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UPDATE

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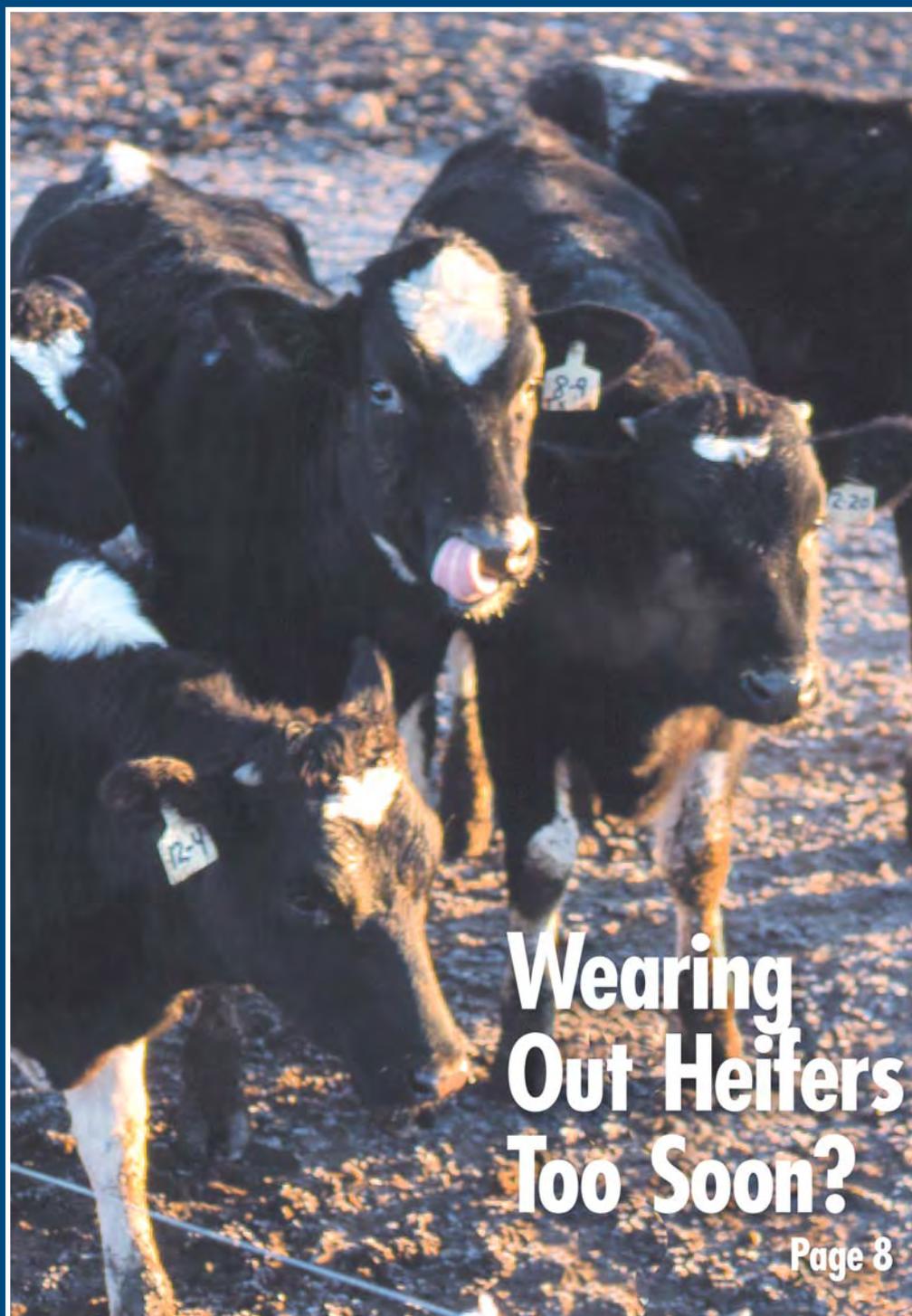
Vol. 4, No. 1 ■ Spring

**Updates:
Group-
rearing,
Clostridia
Control,
More**
page 4

**Get rid
of BVD**
page 10

**Improve
Dry-Cow
Therapy**
page 12

**Tweak
Breeding
Programs**
page 14



**Wearing
Out Heifers
Too Soon?**

Page 8



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deliver more live calves on the ground.**

Announcing new Bovi-Shield® FP, the industry's most complete IBR and BVD fetal protection vaccine. This means you no longer have to surrender calves to IBR abortion. And you can worry less about calves being born persistently infected (PI) with BVD Type 1 or Type 2. So cut your losses from abortion and the devastating spread of BVD in your herd. Because more live, healthy calves today mean more milk production tomorrow. Get Bovi-Shield FP from your veterinarian or animal health supplier now. Conveniently available in a 9-way combination. Bovi-Shield FP, new to you from Pfizer Animal Health.

