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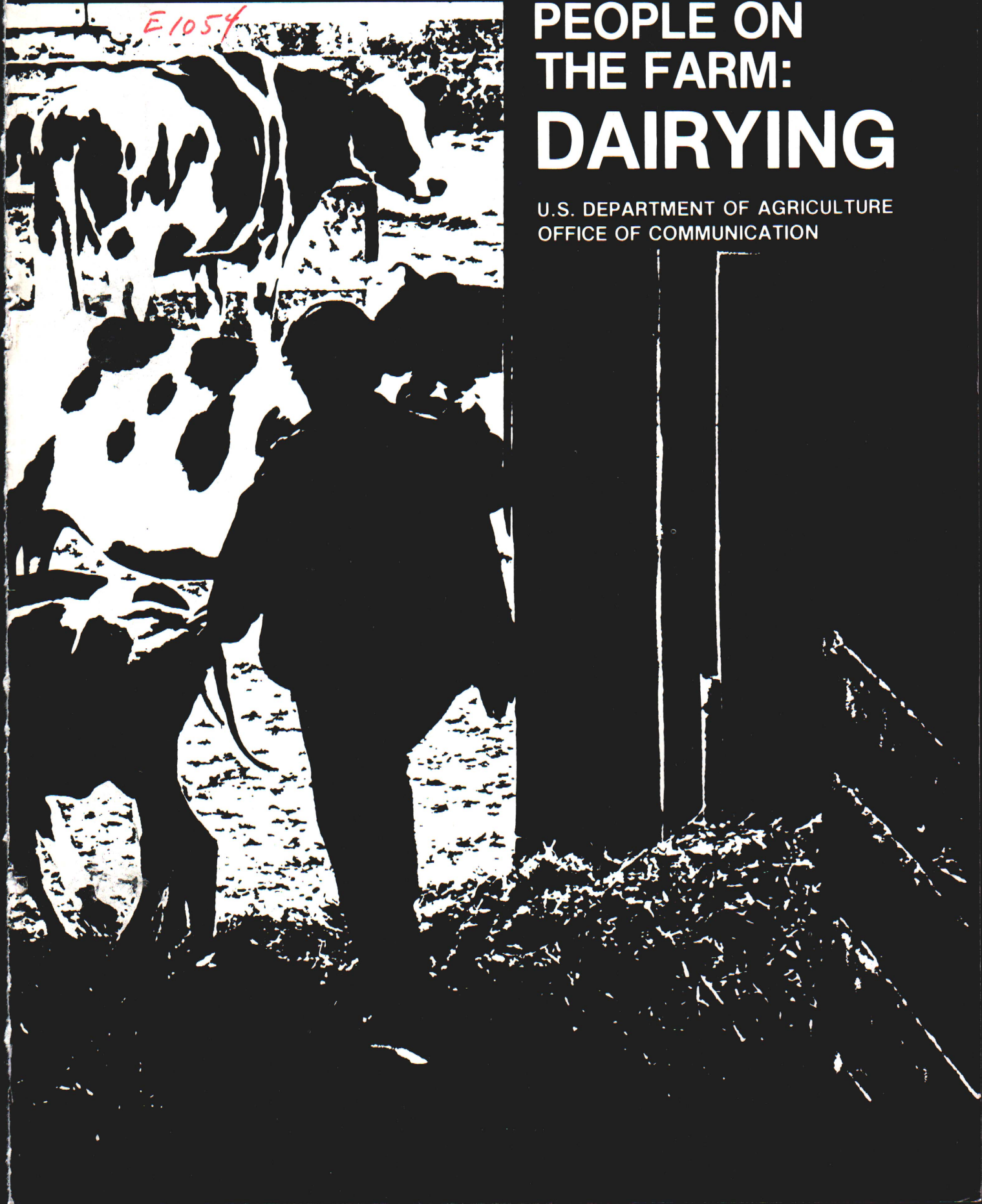
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E1054

PEOPLE ON THE FARM: DAIRYING

U.S. DEPARTMENT OF AGRICULTURE
OFFICE OF COMMUNICATION



PEOPLE ON THE FARM: DAIRYING

Getting calves and heifers in their places is all in a day's work for Nona Schwartzbeck on the farm she and husband Joe own west of Baltimore.

Opposite page:
Nona starts her day getting milk for calves, usually long before dawn. That's office-milk parlor she's entering.



DAY BEGINS

The countryside was as dark as a cave except for the eerie glow from the lights around the milking parlor on Joe and Nona Schwartzbeck's dairy farm. It was 4 a.m. and time to start milking cows.

It would be 2 hours before dawn and it was already 75 degrees in the milking parlor. As Nona—in her coveralls—and Barney Stambaugh, a part-time helper, silently moved cows into the waiting area, a standup electric fan blew air over the backs of the huddled Holsteins.

Inside, his muscles stiff from last evening's softball game, Joe Schwartzbeck poured his first cup of coffee for the day and moved toward the paved walkway between the two elevated lanes of the milking parlor. Yawning, he turned four dials, and a ration of feed fell through

chutes into feeding pans inside each of four stalls on one side of the parlor. Then he slid open a door for the waiting cows.

Blinded at first by the bright lights, white walls, and stainless steel of the milking parlor, the first cow hesitated, then plunged clumsily forward into the stall where she would breakfast on corn, barley, and protein supplement while being milked.

Three others followed her in and moved to their individual feed bins beside her. As the first batch of four cows, out of the 86 which would be milked that morning, arranged themselves and began eating, Joe and Nona began to wash the cows' udders with a solution of iodine in warm water. They dried them and attached automatic milking cups.

Another 4 a.m. to 7 p.m. day had begun on the Carroll County, Maryland farm of the Schwartzbecks, just as others had begun

for 365 days a year for the past 7 years. There would be many years of such days ahead as the young couple worked to pay off a quarter of a million dollars of debt and, hopefully, to leave a dairy farm to their children.

Across America, another 300,000 dairy farmers, under 300,000 different circumstances, were starting their day too. Each had chosen a time to milk that best suited his individual circumstances. Not too far away, for instance, Rudell Beall started milking at 2:30 a.m.

Within hours, 3½ million gallons of milk and milk products would be delivered to children and their parents in cities, large and small, across the country.

"It's going to be a scorcher," Joe said. "Hot weather tears up these cows. But after all, when it's a hot day, I don't feel much like eating either."



PRODUCTION BEGINS

As soon as the suction cups were attached to the teats of each cow's udder, milk began to spurt into clean glass weigh jars fastened to each stall, and the jars started to fill up with foamy milk. With these weigh jars, costing \$360 apiece, Joe could tell at a glance how much each cow is giving and whether she might not be feeling well or coming into heat. "Besides," Joe explained, "it gives you a good feeling to see a cow give 63 pounds." Sixty-five pounds, or about 30 quarts, is the top of the scale. Some cows give more.

As the first four cows were being milked, Joe dialed feed into bins on the other side of his herringbone milk parlor and opened a second door for another four cows to enter.

It took about 11 minutes for an average group of four high-

production cows to be milked. Most of the time, eight cows were being milked at once—four on each side of the parlor. As each four completed their morning "assignment," they were released from their stalls and urged firmly but respectfully to move out of the parlor and into a holding barn next door. There more feed awaited them, this time mostly silage and a "top dressing" of grain for the high producers.

"C'mon girls, c'mon Gerty," Joe urged the departing cows. Almost simultaneously he threw switches to send the warm milk swiftly from the weigh jars through a glass pipeline to a cooling tank in the adjoining room.

Some time before the sun rose, the first 46 cows—the high production group—had passed through the milking parlor.

Joe's system—and others like

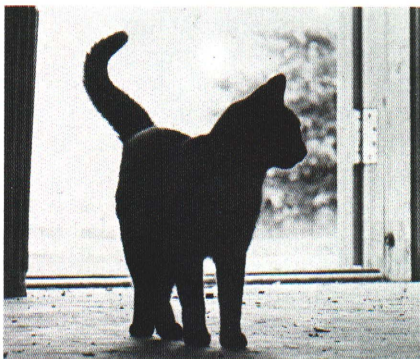
it—is designed to allow one man to milk his herd without help, though Nona or hired men help regularly. Joe decided to switch from a stanchion system when he decided to enlarge his herd. In a stanchion system, the cows are held in individual stalls and the farmer must bring the milking machine to each cow. That system requires considerable labor and Joe might have been forced to hire more manpower in order to handle the milking with a larger herd.

