

Practical HEALTH

Spring 2000



Proud to be farmer owned

Health management ideas for Heartland cow/calf producers



Parasite myths
*Assumptions
about parasite control
may leave your animals
vulnerable this spring*

Also inside

- *Cancer eye or pinkeye?*
- *Make early weaning work*
- *Eliminating disease*

Have a question?

Have you read about a cattle disease in the news or heard something from another producer you'd like to know more about? Remember, if you have a subject you'd like to see the editors of *Practical Health* cover or any health-related question, please take a moment to jot it down on the reader reply card in this issue.

Practical Health magazine is sponsored by your local Farmland Animal Health Dealer and the advertising sponsors in this issue, to help you improve your cattle health management. We welcome any comments from you that help us accomplish that goal.

Thanks once again for your support—for this magazine, for your local Farmland Animal Health Dealer listed on the back cover, and for the innovative animal-health companies who bring you quality health products and information.

— The Editors

Practical HEALTH

© Farmland Industries, 2000. All rights reserved.
Vol. 4, No. 2, Spring 2000.
Periodicals postage paid at Shawnee Mission, KS.
Published quarterly for cow/calf producers served by the network of Farmland Animal Health distributors.

Practical Health will consider manuscripts and photos for publication but shall not be responsible for loss or damage. All material must be accompanied by a self-addressed stamped envelope.

Practical Health reserves the right to alter any submissions at its discretion for use.

Change of address? Send to:

Practical Health
Beef Cattle
9860 Plumm Road
Lenexa, KS 66215

Questions or comments about the editorial content? Contact us at:

Practical Health
Beef Cattle
24195 W. 63rd

Shawnee Mission, KS 66206-3206.
Phone (913) 441-3970 Fax (913) 441-3971.

- 4 **Animal health news**
Water quality, prolapses, questions answered, more.
- 6 **Create your health reference library**
Having good information saves time, effort, money.
- 8 **Defuse the potential bomb**
Create a program to help prevent disease blow-ups.
- 12 **Parasite control myths**
Beware of conventional wisdom on deworming.
- 14 **Early weaning advantage**
Low forage this year? Consider early weaning.
- 16 **Worms reduce immune response**
Deworming may make your vaccines more reliable.
- 18 **Cancer eye**
Early diagnosis helps prevent losses and suffering.
- 20 **Practical Health Pull-OutSM**
Use this worksheet to evaluate your dealer's ear tag selection.



Disease control 8



Cancer eye 18

Issue sponsors

- 2 **Pfizer Animal Health**
Every Dectomax[®] bottle cap can be worth \$3 to your local FFA. Enjoy better parasite control, while your local youth enjoy a brighter tomorrow.
- 5 **Loveland Industries**
This season, use Prozap Dust Bags and Prozap Refills or Prozap Dust Bag Kits for an easy, effective and low-cost method to control flies.
- 7 **Boehringer Ingelheim**
What's the best defense against flies, ticks and lice? Put your cattle in a protective zone with Permethrin[®] CDS Pour-on Insecticide.
- 9 **Fort Dodge Animal Health**
You want to control parasites in your cattle for peak performance. So do we. Cydectin[®] Pour-on controls performance-robbing parasites.
- 11 **Merial**
Get the best results from your life's work with the broadest spectrum pour-on available—IVOMECS[®] EPRINEX[®] Pour-on.
- 15 **Bayer**
Use new 20/20 Vision[™] 7 for pinkeye and blackleg. With proven protection and the Spur[®] adjuvant, nothing else fits the bill. You'll see green.
- 17 **Boehringer Ingelheim**
There's a simple reason why Patriot[™] Insecticide Cattle Ear Tags are the leading ear tag year after year... They work, and they work well.
- 19 **Pfizer Animal Health**
The best treatment for pinkeye is experience. Your experience tells you pinkeye is best treated with one injection of Liquamycin[®] LA-200[®].
- 21 **Roche Animal Nutrition and Health**
Bovatec[®] is your best choice for free choice when it comes to ionophores. However you feed, whatever your operation, it's in the form you need.
- 23 **Hoechst Roussel Vet**
Deworm any time, any way you want when you use one of the many formulations of Safe-Guard broad-spectrum dewormer.

Courtesy National Cattlemen's Beef Association



Water quality on operations

New data from USDA's Animal and Plant Health Inspection Service shows that in general the water quality

Maximum safe levels for livestock

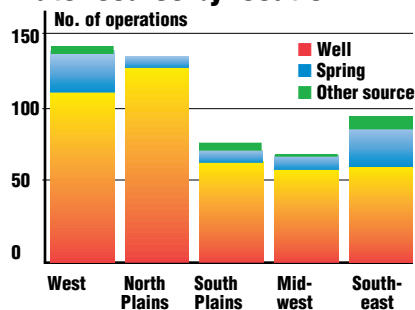
- Nitrite < 33 ppm
- Nitrate < 440 ppm
- Sulfate < 300 ppm
- Total dissolved solids < 3000 ppm

Tropical corn as potential late forage

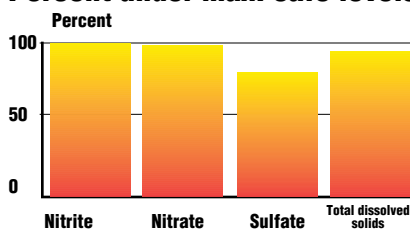
USDA researchers suggest tropical corn native to Mexico and Central America could be a good alternative to sorghum for late season planting.

The researchers found that although tropical corn may have had a slightly lower digestibility in feeding trials than forage-type sorghum, steers seemed to like it better and ate more of it.

Water source by location



Percent under max. safe levels



ty on U.S. beef operations poses no serious threat to cattle health.

USDA conducted a study involving cow/calf producers from 23 leading states, asking them about their source of water. They then sampled those sources for nitrites, nitrates, sulfate and total dissolved solids.

The relatively worst results came in the sulfate category. Over 21 percent of ranches were at levels that could cause weight loss and lower feed intake. Water from tanks generally was highest in sulfate.

They say tropical corn actually yields about 87 percent more dry matter than sorghum, making each acre more productive. It can also help control erosion. Tropical corn's season is: Plant in June, harvest in October. It works best in the southern United States, which approximates its native climate, and can work well when double-cropped with winter wheat or barley.

Plant physiologist Joseph Burns, at the ARS Plant Science Research Unit in Raleigh, N.C., is now continuing research on the forage's economic benefits.

Question & Answer

Q Our area had such drought last summer that we haven't been able to provide water without giving cattle access to our timber. They appear to be eating a lot of acorns there, and I seem to have heard warnings about letting cattle consume acorns. Anything to worry about?

— Missouri

A Eating green acorns in the fall and winter, along with young oak buds and leaves in the spring, can cause toxicity.

The compounds responsible are the tannins that occur naturally in oak. Tannins interfere with kidney function and protein digestion by damaging the gut and interfering with nutrient absorption. That condition leads to malnutrition in animals that otherwise would be consuming sufficient nutrition.

Signs can include loss of appetite, pain, excessive thirst and urination, pain and constipation followed by black, tarry and even bloody scours that may look like a case of coccidiosis.

In large quantities, the tannins will cause irreversible kidney damage. Even if animals recover from the initial poisoning, they may go on to be poor-doers.

Providing access to good forage may help keep the amount of acorns consumed to a low enough level to prevent problems. Adding calcium hydroxide at the rate of 15 percent to mineral supplements can also be used as a preventive if you can't avoid exposure.

Questions & Answers is intended for informational purposes only. It is not designed to render specific veterinary advice, and should not replace the advice or your own licensed veterinarian. If you have a question, please use the response card in this issue to let us know.

Understand prolapses

Prolapses that occur near calving in beef cows can be of two types—requiring two different control strategies, according to Oklahoma State beef cattle specialist Glenn Selk:

1 Vaginal prolapses usually occur late in gestation, before calving. The tissues of the vagina protrude through the vulva, where they are exposed to the elements and infectious organisms.

Vaginal prolapses are repeatable; in other words, even if the vet repairs it, the cow is likely to prolapse during the next pregnancy.

They are also known to be heritable—daughters of cows with the problem show a higher probability of having vaginal prolapses themselves. So, the best strategy to control vaginal prolapse is to cull the cow and not keep daughters for replacements. Bulls can also pass the trait, so it's important to look for a sire-side connection, as well.

2 Uterine prolapses occur at or shortly after calving, often in conjunction with a difficult birth. During birth, the calf or after-birth literally pulls the uterus through the birth canal and out the vulva, where—as with vaginal prolapse—the tissue is exposed to damage.

Unlike vaginal prolapses, uterine prolapses can usually be success-



fully repaired by a vet. Studies show cows with uterine prolapses given proper care are no more likely than others to have a prolapse next year, Selk says.

However, because of the trauma, possible infection, and recovery time, cows with a uterine prolapse may show longer days to conception than non-prolapsed cows. They may therefore warrant culling if they are bred out of season or turn up open at preg check.



Dust Bags

This season use **Prozap Dust Bags** and **Prozap Refills** or **Prozap Dust Bag Kits** for an *easy, effective and low cost* method to control flies on cattle.

Cost approximately **\$1.50 per head per year**

Cattle treat themselves for horn flies and face flies

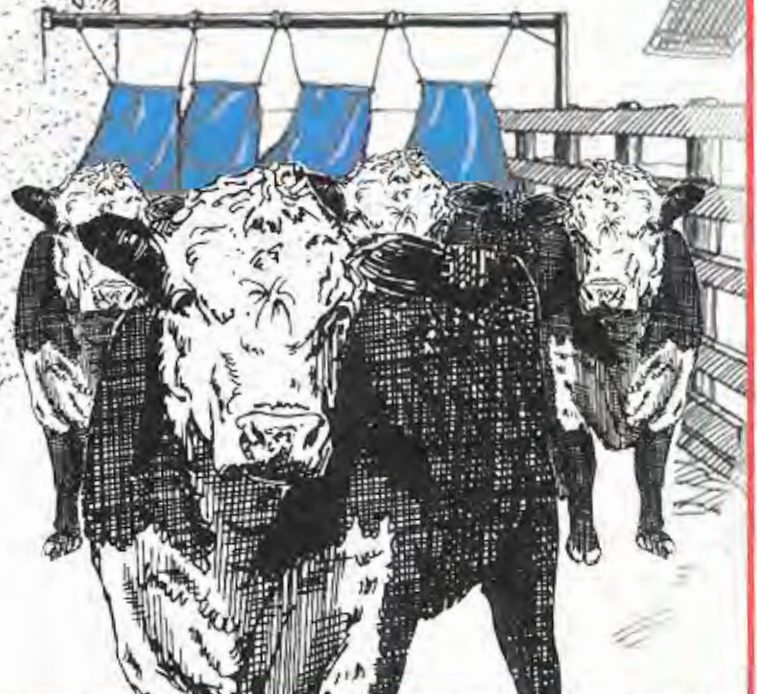
Safe: no insecticide residue, no withdrawal

Easy to rotate insecticides

Always read and follow label directions.

LOVELAND INDUSTRIES INC.
ANIMAL TECHNOLOGY DIVISION
(800) 356.8920

© 2000 Loveland Industries, Inc.



Prozap Dust Bags are available separately and in kits. Look for Prozap Dust "R"™ (Rabon® 3%), Prozap Insectrin Dust (Permethrin 0.25%) and Zipcide® (1% Co-Ral®).

Create a health reference library

Having the right information at hand saves you time, effort ... even money

In the information age, it's become easier to obtain vital information. Whether it's identifying the right bull for your herd or keeping up with new vaccines, all that knowledge is available to you—if you can find it.

With the growing number of magazines, newspapers, catalogs, and direct mailings arriving in your mailbox, identifying relevant information takes time. Add to that information made available via websites. To keep from getting buried in information overload, use the following ideas and resources to help you start a reference library.

Taming the paper trail

Instead of keeping entire issues of magazines and newspapers, clip those articles that relate to your operation. Three-ring binders provide an effective way to store and quickly use this information.

Create categories for animal health, management, nutrition, reproduction, marketing, etc. You can even break that information down further. For example under animal health, create a file for differ-

ent diseases such as BVD or Leptospirosis. Then when you need information, you have your own periodical file.

If you own a computer and scanner, consider scanning documents and filing the information electronically. This saves valuable space in an office. Remember to back up files often.


Also hang on to direct mail pieces offering discounts or rebates for products or services. You may not need whatever is being advertised right away, but in a few months you may wish you had hung onto it. Place a pocket folder in a binder to keep this information under the appropriate category.

Essential references

Most state extension services offer beef cattle handbooks available to producers either free or at a minimal charge. This information is updated periodically as new research becomes available. Handbooks usually contain state or regional information on health and management.



Also consider keeping proceedings from conferences and other short courses, which offer useful research updates and management information. Even if you did not attend the meeting, proceedings usually are made available for a fee. To request proceedings, contact the organization sponsoring the event.

Another reference book that remains a valuable tool for many producers is *The Merck Veterinary Manual*. This book provides details on diagnosis, treatment and prevention of diseases. To order, call 1-800-659-6598 or fax your order to Merck Publishing Group at 908-388-9778. Be sure to include your name and complete address. 

Internet resources

- OSU's livestock library: www.ansi.okstate.edu/library/index.html
- Animal Plant and Health Inspection Service: www.aphis.usda.gov/oa/new/ah.html
- APHIS veterinary links to regional offices: www.aphis.usda.gov/vs/
- U.S. Department of Agriculture: www.usda.gov
- USDA links to state extension services: www.reeusda.gov/1700/statepartners/usa.htm
- NetVet, general animal health site: netvet.wustl.edu/vet.htm
- Poisonous plants web site: www.vet.purdue.edu/depts/addl/toxic/cover1.htm
- Past issues of Practical Health magazine: www.farmland.com/agoperat/feed_news.htm



Defuse the potential bomb

Create a program to systematically eliminate infectious diseases that hurt you in the wallet

Like a lighted bomb ready to blow at any minute, an infectious disease may lurk in your herd building in numbers until it causes a catastrophe. Controlling, preventing and eradicating infectious disease is challenging, and to do so you need to take a hard look at management and marketing.

Infectious diseases like bovine virus diarrhea (BVD), bovine leukosis, anaplasmosis and Johne's disease create new challenges for cattle producers and veterinarians. Like other infectious diseases, germs infect various tissues and organs, then multiply inside or outside the tissue cells.

During this incubation period, no symptoms are seen. Once numbers build, clinical symptoms begin to surface. But some germs go into a non-disease dormancy only to multiply later, which extends the incubation period, says Floron C. Faries, Jr.,

Texas A&M University extension veterinarian.

Not all diseases show obvious economic losses, such as death, abortions, disabilities or other physical symptoms. Some are more insidious in nature, lowering production efficiency and performance unnoticed. However, over the years, those lowered production values add up to lost dollars and lost opportunity.

Luckily, vaccinations are available for some of the diseases, but vaccinations alone may not prevent infection. Eliminating a disease from your herd once it is established takes some hard line management decisions, perseverance and commitment.

Keep disease out

Prevention is the best way to keep infectious disease out of the herd. This requires following a rigid vaccination program. Consult with your

veterinarian on the best vaccination protocol to follow. Also work out the best timing for your region. Follow all label recommendations and give boosters annually or more often if your vet recommends it.

Keep in mind that vaccines only provide one layer of protection, says Gerald Stokka, extension veterinarian Kansas State University. Strict biosecurity measures are also necessary to keep diseases out. This means purchasing animals from known sources willing to provide health information. Isolate and monitor the new arrivals for 30 days, then test new animals before turning out with the rest of the herd. Also have your veterinarian perform postmortem examinations on all dead animals to rule out disease infection.

Sanitizing equipment also helps reduce transmission. Disinfect all medical equipment and keep pens clean. Pay attention to calving areas.

Another important factor in prevention involves reducing stress. This includes environmental stress as well as nutritional stress. Keeping animals in good body condition helps boost immunity. For newborn calves, adequate colostrum intake is vital to help raise resistance to disease.

Identify the source

If you are unfortunate to have an infectious disease present in your herd, then the work begins to identify the source, which isn't always obvious. The source may be wildlife that you have no control over, or even other sources—soil, grass or water.

Keep a vigilant watch on your herd. Keep records. Check cattle daily for signs of disease or other indicators. Observe and note cattle's behavior, appetite, body condition, attitude, mucous membranes and body discharges. Pull any suspect animals and seek a diagnosis from a veterinarian. Once an animal shows clinical symptoms, then the animal may be shedding the disease and is considered contagious. Keep sick ani-



imals isolated from them.

Tests exist for many diseases, like BVD. These indicators are essential for checking new arrivals to a herd. But if you suspect that there are infected animals already in your herd, then testing remains the only way to identify persistently infected animals. Your veterinarian can work with you to determine testing methods.


Follow a strict cull strategy

Culling is not effective for all diseases, but normally it is for diseases with persistent infection. "Culling is

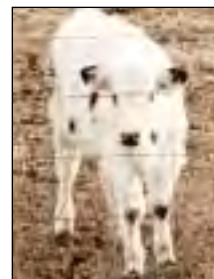
not a blanket recommendation," says Dr. Faries. "Economic comparisons are necessary to decide between two choices—sometimes two losses—and then take the smaller loss."

To ensure non-infected cattle stay disease-free when infected cattle are in the herd, those infected cattle have to be identified and removed. If they remain, the economic effects of the disease in the herd can rise when transmission occurs, says Dr. Faries. "Then the producer experiences economic losses."

