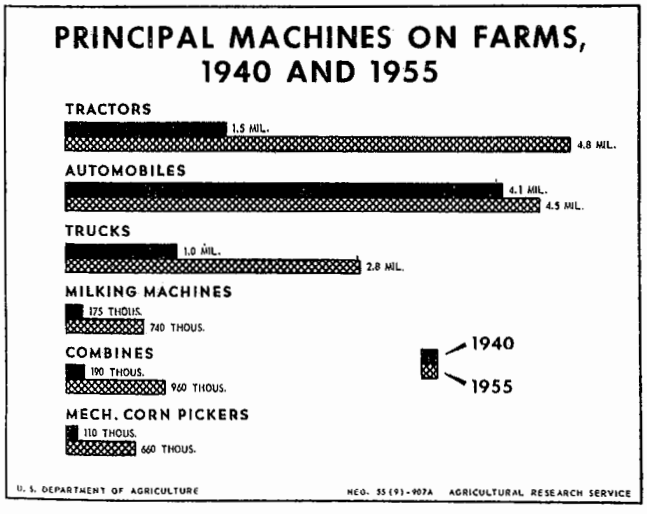
Horses and mules.—Between 1945 and 1954, the number of horses and mules on farms declined from 11.6 million to 4.1 million head. As shown by the accompanying map much of the remaining horse and mule population is found in the Southern States, where tractors have not been as widely used as in the Northern and Western States.

Tractors—increase and decrease, 1950–54.—In most parts of the United States, the number of tractors has increased. On many farms in the Corn Belt the increase is associated more with the addition of a second tractor to farms rather than with the replacement of horses and mules by tractors. In the Southern States many more farms substituted tractors for horses and mules as a source of power between 1950 and 1954. The tobacco-producing areas of eastern North Carolina and South Carolina have marked increases in the number of tractors. Two other areas outside the Corn Belt and Lake States which have had especially large increases are southeastern Pennsylvania and adjacent areas in Maryland and Delaware. Some of this increase has occurred on farms where tradition and custom delayed the substitution of tractors for horses and mules. It is also an area where the use of small garden tractors has expanded on part-time farms and residential farms around cities. In the Western States, tractors have increased mainly in the irrigated areas.

Horses and mules and tractors on farms, 1910–56.—The number of tractors on farms has expanded from only a very few in 1910 to 4.5 million, not including steam and garden tractors. A sharp persistent decline in the horse and mule population has accompanied the increased use of tractor power. Horses and mules now furnish only a small part of the present farm power needed. Also significant is the fact that further reduction in the acreage of land needed to furnish feed for horses and mules will no longer be a significant factor contributing to greater production of food and fiber for domestic use and for export from the same total cropland acreage.



Principal machines on farms, 1940 and 1955.—World War II and postwar prosperity have been strong incentives to farm mechanization. The amount of farm machinery that farmers buy in most years is determined mainly by present and prospective income and by availability of the machinery. During the depression years of the early thirties purchases of machinery and equipment were low mainly because of the income factor, but during World War II, limitations on the manufacture of farm machinery meant that farmers could not buy all of the machinery that they wanted. Annual purchases of farm machinery and equipment, including motortrucks and automobiles, exceeded $3 billion a year from 1948 to 1954, which equals about a tenth of the cash receipts from farming during these years. The highest previous total expenditure for a single year was in 1947 when about $2 billion were expended for this purpose by farmers. Investment of savings accumulated during the War and early postwar years and installment buying are the major forces that explain this high level of machinery and equipment buying.

The accompanying chart presents a comparison between 1940 and 1955 for some of the principal farm machines. All machines shown in the chart, except automobiles, have had a marked increase in numbers during this 15-year period. There were nearly as many automobiles on farms in 1940 as in 1955. All other types of machinery have had high proportional increases. There were about 3 times as many tractors and trucks in 1955 as in 1940; 4 times as many milking machines; 5 times as many combines; and 6 times as many mechanical cornpickers. Numbers of other machines such as cottonpickers and pickup balers have also increased rapidly.

The use of the mechanical cottonpicker has been one of the newest and most widely discussed innovations in the farm machinery field. A comparison of the method of harvesting used in the 1947–48 harvesting season with that used in the 1954–55 season reveals the fact that most of the mechanical picking of cotton has been introduced during these years:

Method of harvesting	*Estimated percentage of crop harvested*	
	1947–48	*1954–55*
Hand-picked	77.5	54.2
Hand-snapped	20.6	24.3
Machine-picked	0.1	15.9
Machine-stripped	1.8	5.6

The use of the machine-picker is restricted mainly to certain parts of the cotton-producing areas. For the 1954–55 season, 62 percent of the California cotton crop was machine-picked. For Arizona, machine picking accounted for 44 percent of the crop. Louisiana ranked next with 28 percent, followed by Missouri, 22 percent; Arkansas, 16 percent; Mississippi, 11 percent; and New Mexico, 8 percent. In all other cotton-producing States less than 5 percent of the cotton was machine-picked in the 1954–55 harvesting season.

Regional differences in the use of other kinds of farm machinery also exist. These differences are explained partly by contrasts in type of farming but also by the rate at which farmers have been able to mechanize their operations. Thus for example, nine-tenths of the cornpickers are on farms located in the 12 North Central States, but these 12 States account for only seven-tenths of the Nation's corn acreage.

Another kind of farm machinery and equipment that is of growing importance is that used in the control of insects, plant diseases, and weeds through spraying and dusting. The introduction of new pesticides has been accompanied by improvements in the methods of application. The leading developments in spraying and dusting equipment include high-pressure sprayers for tree fruits and nuts, low-pressure or low gallonage sprayers used principally on field crops, and increased spraying and dusting from airplanes. The Production Economics Research Branch, Agricultural Research Service, has estimated that in 1952 about 31 million acres of farmland were treated one or more times for the control of weeds and brush and 29 million acres were sprayed or dusted for the control of insects and diseases.

Much of the land treated for control of weeds and brush is located in the Corn Belt, Northern Plains, Mountain, and Pacific regions. Acreage sprayed or dusted for control of insects and diseases is mainly concentrated in the Southern and Western States.

The use of machinery on American farms will undoubtedly continue to increase. Machines and equipment already in use on some farms will become more widely used. New machinery and equipment are introduced every year. Existing machines are being improved to do a better and more efficient job. These expected changes will continue to affect the use of land resources and further adjustments in the regional pattern of land use may be anticipated. These will be related in part to technological advances in mechanizing farm operations.