

APRIL 1955

business review

FEDERAL RESERVE
BANK OF
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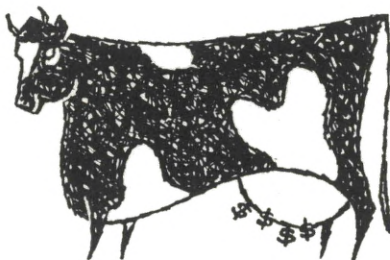
THE COW: A SOURCE OF WEALTH

You know that cows eat grass and give milk. Originally designed to suckle her young, the dairy cow has been "souped up" so much that some of the best milkers annually produce milk 12 to 15 times their own weight. That's good for some people, bad for others.

CURRENT TRENDS

A re-check of capital spending and inventory plans shows that firms in this area have made changes since September. Capital spending has been revised upward; and firms seem more inclined to increase inventory buying.

THE COW:



A SOURCE OF WEALTH

Milk is in a muddle. Farmers gripe about the low prices they get for milk, yet dairy farmers are better off than most other farmers in Pennsylvania. Consumers gripe about the high prices they pay for milk, yet it is much cheaper and more fun to get your minerals and vitamins out of a milk bottle than a pill bottle.

The United States is knee-deep in a sea of milk. Ohio milk spills across the border into Pennsylvania where it commands higher prices under state control. Some milk from Pennsylvania flows into the New York market where there is a super-surplus. Some New York, Jersey, Delaware, and Maryland milk also flows into Pennsylvania. Almost everywhere there is too much milk.

In New Jersey, the Governor threw out retail price-fixing of milk. In Oregon, the voters did likewise. In Memphis, a milk price war broke out. In Wisconsin, the biggest dairy state, the senior Senator called for a great and mighty milk research program like the wartime "Manhattan District Project" that built the atom bomb.

In Washington, D. C., the Secretary of Agriculture sits on top of a huge mountain of butter about 250 million pounds high. What a slippery seat to be sitting on! Congress requires him to buy butter for more than it is worth, and all he can do is sell it abroad for less than it is worth here or give it away. Meanwhile the country's

cows are busily chewing their cud—which makes more milk, more butter, more cheese, and more headaches for the Secretary of agricultural surpluses.

CONSIDER THE COW

Of all groups associated with the dairy industry, only the cow looks happy. Yet, her entire life is regulated. She is robbed of her children a few days after they are born. She is scientifically bred, dietetically fed, mechanically milked, and romantically bilked. As soon as she is over the hill as a good milker, she is sent to the butcher to be made into hot dogs and bologna, and fertilizer. Many of her offspring are slaughtered for veal or "chicken salad." In death as in life she serves her masters. What a boon to mankind is the dairy cow!

Her habits

The cow stands or lies in the meadow, chewing her cud in summer. She lies or stands in the stall chewing her cud in winter. In the spring and in the fall, anywhere at all, she chews the cud.

Cud is grass. Grass regurgitated from the cow's storage stomach is chewed and chewed without benefit of an upper plate for processing in her other stomach—the digestive stomach. Now, there are many different kinds of grass for which the cow has a scale of preference—just as

you like some kinds of apples better than others. Motoring through the countryside, we have observed that cows often prefer what grows outside the fence. Information about grass may be found in the 892-page Yearbook of Agriculture entitled "Grass," printed in 1948 and available for \$2 from the Superintendent of Documents at Washington.

In the course of a year the cow drinks tons of water and eats tons of hay, corn and grass silage, grain, and other food. In the course of a year she produces tons of milk and manure and perhaps a calf. The milk nourishes man and the manure nourishes the soil. If the value of all the cow's output is greater than the value of all the input, the farmer wins; if not, he loses.

Her habitat

Cows live in every state of the country because every state grows grass and every state has milk-drinking people. If grass grew in New York City and stall rents weren't so high, the city would be full of cows! The accompanying map shows where most of the cows live. Notice how they like the eastern part of the United States, and particularly the west shore of Lake Michigan. Very simple. Most of the people live in the eastern half of the country, and the eastern half has

enough rainfall to grow good grass. The heavy concentration of cows on the western shore of Lake Michigan is explained by the heavy concentration of people in the Chicago area, and the ideal dairying conditions afforded by Wisconsin.

Dairying is big business

Over 2 million of the country's 5 million farmers derive all or part of their income from the dairy cow. Total dairy income runs to \$5 billion a year. That's no small pile of "hay." Compare that with the "value added by manufacture" of the country's twenty major groups of manufacturing industries and you may be surprised to find that dairying outranks about half of them.

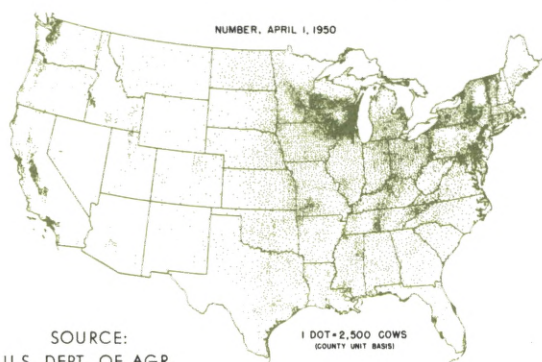
The cow kicks in about one out of every six dollars of gross income of the American farmer. Dairy products account for approximately 15 per cent of all retail food sales and 25 per cent of the nation's protein diet. The cow "employs" a lot of people—farmers, dairy maids, veterinarians, milk-machinery makers, chemists, tank-truck drivers, pasteurizers, bottlers, butter churners, cheese makers, delivery men, bookkeepers, price fixers, secretaries, lawyers, auctioneers, college professors, advertising men, and some bankers.

In the course of a year the country's cows produce over 120 billion pounds of milk. One way of visualizing such a huge flow of milk is to say that if it all descended as the gentle rain from heaven over the Delaware watershed, the Delaware would be a river of milk almost down to the Bay. Milk tonnage is equal to two-thirds our annual steel production.