Just realize that once you find one animal carrying a disease chances are you'll find others. And they may be your best cows. But the only way to rid your herd of the disease is culling animals for slaughter. And while that may seem harsh and cause a strain on your pocketbook, it will save you money in the long run.

And just because one test turns up positive, don't necessarily rely on that as the final result. Run another test and consider using a different lab, then compare results. 

Understanding persistent infection



BVD is a prime example of the insidious nature of infectious disease. Persistent infection, causing ani-

mals that constantly carry the disease, occurs in utero. Once a calf is born infected, the animal may continue to shed the disease without showing symptoms. In some cases, however, the calf will become weak and die. Those animals that survive and show no symptoms keep the cycle of infection going, passing the disease onto other animals or offspring. Once an animal is persistently infected, the only "cure" is to cull the animal from the herd for slaughter.

Total Health Management

Nutrition management

- Offer sufficient, clean water.
- Offer adequate protein, energy, minerals, vitamins.
- Provide adequate forage.
- Prevent overcrowding and overgrazing of pastures.
- Assure calves get enough good quality colostrum by six hours after birth.

Husbandry management

- Provide adequate space and ventilation in housing.
- Provide shelter to protect against weather extremes.
- Clean and disinfect feeding and watering devices.
- Provide a sanitary environment for calving.

Biosecurity management

- Raise your own replacements.
- Purchase clean replacement animals.
- Test replacement animals.
- Isolate replacement animals for 30 days.
- Prevent direct contact between groups of animals.
- Isolate diseased cattle.
- Prevent direct contact with diseased cattle.
- Use sterile syringes and needles.
- Disinfect tattoo, dehorn, castration, ear tag and nose tong instruments.
- Properly dispose of diseased

dead animals by burning or burying the carcasses.

- Have a veterinarian submit laboratory tests on a diseased live or dead animal.
- Vaccinate cows, heifers and bulls before breeding against venereal and abortion-causing diseases.
- Vaccinate pregnant cows and heifers before calving to provide colostrum immunity against calf diseases.
- Vaccinate nursing calves against diseases.
- Vaccinate adult cattle to provide protection and to reduce shedding of infectious microorganisms during calving and breeding.



Don't over-rely on conventional wisdom when deworming. Changing environmental conditions affect the life cycles of parasites. So you should develop a worming strategy based on climate, temperature, stocking rates and age of cattle. This strategy may have to be adjusted each year.

Parasite control myths

Beware of conventional wisdom that might leave your animals victim to parasitism

With so much information out there on parasite control, sorting through it becomes confusing. Your veterinarian recommends one thing, your extension agent something else, your animal health representative offers another.

No matter the source, there are some false generalities that exist about parasite control. Before you make any decisions that could jeopardize the herd, reconsider some myths.

Myth:

Drought-like conditions mean I don't need to worm cattle since parasite larvae can't survive.

Research out of Australia

shows that parasite levels can actually be higher during drought years. How?

The study was conducted over a period between February 1980 through April 1981 during a drought with a 50 percent reduction in rainfall, increased evaporation rates and temperatures that exceeded normal averages.

During this drought, nematode larvae survived and thrived in the dung pats. Once rains resumed in May 1981, the reservoir of larvae in the dung migrated to grass and resulted in higher than normal pasture contamination.

Similarly, James Hawkins, technical service veterinarian for

Economic impact of parasites

- Lower immunity
- Reduced weight gain
- Increased cost of gain
- Reduced milk production

Merial, monitored infestation levels in pastures in the Southeast over a 12 year period. He found that during the driest year, which went on record as a 100 year drought, cattle showed the heaviest infestations. He agrees that this type of information goes against what many have been taught about parasites -- that dry weather lowers parasite numbers. He has a theory.

"During drought, limited forage forces cattle to graze grass to the ground. Since larvae live at the base of the plants, cattle consume more larvae," he says.

Add to that the fact that drought already compromises cattle's health due to poor nutrition, and the effect of parasites is magnified through reduced gains.

Myth:

We had a hard winter, so there's no way parasites can survive.

"Parasites can make it through a hard winter, especially if there is a snow pack," says Pfizer's technical service veterinarian Greg Quakenbush. While the larvae numbers may down a bit, they still survive and infect the cattle in the spring. Continuing studies are demonstrating that parasites—worms, external parasites and protozoa like coccidia and cryptosporidia—are much harder in the environment than we used to believe.

Myth:

I don't have worms because fecal egg counts show nothing in my cows.

Fecal egg counts in older cattle can be deceiving. So you need to be careful making deworming decisions

based on fecal egg counts alone.

“Fecal egg counts in cattle more than 6 to 10 months of age do not correlate to the worm burden,” says Quakenbush. “We’ve done work where we had cows with a fecal egg count of two and we dewormed those cows and still found an economic return—especially in calf weaning weights.”



Courtesy Merial

Brown stomach worms can cause numerous health problems in cattle, some that cost you productivity long before you see signs of infection.

It’s important to remember that there are 11 or 12 different species of worms that can affect grazing cattle. And not all those worm species lay their eggs at the same time, under the same conditions and at the same frequency. Some parasites are very prolific egg layers, while other parasites don’t lay as many eggs, says Quakenbush.

Timing also impacts the results of egg counts. “The parasites in the cattle during late winter are in an inhibited stage,” says Quakenbush. “You go to do a fecal egg count on a

cows right at that time, and you’re going to get a very low fecal egg count because the inhibited worms aren’t laying eggs then.”

That’s not to say that fecal egg counts are useless, Hawkins cautions. If fecal egg counts are taken on a regular basis, it helps establish benchmarks that give your veterinarian and you a better idea of what is considered a heavy burden relative to your history and your area.

Myth:

I worm my cattle every spring, so they’re protected.

Changing environmental conditions affect the life cycles of parasites. So you should develop a worming strategy based on climate, temperature, stocking rates and age of cattle. This may change each year. And once-yearly deworming may not be enough.

Some producers need to consider deworming treatments two to three times a year to get full protection from subclinical losses, says Hawkins.

Pfizer trial work in Louisiana, for instance, found that calves dewormed once gained 27 percent



Think extended cold last winter means you don’t need to worry about parasites this summer? Don’t bet on it. Worms can survive cold winter weather, especially when a snow pack is in place.

better than non-treated ones. Calves that were treated twice gained 64 percent better than non-treated calves. After accounting for cost to retreat, the second deworming was still estimated to return 11 to 1 return on the investment.

Hawkins recommends that producers avoid following blanket parasite control recommendations. Instead, build a program with flexibility that you can adjust based on different variables. Work with your veterinarian to develop a strategic parasite control program just for your herd.



Take control of horn flies, too

Question... The best method to control horn fly populations that exceed 200 flies per animal is:

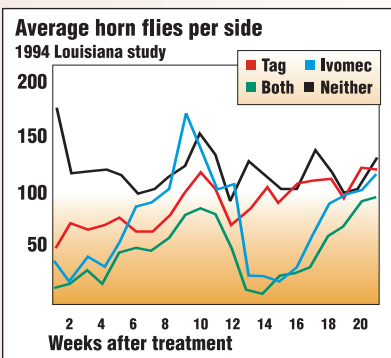
- dusters or oilers
- sprays
- pour-ons
- feed-through products
- a combination of methods

The answer is “e”—a combination of products.

To get season-long control, most experts recommend using a combination of products to reduce fly numbers.

A study by Merial, for instance, found that ear tags alone provided four to eight weeks of adequate horn fly control. Using an ivermectin pour-on alone provided five to eight weeks of control. However, using the pour-on in the spring along with ear tags provided 11 weeks of effective control. The reason this combination extended horn fly control was that the ivermectin product killed the pyrethroid-resistant flies in the first two weeks. Then the pyrethroid ear tags worked against the flies that remained.

A fly-control strategy that rotates products of different chemical



classes—as well as control methods, including topicals, tags, injectables and products in the feed—will help control resistance that can make products less effective over time.



When forage availability and quality is limited, or when cow condition is poor, early weaning of calves can offer some economic benefits. The key to success is to start planning now.

Early weaning advantage

Low forage availability and poor cow condition signal a need to consider weaning calves early

Weaning calves earlier than the normal 7 months of age offers benefits under the right circumstances, particularly during drought situations when forage availability and quality is limited.

The biggest benefit of early weaning is improving a cow's body condition score. And the advantages are greater in first calf heifers compared to mature cows. Cows and heifers with body condition scores of 5 or better are more likely to breed on time, improving reproductive efficiency in the herd.

Oklahoma researchers found a 37 percent advantage in return to conception in first-calf heifers that began calving in February when calves were weaned at 6 to 8 weeks of age compared to heifers whose calves were weaned at 7 months. Also, the calving interval was short-

ened by 18 days. Although weaning at two months is impractical for just about everybody, it's important to consider that a similar reproductive efficiency boost came when calves were weaned at four months of age.

Early weaning also stretches limited forage supplies. Research out of Ohio showed that dams early weaning fall-born calves reduced hay consumption 45.3 percent compared to cows with normal weaned calves. When TDN consumption for both the cow and the calf was compared, early weaned cow-calf pairs consumed 20.4 percent less TDN than normal weaned pairs.

If you're facing a dry spring with limited forage sources, plan now to wean calves earlier than normal. Planning ahead will allow you to budget adequate facilities and labor to handle the health demands of lightweight calves.

Keep calves eating, healthy

- Creep feed calves at least three weeks pre-weaning.
- Begin weaning by placing calves in a well sheltered pen or pasture. Take precautions to control dust.
- Place bunks and water sources along the fence.
- Offer long-stemmed hay and plenty of water.
- Add alfalfa slowly over 14 days as calves start on feed.
- Mix the grain portion with forage to aid consumption.
- Feed a 50:50 roughage/grain mix containing 13 percent to 15 percent protein in the total ration.
- Hand-feed whole oats or a commercial starter with free-choice, quality grass hay if you have trouble getting calves started.
- If calves eat the grain and leave the forage, initially add a more palatable forage. Dust in the ration may be minimized by adding 3 percent to 5 percent molasses or liquid supplement.
- Corn or hay silage or other fermented feeds are not recommended for early weaned calves.
- Although they may only initially eat 3 to 5 pounds of feed per day, target a 300-pound calf to consume 8 to 9 pounds eventually.
- Switch calves to a balanced mixed ration in a self feeder once they're on feed to your satisfaction.
- Use Deccox, Bovatec or Rumensin to reduce the incidence of coccidiosis.

Source: Russ Danielson, North Dakota State University.



Research shows that dewormed calves may be better positioned to respond immunologically to vaccination against other diseases.

Worms reduce immune response

Here's one more reason to control parasites: It may make your vaccines more reliable

Research continues to demonstrate that internal parasites cause many problems above and beyond poor digestive efficiency. One such indirect loss may be a weaker immune system.

Many studies have found that infection with most worms—just as with bacteria and viruses—creates an immune response in the host. But unlike the calf's immune response to simple, single-celled organisms, immunity to worms is a complex process that calls into play hundreds—even thousands—of different antigenic responses.

Thus, natural immune protection against worms varies widely. With nodular worms, for instance, the response is quick and over 90 percent protective. In contrast, with the brown stomach worm, the most economically important species in cattle, immune response is slow and less than 70 percent protective.

That brown stomach worm has

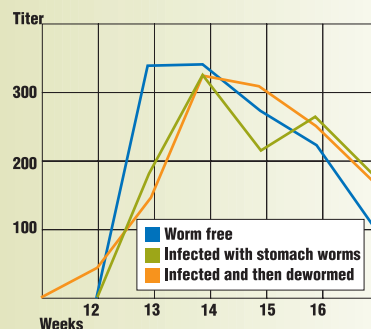
been found to cause a number of different changes in the immune system, including an increase in white blood cell production. It also causes a rise in stress-related hormones found in the bloodstream, indicating worms may be adding to stress already caused by factors like weaning and shipping. And, to compound the problem, the compromise in immunity is even greater during times when cattle get less than adequate nutrition.

It all adds up to an over-stimulation of the immune system that can reduce the animal's ability to fight off not only the worm infection, but also other diseases, as well. Research studies have found that when cattle are infected with brown stomach worm, their immune systems demonstrate a weaker response to experimental proteins used to measure immune response. Others have shown a reduced response to specific vaccines like *Brucella abortis* and Infectious Bovine Rhinotracheitis.

Recent USDA research has

Can worms hurt vaccination response?

Calves exposed to stomach worm larvae and then vaccinated for *Brucella abortus* showed lower antigen levels to *Brucella* at 13 weeks post-vaccination. This depressed response could increase the animal's susceptibility to disease just as it enters stressful situations like weaning.



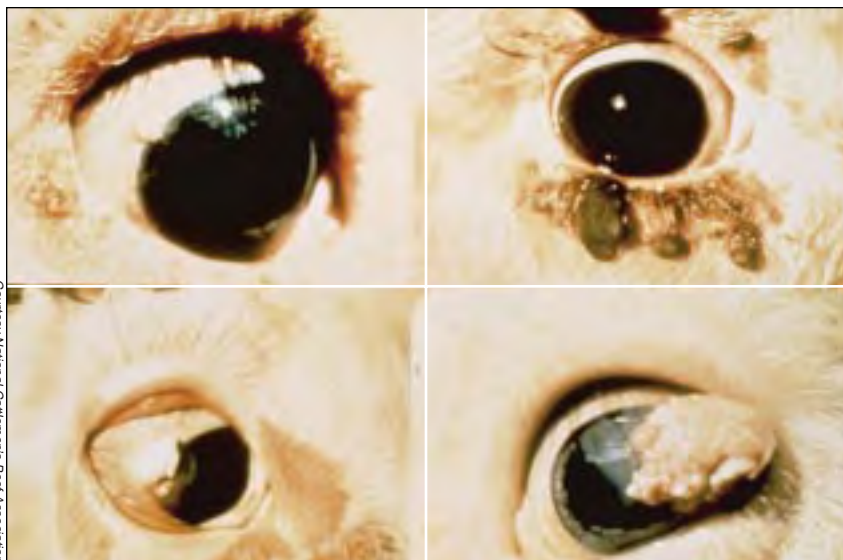
Source: Yang C, Gibbs HC and Xiao L. Immunologic changes in *Ostertagia ostertagi*-infected calves treated strategically with an anthelmintic. *Am J Vet Res* 54(7):1074-1083.

demonstrated that the suppression of immunity can be expected to follow those calves from the ranch into the feedlot. After shipment to a feedlot, infected calves that were not dewormed had significantly lower responses to inoculation when compared to groups treated for worms.

That means parasitized cattle have a higher potential to be infected by disease. It also means cattle stressed by parasites may not respond to vaccination...the reason that product labels often caution against vaccinating heavily parasitized animals.

"Cattle infected with brown stomach worm have in fact been shown to have fewer competent immune responses to vaccination," says Robert Rew, parasitologist for Pfizer.

Cancer eye



Courtesy National Cattlemen's Beef Association

Cancer eye can be encountered in several forms, including (clockwise from bottom left) small eyeball plaques, eyelid keratomas, vascular tumors of the third eyelid, and carcinomas.

Cancer eye

Early diagnosis helps prevent losses and unnecessary suffering by the animal

As you gather cattle this spring, take some extra time to check the herd's eyes, not only for pink-eye, but for cancer eye.

If caught early, cancer eye can be treated. But wait until the tumor grows, and you may be too late. Cull cows or bulls that arrive at the sale barn with cancer eye will more than likely be condemned if the eye has been destroyed, if there is extensive infection, if the animal is in poor condition due to the eye damage, or if there is evidence the cancer spread.

Cancer eye includes both benign forms (growths that do not spread) and malignant (growths that spread), and affects either the eyeball or the eyelids. The cause is unknown, but breed, genetics and environment may contribute. Ultraviolet sunlight is another possible factor.

Making a diagnosis

To check for the early stages of cancer eye, pull down the cow's lower

eye lid and look for abnormal tissue growth. There are four stages of development for cancer eye. These include plaques, keratoma, papillomas and carcinomas. While the first three are benign tumors, carcinomas are malignant.


The most common site for tumors, at 83 percent, is the limbus, where the clear part of the eyeball and the white part of the eyeball meet. Sixty-seven percent occur at the junction on the outer part of the eye and 16 percent occur at the junction on the nasal side of the eye. Seventeen percent occur on the eyelids, including the third eyelid.

Treating early

Early stages of cancer eye might be mistaken for pinkeye, delaying proper treatment. Separate cattle with lesions from the rest of the herd and seek veterinary input.

Treatment includes surgery, immunotherapy, freezing, heating, or a combination. According to extension specialist at the University of Nebraska, the success rate for those animals treated in the early stages is nearly 90 percent. When medical treatment fails, cull animals.



















Cancer eye is considered heritable with estimates ranging from 17 to 66 percent. Consider culling offspring, especially replacement animals for breeding stock.

For animals with advanced stages of cancer eye, it's recommended you not take them to market, but instead put them down. 