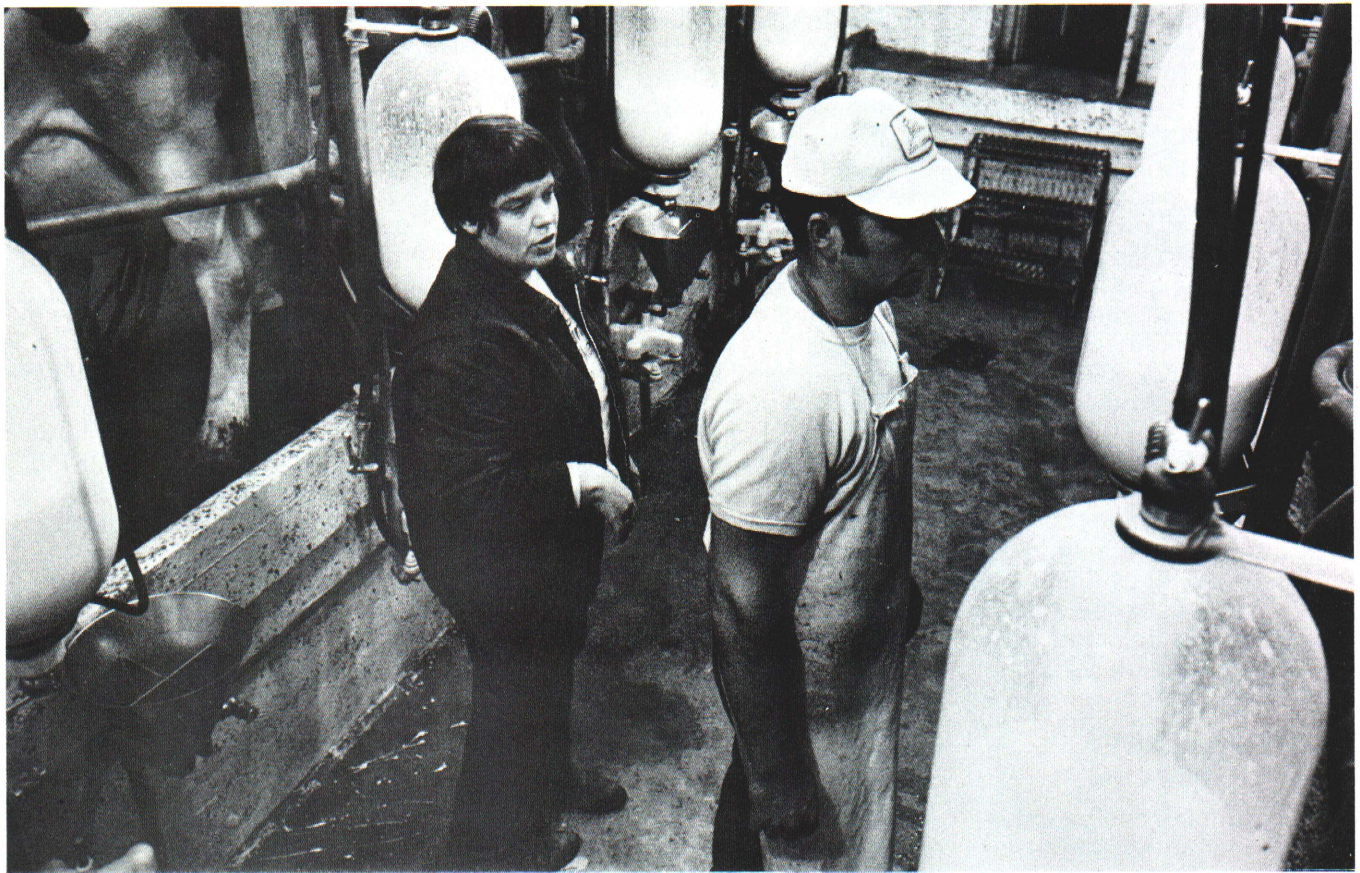
Under the new setup, which Joe built the previous summer at a cost of \$28,641, one man can milk 86 cows in two hours. When Nona or some part-time help is available, the chore is easier too.

A full-time hired man, Harold Holman (fondly nicknamed Mr. Gus), arrived at 6 a.m. that day to start feeding the heifers (young cows who have not yet

In well between milking stalls, Nona discusses with Joe how much milk each cow is giving, as measured in weigh jars filling with milk. Inquisitive cat Blackie hopes there'll be some milk for her, too.

Opposite page:
Floor between stalls of herringbone milking parlor where Nona and Joe are standing is heated in winter. Parlor has four stalls on each side. Multicolored paint spattered on concrete to brighten milking parlor shows up as black spots in photo.





borne a calf and so aren't giving milk).

"Mr. Gus is one in a thousand," Joe took time to point out. "He knows how to work. He used to farm with horses. If you hire 'common help' they can bankrupt you in no time.

"You get a guy who beats and bangs on the cows and you're in trouble. You've got to treat the cows like you do your wife. If you take care of her, she's going to do a little bit extra for you." Simple.

As the cows were milked, it was quiet in the milking parlor, with only a radio and the sounds of cows eating rations and giving milk to interrupt the predawn silence. Man and wife spoke very little. The elevated position of the milking stalls gave the milkers a good view of each cow's underpinnings and Joe noticed a cut on one of the cow's legs. He made a mental note to

keep that cow separated in the holding barn for treatment later.

THE "SECOND STRING" STARTS THROUGH

The last cows through the milking parlor were the "tail-enders," as Joe called them. In normal milk production, a cow's milk flow is greatest soon after calving, then gradually reduces or stops just before calving again. The "tail-enders," then, were generally those cows about to calve.

Modern dairymen like to breed a cow as soon as possible after calving to increase the amount of milk she gives over her lifetime and the number of calves she can bear. If a cow hasn't dried up just before calving, dairymen often give her a few days' rest. Some feel that a month or so rest period is valuable but others see that as a waste of time.

After the "tail-enders" had left the parlor, Joe washed, sanitized, and rinsed the equipment automatically; washed down the milking parlor, and headed to the house for breakfast. It was 7 a.m. A lot of city folks were just getting up.

The milk from last night's and this morning's milkings would be held in a tank at 38°F. until the milk tank truck arrived at about 8:30.

Over a breakfast of creamed chip beef on waffles (prepared by Nona, who had left the milking parlor long enough to take care of the calves and cook breakfast), Joe talked about the chores that needed to be done that day.

Over a year's time, such jobs would fall into this chain of priorities: take care of the animals (through medication, cleaning up after them, feeding

them, etc.), then, make sure there will be enough feed in the days ahead (by plowing, planting, harvesting, etc., depending on the time of the year), and finally make sure everything on the farm is in good shape for the work ahead.

In addition to these activities, of course, Joe and Nona knew that at 4 p.m. the cows would have to be milked all over again. It's a twice-a-day, 365-days-a-year operation. Nature made it that way.

In their spacious bright kitchen, Joe, 33, and Nona, 30, recalled with obvious delight over breakfast the only vacation they ever had. They spent 3 days in Minnesota 2 years earlier, when Joe was selected Maryland's Outstanding Young Farmer of the Year.

DAIRYMEN ARE TIED DOWN

Dairy farming can be unbelievably restrictive. And fewer

and fewer families want to be so tied down.

For that and other reasons, the number of dairy farms in the United States in 1974 was less than half what it was 25 years earlier. From 1950 to 1973, the number of farms with any milk cows on them at all dropped a fantastic 86 percent—from more than 3½ million to less than 500,000. Yet America's needs were met. Fewer farmers need take care of milk cows.

The dairy scene is changing all over the United States. It takes more cows to support a dairy farm family than it did "in the good old days." Fortunately, one person can take care of many more cows with today's equipment. Mechanization and the hiring of full-time help are relieving some of the confinements of dairy farming. On the Schwartzbeck farm, Mr. Gus has been known to take over the evening milking chore so Joe

and Nona can get an early start on an evening out.

DAIRYING IS A TRADITION ON BEALL FARM

Rudell Beall, who lives about 20 miles from Joe and Nona, has been farming since the thirties. The farm has been in the family since the American Revolution.

Rudell milks 200 cows: that is, he is the president of a family corporation that milks 200 cows. But three families make a living from those 200 cows: Rudell and Joyce, his wife, along with the families of their two boys, Robert and Clark. Of course, it takes everybody in the three families to manage the affairs of the farm, which has 700 acres (half of it rented).

"Sixty to 80 cows just won't provide for three families," Rudell comments, "when I was 12—back in the thirties—I helped dad build a barn for

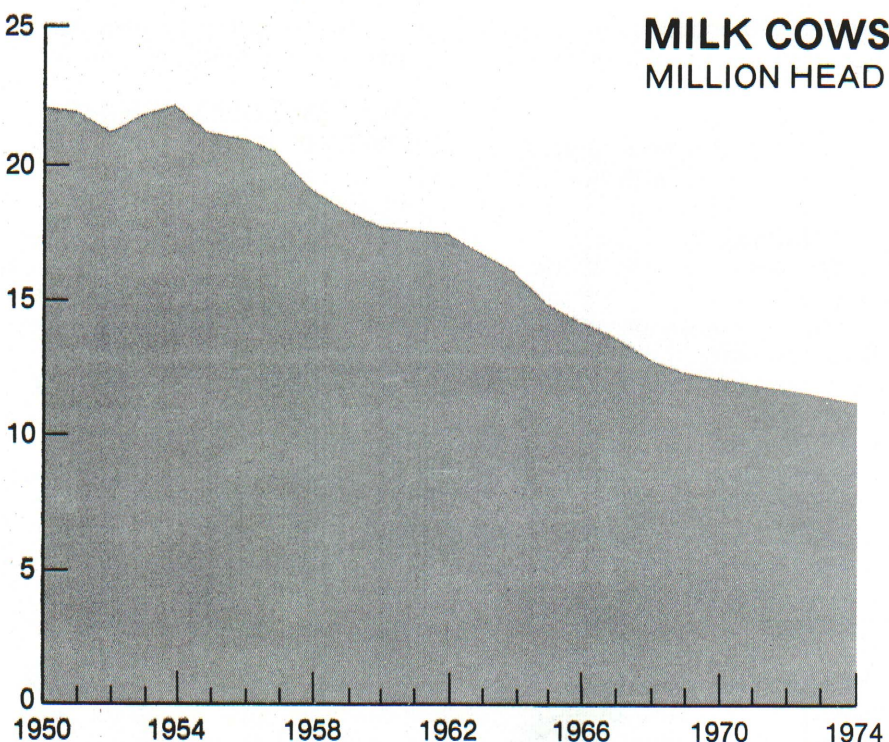
Average number of milk cows and milk production, 1950, 1955, 1960, and 1965-74