THE COW IN PENNSYLVANIA

Pennsylvania—the Keystone State, the Coal and Iron State, the Great Industrial State—is also a great "Cow Commonwealth." As an industrial state, Pennsylvania is superseded only by two

WHERE UNITED STATES DAIRY COWS LIVE



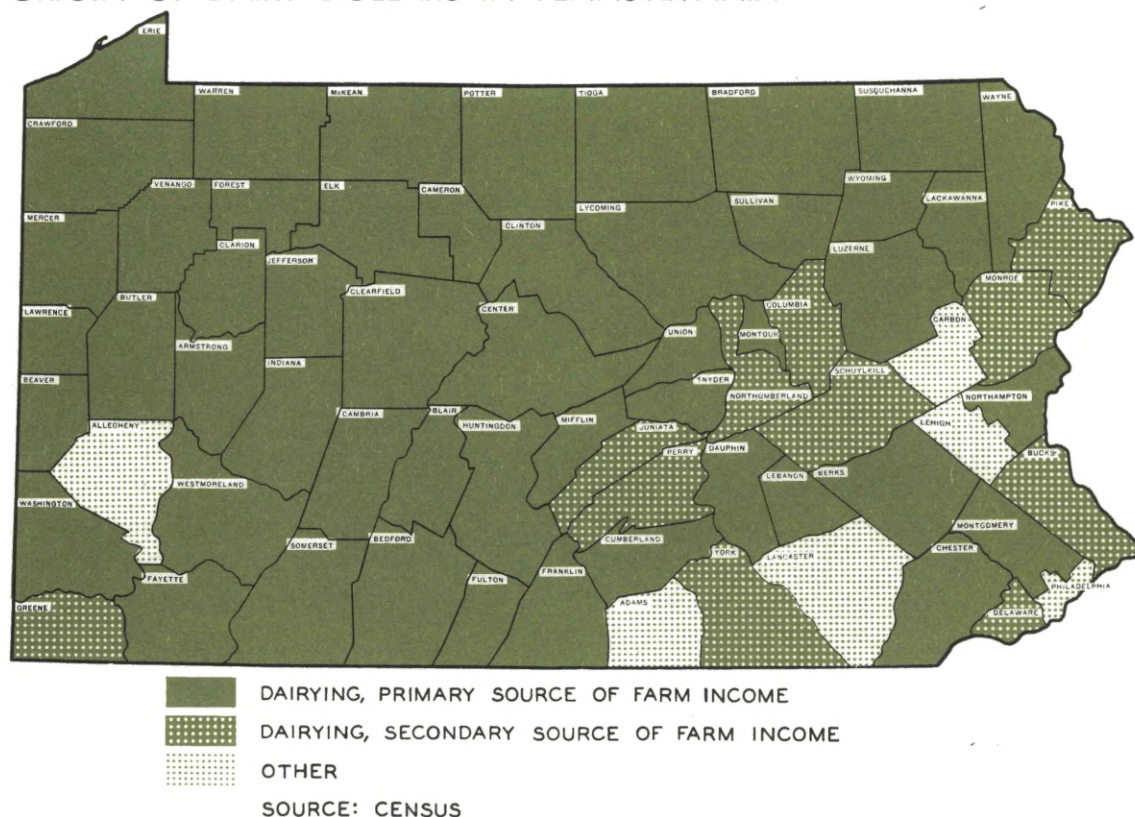
other states—New York and Ohio. In dairy-dollar income, Pennsylvania is superseded only by three other states—Wisconsin, New York, and California. Dairying contributes annually about \$300 million of income to Pennsylvania farmers.

Cows live in every county of the state, including Philadelphia. Note the overwhelming predominance of cow counties in the accompanying map, which shows where dairy products constitute the leading and the second largest sources of farm income. Only a half-dozen counties fail to qualify. Among them you might be surprised to find Lancaster, the richest agricultural county in Pennsylvania. Its richness is precisely the reason. Lancaster has many good dairy farms all

right, but as a source of farm income in Lancaster the cow is superseded by field crops—notably tobacco—and even the chicken is ahead of the cow.

Why do so many Pennsylvania farmers go in for dairying? They know what they are doing and they have good reasons. First is the proximity of big markets for fluid milk, like Philadelphia, New York, and Pittsburgh. Furthermore, Pennsylvania has two dozen smaller cities of 25,000 to 150,000 people that afford good secondary markets. Another reason is that the cow supplies a constant source of income. Twice a day she is milked, and twice a day she yields revenue. The dairy farmer's fortnightly milk

ORIGIN OF DAIRY DOLLARS IN PENNSYLVANIA



check stands in great contrast with the once-a-year cash income obtained by farmers in the vast wheat and corn belts of the country. Third, the cow is an economical producer and a conserver of the soil. Along with every bushel of wheat or hundredweight of tobacco sold from the land goes a lot of soil fertility; but little fertility leaves the farm in milk cans. The cow converts roughage like grass and corn silage into milk, and in the process leaves most of the soil fertility intact. Moreover, she puts back a lot of soil nutriment. A thousand-pound dairy cow voids about 12 tons of solid and liquid manure in a year. There is nothing poetic about a pile of manure, but spread over the land it does a lot of good.

True, dairying is a year-round job and requires a lot of labor. You don't run into any dairy farmers in Florida in the winter or at Bar Harbor in the summer, unless they are rich enough to hire good managers to tend the cows back home. Cows need constant care.

A PENNSYLVANIA DAIRY FARM

The heavy volumes of the United States Census are fat with figures about agriculture. There, anyone can read about the number of farms in Pennsylvania, acreage in farms, the number of cows, hogs, chickens, horses and mules, and related information. With but a wee bit of research through some pages, it is possible to determine that an average Pennsylvania dairy farm is an enterprise of about 147 acres, that it has approximately 55 per cent of its land in crops, that the average farm has about 15 cows, 100 chickens, 4.6 hogs, and perhaps a mortgage.

The trouble with an average is that it is a myth; you can tour the entire state and find no such farm. No two farms are alike. Near Philadelphia, farms are likely to have less-than-average woodland; in the northern part of the state,

less-than-average wheat and corn acreage; in Greene County, more-than-average sheep; and so it goes.

