrictions on transferability of the marketing certificates which are issued annually to base holders. Those producers who are hindered by bad weather or disease would be able to reduce losses due to these factors by selling excess certificates to producers with milk supplies larger than their bases. Such an arrangement would give some measure of income insurance to producers. In fact, failure to provide for this would increase the problem of enforcement. Since the total supply of marketing certificates and thus of approved milk has been specified for the period the outcome of the program would not be affected by which producers used the certificates. The single-time use of such certificates would limit their value to the size of the fee on sales of excess milk.

The price objectives in current farm programs presumably are parity prices. But with the course of time and large variety of percentages of parity used in carrying out existing programs, these prices are not very meaningful. Furthermore, their usefulness in a period of rapid technological advance, historically based as they are, has been greatly reduced. The occasion of adopting programs of direct market supply management should provide an opportunity for reformulation of such price objectives.

*Possible accomplishments of a dairy supply management program*

What could a direct market supply management program for milk, as developed in this illustration, do to avert the depressed dairy prices and incomes which are in prospect for the next few years? If such

a program were adopted, what impact would it have on prices and production in other sectors of agriculture? Answers to these questions are important in deciding on the merits of such a proposal. A tentative answer is presented below.

The projections for 1965, referred to in part I, broadly confirmed the low price-expanded-output conclusions of the U.S. Department of Agriculture contained in Senate Document 77. Changing one assumption in these projections—namely, specifying independently the quantity of milk production which will be permitted—enables one to estimate the milk price consequences of various levels of milk supplies and, in addition, to obtain an estimate of the price and quantity impacts of such supply restriction on other products in the model. This has been done.

If milk production in 1965 were 137.5 billion pounds, this would provide our larger population with a domestic per capita consumption approximately equal to that which prevailed during 1955–57. Under these circumstances milk prices might be 45 cents per hundredweight higher than those which would be likely with no formal restriction on the growth of milk production. The major effects of the restricted use of feed grains by dairymen would show up in feed grain prices reduced by about 3 percent, hog production larger by 240 million pounds and prices lower by about 12 cents per hundredweight. There would be expanded production and lower prices of other livestock and products, also, but these would be relatively less than for hogs.

If it were decided to slow down the prospective expansion in milk output even more, so that 1965 per capita consumption were about 5 percent less than in 1955, milk prices might be raised by about $1.05 above the levels likely to prevail without a program for direct management of market supplies. Holding the expansion in milk production to this level would result in more measurable impact on other products, but again, not so large as one might expect. In the case of hogs, prices would be 45 to 50 cents per hundredweight lower and production some 535 million pounds higher than without a milk supply program. Cattle prices would be 24 cents per hundredweight lower and production 115 million pounds higher.

In 1959 U.S. milk production was 124.3 billion pounds. Limiting output expansion so as to permit per capita supplies 5 percent below 1955–57 levels would still allow a 6-billion-pound expansion in milk output over a 5-year period. Thus there is room for both growth in output of milk and hope for some price improvement in the next few years; but probably only if positive steps are taken to limit the rate of expansion of milk output.

The committee of dairy economists described the supply management proposals made by them as a plan which—

obviously is not an arbitrary, rigid system of production control, but rather a flexible system for adjusting production to demand at a level of prices designed to give farmers a reasonable share of the national income through the marketplace. It is not an emergency, stop-gap program * * * this plan would, if successfully administered, permit supplies to be geared to demand in an orderly and flexible manner on a national basis, and would offer dairy farmers the possibility of gradual improvement in prices and incomes.

It would not be realistic to hold out hope of immediate and substantial price increases for milk by such a plan alone, unless producers

were willing to undertake cutbacks in current production. A program to check further increases in output would permit a gradual improvement in milk prices over a period of several years and would permit orderly development of the program.

In considering probable costs of such a program, it is important to distinguish between administrative and price support costs. A major purpose of the program is to eliminate the need for a price support program except on a standby basis. But during a transition period of perhaps 3 to 5 years, price supports would continue to play an active role and at least in the first few years program costs probably would be little different than in recent years. But after this period price support purchases would be small and Treasury costs correspondingly low.

With respect to administrative costs, the U.S. Department of Agriculture has made a highly tentative estimate, based on experience with crop programs, that—

the cost of getting the program started and of administering it the first year might be in the neighborhood of $10 million including the costs of local meetings to explain the program, regulations and procedures, conduct a referendum, compile base period sales data, determine quotas, issue quota notices, obtain and check data on sales for each quota period, administer penalty, compliance-deposit or similar provisions, record quota transfers, and audit the records of plants and dealers.[9]

Costs thereafter might be less, but perhaps not significantly.

This rather lengthy illustration of a possible supply management program for milk has, by example, brought out many of the features which would need to be considered in formulating plans for direct management of market supplies for many commodities. Many additional questions have not been discussed. Each commodity would require a program specially designed to meet its special problems. But in this illustration some of the more controversial questions which would be raised about such plans have been considered.

## AN ILLUSTRATION OF DIRECT MARKET SUPPLY MANAGEMENT WITH MORE LIMITED OBJECTIVES

Many of the basic elements of the milk illustration have been incorporated in plans developed for poultry products. But if somewhat more limited objectives were sought, a simpler program of direct market supply management could be undertaken for the poultry industry. The outlines of such a program are presented below to illustrate this alternative.

In the last two decades the poultry industry has been undergoing a period of rapid introduction of new technology and, simultaneously, a dramatic series of changes in organizational control commonly referred to as vertical integration. During the 1950's the general trend of poultry prices has been downward. In the course of these developments it has been obvious that in most segments of the poultry industry erratic planning in the aggregate was resulting in cyclical surges in output with consequent low prices, often below costs, bankruptcy and enforced departure of producers, followed by reduced

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[9] "Analysis of Quota Plans To Restrict Farm Marketings of Milk and Cream," U.S. Department of Agriculture, mimeograph, June 16, 1960.

production and temporary increases in prices which would start the cycle over again.

Both the declining trend and the instability in prices have led to strong pleas by poultry producers for assistance and many bills to deal with the problem have been introduced in the Congress. Some of these proposals, often referred to as self-help proposals, envision producer-financed efforts at demand expansion, additional research, surplus purchase and disposal, and in some cases, comprehensive programs of direct management of market supplies involving producer bases and restriction of output.

Perhaps the rather complex developing organizational structure of the poultry industry would make the type of supply management proposal illustrated above for milk somewhat more difficult to administer. But this should not be regarded as an insuperable obstacle to its adoption. If poultry producers wish to achieve both more stability in their industry and some hope of reasonable price improvement, the type of supply management proposal previously described for milk, well designed and administered, probably would achieve it in the poultry industry as well.

On the other hand, if poultry producers were satisfied with more limited objectives which aimed mainly at reducing the cyclical swings in production and prices, the peculiar characteristics of this industry offer considerable opportunity for a limited form of supply management which, in very simple fashion, would do much to stabilize production levels and prices. But it should be clear that this approach would not offer producers hope for a prolonged trend of price improvement.

Technological advance in the poultry industry has meant that producers now must rely on use of highly developed strains of chickens in order to take advantage of the more efficient conversion of feed into either eggs or poultry meat offered by these breeds. The development of breeding stock and the production of hatching eggs is an activity essential to the modern poultry industry. Hatcheries are very responsive to orders placed by producers, and their rate of operations are the precursor and foreshadow subsequent output levels of eggs and poultry meat. This feature of the industry would readily afford an opportunity to manage the flow of output of the key element in production to prevent excessive output increases which lead to later demoralization of producers.

Several administrative devices could be used to achieve this end. If a procedure analogous to that employed in the petroleum industry, in which producers were directed to pump no more than a specified number of days per month (allowables) were applied to hatcheries, evidence of developing excessive trends in output could be quickly checked. Thus, hatcheries could be directed to omit the setting of eggs for a specified number of days during the month. The burden would thus be distributed proportionately among hatcheries. Reduced supplies of chicks might result in some increase in prices to producers. But if there were no barriers to entry into the hatchery business, this would limit such increases to relatively short periods.