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When the fledgling technology-driven dairy industry in central California 50 years ago found itself lacking the tools it needed, Willard Wall stepped in to start Walco International. Today, Walco is the leading provider of health products, services and information to the nation's technological dairy industry.

Dairy Health Update magazine is one expression of that appreciation for the value of technology. Now with this issue, DairyHealthUpdate.com further deepens the health information available to the customers of Walco.

Look for this icon throughout this and future issues of *Dairy Health Update* magazine. It signals the availability of further information pertaining to the news, stories and featured products that are available instantly, on line.

We know one of the most precious resources you have is your management time. Making additional information available on line improves the efficiency of how you devote that time to learning about new health information.

Questions or comments? Let us know.



Breeding programs on target? p.14

4 Health updates

- Grouping calves may improve post-weaning performance
- Avoiding Clostridia-related calf disease
- New information on problems with copper in foot baths
- More.

8 Too little heifer mileage?

Tune up these practices to help avoid prematurely wearing out those expensive replacement heifers.

10 Three steps to lock out BVD

New diagnostic and vaccination tools mean it's no longer necessary to just live with this nagging disease. Here's how to eliminate it.

12 Dry Cows: The mastitis weak link

Dry-cow therapy has been identified as the best point to apply pressure against mastitis. How's it working for you?

14 Breeding programs on target?

Synchronization and intensive breeding programs not living up to your expectations? Check this list of common contributors to failure.

Inside this issue

Featured health products

2 Bovi-Shield® FP respiratory vaccine from Pfizer

Now get the most complete fetal protection from BVD.

4 FlyCracker® larvacide from Spherix

Try a new idea in fly control: Kill larvae before they develop.

5 New-Hoof™ from Vets Plus

Kills bacteria that may cause hoof problems, satisfaction guaranteed.

7 COPPER HOOF™ hoof care aid

Cut foot-bath costs nearly 50 percent compared to dry copper sulfate.

9 Universal Antidote and Calcium gels

Include these proven products in your emergency kit.

11 Prostamate™ from RXV Veterinary Products

Now you can afford the reproductive advantage in your herd.

13 Vision® blackleg vaccines from Intervet

You can expect success when you trust Vision vaccines.

15 Cefa-Dri®, Cefa-Lak® and Dry-Clox® mastitis tubes

The Fort Dodge line of tubes is America's first choice for mastitis control.

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Grouping calves helps performance

Canadian researchers penned newborn calves either individually or in same-sex groups of two and then compared their performance and health after eight weeks.

Although both housing methods produced similar rates of gain before weaning at 5 weeks, the paired calves avoided the post-weaning setback that individually-penned calves experienced.

There were no differences between groups in consumption, nor in the incidence of scouring. There were also no differences in the incidence of bullying and cross suck-

ing—although the researchers noted the overall level of cross-sucking in the experiment was very low.

Pair-housed calves spent more time standing and moving, and less time with their heads out of the pen than individually housed calves.

These results suggest grouping young calves permits better socialization, with no disadvantages in health and weight gains. That allows development of more normal temperament, as well as less labor necessary for managing calves, the authors suggest.

Avoiding *Clostridia* in calves

Preventing enterotoxemia in young calves caused by *Clostridia* is difficult, because the triggers are not fully understood. Check calf crews to ensure they're following these suggested preventive practices:

- Feed calves at the same time every day.
- Make sure milk is fed at 102° to 104°
- Sterilize feeding equipment correctly; check nipples for hole wear that permits over-feeding.
- Offer IgG supplements and probiotics.
- Ensure calves get a full dose of quality colostrum.

A normal 7- or 8-way *Clostridial* vaccination program using a toxoid vaccine can offer some protection against calf enterotoxemia, although the level of protection is debated. Pregnant cows that haven't had a *Clostridial* previously should be vaccinated at two months and one month before calving—current cows should be boosted a month before calving.

Verify colostrum feeding. Antitoxin may also be used to protect high-risk newborns when the disease is identified early.