Instead of looking at an average dairy farm in the Census, let us look at a real dairy farm in Chester County. It is along a tributary of the Brandywine, about 45 minutes by automobile from Philadelphia. Turning off the secondary road into a long lane, shaded in summer, you pass a contoured slope of green corn on the right and a greener meadow on the left. Tall evergreens grace the lawn, flanked by a vegetable garden and a flower garden. The brick house has an old-fashioned, second-floor porch, and an abundance of rooms that are roomy. The kitchen has sliding-door cabinets, mechanical dishwasher, exhaust fan, electric stove, toe-room at the sink, and a picture-window affording a view of the rolling countryside. In the living room are a thermostat and a television. In the basement are a shuffle-board, a ping-pong table, and cupboards loaded with home-canned fruits and vegetables.

Push-button farming

The dairy barn is large, light, and without accommodations for spiders. In one bay separated by a central aisleway is the milking herd of about 30 Holsteins—black-and-white beauties, well-formed, heavy milkers. Each stall is equipped with individual drinking fountains, salt block, stanchions, and generous bedding. The barn gives every evidence of good housekeeping. To keep a large barn clean is a chore in itself.

Overhead are the pipe lines through which the milk flows from the teat cups of the mechanical milkers to the cold wall tank where the milk is weighed, sampled for butterfat testing, and kept in cold storage until picked up by the tank truck which calls daily or every other day. The cold wall tank is in the milk house; the room is im-

maculate; the cost of contents is considerable.

Colonic and urinary secretions from the cows in their stalls are absorbed by straw in the gutters. The gutters are equipped with a power-driven, endless chain to remove manure. Periodically, the attendant pushes a button and the manure flows out of the barn, drops through an opening into the manure spreader on a lower level, to which a tractor is attached to haul the natural fertilizer right out into the fields daily, weather permitting. In six minutes the stables are cleaned without the lifting of so much as a pitchfork, but the farmer must be adept with the wrench and oil can.

In another bay are the cows that are temporarily dry. In other bays are the calves and heifers. Upstairs are the hayloft and the storage areas for baled straw and grains. An inevitable adjunct conveniently located is the silo, containing corn silage or grass silage. The entire layout is designed to save steps of attendants.

Just as a mother hen is surrounded by her brood of chicks, so the main dairy barn is surrounded by a "brood" of smaller buildings. One of them may house a flock of laying hens; other sheds shelter the farm machinery and the machine shop.

Machinery required to operate a dairy farm consists of a hay baler, a forage harvester, and a blower to fill the silo. Also a mowing machine, a rake, and a drill to plant corn. Also a plow and disc harrow to prepare the soil for planting, a fertilizer spreader, and a sprayer to kill spittle bugs and other pests that like to eat the grass before the cows get a chance at it. In addition there are a combine to harvest grain, a truck or two, and at least two tractors used for field work and belt work around the barn. The biggest and most expensive of these machines are the tractor, the hay baler, the forage harvester, and the combine. The machinery at

present-day prices runs into thousands of dollars.

Surrounding the plant is, of course, the land—120 acres. Some of the land is in grass, some in oats or wheat, some in corn, and perhaps an acre or two in vegetables—tomatoes, potatoes or beans. Home-grown grain supplies straw for bedding and high-energy feed for the dairy cows. But very likely the farmer has to buy some additional proteins such as cottonseed meal or soybean meal. Milk is of course the principal source of income, which may be supplemented by the sale of vegetables and eggs.

Blue ribbons and a Gantt chart

In the milk house on the wall just above the faucets is an array of neatly framed citations—signed, sealed, and decorated with blue ribbons. They are the proof of past performance of the dairy herd—awards for heavy production of delicious milk.

On the white wall just inside the dairy barn is a large chart. It looks like a Gantt chart and it helps to guarantee future performance of the dairy herd. Readers who have been through an automobile assembly plant or through a college course in industrial management know what a Gantt chart is. It is a chart that shows at any moment of time the progress of materials and component parts on their way through the manufacturing process, together with the due date promised the customer.

The agricultural adaptation of the Gantt chart shows the farmer all about his dairy herd at any moment of time. Listed are each cow, her date of birth, breeding schedule, milk and butterfat production, number of calves produced, diet, illness if any, etc.

The dairy farmer or his wife should have a "cow sense." If it is not inherited, it may take years of experience and study to acquire. The farmer who does have it can almost tell how each

cow feels just by looking at her. If a cow coughs, the farmer takes her temperature. If it is above normal, he gives her the required treatment or calls the vet. Believe it or not, cows get ulcers—and if the dairy farmer has any cows with ulcers, he probably gets ulcers too.

“Cows are ladies”

Also tacked on the wall in the dairy barn is a sign which reads: “Cows Are Ladies; Treat Them With Kindness.” To the city slicker, a cow is a cow; but to the farmer, the cow is an individual with character, personality, and a pedigree. She is a lady of royal heritage and princely progeny. Some cows are peaceful; others bellicose. Some are happy; others moody. Some are robust and rowdy; others are sickly and “shrinking violets.” Be what they may, the farmer loves them all. And well he may, for each cow is worth anywhere from \$300 to \$1,200, depending on whether she is high born or low born.

No bull

Someone has said the bull is half the herd; yet, you may be surprised that you saw no bull on the farm. When the dairy farmer has a cow to be bred, all he does is go to the telephone, call the local representative of the nearest artificial breeders’ association and at the appointed time their representative appears and inserts semen from a proven sire into the designated cow, for a modest fee. If it “takes,” the cow declares a “stock dividend” in due time—nine months hence. The farmer hopes for a healthy heifer that will grow up to be a good milker. If it is a bull calf, he is most likely destined as an early candidate for the veal market.

