

30,000 Lb. Herd Average Within Reach

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NEWARK, Del. — Milking 30,000 pounds per cow per year for a total herd! Sounds fantastic? A few years ago, yes, but not anymore.

We've come a long way in one generation of dairying. Where will it all end? And what will the economic and biological consequences be?

When I took over the University of Delaware dairy herd in 1957, our Holsteins milked 8,000 pounds per year. Now, after 36 years, we milk more than 20,000 pounds per cow per year in the Holstein herd. This is a progression of more than 300 pounds milk per cow for each year.

What other branch of animal agriculture can boast such a success story?

Today's pig litters are about the same number weaned as 36 years ago, and ewes still raise the same number of lambs as then.

But the research of land-grant Agricultural Experiment Stations in better dairy feeding rations, the wide acceptance of artificial insemination of genetically superior dairy sires, and the wide use of DHIA for collecting monthly data on sire-proving and herd-culling management are the unique tools in dairying that made this phenomenal progress possible.

All this was achieved even before bST and other biotechnology techniques arrived on the scene.

Artificial insemination is used in 95 percent of cows and 88 percent of heifers in high-producing U.S. herds, according to a recent survey published in the October issue of the *Journal of Dairy Science*. It also revealed that cows that milk more make, on average, more money than lower producers despite higher feed costs. And dairy feeding rations have become much more sophisticated than the

former pasture management.

Much like race horse owners who have long depended on positions, supplements and secret practices, dairy farmers now require the services of nutrition consultants and nutrition-educated veterinarians to remain ahead of their high-producing cows.

DHIA monthly data has been the backbone for evaluating cow progress, not just for the traditional registered breeder, but increasingly for the commercial dairy farmer. The current electronic revolution is on the brink of joining, or even overtaking, DHIA daily individual cow supervision.

In 1960 our university dairy herd left the traditional stanchion barn and its manual cow feeding, bedding and manure removal for a loose-housing barn, first with a general manure pack bedding, then with free stalls.

We instituted individualized electronic grain feeding of at least six meals per day and began to record electronically daily individual milk production data plus temperature and activity records. We also advanced to electronic calf milk nursing at least six meals per day.

What's next? Most likely, the practice of cows and calves feeding themselves at least six meals (whenever they want a meal) in a 24-hour period will be extended to milking.

This will occur when the technology, which already exists, meets the required sanitary health standards of cow udders and milk.

Cows milking more than 100 pounds per day already have so much built up pressure in their udders that it's beneficial to milk more than the traditional two times in a 24-hour period. And a three-times-a-day milking procedure is usually rewarded by those high milking cows with about 10 percent more milk, which pays for the extra labor.

The electronic feeding of at least six meals per day is already helping those high milkers to maintain that level of production.

The most important variable in high milk production is the daily feed intake level, specifically dry matter intake and its nutrient density.

The nutrition research here at Delaware has led to unique ways of increasing the nutrient density of the dairy ration—wafering, pelleting, extruding, fat addition, rumen protection of fat and protein—in addition to other fortifying and buffering supplements. Dairy farmers are already making profitable use of these innovations.

On the other hand, electronic evaluation and management is just beginning and, for the most part, only on larger farms.

As of last month, DHIA in all of the Northeast is now 100 percent electronic, meaning that the mailing of herd records from the farm has been replaced by phone transmission from a portable computer operated by the DHIA supervisor and/or the dairy farmer.

The next day the dairy farmers can retrieve herd records from their home computers, connected by phone with the computing center.

They can get as many different reports as they need for their management, a consultant, the veterinarian or a buyer interested in some herd animals.

All this is leading up to the 30,000-pound herd, not 30 years from now, but probably much sooner.

Such a high level of annual milk production is still unusual and requires many days of milking more than 100 pounds per day. However, at least one herd in the Northeast is already milking four times per day. This practice not

only reduces the pressure for the high-milking cows, but adds extra milk per day.

Once the electronic self-milking of cows becomes reality, cows will be able to go for milking six times in a 24-hour period, as they do now for feeding grain. That's when the 30,000-pound herd will become reality. By then, we will have researched new ways of keeping these cows well fed, so that they can sustain the high levels of milk production.

A good example is recent research from Nebraska involving 36 high-milking Holsteins. When almost half of the corn silage ration was replaced by soybean hulls and an additional third was replaced by chopped hay, the cows ate more, averaging a formerly incredible 4.7 percent of bodyweight and producing 10 pounds more milk per day than the control cows.