Year	Average number of milk cows on farms	Milk production		
		Per cow	Total	
	Thou.	Lb.	Mil. lb.	
1950	21,944	5,314	116,602	
1955	21,044	5,842	122,945	
1960	17,515	7,029	123,109	
1965	14,953	8,305	124,180	
1966	14,071	8,522	119,912	
1967	13,415	8,851	118,732	
1968	12,832	9,135	117,225	
1969	12,307	9,434	116,108	
1970	12,000	9,747	116,962	
1971	11,842	10,009	118,532	
1972	11,698	10,250	119,904	
1973	11,409	10,114	115,385	
1974	11,221	10,286	115,416	

There were five times as many U.S. farms reporting having dairy cows in 1954 as in 1969.

There were three times as many U.S. farms reporting having dairy cows in 1959 as in 1969.

There were twice as many U.S. farms reporting having dairy cows in 1964 as in 1969.



JANUARY INVENTORY OF MILK COWS AND DAIRY HEIFERS OVER 500 POUNDS, INCLUDING JULY 1, 1974 NUMBERS.



After milking, it's time for breakfast with rest of family, Gus, 10 and Shane, 6. Breakfast was prepared by Nona after other chores. Gus and Shane, ultimate beneficiaries of all the work, help in many chores on farm. At same time, Barney Stambaugh, part-time helper, cleans out holding barn.



Community interests as well as farm needs send Nona into nearby towns frequently. Her home, believed to be 19th century farmhouse, lacked modern wiring, even hot water when she and Joe bought it in 1968. They've restored its old-time dignity. Judy Boom, purebred Basset hound, proves there's always room for more on the farm, especially purebreds. Hauling hay to the cows (opposite) is just one of endless activities keeping hired man Harold (Mr. Gus) Holman busy all day.



20 cows that we milked by hand. Dad supported our family on those 20 cows. By 1940, we thought we needed 32 cows. But we couldn't handle that number with hand milking, so we bought electric milkers."

As Rudell took over more and more of the operation of the farm, he increased the number of cows and the amount of land he needed to grow feed for the cows. His sons became able to help, so by 1965 he had 100 cows, but he had to put in a milking parlor to handle them.

"Now we have 10 times as many cows as we had in the thirties and basically three men handle them—just as dad and I and a hired man did with 20 cows."

The Beall story is not unusual. For years it has been "sink or swim" in the dairy business. Those who survived learned to swim; that is, they learned how

to manage larger and larger herds in order to make a living.

While the number of dairy farms in the U.S. is decreasing, the size of the herds is increasing. The average number of cows on a dairy farm has increased more than 700 percent in the last 25 years. In 1974, there were an estimated 35 cows in the average dairy herd.

In 1973, only 3.3 percent of U.S. dairymen had 100 or more cows, but they produced a fourth of our milk that year.

Better feeding, better breeding, and better management have increased the output of the average cow, too. Since World War II, milk yields per cow have more than doubled, reaching more than 10,000 pounds (about 4,650 quarts) in recent years.

The Schwartzbeck and Beall herds are larger than most, but they aren't the largest by far.

In California, there are several herds of more than 2,000 cows each, and folks are milking 22 hours a day (and cleaning up for two more). In Florida, some herds exceed 8,000 head.

In the 1969 farm census, there were 115 herds in the United States with 1,000 or more head of milk cows. Obviously, life on farms with this number of milk cows is different from life on the Schwartzbeck and Beall farms.

AFTER BREAKFAST JOE AND NONA TURN TO OTHER WORK

After breakfast, Joe and Nona went back to their various chores. But this time, Nona left the farmstead. As catalog and food booth chairman of the Carroll County fair, which was to open the next week, she had to distribute the fair books



around the countryside.

Nona, who hates housework when it's "fit" to be outside, left an automatic dishwasher at work in the kitchen beside the color-coordinated stove and refrigerator.

Joe headed for his holding barn where two cows with cut legs awaited his attention. Joe does as much of his own veterinary work as he can—balancing the cost of a veterinarian against not only his skills but his time. He might have other work to do—the hay might be at a critical stage and need his attention more than the cow.

In the barn, a hired man fashioned a rope sling for a cow's rear right leg, threw the end of the rope over a stanchion pipe, and pulled the cow's leg up for Joe to administer medicine. Joe squirted some black liquid out of a can onto the inflamed ankle, then applied

goopy medication from a jar. He called the cow's name softly to calm her fears—she'd been fidgeting in the stanchion—as he rubbed on the ointment.

"I wonder what this stuff is," he pondered aloud, "power juice? I know it works because I used it on myself."

Seeing those two men caring for an individual cow, gently calling her name as an anesthetic, it was difficult to see Joe's farm as a milk factory. It was simply two men trying to make a living doing what they knew best, taking care of the animals they love.

A hope for profit helps you keep cleaning up the tons of manure that accumulate on a dairy farm. Machines help with cleaning out a stanchion barn or a waiting area, with loading a wagon, and with spreading manure around on a field. But it is a never-ending job.

Of the 568,237 U.S. farms reporting milk cows in 1969, more than three-quarters (76.7 percent) of them reported **less than 30 cows** (and most of that three-quarters had only one to four cows).

Less than half of 1 percent (0.4) reported 200 or more cows.

Yet the number of U.S. farms with more than 200 dairy cows increased 13.4 percent between 1964 and 1969.

Only a third of the cows on U.S. farms in 1969 were on farms with less than 30 cows.

The farms selling the greatest dollar amount of dairy products were those with 30 to 49 milk cows. These farms average \$18,940 per farm.

Just about half the total number of dairy cows were on farms having from 30 to 100 cows.

HOW DO YOU DEFINE A DAIRY FARMER?

If you ask a dairy expert how many dairy farmers there are in the United States, he might very well say, "I don't know." He could tell you how many dairy cows there are, however, and how many farms have cows on them.

But a "dairy farmer?" Well, experts can't even agree on what a dairy farm is.

Should a dairy farm be any farm that has a dairy cow on it? Probably not. Yet, we can find out how many of those there are.

Should it be any farm that sells dairy products? Perhaps. But some farms that rely on other products, such as livestock or grain, for MOST of their income sell dairy products on the side.

You can find out how many farms sell dairy products.

The Census Bureau says:

"To be classified as a particular type, a farm must have sales of a particular

product or group of products amounting in value to 50 percent or more of the total value of all farm products sold during the year."

So the Bureau lists cash-grain farms, tobacco farms, cotton farms, vegetable farms and so on.

But when it came to dairy farms, the Bureau modified its definition. It said: "A farm having value of sales of dairy products amounting to less than 50 percent of the total value of farm products sold was classified as a dairy farm, if—

- Dairy products sold accounted for more than 30 percent of the total value of products sold.
- Milk cows represented 50 percent or more of total cows.
- The value of dairy products sold plus the value of cattle and

calves sold amounted to 50 percent or more of the total value of all farm products sold.