Approximately 20 per cent of the country’s current cow population is so bred. Artificial insemination is constantly gaining more advocates for essentially two reasons. Bulls are dangerous,

and at a breeding center the people are better equipped to handle them than on the farm. The principal reason, however, is economic. For most farmers, buying semen is cheaper than boarding and bedding a bull. The semen can be diluted to serve more cows. Moreover, with artificial insemination it is easier to keep infectious diseases in check and farmers can take advantage of breeding their cows from better blood lines. Through Dairy Herd Improvement Association work, farmers are able to use records in selecting bulls which make for improved milk production. When the butterfat lines of a bull’s daughters compare unfavorably with the butterfat lines of their mothers, his days are over and he must make room for a bull whose daughters do better than their mothers in milk and butterfat yield.

A page from a cow journal

The last stop of the journey around the dairy farm is in the office. Seated in the visitor’s chair, we asked for information: “Is it true, as almost everybody says, that the dairy farmer is in a tight squeeze—a squeeze between stubborn costs and declining milk prices?” Opening his journal, the farmer read from the 1954 record. It was quite a revelation and went as follows:

CASH INCOME

Sale of milk.....	\$22,000
Sale of grain and straw.....	6,000
Total sales	\$28,000

EXPENSES

Artificial breeding	\$ 200
Milk hauling	1,600
Veterinary services and medicine...	700
New equipment	4,000
Fertilizer	2,500
Feed	2,000
Insurance	300

Gas and oil.....	1,400
Seed	600
Electricity	960
Telephone	100
Labor	6,300
Car and truck repairs.....	360
Miscellaneous supplies and repairs..	2,000
D.H.I.A. dues	200
Total expenses	\$23,220

After deducting expenses from income, it doesn't look like a get-rich-quick type of business. True, some other sources of income are not included, such as receipts from the sale of eggs, perhaps some vegetables, and also products consumed on the farm; but so are some expenses missing, such as taxes, family labor, and interest on investment.

The capital account of a dairy farm looks something like this:

INVESTMENT

Land and buildings.....	\$50,000
Cattle	18,000
Machinery	12,000
Total	\$80,000

The man-power used to operate this farm is the owner, two hired men, and a boy. The owner admitted that he might be just as well off financially if he sold the farm and invested the proceeds in Government bonds; but farming is more fun than sitting in a chair clipping coupons. Moreover, the owner knows farming, likes farming, and wants to do something creative.

Not all of Pennsylvania's 43,000 dairy farms are like the one we just visited. This is one of the better farms. There are vast differences in productivity from one farm to another, and wide differences in managerial ability from one farmer to another. This is shown by the records of the Dairy Herd Improvement Association. Latest records of the D.H.I.A. show that some farmers have

herds in which individual cows produce \$426 worth of milk above feed costs, in contrast with other herds where the value of milk production per cow is only \$120 above feed costs. See how much difference good management makes—and of course breeding good cows is part of management.

The dairy farm as a business enterprise

Running a dairy farm is somewhat like running a shoe factory or a steel mill. The principal productive unit is, of course, the dairy herd—analagous to a battery of open-hearth furnaces in a steel mill. To produce the maximum amount of quality steel, the steel-mill operator must feed into the furnaces the right kind of raw materials on schedule. Similarly, to produce efficiently the maximum amount of quality milk the dairy farmer must feed his dairy herd the proper raw materials on schedule. That is why he places so much emphasis on production of good roughage as a basis for his entire feeding program. Like the steel-mill operator, the dairy farmer is also a meticulous keeper of records so that he knows at all times the relation between input and output.

Like the steel-mill operator, the dairy farmer has a huge capital investment and heavy overhead costs. Consequently, it behooves him to get the greatest possible production to keep his unit costs of production as low as possible. Therefore, the dairy farmer is always watching each cow to make sure that she is worth her stall rent. The alert dairy farmer is constantly culling his herd, which means that if the productivity of the low producers cannot be improved beyond a certain point the cows must go.

The average Pennsylvania dairy cow produces better than 6,000 pounds of milk and almost 250 pounds of butterfat a year. That is about 1,000 pounds of milk and about 30 pounds of butterfat better than the average for all dairy cows of

the country. But the Pennsylvania record is nothing to brag about. In New Jersey, Rhode Island, California, and eight other states, cows do considerably better than Pennsylvania cows.

The progressive Pennsylvania dairy farmers, of course, do much better than the average. Cows that fall below 300 pounds of butterfat go to the butcher shop. That's why there is never a scarcity of hot dogs and hamburgers. As a matter of fact, abattoirs and fertilizer factories get too few cows; if more low producers were culled, the chronic surplus of milk might be reduced.

How much milk and butterfat a cow produces depends primarily upon two things. First, the cow's heritage and, second, care and feeding. Occasionally, you run into people who are very proud of their family heritage and coat-of-arms. You should see the bovine "coat-of-arms" and pedigrees of some Pennsylvania cows.

Meet cow No. 691,881, the Queen of the Pasture, a Guernsey. She made eight consecutive records in eight 305-day years for producing milk in excess of 12,000 pounds, with butterfat in excess of 600 pounds. In her prime she could have been sold for several Cadillacs, but her owner loves cows more than Cadillacs. Her name is King's Aprodite Mt. Ararat, which means she was sired by Caroline King. Her mother was Jethro Pomara. Her grandfather was Cherub's 'King Jethro. She was born on July 24, 1941 and produced eight daughters in eight years—every one a good milker. One of her granddaughters produces over 50 pounds of milk daily. [Editor's note: That's almost 25 quarts—enough to supply all the families on our street.]

King's Aprodite lives on a farm in Lancaster County. She is still bearing calves and still a good milker despite her advanced age—comparable to 90 years among humans. She occupies a separate pen where she can roam at her pleasure. "That cow," said her owner, "will never go

to the block; when she dies she will be buried right there." Now, that is not good economics, as her owner knows very well, but there are times when sentiment rises above economics.

In at least one major respect, the analogy between a steel mill and a dairy farm breaks down. The steel-mill operator hires a crew of specialists—one to do the purchasing, another to do the selling, and still others with such functions as maintenance, accounting, quality control, personnel, etc. On the dairy farm, however, the owner usually performs all these functions himself. He is accountant, machinist, purchasing agent, production manager, laboratory technician, midwife, and chairman of the board.