Lessons in Fly Control

Bad choice for fly control



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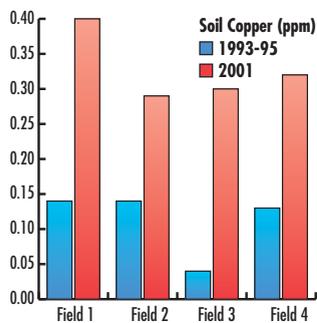
Update on avoiding environmental copper buildup

Concerned about excess copper in fields, New York's Miner Agricultural Research Institute has experimented with cutting back use of copper sulfate in foot baths. (See Summer 2001,

DairyHealthUpdate.com.) So far, results have not been encouraging.

The research farm replaced its five-day-per-week, 60-gallon exit-lane copper sulfate baths with three days weekly every other week of 50 pounds of copper sulfate and 1000 ml of CIP cleaner. On alternating weeks, it uses 20 ounces of tetracycline powder for three days.

After two cycles of hoof trimmings, the farm reports a re-appearance of hoof warts. At the most recent check reported, 15 percent of cows in milk had a heel wart on at least one foot. In dry cows—



Based on selected fields only, to which manure was applied during 1999-2001 at an average rate of 3,000 to 7,000 gallons of 7 percent dry matter slurry per acre yearly.

Foot bath care

- Change solutions often.
- Don't over-concentrate solutions to permit more traffic between changes—hoof damage can result.

where no footbath is used—almost 30 percent were affected. Warts are causing half of all documented lameness cases.

These results suggest, according to the institute, that despite environmental problems, copper baths are effective, and better alternatives need to be developed.

Link to more information at www.DairyHealthUpdate.com

REVIEW TUBING

If calf-crew workers are nervous about tubing calves, review these points:

- You can identify the esophagus in relation to the trachea by watching mature cows chew the cud—it travels via the esophagus.
- Turning the calf's head slightly to its right should reveal the tube's outline passing down the esophagus. If you can't see it, it's in the trachea.
- If the tube stops sooner than expected, you're likely in the trachea, not the rumen.

If you are using Copper Sulfate, it behooves you to try New-Hoof™



"Economical, environmentally friendly replacement for copper sulfate."

- Kills bacteria that may cause Hairy Heel Warts and Foot Rot
- Proven to work in adverse weather conditions
- Satisfaction guaranteed

Hoof Treatment Cost Comparison

(replenished as recommended)

	0¢	2¢	4¢	6¢	8¢	10¢	12¢
NEW HOOF							
2.1 Cents / Cow							
Copper Sulfate Granules							
4.8 Cents / Cow							
Formaldehyde 2.5%							
5.5 Cents / Cow							
Formaldehyde 5%							
11 Cents / Cow							

Note: Costs are based on a 250 cow herd and suggested retail prices as of 6/2001.

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New and available from your Walco representative



Fetal BVD protection

Pfizer's new Bovi-Shield® FP modified-live vaccines are the first and only BVD vaccines to offer a labeled claim for protection of unborn calves against infection by BVD.

Cross-placental infection—in other words, infection while still in the womb—is generally

regarded as the route by which persistently infected cattle are created. PI cattle that don't die after birth typically remain as hidden reservoirs of BVD reinfection in dairies.

In addition to both BVD Type 1 and Type 2, Bovi-Shield FP also contains a fraction to protect against IBR, BRSV, PI3,

vibriosis and leptospirosis.

When used according to label recommendations, Bovi-Shield FP can provide a dairy with an underlying level of protection against both the acute and reproductive losses related to BVD. It can also play a critical part in a herd eradication program against the BVD virus. As BVDV is being eradicated, vaccination with Bovi-Shield FP helps assure that the birth of PI calves is minimized, and offer protection if an infected animal should be re-introduced.

Get more information immediately about any of these products at www.DairyHealthUpdate.com





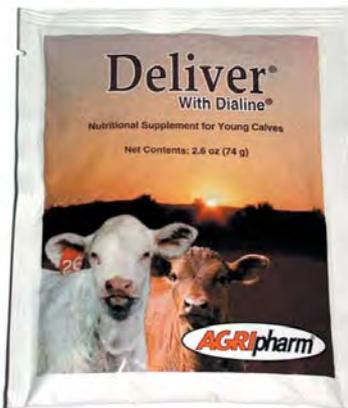
Heel wart vaccine

The new *Treponema Bacterin* is now conditionally approved by USDA to help protect cattle against lameness related to digital dermatitis, or heel warts.

Manufactured by ImmTech, *Treponema Bacterin* is a killed bacterin against the invasive *Treponema* spirochetes, which research shows play a significant role in causing heel warts.