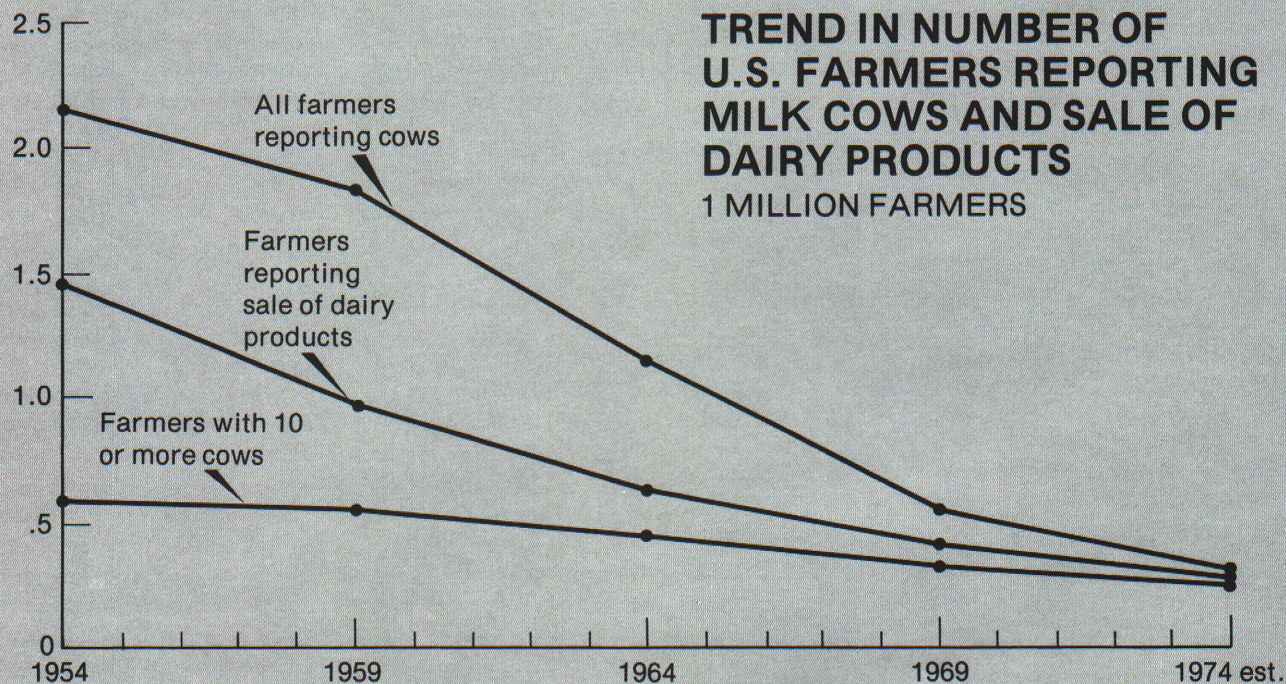
But some experts find some fault even with those figures.

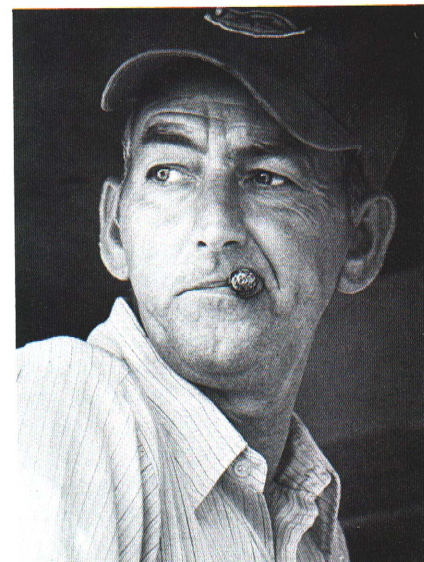
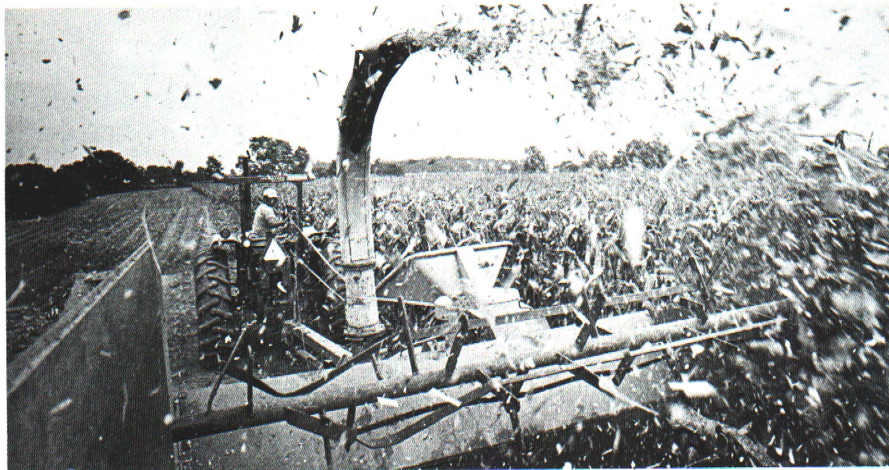
In a study called "The U.S. Dairy Industry Today and Tomorrow," (Michigan State University research report 275), C. R. Hoglund says the more realistic figure in showing trends in the number of dairy farms is the one for herds of 10 or more cows.

He illustrates this in the chart below.

In this leaflet, however, the number of dairy farms is based on the Census Bureau definition.

No matter how you define dairy farms—and who guarantees that the number of dairy farms equals the number of dairy farmers—the trends are unmistakable. There are fewer and fewer of them.





Chopping hundreds of acres of corn into tons of silage to be stored in huge open trench silo is big fall activity on a dairy farm. Mr. Gus is overseeing. Silage will provide year's supply of forage for cows. Mr. Gus and Joe pause in their vehicles to watch wagon leading and unloading operations.

In the winter, the job of cleaning up is multiplied because the cows aren't put out to pasture as they are in the summer. They are held in one small area most of the time.

"Like the kids," says Nona, somewhat regretfully, "they're inside most of the time in the winter."

In the winter on a dairy farm, as Joe describes it, "there isn't much to do except clean up, feed up, and bed down (prepare clean straw for the animals to rest on)." But, of course, that doesn't include machinery repair and other "fence-mending" jobs around the farm, not to mention twice-a-day milking, and so on.

SPRING IS A BUSY TIME

A winter's day on a dairy farm would probably be a full day's work for a lot of folks. But in the spring they really get busy on a dairy farm, and they stay busy through fall.

In the spring, there's corn planting. The start depends on the condition of the ground as well as the best time for corn to germinate in that particular area. Commercial fertilizer (the amount depending on soil tests) and a herbicide might be applied at the same time.

Haymaking starts late in the spring on the Schwartzbeck farm, too.

In May, Joe starts looking over his hay fields of alfalfa, timothy, and clover. If the hay is mature enough to cut, he analyzes the sky. Will the weather stay dry for 2 more days so he can get the hay into the barn? If the hay gets wet after it's been cut, it will lose a lot of its nutrients. Cows need good hay. If Joe decides this is the day to cut the hay, everything on the farm is dropped except the milking and the required cleaning up. Joe, Mr. Gus, and all the help they can muster will start cutting hay in the morning

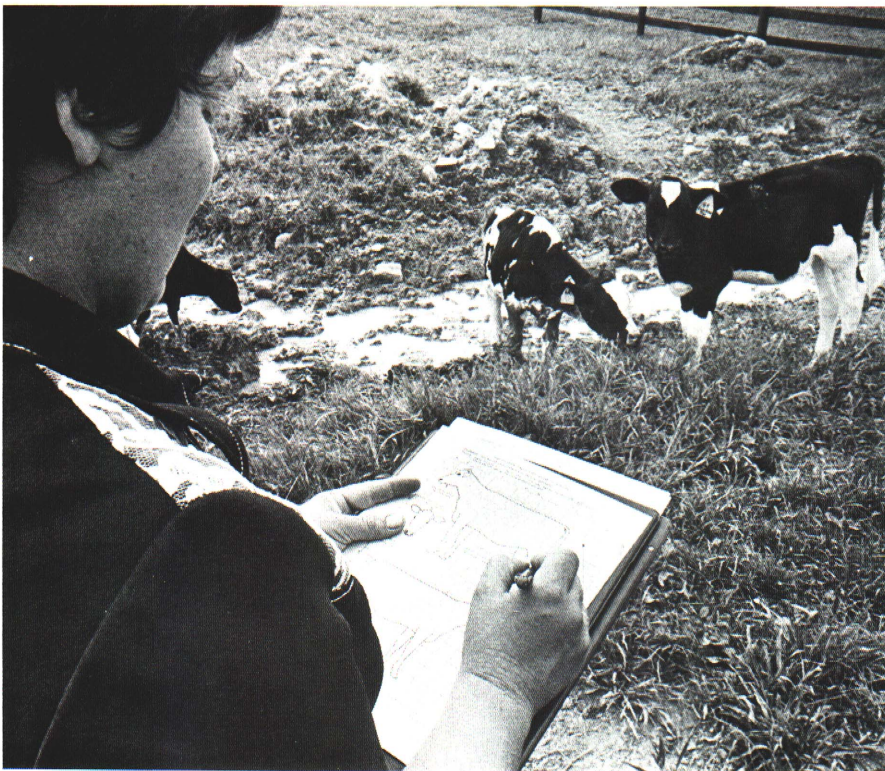
after milking and continue until it's done.

The next morning, if Joe finds the cut hay dry, it will be raked into rows. If it were baled when too wet, it could heat up and spoil. If there still has been no rain by the day after cutting, the men will bale the hay in the afternoon and haul it into the barn as rapidly as possible.

This drama will be reenacted 12 or 15 more times before summer is over. Hay is necessary. Haying is tricky.

Corn also has problems with the weather. The fields may be too wet to plant early enough in the spring so that the crop matures fully before frost in the fall. Or a summer drought might stunt its growth. Too much rain could encourage disease or delay harvesting. Then there's the bugs and "down" markets and . . . well, that's farming.

Joe planted 260 acres of corn in 1975. He cut 100 acres of it for



Joe and Nona's cows, all purebred registered Holstein-Friesians, are being fed silage from a feed wagon by Mr. Gus. They wear chains with identifying numbers around their necks. Earlier, as calves, they sport ear tags for identification. It's Nona's job to draw identifying black and white markings for each calf on forms submitted to National Holstein-Friesian Association for permanent registration. Good breeding pays off. Nona points to national, state and local awards won by one of their cows, a superior producer who later sold for \$11,000.