In order to reduce the burden such a program might have on hatcheries, section 32 funds of the Department of Agriculture, available for use in surplus disposal activities, could be used to purchase from

hatcheries those eggs originally destined to be set but which were diverted in the interests of the program. While no estimate of the cost of such a program is available, it seems reasonable that it would be quite small in comparison with the benefits.

Such a program would leave in the control of hatchery operators the decision of how to ration among their patrons any reduced supply of chicks. It seems obvious that the small, independent producer would be in a weak bargaining position in trying to get chicks during periods of reduced supplies. A program might include provisions which would insure fair treatment of all producers during such periods.

This type of limited direct management of hatchery marketings probably would require the licensing of hatcheries, auditing of their records, the power of the administering agency to determine the allowable days per month of operation, and a procedure for enforcement. This might be handled under a national poultry marketing order. As in the Federal order program for milk in which the handlers are regulated in a limited way, this type of poultry program might be considered as one operated in the interests of the producer customers of the hatcheries. More extensive growth of cooperative hatcheries might help to assure more equitable treatment of smaller producers if such a program were adopted.

POSSIBLE APPLICATIONS AND RELATION TO OTHER PROGRAMS

The general framework for direct management of market supplies on which the milk illustration was based could be adapted to fit the requirements for similar programs for most major farm products. Within this general framework, however, the conditions of production and marketing for each commodity should serve to shape the characteristics of each program. In general, such programs will be most feasible where products enter the marketing system through a rather limited number of channels and where the intensity of substitution is comparatively low. While such programs may seem most feasible for products having a relatively low price elasticity of demand, producers may wish to embark on such programs for price stability or other reasons in spite of slightly elastic demands. Where a given product enters the marketing system in a wide variety of ways, there is likely to be corresponding difficulty in achieving effective administration.

Since all foods compete to some extent for the consumer's food dollar, no supply-management program can proceed very far without consideration of substitution effects. In the dairy industry, the comparatively intense competition between butter and margarine will impose important limits on program generated price improvement for manufactured dairy products. For this and reasons to be discussed below, progress toward price goals regarded by producers as desirable may be somewhat slower than might be hoped for.

Programs for direct management of market supplies of individual farm products will face some of the same issues that either voluntary or compulsory programs to limit the amount of land resources do when applied to specific commodities. Thus, for example, dairymen have long contended that the acres diverted from use in allotment

crops before long resulted in increased production of milk. Similarly, a program for direct management of market supplies of milk would, in some areas, lead dairymen to expand their hog enterprises with resources not needed for milk production. Adoption of programs for direct management of market supplies in a few key commodities may lead several other commodity groups to adopt similar programs in order to prevent an excessive expansion of production and lower prices for these other products.

In important parts of agriculture, notably in the Corn Belt but not restricted to this area, certain agricultural enterprises use raw materials produced by other segments of agriculture. Thus, many farmers are primarily in the business of feed conversion, as distinct from feed production. Direct market supply-management programs usually will be most feasible where applied on products as they leave farms for entry into the food-processing system. A program for hogs, for example, probably would call for administration of fees on excess marketings at the packinghouse level. Such a program would tend to reduce the demand for purchased feed and for feeder pigs. In general, such supply-management programs applied to milk, poultry, and hog marketings, would have major repercussions on feed grain producers who were not engaged in a feed conversion enterprise, and on cattle producers. But it should be noted that most of the programs which restrict use of land generate a series of repercussions which flow in the opposite direction, from feed-grain production to feed-conversion enterprises. Any program must deal with the interrelationships which exist, if possible. Under the program analyzed in part III, there seems to be no feasible way of restricting the utilization of forage crops from the acreage diverted from basic crops, and such a program would tend to further complicate the price problems of dairymen.

In considering the hog-cattle-feed grain complex, direct market supply-management programs adopted by hog or cattle producers would impose severe price problems on cash grain producers in the Corn Belt. To the extent that voluntary land-retirement programs result in lower production of feed grains, the price problems of cash grain producers will be lessened. It seems likely, however, that additional programs will be needed to deal with this type of problem if reasonable equity to producers is to be assured.

If hog producers were to adopt a market supply-management program which permitted hog production sufficient to provide the equivalent of 1955–57 per capita consumption, 1965 production could be approximately 22.3 billion pounds. Such a level of market supply-management would have modest repercussions on the entire feed-livestock complex, while improving hog prices by about $1.50 per hundredweight above free market levels. Yet hog production in 1965 could be about 3 billion pounds above 1955–57 levels. Under such a program cattle prices would be reduced by nearly $0.30 per hundredweight, milk by $0.17 per hundredweight, and eggs by 3.5 cents per dozen, with significant increases in production of each. The feed grain price index would decline by about 17 percent. Much of the reduced feed grain consumption by hogs would move into consumption by the cattle and poultry sectors, although milk production would probably be increased by 3 billion pounds as well. Thus, it appears that a direct market supply-management program for hogs could im-

prove hog prices moderately with significant but perhaps not undue price depressing influences on other livestock enterprises.

Since the demand for cattle is more elastic than most other farm products, the price impact on cattle of supply-management programs in other sectors of agriculture will tend to be comparatively small. But in addition, expanded feeding of cattle will use substantial amounts of feed grains. This outlet will indeed be a key element in the complex adjustment process which seems to lie ahead.

If producers of any commodity are confronted with the likelihood of prolonged periods of low prices and are made fully aware of this prospect, they may be willing to turn to a program of more direct management of market supplies if this seems to offer them some hope for the future. But there will be wide differences among commodities with respect to what such programs can accomplish in the short run. Particularly important at the present time is the fact that certain products are in great abundance in relation to current market prices. With domestic wheat consumption less than half of usual production, it seems impossible to envision a period in the next decade when a market supply-management program, alone, could be effective in raising prices above current levels. Measures to isolate supplies eligible for domestic use will be necessary to improve returns on this part of total production. A program of direct market supply management coupled with price supports and aggressive retirement of land devoted to wheat may be essential parts of a long-range program of bringing wheat resources into a better balance with total demand at reasonably satisfactory prices.

Thus it seems likely that some combination of the several types of supply management—direct management of market supplies and programs to adjust use of resources—will have to proceed together for a number of years. The duration of this adjustment process will depend on the speed with which adjustment occurs. But it is not unreasonable to expect that if a sufficient number of direct market supply-management programs are adopted along with programs designed to facilitate an adjustment of resources in the most difficult areas, that we could look forward to a time when land-retirement programs, too, would not be a very important element in the composite of agricultural programs. But it should be noted that many diverted soil-bank acres will be returning to production in a few years unless provision is made to continue this program. A similar problem will confront most land-retirement programs. Unless programs for direct management of market supplies are adopted, there is no certainty that lands retired will not return to production and undo what has been accomplished by the retirement program.

In view of the tentative nature of program details and great uncertainty about producer interest in programs for direct management of market supplies, it has not seemed worthwhile to attempt a general analysis of probable program costs. Several points about direct market supply program costs should be noted, however:

> 1. Such programs aim to reduce greatly the purchase of products for price-support purposes. Consequently the Treasury costs of price supports should be much lower than at present, after a transitionary period of adjustment. The fees collected for excess production will offset such costs to some extent.

2. Increased gross income to farmers, made possible by such programs, will necessarily come from higher prices at retail. But the extent of probable price increases at retail can be easily exaggerated since food-processing margins are quite large, particularly for those products which are confronted with the most difficult supply problems. For such products, substantial price increases at the farm level would result in relatively small price increases at retail.

3. Administrative costs of such programs may be somewhat greater than present programs, although this is by no means certain when set against storage costs of existing programs.

4. In view of the excess supply problem which will probably be present throughout the 1960's, such direct market supply-management programs may well be the only feasible means of holding present farm price levels, much less improve them, so that administrative costs may be incidental in relation to benefits received.