	Cancer eye	Pinkeye
Eye appearance	White or pink tissue growth, tumors usually on third eyelid, rarely on eyeball.	General swelling inside; white of eye is red; lesions on eyeball
Tearing	Yes	Yes
Pain	Not in early stages	Yes
Eye Spasms	No	Yes, will hold eye shut
Age of animal	More than 2 years, usually older	Any age
Seasonal	No	Summer
Treatment	Surgery/culling	Antibiotic

Ear tags

Compare your dealer's selection of ear tags for controlling flies and other external parasites

Product	Active ingredients	Rotation class *	OK in calves under 3 months?	Package	Applicator needed	Tag Color	Your dealer's cost per tag
Atroban Extra	10% permethrin	Synergized pyrethroids	Yes	20 per box	Allflex		
Commando	36% ethion	Organophosphate	Yes	20 per box	Allflex		
Cutter Blue	20% fenthion	Organophosphate	No	20 per box	Allflex		
Cutter Gold	10% cyfluthrin	Pyrethroids	Yes	20 per box	Allflex		
Cutter One	40% diazinon	Organophosphate	No	20 per box	Allflex		
Dominator	20% pirimiphos	Organophosphate	Yes	20 per box	Allflex		
Double Barrel VP	6.8% lambda-cyhalothrin 14% pirimiphos	Combination	Yes	20 per box	Allflex		
Ear Force Ranger	10% permethrin 6.6% chlorpyrifos 4% synergist	Combination	Yes	48 per pail	Allflex		
Ectrin	8% fenvalerate	Pyrethroids	Yes	24 per box 96 per pail	Allflex		
Max-Con	7% cypermethrin 5% chlorpyrifos 3.5% synergist	Combination	Yes	25 per bag	Y-TEX		
New Z Diazinon	18% diazinon	Organophosphate	No	20 per bag	New Z No Snag		
New Z Permethrin	10% permethrin	Pyrethroids	Yes	20 per bag	New Z No Snag		
Optimizer	20% diazinon	Organophosphate	No	20 per box	Y-TEX		
Patriot	40% diazinon	Organophosphate	No	20 per box	Allflex		
Python	7% cypermethrin	Synergized pyrethroids	Yes	20 per box	Y-TEX		
Saber Extra	10% lambda-cyhalothrin	Synergized pyrethroids	Yes	20 per box	Allflex		
Terminator	20% diazinon	Organophosphate	No	20 per box	Allflex		
Warrior	30% diazinon 10% chlorpyrifos	Combination	Yes	20 per box	Y-TEX		

* To help prevent flies from developing resistance to insecticides, rotate tags between classes from season to season.

New Horizon[®] Plus

Bayer's Horizon Plus killed respiratory cattle vaccines feature true protection against BVD Type 1 and Type 2, in combination with modified live PIs and BRSV, and killed



IBR. It is also available with protection against five serotypes of Leptospirosis.

For information, circle **No. 201** on the reader response card.



Tags support NCBA

Farnam will donate 5 cents to the National Cattlemen's Beef Association for every 10 new Z[®] No-Snag Tags[®] sold in the year 2000. The purpose of Farnam's "Tagging for Dollars" cash donation program is to support NCBA's policy efforts in Washington, DC.

The program runs through Nov. 30. The donation will be given at the 2001 NCBA convention.

For information, circle **No. 204** on the reader response card.

E. coli scours prevention

New Colimune[®]-Oral is an antibody product used as an aid in the reduction of fatal calf scours due to infection with enteropathogenic K99 *E. coli* organisms. Colimune-Oral is presented in single-dose, 10-mL oral syringes for administration to newborn calves within the first 12 hours of birth.

For information, circle **No. 202** on the reader response card.



New Biomycin withdrawal claims

The Food and Drug Administration recently approved a new, 28-day withdrawal period for BioMycin 200 oxytetracycline.

Biomycin is intended for treatment of pneumonia, pinkeye, footrot, bacterial scours and other diseases in cattle.

For information, circle **No. 203** on the reader response card.



Frontier[™] respiratory vaccines

The new Frontier line of respiratory vaccines from Bayer introduces the next generation of modified-live respiratory cattle vaccines. Featuring long duration of immunity and six

combinations to choose from, Frontier vaccines fit into most programs. They include:

- Frontier 9 plus
- Frontier 4 Plus
- Frontier F3 LP Plus
- Frontier 3
- Frontier 1
- Frontier BRSV

For information, circle **No. 205** on the reader response card.

From Farmland

Your partners in healthy cattle

Here at your locally operated Farmland Animal Health Retail Supply Center, we know that effective animal health is a valuable and necessary part of a profitable operation. You can look to us for the products, service and information you need to optimize performance, prevent disease, and supply healthy, high-quality cattle.



Here you'll find...

Service. Products are available from our central Kansas City warehouse.

Selection. We carry preferred brands of proven products.

Field consultants. We offer service and on-farm support.

Tech support. Ask us for technical advice on health issues.

Education. *Practical Health* and other ongoing animal health training and product information.

In your community. As a Retail Supply Center, we're owned and operated locally.

Involvement. Our Farmland

System's 500,000 independent farmers and ranchers aren't only customers; they're owners.



Proud to be farmer owned

Come see us today for your animal health needs



9860 Pflumm Road
Lenexa, KS 66215

Change service requested

To avoid receiving duplicate issues, please include this VIP number when returning your subscription card

PRSRT STD
U.S. POSTAGE

PAID

Permit #1432
KANSAS CITY, MO

Practical HEALTH

Spring 2000

Farmland®

Proud to be farmer owned®

Health management ideas for Heartland dairy and dairy calf producers

Grouping to control disease *Can it work for dairy cattle?*

Also inside

- *Mastitis tubes*
- *BVD testing*



Can we help?

Read or heard about a cattle disease that you'd like to know more about? If you have a subject you'd like to see the editors of *Practical Health* cover, or if you'd like to ask any health-related question, please take a moment to jot it down on the reply card in this issue.

Practical Health magazine is sponsored by your local Farmland Animal Health Dealer and the advertising sponsors in this issue, to help you improve your dairy's health management. We welcome any comments from you that help us accomplish that goal.

Thanks once again for your support—for this magazine, for your local Farmland Animal Health Dealer listed on the back cover, and for the innovative animal-health companies who bring you quality health products and information.

We look forward to hearing from you.

— The Editors

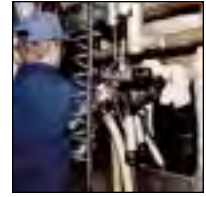
Cover photo
© 2000 Eric Berndt/Midwestock

Practical HEALTH

© Farmland Industries, 2000. All rights reserved.
Vol. 2, No. 2, Spring 2000
Periodicals postage paid at Shawnee Mission, KS.
Published quarterly for dairy and dairy-calf producers served by the network of Farmland Animal Health distributors.
Practical Health will consider manuscripts and photos for publication but shall not be responsible for loss or damage. All material must be accompanied by a self-addressed stamped envelope.
Practical Health reserves the right to alter any submissions at its discretion for use.
Change of address? Send to:
Practical Health
Dairy Cattle
9860 Pflumm Road
Lenexa, KS 66215.
Questions or comments about the editorial content? Contact us at:
Practical Health
Dairy Cattle
24195 W. 63rd
Shawnee Mission, KS 66206-3206.
Phone (913) 441-3970 Fax (913) 441-3971.

4 Animal health news

- Management factors that contribute to cure rates for *Staph. aureus* mastitis.
- Are you ready for pinkeye season?
- Is discarding colostrum from first-lactation cows always necessary?
- Usage statistics and the impact of BST studied.
- More



Health news 4

6 Make all-in/all-out disease control work

Borrowing this healthy concept from swine farms is difficult to implement on dairies, but not impossible.



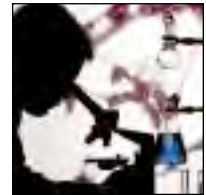
Grouping cows 6

10 Group-raise healthy calves?

Some recent studies show it's both possible and beneficial to group-rear preweaned calves.

12 BVD testing alternatives

Begin longterm control with testing to identify persistently infected cull candidates.



BVD testing 12

13 Practical Health Pull-OutSM

Pull out this worksheet to help you evaluate the mastitis tubes available at your local Farmland Animal Health store.

14 Health product news

Assistance in setting up a biosecurity program, Cydectin approved for lactating cows, *E. coli* prevention, mastitis evaluation program, laser-etched ID tags.

Issue sponsors

2 Pfizer Animal Health

Plenty of things can keep you up at night. With new, improved Bovi-Shield® Type II, BVD doesn't have to be one of them.

5 Loveland Industries

Prozap Dust Bags in the exit lanes of milking barns are an easy, effective and low-cost method to control flies on dairy cattle.

7 Merial

Get the best results from your life's work with the broadest spectrum pour-on available—IVOMECS® EPRINEX® Pour-on.

8 Roche

Coccidiostats only stop coccidia from multiplying. You need Bovatec®, the coccidiocide that actually kills coccidia...at half the cost of some others.

11 Alpharma Animal Health

Get whole-milk-fed calves on a healthy start with coccidiosis prevention: New Deccox®-M Medicated Powder for Whole Milk.

15 Hoechst

Prevent waste. Eliminate profit-robbing parasites with Safe-Guard® dewormer. No milk withdrawal and no milk discard.



Factors contributing to *S. aureus* cure rates

Contagious *Staphylococcus aureus* mastitis is one of the most difficult forms of mastitis to cure, due in part to its tendency to create microscopic abscesses in the udder scar tissue, which serve as a reservoir for continual reinfection even after treatment. It is often chronic and difficult to clear up.

Dutch researchers tested the success of different treatments in eliminating *Staph aureus* bacteria from mastitic quarters, based on different cow and treatment factors. Their goal was to better target antibiotic treatments by trying to identify the cow, infection situation, and treatment most likely to eliminate the bacteria.

A total of 159 cases of clinical *Staph aureus* mastitis were analyzed from 100 different Dutch dairy farms.

Prepared for pinkeye?

University of Illinois' extension veterinary service reported that last year, numerous herds experienced over 50 percent pinkeye incidence in calves, with a high attack rate in adults.

Mild winter conditions throughout the country this year pose the potential to repeat—or worsen—that rate

Any of five different intramammary treatment regimes designed to treat penicillin-susceptible pathogens were used to control the infection. The infected quarters were treated three times, with a 12-hour interval between treatments. The producer also had the option of extending the treatment another two days if he felt the treatment was not satisfactory.

The researchers considered treated cows to be cured if they still cultured negative for *Staph aureus* two weeks after treatment. They reported an overall bacteriological cure rate of only 52 percent—consistent with other research reports. They found these factors made it more likely cows would be successfully cured:

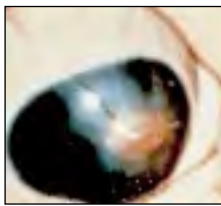
- If the strain were cultured and found to be sensitive to the penicillin family of drugs. Sensitivity to those drugs was tested on all isolated strains. The cure rate of penicillin-sensitive strains was significantly higher than penicillin-resistant ones, pointing out the importance of culturing mastitis cases before treatment, the researchers suggested.
- If the somatic cell count of the infected cow was low at the last milk recording before mastitis set in.
- If the producer chose to continue treatment beyond the initial three treatments. A three-day treatment may be too short for clinical *Staph aureus*, they suggested.

The researchers found no association between the severity of clinical symptoms and the cure rate of sensitive or resistant strains.

this spring.

Flies are the primary transmitters of the bacteria both within and between herds.

One estimate says that as the number of total flies goes from an average of six per animal head to 10 per animal head, you can expect pinkeye incidence to double.



Courtesy Pfizer Animal Health

Human milk from cows?

Genetic scientists reportedly are working towards genetically engineering cows capable of producing infant formula that mimics human breast milk. By mapping the genes responsible in cows for the production of specific proteins and then replacing them with genes that instead produce human proteins, they hope to produce infant formula indistinguishable from human milk.

One test herd of 20 cows already exists whose milk contains a protein component of human milk.

Researchers say adding this genetically-engineered milk to baby formula promises to make it more nutritious and more like human breast milk. It could be on the market in a little over two years.

Need to discard first-lactation colostrum?

University of Missouri veterinary researchers suggest that based on their research, routinely discarding colostrum from first-lactation cows may not always be justified.

The research found that the IgG concentration in colostrum from first-lactation cows wasn't significantly different from that produced by second-lactation cows. Both were sufficient to provide the 100 grams of IgG per newborn calf considered adequate. The research did note that third-lactation IgG concentrations were higher than first or second.

Potential of BST

A long-term Cornell University study reported in the *Journal of Dairy Science* tracks the performance of dairies that used BST compared to similar herds that didn't.

Using DHI records along with customer files from Monsanto, the maker of BST, the research compared the records of 340 herds milking over 80,000 cows during the four years before and the four years after BST approval. By identifying herds that did not use BST to create an experimental control group, and then standardizing performance using a Test-Day Model, the research was able to better control

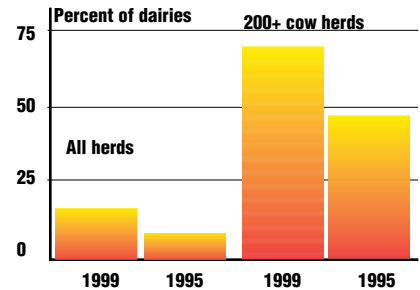
for non-BST variables like management and cow traits.

Comparing the 176 herds not using BST with the 164 that did, they found:

- Daily milk production per cow in non-BST herds increased by 6.97 pounds over the eight years, while production in BST herds increased 14.51 pounds.
- Milk-fat production in non-BST herds increased 0.317 pounds; in BST herds, 0.553 pounds.
- Milk protein production for non-BST herds increased by 0.18 pounds over the test years. BST herds' protein increased by 0.428 pounds.
- The SCC linear scores for non-BST users declined by 0.208 during the eight years, while the SCC scores of BST herds dropped 0.054.

- The estimated production improvement due to BST alone for a 305-day lactation was reported to be 1,968 pounds of milk, 59 pounds of milk-fat and 67 pounds of milk protein.
- Herds that didn't use BST showed no significant difference in their lactation curves over the eight years. Herds using BST improved by about eight pounds per cow per day for all parities after receiving BST.

BST use in Wisconsin herds





An all-in/all-out strategy functions like a turnstyle, moving animals only in one direction, to prevent disease spread from infected to uninfected animals and keep disease from lingering on an operation.

Make all-in/all-out work

Borrowing this healthy concept from swine farms is difficult on dairies, but not impossible

One of the continuing great debates in dairy health management is whether the modern swine operation's concept called "all-in/all-out" can work on dairies.

A-I/A-O segregates pigs by age, isolates them from other groups on the same farm, and then mandates that individuals move only with the group. That helps break the chain of infection caused when older residents pass disease to younger ones or leave pathogens behind in barns that are never emptied and cleaned.

Of course, the obstacles to A-I/A-O on dairies are obvious. The average cow's 3-fold longer lifespan than the sow's allows for a longer period of potential exposure. Cows require more individual management. The high cost of milking facilities virtually mandates that cows share the same space at a point.

Yet opportunities exist to borrow pieces of A-I/A-O technology on

today's dairy. Try these suggestions:

- **Start with calves.** A-I/A-O, along with a related concept called segregated early weaning, can be adopted by moving calves as far away from the lactating herd as possible immediately after birth.

Calves should be separated from dams as soon as possible after birth—ideally before nursing—and moved to group or individual housing. Colostrum should be filtered to remove any fecal matter, and udders should be cleaned before milking out colostrum.

Then, pay careful attention to movement from the calf area to the adult area. Thoroughly clean and disinfect all equipment that comes in contact with calves. Try to assign separate crews to calf and adult chores. Control vehicle traffic, including feed and manure carts, passing between the segregated areas. If possible, supply each calf with its own buckets and pans.

If a calf does become sick, isolate it in a hospital area. Do not return



What it's worth

Swine farms use all-in/all-out by identifying groups at weaning and then moving them through production as a group. One study estimated these results:

	Cont. flow	All-in all-out	Diff.
Daily gain	1.54	1.74	+12.9%
Days to 230 lb.	183	172	-5.9%
% with pneumonia at slaughter	95%	41%	-57%


Source: Scheidt, Cline, Clark (1995).

it to the calving area if at all possible—even if calves stay isolated.

If housing preweaned calves inside, consider splitting barns into separate rooms with their own air-space. Then try to empty entire rooms into transition or weaning housing, so rooms can be cleaned, disinfected and allowed to sit until dry.

Once weaned, keep heifers in small, aged-based groups of less than a dozen, penned in a small lot or super hutch. On large farms, lactation groups could begin to form at this point, with similar vaccination and management. Group first-parity and small second-parity cows away from the older ones.

- **Creatively manage lactating cows.** Once animals enter lactation, try to minimize moving and mingling unless absolutely necessary. Fill groups with fresh cows from a four-week period, and then maintain that group through lactation.

Whenever possible, treat sick cows with a drug that won't cause residues and leave her in her group, rather than moving her to a hospital with sick cows from other groups. 



© 2000 Kevin Anderson/Midweststock

Group-raise healthy calves?

Some recent studies show it's both possible and beneficial to group-rear preweaned calves

The conventional wisdom says that one inviolable principle of modern calf rearing is that calves are healthier when raised alone. That's why two-thirds of U.S. producers practice individual calf housing of some form.

Yet, some recent research is demonstrating that grouping preweaned calves is possible and can have beneficial results:

- A pilot study out of California finds that rearing immunodeficient calves in groups on pasture reduced production costs compared to calves reared in individual pens with limited calf-to-calf contact, with no greater risk of mortality—even while it improved animal performance.

In the study, feed costs were 48 percent lower for group-reared calves from birth up to 165 days of age. The rate of gain for grouped calves was greater immediately following weaning, and the risk of mortality was 40 percent lower for grouped calves than for individually housed ones.

