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Agricultural Letter

THE PRODUCTION CAPACITY IN AGRICULTURE has received renewed interest in recent months due to fears of shortages and rapid increases in food prices. The U. S. Department of Agriculture has responded to this heightened interest with a study that evaluates the production capacity of American agriculture. The results of the study indicate that U. S. agricultural production could be boosted substantially by 1985 without depleting the large acreage of potential cropland currently in other uses.

The inventory of cropland totaled 472 million acres at the beginning of the Seventies, equivalent to approximately one-fifth of total land area in the United States. Of this amount, 333 million acres were used for crops—including acreage harvested, fallowed, and destroyed—while 88 million acres represented cropland pasture and 51 million acres were idle or in soil-improvement programs. In addition to the cropland inventory, the study noted the existence of 264 million acres of other land suitable for regular cultivation if improved by irrigation, drainage, or clearing. At present, this acreage is primarily devoted to forestry, grassland pasture, and range.

Based on the assumptions of favorable farm prices (roughly equivalent to the highs reached last year), adequate supplies of inputs, normal growing conditions, and no restrictions on land use, the study concluded that harvested cropland could reach 350 million acres by 1985, up 21 percent from 1972 harvested acreage and up just 10 percent from the estimated 1973 harvested acreage. The bulk of the increase would come from land previously diverted from production and from land currently in cropland pasture. Ironically, the study concluded that the 264 million acres of "other" land would remain virtually unchanged since the assumed favorable returns in forestry and beef cattle would restrict the amount that would be converted to crop acreage.

The study projected potentially sharp increases in production of various crops. For example, the expanded acreage could produce a 9.1 billion bushel corn crop by 1985, up 63 percent from the 1972 harvest. Similarly, production of soybeans and wheat could reach 2.3 billion bushels in 1985, up 77 and 53 percent, respectively, from 1972.

Crop Yields: U. S. Average Versus Top 10 Percent of Producers

Crop	U. S. average yield		Top 10 percent producers	
	1969-71 (bushels per acre)	1972	1972 average yield	Percentage of 1972 U. S. average yield (percent)
Corn	82.2	96.9	143.4 ¹	148
Winter wheat	33.3	34.0	50.7 ²	149
Soybeans	27.4	28.0	44.7	160
Cotton (pounds)	437	507	926 ³	183

¹ Excludes yields on irrigated fields in Kansas and Nebraska.

² Excludes irrigated wheat fields.

³ Includes irrigated cotton in Arizona and California.

SOURCE: U. S. Department of Agriculture.

The projected large gains in production mainly reflect higher per-acre yields that would result from a wider application of existing technological practices. These practices would include greater use of hybrid seed, fertilizer, and chemicals, increasing plant populations per acre, more continuous row cropping, and increased irrigation. The implication of wider application of existing technology is suggested in the table. For most major crops, the top 10 percent of the producers achieve per-acre yields that range upward from 50 percent greater than the average for all farmers.

A number of factors could alter the production capacity of agriculture from the U. S. Department of Agriculture's projections. For example, if farm prices provide more of a production incentive than that assumed by the study, it is conceivable that both the rate of converting other land into cropland and the rate of adopting existing technological practices would be higher than projected. In addition, current research in hybrid seed varieties for some crops indicate potential sizable increases in yields, particularly for wheat. Recent developments in early-maturing varieties of small grain, coupled with minimum or no-till planting equipment, have greatly increased the potential for double cropping. At the same time, however, if large increases in production are needed in the agricultural sector, a number of problems will have to be overcome.

In the near term, fuel and fertilizer supplies could restrict crop expansion. Achieving sizable increases in production will necessitate a larger and more skilled hired labor force than currently exists. Moreover, environmental constraints could become restrictive if economically efficient conservation techniques are not developed in the near future. Current estimates indicate that one-fourth of the fed beef producers, two-fifths of existing dairy operations, and one-fifth of the hog producers will experience problems in meeting the surface water runoff standards already on the books and scheduled to become effective over the next ten years.

Large increases in production are not unique. During the past two decades, corn production more than doubled, while harvested corn acreage declined by over one-tenth. Similarly, wheat production rose three-fourths despite a slight reduction in harvested acreage. Since these developments occurred even in the absence of an all-out production incentive and since the United States has a large reserve of land that could be converted to cropland, it would appear that the long-run production capacity of American agriculture may even exceed the most optimistic expectations.

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