THE COWS ARE THE CENTER OF ATTENTION

There are things to work at and worry about on Joe and Nona's dairy farm other than growing and harvesting, storing and mixing, and feeding the cows. There are the cows themselves—keeping records on their production individually, showing them at breed shows, selling them, seeing to their breeding or artificial insemination, and even buying them.

Joe and most other dairymen believe very strongly in improving dairy cows through scientific breeding, that is, by carefully matching heredity characteristics to obtain the best animals. It not only helps Joe as a farmer—by improving his chances of producing more milk per 100 pounds of feed—but it helps the industry as a whole by increasing the milk-feed price ratio, they believe. That is, they're trying to produce milk from less feed.

Because of more scientific breeding, feeding, and record-keeping in the United States, the average milk cow today produces twice the milk each year that her counterpart produced just after World War II.

A cow on Joe's farm produces an average of 15,832 pounds a year. That's good. That's 54 percent above the national average of 10,286 pounds in 1974.

Joe knows the actual number of pounds a cow produces because a supervisor from Joe's local Dairy Herd Improvement Association (DHIA) drops by once a month, unannounced, and measures each cow's production that day. There are more than 1,000 such associations in the country, involving more than 33,000 dairy herds. The average annual production of a cow in DHIA herds is 13,287 pounds of milk (about 30 percent higher than the national average).

Joe's DHIA, made up of and run by dairy farmers in the area,

help him not only keep track of a cow's production but of her individual feed requirements, so that Joe knows what income each cow is contributing to the farm and whether she's worth keeping, based on such factors as feed costs. He can also figure which cows to use for "breeding up" the inherent quality of his herd.

A good producer with a good "family name"—that is, a good pedigree—commands a lot of respect on a farm (an extra pat, some extra nice words . . . whatever keeps her happy).

"We had one old cow," Joe recalls, "who had just given 28,000 pounds of milk (compare that with the national average) and they said she just wouldn't be able to produce any more calves."

Now, not having any more calves means two things—the flow of milk stops and so does the chance of ever reproducing more daughters like her.

Joe put the old producer in with the lesser producing herd, where he lets a purebred bull run as "husband."

"That younger bull in the lesser producing herd has produced some near miracles," Joe declares. "We've achieved some pregnancies that didn't seem possible with artificial insemination."

The cow became pregnant.

ARTIFICIAL INSEMINATION PLAYS A BIG ROLE

Most of the breeding on the farm, though, is conducted by artificial insemination, as is true nationally. Most of the genetic progress in dairy breeds has been made through the use of genetically superior bulls.

Joe keeps the semen of several bulls in a small space-capsule-shaped metal container in a room near the milking parlor. The bulls represent a variety of

inherited characteristics and good records.

Near a display case with blue ribbons announcing "All Maryland Aged Cow," and "Member, All American Get of Sire," Joe took from the container an ampule which had been kept at 320 degrees below zero by liquid nitrogen.

"An ampule (of semen) from a good sire who has since died might be worth \$400," Joe explained. "I once traded two ampules for two heifers (Joe has been paying \$500 to \$600 apiece for heifers)."

Yet, while the genetic worth of some famous old bulls was great in their day, progress in the upgrading of dairy cows has been so rapid, dairy experts say, that the genetic worth of those old bulls today would be just average for their breed.

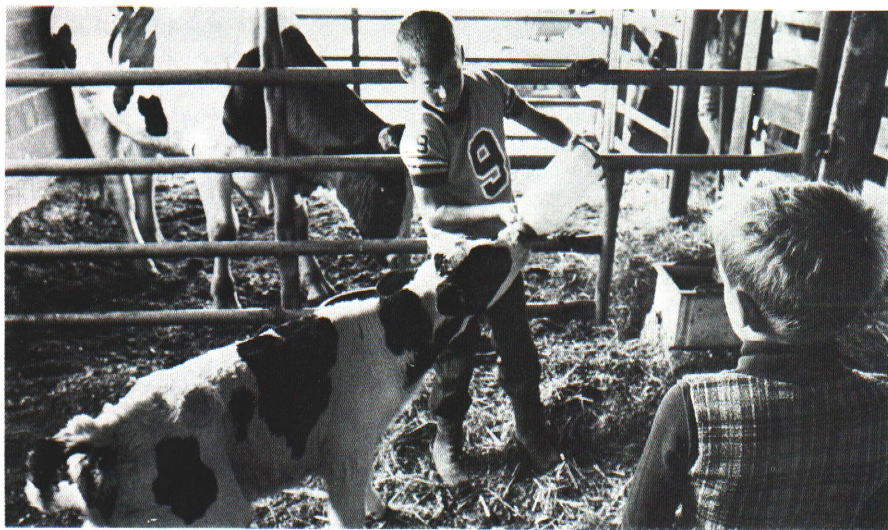
In the barn, Joe matter-of-factly inserted a long plastic tube into the cow's uterus and squeezed the ampule to inseminate the cow, which also treated the brief interruption with a matter-of-fact attitude.

Recently, Joe split one valuable ampule between two cows. He called it a gamble. But it could pay off big, as in 1974, when he sold the cow with a good production record and good family lines for \$11,000.

But, after all, a good tractor costs that much these days—some of them, a lot more.

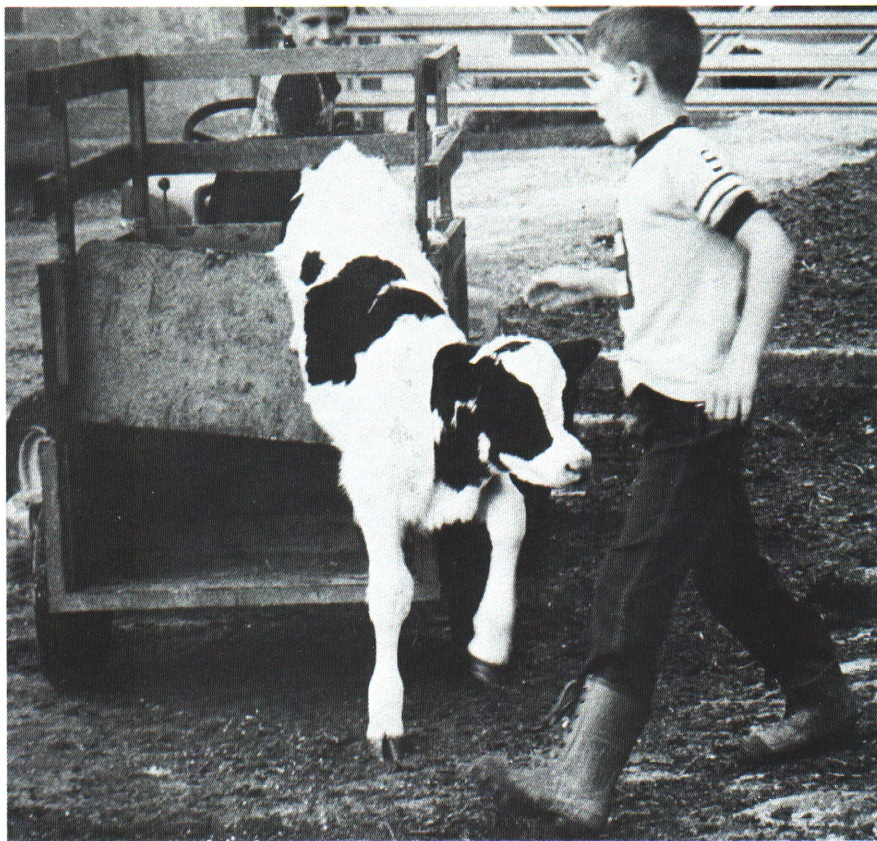
Dairying, as in all farming, takes money to get the job done. It cost Joe more than \$170,000 in 1975, counting depreciation. Family labor isn't included in that figure.

Production expenses are correspondingly higher at the Beall farm, where Rudell pointed to his tractor barn and said, "That tractor cost \$6,000, that one \$8,000, that one \$10,000, and (indicating the tractor his son was driving past) that one cost \$16,000. And we need all of them."



Day-old calf is fed colostrum, its own mother's extra rich and protective first milk, by young Gus in maternity barn before he and brother Shane transport calf to nursery. Colostrum contains important disease-fighting antibodies. Shane drives small tractor which hauls Gus and calf to their destination.





At calf nursery, Gus rushes to open gate for calf who is jumping out of specially designed trailer. Heifers, which are bovine "teenagers" midway between calf and full-grown cow, greet new calf before Gus and Shane lead her off to nursery.





Modern dairying runs on machines that need care. Joe bangs on feed system's three-way control valve to free flow. Later he found feed frozen in pipe, cleaned it out. Other winter work includes hard-facing plowshares by arc welding. Opposite, anticipating next season's field work, Joe inspects springs on No-Til corn planter housed in shed.



EQUIPMENT IS A BIG INVESTMENT

Joe Schwartzbeck has five tractors and sometimes all five are operating at the same time: two or three helping to chop corn and haul silage, another scraping manure from cow holding lots, and still another hauling the manure away.