- In two other experiments recently

reported in the *Journal of Dairy Science*, 54 dairy calves were divided between either a conventional system of separate hutches and twice-daily manual milk-replacer feeding, or a single group pen in which calves were allowed access to a computer-controlled milk-replacer and starter feeder.

In both experiments conducted at the University of Delaware, average daily gain, final body weight at weaning and starter diet consumption were no different between treatments.

However, calves in the group pen had fewer days of medication than those in hutches. The time needed to manage a calf in a hutch amounted to about 10 minutes per calf daily, but the time committed to management of a calf raised in the group pen averaged out to under one minute daily.

The researchers estimated that a 200-cow dairy herd with a 35 percent yearly culling rate and an average calf death-loss of 10 percent would pay off the up-front cost of the computer feeder by savings in labor within two to three years.

Tip the odds in your favor

Too often, poor calf health is blamed on the housing type when it's management that's at fault. Whether you're raising calves in groups or in isolation, make sure your management is working for you:

- Remember that calf isolation is only a tool to reduce the risk of spreading pathogens. If you can accomplish that by reducing the pathogen load on the operation through biosecurity and vaccination, group raising may be a practical possibility.

- Calf housing—of any type—must be clean, dry, comfortable and well ventilated. Ventilation is often insufficient to reduce pathogen loads in forced-air ventilated barns during winter.

- Good housing will not overcome poor colostrum management and nutrition.

- Be careful that reducing feeding labor by grouping calves doesn't cut down on calf observation at the same time. Make sure employees are encouraged to observe calves daily, particularly during busy times.

- Pay attention to transition housing for post-weaned calves. It can undo the best calf housing if under-managed.

- Don't forget to manage what's under the hutch as well as the hutch itself. Hutches that aren't sited on a firm, dry base and moved regularly invite disease, no matter how well cleaned.



BVD testing alternatives

Begin longterm control with testing to identify persistently infected cull candidates

It's the start of calving season. Your first few heifers calve and everything appears OK. Then, a couple of other heifers calve, but the calves are dead. Your vet suspects Bovine Viral Diarrhea and a test later confirms that. So you're left wondering, how prevalent is the disease in your herd? Will vaccination alone control losses, or should you try to eliminate the virus from your herd? How much should you invest on testing the entire herd? And if the disease exists, how deeply would you have to cull to get rid of it?

The short answer...don't panic. The BVD virus behaves in a complex manner that researchers are still working to fully understand. It causes a variety of disease symptoms. And not all animals infected with the virus show symptoms, even though they may shed the virus and pass it on to calves, recirculating it in a herd.

If ignored, BVD can economically devastate a dairy. Unchecked, BVD in a herd not only costs in terms

of abortions and dead animals, but lower overall production. Yet, many herds live with it effectively, through management and vaccination.

If you and your veterinarian decide to embark on the task of cleaning BVD from your herd, your focus needs to be on identifying animals that are "persistently infected." Those are calves infected before birth, which show no sign of infection but act a reservoir of infection. To eliminate the problem, you must identify and cull these animals.

Start testing

A variety of tests exist to detect BVD-infected animals; however, the tests vary both in cost and in thoroughness and accuracy. New tests are also being developed and improved. Check with your veterinarian or state diagnostic lab for specific information on what test is right for your herd. The following are a few of the common tests available to check live animals for BVD.

- **BVD virus serum neutralization**
This test checks serum for BVD titers, or the presence of antibodies in the serum. The test's downside is that any animal previously vaccinated will show BVD titer, since the vaccination builds antibodies for BVD. Thus, the test is also good to determine the immune status of a vaccinated herd. Most labs will charge \$3 to \$5 per test.
- **Microplate virus isolation test.**
This is an economical test to screen the entire herd to identify persistently infected carriers. The test checks the serum and looks for the virus in the blood. Its disadvantage: It is less sensitive than other virus isolation tests and is not especially accurate on animals less than 3 months of age. It typically costs \$5 per sample with a two to three day turnaround.
- **BVD virus isolation test.**
Considered the gold standard for BVD detection, virus isolation requires tissue samples, whole blood or swabs. It costs around \$18 to \$20 per sample and takes a week turnaround time. While it costs more, this test is more sensitive. It's a good test to use to verify persistently infected animals for culling.
- **BVD immunoperoxidase test.**
Skin samples are collected and special stains are used to detect viral antigens. It is quite sensitive and accurate. However, because it is relatively new, it is not in use everywhere. And at \$35 per sample, it's expensive.
- **BVD ELISA tests.**
This shorter version of the virus isolation test can determine PI status in non-vaccinated adults and calves over 3 months old by testing the whole blood or serum. Although one of the most accurate tests, its price at the lab—the cost before including your vet's time—typically runs \$4 to \$8...times two because animals that test positive should be retested to confirm PI status.

Mastitis tubes

Pull out this worksheet to help you evaluate the mastitis tubes available at your local Farmland store

Product	Active Ingredients	Package	Total treatments	Pre-slaughter withdrawal	Milk withholding	Rx	Your dealer's cost/dose
Lactating cows							
Albacillin	Novobiocin and penicillin	12 & 72 tubes/box	2, spaced at 24 hours	15 days	72 hours (6 milkings)		
Amoxi-Mast	Amoxicillin	10 tubes/box	3, spaced at 12 hours	12 days	60 hours (5 milkings)	<input checked="" type="checkbox"/>	
Cefa-Lak	Cephapirin	12 tubes/box	2, spaced at 12 hours	4 days	96 hours		
Gallimycin – 36	Erythromycin	12 tubes/box	3, at subsequent milkings	14 days	36 hours (3 milkings)		
Hetacin – K	Hetacillin	12 tubes/box	3, spaced at 24 hours	10 days	72 hours (6 milkings)	<input checked="" type="checkbox"/>	
Pirsue	Pirlimycin	4 & 20 tubes/box	2, spaced at 24 hours	28 days	36 hours	<input checked="" type="checkbox"/>	
ToDAY	Cephapirin	12 tubes/box	2, spaced at 12 hours	4 days	96 hours		
Uddermate	Erythromycin	72 tubes/case	3, spaced at 12 hours	14 days	36 hours (3 milkings)		
Dry cows							
Albadry Plus	Novobiocin and penicillin	12 & 72 tubes/box	1, at dry-off, not within 30 days of calving	30 days	72 hours after calving		
Biodry	Novobiocin	12 & 72 tubes/box	1, at dry-off, not within 30 days of calving	30 days			
Cefa-Dri	Cephapirin	12 tubes/box	1, at dry-off, not within 30 days of calving	42 days	72 hours after calving		
Dry-Clox	Cloxacillin	12 tubes/box	1, early in dry period, not within 30 days of calving	30 days		<input checked="" type="checkbox"/>	
Gallimycin Dry Cow	Erythromycin	12 tubes/box	1, at dry off	14 days Calves: Not before 10 days old	36 hours (3 milkings)		
Quartermaster	Penicillin and dihydrostreptomycin	12 tubes/box	1, at dry-off, not within 6 weeks of calving	60 days	96 hours (8 milkings) after calving	<input checked="" type="checkbox"/>	
ToMORROW	Cephapirin	12 tubes/box	1, at dry-off, not within 30 days of calving	42 days	72 hours after calving		

* Always read labels carefully for full dosage information and further warnings and usage restrictions that may apply.

Biosecurity assistance

Pfizer Animal Health's newly released HerdSecure educational program is designed to give dairy producers a new source of information when creating biosecurity management plans.

HerdSecure is catered specifically to dairy producers who want to understand and implement disease-prevention measures as part of their management protocol. The program is based on three primary facets.

- **Animals:** Preventing the introduction of disease by effective animal

control. Managing to contain disease within the herd once it's introduced.

- **People:** Control of disease by managing employees and farm visitors.
- **Vaccination:** Loss prevention by careful vaccination.

The HerdSecure program suggests risk-management strategies for every aspect of the dairy's day-to-day management.

For information, circle No. 201 on the reader response card.



E. coli scours prevention

New Colimune®-Oral is an antibody product used as an aid in the reduction of fatal calf scours due to infection with enteropathogenic K99 *E. coli* organisms. Colimune-Oral is presented in single-dose, 10-mL oral syringes for administration to newborn calves within the first 12 hours of birth.

For information, circle No. 204 on the reader response card.



Cydectin OK for lactating cows

Fort Dodge's Cydectin Pour-On has received FDA approval for use on lactating cows, dry cows, calves and

heifers. The dewormer is now labeled for internal and external parasite control in dairy cattle of all ages and stages of lactation, except veal calves. Cydectin requires a zero-day milk withholding period and a zero slaughter withdrawal.

Cydectin provides 28 days of persistent activity against brown stomach worm, including inhibited larvae. It is also labeled for 42 days of persistent activity against lungworm. In addition to control of several internal parasites, it also protects against biting and sucking lice, psoroptic mange mites, horn flies, grubs, and tail heat mites.

For information, circle No. 202 on the reader response card.

Lasered tags

Allflex now offers Laser Marked Tags through its new Allflex Custom ID Launch.

The Laser Marking Technology etches information into the tag and allows it to become part of the material. It allows producers flexibility in virtually limitless marking options, while at the same time ensuring an absolutely permanent mark.

For information, circle No. 203 on the reader response card.



Mastitis evaluation

Merial's new J-VAC® Analysis of Dairy Economics computer program is designed to help dairy producers and their veterinarians implement a coliform mastitis vaccination program. The JADE program analyzes the costs and benefits of vaccination using management, market, disease and production parameters that are specific to your herd, the company says.

For information, circle No. 205 on the reader response card.

From Farmland

Making good health profitable for you

As an affiliate of the country's largest farmer-owned cooperative, your locally operated Farmland Animal Health Retail Supply Center is involved every day in your industry. We know that animal health is a valuable and necessary part of producing quality, profitable milk. Look to us for all you need to ensure that health and profit.



Here you'll find...

Selection. We carry preferred brands of proven products.

Field consultants. We offer service and on-farm support.

Service. A broad line of products are available quickly from our central warehouse.

Tech support. Ask us for technical advice on health issues.

Education. *Practical Health* and other ongoing animal health training and product information.

Involvement. Our 500,000 independent farmers, livestock and dairy producers aren't only customers; they're owners.

In your community. As a Retail Supply Center, we're owned and operated locally.



Proud to be farmer owned

Come see us today for your animal health needs



9860 Pflumm Road
Lenexa, KS 66215

Change service requested

To avoid receiving duplicate issues, please include this VIP number when returning your subscription card

PRSR STD
U.S. POSTAGE

PAID

Permit #1432
KANSAS CITY, MO

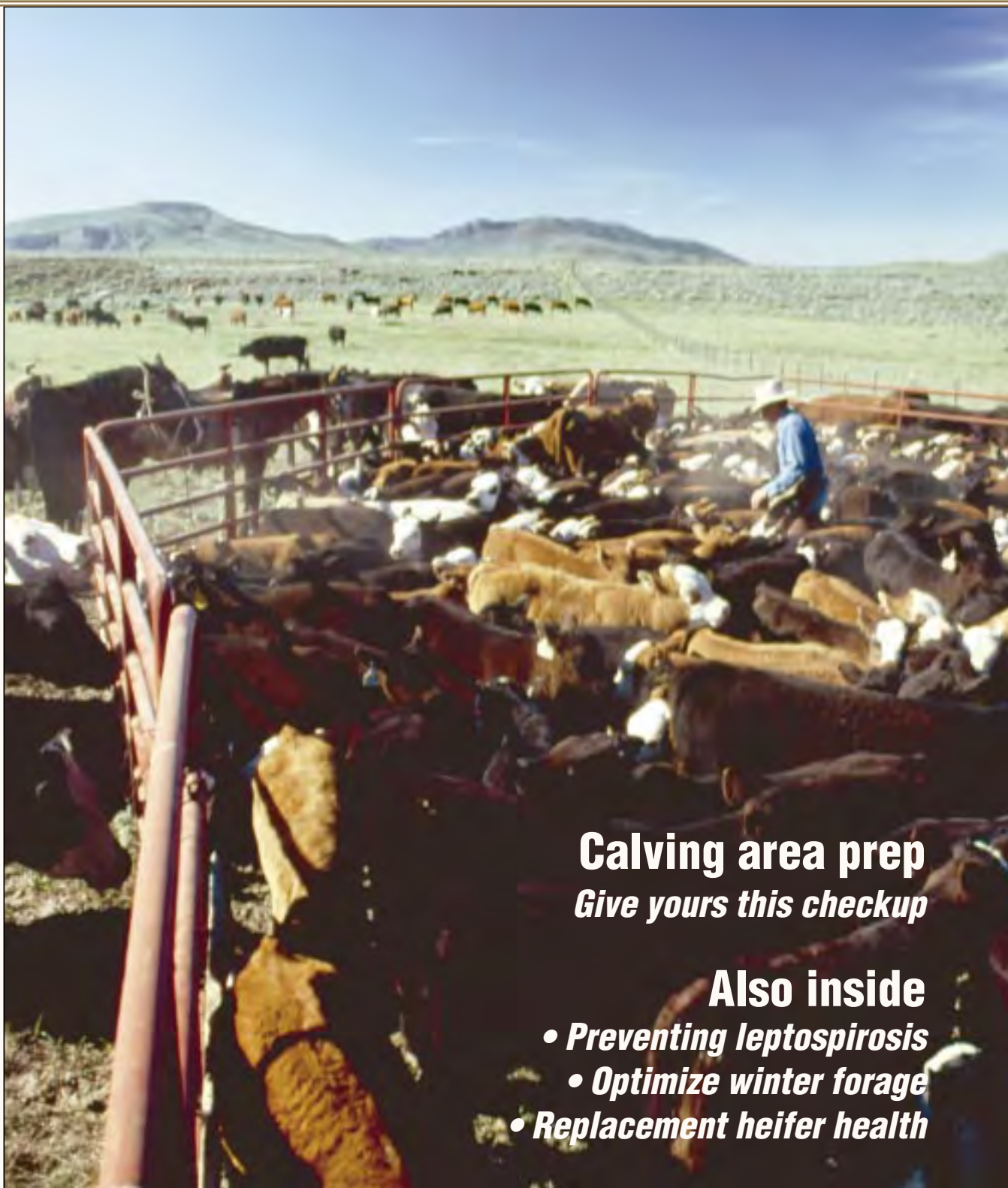
Practical HEALTH

November 1999



Proud to be farmer owned

Health management ideas for Heartland cow/calf producers



Calving area prep
Give yours this checkup

Also inside

- *Preventing leptospirosis*
- *Optimize winter forage*
- *Replacement heifer health*

Have a question?

Have you read about a cattle disease in the news or heard something at the sale barn you'd like to know more about? Remember, if you have a subject you'd like to see the editors of *Practical Health* cover or any health-related question, please take a moment to jot it down on the reader reply card in this issue.

Practical Health magazine is sponsored by your local Farmland Animal Health Dealer and the advertising sponsors in this issue, to help you improve your cattle health management. We welcome any comments from you that help us accomplish that goal.

Thanks once again for your support—for this magazine, for your local Farmland Animal Health Dealer listed on the back cover, and for the innovative animal-health companies who bring you quality health products and information.

Looking forward to a healthy new millennium for all.

— The Editors

Cover photo: William Pope

Practical HEALTH

© Farmland Industries, 1999. All rights reserved. Vol. 3, No. 4, November 1999. Periodicals postage paid at Shawnee Mission, KS. Published quarterly for cow/calf producers served by the network of Farmland Animal Health distributors.

Practical Health will consider manuscripts and photos for publication but shall not be responsible for loss or damage. All material must be accompanied by a self-addressed stamped envelope. *Practical Health* reserves the right to alter any submissions at its discretion for use. Change of address? Send to:

Practical Health

Beef Cattle

12836 Grant

Overland Park, KS 66213

Questions or comments about the editorial content? Contact us at:

Practical Health

Beef Cattle

24195 W. 63rd

Shawnee Mission, KS 66206-3206.

Phone (913) 441-3970 Fax (913) 441-3971.

4 Animal health news

Have you heard of Johnne's Disease? Now's the time to review rodent controls. Better implanting technique. Managing rumen organisms. Farm safety. Calf cloning. Extent of AI use in beef. More.



10 Keep leptospirosis in check

Don't underestimate the value of vaccination against this ever-present disease.

Health news 4

12 Get your calving area in order

Whether it's a calving pasture or barn, now is the time to make sure your facilities are ready.



Calving area 12

14 Optimize your winter forage use

Enjoy the reproductive and health boost of supplementation without breaking the bank.



Winter forage 14

16 (Not) eating into profits

Think extra feed will compensate for worm infection? New research suggests otherwise.

18 Replacement heifer health

Don't gamble on your herd's health for the sake of a bargain. Check heifers.

20 Practical Health Pull-OutSM

Review this information on Clostridial vaccines you can find at your local Farmland Animal Health store.

22 Health Product News

New low-dose clostridial vaccines, modified-live respiratory vaccines, abscess-resistant implants, and more.

Issue sponsors

2 Pfizer Animal Health

Bovi-ShieldTM respiratory vaccine helps you breathe a little easier.

5 Loveland Industries

The cat's never away when you use Ramik Rodenticides. Get Ramik...one bad cat in two new convenient product forms.

7 Roche Animal Nutrition and Health

Bovatec is your best choice for free choice when it comes to ionophores.

9 Boehringer Ingelheim

Choose the right drug in the right carrier. Choose BIOMYCIN[®] 200.

11 Pfizer Animal Health

Pneumonia. Treat it with experience. Treat it with Liquamycin[®] LA-200.

