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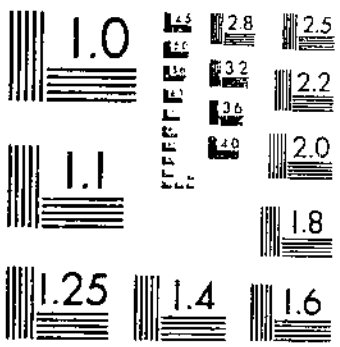

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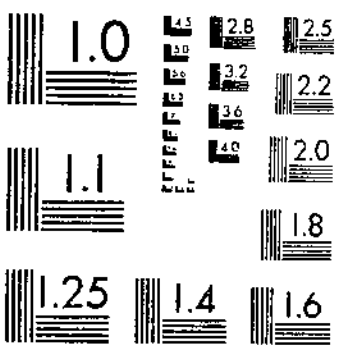

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UNITED STATES
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WASHINGTON, D. C.

The Competitive Position of Dairying in Southern New England[1]

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CONTENTS

INTRODUCTION

This bulletin is concerned with the future trend of dairying in southern New England.[3] It throws some light on the question of whether local dairymen will be able to compete successfully with outside producers for southern New England markets for milk and cream. Suppose milk production outside New England were to increase sufficiently to bring about lower prices in these markets. How then would local milk production and local farm incomes be affected over a period sufficiently long for adjustments to the new situation to take place? Similarly, if milk prices were to rise relative to other prices, how much expansion in production could be expected in southern New England over a period of say 10 years? These

[1] Submitted for publication Sept. 25, 1941.

[2] This study was planned by Sherman E. Johnson, representing the Bureau of Agricultural Economics; John D. Black, representing the committee on research in the social sciences of Harvard University; Adrian H. Lindsey, representing the Massachusetts Agricultural Experiment Station; and Donald G. Hammerberg, representing the Storrs (Connecticut) Agricultural Experiment Station. The field work was directed by Ronald L. Mighell and Erling Hole. The analyses were made jointly by the author in Washington and by Francis C. Jones and Paul S. McComas at Harvard University.

[3] Southern New England in this study is considered to include the 3 States of Massachusetts, Connecticut, and Rhode Island.

questions indicate the type of supply response problem considered in this study.

The present estimates of prospective milk production are not exactly forecasts. They are estimates of the supply that would be forthcoming by 1946 under three possible price situations. They are based on both a study of past trends in production and on an intensive analysis of the alternative opportunities open to farmers in southern New England so far as these can be ascertained from evidence within the area.

Similar studies have been made of supply conditions in selected areas of Vermont, Michigan, Wisconsin, and Minnesota (*1, 2, 6, 10*).[4] Reports of these studies indicate how serious the competition is likely to be for southern New England and other milk markets. A more general analysis of trends in dairying since 1928 by major type-of-farming regions has also been published as one of the reports in this series on interregional competition in dairying (*11*).

In the studies of supply responses in selected areas considerable attention is given to the construction of supply schedules for milk following the method suggested by Black (*4*) and discussed in more detail in Analysis of Interregional Competition in Agriculture,[5] and in Supply Responses in Milk Production in the Cabot-Marshfield Area, Vermont (*1*). This involves the comparison of expected net returns from different systems of farming in which the enterprises found in the area are combined in different proportions. This procedure is known as budgeting. By using different prices for milk in these budgets while holding other prices constant, an insight is given into the adjustments that farmers would be likely to make if the price of milk were to go up or down relative to other prices.

The supply schedules dealt with in this study are in terms of the quantities of milk that farmers would offer for sale at various prices if given about 10 years in which to make adjustments to a given situation. It is to be expected that the more time that is allowed for making adjustments, the greater will be the production response. In other words the elasticity of supply increases with the length of time considered, as it takes time for the forces set in motion by a change in price to work themselves out. A farmer may decide to increase his acreage of silage if the price of milk goes up. This decision could not have any effect on the quantity of milk produced for several months at least. If the price of milk were to go down, some adjustments that would be made eventually might be postponed until certain resources like buildings, machinery, or equipment designed especially for the production of milk were at least partially used up.

The construction of a supply schedule for a given area cannot be reduced to a simple formula. It has been pointed out that these schedules must be in terms of how producers actually would respond and not necessarily in terms of what would be most profitable for them to do (*4, p. 99*). Then price relationships themselves are affected by the adjustments farmers make to changes in prices. If the price of milk were to go up 15 percent, a small increase in production might cause a return of the former price relationship which

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[4] Italic numbers in parentheses refer to literature cited, p. 42.

[5] Johnson, Sherman E., Hady, Frank T., Mighell, Ronald L., Allen, R. H., and Hoge, Erling. Analysis of interregional competition in agriculture. U. S. Bur. Agr. Econ. 71 pp., illus. 1939. [Processed.]

would induce no further adjustment. The main reason why some farmers do not make the changes in their farm organizations that new price relationships indicate to be profitable may be their realization that if many of them increase their production of the high-priced commodity, the price would be seriously depressed.

In spite of these limitations, this approach appears to be valuable in economic forecasting and planning. A person who is thoroughly familiar with the agriculture of a given area should be able to exercise better judgment in predicting future production if he first investigates the income possibilities of various systems of farming under different price situations. This will not eliminate all the uncertainty about the future sources of milk supply, but it is a step in that direction.

The results of this study may be most useful to farmers in other areas who are interested in the possibilities of their being able to sell more milk, dairy products, herd replacements, and feed in southern New England. At the same time, farmers in southern New England will find much to interest them in the reports of other areas, as these tell more about the kind of interregional competition they may be facing. State and local planning committees realize the need for information about supply and demand conditions outside their own localities.

This is an attempt to furnish forward-looking information about the milk-supply situation in southern New England.

THE AGRICULTURE OF SOUTHERN NEW ENGLAND

Much of the land in southern New England is submarginal for agricultural purposes at the present time. Although the States of Massachusetts, Rhode Island, and Connecticut form a deficit area so far as most agricultural products are concerned, more than 2 million acres of farm land reverted to woods in these States between 1860 and 1940. Scattered acreages of various sizes are cultivated more or less intensively depending on the soil, topography, and local market conditions. They are surrounded by acreages that were either never cleared for farming or have been allowed to "grow up to brush."

Land Utilization

Table 1 shows how the land in southern New England was used in 1934 according to the United States Census (*29, v. 2*). Approximately one-half of the total land area was classified as farm land although only 27 percent was cleared for farming. An additional 9 percent was classified as woodland pasture. Plowable farm land accounted for 17 percent of the total land area but cropland harvested accounted for only 14 percent. Most of the other plowable land was used for pasture.

Land that is not in farms is also forested to a considerable extent. A recent land-cover survey made by the Rhode Island Experiment Station indicated that 60 percent of the total land area of that State is covered with brush, trees, or stumps (*13, 14, 15*). The acreage of such land was found to be more than 3 times as large as the acreage of cleared land used for agriculture. Farm woodland as reported by

the United States Census for 1934 accounted for only 23 percent of the total forested acreage as indicated by the land-cover survey.

TABLE 1.—*Utilization of land, southern New England, 1934*

Utilization	Area	Percentage of the total land area
	Acres	*Percent*
Land in farms:		
Cropland	1,256,418	14.1
Plowable pasture	256,008	2.9
Woodland pasture	802,980	9.0
Other pasture	518,647	5.8
Woodland not pastured	1,363,426	15.3
All other land in farms	385,894	4.3
Total	4,583,372	51.4
Land not in farms	4,329,268	48.6
Total land area	8,912,640	100.0

United States Census.

A survey completed in Connecticut in 1914 showed that 46 percent of the total land area of that State was forested (*19*). Since that time the forested acreages have apparently been increasing. On the basis of these observations, more than half of the total land area of southern New England appears to be used for forestry purposes. About half of the land that is now forested was once used for farming and would be used for farming again under favorable price conditions.

Table 2 shows how cropland in southern New England was utilized in 1934 according to the United States Census (*29*). On the basis of acres harvested, hay is by far the most important crop grown in the area, accounting for two-thirds of the total harvested acreage. Corn is second in acreage with fruits and vegetables following closely. Potatoes and tobacco contribute substantially to the total farm income in the area but neither accounts for so much as 5 percent of the cropland harvested.

Commodities produced are confined largely to those which cannot be transported long distances cheaply or which deteriorate rapidly. Milk, eggs, vegetables, and potatoes fall in one or both of these categories. Tobacco and cranberries are among the exceptions to the rule. The acreage of each of these crops is concentrated and is found where the soil and other conditions are especially suitable.

TYPES OF FARMING

Many farms in southern New England are operated on a part-time or semicommercial basis. About 60 percent of the farms in Connecticut are of this type (*10*). Only 2 out of 5 provide reasonably full-time, productive employment for one person. The farm income is often supplemented by income from other sources. In this respect the agriculture of the area has changed little in the last century, although automobiles and improved roads seem to have reversed a downward trend in part-time farming that accompanied the disappearance of the small manufacturing establishments from rural communities.

TABLE 2.—*Acreage and relative importance of principal crops harvested, southern New England, 1934*

Crop	Acreage harvested	Percentage of total acreage harvested	Crop	Acreage harvested	Percentage of total acreage harvested
	Acres	*Percent*		*Acres*	*Percent*
All hay	750,234	67.7	Tobacco	13,875	1.2
Corn	95,485	8.6	Small grains	5,284	.5
Fruit	90,112	8.1	All other crops	37,365	3.4
Vegetables	75,075	6.8			
Potatoes	40,760	3.7	Total	1,108,180	100.0

United States Census.

Of the commercial farms, dairy and dairy-combination types take the lead. The dairy enterprise was found to be predominant on more than half of the commercial farms in Connecticut on the basis of productive employment provided in 1934 (*10*). On many other farms dairying is an important secondary enterprise. This situation is typical of Massachusetts and Rhode Island also.

The predominance of dairying in southern New England is also indicated by the 1930 census classification of farms as shown in table 3 (*26, v. 2*). Dairy farms were found to be more numerous than any other type and to account for nearly one-half of the value of products reported for all farms in the area.

Dairying is carried on intensively in southern New England. The census reports that 203 gallons of milk were produced in the area for each acre of cropland harvested in 1939 (*30, v. 1, v. 3*). Corresponding figures for Vermont and Wisconsin are 144 and 135 gallons, respectively. This is partly explained by the fact that from one-third to one-half of the dairy-feed nutrients exclusive of those obtained from pasture are imported from other areas. Most of the purchased feed is in the form of concentrates but an appreciable quantity of hay is brought in.

Milk production per cow is likewise high. Rhode Island stood third, Massachusetts fourth, and Connecticut sixth among the 48 States in this respect in 1939 on the basis of United States Census reports (*30, v. 3*). Heavy grain feeding and the practice of buying mature cows from other areas for herd replacements largely account for this high production.

TABLE 3.—*Number of farms and value of products by types of farms in southern New England, 1929*

Type	Farms	Value of products	Type	Farms	Value of products
	Number	*1,000 dollars*		*Number*	*1,000 dollars*
Dairy	14,469	92,408	Animal—specialty	630	2,070
Poultry	5,857	17,026	Cash—grain	86	61
General	4,748	8,356	All other	13,381	13,903
Crop-specialty	2,846	18,315			
Truck	2,587	9,140	Total	46,115	138,718
Fruit	1,581	6,836			

United States Census.

Poultry farming is another frequent type in southern New England. Many farms are not in position to meet present-day competition in other lines of production because the land on those particular farms is too poor. Often they have good houses and other buildings that can be made over for poultry uses fairly easily. Most of the feed is bought at prices that are considerably higher than those paid for the same feed in the Middle West. This disadvantage is partly offset by the lower cost of transporting eggs to market and to a large extent by the fact that locally produced eggs ordinarily top nearby markets by a considerable margin (*12*). Their local producers have an opportunity to sell direct to the consumer (*18*). Those who retailed their eggs during the 1930's made better incomes than those who sold their eggs wholesale (*17*).

Poultry is the only enterprise on many southern New England farms; it is often a supplementary source of income on small dairy farms. Poultry production is also found in combination with other enterprises that require little work at certain seasons and where the dairy enterprise is not well suited to the available resources.

Most of the specialized poultry farms keep from 400 to 1,000 laying hens. About twice as many chicks are raised every year as the average number of laying hens kept. Usually day-old chicks are bought from commercial hatcheries, the cockerels being sold as broilers.

Tobacco farms are prevalent in the Connecticut Valley. Of the total acreage of tobacco grown in southern New England in 1939, Hartford County, Conn., accounted for 67 percent. About 60 percent of the tobacco farms specialize in that enterprise; 30 percent combine dairying with tobacco, and many of the others raise potatoes on a commercial scale. About one-third of the tobacco is raised under cloth. Practically all this shade-grown tobacco is raised either by corporations or by farmers under contract with these corporations. The tobacco acreage per farm is approximately 10 according to United States Census reports but the average of family-sized farms is probably less than 7.

Tobacco was considered to be a profitable crop on certain soil types in southern New England during most of the period 1900–1922. The acreage more than doubled but by 1934 it had returned to the 1900 level of approximately 14,000 acres. Overexpansion, both in southern New England and in some of the midwestern States, caused a serious depression in prices. Since 1934, however, prices for this crop have been higher and the trend has been upward again.

Various types of adjustments were made to the lower tobacco price situation. On some of the larger farms the acreage was reduced and a dairy enterprise was added to the business. In other cases potatoes were substituted for all or part of the tobacco. A few growers turned to poultry and others to vegetables; others resorted to working off the farm. All benefited either directly or indirectly by the programs of the Agricultural Adjustment Administration that were introduced in 1933.

The specialized potato farm is becoming a distinct type in southern New England. This development was stimulated by unfavorable prices for tobacco over a 15-year period. Potatoes are also competing successfully with dairying on farms with large level fields that are free of stones, where tractors and other potato equipment can be

used to advantage. Yields of 300 and 400 bushels per acre are common if modern methods of production are used. These include disease-free seed, proper fertilization, and adequate spraying. Farmers of this area have the advantage of being near large centers of population. With their excellent farm-to-market roads these farmers can supply these markets all winter by motortruck at a relatively low cost. Many of the potato farms are completely mechanized and some devote more than 100 acres to the crop.

Potato production can be expected to expand further in some parts of these States. Some land that is adapted to potatoes is now being put to less remunerative use. Expansion does not proceed rapidly because efficient operation calls for a large investment in equipment. Only a few of the farmers are familiar with the best potato-production practices, and still fewer are able or willing to make the necessary cash investment. But this number is being increased by producers from other potato-producing areas who see an advantage in being located closer to market.

The potato acreage cannot be expected to expand indefinitely, however. Suitable land is definitely limited. Expansion might also depress the price considerably. Potatoes have been selling in the smaller cities of the area, with the exception of Hartford, Conn., at prices that compare favorably with those in Boston and New York City. This is because all of these markets receive a good share of their supply from Maine. The price in these smaller cities tends to be above the price in Boston to the extent that the transportation cost from Maine exceeds the cost from Maine to Boston. But if the country surrounding one of these small city markets should expand potato production beyond the needs of that market so that some of the crop would seek a more distant outlet, the local farm price in that vicinity would drop to a lower level relative to the Boston and New York prices. Hartford County, Connecticut, recently changed from a deficit- to a surplus-producing area and experienced this drop in price.

Market-garden farms are found near the large cities and in the fertile valleys. During the 1930's vegetable growers encountered very low prices resulting from the rapid expansion in vegetable acreage both within and outside the vicinity. Their reaction to the lower prices was to reduce the number of vegetables grown on a given farm, and to expand the acreage of those vegetables in which their ratio of disadvantage was least. Dairy and poultry enterprises are often combined with vegetables to good advantage, and with the lower prices for vegetables the tendency has been to expand these enterprises, and especially the dairy enterprise.