There may be a number of peripheral benefits to adoption of direct supply-management programs on a fairly broad scale. Two will be cited. For those storable commodities which have such programs fully operational, it will be feasible for the Commodity Credit Corporation to operate storage programs which bear a more direct relation to national needs for reserve stocks than at present. In addition, foreign aid commitments could be integrated into such supply-management programs through special provisions. Marketing certificates could be issued pro rata to all base holders, covering domestically approved supplies plus intended purchases for such aid programs. This would enable officials to commit the delivery of planned amounts for specified periods in advance with assurance that supplies would be available, which in turn, would reduce what has been believed to be one of the important weaknesses of past Public Law 480 programs.

Since programs for direct management of market supplies on a national basis contain a number of new and relatively untried features, use of this approach on an experimental basis for several years may be desirable in order to appraise the strengths and weaknesses of this device. Because the dairy and poultry industries are relatively more isolated from the rest of agriculture in terms of intercommodity demand and supply forces, it may be desirable, if producers support such a program, to give them the opportunity to proceed with programs on a trial basis. It should be noted, however, that such programs cannot be turned off and on like a faucet. Reasonable accomplishments could not be expected in less than several years. If provision for periodic producer referendums is provided, programs could be abandoned when a majority of producers prefer this course. Meanwhile, the experience gained from them would be useful in considering the feasibility of developing specific programs for other commodities.

# PART V

# DIRECT PAYMENTS WITHOUT PRODUCTION CONTROLS

(George E. Brandow, Pennsylvania State University)

Three general purposes for which direct payments by the Government to farmers have been proposed in the past are: (1) to support farm income temporarily as in depression or during a market glut for a perishable product; (2) to support farm income indefinitely when chronic farm depression seems at hand; and (3) to reward farmers for certain acts such as putting land in a soil bank or adopting soil-conserving practices (though usual practice is to classify such programs under other headings). This study deals with the second purpose—to support income over a protracted period.

Direct payments have been used frequently, though often under another name. Parity payments made in the 1930's to producers of basic commodities were direct grants representing a fraction of the difference between market and parity prices. Payments were made to producers of certain farm products during World War II to compensate for rising costs and to stimulate production without breaking through price ceilings. Benefit payments are made under the Sugar Act if producers comply with certain requirements, and since 1955 incentive payments have been made on wool. Direct payments received their widest attention and became a center of controversy in 1949 when Secretary of Agriculture Brannan put forth a proposal that combined price supports for storable commodities with production payments for perishable products.

A number of advantages and disadvantages are commonly given for direct payments. Since the market is permitted to clear, no storage costs are incurred, and consumers receive a larger volume of food at lower prices than under programs that divert supplies from commercial markets or control production. But the payments may stimulate additional output, encourage production of the wrong products, and lead to mounting costs for Government. How serious these difficulties become will depend on the level of intended prices and on the provisions of the particular program. Limitation of amounts paid to individual producers helps to direct income assistance where it is most needed and avoids the public resentment large payments arouse. But limitations may put large producers at a disadvantage and encourage inefficiently small units. Reluctance of farmers to accept direct payments has not been a problem under the wool and sugar programs. A more strongly argued objection is that direct payments make farmers dependent upon Government appropriations and hence upon circumstances and factions that influence Government.

Two variants of direct payments as the principal form of farm income support are discussed here. The first is a simple program

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directly or indirectly assisting producers of most of the important farm products and not limited in any way. The second contains two important kinds of limitations in an effort to avoid some of the faults of the first. Each is studied from two standpoints, (1) what would be the cost if net income of farm operators during 1961–65 were to be kept at the 1959 level, $11.3 billion, and (2) how well could income be supported at a total cost to Government of about $2 billion for direct payments and $3 billion for all income programs?

The other programs assumed to be in operation are Public Law 480, a conservation reserve of 30 million acres, and the sugar and tobacco programs. Excess stocks of wheat, feed grains, rice, and cotton are to be reduced outside of commercial market channels.

### DIRECT PAYMENTS WITHOUT LIMITATIONS

Under the program considered here, farmers would receive direct payments to make up the difference between actual market prices and intended or target prices on all products sold. Intended prices would be established at a selected percentage of parity. By varying the selected percentage, the program could be operated either to maintain a certain level of net income—the 1959 level, for example—or to hold total payments to a predetermined amount—$2 billion, for example.

*Probable effects in the early 1960's*

Estimates of production, prices, incomes, and costs during 1961 indicate the approximate results of an unlimited direct payments program in the early 1960's. Assumptions regarding crop production and Public Law 480 shipments are given in table 19. The projected cropping pattern in the new situation includes considerably more wheat, a little more cotton and soybeans, and less feed-grain acreage than harvested in 1960. The rate of feeding concentrates to livestock is assumed to return to normal, and the projected livestock production and crop and livestock prices are in equilibrium with crop production. The situation in the first year of a direct payments program would depart somewhat from the estimates because of a lag in adjusting livestock production to feed supplies and perhaps because of delay in returning to normal feeding rates, but these would be transitory matters.

TABLE 19.—*Assumed normal-weather output of major crops and Public Law 480 removals from current production, 1961*

| Product | Unit | Acres harvested | Yield per acre | Production | Public Law 480 shipments |
|---|---|---|---|---|---|
| | | *Millions* | | *Millions* | *Millions* |
| Wheat | Bushel | 63.0 | 22.5 | 1,418.0 | 275.0 |
| Corn | ____do____ | 80.0 | 51.0 | 4,080.0 | |
| Oats | ____do____ | 25.0 | 38.0 | 950.0 | |
| Barley | ____do____ | 10.0 | 30.5 | 305.0 | |
| Grain sorghums | ____do____ | 10.0 | 33.0 | 330.0 | |
| Total feed grains | Ton | | | 146.0 | 0 |
| Soybeans | Bushel | 25.0 | 23.0 | 575.0 | [1] 625.0 |
| Rice | Hundredweight | 1.7 | [2] 3,400.0 | 57.8 | 10.0 |
| Cotton | Bale | 17.0 | [2] 465.0 | 16.5 | 1.5 |

[1] Millions of pounds of soybean oil. Also 160,000,000 pounds of cotton seed oil shipped.
[2] Pounds per acre.

The index of prices received by farmers in the hypothetical situation for 1961 would be about 22 percent below the 1959 average.

Estimates of individual prices include:

| | | | |
|---|---|---|---|
| Corn, per bushel | $0.73 | Hogs, per hundredweight | $10.44 |
| Wheat, per bushel | .82 | Milk, wholesale, per hundred- | |
| Soybeans, per bushel | 1.24 | weight | 3.59 |
| Cotton, per pound | .214 | Eggs, per dozen | .25 |
| Cattle, per hundredweight | 17.19 | | |

Net farm income would be about 45 percent below the 1959 level in the assumed situation. The following income summary does not include Government payments other than those made under the sugar, conservation reserve, and agricultural conservation programs:

| | Billion dollars |
|---|---|
| Cash receipts from marketings | 28.1 |
| Gross income of farm operators | 32.0 |
| Total production expenses | 25.9 |
| Realized net income of farm operators from farming, direct payments omitted | 6.1 |

Direct payments of about $5 billion would be required to restore net income to the 1959 level. Alternatively, direct payments totaling $2 billion would leave net income of farmers about $3 billion below 1959. The cost of Public Law 480 shipments from current production at market prices, including ocean freight, would be about $700 million.

*Tendencies developing out of the 1961 situation*

There would be a strong tendency for the benefits of unlimited direct payments on livestock to be passed on to feed grain producers. The direct payments on meat animals, dairy, and poultry would reduce the margins between product prices and feed costs required to maintain livestock production. In time, the increased demand represented by direct payments on livestock would be passed back to feed concentrates and would bid up grain prices. This would happen most quickly in poultry and hog production and least quickly in dairying. Except in the first stage of an unlimited direct payments program, therefore, payments on feed grains would not be necessary.

If crop production did not increase or if the Government disbursed whatever direct payments were required to hold net income at the desired level, crop producers would be the principal beneficiaries. In time, a substantial portion of the benefits probably would be capitalized into land values. But if the government held payments to a certain amount—say, $2 billion—and if crop production responded significantly to the relatively better returns the payments created, part of the benefits to producers would disappear. Expansion of output would reduce prices more than proportionately, and the final result in this particular situation would be a reduction of crop producers' cash receipts from marketings, an increase in their total production expenses, and an increase in net income amounting to less than the payments.

