

Real-world, real good internal herd growth

Constant attention to details nets these five Northeast dairies a 10% or higher annual internal herd growth

As U.S. dairy replacement numbers decline and increased demand drive prices to all-time highs, it makes economic sense to manage your dairy so well you can avoid buying replacements.

For perspective, U.S. dairy replacement cow prices hit \$1,720 per head, the highest ever, as of July 2004, according to a *Dairy Profit Weekly* report (Aug. 30, 2004). At the same time, replacement heifers for every 100 cows dropped to 40 on July 1, compared to 44.7 heifers per 100 cows at the beginning of this year.

The five dairies featured here know it costs them to have too few heifers in their system. That's why they attend to details beginning with protocols for

calving, calf management and replacement raising. But it doesn't end there. Internal herd growth includes the obvious: cow comfort, fresh-cow care, quality forage, sound reproduction programs and thousands of details that are part and parcel of management.

In *The Manager*, Gary Snider, with Farm Credit of Western New York, said that every dairy has its own formula for profitability. But a standard component of that formula for these five dairies is strong internal herd growth. It allows them to grow their businesses or to sell excess animals. The businesses serve as examples of what can be achieved on every dairy.

Way to grow

Internal herd growth (IHG) has definitely improved since Steve Morrill contracted with Adirondack Heifer Management to raise his heifer calves. Since 2001, the Dekalb Junction, N.Y., dairy farmer has sent wet calves to the contract grower and gotten back heifers two months prior to calving. Another farmer, David Wentworth, also successfully raises some of Morrill's heifer calves.

Here's the difference in two areas before and after contracting heifers:

	Morrill	Adirondack Heifer
AFC Calf mortality	24-26 months 5 - 6%	22 -23 months 1.7%

"We didn't have strong internal herd growth until we contracted with a heifer grower," Morrill says. "Now there are more animals, and they're coming back faster." This shows up in 22.4 months age to first calving.

A shortage of heifer facilities drove Morrill to farm replacements out. "We had room for heifers from 50 cows, not 300," he says. Without proper housing, calf mortality rates, at 5 to 6%, were higher than what Morrill wanted.

He balances the advantages of outsourcing his heifers against its impact on cash flow. The first two years when he had heifers at home and at Adirondack Heifer Management were particularly "crazy,"

Morrill says. "In 2002 - 2003 when milk prices were low and I was writing a check for heifers, it seemed like not a good idea cash flow-wise."

A shortage of heifer housing didn't prevent Morrill's dairy, which he operates with brother-in-law Greg Collier, from growing. Since 1991, the business has doubled in size every three years, going from 50 cows to 1,500 today on two farms. By the end of the year, when heifers freshen, the dairy will be at 1,600 cows.

At the end of 2003, Morrill leased a dairy in Hopkinton, 35 miles away. "The plan was to use the leased facility to gain cow numbers, getting (an additional) 800 to 900 cows paid for or paid down, then build a state-of-the-art facility at the home



Steve Morrill, Dekalb Junction, N.Y., wants to maintain an internal herd growth higher than 10%.

FYI

- Herd 1,500 cows
- AFC 22.4 months
- Cull Rate <25%
- Calving Interval 13.5 months
- Production 23,500 lbs.
- IHG >10%
- % Heifer Calves 40
- Calf Mortality 1.7%

farm,” Morrill says. “I didn’t want to build a 1,600-cow facility and buy those cows at that time. The economics of it would be difficult.”

Leasing was a way to grow. Morrill, instead, bought 600 to 700 heifers in the fall of 2003, most of which have now calved.

He estimates that his IHG has been between 10 and 20% given that the dairy has a live heifer calf rate in the low 40%, a very low calf mortality rate and an improved AFC. But it’s hard to compute, given the dairy’s fast-track growth that depended, somewhat, on buying heifers. “Each time I’ve doubled the herd, I’ve bought some animals,” Morrill says.