Bigger herds

Dairy herds are growing larger in Pennsylvania. Today, herds of twenty or more cows produce 40 per cent of the milk supply. This is almost three times the proportion that herds of this size contributed 25 years ago. At that time almost half of the milk production came from herds of nine cows or less.

It is the pressure of overhead costs that makes for larger herds. Every farmer is of course acutely aware of his out-of-pocket costs, like the money he must spend constantly for gas and oil, electricity, and the hired man's wages. The good farmer, however, is equally conscious of his overhead costs like depreciation, insurance, and interest on his investment. Costs like these are reduced greatly, per hundredweight of milk produced, by increasing the size of the herd. Many a farmer has found it profitable to add more cows to his herd, reducing the grain acreage, and increasing the acreage in hay and pasture. By so doing, two acres can be released to provide roughage for one more cow. Even labor efficiency is increased by larger herd size. To climb the silo to throw down silage takes the same time for thirty cows as it does for twenty.

Greatest increases in labor efficiency are possible with the shift from a one- to a two-man farm enterprise. Beyond a four-man business no increases are apparent, according to studies by the College of Agriculture of the Pennsylvania State University.

A large farm can afford re-layout of the barn, milking machines, drinking fountains, automatic barn cleaners and field machinery. If overhead costs of a forage harvester are \$2 an acre when used on 20 acres, they would be only \$1 an acre on 40 acres. The high-cost operators are usually the small operators. There is still room for lots of improvement because it is estimated that about 40 per cent of Pennsylvania farmers have herds too small to warrant equipment and facilities needed for most efficient operation.

Some strange economics

Ideal size of herd is no guarantee of success in dairy farming. Neither is contour plowing, or liming the soil, or artificial insemination, or cold wall tanks, or D.H.I.A. membership, or mechanization, or cost accounting, or good marketing. All of these together do not necessarily spell profit.

The successful dairy farmers are those who are

better than their competitors. When the cost-price squeeze squeezes harder, one may seek refuge by culling his herd; another may find the solution in modernizing his equipment; another may find a better outlet for milk. Still another may dig a trench silo and add a few more cows to his herd, thereby utilizing land and labor more effectively.

Curiously, the individual farmer's best immediate solution to the problem of surplus milk is very often to contribute more to the surplus. Sounds crazy, but you can't blame a farmer when, by using his wits, he finds that his own best solution to the overflow of milk is to contribute still more to the flow. His heavy fixed costs drive him into more milk production to reduce his cost per hundredweight.

In Pennsylvania, dairy farms are becoming fewer and larger. Over the years, the trend seems to be—get bigger or get out. This is reflected in the appearance of more and more milk tank trucks on the highways and fewer 40-gallon milk cans for pick-up from roadside platforms.

THE FLOW OF MILK

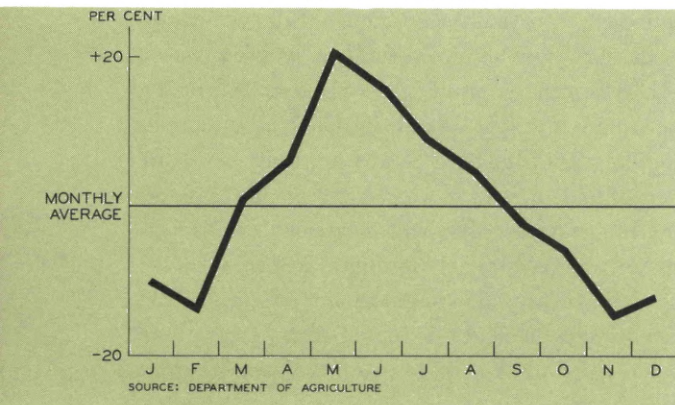
When it flows

Although cows are milked daily, the flow of milk is not uniform throughout the year. The flow of milk is always greater in the spring than in the fall, as shown in the chart.

The heavy springtide is not peculiar to Pennsylvania alone. It is the time of year when dairy herds emerge from the barns and graze on the fresh green grass newly sprung in the meadows. The change in diet stimulates a greater flow of milk.

Another reason for the heavier flow of milk in the springtime is the longstanding practice of breeding cows for spring freshening. This practice is rooted in more than habit and tradition. Calves born in the spring are greeted with warmer weather during critical days of infancy and thus

SEASONAL PRODUCTION OF MILK IN PENNSYLVANIA
(1942-51 Average)

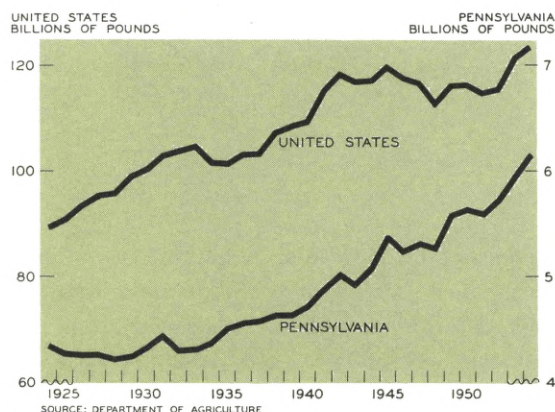


have a better chance of survival than calves born in the fall. The modern dairy farmer, however, is much better equipped in our time than was his grandfather. Consequently, smart farmers now go in more for winter breeding and fall freshening, which has the advantage of boosting the flow of milk in the fall when prices are high and reducing the flow of milk in the spring when prices of milk are low.

How much flows?

In 1954, Pennsylvania produced slightly over 6 billion pounds of milk. That is only a small fraction of the entire country's milk output, which amounted to over 123 billion pounds. Milk-production trends for the past 30 years in the United States and in Pennsylvania are shown in the accompanying chart.

THE FLOW OF MILK IN THE UNITED STATES AND IN PENNSYLVANIA



The generally rising increase in production has come about in response to the naturally growing numbers of milk consumers. During the past 30 years while the country's population increased by almost 50 million, the country's cow population increased by only 2 million. Thus most of the increased milk production was brought about

by the increased production of each herd.