*The situation in the mid-1960's*

If unlimited direct payments were maintained at a level sufficient to hold net income of farm operators from farming at the 1959 level, normal-weather yields of most crops probably would continue to rise

at about the rates of the 1950's, and total crop acreage would stay nearly constant. With Public Law 480 shipments remaining as given in table 19, the volume of products put on commercial markets would reduce prices still further. Production expenses might be expected to be slightly higher than in a free market situation or under a production control program.

The net income projected for 1965 under these circumstances indicates a further decline of net farm income to about $5.8 billion. Direct payments totaling $5.5 billion would be required to hold net income at the 1959 level. Further widening of the gap between the target net income and earned net income could be expected in subsequent years.

The price and income projections for unlimited payments indicate that a program attempting to hold prices at recent levels probably would increase the Government's cost more rapidly over time than would a program to hold net farm income at its recent position. Net income will rise while realized prices for products sold are stable unless rising prices of inputs more than offset gains in farm production efficiency.

An unlimited payments program designed to hold payments to about $2 billion annually would stimulate output expansion somewhat less than the foregoing program, and the 1965 situation might not deviate much from the projections given on pages 16–18 for a free market assisted by Public Law 480 operations. Prices given there are slightly higher than those worked out above for the 1961 situation, and net income rises from $6.1 billion in 1961 to $7.2 billion in 1965. That is to say, a mild recovery from the initial farm depression might be experienced, but net income without direct payments would still be much below the 1959 level. If direct payments of $2 billion were added, net farm income of farm operations would be about $9.2 billion, or 19 percent below the $11.3 billion received in 1959. Welfare benefits may be increased, however, for a given level of expenditures by a payments program carefully designed to channel payments where they are most needed, and every precaution should be taken to avoid stimulating production.

### LIMITED DIRECT PAYMENTS

The type of program studied here is based upon the following assumptions regarding objectives:

1. The purpose of the program is to prevent farm families' incomes from dropping below socially acceptable levels in a high-income, welfare-conscious society. On this criterion, payments should not be made where enough income is available for essential living expenses even though returns on investment may be very low.

2. Society's substantial economic interest in farming reduces largely to the requirement that agriculture use its resources efficiently. Thus payments should not lead to too-small farms, to a production mix inconsistent with society's demands, or to long-run retention of excess resources in agriculture.

3. In light of the probable persistence of agricultural depression under moderate direct payments, the program should not contain obstacles to other programs that might bring farmers' returns on labor and investment more nearly in line with those outside of agriculture.

Considerable conflict is inherent in these objectives, and at best only a compromise can be attained.

*Description*

Two important limitations are included in the program, (1) a restriction of $2,500 annually on payments to a single farm operator or owner, and (2) a restriction on the amount of physical sales or production on which an operator can receive payments. The purpose of the first limitation is to adjust payments more nearly to the need for income support. The second limitation is consistent with the first but has the special purpose of removing inducements to expand production. In addition, this restriction helps to avoid giving to small producers so large a vested interest in direct payments that they oppose other programs of more potential benefit to farmers collectively or involving less cost to the Government.

A base for payment purposes only—not to control production—is assigned to each farm in terms of production units. One bushel of corn is 1 production unit, one hundredweight of milk is 2.36 production units, etc. The base represents the farm's recent production or sales. The maximum base for any one farm is 10,000 production units, and payments will not be made on production units in excess of 80 percent of the farm base. Table 20 shows how the total payment to a producer having a base of 7,500 units might be calculated. As the example indicates, payment rates can be expressed in dollars per unit or in percentage of sales value. The latter is desirable for products varying widely in quality and price.

The quantities used to compute payments are quantities sold, except for feed grains. When payments are limited importantly, feed grain prices will reflect little if any of the benefits of payments made on livestock products. A number of difficulties arise in making payments on sales of feed grains because so large a volume is fed to livestock on the same farms. Thus payment quantities for feed grains are production estimates made by multiplying growers' acreage by the normal per-acre yields in their localities. Making payments on feed grains in this way also helps to put livestock producers who grow their own grain more nearly on the same footing with those who buy grain.

TABLE 20.—*Example of computation of total payment to be made to a producer on a farm with a base of 7,500 production units*

| Item | Production units sold or produced | | Payment rate | Unadjusted payment | Adjusted payment |
|---|---|---|---|---|---|
| | Number | Value | | | |
| Soybeans sold | 3,000 | | None [1] | | |
| Corn produced [2] | 3,100 | | $0.20 per unit | $620 | |
| Cotton sold | 1,500 | $1,620 | 15 percent of value | 243 | |
| Cottonseed sold | 224 | | $0.11 per unit | 25 | |
| Total | 7,824 | | | 888 | |
| Units on which payments made [3] | 4,824 | | | | |
| Adjusted payment [4] | | | | | $571 |

[1] Average U.S. price not low enough to require payments in the year in question.
[2] Calculated as explained in the text.
[3] Limit of 6,000 for this item in this case (0.80 times 7,500). If payments were made on soybeans also, only the 6,000 units with highest per-unit payments would be considered in computing total unadjusted payments. (Note that the per-unit payment on cotton can be computed if necessary and is $0.162.)
[4] Adjusted total payment $= \frac{4,824}{7,500} \times \$888 = \$571$.

Direct payments on feeding purchased livestock seem especially subject to abuses and might disrupt efficient production and marketing practices. Thus payments are proposed only on cattle sold by the original producer and only on the first 600 pounds of weight.[10]  A 60-pound limit is used for sheep and lambs. No payments are proposed on chickens and turkeys because value added is low in relation to sales and because integrated operations have become so common. For wool, only the general direct payment program, rather than the current special arrangement, is considered. Neither the poultry nor the wool assumption is required by the mechanics of the program, however.

Following is an illustrative list of production units assigned to various commodities:

| | | | | | |
|---|---|---|---|---|---|
| Corn | bushels | 1 | Cottonseed | tons | 43 |
| Wheat | do | 1.47 | Cattle and calves | | |
| Oats | do | .53 | | hundredweight | 15 |
| Barley | do | .80 | Hogs | do | 5.62 |
| Grain sorghums | do | .86 | Sheep and lambs | do | 16 |
| Soybeans | do | 1.85 | Wool | pounds | .41 |
| Rice | hundredweight | 3.71 | Milk | hundredweight | 2.36 |
| Peanuts | pounds | .081 | Eggs | dozens | .084 |
| Cotton | do | .25 | | | |

The unit values represent the ratios of the farm prices of the commodities to the farm price of corn during the period 1950–59, with three exceptions. For hogs, milk, and eggs, the "value added" above the cost of feed concentrates is used rather than the market price in computing production units.

On the assumption that the current tobacco program would be continued, tobacco is omitted in computing payments. If another commodity were to be put under a special program at a later date, the production units it represented would be deducted from each producer's total base, and the commodity would be dropped from payment computations.

Payments are to be made on the listed commodities in years when their market prices are less than 80 percent of parity. As the following estimates indicate, payment of the full difference between market prices and 80 percent of parity when prices are at the low levels projected for 1961 and 1965 would result in higher costs than many persons consider acceptable. The cost can be reduced by paying a uniform fraction of the difference between market prices and 80 percent of parity. Estimates of cost are made below for payment rates set at 60 percent of this difference, but the cost of other levels of payment can be inferred from the data.

*Prices, incomes, and costs*

The limited payments program would add perhaps $3.1 billion to net farm income of farm operators under the conditions described for 1961 in table 19. Detail yet to be reported from the 1959 Census of Agriculture would permit a better estimate. A total payment of 3.1 billion in the 1961 situation would raise net income to about $9.2 billion, where it would be $2.1 billion below the 1959 mark.

