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Land Retirement As a Solution of Supply-Demand Imbalance

FROM THE FOUNDING of this nation until the early part of the twentieth century, the land policy of the United States was in essence one of getting the potential farm land of this country into the hands of individuals and getting it developed. Since 1920, the land area in farms has not changed substantially, and such change as has occurred in harvested crops has been downward.

Even so, aggregate farm supplies since 1920 have tended to press upon prices with the exception of the periods dominated by war and postwar demands. We have been, and are now, in a period where the central land problem has changed from one of obtaining expansion and development to one of getting the potential farm land into its proper use from the standpoint of the nation's requirements.

Near the close of World War I, a significant event within United States agriculture occurred. The rate of gain in agricultural output per farm worker began to exceed the rate of gain in population and the domestic demand for food. For the first time, this made possible an absolute decline in the number of farm workers.

This high rate of gain in output per worker laid the basis for the decline both in the number of farm workers and in the number of farms. This ratio is largely responsible for the human resource adjustment and the size of farm adjustment problems which we face in agriculture in 1960.

During the 1950's a second significant event occurred: Crop yields in the nation began to increase at a more rapid rate than the rate of increase in population and demand for food. In the 1950's crop yields increased one-third while domestic demand for food increased one-fifth.

It just doesn't take as many acres to feed and clothe our larger population in 1960 as it did in 1950. This makes possible an absolute decline in the number of cultivated crops in the United States.

Even if one allows for rather wide changes in the average price of land and in product prices, the optimum combination of resource with present levels of technology does not require as many acres under cultivation as we have today to meet the nation's food and fiber needs adequately.

We have and are adding capital inputs, such as chemicals, machinery and technical know-how at such a rapid rate that supplies are growing faster than the demand for agricultural products.

This has occurred, not only because of new technology, but also because of changed price relationships for capital inputs, which makes it more profitable to substitute them for land. The cost of fertilizer, which is priced only slightly higher now than in the 1920's, is a good example of this.

Therefore, we now have, in addition to an excess supply of human resources, a second resource, an excess supply of cultivated land.

The enlargement of farms does not materially change this resource combination with respect to land. It may raise the average income of farm operators, because it will tend to raise the income of those individuals who do enlarge their units, but it does not correct the imbalance of agriculture.

In fact, the enlargement of farms probably increases total output, because the small unit is more often incorporated into a better managed unit, and the production per acre is raised rather than lowered.

If we continue to have a progressive agriculture, and if we do not discover additional market outlets other than those now in prospect, the retirement of cultivated land becomes an economic consequence of progress in agriculture. The political phase of the problem is not whether we retire land, but rather what land is to be retired and under what circumstances.

Under our present socio-economic system and our emphasis on progress, it is further assumed that we will not limit the non-land inputs.

If we should follow any one of the six most proposed approaches for adjusting agricultural production, or any combination of these approaches, they all would retire land. These proposed six approaches are:

1. Free prices.
2. Mandatory quotas on all products.
3. Mandatory land retirement.
4. The purchase of land.
5. Grass and livestock or crop easement programs.
6. Retirement of land under rental arrangements.

The type and location of the land retired from crop production would vary under each of the approaches. It might or might not be used for other purposes such as grass, trees and recreation.

MAGNITUDE OF THE ADJUSTMENT

An analysis of our recent production and demand situation would indicate our agricultural plant is geared to produce from 4 to 8 percent more farm products than the market will take at socially acceptable prices, as indicated by Congress on numerous occasions.

The accumulation of commodities in storage for the six-year period from 1953-59 amounted to approximately 2 1/2 percent of total annual production.

The adjustment needed above 2 1/2 percent to bring supplies into reasonable balance depends upon the exact assumptions made relative to foreign needs and the level of prices assumed possible and socially acceptable. However, most assumptions and analyses would place the total adjustment needed between the 4 and 8 percent level.

The United States has a total land area of approximately 1,904 million acres. Of this, about 450 million acres are in plowland. Approximately 965 million acres are in permanent hay and pasture. The remaining acreage is in nonpasture forests, waste and nonagricultural lands.

If an agricultural adjustment of the 4 to 8 percent level is achieved, it would require a shift of from 40 to 80 million acres of land out of cultivation. The exact amount would depend upon the type of program used to bring about the shift as well as the type of land shifted. Thus, a 60 million acre figure might be used to indicate the magnitude of the land adjustment problem.

If this shift occurred as a result of low farm prices or a negotiable marketing quota program, the figure might be nearer the 40 million acre level. If it occurred from a program which was directed towards shifting whole farms in the marginal areas or a fraction of every farm out of production, it might require nearer the 80 million acre level.

Our studies indicate that if a program were directed at the farm in the marginal areas or towards a percentage of each farm, about 1 percent adjustment in output might result from each 2 percent shift in land out of cultivation at the 60 million acre level. Very little reduction occurs where small amounts of land are shifted out. However, as acreage increases, the reduction of output becomes greater in proportion to the land taken out.

POSSIBLE APPROACHES

Under any land retirement program, certain limitations on bringing new cropland into production might be desirable. Likewise, practical programs for expanding markets, both at home and abroad, would be consistent with a land retirement program.

Programs designed directly for retirement of land may take varying approaches, such as mandatory controls, land buying, grass and livestock or crop easement programs or retirement by rental agreement.