The fruit type of farm should be mentioned. Apples are the main source of income on most fruit farms of southern New England. Low prices in recent years have not been conducive to the expansion of this industry, nor have many of the orchards been given the care they would have received if prices for apples had been higher. Dairy, poultry, vegetable, and small-fruit enterprises often supplement the income from apples on fruit farms. The competition between apples and dairying is not so great as the acreage of apples might suggest. Some of the land in apples is no better for dairying than much of the land now in woods.

HISTORICAL DEVELOPMENT[6]

For nearly 200 years after the Pilgrims landed at Plymouth, the inhabitants of southern New England were almost entirely self-sufficient. The market for agricultural products was very limited. Small quantities of farm products were exchanged for handicraft goods among those living in the same community, but even the ministers, lawyers, innkeepers, carpenters, blacksmiths, and butchers were farmers as well. Country stores usually carried salt, molasses, rum, indigo, spices, sugar, crockery, glassware, powder and shot, bars of iron and steel, and a few pieces of imported dress goods. Farm products such as hides, wool, and dairy products could be exchanged for these articles.

By 1800 the commercial farmers were making their appearance in the seaport towns and along the navigable rivers. A market for farm products from New England was developing in New York City, South Carolina, Georgia, and the West Indies. The people there were finding it profitable to devote most of their attention to specialized products and to buy food from farmers in other regions. In 1790 the three States of southern New England accounted for about one-half of the total United States exports of salted beef and pork, butter, cheese, lard, potatoes, and onions; one-seventh of the hams and bacon, and practically all of the fresh meat and livestock (*5*).

Inland towns contributed little to this coastal and export trade because of transportation difficulties. Roads were very poor and were usually maintained by tolls collected from those who used them. Livestock could be driven over them fairly easily, but few commodities could stand the expense of cartage over a distance of more than 10 or 20 miles. Butter sold for about 16 cents a pound or $320 a ton, and, therefore, could be transported overland greater distances than most other commodities and still bring some profit.

A home market for farm products was also making its appearance. Events leading up to the War of 1812 stimulated the growth of small-scale industries. By 1840 these factories had become thoroughly established in practically every town in the area. The people who worked in the factories spent some of their wages for food produced on nearby farms. The industries themselves created a demand for such farm products as wool and hides.

The principal crop was hay. As soon as the land was cleared, a natural grass of good quality sprang up which was used to pasture cattle, sheep, and horses in summer and was also mowed for winter livestock feeding. Indian corn and rye were the main cultivated crops. Wheat was not raised on many farms as it failed to do well except in the valley of the Connecticut River and in the western parts of Massachusetts and Connecticut. Nearly every farm had an orchard of about 100 apple trees from which considerable quantities of cider and cider brandy were made. A small acreage on each farm was usually devoted to flax and vegetables.

Then came the railroads. By 1850 drastic adjustments were being made not only in the agriculture but in the location of industries. The inland towns without railway connections were very hard hit.

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[6] Information contained in this section has been obtained chiefly from the writings of P. W. Bidwell and I. G. Davis (*3, 10*).

Local shops that had formerly provided farmers with part-time industrial work could not compete with the factories springing up in the rapidly growing cities along the railroads. The concentration of population in cities provided an expanding market for bulky and perishable farm products but only those farmers in the immediately surrounding districts were in a position to take advantage of this demand.

Many of the younger generation left the more rural towns for the West or moved to the cities, and not until the automobile and the hard-surfaced roads were developed several decades later did the population of these stranded communities begin to increase once more.

The sheep industry was one of the first to give way before western competition. The number of sheep in southern New England declined from 407,128 head in 1850 to 180,382 head in 1870 according to the United States Census (*24, 25, v. 3*). For a time the contraction of the sheep enterprise was offset by increases in the number of cattle although before long the beef enterprise also showed signs of weakening. But when fresh meat began to come into New England from the West in refrigerator cars, in 1879, the area was faced with a very acute adjustment problem. The number of beef cattle fell off very rapidly after that date.

Figure 1 shows the trends in numbers of principal kinds of livestock on farms of southern New England during the period 1880–1940. The chart is based on the United States Census reports and, therefore, reflects the actual trends only to the extent that the census data are comparable. Some refer to a time of year when numbers are usually high and others to a time when they are ordinarily low. Furthermore, in some of the enumerations livestock of all ages were included but in others some of the younger age classes were omitted. Detailed information on the time of year to which the data apply and the age groups included are given in table 20.

The long-time trends in livestock numbers stand out clearly in spite of these differences in the basic data. The number of all cattle declined steadily from 1880 to 1940. In the earlier years about one-fourth of the cattle were kept for draft and beef purposes. By 1920 nearly all were dairy cattle and some of the dairy herd replacements were being imported from other areas. This practice of buying mature cows has accounted for most of the reduction in the number of cattle on farms in southern New England since 1920. The chart shows that there was no change in the number of cattle from 1930 to 1940, but the 1930 census is generally considered to have been less complete than any other of recent times.

The number of strictly dairy cows was probably more stable during the period 1880–1940 than the data indicate. The figures for the earlier years probably include cows kept as much for beef as for milk. The small number reported for 1930 is partly explained by the procedure followed in taking the census that year. An unusually large number of farms were missed by the enumeration. Then the percentage of heifers classified as cows was relatively low.

The number of sheep has been declining in southern New England since the middle of the nineteenth century. The census reports less than 5 percent as many sheep for 1940 as for 1850. Apparently,

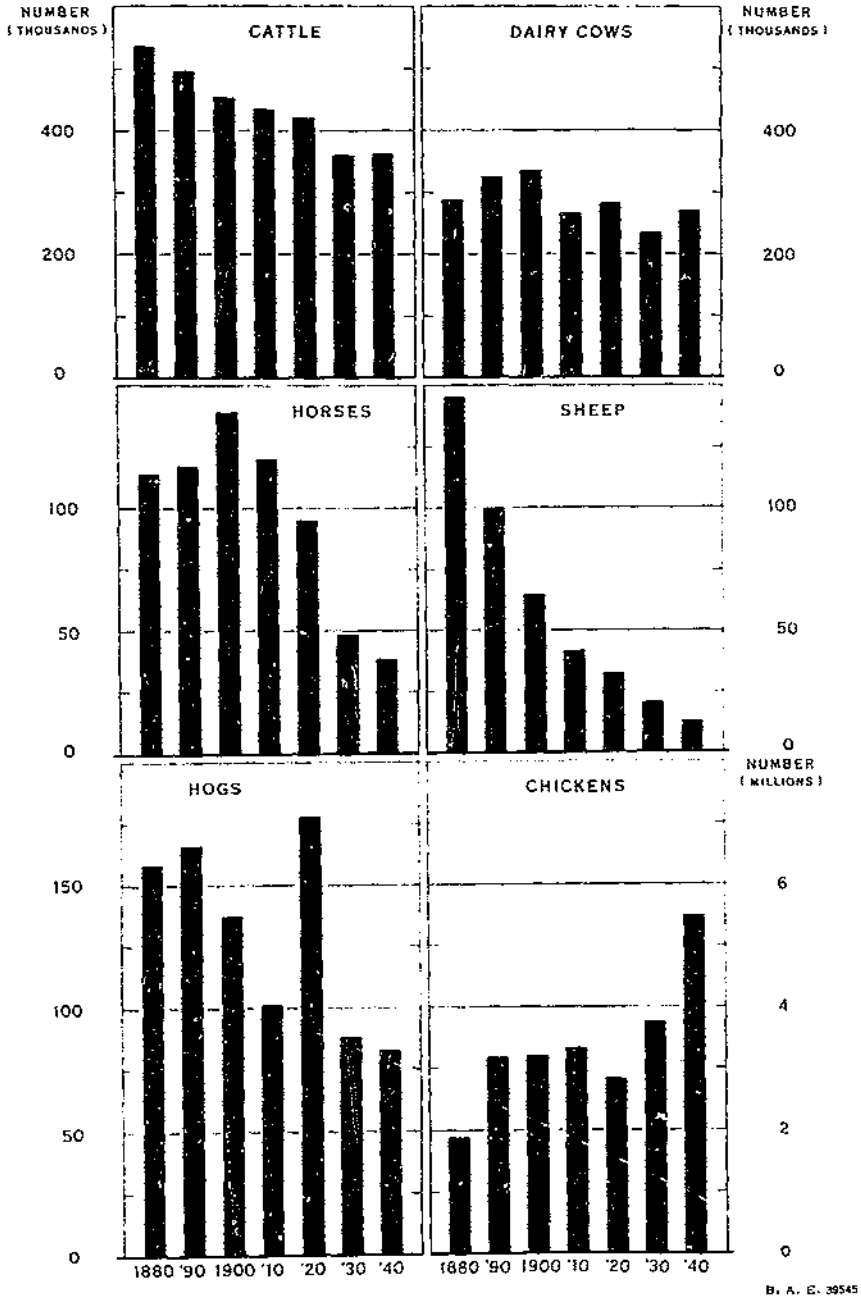

FIGURE 1.—NUMBERS OF PRINCIPAL KINDS OF LIVESTOCK ON SOUTHERN NEW ENGLAND FARMS. CENSUS YEARS, 1880–1940

Numbers of all cattle, horses, sheep, and hogs have declined on farms of southern New England in recent decades. Chickens have increased in number as have strictly dairy cows when allowance is made for the fact that early enumerations included many dual-purpose cows.

the land that is too poor for dairying is worth more for growing timber and for recreational uses than for raising sheep.

The number of horses increased until about 1910 but the trend since that time has been downward. In 1910 the number of horses in the area about equaled the number of dairy cows although only about 40 percent of the horses were on farms. By 1940 most of the horses had disappeared from the cities and villages as had two-thirds of those on farms, making a total reduction of more than 200,000 horses over a period of 30 years. A large quantity of feed has thus been made available for feeding dairy cows.

The trend in the number of hogs has been downward in southern New England although there was a temporary reversal during the period of the World War. More hogs and pigs were reported for 1920 than for any other census year from 1880 to 1940, but the 1920 figure includes pigs of all ages, whereas, those for the more recent years exclude some of the younger ones.

The number of hogs raised in southern New England is now closely related to the supply of garbage. Very little skim milk is now available for hog feeding and the practice of feeding grain to hogs was not profitable in these States during the period 1920–40.

Commercial poultry keeping has expanded considerably since 1920 but this increase has been partially offset by a decrease in noncommercial production that is not included in the census reports. At present most of the poultry feed is bought from other areas, whereas, at the beginning of the period much of it was produced within the area.

Figure 2, which is also based on census data (table 16), indicates the extent of land abandonment in southern New England after 1850. By 1930 the acreage of farm land classed as plowable had declined to one-third of what it had been 80 years earlier.

The railroads stimulated this land abandonment but the increased sales of industrial products provided the purchasing power by which the people of southern New England were able to buy agricultural products from other regions. The same railroads that carried agricultural products east also transported industrial goods west.

A number of circumstances combined to give southern New England an advantage in the manufacture of industrial goods. Water power and labor were relatively plentiful. Raw materials, principally cotton and iron, could be obtained readily. Furthermore, the area was located advantageously with respect to markets and investment capital. It was not a coincidence that many of the leaders in the development of the factory system located here.

Generally speaking, agriculture in southern New England was fairly prosperous during the decade of the 1920's. Industrial wages were high and jobs were plentiful. Discoveries in the field of nutrition encouraged the expenditure of an increased share of this consumer income for milk, eggs, vegetables, and fruit.

Tobacco farmers did not share in this prosperity very long after 1920. The acreage had doubled within the area during the preceding decade and other areas, especially in Wisconsin, were beginning to add materially to the total supply of the cigar types. Furthermore, smokers were turning away from cigars and were smoking cigarettes made of the flue-cured and burley types that are not grown in southern New England.

Automobiles created some adjustment problems on farms that had been selling hay but, on the whole, they contributed to the economic welfare of these rural areas. The surplus farm population could now live on farms and work in the cities at good wages. Automobiles also gave rise to a demand for country homes on the part of city folk—a demand which will probably continue. Some who have bought homes in the country, farm on a part-time basis, but few do so on a commercial scale. Employment conditions have much to do with the quantity of farm products these people grow.

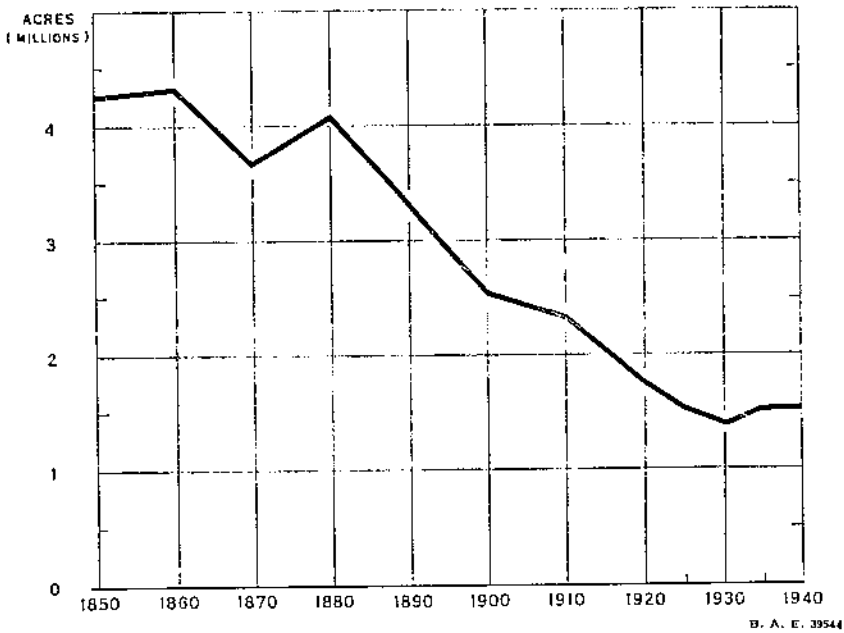

FIGURE 2.—ACREAGE OF IMPROVED LAND ON SOUTHERN NEW ENGLAND FARMS. CENSUS YEARS. 1850 1940

Improved land for the later years has been estimated by adding together cropland and plowable pasture. As the improved land reported for the earlier census years probably included some land that was cleared but not plowable, this may slightly underestimate the acreage for recent years.

However, it is clear that improved land on farms in southern New England declined markedly from 1860 to 1930. The steady downward trend appears to have been checked after 1930.

Country estates are replacing commercial farms at an especially rapid rate in the southwestern part of the area. In the town of Washington, Conn., for example, Blum found that the number of commercial farms declined 29 percent from 1934 to 1938 (*5*). Land in farms decreased 32 percent. This town is not typical of the entire area as it has more than its share of scenic beauty and is easily reached from New York City, but it does give an illustration of the nature of the adjustment that is taking place.

The effects of such changes in land ownership on the supply of milk are not all felt immediately. For several years the hay is

usually sold or given to a neighboring farmer who may use it to produce more milk. The pasture land may be rented out until the brush gets too thick and the fences too poor. After the hay has been mowed for several years without returning any plant food to the soil, it is no longer worth cutting and the farm then ceases to affect the supply of milk.

Figure 3 shows changes in acres of principal crops in southern New England as indicated by census data for the period 1879–1939 (table 19). With regard to most crops the trend has been downward. This is particularly true in the case of small grains; as they are neither highly perishable nor particularly bulky so that they can be transported long distances without difficulty. Corn for grain is in the same category but as this crop was used more and more for silage the total acreage did not decline a great deal. The acreage of hay on the other hand, decreased by one-half, reflecting the decline in numbers of horses, beef cattle, and sheep. The acreage of potatoes fell off rapidly from 1910 to 1930. Yields were well below those in Maine for reasons that some farmers in southern New England have since learned to overcome. Tobacco prices were high so the farmers on the land best suited to potatoes expanded their tobacco acreage. After 1922, however, the situation changed considerably and many former tobacco growers turned their attention to commercial potatoes. Present indications are that the shift from tobacco to potatoes may have gone too far in the best tobacco sections. The pendulum seems to be swinging in the other direction again.