A slower rate of expansion of crop production could be expected under the limited program than under a payments program holding net farm income at the 1959 position. The projection for a free market assisted by Public Law 480, described on pages 16–18, is also applicable to the limited payments program in 1965. Prices are slightly

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[10] Or payments might be made at one rate on the first 400 pounds of weight and at a lower rate on the next 350 pounds of weight.

higher than in the circumstances assumed for 1961, and net income before payments of $7.2 billion is $1.1 billion higher. The estimated cost of direct payments in 1965 under the limited payments formula is $2.2 billion. Such payments would increase farmers' net income in 1965 to $9.4 billion.

A program designed to pay the full difference between market prices and 80 percent of parity would cost about $5.2 billion under conditions assumed for 1961 and about $3.7 billion in 1965.

The cost of Public Law 480 shipments out of current production at market prices would remain at about $700 million annually.

During the interval between 1961 and 1965, a substantial shift would occur in the distribution of payments among commodities (table 21). The initial impact of going to a substantially free market would be particularly heavy on prices of feed grains, wheat, and cotton. Nearly 60 percent of the payments in 1961 would be on feed grains and wheat. As time passed, however, parity prices as computed under the present formula would be adjusted to reflect market price relationships in the past 10 years. (The parity index is estimated to remain almost stationary at about 290, so the average level of all parity prices would also be stationary.) Parity prices of cattle, calves, dairy products, fruits, and vegetables would rise; parity prices of all field crops, hogs, poultry, and eggs would fall. This is the principal reason for the shifts in payment rates shown in the table. The general tendency of the moving-average feature of the parity formula is to spread out payments evenly over all commodities.

TABLE 21.—*Projected direct payments under a limited program, with payments per unit equal to 60 percent of the full rate, 1961 and 1965*

| Product | Unit of measurement | Percent of sales or production on which payments made | Payments in 1961 | | Payments in 1965 | |
|---|---|---|---|---|---|---|
| | | | Payment per unit [1] | Total payment | Payment per unit [1] | Total payment |
| | | | *Dollars* | *Million dollars* | *Dollars* | *Million dollars* |
| Livestock and livestock products: | | | | | | |
| Cattle and calves | Hundredweight | [2] 64 | 0.82 | 100 | 1.47 | 213 |
| Hogs | do | 74 | [3] 1.63 | 270 | [3] .97 | 164 |
| Sheep and lambs | do | [2] 65 | 1.54 | 9 | 1.34 | 8 |
| Wool | Pound | 65 | .053 | 9 | .024 | 6 |
| Milk | Hundredweight | 75 | [3] .17 | 161 | [3] .25 | 252 |
| Eggs | Dozen | [4] 65 | [3] .020 | 67 | [3] .013 | 36 |
| Total | | | | 616 | | 679 |
| Crops: | | | | | | |
| Feed grains: | | | | | | |
| Corn | Bushel | 72 | .34 | 1,005 | .17 | 531 |
| Oats | do | 72 | .17 | 116 | .10 | 74 |
| Barley | do | 72 | .26 | 57 | .14 | 32 |
| Grain sorghum | Hundredweight | 64 | .52 | 61 | .26 | 37 |
| Total feed grains | | | | 1,239 | | 674 |
| Wheat | Bushel | 72 | .64 | 614 | .42 | 381 |
| Soybeans | do | 72 | .65 | 259 | .35 | 154 |
| Cotton | Pound | 56 | .064 | 294 | .049 | 258 |
| Cottonseed | Ton | 56 | 17.34 | 64 | 7.18 | 29 |
| Rice | Hundredweight | 52 | .98 | 29 | .56 | 16 |
| Peanuts | Pound | 76 | .019 | 26 | .022 | 30 |
| Total crops | | | | 2,525 | | 1,542 |
| All products | | | | 3,141 | | 2,221 |

[1] 60 percent of the difference between the market price and 80 percent of parity.
[2] Percentages of number of animals slaughtered.
[3] The payment rate on hogs is 41 percent of the rate that would apply to a crop because payment is made only on value above feed costs. The corresponding percentages for milk and eggs are 74 and 28, respectively.
[4] Reduced to 50 percent in 1965.

OTHER EFFECTS OF A LIMITED PAYMENTS PROGRAM

Some general comments on income distribution in agriculture, efficiency of resource use, farmers' freedom of operation, and nonfarm effects can be offered, although detailed estimates have not been made and in some cases could not be made.

*Farm size and tenure.*—While agriculture was sufficiently depressed for direct payments to be an important source of income, the program would tend to limit further increases in farm size to the maximum number of production units permitted in the base, though the maximum could and should be raised over time. The 10,000 limit appears to be large enough currently to permit full employment of family labor and the realization of the principal economies of size in most of agriculture. Unless specific provisions were made for subdivision of bases, owners of large-scale farms would have no incentive to subdivide them into maximum-base units. The limit on the amount of payment to one person discourages multiple farm operation and encourages sale or rental in such cases. The limitation also is an incentive for vertical integration arrangements to take the form of contracts between independent farm operators and integrators. Farm consolidation would tend to proceed by combining small farms rather than by adding small farms to large ones.

*Distribution of income.*—Benefits to farmers are in proportion to sales up to the point of the maximum base. Since very small farmers often obtain a substantial proportion of their farm income from production for home use, relative benefits are greatest on those farms just large enough for efficient operation (though this intent cannot be precisely achieved in our complex agriculture). Families on uneconomically small farms remain at a disadvantage as far as farm income is concerned.

Initially, benefits would go mainly to the commodity groups most adversely affected by market developments—to feed grain and wheat producers when the program went into effect. Comparative benefits would be reduced in commodities in which large-farm production is important, as in cotton and rice, but only in areas where large farms predominate. The absolute benefits would be greatest (as compared with no program at all) in the Corn and Wheat Belts, but the relative benefits would be as large or larger in the South and Southeast.

Since large-scale farms receive payments up to the limit, and since small farmers are not given a special inducement to expand production, the limited payments program would not be less favorable to large producers than a free market would be. But any alternative program supporting net farm income by an equal amount and distributing benefits in proportion to sales would be financially more attractive to large producers.

*Efficiency and freedom of operation.*—The use of a total base for each farm, rather than several commodity bases, permits producers to shift readily from commodity to commodity. Limiting payments to 80 percent of the base, together with the moving-average feature of the parity formula, encourages farmers to adjust the composition of their production to conform with market demands. The maximum base is large enough for efficient farm size in most of agriculture, and benefits under the program are not large or permanent enough to pre-

vent the formation of large farms if their production costs are materially lower.

Strong economic incentives for labor mobility will be retained as a result of the level and distribution of benefits under the limited payments program. Adjustment of the farm labor force will continue as long as off-farm employment opportunities exist.

Farmers are free to participate or not as they choose, and they can operate their farms as they wish when participating. Detailed information will be required to establish producers' claims for payments, however, and farmers collectively will be dependent upon the program for a portion of their income.

*Foreign markets.*—Reduction of American prices to the levels estimated for 1965 would reduce the prices at which products move in international trade even though American commercial exports of several products are now subsidized. The impact on other exporters would be large. Several of the countries affected depend on agricultural exports for much of their foreign exchange. Perhaps the United States would need to use an export tariff to keep its offering price for wheat at the minimum level under the International Wheat Agreement. Such restrictions would not materially affect potential commercial exports in many cases, because world demand and supply tend to be inelastic and because countervailing measures would likely be taken by other countries against unduly low export prices in the United States. The foreign impact of free-market prices with or without direct payments is an important consideration for farm policy under current conditions.

*Effects outside of agriculture.*—The Government's cost of direct payments and Public Law 480 would have to be covered by tax revenues, but the total cost of the limited payments program, even at the $3 billion level, would not be greater than recent costs for current programs.

Lower farm prices would be reflected in retail food prices, though the change in retail prices would be much smaller in percentage terms because a comparatively inflexible processing and marketing margin, now amounting to more than 60 percent of retail food costs, intervenes between farmers and consumers. The margin is even higher on grains, whose farm prices fall especially sharply. The food price component of the Consumer Price Index stood at 118.3 in 1959. If farm prices of foods remained at their 1959 levels, this index might rise to about 122 by 1965. (Costs entering into processing and marketing are assumed to continue to rise, though at a slower rate than in the past 5 years.) If farm prices fell to the levels estimated for 1965 under the free market or limited payments program, the retail food price index might decline to 114. Thus, the lower farm prices would reduce retail food prices only 4 percent below the 1959 level but 7 percent below the level likely to prevail if farm prices did not change.