There are also thousands of dollars tied up in other equipment in the Schwartzbeck farm: a No-Til corn planter, seven hay wagons, three silage wagons, a field chopper, a blower to raise silage into the silo, a Haybine, a disc harrow, a springtooth culti-mulcher, a hay baler, a stake truck, a pickup truck, a sprayer, a manure loader, a manure spreader, two hay rakes, an elevator for hay, a grain elevator, a grain dryer, a grain drill and a feed mixer wagon to feed cows outside.

"You can get \$100,000 in equipment real quick," Rudell Beall commented, patting the metallic side of a new feed mixer that could save him nearly half the cost of his feed bill over the years. Rudell figured he could save that much by doing the mixing himself rather than hauling his home-grown feed to a mill and paying for the mixing.

Joe and Nona don't have all the equipment they could use—just that which they can use most profitably. For instance, they need a combine for the corn they let mature to grain, but at this stage in their development, they trade their No-Til planter for the use of their neighbor's combine.

BUILDINGS ARE A BIG INVESTMENT

In addition to money tied up in machinery, dairy farmers have

a vast investment in buildings, though Joe built practically all of his buildings either by himself or with help. His buildings include not only the combination milking parlor-office-milk cooling building, but a stanchion holding barn for 49 cows, a storage building for machinery and some hay, a shop in which to repair machinery, bullpens to house two bulls, a free stall barn for some 80 cows (including four nice big maternity stalls, where the cows give birth to calves), a loafing shed for heifers and calves to keep them out of the weather, a baby calf house for calves 1 day to 8 weeks old, a silage bunker (a long, low, three-walled area that Joe can pack with up to 1,200 tons of ensilage), three upright cylindrical silos and some feed bins. And last, but not least, they include a big old farm house with a modern interior and a fresh coat of



exterior paint.

The average total investment on a U.S. dairy farm today is about \$175,000, including \$25,000 to \$30,000 each in livestock and machinery, another \$105,000 to \$120,000 in land and buildings, and still another \$8,000 to \$10,000 in crops and inventory. That's the average. The Schwartzbecks and Bealls obviously have a greater investment. But their higher investments represent the future direction of dairymen.

Altogether—land, buildings, animals, and equipment—Joe and Nona figure they have \$300,000 invested in the farm.

If they sold out tomorrow, Joe said, they could probably get \$450,000 to \$470,000. And they're \$215,000 in debt.

The suburban homeowner can understand their situation. Inflated prices have increased the value of his property, too,

while his debt shrinks in relation to the new inflated value. Yet, if the Schwartzbecks (or the homeowner) were to sell and then try to buy equivalent property they'd have to pay the current higher price.

Joe and Nona took quite a chance when they went into farming in 1968. Both had been brought up on a farm and loved that kind of life. Joe had learned the problems of modern farm management by dairying on his own for 6 years on the land that was formerly his father's—land which was sold earlier and held for subdividing. Before that, Joe had worked on his father's farm since he was 15, though it meant missing getting involved with baseball, his second love, in high school.

It was a tough life, but it convinced Joe that dairying was what he wanted to do for a living—if he could only find the

right kind of land at the right price. Nona agreed wholeheartedly.

THEY FOUND A FARM THEY COULD BUILD UPON

In Carroll County, west of Baltimore, Joe and Nona finally found the 291-acre farm they wanted. The buildings were run down, the farmhouse (which must have been grand in its heyday, sitting atop a knoll far back from the winding road) had no hot water or modern wiring. But it was the farm they could afford.

It cost \$125,100. Joe and Nona went to the Federal Land Bank for a loan to buy the land, and to the Production Credit Association for money to buy machinery and other production inputs. These organizations are farmer-owned financing institutions which borrow funds from the

Nation's money markets to lend to farmers.

For months they drove back and forth between old and new homes—47 miles each way—until they could make their new home habitable. Optimistically, they named it "Peace and Plenty Farm," the name of Joe's father's farm.

Not everyone can go to the Federal Land Bank and get the money needed to start a farm. Years of experience, a dairy herd of 60 grade cows (not registered purebreds), and a logical plan were needed to convince the Land Bank Joe could make it.

Since then the amount of money needed to start dairy farming has doubled, at least.

Joe thinks it would take a minimum of \$200,000 in land and about 40 good milk cows to start to support a family today, "if you don't want too much machinery." His place would cost a buyer nearly half a million dollars.

Experience and a lot of money are two requirements for anyone considering going into dairy farming now. It helps if a person grows up on a farm and inherits it. Fewer and fewer people each year can meet these qualifications.

By paying themselves little or nothing a year, by paying interest on their indebtedness (interest payments topped \$20,000 in 1975) and by nibbling away at the principal on their mortgage, the Schwartzbecks ultimately expect to be able to pass on a considerable equity to their children—depending on the weather, good management and adequate prices for their milk.

They may have to incorporate, though, in order to minimize the effect of inheritance taxes on the estate they have worked so hard to build. Still, there are pitfalls in that device. When Rudell and Joyce Beall decided to incorporate, they found that a local land transfer tax would

have cost then \$10,000 to \$15,000, so they incorporated everything but the land.

DAIRYMEN MUST KNOW MANY SKILLS

Rudell and Joe agree that a farmer today has to be a lawyer, a bookkeeper, a veterinarian, a mechanic, and a manager or hire the services of each. They also agreed that farmers have always been a "Jack of all trades" because they were unable to hire a great deal of expensive help.

As Rudell Beall observed, "if I had to hire all my work done, pretty soon you'd see a 'for sale' sign out on my barn."

While the work of farming is becoming less of a physical burden, it is increasing the demand on the brain of the farmer . . . and the stakes get bigger every year.

The day-to-day, as well as the far-reaching decisions on the dairy farm separate the men from the boys. An established dairy farmer might survive one serious mistake but two might very well wipe him out.

What kind of decisions? Well, there's the "when to hay" decision.

When to expand is another. Say you need more cows to keep the wolf away from the door. Well, can you provide the feed for the new cows? What about more land? How much is it? Can you carry the additional debt load? Will you need another silo? Another barn? More tractors? A combine?

When do you sell the corn?

When do you buy the fertilizer? Joe said he made a poor management decision last year when he bought fertilizer at \$179 a ton and 2 months later, it dropped to \$155.

A key decision is the selection of a sire for future cows. A cow must be bred not only for its ability to produce milk according to the record of the sire's

previous daughters (and those further back through the family line) but for physical characteristics which tend to make an animal strong and good looking enough to sell.

Decisions. Rudell said it cost him \$1,500 to buy two storage tanks for his liquid nitrogen, yet that cost was more than repaid because he was able to buy the fertilizer at \$18,000 and store it until he needed it instead of paying \$25,000 for it and using it as needed.

"Of course, you could miss it," he said, meaning the right time to buy the fertilizer.

Years ago, Rudell recalls, he "missed it" by not offering more than \$4,900 for 70 acres near his farm. The owner kept the farm and recently was offered \$150,000 for it.

WHY STAY IN DAIRYING?

Why do they do it—these dairy farmers?

"Well, I have my days," Joe observed, "there are some days when you could walk right in here and buy this place."

Then he said, "Well, if the kids don't grow up interested in farming—then I'm busting my head against a wall for nothing."

At the Beall farm, Rudell looks out over a corn field and asserts there's "a certain amount of pride" in successful farming.

"Even a man with a lot of college degrees—he respects my success," he went on, "and when someone says 'who's pickup is that?' I can say 'mine.' When someone says 'whose new car is that?' I can say 'mine.'"

"If you can't have some of those things, what's it all about?"

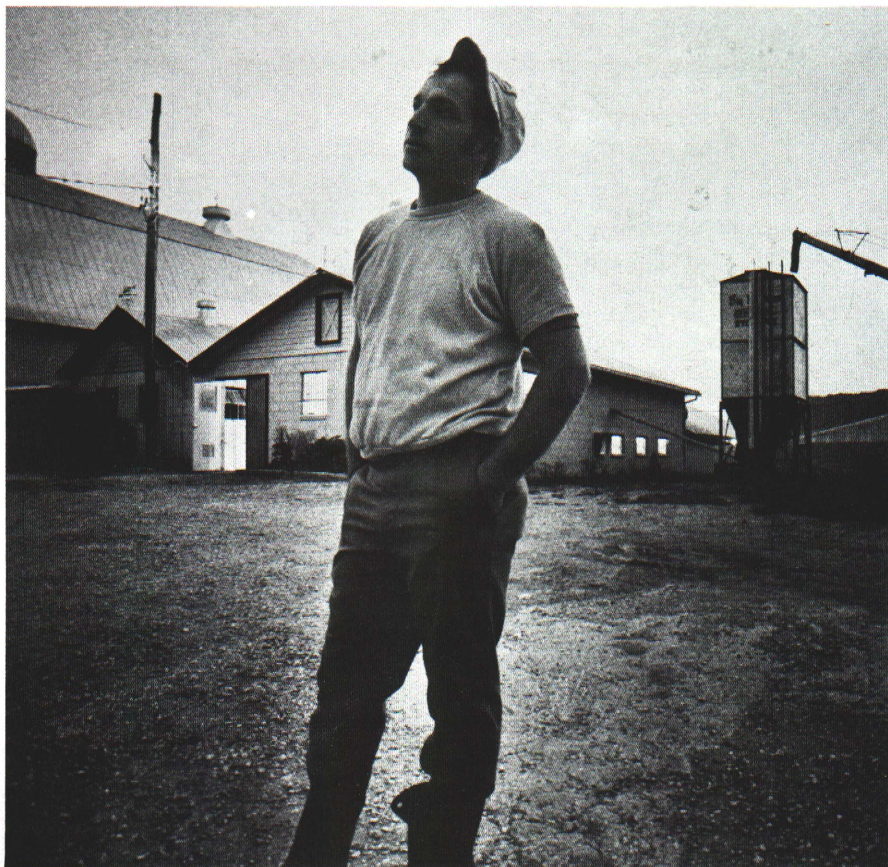
"That's pride."