Improved heifer performance, resulting from contracting them out, helps Morrill avoid a hazard of growth: not having enough heifers in “the pipeline” to provide replacements to support herd growth.

“Can heifers provide replacements for herd growth that we need?” Morrill asks. “It’s tough to expand and then have to buy replacements the next year.”

For example, if a dairy is expanding from 400 to 800 cows and has a 25% cull rate, Morrill figures the business needs 200 replacements in its system. If a

dairy had to buy those replacements at \$1,800, it would cost \$360,000. But if IHG is solid and heifers are in your system, you avoid that outlay of cash.

Conscious of the need to have heifers to support growth, Morrill wants to lower his calving interval from its current 13.5 months and maintain IHG higher than 10%. Another goal is to cut DOAs at calving, which is about 5% now. “It could be better,” Morrill says. “If it’s attributable to anything, it’s we don’t have one person on calving standing there watching cows calf.”

All about growth

Morrill’s cull rate consistently ranges between 23.8% and 24.7%, keeping the dairy on track with Morrill’s goal of a cull rate less than 25%. He culls based on production, though he admits to keeping cows in the herd longer than his veterinarian, at least, thinks he should. Somatic cell count, breeding status, and feet and legs also enter into cull decisions.

“Our vet is always saying, ‘Steve, there are cows out there you need to get rid of,’” Morrill says. “I look at it differently. It’s all about growth.”

– By Eleanor Jacobs

Ideal Dairy’s report card

If **internal herd growth (IHG)** is a dairy’s animal husbandry report card, as Denise Dickinson says, then she and her husband, John, get an A. The Hudson Falls, N.Y., dairy producers’ sound animal husbandry results in a 10% IHG.

In 1981, the couple left the home farm – Ideal Dairy – and began a registered herd with 80 cows; 10 years later Quiet Brook Holsteins had grown internally to 220 cows. In 1992, five years after Ideal Dairy had participated in the whole herd buyout, the Dickinsons consolidated the two businesses. Other than for buying 100 animals that year, the Dickinsons have grown internally to their current 750 cows.

For the last four years, the Dickinsons have sold 5 to 10% of their internal growth as part of their registered Holstein business called Quiet Brook Holsteins. Since they don’t want to grow and build facilities, the Dickinsons are currently selling all their internal growth. This adds \$100,000 to their bottom line annually.

“We’re not low-cost producers,” says John Dickinson, referring to their per hundredweight cost of \$13.75. “But every \$100,000 in sales amounts to 50 cents per cwt. added to our income.”

The Dickinson’s closed herd is enrolled in the New York Cattle Health Assurance Program (NYSCHAP),

guaranteeing they follow biosecure practices and can market healthy cattle. Plus, the couple can sell trailer loads. These are “value added” factors, they say.

“We generally sell 2 year olds that are bagging,” says Denise Dickinson. “But we sell all over the range, depending upon what customers want.”

IHG how-tos

The Dickinsons tick off a number of management areas critical to strong IHG at Ideal Dairy.

- **Calving management.** “DOAs have a big impact,” Denise says. “We have a good protocol for calving.” Still, the dairy’s DOAs are higher than the Dickinsons want – 7 to 10% of births. In July, DOAs dropped to 1.7%. The couple attributes the higher DOA rate to a couple of factors: Heifers being too big and over conditioned and no one watching the calving area for five hours at night.



Strong internal herd growth and a reputation for excellent registered Holsteins add dollars to the bottom line of the dairy business owned and managed by Denise and John Dickinson.

■ Sanitation protocols. Twice a week the calving pen is thoroughly cleaned, disinfected and limed. Throughout the day, the pen is picked whenever it's checked for calvings.

Colostrum collection is preceded with a hot sanitizing solution and cooled quickly with ice bottles during collection. Then it's refrigerated. It's warmed in a 105-degree water bath, fed within two hours of birth and sampled to monitor bacteria levels. Utensils are rinsed in warm water and washed in detergent and scalding hot water, followed with an acid rinse.