When current programs and the limited direct payments program are compared, consumers and taxpayers, considered together, are found to gain from the payments program because food prices decline without much change in Government costs. This is possible mainly because farm income is reduced under the payments program and because further gains are made in farmers' production efficiency.

SUMMARY

A simple, unlimited, direct payments program carried out on a scale sufficient to hold net income of farmers from farming at the 1959 level of $11.3 billion during the early 1960's might cost $5 billion or more annually under the conditions assumed for the 1960's. The annual cost probably would rise slowly over the years. If an unlimited payments program were to hold prices at a given percentage of parity, the cost probably would rise more rapidly over time.

A program limiting payments to one producer to $2,500 and designed so that payments were made only on 80 percent of each producer's base production or sales would substantially reduce the incentive of unlimited payments to encourage output expansion. The limitations also would avoid making payments where they were least needed. By selecting an appropriate limit for the base amount of sales or production eligible for payment, incentives for farms large enough to realize the principal efficiencies of size could be retained.

Sufficient flexibility can be built into a direct payments program to encourage the composition of farm output to conform with market demands, including publicly financed demands. But aggregate output is likely to remain high enough to depress the general level of farm prices to levels at which net farm income, assisted by income payments amounting to $2 or $3 billion, will be 15 to 20 percent below the 1959 position. Thus, direct payments appear to be capable of alleviating much of the distress likely to accompany a free market situation, but a program of moderate cost apparently cannot maintain overall returns to farmers for their labor and investment even at current levels.

*Combining production restrictions and direct payments.*—By combining improved production limitations for the basic commodities, restricting feed grain production 15 percent by voluntary land retirement programs as outlined by Hathaway in part III and using direct Government payments of about $1 billion, net farm income might be increased 20 percent above 1959 levels. Deducting the imputed income from rental of farm dwellings and home-produced food and fuel in tables 7 and 18, the increase in cash income resulting from improved production limitations for the basic commodities and a 15 percent reduction in feed grains production would be $1.4 billion. Adding another $1 billion in direct payments would increase cash income by $2.4 billion or 31 percent as compared with 1959. This would involve total farm program costs approximating $3 billion a year, about the same as current farm program costs.

Any sharp or dramatic increase in farm income probably would require even more effective and extensive production and/or marketing limitations with some form of land retirement and selective direct payment programs. For example, the adoption of compulsory limitations on acreages used for feed grain production, limiting production 20 percent or more and national marketing orders for dairy and poultry producers would increase farm income further, while holding Government program costs to about $3 billion.

# APPENDIXES

## APPENDIX A

## PROCEDURE FOR ESTIMATING FARM PRICES AND INCOME IN 1965

### (George E. Brandow, Pennsylvania State University)

The general procedure for making projections of prices and incomes consisted of three main parts: (*a*) Projection of acreage and normal-weather yields of crops in 1965, (*b*) estimation of livestock production and of crop and livestock prices consistent with the expected crop production, and (*c*) computation of gross and net income from the estimates of production and prices.

*Acreage and yields.*—Estimates of acreage of leading crops and of normal-weather crop yields in 1965 were made for each of the alternative farm programs. Projected yields for 1965 with no controls and low prices were the same as those used by the U.S. Department of Agriculture in Senate Document No. 77 [1] in the case of oats, barley, and soybeans, but were moderately higher for wheat, corn, grain sorghums, cotton, and rice. The use of higher yields seemed justified by crop production in the late 1950's and in 1960 and by other considerations. Acreage and yields assumed for the various programs are given elsewhere in this publication.

*Prices and livestock production.*—A set of equations was developed to allocate the supply of feed concentrates between the export and domestic markets and among the various classes of livestock. The equations also yielded crop and livestock prices that were consistent with quantities marketed and preserved normal livestock-feed price relationships. These equations were adapted from a demand model constructed as part of the research of a group of agricultural experiment stations under interregional project IRM-1, entitled "Impacts of Present and Proposed Agricultural Price and Income Programs." [2]

The demand elasticities and trends for livestock products in the basic model are given in appendix table 1. Demand for feed concentrates was derived from demand for livestock products by the use of equilibrium relationships between feed and livestock prices and normal rates of feeding concentrates to livestock. The number of cattle slaughtered in 1965 was projected to be 31.85 million head, but the weight added in cattle feeding operations was considered to be a function of the price of feed concentrates. Production of farm chickens was taken to be a byproduct of egg production.

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[1] Report from the U.S. Department of Agriculture and a Statement From the Land-Grant Colleges IRM-1 Advisory Committee on Farm Price and Income Projections, 1960-65, S. Doc. No. 77, 86th Cong., 2d sess., Jan. 20, 1960.
[2] The demand model was developed under the Pennsylvania contributing project to IRM-1 and will be published in 1961.

The quantities of feed concentrates required to produce one unit of livestock product were assumed to be:

Hogs, per pound_____ 5. 40
Broilers, per pound_____ 3. 35
Turkeys, per pound_____ 5. 70
Eggs, per dozen_____ 8. 00
Milk, per hundredweight_____ 35. 52
Weight added in feeding cattle, per pound_____ 8. 76

These rates include concentrates for breeding and young stock, except for beef cattle. In addition, other livestock on farms on January 1 require the following amounts of feed concentrates:

*Tons per head*

Cattle other than dairy cattle and beef cattle on feed_____ 0. 1779
All sheep and lambs_____ . 03
All horses and mules_____ . 9

The rates of feeding used in the model account for the total tonnage of concentrates fed over the period 1947–59, and no trend in the apparent rate of feeding is observable over the period. In the 1958 and 1959 feeding years, however, the actual rate of feeding was approximately 10 percent above normal as defined by these standards. The actual rate was even more above normal in terms of the U.S. Department of Agriculture's usual measures, grain consuming animal units and livestock production units. The model assumes a return to usual feeding rates by 1965, as did Senate Document No. 77.

A 1 percent change in the farm price of cotton during the early 1960's was assumed to cause a change of 1.85 percent in the quantity of cotton demanded for commercial purposes in 1965. This estimate of demand elasticity was combined with a projection of a slow decline in domestic consumption of cotton in the absence of price change. The demand elasticity used for rice was −0.5. Soybean and cottonseed prices were computed from the expected value of oils and high protein feeds, less fixed processing costs per unit.

Prices of milk for different uses were assumed to maintain a fixed relation to each other, but utilization of milk for different purposes varied with prices and with consumption trends. Competition among butter and other edible fats and oils accounts for the cross-elasticities of milk with fats and oils given in appendix table 1.

All equations were linear in logarithms. Such equations give higher estimates of prices when market supplies are large than do equations linear in natural units.

*Income estimates.*—Cash receipts were estimated from production and prices by use of average relationships between output and sales and by projection of trends in on-farm use of farm products. Unless otherwise indicated, Government payments to farmers under programs in effect in 1960 were assumed to continue at about the same level in 1965. The value of farm products consumed in the home was adjusted to reflect both a declining trend and changes in prices of farm products. Rental value of farm dwellings was held at the 1959 level.

Farmers' expenditures for feed were estimated from the total tonnage of concentrates fed, farm prices of grains, and the usual relation of prices paid by farmers for feed to farm prices of grains. A slow rise in the proportion of feed purchased rather than fed on the same farm was also projected. Changes in livestock expenditures after 1959 were based on expected slaughter and prices of cattle and calves. Expenditures for hired labor were held at the 1959 level on the expectation that a further decline in the hired labor force would offset higher wage rates.

Expenditures for property taxes and mortgage interest after 1959 were projected to rise at the rate of recent years. All other expenditures, comprising more than half of total expenditures, were put at a higher level in 1965 than in 1959 to reflect changes in physical quantities and prices. The annual rate of increase in physical quantities after 1959 was assumed to be half the average rate from 1940 to 1959. Prices paid by farmers for the items involved were assumed to rise 0.5 percent per year, a considerably slower rate than in the latter years of the 1950's.