Mandatory Controls

If mandatory controls are used, it usually means it is necessary to take a given percentage out of each farm, or at least to make uniform adjustments on farms of a given type. Mandatory control, therefore, cannot take out land in certain areas and still meet the qualifications of treating people equally. Little flexibility is available in the program from one area to another.

Land Buying

A land buying program may take out various types of land in certain areas and would allow much more flexibility in the program. However, such an approach requires many immediate social adjustments and does not appear as an acceptable approach, if conducted on a scale to meet the magnitude of the current land adjustment problem.

Grass and Livestock or Crop Easement Programs

Under a grass and livestock program, certain inducements might be given to farmers for shifting their soil depleting crops into grass, which they would use in their livestock program. Under a crop easement program, the government might purchase from landowners the right to grow soil depleting crops in certain areas. The producers could continue to use the land for all other purposes.

Such programs would require approximately a 50 percent greater shift in harvested crop acres than where the land was not used for grass. These types of programs would increase roughage-consuming livestock at the expense of grain-consuming livestock, but it would reduce the over-all production of calories for food.

Retirement by Rental Agreements

Under this approach, a land retirement program could take any one of the three following approaches:

1. It could be used to shift a uniform percentage of plowland on each farm. Under this plan, in most instances, the least productive land on each farm would be retired.

2. Funds could be allotted to each state, to be distributed on a whole or partial farm basis, in the same proportion as the agricultural production of each state is to the total production of the United States. The program could be used to move lower to average grades of plowland out of cultivation in each state.

3. A program could be developed to retire from production the lowest to average grades of land, wherever they are in the United States, on a whole or partial farm basis.

A program also could be developed to take out only the higher producing land. However, such an approach would not bring about the most desirable long-time shifts and seems less likely to be used.

Thus the question, under the rental arrangement, becomes one of whether we retire the less productive plowland on each farm, the lower grades in each state, or the lower grades in the nation as a whole, or some combination of the three.

The implications of these different approaches are self-evident, in most cases. A program which only retires a percentage of each farm would be more costly than a program which retires whole units. A farmer who puts part of his farm in retirement cannot reduce his expenses as much per acre as the farmer who puts his entire farm in the program.

On a partial farm basis, a farm operator must spread his labor, machinery and other costs over fewer acres. In most cases, by putting a small portion of his farm in reserve, he reduces only his cash costs for seed, fertilizer and other capital inputs. These costs which he can reduce in the corn and wheat areas are equal to about 25 percent of his total costs. In the cotton and tobacco areas, they may equal 40 to 50 percent of his costs. Once such a program is discontinued, the land would likely go back into production. While this approach does not solve the fundamental land adjustment problem, it does have political advantages since it tends to distribute funds to many farmers and results in minimum social and economic adjustment.

If whole farms are retired, either on a state or national basis, the costs of such a program are less. From the standpoint of the greatest long-run efficiency and from the dollar and cents standpoint, the retirement of whole farms in the marginal farming areas

is the most efficient for the nation and in line with what might happen with competitive prices.

Such a program, however, would concentrate participation in certain areas. It would create the greatest immediate social and institutional problem, especially where population shifts are involved. It would likewise concentrate the payments in certain areas, which would raise political problems.

Analysis made under IRM Project 1¹ indicates if this approach were used, approximately two-thirds of the adjustment in acreage would occur in the cotton and wheat areas of the country (Table 12.1). However, once institutional adjustments were made, it might be publicly acceptable for the government to purchase the land.

Some individuals argue, with validity, that the criteria for retiring land should not be the degree of marginality of the land for cultivation, but rather that criteria should be based on the least difference between the present use of the land and its next best alternative use, whether it be recreation, trees or grass.

They also argue that in some areas with relatively good quality land its value for recreation purposes might make it the land

Table 12.1. Comparison of Two Methods of Reducing United States Soil Depleting Crop Acreage by 42.5 Million Acres^a

Area	On marginal land for U.S.		On marginal land in small areas ^b	
	Acres shifted	Percent of payments to area	Acres shifted	Percent of payments to area
I Range	2,300	5	3,400	9
II Wheat	12,300	29	9,900	16
III Dairy	3,300	8	3,600	9
IV Corn	3,300	8	13,200	38
V Tobacco	3,100	7	3,300	8
VI Cotton	17,700	42	7,600	10
VII Fruit and Truck	500	1	1,500	10
Total U.S.	42,500	100	42,500	100

^a Based on estimated crop costs and returns only, 1955.

^b Estimate if taken out uniformly in 80 acres, then added together for major areas.

Source: Unpublished data, IRM 1 Research Project, Ind. Agr. Exp. Sta., Lafayette.

¹ IRM Project 881, unpublished data, Ind. Agr. Exp. Sta., Purdue University, Lafayette, Ind.

which would cost the least to shift if the value of its alternative use is considered.

SUMMARY

Technological advances in agriculture have created agricultural surpluses because of the failure of the human and land resources to adjust rapidly enough to offset the supply increasing effect of these advances. The government has spent vast sums for programs to protect farmers' incomes from the effects of these excessive supplies. It appears likely that such programs will be continued. If they are, they should be directed toward the twin goals of not only protecting farm incomes, but also of bringing about land and human resource adjustments which are necessary to bring the size of the agricultural plant into better equilibrium with the agricultural needs of society.