■ Good calf management. Ideal Dairy Farms' calves move to a custom grower within 24 hours of birth and stay for the first 100 days. Calf mortality has typically between .5 and 2% with the custom grower.

■ Solid vaccination program and overall herd health. The dairy began a vaccination program in response to leptospirosis, which, the Dickinsons say, pushed age to first calving up to 24

months. "We're now seeing good results with heifers settling," Denise says.

■ Cow comfort. Ideal Dairy houses cows in two-row barns, which improves ventilation, John says. The dairy beds with sand.

■ Feed a high forage diet. The Dickinsons feed 60 to 63% forage, generally. "You have to have a cow big enough to eat that much forage," Denise says.

■ Breeding program. The Dickinsons emphasize breeding big cows with good productive life. "That's important," Denise says.

■ A sound reproduction program. The dairy's heat detection rate is 80% with a pregnancy rate of 20%. The Dickinsons believe that a longer voluntary waiting period helps them achieve those numbers.

Ideal Dairy Farms and Quiet Brook Holsteins' vision statement reads: "...to profitably breed and manage high-producing, stylish, long-lasting cattle on high-quality homegrown forages." Adhering to that gives the dairy strong IHG and a report card to be proud of.

— By Eleanor Jacobs

FYI

- Herd 750 cows
- AFC 24 months
- Cull Rate 24 – 25%
- Calving Interval 13.1 months
- Production 28,100 lbs.
- IHG 10%
- Calf Mortality <2%

Best scenario: milk cows

Not long ago, Pat and Marty Hanehan, Saratoga, N.Y., developed three budget scenarios and discovered that milking more cows made the most economic sense. The other two options for this dairy with 10% internal herd growth (IHG) were to sell first-calf heifers or second lactation cows. "It looked best to build a barn and milk cows," says Pat Hanehan.

Once the Hanehan brothers decided that milking cows was to their advantage economically, they took steps to make that happen. But instead of building a barn as they had planned to do in 2001, the brothers bought a herd of cows from a dairy two miles away and leased the farm's facilities and land, bringing their cropped acreage to 1,300.

Now they milk in two locations, with 140 cows going through a double-six parlor in the satellite facility and the rest through their double-10. Even with two facilities, the Hanehans operate at 40% over capacity and plan to build housing in 2005, growing to 800 cows.

Everything needs to be in balance, Pat says. "We have land and equipment, now we need to bring cow numbers up. At one time, we had a lot of land and were out of balance. It showed in the economics."

Monitoring to change

Given their business goals, the Hanehans have made changes in their replacement and fresh-cow programs. The result is improved IHG. In 2003, it was 7.5%; so far this year IHG is 10%.

Strong IHG begins with tight management of

calving and replacements. "Management as a whole has improved," Marty says. "As our herd size has grown, we've put someone in charge" of areas such as calving.

The Hanehans have reverted to a "good old-fashioned notebook," Pat says, to track problems from month-to-month. It supplements their Dairy Comp 305 records.

By tracking DOAs in a notebook, the brothers put a number to the notion that they had more DOAs than they wanted, and it motivated them to do better. Now as part of the management protocol, milkers must monitor the calving area hourly, or as needed, and sign in when they check it. DOAs have dropped by 5 to 6%.

"This will add 14 heifer calves," Pat says. "On a dairy where you have a lot to track, we like to make lists for people where they know what they have to do."

Raise replacements

The Hanehans have gradually transformed their replacement-raising program. Part of the impetus was a tough strain of *E. coli* that prompted them to improve calf housing, monitoring and biosecurity.

They once housed calves in an older barn, then built a greenhouse facility. The brothers deserted that and built a calf barn where ventilation is much



Improvements in their replacement and fresh-cow programs have bumped up internal herd growth to 10% for Pat and Marty Hanehan.

improved and the barn floor has radiant heat. Besides individual pens, it has two group pens.