This discussion has set the stage for a more detailed examination of the changes that have been taking place since 1920 and those that are likely to take place in the near future.

RECENT TRENDS IN DAIRYING

The trend of dairying in southern New England in recent years has been markedly affected by changes in industrial employment. At times, high industrial employment has tended to increase the demand for fluid milk and stimulate commercial dairying; but it has also drawn people from farms to industrial centers; increased the nonfarm employment of the people who continue to live on farms; decreased the number of farms in active operation; and, therefore, decreased the number of "farmers" keeping cows. At other times, industrial unemployment has tended to markedly increase local agricultural activity, increase the number of holdings classified as farms, and increase the number of farms reporting cows. The unemployed who move to farms produce their own milk thus further decreasing the sales of milk and cream by commercial dairies at times when they are already feeling the effects of a reduction in consumers' incomes.

A large number of "farms" in southern New England are primarily the country homes of people engaged in occupations other than farming. Many suburban families have a few chickens, a small garden, flowers, or some specialized products that may be sold in small quantities. Thus there are many places close to the border line between farms and places not classed as farms, and the policy followed in determining which places are to be considered farms materially affects statistics of milk production on farms.

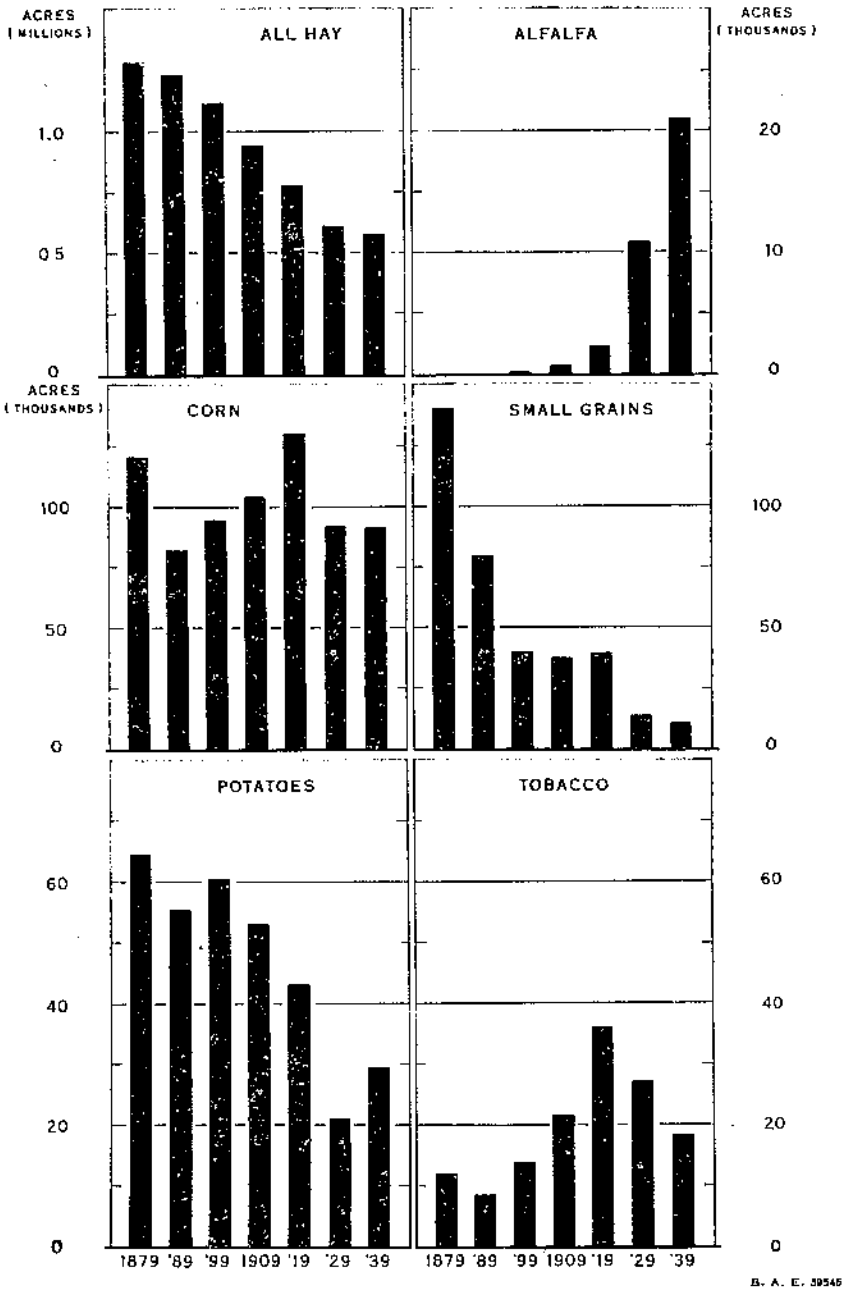

FIGURE 3.—ACREAGES OF PRINCIPAL CROPS HARVESTED ON SOUTHERN NEW ENGLAND FARMS, CENSUS YEARS, 1879-1939

Acreages of hay decreased more than 50 percent from 1879 to 1939, but acreages of alfalfa have increased rapidly in recent years. Acreages of corn have remained fairly stable but of small grains have declined steadily. Acreage of potatoes is now about one-half of what it was in 1879 and of tobacco now about one-half what it was in 1919.

Milk Production on Farms

The estimates of milk production of the United States Department of Agriculture for the period 1924–40 presented in table 4 show a slight upward trend. Figures for 1924 through 1935 have been revised towards the results of the census enumeration for census years and include only milk produced on places that might be properly called farms, but an effort has been made to allow for: (1) the effects of changes in the date of the census enumerations, (2) the differences in the questions and procedure and, (3) the differences in the classification of marginal farms (*9, 10*). However, in using the Department's estimates for years since 1935, it should be kept in mind that the estimates were prepared without reliable current information regarding changes in the number of farms. In view of the decrease in farms shown by the 1940 census, some slight downward revision in recent estimates of production and consumption on farms in Rhode Island and Connecticut is to be expected, even though the present estimates of milk sales may not be materially changed and present estimates of total production on farms may not be above the actual production on farms and other places with milk cows.

Dairy Cows

Table 4 also shows numbers of milk cows on farms in this area from 1924 to 1940 as estimated by the Agricultural Marketing Service. These figures declined from 1924 to 1929 and then increased from 1929 to 1939. The number of cows reported for 1940 is the same as was reported for 1939 and only slightly above the figure for 1924.

Table 4.—*Estimated number of milk cows, production per cow, and total production of milk on farms, southern New England, 1924–40*

Year	Milk cows on farms [1]	Milk production per cow [2]	Total production of milk on farms [2]	Year	Milk cows on farms [1]	Milk production per cow [2]	Total production of milk on farms [2]
	Thousands	*Pounds*	*Million pounds*		*Thousands*	*Pounds*	*Million pounds*
1924	283	5,721	1,619	1933	264	5,705	1,506
1925	273	5,810	1,586	1934	267	5,584	1,491
1926	262	5,973	1,565	1935	269	5,680	1,528
1927	252	5,960	1,502	1936	275	5,687	1,561
1928	248	5,801	1,461	1937	280	5,793	1,622
1929	247	5,883	1,453	1938	282	5,851	1,650
1930	252	5,929	1,494	1939 [3]	281	5,877	1,669
1931	259	5,815	1,506	1940 [3]	284	5,930	1,684
1932	263	5,776	1,519				

[1] Average number during year, heifers not freshened excluded.
[2] Excludes milk sucked by calves and milk produced by cows not on farms.
[3] Preliminary.

Agricultural Marketing Service.

The relationship between the number of farms and the number of cows milked as reported by the census in southern New England during the period 1925–40 is apparent from an examination of table 5. The number of farms is reported to have decreased 24 percent from 1925 to 1930; increased 55 percent from 1930 to 1935, and then decreased 22 percent from 1935 to 1940. Each time a change in the

number of farms has been reported a change in the same direction but of smaller magnitude has been reported in the number of cows milked. Thus the statistics on milk cows would probably show less fluctuation if they included all milk cows regardless of whether they were kept on "farms."

TABLE 5.—*Number of farms and the number of cows reported milked on farms, southern New England by census years, 1925–40*

Year	Farms	Cows milked on farms during the preceding year	Year	Farms	Cows milked on farms during the preceding year
	Number	*Number*		*Number*	*Number*
1925	60,605	272,923	1935	71,578	262,851
1930	46,115	240,356	1940	56,074	253,882

United States Census.

PRODUCTION PER COW

The production of milk per cow has been particularly responsive to changing demand conditions (table 4). During the predepression years when industrial employment was high and farm labor was scarce, farmers tended to keep fewer cows and feed them larger quantities of purchased grain, resulting in increased production per cow. In addition, the proportion of the cows milked that were fully matured and at the peak of their productivity was larger than normal because fewer heifers were being raised.

During the depression directly opposite conditions prevailed. Milk sales fell off and farm labor became plentiful. Dairymen reduced their grain purchases and fed more home-grown roughage. They also raised more heifer calves. Price fixing and marketing quotas also tended to discourage intensive feeding.

Then with the pick-up in business during the late thirties, the situation changed again. Sales of milk increased, quotas were relaxed, and cows were fed for heavier production. In 1939, milk production per cow was about as high as it had been 10 years earlier and about 5 percent higher than it was in 1934—the low point of the intervening period.

NONFARM PRODUCTION

Unfortunately little is known regarding milk production on rural places not classified as farms. The number of such places appears to be large and variable. In 1930 when the Census listed some 46,000 farms there were 109,500 mail boxes on rural delivery routes in this area. Five years later, when the number of rural mail boxes had increased 12 percent, the count of farms showed an increase of 55 percent. Since then the number of rural mail boxes in some sample counties has continued to increase although the number of farms listed in 1940 shows a sharp decline. It therefore appears that changes in the number of places classified as farms in this area are due less to changes in the number of occupied rural holdings than to changes in the proportion of them that produce sufficient agricultural products to permit them to be considered farms.

In 1920 the Census recorded nearly 25,000 dairy cows on more than 15,000 places not classified as farms. The cows were only 8 percent of the dairy cows in the area, but these nonfarm places that had cows were more than one-fourth of all the places reporting dairy cows. From changes reported in sample counties it has been estimated that the number of milk cows in this area on places not classified as farms had decreased to 14,000 by 1930. What happened during the depression years is not known.

These complications make it difficult to measure the annual changes in total milk production in southern New England with any fine degree of precision, but the records show in a general way the adjustments that have taken place. The growing demand for market milk has prevented a decline in milk production. Butter production on farms has largely disappeared. A large volume of cream is brought in from other States (7). Butter, cheese, and other manufactured products are also imported, because these are products of high value per unit of weight and can be advantageously shipped a long distance. Fresh milk, on the other hand, is a relatively lower priced product per unit of weight, and it is expensive to transport. Considerable milk is brought in from northern New England but commercial dairymen in southern New England have a location advantage that helps materially to offset other disadvantages. Thus in 1940 the dairy products sold by farmers in southern New England brought an average return of $3.25 per 100 pounds of milk marketed while returns to producers in northern New England States ranged from $2.02 in Vermont to $2.58 in New Hampshire.

Dairy Heifers

The total production of milk in southern New England depends to some extent on whether herd replacements are raised in the area or bought elsewhere. Dairymen who buy cows for replacement are able to produce more milk with a given quantity of feed than their neighbors who also raise young stock.

An examination of census reports reveals that local dairymen have tended to raise a smaller percentage of their heifer calves in recent decades although the depression seems to have caused a temporary reversal of this trend. The total number of cattle relative to the number of cows milked was considerably higher in 1935 than it was in 1925—the only year for which data comparable with 1935 are available. Table 6 shows the reported number of cattle per hundred cows milked in southern New England for census years from 1925 to 1940. The ratios for both 1925 and 1935 are based on the number of cattle on January 1 of those years and the number of cows reported milked during the preceding year. Those for 1930 and 1940 are based on the number of cattle over 3 months old on April 1 of those years and the number of cows milked during the preceding year. Therefore, the data for 1925 and 1935 are comparable with one another as are those for 1930 with those for 1940.

Attention is called to the 1925 and 1935 ratios for southern New England. For each group of 100 cows milked in 1924 about 35 other cattle were in the area on January 1, 1925. The comparable

figure from the 1935 census is 48. The number of beef cattle and bulls per 100 cows milked appears to have been about 8 in each period. Therefore, the number of heifers being raised per 100 milk cows seems to have been about 27 in 1925 and about 40 in 1935. On the basis of these observations the number of heifers raised was approximately 48 percent larger in 1935 than in 1925, assuming no change in the number of cows milked.

TABLE 6. *Number of all cattle per hundred cows milked in southern New England, by census years 1925–40*

State	1925 (Jan. 1)	1930 (Apr. 1)	1935 (Jan. 1)	1940 (Apr. 1)[1]
Massachusetts	133	141	145	140
Connecticut	139	150	155	139
Rhode Island	124	136	135	127
Total	135	144	148	140

[1] Excludes animals under 3 months of age on April 1.

United States Census

Southern New England farmers in 1935 were probably raising nearly as many heifer calves as were needed to maintain the cow population of the area without buying. In 1925, however, not more than three-fourths of the necessary number were being raised.

The 1930 and 1940 ratios are about equal but somewhat smaller than the ratio for 1935. These facts suggest that dairymen in southern New England were raising about the same proportion of their heifer calves in 1930 as in 1940 but hardly enough at either time to be self-sufficient in the matter of herd replacements.

Table 6 also brings out the differences among the three States in the percentage of heifer calves raised. Dairymen in Rhode Island raise the smallest percentage and dairymen in Connecticut, the largest percentage. With reference to fluid milk, Connecticut is the only surplus-producing State of the three. These facts are probably not unrelated.

The records of the Connecticut Commissioner of Domestic Animals also indicate that southern New England dairymen are becoming more and more dependent upon other regions for their herd replacements. Records of cattle shipments into Connecticut are available for the period 1922–40. However, as Connecticut has been engaged in eliminating tubercular cattle for 20 years or more, the number of cattle imported has been greatly influenced by the number condemned. Table 7 shows the number of cattle imported and the number condemned for tuberculosis in that State from 1922 to 1940. Very few cattle have been slaughtered because of tuberculosis in recent years but the number imported has held up rather well. Here is further evidence that the number of cows was increasing in Connecticut from 1935 to 1940.

These records also show the States in which the shipments of dairy cattle to Connecticut originate. During the period 1935–39 Connecticut received cattle for dairy and breeding purposes from 26 States and Canada, although the number received from 13 of those States accounted for only 2 per cent of the total receipts.

TABLE 7.—*Number of cattle imported into Connecticut, the number condemned in that State because of tuberculosis, and the difference, 1922–40*

Year	Imported	Condemned	Difference	Year	Imported	Condemned	Difference
	Number	*Number*	*Number*		*Number*	*Number*	*Number*
1922	6,979	4,166	2,813	1932	10,559	5,245	5,314
1923	7,457	2,939	4,518	1933	9,902	6,263	3,639
1924	9,564	6,411	3,143	1934	11,924	6,274	5,650
1925	8,696	3,023	5,673	1935	17,129	9,196	8,233
1926	10,209	5,590	4,619	1936	14,300	3,370	10,930
1927	11,466	6,460	5,006	1937	12,606	1,124	11,482
1928	14,966	9,257	5,709	1938	12,526	892	11,634
1929	13,200	2,169	11,031	1939	10,490	777	9,713
1930	8,605	4,090	4,515	1940	9,722	860	8,862
1931	9,409	4,629	4,781				

Data are from the Connecticut Commissioner of Domestic Animals.

During this period dairy cattle were shipped from Connecticut to 33 States, to Bermuda, Canada, District of Columbia, Central America, and Egypt. But total exports were only 24 percent as large as total imports. Of the cattle exported, 88 percent went to Massachusetts and Rhode Island.