There's a broad streak of independence up the back of America's farmers, too. One old codger recalls he had worked his way up in his youth to become manager of a large automobile parts business and



Joe's first coffee break arrived about 5 a.m. on steps leading from office to milking parlor. Nona had spelled him with the cows. Later in the day there's time for a little fun on the tire swing in front of their home.





Silhouetted against evidence of his growing net worth—holding barn, left, office-milking parlor, center; maternity barn, right rear, and feed equipment—Joe pauses after morning's milking to philosophize: "If the kids don't grow up interested in farming—then I'm busting my head against a wall for nothing."

then returned to farming.

"You have to make up your mind whether you want to work for yourself or for someone else," he said.

Most farmers decided to work for themselves. Some comment acidly that they are, after all, working for the Government. Others, that they are working for the feed dealer. But they enjoy more independence than most people in the United States. And they fight to keep it as much that way as possible.

Yet Government continues to play a role in their lives, often quite directly.

THE ROLES OF GOVERNMENT IN DAIRYING

One role of the Government in the lives of the Schwartzbecks, Bealls, and other dairy farmers is the Dairy Herd Improvement Program. Dairy herd improve-

ment associations across the country are supervised by Cooperative Extension Service workers and the Animal Improvement Programs Laboratory of the Agricultural Research Service of the U.S. Department of Agriculture. Records from the program help dairy breeders across the country identify genetically superior bulls by keeping track on their daughters' production.

It is teamwork such as this between scientist and farmer through the Extension and other services which has so advanced American agriculture.

One dedicated person—an agriculture teacher in a country high school—made all the differences in Rudell Beall's farming successes. The teacher, the late Donald Watkins, (who also taught the Schwartzbecks), created an organization of 14

farmers in the neighborhood when Rudell was just starting out on his own. This Business of Farming Club, as it was called, discussed the latest in farm equipment and systems, and often watched them in operation. Its members also turned their work plans over to Watkins on a confidential basis for his evaluation. Watkins then would discuss the good moves and the bad moves being made by these farmers without identifying the farmers and would thus help the whole group. He worked at it 7 days a week.

"He was a one-of-a-kind guy," Rudell recalls. "He devoted his whole life to helping farmers in this area."

Fortunately for an America that has a huge stake in the success of her farmers, there are enough such dedicated workers throughout the land.

MILK MARKETING ORDERS

America's stake in the continued well-being of her farmers—so that consumers will be assured of an adequate supply of food—is the principle underlying another form of Government involvement in the life of dairy farmers: the Federal Milk Marketing Order.

Basically, such an order is a regulation issued by the Secretary of Agriculture which requires that all handlers of milk in a marketing area, such as southern Michigan, pay not less than a certain minimum price for the milk they buy from farmers. Such a price takes into account not only supply-demand conditions but other economic considerations, such as distance to market.

The farmer gets the top price (which might very well be above the order's minimum price—depending on demand at the store) for only that portion of his milk which is used as fluid milk (class I), such as for bottling for drinking. If dairymen in a milk order market produce more than consumers will buy for fluid use, each dairyman is paid at a lower price for that portion of his milk going into class II or class III—"surplus." This "surplus" milk not needed for fluid use is converted into other forms of dairy products, such as condensed milk, dry milk powder, ice cream, cottage cheese, and butter.

Farm milk prices vary from month to month, but in 1974 Joe figured class I milk (fluid) brought him about \$10 a hundredweight and class II milk (for manufacturing) about \$7 a hundredweight. Joe's monthly paychecks vary by as much as \$2,000.

Joe figures he gets about half of what the retail store charges for the milk . . . and he has to pay to haul it to the bottling plant.

SUPPORT PRICES

There is another aspect of Government involvement in the dairy industry. That is the support price for manufactured milk. Under this program, the Federal Government offers to buy carlots of butter, natural cheddar cheese, and nonfat dry milk at announced prices—which, according to law, are designed to keep average farm manufacturing milk prices above a minimum price established between 75 and 90 percent of parity.

Most of the butter and cheese purchased under the support program is used in the school lunch program and a program for needy persons. The nonfat dry milk also goes into domestic and foreign food assistance programs.

What is parity? It is greatly misunderstood but it is a simple concept. Roughly, parity represents a comparison of the farm price for milk with the cost of the production items a dairyman buys to run his farm. If the farm price of milk and production costs go up 50 percent over a historic period (selected to represent a "fair" situation for dairymen), then milk is still at 100 percent of parity. However, if farm milk prices increase only 20 percent but the dairyman's production costs increase 50 percent, then milk is at 80 percent of parity.

Every month, statisticians gather information across the country about the prices farmers are paying and the prices they are receiving. And they do it for each of the dairy products, such as manufactured milk, thus establishing a basis for calculating the percentage of parity.

The reason the Government buys dairy products under a support program is frank and simple: to encourage the production of adequate supplies of milk by maintaining a minimum level of prices.

IMPORT QUOTAS

Since the importation of cheese and butter would tend to have the opposite effect—that is, reduce farm milk prices if there were a flood of imports—the Congress has established import quotas for dairy products. Whenever the Secretary of Agriculture feels imports have reached a point where they would affect the support program, he advises the President, who can exercise his option of whether to impose fees or quotas to slow down the amount of imports. The President might first ask the countries who are sending over the dairy products to slow down the shipments voluntarily. The Government also has the authority to impose countervailing duties on dairy imports whenever a foreign country ships dairy products to us at cut-rate prices made possible through subsidies paid by the foreign government.

OTHER GOVERNMENT ROLES

Joe Schwartzbeck, Rudell Beall, and their fellow dairy farmers are affected in other ways by governments at local, State and national levels. Local taxes on farmland affect them. So do zoning and other land use regulations.

Perhaps the most important local government actions which affect Joe, Rudell, and all the other dairymen in the United States are the health regulations of the cities into which their milk and milk products flow. City inspectors come right out to the farm of each producer and check on all the sanitary conditions surrounding the handling of the milk, including the taking of water samples. They are very strict and make very exacting demands upon the farmers, who must obey if they are to stay in business.

Increasingly important in

dairymen's lives, too, are local, State and national regulations for animal waste disposal. As dairy herds and other groupings of livestock become larger and larger, the problem of handling their manure is more than simply applying it to nearby fields. The protection of the environment demands that large collection lagoons and other disposal structures be included in the system. Many larger establishments truck the manure away.

Another force in a dairyman's life is his cooperative. He and other farmers create a cooperative to buy their milk and the cooperative, in turn, finds a way to market the milk and dairy products in the cities. The farmers own the cooperative and share in its successes. It so happens that Joe's particular cooperative also owns a series of milk retail outlets.

JOE AND NONA ARE BUSY IN COMMUNITY

Joe and Nona Schwartzbeck keep busy in the organizations which so closely affect their lives: their cooperative, the Carroll County Fair, two Holstein breed clubs, a progressive farmer's club and a Maryland Farm Bureau's young peoples group. The Farm Bureau is an independent general farm organization, the largest farm organization by far in the Nation.

They like to be social, go out evenings. But the milkings that end at 7 p.m. and begin at 4 a.m. every day of the year restrict the time they have available for such activities.

Mechanization helps, but today's typical dairy farm, though far different from the farms of past generations, is still a long way from being a factory. Asked if he would compare his farm to an industrial factory, Joe replied emphatically, "It should be run like one but we can't. I should get a regular markup, say 10 percent over cost, but I can't. I'd

like to work my men only 40 hours a week and give them 2 week's paid vacation a year, but I can't afford to operate like that."

Despite decreasing numbers of farmers, dairying remains a highly competitive business. There are no restrictions, licenses, or franchises to keep anyone from getting into it and, while only the best managers survive, the effect of many *trying* to succeed results in very aggressive competition. And they're all selling exactly the same product, milk, not some patented variation or new model.

WHAT MAKES THEM UNHAPPY?

Joe and Nona are outspoken about things that bother them. They were asked, "What makes you unhappy?"

"Rain, when the hay's raked and ready to be baled," Joe said. "Weather can make you or break you. A twister ruined a couple of fields of corn on our farm a couple years ago and it was rough cutting THAT up."