To ensure good ventilation, the dairy's nutritionist fogged the calf barn to check air movement. Then the Hanehans worked to eliminate dead air spaces.

Biosecurity is critical: The calf barn is some distance from other housing and people who enter it must disinfect their boots or wear plastic ones. Even the milker who delivers newborns to the calf barn never enters the calf area. Newborns are left in a receiving room.

All of these steps, plus having Pat's wife, Sheri, and Marty's wife, Cathy, do morning calf chores, have produced good results: Calf mortality dropped from 4% in 2003 to 2% so far this year.

Calves are eventually moved to group housing at

the home farm then to the satellite dairy at four to five months of age.

The Hanehans track heifer weight and height and breed them at 12 months of age, if they're at weight. "We were calving at 22 months but chose to go to 23 months so heifers are a little larger when they come into the parlor," Pat says.

On the other end, the dairy's culling rate is 25 to 30%. The Hanehans cull based on breeding and metabolic problems, low production and sore feet.

The Hanehans capture value from strong IHG by putting more cows through their two parlors, particularly when milk was at \$20. "There's value to internal herd growth if you're growing. Then you don't have to buy replacements," Marty says.

— By Eleanor Jacobs

Building a herd from within for a new generation

Internal herd growth (IHG) is nothing new to Brigeen Farms in Turner, Maine. The dairy is known for its purebred Holsteins and since the 1940s has relied on raising its own replacements to produce plenty of good-quality animals for sale.

But IHG became even more important four years ago when Steve and Mary Briggs' daughter, Betsy, — the ninth generation — and her husband, Bill Bullard, came back to the dairy. The Bullards, who met while attending Cornell, returned to the dairy in 2000. At that point, it was obvious that a 71-head herd wouldn't sustain two families.

So Brigeen Farms set out to expand and now milks 224 cows. A strong IHG is a key part of that successful expansion.

"Internal herd growth has made expansion easier — it's been a significant slug of cash into the business, which helps us handle a significant debt load," Bill Bullard says. "And the genetics market has been tremendously strong."

The dairy has maintained an average 10% IHG throughout expansion, thanks to low cull and mortality rates for heifers.

During the first two years of expansion, the cull rate was 18%. That's since risen to 24% as the Bullards cull more vigorously, for example, ship-

ping cows with high somatic cell counts (SCC).

"We're more aggressive on voluntary culling now," Bill says. "Before, a cow would have to have three strikes before she goes. But now we're close enough to facility capacity that we're able to cull more aggressively."

To maintain a low cull rate, the family has also made changes in fresh-cow care, administering calcium more often and switching the calving area from sawdust to a straw/sand base bedded pack.

And they've gone from 2X milking to 4X for fresh cows for 21 days. That's increased milk production by 8 pounds per cow and net income by \$175 per head. "It's also a great excuse to look at cows and have them get back into shape quicker," Betsy says.

During the entire expansion, the Bullards purchased just 107 animals, all but five as pregnant heifers. Steve Briggs checked each animal, and all were tested for BVD, vaccinated and separated from the rest of the herd for at least three weeks.

"We haven't been forced to buy heifers — only make planned purchases," Betsy says. "So it has been easier to plan for and allowed us to be more aggressive in how we source them. We can be more adamant about BVD-negative."

Calf mortality for their own replacement heifers

FYI

- Herd 575 cows
- AFC 23 months
- Cull Rate 25 - 30%
- Production 75 -80 lbs.
- IHG 10%
- % Heifer Calves 49
- Calf Mortality 2%



The Maine dairy operated by Bill and Betsy Bullard with her parents has maintained an average 10% IHG throughout expansion, thanks to low cull and mortality rates for heifers.