Figure 4 shows the average number of dairy cattle received in Connecticut annually from various States and Canada in excess of the average number shipped in the opposite direction. Of Connecticut's net imports, Vermont accounted for 43 percent; Ohio, 12; Maine, 9; New York, 9; Wisconsin, 8; Canada, 8; and all other States, 11 percent. Rhode Island is the only State with which Connecticut had an export balance of consequence. During the period 1935–39, a yearly

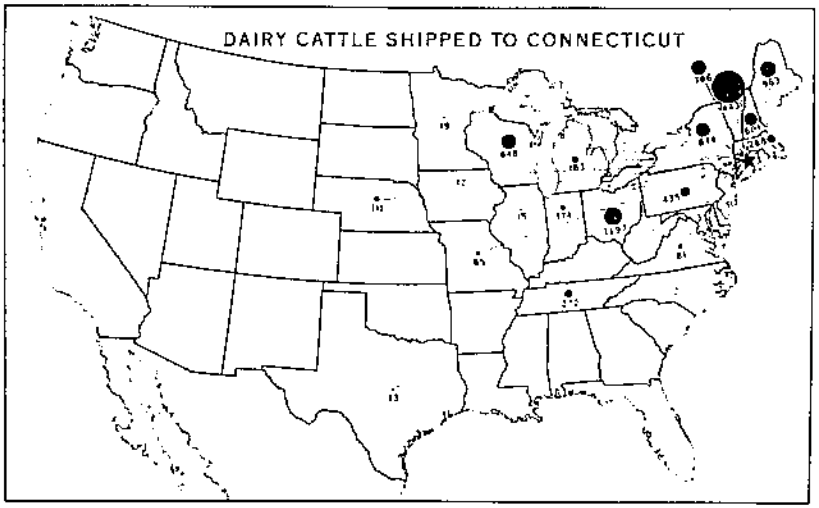

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FIGURE 4.—AVERAGE ANNUAL NET IMPORTS OF DAIRY CATTLE, BY SOURCES, CONNECTICUT, 1935–1939

Southern New England is a deficit area with respect to dairy herd replacements. The map shows the importance of the various States as sources of dairy cattle shipments to Connecticut.

average of 1,328 head of cattle were shipped from Connecticut to Rhode Island, whereas only 232 head were shipped annually from Rhode Island to Connecticut. The cattle involved in shipments across State lines in southern New England are often cattle that have recently been received by a dealer from a surplus-producing State.

Grain Purchases

The total supply of feed available for producing milk in southern New England varies with the quantity of grain that is bought. When milk becomes scarce in the area the price of milk tends to rise. Farmers then buy more grain. When milk becomes plentiful the price goes down and less grain is bought.

A survey of Connecticut dairy farms (*20*) indicated that 2,100 pounds of purchased grain were fed per cow on these farms during the year ending April 30, 1917. The price of grain was about $40 per ton and the average price received for milk was $2.27 per hundred pounds. Farm wages were about 40 percent above the 1910–14 average because of the industrial employment created by the World War.

Grain feeding continued on a high level until after the war when conditions favored less intensive feeding for a few years. With the rise of business activity during the late 1920's, farmers were encouraged to feed more grain to supply an expanding milk market. The census reports that farmers in southern New England spent more than 35 million dollars for feed in 1929 (*26, v. 2*). Most of this was imported from other parts of the country to be fed to dairy cattle.

What happened after 1929 is indicated by the records of 29 Connecticut dairymen covering the period 1929–33 (*21*). In 1929 the cows on these farms were fed an average of 2,015 pounds of grain. In 1930 the average increased to 2,111 pounds. After 1930, however, the rate of grain feeding declined so that by 1933 only 1,458 pounds of grain were fed per cow annually. The total quantity of dairy grain fed on the 29 farms was 130 tons less in 1933 than in 1930.

These dairymen were some of the best farmers in the area and would not have reduced their grain purchases if this adjustment had not been profitable. Other farmers followed their examples in reducing grain purchases but the reduction was probably proportionately less in the entire area than it was on these 29 farms.

Grain feeding was reduced still further in 1934 when milk-marketing quotas were in effect in most of these States. Farmers selling milk under a quota plan received one price for milk within their quotas and a much lower price for any additional milk. Surplus milk brought such a low price that it could not be produced profitably on purchased grain. Many dairy herds were being fed to the point where an additional bag of grain would not increase the output of milk by more than 100 pounds. Just before the quota plans went into effect, most farmers could sell additional milk for about $2.25 per hundredweight at the farm. The grain could be bought for about $1.50 per hundredweight, leaving the farmer approximately 75 cents for his effort. But when the quota plan went into effect in his market the price that he could get for additional milk was, in some cases, not more than $1 per hundredweight, or 50 cents less than the cost of the grain.

This situation proved to be only temporary. The quota plan was discarded in some markets because of legal difficulties and was relaxed in others as the demand for milk increased during the period, 1935–40.

The best available indicator of the trend of grain purchases in southern New England is probably the trend of milk production per cow (table 4). The correlation between the two is not perfect but, in general, high production is usually associated with heavy grain feeding.

Feed Production

Recent trends in the production of feed in southern New England may be considered next. Apparently the trend was downward during the 1920's, but it seems to have been upward during the 1930's. Certainly feed production increased on some farms from 1930 to 1940 but the increases here may have been offset by the continued abandonment of some of the poorer land for farming. A considerable acreage of land that was formerly used to produce winter feed crops is now used for pasture. More lime and commercial fertilizers are being used on both hay and pasture land than ever before. Alfalfa and other legumes are gaining in importance as hay crops. The production of corn has not changed much since 1920, but the production of small grains has continued to decline.

Whether the trend of feed production has been upward in the area in recent years depends a great deal on whether the production of hay has been increasing or decreasing. The available statistics on this point are somewhat conflicting. Data published by the Agricultural Marketing Service are compared with similar data published by the Bureau of the Census in table 8. These refer to the acreage, yield, and production of hay for census years from 1924 to 1939. The United States Census reported fewer acres of hay for 1939 than for 1929, although 22 percent more farms were reported for 1939 than for 1929. This is considered to be fairly good evidence that the acreage of hay has been declining here but it does not preclude the possibility of an increase in the acreage of hay from 1934 to 1939. The census figure for 1934 is not comparable with the figure for either 1929 or 1939 because the 1934 figure is based on a much larger number of farms.

Table 8. *Acreage, production and yield of hay in southern New England by sources of data and by census years, 1924–39*

Year	Acreage		Production		Average yield per acre	
	Agricultural Marketing Service [1]	Census [2]	Agricultural Marketing Service [1]	Census [2]	Agricultural Marketing Service [1]	Census [2]
	1,000 acres	*1,000 acres*	*1,000 tons*	*1,000 tons*	*Tons*	*Tons*
1924	880	880	1,119	926	1.27	1.04
1929	768	699	1,126	790	1.47	1.30
1934	628	750	798	939	1.27	1.23
1939	785	580	998	810	1.23	1.40

[1] Agricultural Marketing Service estimates.
[2] United States Census.

For two reasons the yield of hay reported by the census for any one year may be above or below average. In the first place the yield is affected by the weather; in the second place, the yield seems to vary inversely with the acreage covered. On the borderline farms the yield is relatively low. When these farms are included in the census reports, as in 1934, the average for the entire area is pulled down.

The data compiled yearly by the Agricultural Marketing Service may therefore throw additional light on the trend of hay yields here. Those covering the period, 1924–40, are presented in table 21. The yields reported for the last four years are about 10 percent higher than those reported for 1924–36.

A considerably larger proportion of the locally produced feed is now available for feeding dairy cattle than was true 20 years ago, chiefly because of the decline in the number of horses. More than 100,000 horses were replaced by motor vehicles during 1920–40. At the beginning of this period much of the corn was harvested for grain and fed to all kinds of livestock whereas now most of it is cut for silage and fed to dairy cattle almost exclusively.

Apparently the conditions under which grain purchases tend to decline in southern New England may be favorable for the expansion of the production of feed within the area. The drastic reduction in industrial employment following the 1929 peak seems to have caused a renewed interest in farming in southern New England after that date. According to the United States Census of Manufactures, the number of wage earners in manufacturing industries here was 28 percent less in 1933 than in 1929 (*27, 28*). Wages paid to such workers were 50 percent less. The unemployment situation had been even worse in 1932 than it was in 1933.

This increase in the production of feed in southern New England, at a time when huge surpluses of grain were piling up in other regions, may appear to have been "uneconomic." However, these people certainly could not have gone on spending as much for agricultural products during the depression as before, regardless of how low prices were to fall, because they did not have nearly so much money to spend. Their choice was between producing more food themselves or accepting charity. From the standpoint of society as a whole it probably would have been better if industrial production of a desirable sort had been maintained, but how this could have been accomplished without considerably more social assistance is not at all clear.

Census reports also indicate substantial increases in the number of farms and of persons living on farms in this area as industrial employment declined. These reports show 18 percent more farms and 19 percent more people living on them in 1935 than were reported 10 years earlier (*29*). When the 1935 figures are compared with those for 1930, the increases are 55 and 45 percent, respectively. More than 41,000 persons living on southern New England farms in 1935 are reported to have had nonfarm residences 5 years earlier.

These comparisons should be made with care. Some of the apparent changes are attributable to differences in census procedure that resulted in a more complete enumeration of farms in 1935 than for earlier census dates (*30, pp. 28–31*). Furthermore, a person

may live on a farm in this area and be employed in industry. It seems reasonable to assume that the proportion of farm people who were dependent upon agriculture for a livelihood was greater in 1935 than in 1930.

Although the back-to-the-land movement was pronounced during the 1930's, it would have taken on even greater proportions if all the unemployed industrial workers who became stranded in the cities could have moved their families into the country where they would have been able to carry on some farming activities. A 1934 survey of nonfarm relief families in Connecticut revealed that 28 percent were interested in obtaining part-time farms as a means of working toward self-support, but they needed help in getting established (*22*). Many nonrelief families were found to be similarly situated.

This increased supply of labor hunting for work on farms could be used to good advantage in producing more feed. Substantial savings could be made in expenditures for purchased grain without placing any more finished products on local markets to reduce prices still further. Had a larger quantity of milk been produced the total market value might have been less because of the inelastic demand for fluid milk. Moreover, additional feed could be produced very easily with the buildings, equipment, power, and managerial ability that were not being fully utilized. This excess capacity was a carry-over from the days when the area produced a great deal of hay for horses in nearby cities. Much of the hay land had not been plowed nor fertilized for 10 or more years. The same is even more true of plowable land used for pasture. Some of the land in feed crops could be made to produce two or three times as much feed if farmers cared to make the effort. The investment that would have been necessary in seed and fertilizer was small relative to the amount that was annually spent for grain on nearly every dairy farm.

The 29 Connecticut dairymen who reduced their grain purchases by 130 tons in the aggregate between 1930 and 1933, also increased their production of hay by about 18 percent during this period (*21*). Their alfalfa was increased from 122 acres in 1929 to 270 acres in 1933, an average increase per farm of from 4.2 acres to 9.3 acres. The yield of their pastures was probably increased by a larger percentage.

To what extent the Agricultural Conservation Program affected feed production here is uncertain. Apparently considerable expansion would have taken place without the program. The trend seems to have been upward from 1930 to 1936, and no pronounced change in the rate of increase is evident after that date. To be sure, the program was largely responsible for the increases in alfalfa and clover production. But the production of corn and other soil-depleting crops might have been higher without the program. The principal accomplishments of the program in southern New England seem to have been the building up of soil fertility on the participating farms and the reduction of their cost of producing feed.

PROSPECTIVE TRENDS IN PRODUCTION

One of the main purposes of this study was to construct the 10-year supply schedule for the production of milk in southern New England. More specifically, the problem was to estimate the quantities

of milk that would be produced in the area by 1946 in response to a range of possible future prices.

Three possible situations with respect to the price of milk were considered. In the first, the assumption was that the 1936 price would continue from 1936 to 1946. For convenience this price situation is henceforth designated by the letter A. In the second, or B situation, the price of milk was assumed to be about 15 percent higher than it was in 1936. In the C situation a 15-percent lower price for milk throughout the 10-year period was assumed. It was further assumed that quotas and other market restrictions would be adjusted so that the milk produced would move into consumption and that the prices of other commodities, including the things that southern New England farmers buy, would remain about as they were during the period 1934–38.

Analytical Procedure

The problem has been attacked from as many angles as limited time, knowledge, and wisdom would permit. Any approach that promised to remove any of the uncertainty about the production response to price in this area has not been intentionally overlooked. Even at best the supply schedule can be only approximated, and no one approach appears to give the complete answer.

There can be little doubt, however, that information as to the most profitable use of agricultural resources in the area with different prices for milk is important information to have in predicting how those resources would be used. The analytical procedure frequently used in farm-management work, known as budgeting or the budget method, has been found highly useful in providing this information. The technique involves the comparison of returns from several alternative organizations for a number of representative farms. When these budgets have been drawn up and studied, estimates of the quantities of milk that each farm would produce at different prices can be made with greater assurance than if the budgeting step were omitted.

It may be well to point out that even after a number of budgets have been carefully prepared for a given farm, there is no hard-and-fast rule for translating what seems the most profitable thing for that farmer to do into what he would do. In many individual cases the estimates will be wide of the mark. For obvious reasons, some will be too high and others too low. But the average of all the estimates may be reliable. Just how reliable will depend upon the judgment of the individuals drawing up the budgets and making the interpretations. The more experience they have had with farming in the particular area, and the way farmers respond to changes in income, the better their judgment is likely to be. The concensus of a group of informed persons may be more reliable than the judgment of one individual. In this study several well-qualified workers took part in making the final decisions in order to bring a maximum of experience to bear on the problem.

In deciding how a given farmer is likely to respond to price changes, more than the matter of monetary returns must be considered. The increase in income that is likely to result from a reorganization of the farm business must be studied in the light of the farmer's personal preferences as well as his ability to manage the

new set-up. Where one plan calls for more work or mental exertion on the part of the farm operator or members of his family than another, a decision must be reached as to whether the monetary gain would be sufficient to induce the greater expenditure of effort. Some individuals undoubtedly would place additional leisure ahead of more income and instead of increasing production when milk prices go up, they might actually produce less. A reduction in price might actually stimulate production in many cases in order that something like the customary cash income would be maintained. This is sometimes necessary in order for a farmer to avoid bankruptcy.

The financial position of the farm operator is likely to affect his plans for the future operation of the farm. If he is short of money and cannot obtain more credit, he is likely to follow a program that promises to pay cash dividends immediately even though soil fertility and other resources suffer badly. Such a farmer has difficulty going into an enterprise like dairying if a substantial additional investment would be required. This is one of the reasons why farms are not always organized in the way that would produce the greatest return in the long run. In most cases, however, lack of foresight, courage, and experience are probably more influential than the lack of funds.

But other things being equal, farmers tend to expand the enterprises that have paid in the past or that will apparently be most profitable in the future. This statement, of course, must be qualified to the extent that complete specialization in one enterprise is seldom the most profitable organization for farms in southern New England.

Individual Farm Data Used for Budgeting

In 1936 farm records were obtained from 99 dairy farmers in southern New England. The records covered a 12-month period ending April 30, 1936.[7] The records were taken in order to find out how well these farmers were getting along with the current prices and to obtain some of the basic data from which to estimate how much their incomes would be affected by changes in the price of milk if the present farm organizations were maintained or if they were altered to take advantage of different price relationships. Information about available resources, receipts and expenses, crop and livestock production data, rates of feeding, and the farm family, was covered in considerable detail. Any clues as to the future plans of the operator or other members of his family, especially if such plans would affect the amount of family labor available for the farm, were noted.