17 Merial

You can't get better results from any other brand than IVOMECS[®].

19 Bayer

Cattle producers who feel responsible for beef quality use Vision[®] vaccines.

21 Fort Dodge Animal Health

You've got more to gain. Use Cydectin[®] for parasite control.

23 Pfizer Animal Health

Use Dectomax[®] and you'll get more from your cattle...26 pounds more.

Johne's disease in beef cattle?

Johne's (*yo-knees*) disease, a common and often costly disease in dairy cattle, does not seem to be prevalent in beef cattle, according to a USDA survey. However, the agency believes some cause for concern exists, because the disease is also widely unknown among producers.

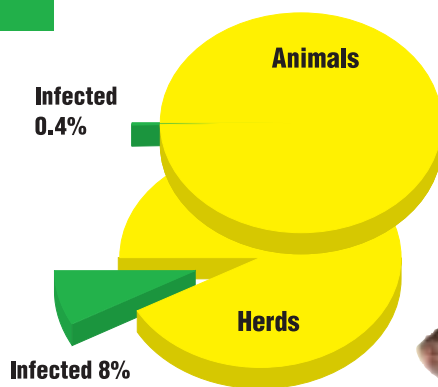
As part of its ongoing series of producer surveys, USDA sampled blood from 10,372 cows in 380 herds from 21 states. Of these samples, only 40, or 0.4 percent, were positive for antibodies to the organism that causes Johne's disease. The 40 positive animals were, however, from 30 of the tested herds, or 7.9 percent.

Johne's disease, common in U.S. dairies, has been documented in beef herds throughout the country in the past. It typically starts as an infection in calves, although visible signs don't usually appear until cattle are 2 to 5 years old. In dairy cattle it reduces milk production and the productive life of cattle.

The USDA survey found that 92.2 percent of beef producers were either unaware of Johne's disease or knew little about it. USDA suggests this lack of familiarity has hindered control and prevention.

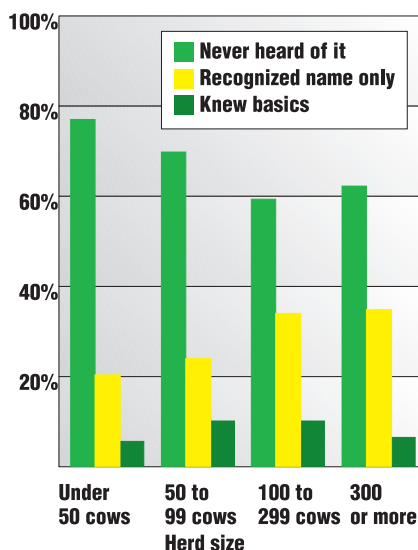
Despite the low prevalence USDA found, the surveyors warn that the study's design may have excluded herds where intensive management kept the number of infected animals under 10 percent of the herd; therefore, the estimated prevalence of 7.9 percent of herds is likely a conservative one.

According to similar USDA survey data of U.S. dairy producers, Johne's can be expected to cost \$227 for every cow in infected herds where at least 10 percent of the cull cows show clinical signs. That



USDA finds only 0.4% of beef animals infected, but at least 8% of herds are estimated to be.

Beef producers' familiarity with Johne's



USDA data suggest almost one-fourth of U.S. dairies are infected. Larger herds were at highest risk.

Controlling Johne's disease in an infected herd is complicated by lack of any effective cure. In dairies, the chain of infection must be broken by preventing newborn calves from nursing an infected dams. Fecal culturing and blood testing can then be used to cull infected cows.

Prevention centers around avoiding the introduction of replacement animals infected with Johne's into your herd. If no information is available on the status of purchased animals or their herd history, purchased animals should be isolated and tested until proven negative by fecal culture—not simply blood testing.



Review rodent control

To control the disease that rats and mice can introduce into beef operations, check your control practices:

- ✓ Don't expect baiting to do it all. Clean up both inside and outside buildings to limit attractive feed and water sites and nesting and hiding areas.
- ✓ Keep weeds down.
- ✓ Remove dead animals promptly.
- ✓ Keep rodents out of feed-storage areas by plugging all openings larger than 0.25 inches. Use 20-gauge hardware cloth, galvanized sheeting or a mixture of concrete and steel wool. Check foundations, doors, screens, weather stripping, windows, power lines and pipes entering buildings.
- ✓ Identify the types of rodents common on your operation—rats and mice require different baiting strategies.
- ✓ Begin baiting immediately once you suspect rodent infestation. Check and rotate bait stations regularly.
- ✓ Don't be afraid to call in a professional exterminator to get rid of established infestations.

Europe may ban feed antibiotics

On top of the continuing controversy in this country over the use of antibiotics in animal feed, the *Wall Street Journal* reported this summer that the European Union is moving toward a complete ban there.

The EU's Scientific Steering Committee said using antibiotics in

feed to prevent disease and improve production is a misuse of those products and thus should be banned. The EU has already banned four feed antibiotics which are used here. This proposed complete ban would add the remaining four products still approved there.

Critics say that politics, rather

than good science, are driving the action. EU officials admitted they lack scientific evidence to link antibiotic use in animals to growing antibiotic resistance in humans, but opted to err on the side of safety. Drug companies have warned that the regulatory climate is discouraging research and development.

Practical Health Pull-outSM

Corrections

- **Preponse** and **Pyramid 4+ Preponse SQ**, from Fort Dodge, are labeled to confer active immunity with only one dose. A booster dose is recommended whenever subsequent stress is likely.
- **Triangle 9 + PH-K**, from Fort Dodge, does not contain a *Haemophilus somnus* fraction.

Additional products

- **Preponse HM**, from Fort Dodge
 - Bacterin/toxoid
 - Contains *P. haemolytica* and *P. multocida*
 - Number of doses = 1



Clip and attach these additions to your *Pasteurella vaccines Practical Health Pull-out* from August 1999, page 18.



Check your implanting practices

Two recently reported sets of data demonstrate the need to be cautious when implanting cattle:

• Data reported this fall by VetLife

- Clean guns and trays.
- Store implants in a sealed bin.
- Wipe implant needle between each animal.
- Scrub ears before implanting.
- Don't crowd and panic cattle.
- Insert needle fully, in the proper position.

show that out of 180,349 cattle in 1,871 pens throughout 148 feed-yards, 6 percent showed some type of implant defect, ranging from missing implants to abscesses. That defect rate translates to a loss of \$1.37 per head on average. The company also estimates that in one out of every six pens of feedlot cattle, more than 10 percent of the animals have defective implants. A 10 percent to 15 percent defect rate costs an estimated \$2.50 to \$4.50 per head, not including the cost of the implant.

- According to 1997 commercial feedlot data collected by Hoechst-Roussel, 8 percent of all cattle are improperly implanted. Abscessed implant sites, resulting from poor sanitation, are the most common problem. Hoechst's estimates say that losses due to poor implanting may average \$18 per head.

- Ensure head is secure.
- Don't implant near pre-existing implants or tag holes.
- Pinch the implant site closed afterward and palpate to check position.
- Keep needles sharp and de-burred.

Protecting rumen bugs

Canadian beef scientists report they are testing the theory that by controlling protozoa which act as predators on some species of bacteria in the rumen, they might improve the efficiency of rumen digestion.

The researchers note that several types of protozoa are found in the rumen of cattle. Although some species are beneficial, others hurt protein digestion. In a process called "reduced fauna," the scientists will attempt to reduce or eliminate the

detrimental protozoa to encourage digestive efficiency.

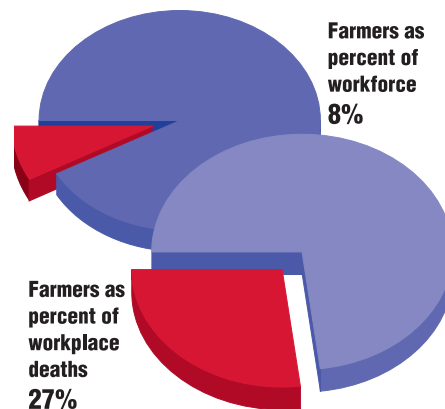
They have targeted a species called *Entodinium*, found in large numbers in the rumen. *Entodinium* catch and consume bacterial protein that could otherwise be used for growth.

To achieve reduced fauna, the researchers plan to study the effectiveness of several compounds with anti-protozoal properties, including:

- Saponin-containing plants
- Fatty acids
- Surfactants
- Ionophores.

For your health: farm injuries

Agriculture continues to be a risky occupation, according to a recent report from the *Iowa Disease Bulletin*. The reported 1996 data showed that farmers suffered almost one-third of all the work-related deaths in Iowa that year—even though they represented only 8 percent of the work force there.



Farmers make up 8% percent of Iowa's work-force but suffer 27% of the work-related deaths.

Almost nine out ten injuries happened to males, and the age groups most at risk for injuries were children and the elderly. In 1996, four children under age 10 died from tractor-related injuries.

Important contributing factors to injuries included:

- Age and diversity of equipment.
- The age of the operator.
- Unpredictability of livestock.

Livestock is a leading cause of injury, especially among women.

- Handling of dangerous chemicals.

Two-thirds of reportable injuries were due to falls and slips, livestock, machinery or tractors. Most injuries occurred during the spring planting months and fall harvest months. Only 16 percent of the persons injured required hospitalization.

Take a minute to double-check chain placement

Oklahoma State advises you review proper placement of obstetric chains, to avoid potential injury to cow and calf:

- Make sure the initial loop falls around the thin part of the leg above the fetlock.
- Take a half hitch below the joint and above the foot.
- Make certain the



Courtesy: Glenn Selk, Oklahoma State

chain goes over the top of the toes. That helps pull the sharp points of the hooves away from the soft vaginal tissue.



Courtesy: Texas A&M

Chance's offspring, "Second Chance," displays identical markings as its sire and has identical DNA, the researchers say.

Hill said there is considerable interest in keeping track of Second Chance throughout his lifetime because of the age of the cells used to clone him. Last spring, scientists revealed that the DNA of Dolly, the first cloned sheep, lacked some of the structures of normal newborns that help protect them from chromosomal damage.

If the cloning of such older and potentially performance-tested animals is successful in the longterm, it could have enormous potential for reducing the normal genetic turnover in beef production.

Cloned calf

Texas A&M University reports it has successfully cloned what is believed to be the first calf cloned from an adult bull, which is also the oldest animal ever cloned – a 21-year-old Brahman.

Researchers Jonathan Hill and Mark Westhusin cloned the rodeo bull "Chance," in a year-long project.

Certification program

Purdue University launched its IQ Plus Beef preconditioning health program this fall, to certify producers' calves based on health and genetic standards. The program plans to eventually set up a Web site allowing members to see real-time carcass data on their calves.



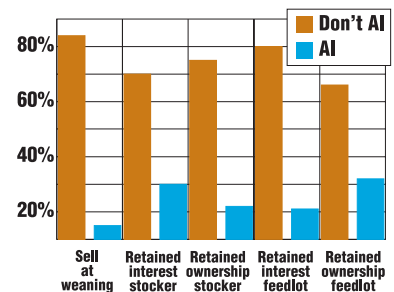
A picture of AI use

To help get a picture of how and why producers use—and don't use—artificial insemination, Colorado State researchers surveyed 2,286 beef producers in that state. The 810 who responded showed these results:

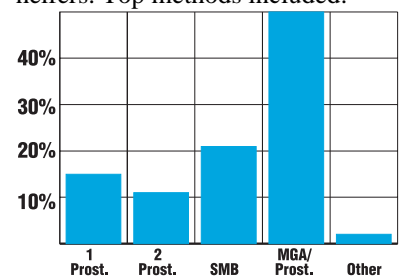
- A total of 21 percent use AI—almost one third of whom have been doing so for more than 16 years. Commercial operators were the least likely to use AI, at only 13.6 percent; purebred breeders, the most likely, at 73.2 percent.

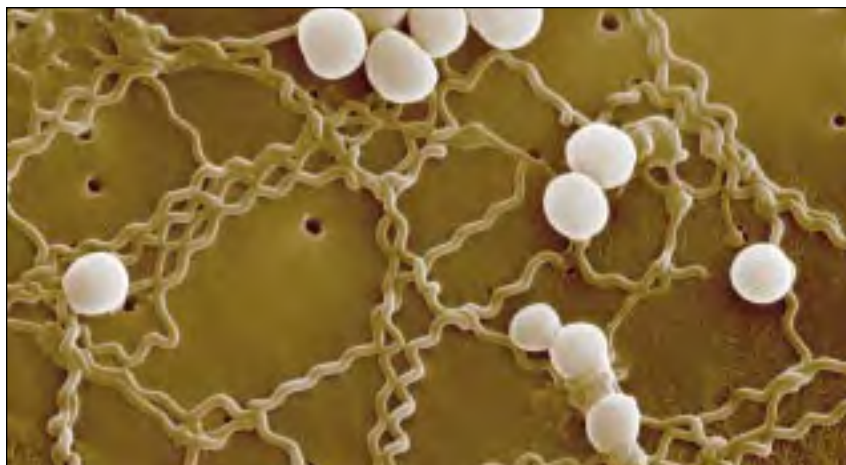
The 79 percent who don't AI ranked time and labor as the top reasons not to. Of those, 63 percent said they'd never tried it, and 82 percent said they didn't plan to.

- When researchers matched AI use to type of marketing, they found producers retaining ownership were most likely to AI; those selling at weaning, least likely. They note this may indicate the benefits of the improved genetics can be better realized.



- Of the respondents who AI, 49 percent also synchronize heat in their cowherd; 66 percent, in their heifers. Top methods included:





MicroAngela

The organism that causes leptospirosis is common in cattle and other animals that may contact them.

Leptospirosis: Keep it at bay

Don't underestimate the value of vaccination against this ever-present disease

Even with the availability of inexpensive and effective vaccines, less than one-third of U.S. beef producers regularly vaccinate their breeding herd for leptospirosis, according to 1997 data from USDA's National Animal Health Monitoring Service report.

Part of the reason is that for a majority of producers—absent any obvious signs like aborted calves—leptospirosis seems to pose no immediate threat to the herd. However, considering the potential economic losses from the disease—both due to abortion and from silent losses in reproductive efficiency—at least annual vaccination is cheap insurance.

While leptospirosis is considered a single reproductive disease, it actually is caused by five different strains of the virus. These organisms spread not only among cattle, but from other wildlife and pets to cattle.

Preventing an outbreak is not

difficult. The five-way vaccines currently on the market offer some degree of protection against the five strains. With the exception of one strain, *hardjo*, leptovaccine components reliably provide good to excellent protection when used annually.

And cost is minimal, at approximately 17 cents per dose depending on product and location. If you have never vaccinated for leptovaccine or stopped because you thought it wasn't a problem, you run the risk of the introduction of *L. pomona* or *L. grippityphosa* into your herd, the two strains that commonly cause abortions among infected cows. Unless your vet identifies *L. hardjo* as a problem in your area, vaccinating one or two times a year is enough to provide protection.

Identify the problem

If *hardjo* is a problem in your area, you may need to adjust your vaccination program.

Lepto and low conception rates


Don't neglect leptovaccine prevention just because you don't see aborted calves.

Researchers from University of California studied a dairy in which the vet had recommended dropping vaccination for precisely that reason. Cows were then exposed to *L. hardjo* after they had gone unvaccinated for 13 months. The researchers found that compared to Lepto-free herd-mates, cows confirmed infected by blood test required a full additional breeding per conception and an added 34 days from calving to next conception.

"The *hardjo* component of five-way leptospiral vaccines have less than ideal efficacy and duration of immunity," says Carole A. Bolin with USDA's National Animal Disease Center. "To provide some protection against *hardjo*, I recommend that cattle be vaccinated with two initial doses, followed by revaccination two or three times a year.

"If there is an issue with leptospirosis, it is always important to find out what serovar it is," Bolin recommends.

Your veterinarian can help you draw samples for testing, which can be sent to any state diagnostic lab. In some areas that service is free; in others, the cost is only \$1 or \$2 per test.

Work with your veterinarian to develop a thorough and effective vaccination schedule. To help reduce labor costs, time leptovaccine vaccinations with other procedures. If you must vaccinate more than once a year, it is better to space the vaccinations at equal intervals. Also, follow label indications for what type of animals (pregnant or lactating) should or should not receive the vaccine. 

Get your calving area in order

Whether it's a calving pasture or barn, now is the time to make sure your facilities are ready.

Sanitation

Try to rotate calving areas every couple of years, to prevent buildup of pathogens. Clean out pens by removing old manure and spraying with lime disinfectant to kill scour-causing organisms.

In calving pens, consider using bedding like straw that can be cleaned out after each birth. In barns, use a power sprayer to clean areas quickly and thoroughly between animals or groups.

Lighting

Quick access to good lighting in the calving pasture or the barn is essential if you have to assist a cow at calving. If possible, consider installing bright lighting in a calving pen. Also, use bright bulbs in the barn. If calving on pasture, keep a strong spotlight in the pickup.

Pen layout

Try to separate the calving cow and heifer from other animals to reduce the risk of disease susceptibility.

Maintenance

Make sure the calving pen or chute is in good order. Grease joints on the chute. Check the panels and gates.