FYI

- Herd 224 cows
- IHG Average 10% (2001- 03)
- Cull Rate 24% (non-dairy)
- AFC 23.9 months
- Calving Interval 14 months
- % Heifer Calves 42
- Calf Mortality < 1% for replacement heifers & animals born alive
- Production 24,292 lbs.

is less than 1% for animals born alive. Mary Briggs says they can credit the people who make a dairy run well and keep cows healthy. "The key is 'live-stock eyes' – people with skills that can catch an animal before she knows she's sick," she says, nodding at her daughter and son-in-law.

The details

Much of their herd's health can be attributed to cow comfort. When Betsy and Bill came back to Maine, Steve and Mary Briggs were milking on pipeline in a tiestall barn. Eighteen months later, they moved the herd to a sawdust-bedded pack barn.

"The cows were comfortable, but there were the labor and expense of sawdust, so we went to all-sand freestalls," Bill says. The change did more than just save them \$1,500 a month. Cows are cleaner and stepped-on teats nonexistent. SCC remained at about 200,000 and the incidence of mastitis hasn't changed. Feet and legs improved, helped along by a frequent schedule with a hoof trimmer.

Besides sand-bedded freestalls in the main barn, which they finished in January 2003, the Bullards changed to a swing-6 parlor, then a swing-7. In April 2003, they updated to a low line and automatic takeoffs, making a double-7 herringbone parlor. They plan to add another 30 stalls to the main barn and to renovate the bedded pack on a second farm nearby where they can house bred heifers separately. "We think that will ease overcrowding in our prefresh barn and make for better reproduction," Bill says.

Many factors play into the cull rate – not always positively. "One reason our cull rate may be so low is that we've kept cows we should have culled for reproduction," says Betsy. "I think the reproduction thing is a bit of a challenge."

Still, using aggressive heat detection – done pri-

marily by Betsy and Steve – that yields a 55% heat detection rate and some synchronizing of problem cows, the dairy posts a pregnancy rate of 15%. They use a clean-up bull on cows still open after three or four services.

Room for improvement

Two other areas in which the Bullards would like to improve is age at first calving (AFC) and rate of live births.

Their AFC of 23.9 months is likely influenced by the number of virgin heifers – 25% – they use as embryo transplant recipients. They'd like the rate to be about 23 months.

Creating a separate group for the 1-1/2 to 2-year olds will help by keeping them from getting crowded out of the feed bunk, the Bullards say. Currently, they feed four groups – fresh, high and low production, and heifers.

As for live birth rate, about 9% of first-calf heifers have dead calves. It's due to a number of factors – calving difficulties, dystocia or other reasons such as housing bred heifers and dry cows together.

"That's one of the weakest links now," Betsy says. "If they're born alive, they stay alive."

The Bullards raise all their own calves in individual hutches, then move them into one of three superhutches. Keeping calves clean, dry and comfortable, and making sure they get enough good quality colostrum, are important for healthy calves. "We're not fantastically aggressive on vaccination program – that's a work in progress," Betsy says. "And we have a high enough rate of leukosis that we're considering pasteurizing."

It's a hallmark of a successful dairy when, no matter how good you are, you don't rest on your laurels, but constantly work to make things better.

— By Susan Harlow

Build for growth

The Neals make strong internal herd growth (IHG) look easy. Of course, it's not. But the Albion, N.Y., dairy, operated by Ed and Lillian Neal and their sons, Jody, James and Jeremy, has nearly tripled its herd size in eight years. In 1996, the family milked 143 cows; today the herd is at 380, all from internal growth.

"We base expansion around internal herd growth," says Jody Neal. "When we get to 35 to 40% overcrowded, then we build, generally."

The Neals can see growth coming and plan any expansion two to three years in advance, Neal says. But there have been surprises. The family built a double-16 parlor in the spring of 1998, a couple



When the Albion, N.Y., dairy operated by James and Jody Neal (pictured here) with their father Ed and brother Jeremy gets 35 to 40% overcrowded, the family generally adds housing.

years earlier than planned because cow numbers grew so fast. They built their original double-four parlor in 1981.