Figure 5 shows the location of the farms studied. Three groups were selected, one in Massachusetts and two in Connecticut. The Massachusetts group is representative of the wholesale dairy farms supplying the Worcester market. The 42 farms in this group are located in the towns of Sutton, Millbury, Grafton, and Charlton, all of which are in Worcester County. Another group was selected to represent conditions in the eastern Connecticut highland at a point where the milksheds of Hartford, New Haven, Providence, Norwich,

[7] For convenience this record year will be referred to as 1936. The crop year involved is, of course, that of 1935.

and New London come together. There are also 42 farms in this group, 15 in the towns of Coventry and Columbia in Tolland County, and 27 in the town of Lebanon in New London County. The third group consists of 15 farms selected from those in the Connecticut River Valley that combine wholesale dairying with tobacco raising. These farms are in the towns of Suffield and East Granby in Hartford County. Most of these dairy-tobacco farms sell milk in the Hartford market.

The question of representativeness of the sample is raised at this point, although more will be said later. No attempt was made to sample all the farms in the three subareas. In fact only wholesale dairy farms with five or more cows were included. Poultry, vegetable, fruit, potato, and tobacco farms were purposely excluded except where dairying was an important sideline. Farms selling milk at retail only were also excluded. The sample of farms in the Connecticut Valley territory is not even a random sample of all wholesale dairy farms in the area as only those with a supplementary tobacco enterprise are represented.

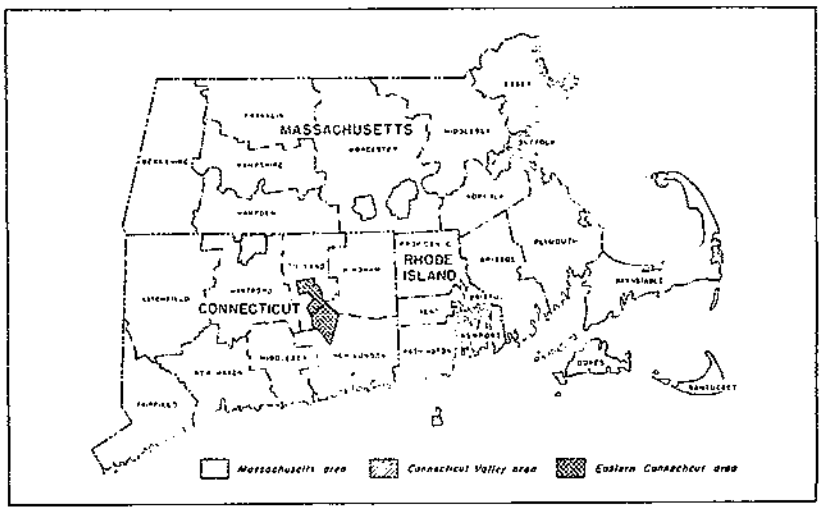

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FIGURE 5.—LOCATION OF THE AREAS STUDIED IN SOUTHERN NEW ENGLAND

Three areas were selected for detailed study. The Massachusetts area is located in Worcester County; the Connecticut Valley area in Hartford County, Conn.; and the eastern Connecticut area is partly in Tolland County and partly in New London County.

The way in which the farms were selected leaves out of consideration some of the important differences between the Massachusetts and eastern Connecticut areas. Several similar types of farms are found in each area although some types are more numerous in one than in the other. A given type in southern New England is rather closely associated with certain characteristics of the land and location with respect to markets. Therefore, when farms of a particular type in different subareas are compared, the more general area differences are minimized.

The marginal dairy farm, however, seems to be lower in crop-production efficiency in the Massachusetts area than in the eastern Connecticut area. This disadvantage is offset by the fact that farms in the Massachusetts area possess marketing advantages over the farms in the other area. Eastern Connecticut area has not been particularly favored with good market outlets, and as a result only the better dairy farms have survived.

The Connecticut Valley area shows up to good advantage when the group of farms representing that area is compared with the other two. However, the sample of valley farms may not be representative of most of the farms there. It includes some of the largest and most profitable farms but perhaps not enough of the small ones of which there are many with serious adjustment problems. Some are now too small to maintain an efficient-sized dairy enterprise, but if the price of tobacco remains low, a reduction in the number of farms accompanied by an increase in average size may result. The quantity of milk that will be produced in this territory in the future will depend to some extent on what happens to these small specialized-tobacco farms.

This discussion should not be interpreted to mean that dairy farms in Connecticut are in a better competitive position than those in Massachusetts. In selecting the farms no attempt was made to obtain completely representative samples for each State. Instead, the plan was to select farms from different sections of southern New England that would cover the wide range of conditions under which milk is produced here (figs. 6 and 7) and that, in the aggregate, would be fairly representative of the supply situation throughout the entire area. Better farms in Massachusetts and poorer farms in Connecticut could have been selected to accomplish the purpose equally well.

In this study the important sampling question is whether the farms selected are representative from the standpoint of future changes in milk production. Similar studies made in Wisconsin, Minnesota, and Michigan, where block samples were taken, did not find supply elasticity to be closely associated with any one factor, such as size of farm. The Vermont study indicated that some farms would be abandoned even with higher milk prices (*1*). Obviously a sample taken from such an area should contain the same proportion of submarginal farms as were present in the territory studied. As all farms in two adjoining towns were included in that study, there is no question about the sample being representative of those towns. There is only the matter of how representative those towns are of a larger area. In the southern New England study, many farms not producing milk in 1936 were purposely omitted when the records were taken. Some of these undoubtedly would begin to produce milk if the price were higher and no difficulties were encountered in selling. On the other hand, there are some indications that the Connecticut Valley sample does not include enough of the farms that would be forced out of milk production if the price were to go down. This being the case, a reasonable conclusion is that the supply response to price for the whole of southern New England would be somewhat greater than the sample farms might indicate. This is especially true with regard to the B or higher price situation, as considerable expansion of milk production could take place as a result

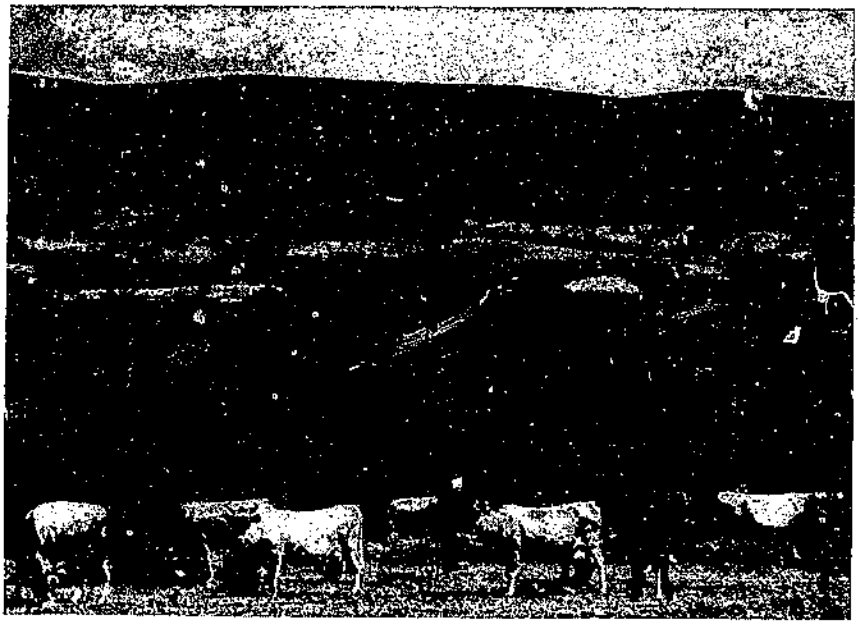

FIGURE 6.—The southern New England uplands were once pretty well cleared for farming but now only the best land is farmed. Higher prices for milk would bring some of this land back under cultivation but lower prices would cause further abandonment.

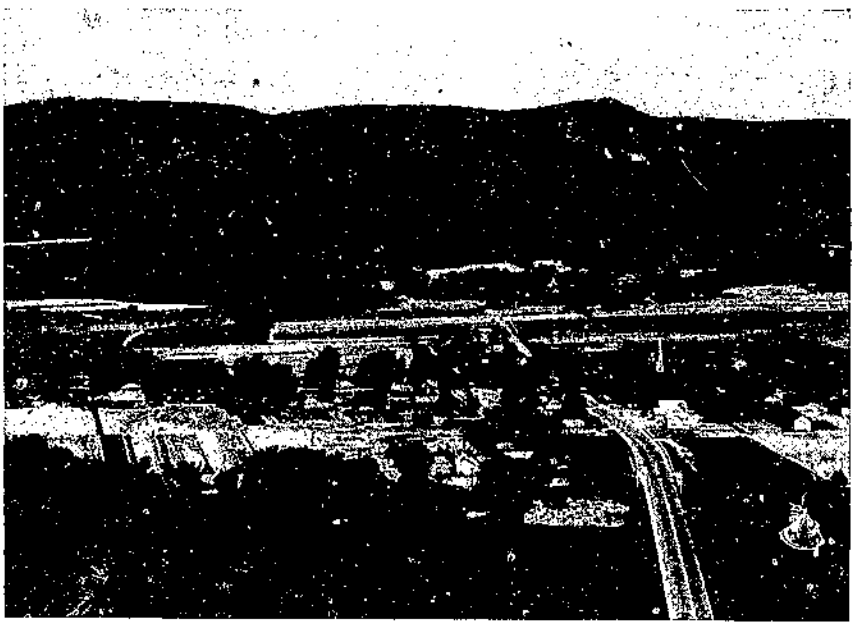

FIGURE 7.—Valley farms at the foot of Mt. Sugarloaf. Dairying is expanding in this part of the Connecticut Valley where tobacco and onions are important crops. A change in the prices of these commodities would hasten or retard this adjustment.

of bringing land into production that is submarginal with present prices.

An analysis of the conditions under which milk is produced in the three subareas is now in order. Where farms are rather similar as to type, census data by minor civil divisions can be used to good advantage in learning the usual combination of enterprises on farms in a given town. But the types of farms are so diverse in southern New England that township averages are wholly inadequate for this purpose. Consequently, it seemed better to use averages based on the sample farms, although this can be done only at the risk of creating an incorrect impression of area differences, for reasons already discussed. It must be remembered that there are other farms in each of these areas that are unlike the selected farms in size and enterprise set-up.

Farm Receipts and Expenses

The amount of income from different sources (table 9) indicates the extent to which the dairy farms in southern New England are diversified. Milk receipts account for 81 and 72 percent respectively of the gross income of the Massachusetts and eastern Connecticut farms. A different situation in which only 47 percent of the receipts are from the sale of milk is represented by the Connecticut Valley group. In addition to receiving considerable income from tobacco, this group received benefit payments amounting to $399 per farm for participating in the AAA tobacco program. The Agricultural Conservation Program, in which the other groups of farms were later given an opportunity to participate, did not get under way in time to affect the income of any of the farms in the other groups in the record year ending April 30, 1936.

Table 9.—*Cash receipts per farm, year ending April 30, 1936* [1]

Source of income	Massachusetts group (41 farms)	Eastern Connecticut group (40 farms)	Connecticut Valley group (44 farms)
	Dollars	*Dollars*	*Dollars*
Milk	2,588	2,253	2,551
Livestock [2]	186	262	218
Tobacco			1,433
Poultry and eggs	82	270	150
Vegetables	65	85	219
Potatoes	6	22	185
Fruit	8	66	19
Hay	7	28	40
Wood	33	40	30
Outside labor	175	89	100
AAA payments			399
All other	51	25	82
Total	3,201	3,122	5,485

[1] Five farm records, 1 in Massachusetts, 2 in eastern Connecticut, and 1 in the Connecticut Valley area have been excluded from these computations because of incomplete data.
[2] Mostly discarded dairy cows, bulls, and calves.

Several peculiarities of dairying in southern New England are reflected in the farm expenses shown in table 10. The largest single expense item is usually grain. It is customary here to feed a cow about a ton of purchased concentrates each year, although the quantity varies greatly from farm to farm and somewhat from year to

year, depending on market conditions and the size of the hay crop. Wages, trucking charges, and taxes are high in southern New England. About one-fourth of the cows needed for replacements are bought, principally from northern New England. Farmers also go to considerable expense in maintaining an even supply of high-quality milk throughout the year.

TABLE 10.—*Cash expenses per farm, year ending April 30, 1936*[1]

Item	Massachusetts group (41 farms)	Eastern Connecticut group (40 farms)	Connecticut Valley group (44 farms)
	Dollars	*Dollars*	*Dollars*
Grain	347	382	818
Livestock (purchases)	216	150	152
Labor[2]	279	251	811
Lime and fertilizer	43	70	566
Milk hauling	280	245	180
Taxes	223	138	278
Hay	10	11	23
Seeds and plants	29	41	90
Interest	92	93	231
Electricity	56	39	59
Insurance	61	47	112
Equipment	60	143	159
Auto, tractor and truck	105	88	263
Other[3]	219	173	305
Total	2,530	2,184	4,322

See footnote 1, table 9.
[2] Does not include unpaid family labor.
[3] Includes telephone, fencing, spray materials, boxes, bags, veterinary fees, rent, etc., etc.
[4] Does not include cash outlay on buildings.

When all the farm bills had been paid in 1936, little money remained for family living. The average net cash income of the three groups was as follows:

Massachusetts	$671
Eastern Connecticut	938
Connecticut Valley	1,173

These figures are the differences between the cash receipts and expenses shown in tables 9 and 10. They represent the return on the operator's investment as well as wages for the operator and other members of the family who worked on the farm without pay. Changes in inventories were so negligible as to be disregarded.

FINANCIAL POSITION OF SOUTHERN NEW ENGLAND DAIRYMEN

Most of the dairymen interviewed were found to be in good financial positions in spite of having gone through the worst years of the depression. Thirty-five percent of the farms were owned outright and not more than 10 percent were mortgaged for as much as one-half of what they would probably sell for. The proportion of heavily mortgaged farms was highest in the Connecticut Valley. This is partly a result of the tobacco land boom following the World War, although a number of farms have been sold in the last few years to persons with little money to invest in them. The previous owners often hold large mortgages.

Price of Milk and Farm Income

Dairy-farm incomes in southern New England would be affected greatly by changes in the price of milk. This is especially true of the more specialized dairy farms. Table 11 shows the net cash income of each group of farms for 1936 and what it would have been if the price of milk had been 15 percent higher or 15 percent lower, all other things being held constant.

TABLE 11.—*Average net cash income, year ending April 30, 1936, and what it would have been with a 15 percent higher and a 15 percent lower price of milk by groups of farms*

Price of milk	Massachusetts group	Eastern Connecticut group	Connecticut Valley group
	Dollars	*Dollars*	*Dollars*
Actual plus 15 percent	1,059	1,276	1,556
Actual	671	938	1,173
Actual minus 15 percent	284	600	790

The Massachusetts group would have profited most from a 15-percent higher price but would also have suffered most from a 15-percent lower price. This is partially explained by the fact that the Massachusetts dairymen obtained relatively little income from the sale of products other than milk. Another reason is that they received considerably higher prices for milk than the others, so that a given percentage change in their prices would mean greater absolute changes in cents per quart.

But the Massachusetts group would not necessarily be the first to be forced out of business should the price decline. Although their farm incomes would be reduced 58 percent by a 15-percent drop in the price of milk, their nonfarm income might be enough to enable them to stay in business. Among the Massachusetts farms were some with only five cows. The families on these farms depended more on income from industrial work than on income from farming. On some farms the work was done by members of the family who were either too young or too old to be hired off the farm. Where that situation prevailed, nothing would be gained by eliminating the dairy enterprise unless a more profitable use could be found for the resources now used in the production of milk.

The other groups, for the most part, would have been able to continue with the same set-up with a 15-percent lower price of milk, but their incomes would have been considerably curtailed. Reductions in net cash income for the eastern Connecticut and Connecticut Valley groups would have amounted to 36 and 33 percent respectively.

The Massachusetts group received about 65 cents more per hundredweight for milk than the others but the average income was much smaller than that of the other two groups. Their milk brought an average price of $3.15 per hundred pounds whereas the eastern Connecticut and Connecticut Valley groups received only $2.47 and $2.51 respectively. Other things being equal, a $2.50 price would have resulted in an average net cash income for the Massachusetts group

of only $136 per farm. Such a price over several years might bring a drastic reduction in the supply of milk from that area if the farm income were the entire income of the family.