*Comparability with Senate Document No. 77.*—If the assumptions of Senate Document No. 77 concerning crop production and stock liquidation in 1965 are used in the estimating equations developed for the present study, generally good agreement is obtained with the prices and cash receipts given in that publication.[3] A comparison of representative prices is given below.

|  | S. Doc. 77 | Method of this study |  | S. Doc. 77 | Method of this study |
|---|---|---|---|---|---|
| Cattle, cwt | $15.00 | $17.06 | Corn, bu | $0.80 | $0.77 |
| Hogs, cwt | 11.20 | 10.88 | Wheat, bu | .90 | .86 |
| Broilers, lb | .15 | .14 | Soybeans, bu | 1.60 | 1.24 |
| Eggs, doz | .29 | .26 | Cotton, lb | .25 | .22 |
| Milk, wholesale, cwt | 3.60 | 3.64 |  |  |  |

The estimates of total cash receipts from sales of farm products are almost identical—$30,590 million in Senate Document No. 77 and $30,602 million by the method of this study. The associated estimates of net income are $7 billion and $6.9 billion, respectively.

The projections of prices and income for 1965 given on pages 16–18 of this publication are in generally close agreement with those of Senate Document No. 77. The current study assumes higher crop yields in 1965, but the assumptions of the earlier study regarding stock liquidation and (apparently) Public Law 480 shipments approximately compensate for the difference in yields.

Projections of production, prices, and incomes in 1965 are necessarily rough approximations. More significant digits are carried in the tables than the precision of the estimates warrants because drastic rounding off creates inconsistencies within and among sets of projections.

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[3] It is also necessary to make specific assumptions about Public Law 480 shipments that are only implied in S. Doc. No. 77.

APPENDIX TABLE 1.—*Farm-level demand elasticities and trend terms for livestock products and fats and oils*

| Quantity demanded of— | Farm prices of— | | | | | | | | | | | Time [3] |
| | Cattle | Calves | Hogs | Sheep and lambs | All chickens | Turkeys | Eggs | All milk | Soybean oil [1] | Cotton- seed oil [1] | [Lard [1][2] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cattle | −0.684 | 0.039 | 0.060 | 0.030 | 0.048 | 0.005 | 0.003 | 0.005 | ([4]) | ([4]) | ---------- | 3.808 |
| Calves | .256 | −1.082 | .110 | .055 | .087 | .009 | .003 | .005 | ([4]) | ([4]) | ---------- | 1.665 |
| Hogs | .091 | .025 | −.458 | .026 | .042 | .005 | .003 | .005 | ([4]) | ([4]) | ---------- | .680 |
| Sheep and lambs | .421 | .116 | .247 | −1.782 | .136 | .014 | .003 | .005 | ([4]) | ([4]) | ---------- | .110 |
| All chickens | .157 | .043 | .092 | .032 | −.737 | .081 | .003 | .005 | ([4]) | ([4]) | ---------- | 1.678 |
| Turkeys | .066 | .018 | .039 | .014 | .003 | .317 | −.924 | .005 | ([4]) | ([4]) | ---------- | 1.703 |
| Eggs | .011 | .002 | [5] .006 | .001 | .003 | .001 | −.233 | .006 | ([4]) | ([4]) | ([4]) | −.331 |
| All milk | .009 | .002 | [5] .004 | .001 | .002 | .001 | .002 | −.416 | 0.016 | 0.010 | 0.004 | 1.180 |
| Soybean oil | .007 | .001 | [5] .003 | .001 | .002 | .001 | .001 | .143 | −3.988 | 2.736 | .131 | 4.040 |
| Cottonseed oil | .008 | .001 | [5] .004 | .001 | .002 | .001 | .001 | .176 | 5.577 | −6.921 | .136 | 4.191 |
| Lard [2] | .008 | .001 | [5] .004 | .001 | .002 | .001 | .001 | .046 | .181 | .094 | −.540 | −.146 |

[1] Wholesale price.
[2] When product prices were expressed as a function of quantities produced, the total influence of hog production was determined by combining the pork and lard effects.
[3] Percentage change in quantity demanded per year at constant prices.
[4] Less than 0.0005.
[5] Effect of pork price.

APPENDIX B

# TABLES SUPPLEMENTARY TO PART II

(John A. Schnittker, Kansas State University)

TABLE A.—*Assumptions, wheat sector, 1965, Part II*

Domestic use:

| | | |
|---|---|---:|
| Per capital consumption; food; United States, 1965_____pounds__ | | 165 |
| Population _____ _____millions__ | | 195. 7 |
| Total consumption as food_____million bushels__ | | 538 |
| Seed _____do____ | | 50 |
| Feed (1960 wheat price)_____do____ | | 60 |
| Total domestic consumption_____do____ | | 648 |

Exports:

| | | |
|---|---|---:|
| Cash with export subsidy of about 60 cents per bushel_____do____ | | 175 |
| Public Law 480_____do____ | | 275 |
| Total exports_____do____ | | 450 |
| Total disappearance_____do____ | | 1, 098 |

Production:

| | | |
|---|---|---:|
| Yield per harvested acre (limited acreage)_____bushels__ | | 25 |
| Harvested acreage required for 1965_____millions__ | | 44. 0 |
| Planted acreage required for 1965_____do____ | | 49. 0 |
| Harvested acreage, 1960_____do____ | | 53. 0 |
| Planted acreage, 1960_____do____ | | 56. 6 |

TABLE B.—*Assumptions, cotton, 1965, with comparisons*

Domestic use:

| | | |
|---|---|---:|
| Per capita consumption (1959 level)_____pounds__ | | 24. 0 |
| Population_____millions__ | | 195. 7 |
| Domestic consumption_____million bales__ | | 9. 4 |

Exports:

| | | |
|---|---|---:|
| Cash with export subsidy_____million bales__ | | 3. 5 |
| Public Law 480, Export-Import Bank, mutual security_____do____ | | 1. 5 |
| Total exports_____do____ | | 5. 0 |
| Total disappearance_____do____ | | 14. 4 |

Production:

| | | |
|---|---|---:|
| Yield per harvested acre (limited acreage)_____pounds__ | | 500 |
| Yield per planted acre_____do____ | | 464 |
| Harvested acreage required_____millions__ | | 14. 4 |
| Planted acreage required_____do____ | | 15. 0 |

TABLE C.—*Assumptions, rice and soybeans, 1965, with comparisons*

Rice:
    Food, beverage, and seed use per capital (rough basis, including shipments to territories) _____million hundredweight__ 14. 8

      Total_____million hundredweight__ 26. 6
    Exports _____do____ 23. 5

      Total disappearance_____do____ 50. 0
    Harvested acreage required, 1965_____million__  1. 4
    Harvested acreage, 1959_____do____  1. 6
Soybeans:
    Crushings_____million bushels__ 400
    Exports _____do____ 130
    Other _____do____  20

      Total _____do____ 550
    Harvested acreage required at 24 bushels per harvested acre
                                              million__ 23. 0
    Harvested acreage, 1960_____do____ 22. 4

TABLE D.—*Land retirement by States and regions to maintain 1959–60 prices, Part II*