Overcrowding not only determines building projects but influences cull rate, a number the Neals monitor closely using PC Dart for their records. For the last 12 months, cull rate is 40%, mainly because the barn is full, Neal says. That's up from the typical 34 to 35% cull rate.

Voluntary culling is based on production, taking out the bottom one-third in production if other factors, such as mastitis, exist. The dairy produces 72 to 73 pounds of milk per cow on 2x milking.

The table tracks herd changes since 1996. "In 1997-98, internal growth rate is high due to calves purchased," Neal explains. "In 2000, we were overcrowded and added a freestall barn. Then in 2003, we were full again."

Game plan

A drop in the age to first calving (AFC) significantly improved IHG. So far this year, AFC is 21.5 months, a far cry from the 1996-97 AFC of 27 months. Calf health and the dairy's heifer program play important roles in the improvement.

Calves are housed in hutches, and the dairy holds its mortality rate to 1% or less a year, once

calves reach hutches, thanks to the able care of Kathy Davis, a long-time employee. This past spring, the dairy added a heifer barn that houses replacements once they're moved from the hutches. It now houses 290 replacements.

Fresh cow care enters into the IHG picture. The Neals created 50 stalls for fresh cows when they added onto their freestall barn. "That has really helped with controlling DAs," Neal says. "It's important not to overcrowd them (fresh cows)."

Calving interval is between 13.2 and 13.6 months, indicating the Neals' successful AI program. The dairy limits its use of timed breeding: out of last 830 breedings, 130 were done using a full OvSynch program. These are primarily cystic and non-cycling cows. Another 143 cows were bred using a modified program where they receive a shot of Lutalyze and 48 hours later gonadotropin releasing hormone (GnRH) is administered. The rest are bred based on standing heats.

"We track calving interval to compare how full Ovsynch compares to a modified Ovsynch," program, Neal says.

Capturing benefits

The benefit of strong IHG, according to Neal, is not having to buy heifers. "That makes a building project go smoother," he says.

Outgrowing land resources is a potential downside to good IHG. The Neals avoid that problem by exporting manure to neighboring crop farms. This and having housing capacity opens up the opportunity to increase herd size to as many as 500 cows

— By Eleanor Jacobs

FYI

- Herd 380 cows
- AFC 21.5 months
- Cull Rate 34 – 35%
- Production 73 lbs. on 2x
- Calving Interval 13.2 - 13.6 months
- Calf Mortality 1% per year
- IHG averaged 10.5%, 1996-2003
- % Heifer Calves 47 - 49%

Yr.	Ave. # Cows	Cows Entered	Cows Left	% Enter	% Left	IHG
1996	143	51	48	6	34	2%
1997	174	76	29	44	17	27
1998	217	84	43	39	20	19
1999	273	111	76	41	28	13
2000	288	92	88	32	31	1
2001	307	114	83	37	27	10
2002	342	132	99	39	29	10
2003	369	129	121	35	33	2

Take out monitor insurance
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– are still a significant cost to your replacement program.

To minimize momentum, the age at first conception parameter could be restricted to the last group of breedings.

Age at first conception, like AFC, has bias. Both usually exclude animals that never become pregnant and are sold. You can account for this bias by another measure such as percent open/sold by a defined age.

Practically, evaluate the distribution of age at first conception every month or two. Also, calculate the percent of heifers that never become pregnant up to an age you determine for your program. Then use this month-to-month to account for the animals that never get pregnant.

Monitoring is an important tool for dairy busi-

Steps to take

Work with your dairy production team to determine:

- What parameters to track on your dairy.
- How to define them for consistency.
- And how often the parameters are measured or analyzed.

Let the people who are involved with the areas being tracked know what's being measured and how it's being done.

- Ask two questions:
1. Are we doing better or worse?
 2. Why?

Answer the first question by using results from the monitoring, not by how you feel.

nesses. But to be truly helpful in making good management decisions, values that minimize errors in variation, momentum, lag and bias must be monitored. ■