The price of milk was found to vary widely from farm to farm, even within the same town. The highest price received by any of the interviewed dairymen was $3.64 per hundredweight and the lowest $1.78. Within the town of Lebanon, Conn., prices as high as $3.08 and as low as $1.85 were found.

The principal reason for this wide range in milk prices was the way in which the fluid-milk market was distributed among the producers. Some farmers were able to get the class I price for nearly all their milk whereas others were forced to accept the surplus price for most of theirs. Some of the differences could be explained on the basis of differences in quality and in the seasonal variation of production, but these factors were relatively unimportant in accounting for the differences in the group average prices. From a sanitary standpoint all of the farms met the requirements of the fluid-milk market for the States in which the farms are located.

The frequency distributions of the prices received for milk delivered to dealers' platforms by the three groups are shown in table 12. Of the Massachusetts producers, 84 percent received an average price of $3 or more per hundredweight while less than one-half of the farmers in the other groups received as much as $2.50 per hundredweight for milk in 1936.

What the average net cash income of each group would have been with different prices for milk may be seen in table 13. The Massachusetts producers would have needed over $1 more per hundredweight for milk for their net returns to be as high as the other groups on the basis of the 1936 farm set-ups.

TABLE 12.—*Percentage distribution of prices received for milk delivered to dealers' platforms, year ending April 30, 1936*

Price per hundredweight received	Massachusetts group	Eastern Connecticut group	Connecticut Valley group	Price per hundredweight	Massachusetts group	Eastern Connecticut group	Connecticut Valley group
	Percent	*Percent*	*Percent*		*Percent*	*Percent*	*Percent*
Less than $2.00	0	5	0	$3.00–$3.24	60	7	33
$2.00–$2.24	0	22	27	$3.25 and over	24	0	0
$2.25–$2.49	0	30	17				
$2.50–$2.74	2	24	13	Total	100	100	100
$2.75–$2.99	14	12	0				

TABLE 13.—*What the average net cash income would have been with the average price of milk at different levels in 1936*

Price per hundredweight	Massachusetts group	Eastern Connecticut group	Connecticut Valley group	Price per hundredweight	Massachusetts group	Eastern Connecticut group	Connecticut Valley group
	Dollars	*Dollars*	*Dollars*		*Dollars*	*Dollars*	*Dollars*
$2.00	274	508	650	3.00	548	1,422	1,666
2.25	68	737	904	3.25	753	1,650	1,910
2.50	130	965	1,158	3.50	959	1,878	2,173
2.75	312	1,194	1,412				

This should not be taken to mean that all Massachusetts dairymen are high-cost producers. Even within the group studied, there were some who probably would continue to produce milk for many years if the price were to go down to $2.50 per hundredweight and other things remained as they were in 1936.

Price Changes and Supply Response

Up to this point the discussion has been largely in terms of group averages, but the need for analyzing the situation by individual farms should now be evident. The question of how many high-cost producers would be forced out of business by a reduction in the price of milk is not answered by an analysis of the average farm unless all farms are equally vulnerable to such a change in price. The fact that all farms in southern New England are not alike in this respect has been demonstrated, and there can be little doubt that the question raised is pertinent to the immediate problem at hand, that is, the estimation of a 10-year milk-supply schedule for southern New England.

The period 1936-46 was selected for consideration in order that the results would be comparable with those obtained for other areas. In a Vermont study (*1*) for example, it was estimated that the production of milk would increase about 9 percent from 1936 to 1946, if conditions during that period remained essentially the same as they were in 1936. The study further indicated that if the price of milk were to go up 15 percent while other prices remained at the 1936 level, a 17-percent increase in production was considered probable. But in the case of a 15-percent decline in milk prices, and no other price changes, the expectations were that production would be 10 percent lower in 1946 than it was 10 years earlier.

Each of the situations represented by the sample farms in southern New England was investigated thoroughly. The same methods and procedures that were used in the other area studies were employed here (*1, 6*). Briefly, the analysis consists of first determining the most profitable organization for each farm with the price of milk at each of three different levels. This involves the comparison of several plans for reorganizing the farm businesses from the standpoint of their income possibilities, a procedure known as budgeting. After a number of budgets have been worked out for each of the sample farms an estimate is made of the quantity of milk that would probably be produced on those farms by 1946. Estimates are then made for the entire area largely on the basis of what would be expected to happen on the sample farms.

The estimated supply schedule for southern New England is presented in table 14. With A prices the probabilities are that about 9 percent more milk would be produced after 10 years. Still greater increases would be expected if B prices were to prevail; the production of milk might be increased as much as 28 percent, or more. With C prices, however, an 11-percent decrease in the production of milk would probably result.

Tables 28-39 show in detail how representative groups of farms in each area would probably be reorganized in response to different price situations. An attempt is made here to justify these con-

clusions without going into detail about expected changes on individual farms. The major alternatives that were considered and the possibilities of each with the price of milk at different levels are discussed in summary fashion.

In areas like southern New England considerable specialization within the dairy enterprise is found. Much of the feed and many of the cows used in the production of milk are purchased from other areas. Therefore, the effect of changed price relationships on the degree of specialization within the enterprise was investigated as well as the adjustments that would be made between enterprises in response to price changes.

Buying Versus Raising Replacements

A decision was reached regarding each farm as to whether or not a new price situation would cause the operator to change his practices with respect to the maintenance of his herd. Would a higher price for milk relative to the price of cows cause him to buy more of his herd replacements? Would he buy a smaller proportion if the price of milk should go down? And if prices should remain constant would there be any reason to expect him (or his successor) to adopt new herd-maintenance practices by 1946?

TABLE 14.—*The probable relationship between the price and future production of milk in southern New England*[1]

Price situation	Milk price index, 1936–46 (1936–1000	Milk production index, 1946 (1936=100)	Estimated production of milk in southern New England in 1946
			Million pounds
A	100	109	1,700
B	115	128	2,000
C	85	89	1,400

[1] These estimates are based on the assumption that employment conditions and the prices of commodities other than milk remain about the same during 1936–46. Those prices that were abnormally high or low in 1936 relative to the prices of milk are assumed to return to normal.

Before presenting the results of the budgetary analysis it will be well to have in mind the manner in which southern New England dairymen were solving their herd-replacement problems in 1936. This is important because the situation that existed at that time differed from each of three situations assumed for the period 1936–46. The quota plan was in general use throughout the area in 1936. Under this plan farmers received one price for milk within their quotas and a much lower price for milk in excess of their quotas. With surplus milk bringing about $1.25 per hundred pounds at the farm, dairymen were inclined to use some of the resources that were not needed in the production of their quotas to raise young stock rather than to produce additional milk. The composite or average farm price for milk had little bearing on the question of whether it was profitable to raise replacements in the area at that particular time.

In each of the situations considered in this study the composite price would be the price that farmers would receive for additional milk. This price would be about twice as high as the price received

by farmers in 1936 for milk in excess of their quotas. Therefore, some farmers who were raising all of their necessary replacements in 1936, would very likely be buying some in 1946, at least under the A and B situation. This would release some feed and barn space that could be used in the production of more milk.

Whether southern New England dairymen will continue to raise most of their herd replacements in the future will depend a great deal on whether or not the practice continues to be profitable. With prices for cows at the 1936 level, it would apparently be more profitable to raise replacements when the farm price of 4-percent milk is less than $1.50, and, under certain conditions, when it is as high as $2 or more. This conclusion is based on the fact that a 2-year-old heifer can be raised here about as cheaply as 6,000 pounds of 4 percent milk can be produced if only the expenditures for purchased feed and the quantity of home-grown roughage consumed are considered. This is borne out by the analysis of the records obtained in this study and is substantiated by several feeding experiments in which calves were raised on a maximum of good-quality roughage and a minimum of whole milk and expansive calf rations (*23*). If the heifer is worth $80, as in 1936, and a cow depreciates $10 during the period required to produce 6,000 pounds of milk, the farm price of milk would have to be at least $1.50 ($90 ÷ 60 hundredweight) to cover the opportunity and herd maintenance costs.

Prices for milk will probably never get so high relative to the price of cows that southern New England dairymen will give up completely the raising of herd replacements. Most dairymen in the area will continue to raise their most promising heifer calves even if they get a 15-percent higher price for their milk. Some farmers will raise all of their herd replacements as a disease-control measure. But it is very difficult to maintain an even supply of milk the year around to meet the rather rigid requirements of some of the fluid milk markets without buying a cow now and then. It has been done by raising a surplus number of cows to insure an adequate supply at all times and selling those not needed to maintain that level of production.

How much the production of milk would be affected by decisions that farmers might make in connection with herd replacements in response to price changes may now be considered. The possibility of dairymen in these States raising dairy cattle for farmers in other areas is very remote. They might raise a few more for their own herds but even if all necessary replacements were raised in the area, this would not reduce the feed supply enough to cause more than a 5-percent reduction in the quantity of milk produced.

The other extreme would be to buy all replacements. The feed used to raise young stock in 1936 was sufficient to produce about 16 percent more milk if the feed had been used for that purpose. It seems very unlikely, however, that the quantity of feed that would be taken away from young stock and fed to cows under the B situation would be sufficient to increase the total quantity of feed going into the production of milk by more than 5 percent. This would account for about one-sixth of the total milk increase that would be expected in the B situation.

On the basis of the proportion of replacements raised in 1936 the farms studied in detail were found to be significantly different. Considering the three groups collectively, the number of heifers between 1 and 2 years old was about 77 percent of the number required to replace one-fifth of the cows in the herds each year. The percentage ranged from 57 percent for the Massachusetts group to 100 percent for the Connecticut Valley group. The corresponding figure for the eastern Connecticut group was 86 percent.

More than enough cows were bought to make up the difference, so that the total number of cows on these farms increased during the year. Of the 99 farms studied, 45 had the same number of cows at the end of the year as at the beginning; 20 had fewer cows, and 34 had more. The net increase was just under 3 percent. By areas, the percentage increases were: Massachusetts, 1; eastern Connecticut, 3; and Connecticut Valley, 5.

The samples include no farms that went out of business during the year and so may overemphasize the upward trend in the number of cows in the different areas. In the Massachusetts group, for instance, the number of cows increased on 8 farms and decreased on 10. This net increase in number of cows could have been easily offset by the temporary removal of one farm from the supply for one of several causes, such as the death of the operator.

The future production of milk in this area has been shown to be related to the proportion of the feed that will be used to raise young stock, which in turn would be affected by a change in the relationship between the price of milk and the price of cows. A higher price for milk would encourage the purchase of more replacements from other areas. A lower price for milk would encourage the raising of a larger proportion of the herd replacements although the total number required might actually decrease.

Grain Purchases

The possibilities of a change in the total feed supply as a factor affecting milk production may be considered next. In areas like this one the supply of feed can be increased or decreased considerably in a very short time by varying the quantity of grain that is bought. A 15-percent increase or decrease in the price of milk would greatly affect the profitableness of converting purchased grain into milk.

A heavy grain feeder in the Massachusetts area who sold about 100,000 pounds of milk in 1936 at a price of $3.31 per hundredweight may be taken as an illustration. He had a net cash income of about $500 after making allowances for some abnormal expenditures. If the price of milk had been 15 percent higher or $3.81 per hundred pounds, as would be the case in the B situation, his income would have been $500 higher. But if the price had been 15 percent lower, his net cash income would have been practically zero. With lower prices, many of these heavy grain feeders would go out of business but higher prices would greatly stimulate this type of production.

The nature of the dairy industry in southern New England would depend a great deal on whether grain feeding were profitable. Under extremely favorable circumstances the cow population here might be

twice what it is now. An increase in the number of cows would mean that the quantity of roughage available per cow would be small although feed production in the area would be materially increased. A larger proportion of the feed would be bought from other regions. This feed would be brought into the area in the form of grain, to economize on transportation costs. Milk production per cow would increase because cows can consume more nutrients when the ration contains a large proportion of concentrates.

A quite different situation would prevail if the price of milk were to decline to the point where many dairymen would be forced out of business. The quantity of roughage available per cow would increase. This would lead to smaller purchases of grain and fertilizer and production per cow would decline because the cows would get less nutrients from the more bulky ration.

Feed Production

The farm budgets also helped to answer the question of whether some of the land that was being used to grow feed crops in 1936, would be used for some other purpose if the price of milk were to decline. Apparently the sweet corn crop could be profitably expanded under those conditions, provided the market would absorb the additional quantity at the 1936 price. It could be produced with the resources that were not being fully utilized on most dairy farms in 1936. It fits very well into a rotation that includes alfalfa, because the sweet corn could be harvested in time for alfalfa to be seeded on the land the same year. The stover could be used to supplement pasture when additional feed is usually needed. In case of a glutted market or of corn borer damage the entire crop could be fed to dairy cows. Transportation facilities are adequate to place corn in either the Boston or New York markets the day after it is picked. Yields of 700 dozen ears per acre are somewhat above average but are consistently obtained by the more successful growers. A gross return of $105 per acre would be possible at a price of 15 cents per dozen. This is considerably more than an acre of silage would be worth for feeding dairy cattle if the price of milk were less than $1.75 per hundredweight at the farm as it would be in some instances with a 15-percent lower price for milk. However, the price of sweet corn would undoubtedly be seriously depressed if the quantity marketed were materially increased.

How much the production of milk would be affected by adjustments that would be made in the acreage of tobacco if the price of milk were to change was carefully considered. The conclusion was that such changes would have very little effect on the total output of milk in southern New England. The tobacco acreage in 1939 was equal to only 1.6 percent of the acreage of land in hay, corn, and plowable pasture, according to the census (*30*). Even during the period 1920–25, when tobacco production reached the all-time high in this area, only 3 percent as much land was used for tobacco as was used to grow feed crops.

Budgets that were drawn up for the dairy-tobacco farms indicated that the elimination of the tobacco enterprise would not be profitable

even with a 15-percent higher price for milk. In fact, some increase in the acreage of tobacco would be expected if the price of milk were to go up and the tobacco-control program were discontinued. With a continuation of 1936 prices, a 30-percent increase in the tobacco acreage would be expected. But, if the price of milk were to increase 15 percent, the acreage of tobacco would probably increase only 15 percent, whereas if the price of milk were to decrease 15 percent, a 60-percent increase in the acreage of tobacco would be expected to follow.

These conclusions assume (1) the absence of a production control program and (2) that the price of tobacco would remain at the 1936 level regardless of the quantity produced. Both of these assumptions tend to maximize the adjustments that would be made. If the control program is continued, very little change in tobacco acreage would be brought about by a change in the price of milk. But even if the program were discontinued, a 25-percent increase or decrease in the acreage of tobacco would probably cause the price of tobacco to change so much that no further adjustment in acreage would be profitable. The total acreage of feed crops would be affected less than 1 percent by a 25-percent increase or decrease in the acreage of tobacco. Much of the land used to grow tobacco is so sandy that it would not produce average yields of feed crops without the application of considerable fertilizer. Therefore, tobacco farmers are not likely to change the supply of dairy feed materially by the adjustments that they might make in their tobacco acreages. However, they would give other farmers in the area more competition for existing supplies of feed and for land upon which more feed could be produced if the price of milk should increase.

The potato enterprise is similar to the tobacco enterprise so far as competition with dairying is concerned. The acreage is relatively small and could not be expanded materially in many parts of the area without causing a reduction in the farm price. One section of the area around Hartford, Conn., is now on a surplus basis and could expand more without reducing the farm price in that vicinity much further. The current price in that section is so low, however, that very little expansion in acreage would be expected even if the price of milk were to go down. The present indications are that the shift out of tobacco and into potatoes went too far in Hartford County, and since 1934 the trend has been in the other direction.