Milk production generally does not change much from one year to the next, as the chart also shows. In fact, there is no other major agricultural product that surpasses milk in regularity of output, and that is one of the principal reasons why so many farmers keep cows, as already mentioned.

How much milk flows, one might reasonably expect, ought to depend upon the price—rising prices, more milk; falling prices, less milk. Rising prices do bring about increased milk production, but not overnight. It takes two years or a little over from the time a heifer is born until she becomes a milk producer, and there are limits to increasing the flow of milk from a milking cow for physiological reasons. A cow can be pushed only so far. Furthermore, the number of cows that can be accommodated is also limited by the number of dairy hands available and, perhaps more important, the available stabling facilities. Only in the long run—sometimes a very long run—will rising milk prices bring about increased milk production, as they did during the inflationary period of World War II. Year-to-year changes frequently make no sense at all.

Nor is a drop in the price of milk necessarily followed by a quickly reduced production. Overhead costs continue, and as long as the revenue from the sale of milk is greater than feed costs, the principal cash outlay, production is likely to continue or, in fact, increase. Short-run changes in the relation between production and prices of milk often make the law of supply and demand look cockeyed.

Of course on many farms, milk is just one of several sources of income. If the price of milk is falling but the prices of other agricultural commodities are even less favorable, farmers will turn to milk production as the best way out of a bad situation.

Where it flows

Pennsylvania is just about in the middle of the Northeastern dairy region of the country. The region comprises New England, the Middle Atlantic States, Maryland, Delaware, and the Virginias.

The climate, topography, and soils of this region are particularly well suited to grassland dairying. The chief economic advantage enjoyed by dairy farmers in the region, however, is the density of population or nearness to market. For those reasons, most of the milk produced here goes to market for consumption as fluid milk. This is in contrast with the great North Central dairy region (the Michigan-Wisconsin area) where a much larger proportion of the milk goes to market in the form of manufactured products such as butter, cheese, ice cream, evaporated milk, condensed milk, or powdered milk. Approximately three-quarters of the milk produced in the Northeast goes to market as fluid milk in contrast with only one-third in the great North Central dairy region.

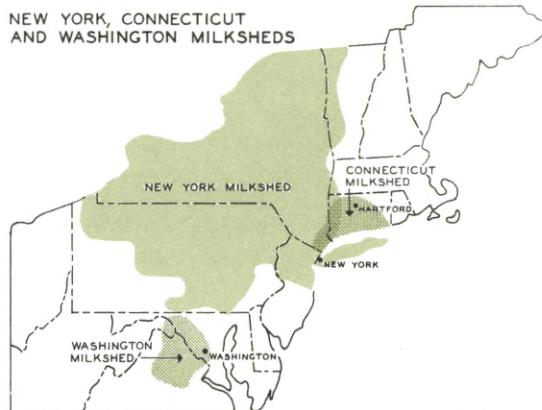
Proximity to large markets for fluid milk enjoyed by Pennsylvania dairy farmers has as its chief advantage the higher prices these farmers get for their milk in contrast with the lower prices paid for milk that goes into manufacturing channels. Pennsylvania farmers, in contrast with dairy farmers of the North Central region, however, face an offsetting disadvantage in higher feed costs. In the Northeastern region, approximately one-fourth of the concentrate dairy ration is home grown as compared to about three-fourths in North Central dairyland.

Milk generally flows to the nearest market that offers the best price. There are exceptions to this generalization, however. For example, each state has its own health regulations and there are differences in the health regulations as between metropolitan centers within a state.

As might be expected, Philadelphia and Pittsburgh are the two largest fluid-milk consuming

MILKSHEDS IN THE NORTHEASTERN STATES

NEW YORK, CONNECTICUT
AND WASHINGTON MILKSHEDS



BOSTON, PHILADELPHIA, BALTIMORE
AND PITTSBURGH MILKSHEDS



SOURCE: PENNSYLVANIA STATE UNIVERSITY

markets in Pennsylvania. A milkshed is an area from which a major consuming market draws its milk. The Philadelphia milkshed runs from the Atlantic Coast in New Jersey westward as far as Altoona. Delaware and Maryland dairy farmers also ship into the Philadelphia market because these states are a natural part of the Philadelphia milkshed.

Milksheds are not exclusive territories. For example, the New York milkshed comprises a large part of Pennsylvania and overlaps the Philadelphia milkshed in part. Similarly, the Philadelphia and the Baltimore milksheds overlap in part.

In fact, there are some areas in southeastern Pennsylvania where some dairy farmers ship to New York, their neighbors ship to Philadelphia, and still other neighbors ship to Baltimore, as the accompanying maps show.

Fluid milk must get to market in a hurry because it is highly perishable. Just where an individual farmer will ship his milk depends upon which markets will accept his milk, what price he

can get for it, and what it costs to haul it there. That's why milksheds are a cost-price-sanitation gerrymander.

As a source of wealth, the cow has few if any peers among the creatures that roam the face of the earth. In the foregoing analysis, little was said about the consumption of milk and its products. The well being of the cow and her customers is another tale to be told in a later installment.

CURRENT TRENDS

A Re-Survey of Spending Plans of Philadelphia Manufacturers

Manufacturers in the Philadelphia metropolitan area are somewhat more optimistic about their 1955 capital expenditures than they were six months ago. And in that other area of business spending—inventories—manufacturers say they are more disposed to step up purchases than they were last September. Such, in brief, are the conclusions of a re-check of local firms which, in our original survey of business spending plans, accounted for almost half of the dollar outlays for plant and equipment contemplated this year.

Capital outlays

Last September, producers in this area told us they planned to spend \$257 million on new plant and equipment during the calendar year 1955. Compared with actual outlays made in the preceding twelve months, the estimate indicated a decline of about 20 per cent. Past experience with our studies of capital spending programs has revealed that manufacturers frequently overstate the declines and understate the increases. The over-all improvement in business conditions that began last fall made us wonder what the impact might have been on the pattern of business spending originally planned for this year.