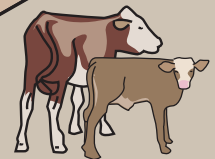
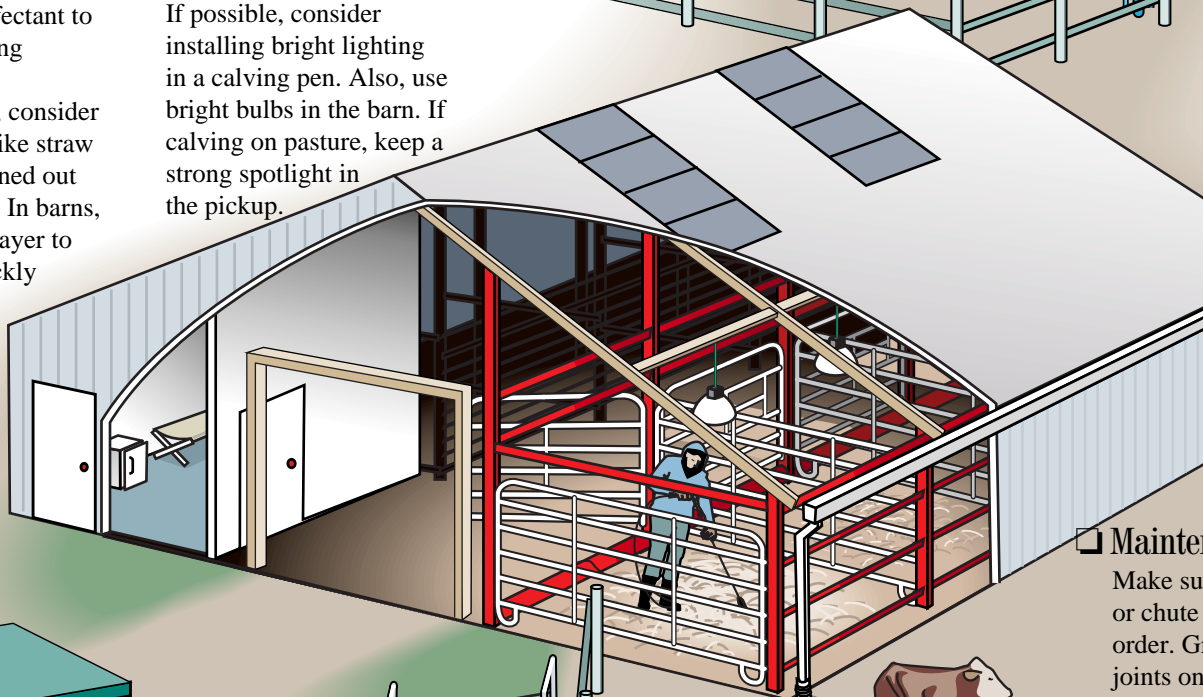
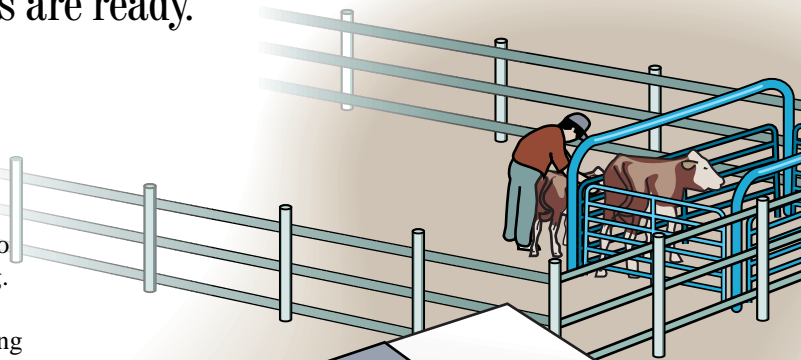
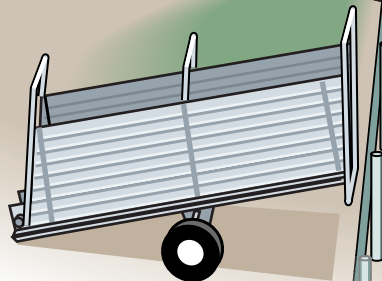
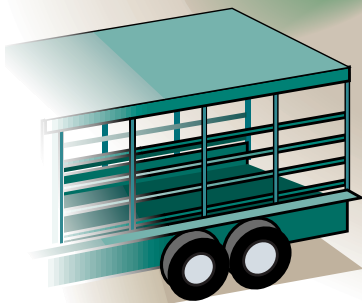
Drainage

Check and improve drainage to prevent liquid from becoming mud pits during late-winter rain and snow. If a barn or other structure is located in the pen, use gutters to divert water runoff from the roof away from the pens.

Transportation:

Because you often have to move a cow for medical assistance during calving, make sure your trailer is ready to go ahead of time. Check tires and lights. Make sure gates and latches are working.

On The Draw Graphics



'All-in/All-out' calf management

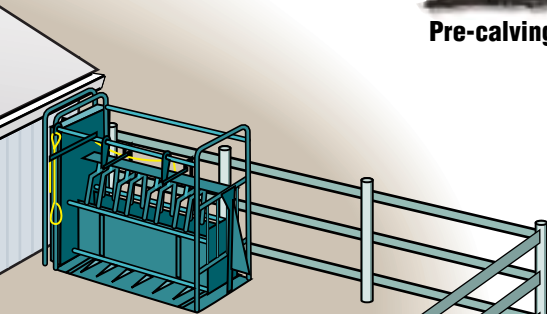
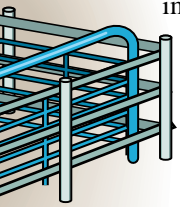
Iowa State University researchers, taking a cue from swine farms that move young animals in groups to control disease, suggest setting up this one-way calf-flow pattern to help control calf scours.

- Divide the herd into the smallest groups you can manage practically with your facilities and labor, based around calving dates. At minimum, group heifers separate from cows.
- Allocate a separate pre-calving area, obstetric area, isolation area and a post-calving area to each group.
- Each group then goes into its own pre-

calving area, and then individual cows move into their calving pasture about two weeks before calving.

- Once they calve, cows and calves move into their group's post-calving areas.
- Sick calves and at-risk calves that had a difficult birth are sent to the isolation area. Once calves enter the isolation area, they can't be commingled with the herd until all calves are at least three weeks old. This rule helps break the recycling of scour pathogens within the groups.
- Cattle move in one direction only. Once they move forward, they can't be returned to the previous phase. No animals move between groups.

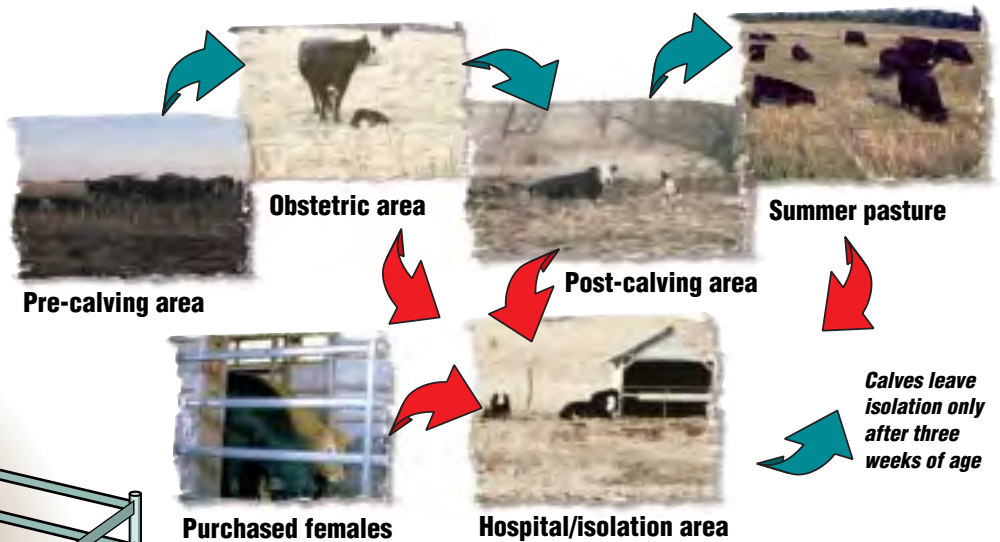
et up calving areas to keep cows
ers separate, since heifers are more
ble to *E. coli* and thus produce
calves more likely to scour.
Mature cows, however,
develop a natural
immunity to the
organism but still
may shed it.
Keeping heifers
and cows separ-
ate may lessen
scour problems.
Ideally, heifers
should be bred to
calve a month ahead of
mature cows.



ance
re head gate
is in working
ease moving
the gate or
check that side
wing open.

Equipment

Now's the time to make new equipment purchases to get them installed and ready for calving season. Depending on the disposition of your herd and location of calving pasture, consider purchasing portable panels and head gate prior to calving season.



Calving toolbox

- OB lubricant and glove
- Disinfectant
- Pulling device (chains, nylon straps or calf jack)
- Vet's emergency number and phone
- Frozen colostrum/colostrum supplement
- Towels or blankets
- Flashlight/truck spotlight
- Ear tags/applicator, tattoo equipment, record book
- Calf scale
- Vitamin A, D, E injection
- 7 percent iodine
- Scour bolus and balling gun
- Antibiotics, oxytocin, syringe/needles
- Electrolyte fluid therapy and tube
- Bucket, scrub brush





A balanced winter-feeding program that uses forage and supplements effectively pays off.

Optimize your winter forage use

Enjoy the reproductive and health boost of supplementation without breaking the bank

Feed costs represent a large portion of your total operational expenses, and winter-feeding takes up most of that. With so much money being tied up in feeding, many cattle producers are tempted to make cuts there when costs outrun income.

One approach to designing a best-cost winter-feeding program—one that controls costs while still improving the overall nutrition, health and reproductive efficiency of your cowherd—is to optimize the use of winter forages while targeting supplements to meet the nutritional requirements of the cow.

Nutritional requirements

To determine nutritional require-

ments of cattle, match a cow's condition and stage of gestation or lactation with available forage using body condition scores.

Then, if practical, split the herd for winter feeding based on those requirements. First-calf heifers are still growing and have different nutri-

tional requirements compared to mature cows. Also, thin cows that need to gain weight should be separated and fed differently. Cows in poor condition—below BCS 5—require more supplementation to compensate for lower quality forage and their need to gain weight.

Estimate intake

Actual consumption is an important criteria for developing a nutritional program. When cows are turned out in pasture, they selectively graze the higher quality forages first, and consumption declines as forage quality declines. Supplementation also impacts intake. For example, protein supplementation increases forage intake. Weather also affects intake. Cattle tend to consume more during cold weather, but wind, rain or snow may reduce grazing patterns and thus cut intake.

Being able to accurately predict intake is useful to help formulate winter feed programs around available forage.

Forage testing

Obtaining forage samples is important to determine nutritional deficiencies of your forage base. Your Farmland dealer or extension agent can suggest test labs and sampling protocols.

When using test results, Kansas State University forage specialists point out that clipped samples may not represent what cattle actually consume in the pasture. Given adequate forage availability, cattle will

Target winter forage intake levels

As a percent of body weight daily, dry-matter basis

Roughage type	Dry, bred cow	Lactating cow
Low quality (dry grass, straw):		
Unsupplemented	1.5%	2.0%
With protein supplement	1.8%	2.2%
With grain supplement*	1.5%	2.0%

* Assumes 4 pounds supplement. Each additional pound supplement will decrease forage consumption by about 0.6 pounds. Source: C.A. Hibbard and T.A. Thrift, Oklahoma

select the highest quality material, resulting in a diet 2 percent to 3 percent higher in protein than clipped samples. So you may need to work with a nutritionist or feed specialist to compensate for that effective protein consumption.

Also test hay supplies. If you put up your own hay, the first cut bales are usually higher in protein content than subsequent bales.


Energy and protein

Typically, energy is the most commonly deficient nutrient in cow diets. Most winter forage, including crop residues and low quality harvested roughages, contain the necessary energy for the herd; however, you must provide adequate protein supplements to “unlock” the energy. That’s because supplemental protein

increases the digestibility and intake of low quality forages, thereby effectively increasing energy intake.

However, watch the amount of starch you use for supplementation, since starch actually lowers intake. Consider using grain by-products instead.

University of Nebraska suggests using by-product feeds, such as corn gluten feed, soyhulls, wheat middlings and beet pulp, which provide energy primarily through highly digestible fiber rather than starch. In other areas of the country, cottonseed meal serves as a low-cost protein and energy supplement.

Developing a best-cost winter feeding program based around effective forage use will reward you with better reproduction next year. 

Feeding tips

- Always consider the environment and dietary factors to correctly feed cows.
- A cow’s nutrient requirements for energy, protein and minerals increase about 30 percent to 40 percent with calving. Forage intake increases about 30 percent.
- Positive response to supplementing with high protein is most likely when forage crude protein is less than 10 percent. The first limiting nutrient in low-quality forages is protein. To increase total protein and energy supply, supplement with digestible intake protein.
- Ensure that no more than 15 percent of supplemental total crude protein comes from NPN.
- Starch negatively impacts both forage intake and fiber digestion. Supplementing winter cow diets with corn or other cereal grains actually can decrease energy intake. The key: meet protein requirements of the rumen to maximize forage use.
- When fed at levels exceeding 0.5 percent of body weight (5.5 pounds of daily supplement for 1,100-pound cows) intake of low-quality forage will be reduced by 0.5 pounds for each 1 pound of alfalfa hay or low-protein concentrate fed above the 0.5 percent threshold.
- Only minor differences in performance are evident for cattle supplemented every other day or three-times-weekly compared with daily.

Source: Kansas State University

Sample rations

The following are some sample rations from Kansas State University. Keep in mind that each of these rations requires some mineral supplementation as well. Consult with your Farmland beef cattle nutrition specialist, veterinarian or extension agent for more help to determine a winter feeding strategy that optimizes regional resources and improves total herd production.

Last trimester of pregnancy

Amount per head per day (pounds)

Feedstuff 1	Amount	Feedstuff 2	Amount	Total
Corn stover	20	wheat midds	7	27
Milo stover	18	alfalfa hay	7	25
Dry winter grass*	16	alfalfa hay	7	23
Dry winter grass*	20	cubes (CP 20%)	4	24
Dry winter grass	16	wheat midds	9	25
Brome hay	26	-----		26
Prairie hay	16	alfalfa hay	9	25
Prairie hay	20	wheat midds	5	25
Wheat straw	15	alfalfa hay	10	25

Lactation

Brome hay	28	-----		28
Corn stover	22	commercial cubes	8	30
Corn stover	15	Alfalfa hay	14	29
Milo stover	14	alfalfa hay	14	28
Native grass	19	commercial cubes	8	27
Native grass	14	alfalfa hay	13	27

* Cows consuming these rations would lose approximately one-half BCS. Additional supplementation may be necessary.



Courtesy: Alvin Loyacano

Researcher Alvin Loyacano, with Louisiana State's Dean Lee Research Station, grazed identical steer sets on side-by-side ryegrass paddocks...one set dewormed, the other set worm-infected. Aerial photos demonstrate the difference

in feed consumption for the worm-free treated animals the untreated calves. That difference in appetite has led to difference in gains between treated and untreated animals ranging between 27 to 137 pounds over a 150-day grazing season.

(Not) eating into profits

Think extra feed will compensate for worm infection? New research suggests otherwise

It's been pretty well established by research that three-fourths of the dollars you lose to typical worm infections are those you don't see. Calves grow slower and require more feed to put on weight.

Now, research is further refining that picture of subclinical losses. It's demonstrating that only about 30 percent of those losses result from worms interfering with digestion and nutrient uptake. Up to 70 percent comes because worm-infected animals simply don't eat.

Thus, the opposite of conventional wisdom is being shown to be true: Wormy calves don't eat more to compensate, they actually eat less.

Here's why: The brown stomach worm, *Ostertagia*, has been asso-

ciated with increased levels in the blood of the gut peptide called gastrin. One experiment, for instance,

treated worm-free calves with a human drug, omeprazole, a drug that inhibits the secretion of stomach acid. Blood gastrin levels rose, and were comparable with the gastrin levels seen in calves with worms, accompanied by a marked depression in feed intake.

When stomach worms infect the abomasum, they lodge in the cells that secrete acid, changing them into non-secreting cells. That causes the overall concentration of acid in the abomasum to fall. Meanwhile, the non-secreting cells secrete gastrin.

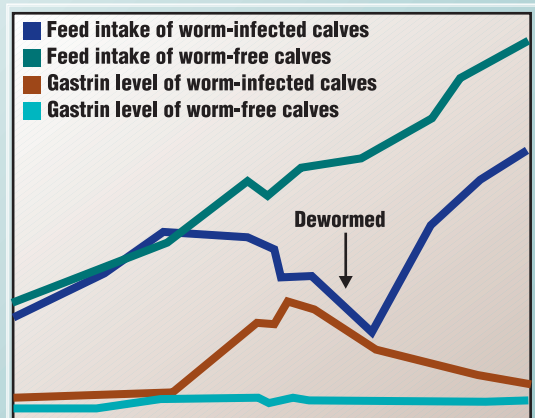
Blood gastrin rises. Those high blood gastrin levels slow down the activity of the rumen and reticulum, slowing down the rate that the abomasum empties and generally slowing the rate that forage passes through the system. At the same time, decreased acid production interferes with the conversion of protein in the gut. All these changes signal the brain satiety centers. In effect, the gastrin levels fool the animal into thinking it's full.

Depressed appetite results, leading to reduced feed intake that ultimately shows up as reduced pay weights in calves on grass.

That means no matter how much feed you put in front of worm-infected animals, they will have a limited intake. You can't feed over the top of worms.