Area Differences

The percentage changes in milk production that would probably be made by each of the three groups of farmers to changing milk prices are presented in table 15. Although the degree of response would probably not be quite the same in the three areas, the data presented in table 15 may not reflect the exact differences. One reason is that the farms studied are not representative of all the farms in their respective areas. This is especially true of the Connecticut Valley territory where only 15 farms were studied. The wide range in expected responses among the farms within a given area indicates that a sample consisting of only 15 farms may not be adequate.

TABLE 15.—*Estimated index numbers of future production of milk at different prices, for selected areas in southern New England* [1]

Area	1936	1946 for price situation—		
		A	B	C
Massachusetts	100	108	128	85
Eastern Connecticut	100	110	130	92
Connecticut Valley	100	106	123	90
Southern New England	100	108	128	89

[1] The index numbers of production under A are based on the assumption of a continuation of the 1936 prices for milk and no changes in other prices. Under B, 15-percent higher prices for milk and no changes in other prices during 1936–46 are assumed. Under C, 15-percent lower prices for milk and no changes in other prices during 1936–46 are assumed.

MARKET LIMITATIONS

A perplexing problem was the question of how much minor enterprises could be expanded without affecting existing price relationships. Most of the commodities produced here are consumed in local markets. If the quantity of eggs, vegetables, or potatoes sent to those markets from nearby farms were materially increased, the price of that commodity would probably be seriously depressed. The saturation point might be reached after very little expansion. Any further increase in production might bring a situation in which part of the supply could be sold to better advantage in a more distant market. The change from a deficit- to a surplus-producing area with respect to any one of the commodities mentioned would probably be accompanied by a sufficient reduction in the price of that commodity to offset a 15-percent drop in the price of milk. Thus the opportunities for shifting from dairying to these other enterprises are rather limited here. This statement is probably equally true of other areas of which the chief advantage is nearness to a particular market. There is little advantage in being close to a market that is oversupplied.

How about tobacco? This is a crop that does not rely upon local market outlets entirely. What are the possibilities of expanding this crop? The answer is that they are not very good. Although tobacco is grown in many States, a given type of tobacco is usually confined to a rather small locality. This is certainly true of the types grown in southern New England. Each type is used for a definite purpose and is not worth much for any other. For example, tobacco from southern New England is not considered to be suitable for cigarettes. Therefore, if these acreages of tobacco were increased the price would be depressed without necessarily affecting the prices of cigarette types. The opportunity for shifting from the production of one type to another is limited because the various types have somewhat different requirements with respect to soil and facilities for growing and curing. Consequently, tobacco is a rather limited alternative for these dairymen to turn to if the price of milk should decline.

The question of nonfarm opportunities was another for which no completely satisfactory answer could be given. How low would a dairy farmer's income have to go before he would be better off to find employment off the farm? How much could he earn at other occupations? How many industrial workers would be induced to become dairy farmers if the price should rise?

Lack of data prevented the inclusion of the nonfarm opportunities in the formal budgets but industrial employment appears to be the best alternative to dairying in these three States. A large part of the expansion that would probably take place if the price of milk should go up 15 percent is expected to be the result of the action taken by people who were not employed on farms here, in 1936. An increase of $500 in the net income of 15-cow dairy farms would attract many people into the business of producing milk. The expected supply responses to higher milk prices may have been overestimated for the individual farms that were studied but the estimates appear to be rather conservative for the entire area in view of the additional farms that would be brought into production by a 15-percent increase in price.

War Impacts

The estimates of milk-production responses that have been discussed thus far are based on the assumption that industrial employment conditions during the period 1936–46 would remain as they were in 1936. The National Defense Program has created many industrial opportunities for persons who otherwise would be employed on farms. Present indications (July 1941) are that industrial employment will be at an unprecedentedly high level in southern New England for perhaps several more years. How will this new labor situation affect the supply schedule for milk in southern New England?

Apparently the whole supply schedule will be shifted to the left. A higher price will be required to call forth a given volume of milk. Some farms that were operated during the depression on a commercial scale will be operated during the emergency at most on a part-time basis. Many persons who were employed on farms here during the depression will find industrial jobs at higher wages than farmers can afford to pay.

Milk production will probably increase, however, for the demand for milk will be greatly stimulated. In view of the large supply of grain on hand the price of milk is likely to increase more than the price of feed, so dairymen will tend to use a larger proportion of their smaller labor supply to produce milk rather than feed.

Although the production of milk is expected to increase, larger expenditures for feed and labor-saving equipment such as milking machines, may more than offset the increases in receipts for milk. But farmers in the area will be more prosperous because incomes from the farms will not be required to support so many persons as formerly. Another way of looking at the situation is that the income of many farm families will be supplemented considerably by additional wages received for labor off the farm.

Plans for Further Research

Opinion differs with regard to the economy of producing milk in areas like southern New England. Some maintain that a larger proportion of the total production should take place in areas where feed can be produced more efficiently. Others think that the high cost of transporting fluid milk more than offsets the advantage of cheaper feed. Another possibility is the transportation of milk from

areas where feed is cheap to the large consuming centers in fresh evaporated form. If this happened it would be followed by a curtailment of milk production in areas like southern New England.

The present plan is to look into the problem of interregional relationships in milk production more thoroughly in the near future. Different areas will be compared with respect to their ability to supply specific markets with milk and milk products. Information relative to market demands and transportation costs will be considered as well as the conclusions of the various supply-response studies as to the economy of production in different areas.

SUMMARY AND CONCLUSIONS

The long-time trend of milk production in southern New England has been upward and will probably continue in that direction during the coming decade. The increased demand for all agricultural products in local markets that has accompanied the growth of population has provided the incentive for this increase. The decline in the number of horses in the area has made possible the transfer of large quantities of hay to other types of livestock. As milk is one of the most bulky and most perishable of the farm products, most of the feed grown here is now fed to dairy cows. Home-grown roughage is supplemented by large quantities of purchased grain because grain can be transported more economically than the milk it is capable of producing.

Further expansion of milk production is possible for several reasons. Considerable roughage is now fed to young stock. Some of this would be fed to mature cows if a shortage of milk should develop. The possibilities of expanding production by keeping more cows and feeding grain more intensively have not been exhausted. The expansion could be made without increasing the supply of roughage. Yields of hay on many farms could be doubled without increasing the production cost on a per-ton basis. The present barn space is not being used to capacity. Motortrucks and hard-surfaced roads have given all of southern New England access to some of the best fluid milk markets in the world.

Other forces are at work, however, that are tending to limit this expansion of milk production. In the first place the demand for fluid milk is not very elastic and with a relatively stationary population a larger volume of production would be sold at lower prices. Then, land suitable for dairying is in good demand for other purposes. Many dairy farms have been sold recently to persons who use them mainly as summer homes, and the part-time farming movement made possible by automobiles, is expected to make further inroads. Other farm enterprises, like poultry keeping and the raising of cash crops, will outbid dairying for the use of some of the available resources.

Conditions during the 1930's favored greater diversification on farms here, but this appears to have been a temporary situation. With full employment, the production of milk is expected to increase, but the production of feed and the raising of young stock are expected to decline.

Attention has been given to the relationship between the price of milk and the probable future trend of production in this area. The supply of milk appears to be more elastic than the supply from some other areas. A given percentage change in price would probably have considerable effect on the quantity of milk offered for sale. This is probably characteristic of areas that buy large quantities of feed. A slight change in the price of milk that is not accompanied by a corresponding change in the price of grain makes considerable difference in the profitableness of producing milk.

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APPENDIX

TABLE 16. *Improved, unimproved, and total farm land in southern New England, census years, 1850–1940*

Year	Improved	Unimproved	Total	Year	Improved	Unimproved	Total
	Acres	*Acres*	*Acres*		*Acres*	*Acres*	*Acres*
1850	4,258,101	2,035,728	6,293,829	1910	2,331,097	3,173,940	5,505,037
1860	4,321,447	2,042,765	6,364,212	1920	1,742,775	2,982,282	4,725,057
1870	3,672,003	1,925,604	5,597,607	1925	[1] 1,521,462	2,967,290	4,488,752
1880	4,068,285	2,258,448	6,327,433	1930	[1] 1,387,631	2,399,470	3,787,101
1890	3,310,934	2,410,661	5,720,595	1935	[1] 1,512,426	3,070,946	4,583,372
1900	2,544,011	3,370,738	5,914,749	1940	[1] 1,525,096	2,148,931	3,672,027

[1] Cropland plus plowable pasture.
United States Census.

TABLE 17.—*Total population of southern New England and of the United States and percentage increases by decades, 1920–40*

State	1940	1930	1920	Percentage increase	
				1930–40	1920–30
	Number	*Number*	*Number*	*Percent*	*Percent*
Massachusetts	4,316,721	4,249,614	3,852,356	1.6	10.3
Connecticut	1,709,242	1,606,903	1,380,631	6.4	16.4
Rhode Island	713,346	687,497	604,397	3.8	13.7
	6,739,309	6,544,014	5,837,384	3.0	12.1
United States	131,669,275	122,775,046	105,710,620	7.2	16.1

United States Census.

TABLE 18.—*Farm population of southern New England and of the United States by census years, 1910–45*

State	Jan. 1, 1945	Apr. 1, 1930	Jan. 1, 1925	Jan. 1, 1920	1910 [1]
Massachusetts	103,219	123,255	149,238	118,564	140,413
Connecticut	143,157	86,770	107,154	93,302	112,124
Rhode Island	21,751	16,477	18,663	15,126	20,297
	328,127	226,502	275,055	226,992	272,834
United States	31,880,907	30,445,350	28,981,668	31,614,269	32,076,060

[1] Estimated by the Bureau of the Census, based on number of farms in 1910, average farm population per farm in 1920, and change in average number of persons per family in the rural population between 1910 and 1920.

United States Census.

TABLE 19.—*Acreages of specified crops harvested in southern New England, 10-year intervals, 1879–1939*

Year	All hay	Alfalfa	Corn	Small grains	Potatoes	Tobacco
	1,000 acres	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*
1879	1,285	[2]	120	140	65	12
1889	1,233	[2]	82	79	76	8
1899	1,118	[2]	95	41	60	14
1909	947	1	[3] 101	37	53	22
1919	778	2	[3] 130	30	43	36
1929	699	11	[3] 92	13	21	27
1939	580	21	[3] 91	11	30	18

[1] Acreage not reported.
[2] Less than 500 acres.
[3] Includes corn for silage.

United States Census.

TABLE 20.—*Numbers of livestock on farms in southern New England on specified dates, 1880–1940*

Date	Cattle [1]	Dairy cows	Horses	Sheep	Hogs	Chickens
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1880 (June 1)	[2] 534	[3] 288	[4] 114	[5] 145	[6] 158	[6] [7] 1,896
1890 (June 1)	[2] 495	[3] 324	[4] 117	[5] 100	[6] 166	[6] [7] 3,181
1900 (June 1)	[2] 453	[3] 335	[4] 139	[5] 61	[6] 137	[7] [8] 3,109
1910 (April 15)	[9] 432	[9] 268	[9] 120	[9] 41	[9] 101	[10] 3,320
1920 (January 1)	[11] 420	[11] 281	[11] 95	[11] 32	[11] 178	[6] 2,829
1930 (April 1)	[10] 360	[10] 232	[10] 48	[10] 20	[12] 88	[10] 3,767
1940 (April 1)	[10] 362	[13] 270	[10] 38	[10] 12	[12] 83	[12] 5,487

[1] Kept for all purposes.
[2] Excludes calves.
[3] Milk cows.
[4] Excludes spring colts.
[5] Excludes spring lambs.
[6] Age not specified.
[7] Includes guinea fowls.
[8] Dairy cows kept for milk.
[9] 1 year old and over.
[10] Over 3 months old.
[11] Over 3½ months old.
[12] Dairy cows and heifers 2 years old and over on Jan. 1 (or estimated).
[13] All ages.
[14] Dairy cows and heifers 2 years old and over.
[15] Dairy cows and heifers 27 months old and over.
[16] Over 6 months old.
[17] Over 4 months old.
United States Census.

TABLE 21. *Average yields per acre for principal crops, Connecticut, 1924–40*

Year	Tame hay	Alfalfa	Silage corn	Potatoes	Tobacco		
					Broad leaf	Havana seed	Shade-grown
	Tons	*Tons*	*Tons*	*Bushels*	*Pounds*	*Pounds*	*Pounds*
1924	1.17	2.60	10.5	110	1,497	1,345	1,050
1925	1.10	2.80	11.0	125	1,400	1,380	1,048
1926	1.07	3.10	11.0	130	1,400	1,463	1,000
1927	1.31	3.40	10.5	90	1,309	1,313	900
1928	1.45	2.95	10.0	115	1,316	1,300	858
1929	1.30	2.85	10.0	117	1,455	1,510	1,150
1930	1.29	3.00	10.5	175	1,550	1,520	1,040
1931	1.31	3.00	10.5	160	1,500	1,110	880
1932	1.22	2.70	10.5	165	1,580	1,580	1,020
1933	1.31	2.70	10.5	160	1,500	1,480	1,030
1934	1.25	2.40	11.0	176	1,700	1,650	1,100
1935	1.38	2.90	11.0	132	1,700	1,650	1,000
1936	1.19	2.75	10.5	170	1,700	1,670	1,080
1937	1.41	2.90	11.0	170	1,540	1,570	820
1938	1.51	3.10	10.5	140	1,130	1,050	730
1939	1.20	2.30	10.5	185	1,620	1,660	1,120
1940	1.39	2.80	10.5	180	1,510	1,590	810

Data for 1924–35 are from General Crop Revisions, Crop Years 1924–35, Acreage, Yield and Production, June 1936 [Processed] and Revisions, Annual Legume Crops and All Tame Hay, Acreage, Yield and Production, Crop Years 1924–35, January 1937 [Processed], both issued by the Bureau of Agricultural Economics; for 1936–40, from Agricultural Marketing Service, Crops and Markets.

TABLE 22.—*Number of cows milked, production per cow, and total production of milk on farms, southern New England, by census years, 1919–39*

Year	Cows milked on farms	Milk production per cow	Total production of milk on farms
	Number	*Pounds*	*Million pounds*
1919	(1)	(1)	1,232
1924	272,921	5,222	1,425
1929	249,356	5,672	1,414
1934	262,853	5,562	1,462
1939	253,862	5,954	1,512

[1] Data not available.
United States Census.

TABLE 23.—*Milk sales by classes, Connecticut dealers, 1934–39*

Year	Class I [1]	Class II [2]	Class III [3]	Class IV [4]	Total
	Quarts	*Quarts*	*Quarts*	*Quarts*	*Quarts*
1934	163,007,080	36,005,201	9,784,244	2,580,737	211,586,262
1935	171,231,760	33,864,438	6,827,331	1,392,559	213,316,088
1936	182,163,739	31,411,835	5,727,814	1,077,925	223,381,313
1937	190,373,939	36,911,478	7,559,719	886,122	235,651,258
1938	190,105,569	39,209,676	11,303,590	690,202	241,309,037
1939	196,057,441	40,437,510	11,512,376		248,007,327

[1] Fluid milk. [2] Fluid cream. [3] Ice cream. [4] Butter.
Connecticut Milk Administration (8, p. 24) 1940.

TABLE 24.—*Prices of milk and grain, milk production, and index numbers of prices and production, Massachusetts, 1924–38*

Year	Prices		Milk production [3]	Index numbers (1924–38=100)		
	Milk per cwt. [1]	Grain per ton [2]		Milk prices	Grain prices	Milk production
	Dollars	*Dollars*	*Million pounds*			
1924	2.58	50.20	869	102.4	115.1	110.8
1925	2.74	50.95	830	108.7	116.8	105.9
1926	2.74	49.99	824	108.7	114.6	105.1
1927	2.84	46.92	796	112.7	107.6	101.5
1928	2.97	50.95	774	117.9	116.8	98.7
1929	3.03	54.85	758	120.2	125.7	96.7
1930	2.69	51.96	767	106.7	119.1	97.8
1931	2.09	44.56	755	82.9	102.2	96.3
1932	1.91	32.92	742	75.8	75.5	94.6
1933	2.07	27.66	742	82.1	63.4	94.6
1934	2.28	34.28	747	90.5	78.5	95.3
1935	2.30	39.84	773	91.3	91.3	98.6
1936	2.38	35.89	782	94.4	82.3	99.7
1937	2.49	42.42	800	103.2	97.2	102.0
1938	2.53	40.92	801	100.4	93.8	102.2

[1] For 3.7 milk delivered to Boston based on data from New England Milk Producers Association and the Market Administrator.
[2] Grain price is an average price paid by farmers in New England for the dairy ration most commonly used. Computed by the New England Milk Producers Association.
[3] Estimates of the Agricultural Marketing Service for Massachusetts.