"People talking about unemployment when there's plenty of work to be done," Nona observed, "that's what makes me unhappy. There's Mr. Gus working as hard as he does and pays his taxes while other folks are doing nothing but drawing unemployment."

They are equally outspoken about what makes them happy.

"Sitting up on a tractor and watching the silage going into the silo—moving on—that's what makes me happy," Joe said. "I like looking at a field of barley in the wind. In the fall, when I'm combining, I like looking back and seeing the auger half filled with corn."

"A heifer calf (that is, one which can grow up to be a milk cow later, rather than a bull) every other birth—that makes me happy."

Nona has a "thing" against

fake flowers, so she keeps a large flower garden near the house and fresh flowers in the house. And she likes the peace and quiet of the country. "Gus and Shane have friends out to the house, but they're invited," she emphasized. "I have some friends in big city subdivisions and neighborhood kids are running through their house all the time. I don't think I'd like that."

FAMILY IS IMPORTANT TO THEM

She likes the independence of farming and the things it does for the family.

"We do a lot together as a family," Nona observed. "I think families are kind of getting pushed into the background these days, and I don't like that trend."

The children have plenty of room to play in the spacious old farm home of the Schwartzbecks. Daily family life centers around the huge kitchen, which is equipped not only with all the latest devices of modern living but some reminders of the past, such as a large fireplace with an old copper apple butter kettle inside it. There's even room for a small office desk for Nona. Surrounded by an acre of neatly clipped lawn and well-tended gardens, the "Peace and Plenty Farm" home provides the perfect setting for the kind of life the Schwartzbecks enjoy.

So Joe and Nona keep dairy farming and sending milk into town. So do the Bealls and many thousands of other dairymen across the United States.

"I wonder what would happen," Rudell Beall pondered, "if I didn't send my 8,000 pounds of milk a day into the city. I wonder what would happen if we all went out of business and there was nowhere else to go to buy milk."

INTERESTED IN DAIRYING?

What does it take to get started in dairy farming?

Money.

And most likely, the ability to borrow huge sums of money.

Experience

A popular publication of the U.S. Department of Agriculture, *Facts for Prospective Farmers* (Farmers' Bulletin No. 2221), states in plain terms:

HOW BEGINNERS GET STARTED

"Young men reared on a farm often start on the home farm or on a farm nearby. Often they get help from their families at first—in such forms as financial assistance, favorable rental arrangements, or free use of farm machinery.

"Some nonfarm beginners may also get financial assistance from relatives or others, or from earnings in off-farm work. Financial help from other than commercial sources can do much to get the beginning farmer off to a good start.

"A beginning farmer with little or no experience may start by working for a while as a farmhand. In this job he can learn by doing and by observing. He is not required to make any managerial decisions or to put up any capital. Although he usually can support a family on his wages, he probably cannot accumulate much capital. However, the experience he gains will be an asset when he goes out to rent a farm or apply for a farm loan.

"Beginners often rent rather than buy their first farm. Renting requires less capital and less risk for the operator. As a tenant, the operator makes day-to-day decisions on his own. Overall decisions such as the kinds and amounts of crops and livestock to be produced, and the use and care of land and improvements on it, usually must have the approval of the landowner. Many important managerial decisions are made by tenant and landowner together. Sometimes livestock may be owned jointly.

"Other ways a beginner can keep the amount of capital required to a minimum without greatly reducing his income include: Buying used machines at farm sales or from dealers; hiring custom machines to pick corn, harvest small grains, and fill silos; exchanging work with neighbors for seasonal work requiring additional help.

"Beginners may also buy some of the land they farm and rent the rest. In recent years, this part ownership arrangement has become common even among established farmers.

"Under this arrangement the operator owns part of the land, usually with the necessary buildings on it, and rents additional land. Part ownership has developed as a way for the operator to meet today's need for larger farm operating units with a limited capital investment.

"Some start farming part-time on a small farm. They continue in nonfarm work as a primary source of income long enough to gain experience and accumulate capital for a full-time farming business."

RULES OF THUMB

Dr. Terry Howard, associate professor of dairy science in the Extension Service at the University of Wisconsin, has some rules of thumb for prospective Wisconsin dairymen:

"Basically, he must generate \$1.80 in operating income for every \$1 of cash expense. His herd should produce an average of at least 13,000 to 15,000 lbs. of milk per year per cow.

"Conservatively, he must invest \$110,000 to \$150,000 in land, cows, building, and machinery. For every family unit which survives on the income from the farm, there should be at least 35 to 40 cows milking. Assuming that he is going to produce most of his own feed, the minimum farmer would need to control, through ownership or renting, at least 130 to 150 crop acres, depending on the land's capabilities.

"It boils down to a gross income of \$40,000 to \$50,000 a year for the one-man farm, based on an investment of \$600 to \$800 per cow in buildings and \$300 to \$800 per acre in land."

EACH APPLICATION JUDGED ON OWN MERITS

Experts at the Farmers Home Administration (FmHA), which makes ownership and operating loans to farmers, say each application for a loan must be judged on its own merits. But basically, they say, a one-man dairy operation should have 50 to 100 cows producing, preferably at an annual rate of 13,000 to 15,000 pounds of milk each.

A prospective dairy farmer can get by without growing his own feed (though he should grow his own roughage—silage, hay) if he buys the feed “in season” (at the best prices) and provides on-farm storage.

It takes another 20 to 30 cows to offset the hiring of each hired hand, they say. Furthermore, for every 50 milkers there should be another 50 replacement heifers in the herd.

Another important lender (besides local banks and FmHA) is the Farm Credit System, which includes, among other units, the Federal Land Banks and the Production Credit Associations, all borrower owned.

Representatives of the Farm Credit System say that they

look at the man: his character, his experience, and his managerial ability, among other key characteristics.

Like most lenders, they want to see a cash flow history of the current operation or a projection of that cash flow if the business is not yet in operation. Basically, they want to know whether the operation will make a profit, taking everything into consideration.

Fortunately, there are dairy extension specialists throughout the country in the land-grant universities that serve each State who can help advise prospective dairy farmers as well as those already in business.

“Good management is essential,” says N. P. Ralston, program leader in dairy production at the Extension

Service in Washington, D.C.

“A successful farmer today needs to keep as good management records on the business of the farm as he does the many important records on his animals through his Dairy Herd Improvement Association.”

Dr. Ralston was asked if he thought the Schwartzbecks would survive, based on the information in the accompanying narrative. “I think so,” he responded, “I’m concerned about that debt load. Their financial books would tell the story. They know what they can do—if there’s a will there’s usually a way.”

He noted with a smile, “They seem to be making a go of it, too, and enjoying it. That’s important these days.”

RESOURCES NEEDED: Land, labor, and capital used in commercial dairying, two States, average per farm per year, 1966-1968

Type and Location of Farm	Land		Total Labor Used	Capital				
	Total	Cropland Harvested		Total	Land and Buildings	Machinery and Equipment	Livestock	Crop
	Acres	Acres	Hours	Dollars	Dollars	Dollars	Dollars	Dollars
Dairy, Grade A— Central New York	250	95	4,480	74,130	32,670	16,370	19,550	5,540
Dairy, Grade A— Southeastern Wisconsin	210	130	4,550	106,930	67,200	16,910	15,650	7,170

RETURNS FROM FARMING: Costs and returns in commercial dairying, two States, average per farm per year, 1966-1968

Type and Location of Farm	Total Capital	Gross Farm Income	Operating Expenses	Net Farm Income	Interest	Return to Operator and Family Labor
Dairy, Grade A— Central New York	\$74,130	\$27,440	\$15,760	\$11,680	\$4,660	\$7,020
Dairy, Grade A— Southeastern Wisconsin	106,930	25,950	13,470	12,480	6,435	6,045

Trends and projections for population, milk production, per capita consumption, milk cows, number of dairy herds, and average milk production per cow and cows per farm, 1954, 1964 and 1974 and projected for 1984.*

Item	Year			
	1954	1964	1974	1984
Population (thousands)	161,884	191,141	212,800	238,000
Milk production				
Total farms	122,094	126,598	114,600	120,000
Farms with 10 or more cows	111,105	121,534	113,450	120,000
Per capita consumption				
Total milk equiv. lbs.	699	631	540	505
Milk cows (thousands)				
Total cows	21,581	16,061	11,280	9,400
Cows on farms 10 or more cows	15,590	14,070	11,110	9,400
Number of dairy herds (thousands)				
Total reporting cows ^(a)	2,167	1,134	300	150
Farms with 10 or more cows	689	452	230	150
Milk production per cow				
All farms	5,678	8,099	10,100	12,800
Farms with 10 or more cows	7,120	8,640	10,200	12,800
Cows per farm				
All farms	10.0	14.2	37.6	62.7
Farms with 10 or more cows	22.6	26.1	48.3	62.7

^(a) U.S. Census figures adjusted to whole population of herds for 1954 and 1964.

* From "The U.S. Dairy Industry, Today and Tomorrow"; Michigan State University Research Report No. 275.

Prints of these photographs may be obtained from the Photography Division, Office of Communication, Room 536A, U.S. Department of Agriculture, Washington, D.C. 20250. Limited numbers are available free to news media. Others pay a small fee.