[Acres in thousands]

| | Conservation reserve, 1960 | Wheat area | | Cotton—Distribution of 5 million acres [3] | Total acreage retired | Acreage retired as percent of cropland used for crops |
|---|---|---|---|---|---|---|
| | | Distribution of 17.5 million acres [1] | Distribution of 8 million acres [2] | | | |
| Delaware | 18 | 12 | 6 | | 36 | 8 |
| Maryland | 85 | 60 | 28 | | 174 | 11 |
| New Jersey | 50 | 25 | 9 | | 84 | 10 |
| New York | 508 | 107 | 51 | | 665 | 12 |
| Pennsylvania | 373 | 196 | 101 | | 670 | 12 |
| Eastern States | 1,035 | 399 | 196 | | 1,630 | 12 |
| Illinois | 440 | 481 | 248 | | 1,169 | 6 |
| Indiana | 494 | 370 | 199 | | 1,062 | 9 |
| Iowa | 663 | 33 | 22 | | 718 | 3 |
| Michigan | 721 | 338 | 168 | | 1,227 | 16 |
| Minnesota | 1,944 | 234 | 128 | | 2,306 | 12 |
| Missouri | 832 | 378 | 208 | 115 | 1,533 | 11· |
| Ohio | 525 | 536 | 258 | | 1,319 | 12 |
| Wisconsin | 763 | 16 | 10 | | 789 | 8 |
| Corn Belt | 6,384 | 2,385 | 1,238 | 115 | 10,122 | 9 |
| Montana | 630 | 1,374 | 725 | | 2,729 | 19 |
| Nebraska | 880 | 992 | 524 | | 2,397 | 11 |
| North Dakota | 2,705 | 2,294 | 1,164 | | 6,164 | 23 |
| South Dakota | 1,808 | 849 | 405 | | 3,062 | 16 |
| Wyoming | 125 | 105 | 47 | | 277 | 14 |
| Northern Plains | 6,147 | 5,614 | 2,865 | | 14,629 | 18 |
| Colorado | 1,296 | 889 | 324 | | 2,509 | 25 |
| Kansas | 1,447 | 3,180 | 1,490 | | 6,117 | 22 |
| New Mexico | 867 | 140 | 24 | 60 | 1,091 | 58 |
| Oklahoma | 1,491 | 1,547 | 651 | 215 | 3,904 | 32 |
| Texas | 3,667 | 1,208 | 372 | 1,960 | 7,207 | 25 |
| Southern Plains | 8,768 | 6,963 | 2,861 | 2,235 | 20,828 | 26 |
| Alabama | 410 | 5 | 7 | 330 | 752 | 15 |
| Arkansas | 604 | 26 | 12 | 435 | 1,077 | 18 |
| Georgia | 1,062 | 38 | 15 | 280 | 1,396 | 21 |
| Louisiana | 218 | | 7 | 180 | 405 | 13 |
| Kentucky | 387 | 93 | 31 | | 511 | 11 |
| Mississippi | 335 | 14 | 7 | 505 | 861 | 15 |
| North Carolina | 271 | 100 | 53 | 140 | 564 | 10 |
| South Carolina | 638 | 47 | 23 | 230 | 939 | 25 |
| Tennessee | 499 | 79 | 30 | 185 | 793 | 16 |
| Virginia | 117 | 88 | 43 | | 248 | 8 |
| West Virginia | 59 | 16 | 6 | | 81 | 7 |
| Florida | 229 | | | | 229 | 11 |
| South and Southeast | 4,831 | 506 | 234 | 2,285 | 7,856 | 15 |
| Arizona | 8 | 5 | 7 | 125 | 145 | 12 |
| California | 205 | 138 | 70 | 255 | 668 | 7 |
| Idaho | 294 | 408 | 196 | | 898 | 18 |
| Nevada | | 4 | 2 | | 6 | 2 |
| Oregon | 236 | 282 | 136 | | 654 | 15 |
| Utah | 238 | 103 | 51 | | 393 | 24 |
| Washington | 340 | 690 | 342 | | 1,371 | 20 |
| Western States | 1,320 | 1,629 | 803 | 380 | 4,132 | 14 |
| Connecticut | 5 | | | | 5 | 2 |
| Maine | 123 | | | | 123 | 15 |
| Massachusetts | 3 | | | | 3 | 1 |
| New Hampshire | 12 | | | | 12 | 5 |
| Rhode Island | | | | | | |
| Vermont | 33 | | | | 33 | 4 |
| Northeast States | 176 | | | | 176 | 7 |
| Total, United States | 28,660 | 17,497 | 8,199 | 5,015 | 59,371 | 16 |

[1] Diverted to other crops after 1953.
[2] Currently producing wheat for stocks.
[3] Part of land diverted from cotton after 1953.

TABLE E.—*Land retirement by States and regions to maintain prices slightly above 1959–60 levels, except for wheat, Part II*

| | Cotton | Grain | | Total acreage retired | Acreage retired as percent of cropland used for crops |
| | | Distribution of production [1] | Distribution of acreage based on yields by States [2] | | |
|---|---|---|---|---|---|
| | *Thousand acres* | *Thousand tons* | *Thousand acres* | *Thousand acres* | |
| Delaware | | 90 | 58 | 58 | 14 |
| Maryland | | 226 | 152 | 152 | 10 |
| New Jersey | | 90 | 59 | 59 | 7 |
| New York | | 497 | 407 | 407 | 7 |
| Pennsylvania | | 814 | 612 | 612 | 11 |
| Eastern States | | 1,717 | 1,288 | 1,288 | 9 |
| Illinois | | 5,017 | 2,986 | 2,986 | 14 |
| Indiana | | 2,486 | 1,525 | 1,525 | 13 |
| Iowa | | 5,786 | 3,909 | 3,909 | 17 |
| Michigan | | 1,175 | 925 | 925 | 12 |
| Minnesota | | 3,300 | 2,750 | 2,750 | 14 |
| Missouri | 115 | 1,808 | 1,507 | 1,622 | 12 |
| Ohio | | 2,170 | 1,331 | 1,331 | 13 |
| Wisconsin | | 1,763 | 1,278 | 1,278 | 13 |
| Corn Belt | 115 | 23,505 | 16,211 | 16,326 | 14 |
| Montana | | 1,040 | 1,350 | 1,350 | 10 |
| Nebraska | | 2,802 | 2,802 | 2,802 | 13 |
| North Dakota | | 1,808 | 2,825 | 2,825 | 11 |
| South Dakota | | 1,582 | 2,167 | 2,167 | 11 |
| Wyoming | | 90 | 120 | 120 | 6 |
| Northern Plains | | 7,322 | 9,264 | 9,264 | 11 |
| Colorado | | 588 | 700 | 700 | 7 |
| Kansas | | 2,667 | 3,604 | 3,604 | 13 |
| New Mexico | 60 | 90 | 134 | 194 | 10 |
| Oklahoma | 215 | 814 | 1,507 | 1,722 | 14 |
| Texas | 1,960 | 1,898 | 2,446 | 4,406 | 15 |
| Southern Plains | 2,235 | 6,057 | 8,391 | 10,626 | 13 |
| Alabama | 330 | 406 | 548 | 878 | 17 |
| Arkansas | 435 | 181 | 251 | 686 | 12 |
| Georgia | 280 | 542 | 774 | 1,054 | 16 |
| Louisiana | 180 | 136 | 183 | 363 | 12 |
| Kentucky | | 633 | 506 | 506 | 11 |
| Mississippi | 505 | 362 | 470 | 975 | 17 |
| North Carolina | 140 | 678 | 665 | 805 | 14 |
| South Carolina | 230 | 271 | 398 | 628 | 17 |
| Tennessee | 185 | 497 | 518 | 703 | 14 |
| Virginia | | 362 | 302 | 302 | 9 |
| West Virginia | | 90 | 69 | 69 | 6 |
| Florida | | 90 | 134 | 134 | 6 |
| South and Southeast | 2,285 | 4,248 | 4,818 | 7,103 | 14 |
| Arizona | 125 | 136 | 82 | 207 | 17 |
| California | 255 | 678 | 574 | 829 | 8 |
| Idaho | | 497 | 487 | 487 | 10 |
| Nevada | | | | | |
| Oregon | | 407 | 452 | 452 | 11 |
| Utah | | 136 | 107 | 107 | 7 |
| Washington | | 768 | 725 | 725 | 11 |
| Western States | 380 | 2,622 | 2,427 | 2,807 | 10 |
| Connecticut | | | | | |
| Maine | | | | | |
| Massachusetts | | | | | |
| New Hampshire | | | | | |
| Rhode Island | | | | | |
| Vermont | | | | | |
| Northeastern States [3] | | | | | |
| Total, United States | 5,015 | 45,471 | 42,400 | 48,000 | 13 |

[1] At 1.05 tons per acre, national average: 45,200,000 tons.   Column 2 shows production to be retired in each State.

[2] 1950–59 average yields plus 20 percent for trend.

[3] Not computed because of negligible importance.