TABLE 25.—*Total shipments of dairy cattle from Wisconsin to all other States and countries and the number shipped to southern New England by States, 1922–38*

Year	Total shipments	Shipments to-			
		Massachusetts	Connecticut	Rhode Island	Total, 3 States
	Number	*Number*	*Number*	*Number*	*Number*
1922	42,469	31	1,219	5	1,255
1923	55,908	158	603		761
1924	52,707	21	138	15	174
1925	58,446	535	355		890
1926	73,880	501	311	66	878
1927	83,027	499	1,749	548	2,796
1928	82,089	653	2,472	319	3,444
1929	78,344	1,158	898	204	2,260
1930	56,466	1,196	1,014	364	2,574
1931	59,852	1,963	1,031	653	3,647
1932	52,197	2,703	1,258	658	4,619
1933	40,526	2,151	831	604	3,586
1934	40,145	1,792	1,146	769	3,707
1935	30,955	509	645	70	1,224
1936	30,382	779	564	45	1,388
1937	36,201	554	718	102	1,464
1938	38,519	535	747	60	1,342

Data are from records of State and Federal veterinarians and from the Wisconsin Crop and Livestock Reporting Service.

TABLE 26.—*The percentage of the dairy cattle shipped into Connecticut that were received from Wisconsin, 1922–38*

Year	Percentage from Wisconsin	Year	Percentage from Wisconsin	Year	Percentage from Wisconsin
	Percent		*Percent*		*Percent*
1922	17.5	1928	16.5	1934	9.6
1923	8.1	1929	6.8	1935	3.7
1924	1.4	1930	11.8	1936	3.9
1925	4.1	1931	10.7	1937	5.7
1926	3.0	1932	11.9	1938	6.0
1927	15.3	1933	8.4		

Computed from data from the Connecticut Commissioner of Domestic Animals and the Wisconsin Crop and Livestock Reporting Service.

TABLE 27.—*Prices and index numbers of prices received by Connecticut farmers for specified farm products, 1922–37*

Year	Prices received for					Index numbers of prices received (1922–37 = 100)				
	Milk per cwt.	Milk cows per head	Potatoes per bushel	Eggs per dozen	Tobacco per pound[1]	Milk	Milk cows	Potatoes	Eggs	Tobacco
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Cents*					
1922	2.99	85.67	1.17	0.48	30.0	101.4	88.1	91.4	117.1	143.5
1923	3.25	87.65	1.36	.48	35.0	110.2	90.1	106.7	117.1	167.5
1924	3.14	87.16	1.27	.48	20.0	106.4	89.6	102.4	117.1	95.7
1925	3.39	90.88	1.48	.32	18.9	112.9	93.4	119.4	126.8	90.4
1926	3.41	100.52	2.33	.48	26.0	115.6	103.3	187.9	117.1	124.4
1927	3.52	112.17	1.70	.47	21.0	119.3	115.3	137.1	114.6	100.5
1928	3.60	142.00	1.20	.48	21.0	122.0	146.0	96.8	117.1	100.5
1929	3.67	140.17	1.35	.50	27.4	124.4	153.3	108.9	122.0	131.1
1930	3.33	126.83	1.49	.42	25.1	112.9	120.3	120.2	102.4	120.1
1931	2.71	94.58	.95	.34	14.0	91.9	97.2	76.6	82.9	67.0
1932	1.95	73.25	.62	.28	12.0	66.1	75.3	50.0	68.3	57.4
1933	1.96	66.17	.91	.27	13.0	66.4	68.0	73.4	65.9	62.2
1934	2.51	70.25	.92	.30	17.0	85.1	72.2	74.2	73.2	81.3
1935	2.45	85.50	.95	.34	18.5	83.1	87.9	53.2	82.9	88.5
1936	2.56	94.25	1.33	.34	20.5	86.8	96.9	107.3	82.9	98.1
1937	2.75	91.50	1.07	.32	15.5	93.2	94.1	86.3	78.0	74.2

[1] Prices shown are for Connecticut Valley Broadleaf, type 51.

Data for tobacco are from U. S. Dept. Agr., Agricultural Statistics. All other data are from Conn. Agr. College, Economic Digest for Connecticut Agriculture.

TABLE 28.—*Average receipts and expenses on 12 farms in the Massachusetts area for 1936 and estimates for 1946 at A, B, and C price situations*

Item	Normalized 1936	A	B	C
Receipts:	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Milk	3,270	3,693	4,891	2,567
Livestock [1]	208	281	345	332
Poultry and eggs	125	150	126	145
Vegetables	16	16	9	40
Potatoes	5	5	4	25
Fruit	6	6	6	6
Hay	2	3		
Wood	49	49	49	49
Outside labor	28	24	28	28
Other	25	22	24	22
Total [2]	3,824	4,249	5,482	3,214
Expenses				
Grain	1,028	1,192	1,358	950
Livestock	206	217	315	129
Labor [3]	332	366	391	376
Lime and fertilizer	50	75	93	55
Milk hauling	328	361	430	305
Taxes	237	237	237	237
Hay	26	22	31	25
Seeds and plants	36	37	44	27
Interest	134	134	134	134
Electricity	52	57	67	49
Insurance	76	76	76	76
Equipment	19	23	28	20
Auto, truck and tractor	95	95	110	95
Other [4]	227	209	221	200
Total [5]	2,844	3,101	3,545	2,678
Cash balance	980	1,148	1,937	536

[1] Mostly discarded dairy cows, bulls, and calves.
[2] Does not include A. A. A. payments.
[3] Does not include unpaid family labor.
[4] Includes telephone, fencing, spray materials, horses, bags, veterinary fees, rent, etc. etc
[5] Does not include cash outlay on buildings

TABLE 29.—*Average acreage per farm and yield per acre of various crops harvested on 12 farms in the Massachusetts area in 1936 and estimates for 1946 at A, B, and C price situations*

Crop	Acreage harvested				Unit	Yield per acre			
	1936	A	B	C		1936	A	B	C
	Acres	*Acres*	*Acres*	*Acres*		*Number*	*Number*	*Number*	*Number*
Corn silage	2.6	2.3	2.5	1.8	Ton	10.5	11.2	11.6	10.5
Oat hay	2.7	3.3	4.0	2.5	do	1.8	2.1	2.2	1.9
Other hay	33.8	32.7	30.0	37.5	do	1.3	1.5	1.8	1.2
Soiling crops	.5	1	2	3	do	1.4	1.5	1.7	1.4
Potatoes	.4	.3	.3	1	Bushel	160.0	160.0	160.0	170.0
Sweet corn	.3	.3	.2	.6	Dozen	500.0	500.0	500.0	500.0
Other vegetables	.5	.4	.4	.5	Dollar	150.0	150.0	150.0	150.0
Apples	.4	.4	.4	.4	Bushel	150.0	150.0	150.0	150.0

[1] Dry weight

TABLE 30. *Average number of specified kinds of livestock on 12 farms in the Massachusetts area in 1936 and estimates for 1946 at A, B, and C price situations*

Kind of livestock	1936	A	B	C
	Number	*Number*	*Number*	*Number*
Dairy cows	18.7	19.9	22.8	17.8
Heifers	3.4	3.6	3.6	3.6
Calves	2.2	2.2	2.2	2.2
Other cattle	1.0	1.0	1.0	1.0
Horses	1.9	1.8	1.8	1.6
Hogs fattened	.6	.3	.3	1.0
Hens	32.0	109.0	103.0	109.0

TABLE 31.—*Milk production per cow and grain fed per cow on 12 farms in the Massachusetts area in 1936 and estimates for 1946 at A, B, and C price situations*

Item	1936	A	B	C
	Pounds	*Pounds*	*Pounds*	*Pounds*
Milk production	5,909	6,096	6,332	5,791
Grain fed	2,295	2,302	2,567	2,191

TABLE 32.—*Average receipts and expenses on 7 farms in the Connecticut Valley area for 1936 and estimates for 1946 at A, B, and C price situations*

Item	Normalized 1936	A	B	C
Receipts	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Milk	3,260	3,528	4,036	2,509
Livestock [1]	286	319	332	313
Tobacco	1,500	2,087	1,799	2,516
Poultry and eggs	247	248	248	287
Vegetables	57	21		64
Potatoes	202	142	142	193
Fruit	12	11	11	12
Hay	75	75	54	75
Wood				
Outside labor	154	154	154	154
Other	8	8	8	8
Total [2]	5,881	6,593	7,481	6,221
Expenses				
Grain	1,050	1,213	1,552	1,035
Livestock	98	134	179	114
Labor [3]	1,109	1,162	1,116	1,249
Lime and fertilizer	581	669	616	773
Milk hauling	204	226	277	199
Taxes	325	325	325	325
Hay	11	17	17	17
Seeds and plants	66	91	95	93
Interest	246	275	246	300
Electricity	112	117	123	107
Insurance	140	148	144	162
Equipment	72	80	72	85
Auto, truck, and tractor	280	300	291	325
Other [4]	301	291	280	291
Total [5]	4,604	5,048	5,342	5,075
Cash balance	1,277	1,545	2,342	1,146

[1] Mostly discarded dairy cows, bulls, and calves.
[2] Does not include A. A. A. payments.
[3] Does not include unpaid family labor
[4] Includes telephone, fencing, spray materials, boxes, bags, veterinary fees, rent, ice, etc.
[5] Does not include cash outlay on buildings

TABLE 33. *Average acreage per farm and yield per acre of various crops harvested on 7 farms in the Connecticut Valley area in 1936 and estimates for 1946 at A, B, and C price situations*

Crop	Acreage harvested				Yield per acre				
	1936	A	B	C	Unit	1936	A	B	C
	Acres	*Acres*	*Acres*	*Acres*		*Number*	*Number*	*Number*	*Number*
Corn silage	8.0	8.0	8.0	7.6	Ton	12.3	12.7	12.7	12.7
Corn for grain	2.3	2.3	1.6	1.0	Bushel	42.0	42.0	42.0	42.0
Oat hay	2.0	3.0	4.0	3.0	Ton	1.8	1.8	1.9	1.8
Other hay	27.4	23.3	20.3	26.3	do	1.9	2.1	2.5	1.8
Tobacco	1.8	6.4	5.5	7.8	Pound	1,741.0	1,700.0	1,700.0	1,700.0
Potatoes	2.1	1.5	1.5	1.0	Bushel	185.0	185.0	185.0	185.0
Other vegetables	.2	.2	.2	.0	Dollar	150.0	150.0	150.0	150.0
Apples	.1	.1	.1	.1	Bushel	150.0	150.0	150.0	150.0

TABLE 34.—*Average number of specified kinds of livestock on 7 farms in the Connecticut Valley area in 1936 and estimates for 1946 at A, B, and C price situations*

Kind of livestock	1936	A	B	C
	Number	*Number*	*Number*	*Number*
Dairy cows	20.2	20.9	23.6	18.9
Heifers	8.0	5.7	4.5	5.7
Calves	3.9	3.6	3.1	3.9
Other cattle	1.1	1.4	1.4	1.2
Horses	3.0	2.6	2.6	2.6
Hogs fattened	1.0	1.0	1.0	1.0
Hens	61.0	61.0	61.0	68.0

TABLE 35. *Milk production per cow and grain fed per cow on 7 farms in the Connecticut Valley area in 1936 and estimates for 1946 at A, B, and C price situations*

Item	1936	A	B	C
	Pounds	*Pounds*	*Pounds*	*Pounds*
Milk production	6,902	7,223	7,678	6,955
Grain fed	1,935	2,325	2,857	1,954

TABLE 36.—*Average receipts and expenses on 13 farms in the eastern Connecticut area for 1936 and estimates for 1946 at A, B, and C price situations*

Item	Normalized 1936	A	B	C
Receipts:	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Milk	2,418	2,842	3,034	1,891
Livestock [1]	190	198	225	182
Poultry and eggs	117	242	117	352
Vegetables	40	55	44	150
Potatoes	38	38	25	75
Fruit	18	18	18	18
Hay	12			
Wood	48	43	43	48
Outside labor	114	114	50	144
Other	13	13	13	13
Total [2]	3,017	3,303	4,149	2,873
Expenses:				
Grain	667	791	948	660
Livestock	82	86	92	76
Labor [3]	248	275	310	225
Lime and fertilizer	95	130	170	155
Milk hauling	264	288	343	243
Taxes	138	138	138	138
Hay	9	9	9	9
Seeds and plants	48	68	88	78
Interest	68	73	85	56
Electricity	39	41	45	38
Insurance	46	46	46	46
Equipment	38	44	52	35
Auto, truck, and tractor	137	145	169	125
Other [4]	141	141	148	151
Total [5]	2,029	2,277	2,643	2,035
Cash balance	997	1,086	1,590	838

[1] Mostly discarded dairy cows, bulls, and calves.
[2] Does not include A. A. A. payments.
[3] Does not include unpaid family labor.
[4] Includes telephone, fencing, spray materials, boxes, bags, veterinary fees, rent, ice, etc.
[5] Does not include cash outlay on buildings.

TABLE 37.—*Average acreage per farm and yield per acre of various crops harvested on 13 farms in the eastern Connecticut area in 1936 and estimates for 1946 at A, B, and C price situations*

Crop	Acreage harvested				Unit	Yield per acre			
	1936	A	B	C		1936	A	B	C
	Acres	*Acres*	*Acres*	*Acres*		*Number*	*Number*	*Number*	*Number*
Corn silage	8.0	7.6	7.5	8.0	Ton	12.5	13.3	13.5	12.5
Oat hay	1.6	2.0	2.2	1.6	do	1.6	1.8	2.0	1.6
Other hay	22.5	21.2	20.4	22.0	do	1.6	2.1	2.3	1.5
Soiling crops	.8	.9	1.0	.7	do.[1]	2.0	2.0	2.0	2.0
Potatoes	.6	.6	.5	1.2	Bushel	170.0	170.0	170.0	195.0
Sweet corn	.3	.4	.3	.9	Dozen	600.0	600.0	600.0	600.0
Other vegetables	.4	.5	.3	.8	Dollar	150.0	150.0	150.0	150.0
Apples	.4	.4	.4	.4	Bushel	150.0	150.0	150.0	150.0

[1] Dry weight.

TABLE 38.—*Average number of specified kinds of livestock on 13 farms in the eastern Connecticut area in 1936 and estimates for 1946 at A, B, and C price situations*

Kind of livestock	1936	A	B	C
	Number	*Number*	*Number*	*Number*
Dairy cows	18.2	19.1	20.5	17.6
Heifers	6.5	5.7	5.3	4.8
Calves	3.2	3.8	3.5	3.2
Other cattle	1.6	1.5	1.5	1.5
Horses	2.0	1.9	1.9	1.9
Sheep	1.8	.8		1.2
Hogs fattened	.5	.5	.5	.5
Hens	48.0	73.0	48.0	95.0

TABLE 39. *Milk production per cow and grain fed per cow on 13 farms in the eastern Connecticut area in 1936 and estimates for 1946 at A, B, and C price situations*

Item	1936	A	B	C
	Pounds	*Pounds*	*Pounds*	*Pounds*
Milk production	5,664	5,903	6,427	5,436
Grain fed	1,564	1,750	2,200	1,375

END