In this difficult year of poor corn yields and poor corn silage, this research is interesting, helping dairy farmers to maintain their milk income by maintaining high-milking cows.

In the past, when silage or hay was poor, we tried to help ourselves with cottonseed as a supplement (it also has fiber value). Yet we always worried about the gossypol content of cottonseed and the moldiness that tends to develop, especially during a humid winter.

The new nutrition research proves that there is value in high amounts of soybean hulls, up to 25 percent of daily total dry matter intake by cows. This helps maintain high milk production, not only early in lactation but also in mid-lactation, while holding milk-fat test and increasing milk protein test.

Recent research from Wisconsin

showed that cows milked four times per day had increased milk production per day, and those milked eight times a day had even more milk.

Cows milked more than four times appear not to require complete milking out each time, and they don't require pre-milking stimulus as much as low producers do.

This conclusion is contrary to the traditional one-minute let-down stimulation of long standing in dairy science teaching.

These results are similar to what we already know about dairy goat milking.

When goats milk 2 gallons per day, equal to 10 percent of bodyweight, they don't require much pre-milking stimulation and they easily eat between 4 to 5 percent dry matter per day. This is a level that we are just beginning to reach with 30,000-pound dairy cow herds.

Our university research with the new Stimopulse feature of electronic milking bears this out as well. High-milking cows really have a much faster letdown reflex time than the traditional one minute.

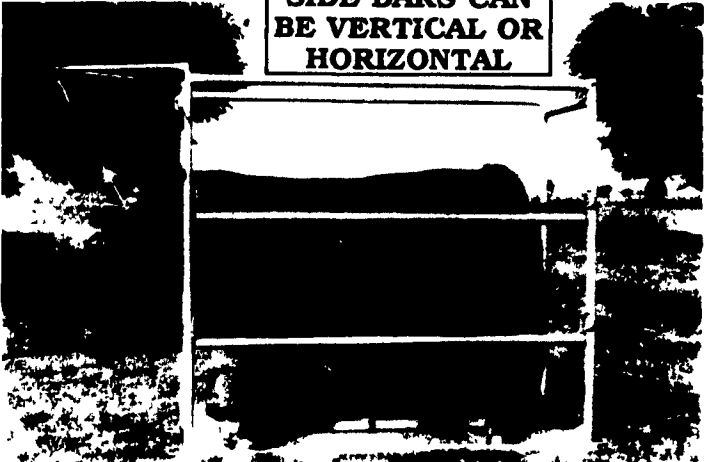
So as a new year approaches, we dairy farmers can be confident about the future.

With more land-grant Agricultural Experiment Station research; more artificial insemination and embryo transfer; and electronic feeding, milking and record keeping, we will reach 30,000-pound herd averages sooner than we reached 20,000-pound herd averages. In turn, we can expect new levels of herd income with far less labor. Happy New Year!

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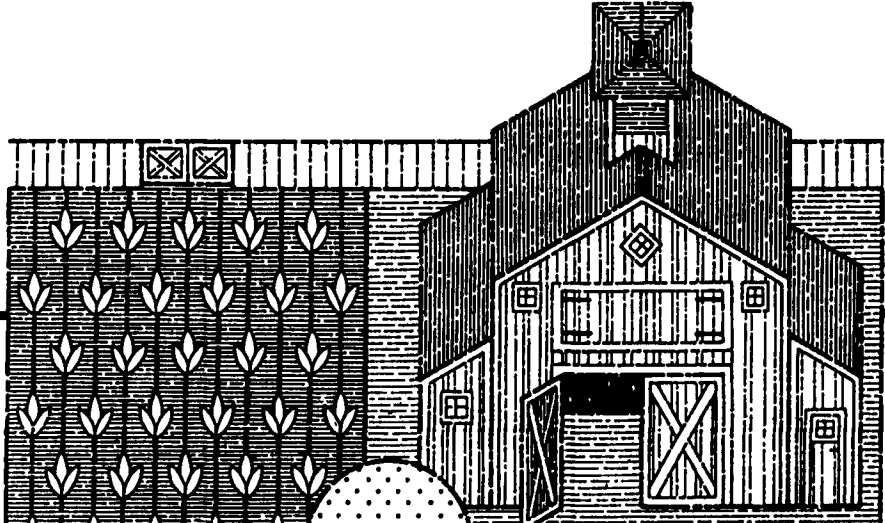
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