Worms reduce appetite

English veterinary researcher Mark Fox tracked both the feed intake and the levels of gastrin, a natural appetite suppressant, in wormy vs. worm-free calves. He showed that worms significantly affected both those indicators of low appetite.



Replacement heifer health

Don't gamble on herd health for the sake of a bargain. Check heifers

The upturn in the calf market has brought on the traditional scramble to buy replacement heifers. But buying replacement heifers can be a gamble if you're just adding animals to the herd without regard for animal health. All it takes is one infected animal to spread an economically devastating disease through your herd.

To hedge your bet, make your selections carefully, and don't use price as your predominant decision maker. A quality group of heifers with health records and up-front disease testing may cost more, but they will pay over time. For one thing,

you're taking less of a chance by introducing clean animals into the herd rather than previously infected animals. Diseases like Bovine Viral Diarrhea, leptospirosis and Johne's Disease wreak havoc on herds in the form of lower production and death loss.

Use the following ideas to help take some of the gamble out of buying replacement heifers.

- ✓ Purchase heifers from a known source and build a relationship with a reliable supplier.
- ✓ Try to purchase females straight from the ranch.



- ✓ Check with your veterinarian, health supplier or feed specialist to see if any special replacement heifer sales exists in your area. Some of these programs guarantee vaccination certification.

- ✓ Ask for veterinarian certification for vaccinations that have been given. Basically, you want written proof that vaccinations were given, and confirmation of when they were provided.

- ✓ Find out brand names of products and check that vaccines were administered according to label directions. Don't forget required follow-up boosters, as well.

- ✓ Ask about health or nutritional problems that existed in the parent herd.

- ✓ Be willing to walk away if a potential seller is apprehensive about giving you health details about the herd—or just doesn't know.

- ✓ Check with your veterinarian about testing incoming cattle for certain diseases like Lepto, BVD or others.

- ✓ Develop a strong biosecurity plan to prevent diseases from entering the herd. Your veterinarian or state extension service can help you build a program.

Vaccination checklist

Talk with your veterinarian about which diseases threaten your area and which vaccines you should require in replacement heifers. Clostridial and other "calf-type" vaccines also apply.

<u>Disease</u>	<u>Economic importance</u>
Brucellosis	Some states require for interstate shipment
BVD/ IBR	Lower production, abortions, calf loss
Coronavirus scour Rotavirus scour Escherichia coli	Calf loss, reduced production
Enterotoxemia	Heavy calf losses
Leptospirosis (5-way)	Causes abortions, open females
Trichomoniasis	Reduced calving rate, lower weaning weights
Vibriosis	Abortions, infertility in females

Clostridial vaccines

Pull out and use this worksheet
to aid your vaccine choice

Product	Type	Sizes available	Dose	Route	Protocol	Total doses/calf	Your co-op's cost/dose	Total cost/calf
Alpha 7 Boehringer	7-way	10-dose 50-dose 250-dose	2 mL	SubQ	1 initial dose. Booster at weaning or at 4 to 6 months old if initially vaccinated before 3 months old	1 to 2		
Bar-Vac-7 Boehringer	7-way	10-dose 50-dose 250-dose	5 mL	IM or SubQ	Vaccinate twice, 3 to 4 weeks apart. Booster annually	2		
Bar-Vac-8 Boehringer	8-way	10-dose 50-dose	5 mL	IM or SubQ	Vaccinate twice, 3 to 4 weeks apart. Booster annually	2		
Bar-Vac-7/Somnus Boehringer	7-way + H. somnus	10-dose 50-dose 250-dose	5 mL	IM or SubQ	Vaccinate twice, 3 to 4 weeks apart. Booster annually	2		
Caliber 7 Boehringer	7-way	50-dose 250-dose	2 mL	SubQ	Vaccinate twice, 4 to 6 weeks apart. Booster annually	2		
Fortress 7 Pfizer	7-way	10-dose 50-dose	5 mL	SubQ	Vaccinate twice, 4 to 6 weeks apart. Booster annually	2		
Ultrabac 7 Pfizer	7-way	10-dose 50-dose	5 mL	IM or SubQ	Vaccinate twice, 4 to 6 weeks apart. Booster annually	2		
Ultrabac 7-Somubac Pfizer	7-way + H. somnus	10-dose 50-dose	5 mL	IM or SubQ	Vaccinate twice, 3 to 4 weeks apart. Booster annually	2		
UltraChoice 7 Pfizer	7-way	10-dose 50-dose 250-dose	2 mL	SubQ	Vaccinate twice, 4 to 6 weeks apart. Booster annually	2		
UltraChoice 8 Pfizer	8-way	10-dose 50-dose 250-dose	2 mL	SubQ	Vaccinate twice, 4 to 6 weeks apart. Booster semi-annually in presence of <i>Cl. Haemolyticum</i> ; annually otherwise	2		
UltraChoice CD Pfizer	<i>Cl. perfringens</i>	10-dose 50-dose	2 mL	SubQ	Vaccinate twice, 4 to 6 weeks apart. Booster annually	2		
Vision 7 Somnus Bayer	7-way + H. somnus	10-dose 50-dose	2 mL	SubQ	Vaccinate twice, 3 to 4 weeks apart. Booster at weaning or at 4 to 6 months old if initially vaccinated before 3 months old	2 to 3		
Vision 7-Way Bayer	7-way	10-dose 50-dose 250-dose	2 mL	IM or SubQ	Vaccinate twice, 3 to 4 weeks apart. Booster at weaning or at 4 to 6 months old if initially vaccinated before 3 months old	2 to 3		
Vision 8-Way Bayer	8-way	10-dose 50-dose	2 mL	IM or SubQ	Vaccinate twice, 3 to 4 weeks apart. Booster at weaning or at 4 to 6 months old if initially vaccinated before 3 months old	2 to 3		



Ultra-Choice clostridials

The new Ultra-Choice vaccines from Pfizer Animal Health provide protection against the most important clostridial diseases. Products are

available in 7-way, 8-way and CD combinations, plus in combination with one-shot protection against pneumonia caused by *Pasteurella haemolytica*. UltraChoice vaccines are scientifically formulated

to be used in a Beef Friendly 2-mL subcutaneous dose. Use of the patented, water-soluble adjuvant Stimugen induces an effective immune response while offering a favorable safety profile.

For information, circle **No. 201** on the reader response card.



Standard, color-coded labels

All vaccines and biological products produced by Boehringer Ingelheim Vetmedica will now be labeled with color-coded labels. Each product is identified using two different colors. A primary color indicates the general family, and a second color indicates the specific product. The new labeling should make it easier to identify specific products, ensuring that cattle receive the disease protection necessary.

For information, circle **No. 204** on the reader response card.

Express respiratory vaccines

Boehringer Ingelheim Vetmedica's new Express® line of vaccines stimulates quick response by combining modified-live field strains of IBR, BVD types 1 and 2, PI3 and BRSV.

For information, circle **No. 202** on the reader response card.



Abscess-resistant implants

Component brand implants from VetLife now include an initial pelleted dose of Tylan to provide fast, localized antibacterial action. Research shows Component Implants with Tylan result in significantly fewer implant site abscesses when compared with Component Implants without Tylan. The Tylan pellet dissolves and quickly releases tylosin tartrate throughout the implant site. The Tylan does not interfere with implant mode of action. No withdrawal period required. FDA-approved patented technology ensures no food-safety concerns.

For information, circle **No. 203** on the reader response card.

ViraShield® OK'd for subQ use

Grand Labs' ViraShield line of vaccines have been approved by USDA for subcutaneous administration. ViraShield products can now be administered subcutaneously as well as intramuscularly and have been demonstrated to

be safe and effective by either route. For information, circle **No. 205** on the reader response card.



From Farmland

Helping keep profit in good health

Here at your locally operated Farmland Animal Health Retail Supply Center, we're as involved in the beef cattle industry as you are. You can look to us for the products, service and information you need to optimize performance, prevent disease, maintain profitability, and supply healthy, safe, high-quality beef.



Here you'll find...

Service. Products are available from our central Kansas City warehouse.

Selection. We carry preferred brands of proven products.

Field consultants. We offer service and on-farm support.

Tech support. Ask us for technical advice on health issues.

Education. *Practical Health* and other ongoing animal health training and product information.

In your community. As a Retail Supply Center, we're owned and operated locally.

Involvement. Our Farmland

System's 500,000 independent farmers and ranchers aren't only customers; they're owners.



Proud to be farmer owned®

Come see us today for your animal health needs



12836 Grant
Overland Park, KS 66213

Change service requested

To avoid receiving duplicate issues,
please include this VIP number
when returning your subscription card

PRSR STD
U.S. POSTAGE

PAID

Permit #1432
KANSAS CITY, MO

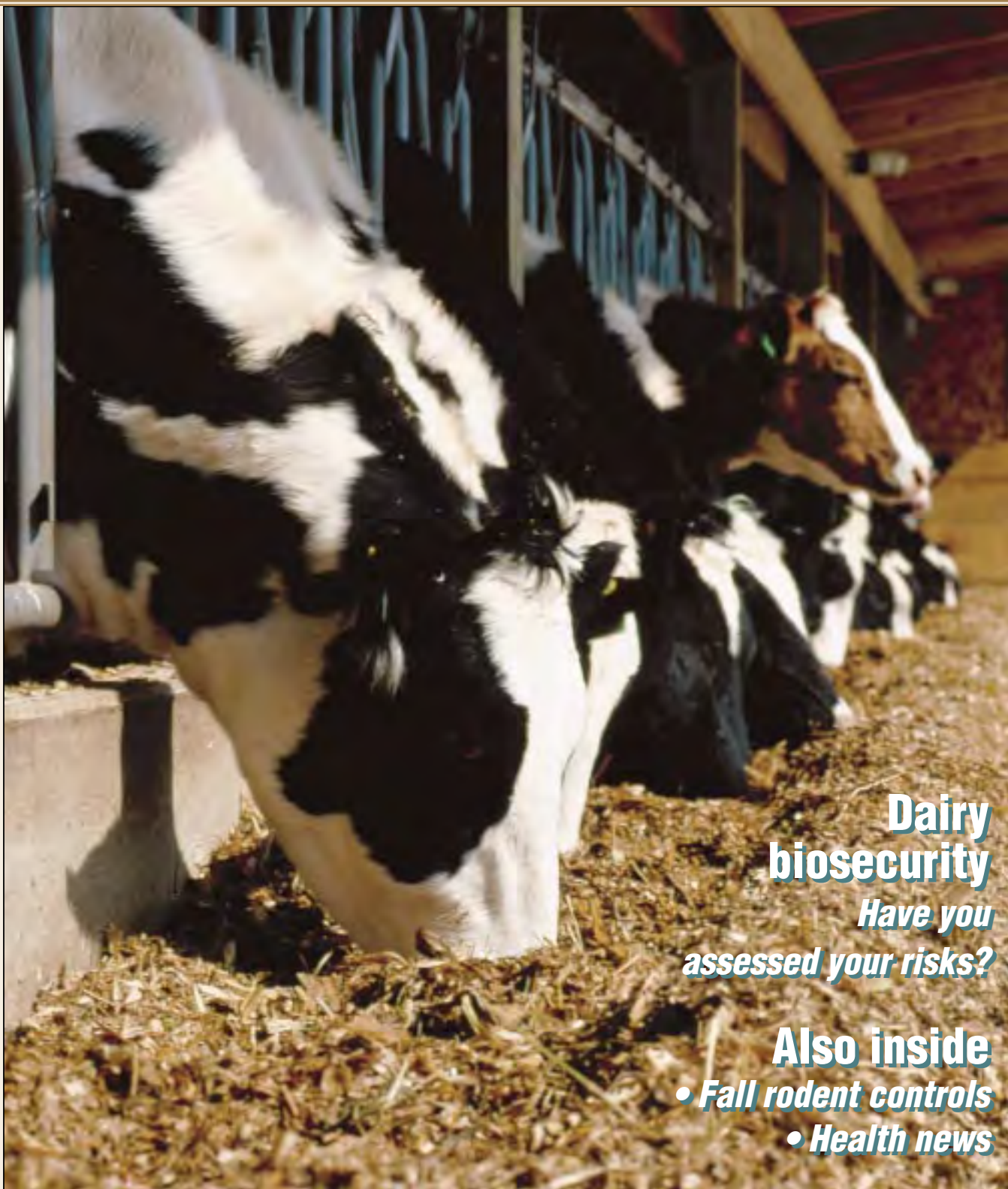
Practical HEALTH

September 1999



Proud to be farmer owned

Health management ideas for Heartland dairy and dairy calf producers



Dairy biosecurity

*Have you
assessed your risks?*

Also inside

- *Fall rodent controls*
- *Health news*

Keep your Practical Health coming

Those of us at your local Farmland Animal Health dealer would like to take this opportunity to thank you for helping us make *Practical Health* a successful new publication dedicated to providing you with useful dairy-health information.

Won't you please take a minute to update your subscription by filling out the enclosed subscription request form? It's free, and it ensures you won't miss a single issue of this quarterly publication dedicated to providing animal-health information for dairy and dairy-calf producers served by Farmland dealers.

As always, please feel free to jot down any ideas, questions or suggestions in the blank space on the card.

Cover photo: Grant Heilman Photography

Practical HEALTH

© Farmland Industries, 1999. All rights reserved.
Vol. 1, No. 3, September 1999
Periodicals postage paid at Shawnee Mission, KS.
Published quarterly for dairy and dairy-calf producers served by the network of Farmland Animal Health distributors.

Practical Health will consider manuscripts and photos for publication but shall not be responsible for loss or damage. All material must be accompanied by a self-addressed stamped envelope.

Practical Health reserves the right to alter any submissions at its discretion for use.

Change of address? Send to:

Practical Health
Dairy Cattle
12836 Grant
Overland Park, KS 66213

Questions or comments about the editorial content? Contact us at:

Practical Health
Dairy Cattle
24195 W. 63rd

Shawnee Mission, KS 66206-3206.
Phone (913) 441-3970 Fax (913) 441-3971.

4 Animal health news

- Updated fat-soluble vitamin recommendations.
- Be careful of feeding drought-stressed feeds.
- Courts check FDA's authority in regulating some drug usage.
- Challenging an assumption on spread of disease.
- More



Health news 4

6 Gauging calf dehydration

Scours don't kill calves—dehydration does. Try these practical check-check tools to assess newborns.



Vet service 8

8 Better veterinary care

Today's dairies are caught in a health-care squeeze: They need a higher level of specialized dairy veterinary ability, even while fewer dairy-specific vets are available...and close. Here's how to help get the most from yours.

10 Check your biosecurity

A biosecurity plan should identify sources of disease coming into and circulating inside a dairy, plus find ways to control it. Check your level.



Biosecure? 10

12 Practical Health Pull-OutSM

Pull out this worksheet to decide on the best rat and mouse control products for your dairy this fall.

14 Health product news

New *Salmonella* and *Pasteurella/Salmonella* vaccines. Extended dewormer claims. More.

Issue sponsors

2 Pfizer Animal Health

Plenty of things can keep you up at night. With new, improved Bovi-Shield® Type II, BVD doesn't have to be one of them.

5 Loveland Industries

The cat's never away when you use Ramik Rodenticides. Get Ramik...one bad cat in two new convenient product forms.

7 Roche

Coccidiostats only stop coccidia from multiplying. You need Bovatec®, the coccidiocide that actually kills coccidia...at half the cost of some others.

9 Hoechst

GainPro® growth promotant is now approved for use in replacement heifers. From now on, you're getting more out of your forage. No excuses.

11 Bayer

At last, new 4 Once™ vaccine from Bayer offers you a single bullet for respiratory disease that comes fully loaded.

13 Elanco Animal Health

New labeling permits more flexible dosing for Rumensin to prevent and control coccidiosis in dairy calves.

15 Grand Labs

If Vira Shield® cannot prevent or correct your BVD problems after 2 proper doses, Grand Labs will reimburse you the price of the vaccine purchased.



Beware of drought-stressed feeds

The record-dry summer in the eastern United States has forced many feed-strapped dairies to chop and feed unensiled feedstuffs. If you do, advises Virginia Tech dairy scientist Charles Stallings, be careful when feeding unfermented drought-stressed sorghum, corn, weeds, oats, rye, alfalfa or wheat. They may be high in nitrates.

- Ensilage if possible. Ensilage three weeks will typically cut nitrate levels by half.
- Because nitrates accumulate in the

stalk, raising the cutter bar may be an option to leave more of the nitrates in the field. This strategy is only effective if levels are below 0.9 percent of dry matter as nitrate.

- Since young and pregnant animals are the most susceptible to nitrate poisoning, be careful when feeding drought-stressed feeds to them.
- Be especially cautious of plants in the sorghum family. They are natural nitrate accumulators.
- If using feeds that contain nitrates, introduce them slowly over a period of several days. Cows can develop the ability to tolerate some nitrate.
- Use other feeds to dilute nitrates in the ration to safe levels.
- Make sure water is not also higher than 133 parts per million nitrate or 30 parts per million nitrate-nitrogen.
- Get your forage tested. Your extension specialist can help you sample and submit for nitrate testing.

Court checks FDA power to control some off-label drug use

A federal judge ruled in July that the Food and Drug Administration can't forbid drug makers from encouraging physicians to use medications for unapproved purposes if they see fit.

The ruling is expected to further curb the FDA's already limited ability to control so-called off-label use of medications, according to the *Washington Post*. It will allow companies to conduct seminars for physicians and distribute information to them about a drug as long as the FDA has approved it for some purpose. Doctors are already allowed to prescribe any drug for use once it has been approved by the FDA for some use.