More firms are taking an optimistic viewpoint

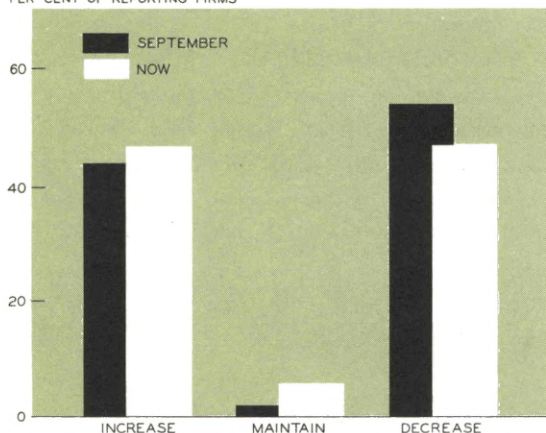
At first glance, we are impressed with the apparent firmness of last fall's prediction as to the probable trend of capital spending in 1955 as compared with that of the preceding year. Approximately 85 per cent of the firms called in the spot check just completed said that spending still would proceed in the same direction as indicated last fall. But a closer look at the latest results showed that the percentage contemplating increases had risen from 44 per cent to 47 per cent. Instead of the 54 per cent originally expecting decreases in capital outlays, only 47 per cent continued thinking in these terms. In the case of firms planning to maintain their rate of spending in 1955, the proportion has risen from 2 per cent to 6 per cent.

. . . and dollar-wise, total spending may increase

Over-all, on the basis of the sampling in our re-check, it seems probable that manufacturers in the Philadelphia metropolitan area may spend from 10 to 15 per cent more for new plant and equipment than last September's programs called for.

ESTIMATED CAPITAL EXPENDITURES

PER CENT OF REPORTING FIRMS



Of course, as compared with actual spending in 1954 this would still mean a decline. Upward revisions in 1955 spending estimates are somewhat more numerous among lines making nondurable goods than among those producing durables. Measured in dollars, the percentage increases over original estimates are largest for the nondurable goods group of industries.

Some lines have made large revisions

Although latest thinking in terms of the direction that spending may take has not changed so much among individual lines, the magnitude of both the increases and decreases in some cases is surprising. Among nondurable goods industries the food and tobacco lines were about the only ones not making a substantial change in original spending estimates. In rubber and leather goods, petroleum and coal products, chemicals, and paper, upward revisions were pronounced. The apparel and textile industries lowered their expectations considerably, and a moderate decrease was indicated for the printing industry.

The durable goods industries, with the notable exception of transportation equipment, made relatively small changes in their original estimates of

this year's capital spending. Producers of electrical machinery and lumber and furniture did not make any changes. In transportation equipment there was a sharp upward revision, prompted no doubt in some part by the excellent reception accorded new-model automobiles after their introduction last fall. Small increases appeared in the case of fabricated metals and non-electrical machinery. Declines included such lines as primary metals (where productive capacity is apparently adequate for the present), instruments, and stone, clay, and glass products.

Inventory spending

In the recent past, the influence of inventory spending on business conditions has been emphasized time and again. This emphasis has led many to attempt to use inventory plans in forecasting business activity, the idea being to get businessmen to reveal their inventory plans and build from that a forecast of general business behavior. This Bank, for example, has included questions on inventory policy in its capital expenditures survey for the past two years. The re-check this year on our survey reminds us that inventory plans *respond to* as well as influence the course of business activity.

Last September, we asked manufacturers in the Philadelphia metropolitan area about their inventory plans for the next three months. At that time by far the largest number of firms said they were not going to change their spending plans, seasonal considerations aside. But about three times as many firms that expected a change said they would decrease inventories as expected to increase them. Now let us see if these plans proved a dependable guide to actual spending policy.

What actually happened

Our re-check indicates about 83 per cent of the firms actually did what they said they were going

to do. This would seem to say that the September survey was a good guide. Unfortunately, this was not entirely the case. Our re-check confirms the fact that most firms were going to maintain stocks, but indicates that instead of more decreasing than increasing, just the reverse actually occurred.

As the chart below shows, 79 per cent of the firms said in September they would maintain stocks through December; about 70 per cent actually carried through with this policy. Only 5 per cent said they were going to increase buying, yet 18 per cent did step up purchases. As compared with the 16 per cent who said they would trim inventories, just 12 per cent actually cut back purchases. So that actually more firms increased inventories (18 per cent) than trimmed inventories (12 per cent).

Now let us examine the figures a little more closely paying particular attention to those firms that didn't do what they said they were going to do. Of the firms that changed from their announced policy, 78 per cent increased inventories. For 13 per cent, the change was to maintain inventories, and in just 9 per cent of the cases, firms

changed to decreased spending.

What may happen

The substantial shifts in the direction of inventory spending that occurred in the September-December period shows us that manufacturers' inventories must be interpreted with care. Our re-survey indicates we have about the same number of firms saying they are going to increase stock buying in the March-June period as said this in September. This reply also means we have fewer firms saying they are going to increase inventories in March than *actually* did increase inventories after September. In the other column, we have fewer firms now saying decrease than said decrease in September. About the same proportion of manufacturers say decrease now as actually followed that policy in the September-December quarter.

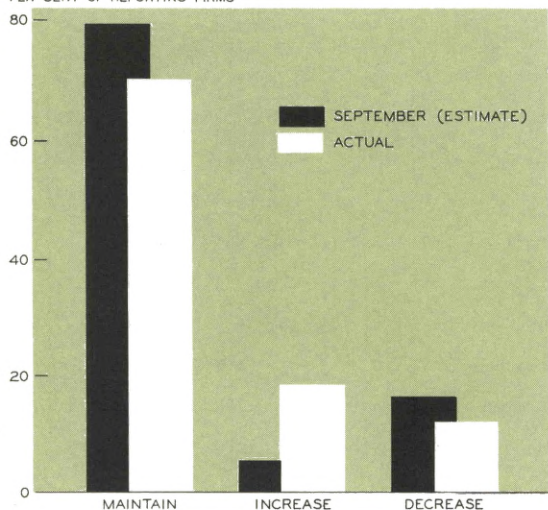
With recent experience in mind, it is difficult to draw conclusions on future behavior from this survey. It does seem safe to conclude, however, that manufacturers are more inclined to increase inventory buying than they were last September.