Can animals actively flee infection?

A team of biological researchers reported in this year's Proceedings of the National Academy of Science that assuming animals are passive in contracting disease could be an inaccurate picture of how diseases spread.

The research was designed to help settle two traditional biological theories that contradict each other. The first suggests that over the ages, animals able to recognize and avoid others of their species infected with contact-transmitted diseases would have an evolutionary advantage and should thus gradually instill the ability into the species through natural selection. But this "avoidance" hypothesis flies in the face of the second theory that believes infection is equal among members of a population and is constant over space.

The scientists reported that they are the first to demonstrate that animals are capable of somehow recognizing infected members of their species and reducing their infection risk. They did so by infecting bullfrog tadpoles with a pathogen that reduces growth rates and can kill, and then tested the tadpoles to see if they avoided associating with infected individuals.

They found that avoidance behavior was in fact stimulated by chemical cues from infected individuals. Those chemical signals permitted healthy individuals to sense infected individuals and avoid the contact that might spread infection. Proof of the avoidance hypothesis suggests there may be subtle clues that will cause scientists to revise their assumptions that once a disease infects a group of animals, it spreads uniformly throughout the group.

Re-evaluate vitamin needs

Inadequate intake of vitamins are often associated with health problems. Researchers believe the National Research Council's 1989 recommendations underestimate the amount of several key vitamins needed in the lactating cow diet.

Ohio State dairy scientist Bill Weiss suggests Vitamin A, D and E recommendations should be higher.

- **Vitamin A.** Current NRC recommendations for vitamin A are based on 40- to 60-year old studies that determined the minimum necessary to control abortions, sick calves and retained placentas. Because of differences in the bioavailability of the vitamin A forms tested vs. those commonly used today, it's likely that NRC diets are deficient, Weiss says. Vitamin A should be increased over NRC specs by as much as 50 percent.
- **Vitamin D.** Vitamin D requirements are complicated by the current practice of supplementing diets with anionic salts. Although current NRC requirements are probably high enough to be safe, Weiss says, the relatively low cost to inflate NRC requirements makes feeding 1.8 times NRC good insurance.
- **Vitamin E.** The concentration of vitamin E in feedstuffs varies highly, both in gross amount and in bioavailability. Recent studies have shown that vitamin E affects cow health more deeply than the traditional white-muscle disease caused by deficiency. Reproductive disease—usually retained placenta—and mastitis have both been related to vitamin E intake.

Weiss suggests that NRC recommendations should be increased at least 5 times and as much as 7 times for dry and lactating cows.

	Typical supplementation (IU per day)				
	NRC Rec.	Dry cow	Prepartum cow	High-yielding	Low-yielding
Vitamin A	45,600	104,000	121,000	158,000	121,000
Vitamin D	18,000	26,200	31,500	40,000	32,500
Vitamin E	330 to 375	760	1,080	590	450

Assumes a 1,320-pound cow, a dry-matter intake of 48 to 55 pounds, high-yielding cow producing 99 pounds per day at 3.7 percent fat, low-producing cow producing 48 pounds per day at 3.7 percent fat. Based on a survey of 32 practicing nutritional consultants and feed company representatives, conducted by Bill Weiss, dairy nutritionist at Ohio State University, 1997.

Ramik[®]
Rodenticide

One Bad Cat!

Two New Convenient Ramik Products

Ramik Mini Boxes **Ramik Bars**

The cat's never away when you use Ramik Rodenticides. Get Ramik.

LOVELAND INDUSTRIES INC.
ANIMAL TECHNOLOGY DIVISION
1.800.356.8920

Available at your local farm supply store. Always read and follow directions. Ramik is a registered trademark of Ianco, Inc. ©1999 Loveland Industries, Inc.

How to check calf dehydration

Scours don't kill calves—dehydration does. Try these practical quick-check methods

If you're going to save that scouring calf once it starts melting away, the No. 1 priority is to get fluid and electrolytes into it. You must save it from the biggest killer that underlies scours: dehydration.

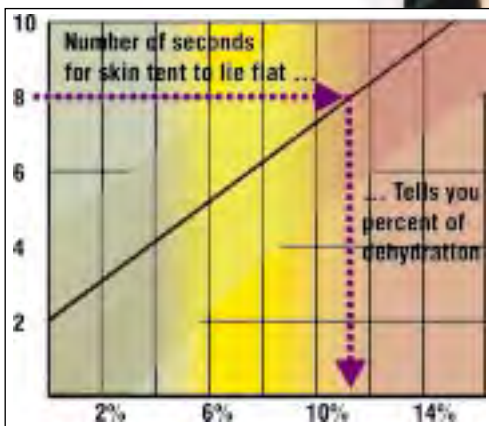
According to a 1998 published article by a University of Illinois

team of veterinarians, several non-invasive tools can be used to get an accurate assessment of how much fluid a scouring calf has lost and, by extension, how much danger it's in of dying. Being able to accurately diagnose that fluid loss to as fine a measure as 4 percent by these tools forms a basis for treatments.

Best method: Skin tenting technique

Either midway up the side of the neck or on the flank over the sixth to ninth rib, pinch a tent of skin, twist it a quarter turn and hold it for a count of 1. Let go and then count the amount of time it

takes to return to its full normal position. (You can stop at 10 seconds.) The chart below will tell you the percent dehydration based on how many seconds it takes the skin to lay completely flat.



- Mild dehydration
- Moderate dehydration
- Severe dehydration (IV therapy should replace oral)

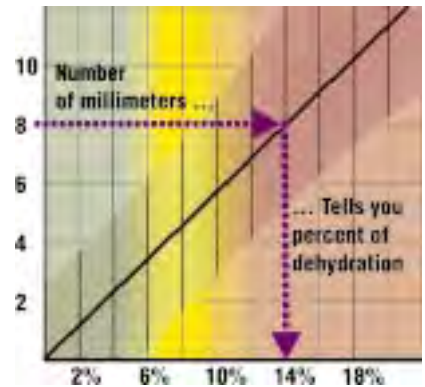
Note: Shaded area represents the experiment's 95 percent confidence level.

Better method: Eyelid shrink



Courtesy: J Vestweber, Kansas State

Gently open the lower eyelid to its normal open position with the edge of your thumb. Estimate the distance in millimeters between the eyeball and the inner lining of the eyelid. With practice, you can use the edge of your thumb holding the eyelid as a "poor man's" ruler...or you can actually mark the measurements on your thumb as the researchers did. Then, see the chart below for an estimate of dehydration status.



Other techniques

The researchers also noted other traditional measures that can help confirm dehydration, though not as accurately:

- Temperature of the lower legs.
- Paleness of the inner lips, gums and other mucous membranes.

For more info...

Constable PD, Walker PG, Morin DE, Foreman JH. "Clinical and laboratory assessment of hydration status of neonatal calves with diarrhea." *Journal of the American Veterinary Medical Association* 212:991, April 1998.



Are you making life easy or hard for your veterinarian? Check these suggestions for improving the veterinary service you receive by improving the information you provide.

Prescription for better vet service

A consulting vet is often only as good as the tools and guidance you give him

One of today's great paradoxes in dairy production is this: As dairies grow larger and more specialized, their need for specialized dairy health care also increases. At the same time, the number of local large-animal vets—let alone dairy vets—is dropping. Dairies that do hire a consulting vet find them of little value for traditional emergency medicine, and may see them only once a month—at best.

If your operation has reached the point where you need to repair not just cows, but your overall health care, take a look at these tips:

R Work in a production veterinary consultant gradually. Find a veterinarian who does production medicine and ask him to do monthly or quarterly reviews. Involve your current

veterinarian, nutritionist and other consultants. The consulting vet can diagnose the big picture, while you still have the local vet available to handle details and emergencies.

R When looking for new or renewed veterinary help, there's still no substitute for word of mouth. Talk to others in your area to discover where the best cow vets are.

R Provide open, straight-forward communication with your vet.

Let him know what services you want, and how involved you expect him to stay in your operation's management. This allows you to understand what services your veterinarian provides and lets him provide a complete health program. Let the vet know your goals and provide him the production records necessary to do a thorough production evaluation.

For more help ...

American Association of Bovine Practitioners
Box 1755
Rome, Georgia 30162-1755
Phone (706) 232-2220
Fax (706) 232-2232
E-mail: BPHQ@mcimail.com

R Be willing to make the investment. While it costs more up front for a veterinarian to provide continual consultation rather than as-needed services, you should realize a longterm payback through improved productivity.

R Don't be shy about requiring that payback: A consulting vet must prove to you how he saved money and improved production. If not, you may need a new one.

R Prevent disease. Preventing diseases saves more money than diagnosis and treating after the fact. Look for a veterinarian with the same mindset who's willing to work on a custom production calendar for your herd, rather than a generic "good for everyone" calendar.

R Provide adequate facilities for evaluation of animals.

R Follow your veterinarian's recommendations. You pay for a vet's services, so don't ignore what you pay for. Follow dosage and administration instructions for medications. Follow vaccination and parasite control advice.

R Keep accurate records of animal health products used including serial numbers and dosages. Let the vet know your production plans and keep a detailed calendar. This can help with diagnosis of a disease or determine if vaccinations are timed for adequate protection.

R Involve employees. Consulting vets often find hidden problems by getting face-to-face with the people in the trenches. Build short staff meetings around the vet's call.



Better calf biosecurity

Managing disease to prevent and control it in calves helps reduce risk. Give yours a check

Biosecurity has become a management strategy to help control a dairy's risk of disease outbreaks.

Biosecurity refers not only to management practices that reduce the chances of carrying disease into a farm by animals or people, but also to practices to reduce the spread of disease if it does get onto the farm.

Check these key calf-biosecurity points:

- Are calves always transported in clean trailers that you own? Do you bar other livestock vehicles from entering the dairy premises?
- Have you familiarized yourself with your custom heifer grower's biosecurity and vaccination?
- Are calves always isolated from ground where manure from the milk string is spread?
- Are all calves separated from their dams immediately after birth (no sucking, no searching for teat)?
- Do you ensure that all calves receive immediate, sufficient, single-source colostrum at birth?
- Do you not permit whole milk to be added to milk replacer? Waste milk is a prime source of exposure.
- Is the calving area clean and disinfected? Calves permanently identified? Do you iodine navels?

Do you isolate newborns by placing hutches far enough apart that calves can't touch one another, grouped by rows in order of age?

Calves must be far enough apart that they can't suckle each other.

Do you use separate bottles for sick calves, which are disinfected and dried between feedings? Are calf

feeders meticulous about cleaning and disinfecting hands and boots before changing groups? Do you avoid using the same cart to haul feed and manure?

Do you work with a consulting veterinarian familiar with biosecurity practices?

Do you ask your vet to post all animals that die of unknown causes? Record treatment successes/failures?

Do you have a specific plan in place to control rodents, birds, wildlife and stray pets?

Have you and your vet set up a written, strategic vaccination plan? Do you know specifically which diseases you're vaccinating against?

Have you targeted the animals and timing that stand to benefit most from vaccination? Even closed herds should benefit from an effective, planned, strategic vaccination program.

Protecting custom-raised calves

As many as one in three heifers are now sent to a wet-calf operation or calf ranch for raising. Such custom arrangements present new biosecurity challenges:

- Give the custom operation a biosecurity audit of its own. Go over details of its vaccination program to make sure it's compatible with yours. Coordinate your vet with the custom operation's vet. Require health records.
- Identify the grower's potential exposure. How many clients does it accept calves from? How's their biosecurity? Do they risk yours? Is the custom raiser filling capacity during slow periods by bringing in sale-barn calves?
- Send the grower immunologically strong calves. Otherwise, you risk getting back less than optimum replacements, no matter how good his management. Start calves off in a well-designed calving area that encourages good obstetrical practices. It must be clean and dry. Be sure that every calf receives the four quarts of high-quality colostrum critical to longterm calf health. Consider having your vet check the IgG status of calves. Recent work indicates calves with a high IgG status for the first four weeks of life save \$20 to \$25 in raising costs over lower IgG counterparts.

Rodenticides

Pull out and use this worksheet
to choose the best rodent control product

Product Name	Active Ingredient	Product Form	Controls	Notes	Your co-op's price
Bar Bait	Warfarin and Prolin	Bars	Rats and mice	Contains sugar, edible tallow and beeswax with finest quality grain. Can be used in either wet or dry locations without loss of attractiveness.	
Boot Hill	Bromadiolone	Blocks, mini-blocks, pellets and meal	Norway rats, roof rats, house mice and warfarin-resistant Norway rats	A single-feeding, second-generation anticoagulant. Norway rats and house mice may consume a lethal dose in one feeding, with the first dead rodents appearing four or five days after treatment starts.	
D-Cease	Difethialone	Pellets	Norway rats, roof rats, house mice and warfarin resistant mice.	A new single-dose, second-generation anticoagulant requires less active ingredient for effect compared to other single-feed anticoagulants. Lower level is less detectable to rodents.	
Havoc	Brodifacoum	Blocks, pellets	Mice and rats	Kills in a single feeding like acute poisons, but also continues anticoagulant action to kill survivors in four to five days, preventing bait shyness.	
Just One Bite	Bromadiolone	Bars and pellets	Norway rats, roof rats, house mice and Warfarin-resistant Norway rats	A second-generation anticoagulant. Rats and mice may consume a lethal dose in one feeding.	
Ramik	Diphacinone	Bars and pellets	Mice and rats	A second-generation anticoagulant with the potency and residual time similar to bromadiolone. Single feeding kills.	
Ropax	Brodifacoum	Bars, pellets and meal	Norway rats, roof rats, house mice and Warfarin-resistant Norway rats	Second-generation anticoagulant, formulated to kill in a single feeding.	

SDT-guard™

SDT-guard is recommended to help protect healthy cattle against salmonellosis caused by *Salmonella dublin* and *S. typhimurium*. SDT-guard uses a unique adjuvant system to help cattle generate a strong immune response. It meets Quality Assurance guidelines for low-dosage and subcutaneous administration. Two initial doses are required, followed by annual revaccination.

For information, circle **No. 201** on the reader response card.



Extended Eprinex claims



Merial's Ivomec Eprinex Pour-On has extended its label claims against adult *Strongyloides papillosus* and *Trichostrongylus longispicularis*. It now controls 39 stages of parasites and is more than 99 percent effective against 11 damaging adult internal parasites and more than 99 percent effective against 12 damaging fourth-stage immature larvae.

For information, circle **No. 202** on the reader response card.

ViraShield® OK'd for subcutaneous use

Grand Labs' ViraShield line of vaccines have been approved by USDA for subcutaneous administration. Vira Shield products can now be administered subcutaneously as well as intramuscularly and have been demonstrated to be safe and effective by either route.

For information, circle **No. 203** on the reader response card.

Pulmo-guard™ PH-M/SDT

Pulmo-guard™ PH-M/SDT, from Boehringer Ingelheim, is an aid to prevent respiratory disease caused by *Pasteurella haemolytica* and *P. multocida*, plus salmonellosis

caused by *Salmonella dublin* and *S. typhimurium*. It meets Quality Assurance guidelines for low-dosage and subcutaneous administration.

Requires no mixing. For information, circle **No. 204** on the reader response card.



New Dectomax claims

Dectomax Injectable is now labeled to provide persistent control against brown stomach worms, small intestinal worms, lungworms, nodular worms and barberpole worms.

For information, circle **No. 205** on the reader response card.



Footwart vaccine

Hygieia Biological Labs has received a reissuance of its conditional license for Serpens Species Bacterin.

The vaccine has been demonstrated safe, pure and effective for the prevention and treatment of hairy footwarts in dairy cattle. It contains no antibiotics, so it requires no milk withholding. It is safe for use in all stages of lactation and has been tested to insure the lowest possible levels of free endotoxin.

For information, circle **No. 206** on the reader response card.

Clostridial vaccine

Caliber 7 vaccine, a new low-volume clostridial vaccine is now available from Boehringer Ingelheim. Caliber 7 is a 2-mL dose, low-reactive subcutaneous Clostridia vaccine.

It offers broad-spectrum protection against seven forms of Clostridia disease, including *Clostridium chauvoei*, *C. septicum*, *C. novyi*, *C. sordellii*, *C. perfringens* Types C & D and *C. perfringens* Type B.

Developed with Quality Assurance program guidelines in mind, Caliber 7 is approved for use in cattle of all ages and types. For information, circle **No. 207** on the reader response card.



From Farmland

Making good health profitable for you

As an affiliate of the country's largest farmer-owned cooperative, your locally operated Farmland Animal Health Retail Supply Center is involved every day in your industry. We know that animal health is a valuable and necessary part of producing quality, profitable milk. Look to us for all you need to ensure that health and profit.



Here you'll find...

Selection. We carry preferred brands of proven products.

Field consultants. We offer service and on-farm support.

Service. A broad line of products are available quickly from our central warehouse.

Tech support. Ask us for technical advice on health issues.

Education. *Practical Health* and other ongoing animal health training and product information.

Involvement. Our 500,000 independent farmers, livestock and dairy producers aren't only customers; they're owners.

In your community. As a Retail Supply Center, we're owned and operated locally.



Proud to be farmer owned®

Come see us today for your animal health needs



12836 Grant
Overland Park, KS 66213

Change service requested

To avoid receiving duplicate issues, please include this VIP number when returning your subscription card

PRSR STD
U.S. POSTAGE

PAID

Permit #1432
KANSAS CITY, MO