Business spending forecasts are hard to make

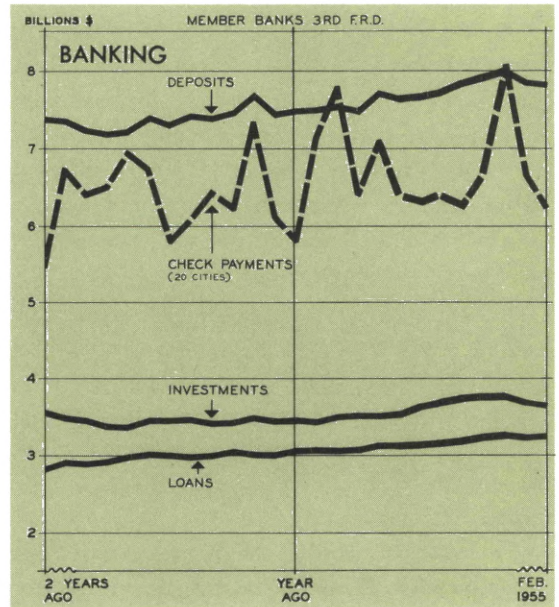
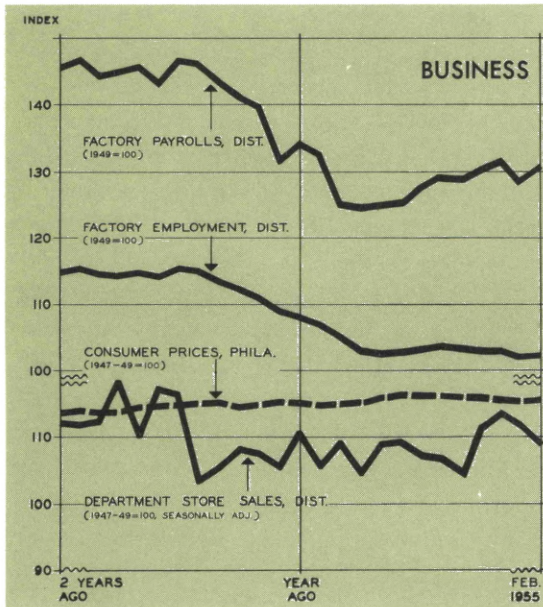
Almost any manufacturer will tell you that making forecasts as far ahead as one full year is a mighty tricky job. In fact, making predictions for even six months can be hazardous, as some of our findings in this re-survey indicate. When it comes to appraising inventory policies, forecasts of only a few months sometimes lack firmness. As was pointed out in our November 1954 *Business Review*: "No major part of spending changes direction faster or oftener than inventory investment." But taking a look ahead does serve the useful purpose of indicating the trend of current thinking. This, in turn, has a direct bearing on the economic climate in which businessmen may find themselves operating.

INVENTORY SPENDING

PER CENT OF REPORTING FIRMS



FOR THE RECORD...



SUMMARY	Third Federal Reserve District			United States		
	Per cent change			Per cent change		
	February 1955 from			February 1955 from		
	2 mos. 1955 from year ago			2 mos. 1955 from year ago		
	mo. ago	year ago	2 mos. ago	mo. ago	year ago	2 mos. ago
OUTPUT						
Manufacturing production...	+1	-5	-4	+3	+7	+6
Construction contracts*	+2	+23	+24	+6	+33	+33
Coal mining...	+1	+1	-2	+4	+18	+11
EMPLOYMENT AND INCOME						
Factory employment (Total)...	0	-5	-6	+1	-1	-2
Factory wage income...	+2	-3	-2			
TRADE**						
Department store sales...	-3	0	+2	-5	+3	+6
Department store stocks...	-3	+1		-2	+3	
BANKING (All member banks)						
Deposits...	0	+4	+5	-1	+5	+6
Loans...	0	+6	+7	+1	+6	+6
Investments...	-1	+5	+6	-3	+8	+9
U.S. Govt. securities...	-2	+1	+2	-3	+7	+7
Other...	-1	+16	+17	+1	+13	+14
Check payments...	-6†	+7†	+8†	-8	+5	+6
PRICES						
Wholesale...	0‡	0‡	0‡	0	0	0
Consumer...	0‡	0‡	0‡	0	-1	-1

*Based on 3-month moving averages.
**Adjusted for seasonal variation.

‡20 Cities
‡Philadelphia

LOCAL CHANGES	Factory*				Department Store				Check Payments	
	Employ- ment		Payrolls		Sales		Stocks			
	Per cent change February 1955 from		Per cent change February 1955 from		Per cent change February 1955 from		Per cent change February 1955 from		Per cent change February 1955 from	
	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago
Allentown...	+2	-3	+3	-1	.....	.....	.....	.....	-12	+10
Harrisburg...	+1	-7	+5	-6	.....	.....	.....	.....	-12	+ 2
Lancaster...	+1	-2	+1	-1	-14	- 7	+17	0	- 4	+ 4
Philadelphia...	0	-6	0	-4	- 2	+ 2	+10	0	- 5	+ 8
Reading.....	+1	-3	+1	+1	- 8	+ 1	+ 9	+ 5	- 7	+10
Scranton....	+2	-2	+4	-1	+ 7	+ 5	+10	+13	- 8	+ 3
Trenton.....	+2	-4	+5	+8	- 8	0	0	+ 5	+17	+35
Wilkes-Barre..	+1	-4	+1	-6	- 6	+ 2	+ 9	+12	-32	-21
Wilmington...	+1	-2	+3	+6	- 7	-10	+ 1	-12	-17	- 7
York.....	0	-9	+3	-9	-10	- 7	- 2	+ 4	-13	- 7

*Not restricted to corporate limits of cities but covers areas of one or more counties.