For optimal results, ImmTech recommends an initial vaccination program using three 4-mL doses, the first in animals older than six months, followed by two more, each spaced three weeks apart.

Trials indicate that vaccination of cattle with *Treponema Bacterin* results in a significant reduction of clinical disease.



AGRIpharm Deliver® electrolyte supplement for calves

AGRIpharm's new Deliver® with Dialine® Nutritional Supplement for Young Calves provides electrolytes, dextrose and fluids. When mixed with water and fed to scouring and otherwise dehydrated calves, it

can help replace the losses of electrolytes that can contribute to blood acidosis and death. Its psyllium and gums also help slow the passage of fluids through the calf's gut.

Deliver with Dialine is available in three sizes: 1.63-pound single-feeding packets, plus 2.4-pound and 9.7-pound resealable pails.

Safe and effective novel-mechanism fly larvacide

Now available from Walco, FlyCracker™ larvacide kills the larvae of flies through a novel and safe physical process.

Sprinkled as dry granules on bedding and manure, FlyCracker kills maggots that ingest it through internal dehydration.

It is 100 percent effective against house and

stable fly larvae. Yet, because its ingredients are recognized as non-toxic and considered safe:

- Fly Cracker does not promote insect resistance.
- It is entirely safe for humans, animals and the environment.
- It is exempt from EPA registration.
- It can be safely used while animals are still in the building.
- It can be used safely in milk rooms.



High rate of resistance found in silage bacteria

Oregon State researchers sampled 50 bunkers on 12 different dairy farms in western Oregon—10 of them repeatedly over feed-out. Not surprising, they found 42 percent positive for *Salmonella* contamination—60 percent in those repeatedly sampled. The surprising finding was that 100 percent of the samples classed as *Enterobacteriaceae*—the family that includes not only *Salmonella* but also *E. coli*—were resistant either to ampicillin, tetracycline or streptomycin.

Although reports of the research were quick to link it to supporting a ban

on antibiotic use in farm animals, the study's lead researcher pointed out that the organisms also showed resistance to ciprofloxacin, a drug never approved for use in

dairy cattle, and to chloramphenicol, which has been widely unavailable for years. She says that suggests the resistance could just as likely be starting off the farm.

A NEW ASPECT OF DAIRY BIOSECURITY

Bioterrorism was suspected when someone contaminated bulk tanks and secretly injected cows in several Upstate New York dairies in April, spoiling 48,000 gallons of milk.

Although New York's Farm Bureau cautioned against over-reaction,

the incident should remind producers to secure their operations against the human element, as well:

- Light the operation well.
- Fence and lock vulnerable areas.
- Allow access only to people you trust.

West Nile a threat ?

University of California at Davis veterinarians say that despite introduction of a horse vaccine against the new West Nile Virus, it probably poses no threat to dairy cattle, particularly in the West. Spread by mosquitoes, West Nile Virus was first isolated from wild birds on the East Coast in 1999, where it killed eight people. It has since reached the Midwest.

The UC-Davis vets do recommend producers control mosquito populations as a normal part of management. Spray around manure lagoons, and poke holes in tires holding down horizontal silage bunker covers. Be on the lookout for dead crows—a sensitive indicator that West Nile virus may be circulating in an area.

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Too Little Heifer Mileage?



Tune up these practices to help avoid prematurely aging those expensive heifers

Reasons for culling



- Reproductive failure
- Udder/mastitis
- Low production
- Lame/injured
- Disease
- Other
- Temperament

Source: Survey of 2,542 randomly selected dairies from 20 states. Dairy '96, USDA.

Heifer prices north of \$2,000 have everybody looking for ways to make them last a little longer. Of course, that starts with selection for herd life traits. However, since PTA for longevity is a miniscule 0.09, your management once you own those replacements greatly contributes to how quickly you break them down. Review these management practices that may be contributing to early herd exit:

■ **Hoof care.** Michigan State research has demonstrated that cows considered lame were 8 times more likely to be put on the truck than their hoof-healthy herd-mates. Little wonder: Hoof problems often underlie any number of more apparent cullable problems, like poor breeding and lower production.

■ **Nutrition programs.** That means starting with newborn calves for heifers you raise, and continuing through the critical transition rations for freshening cows. Most health disorders that contribute to culling early are directly or indirectly related to a feeding breakdown.

■ **Prevention of metabolic disorders.** Continuing the theme of better nutrition, milk fever, fatty liver, ketosis, displaced abomasums, acidosis—clinical and subclinical—and laminitis all take root during the critical transition feeding program. Diagnosis should start with feeding and bunk management crews, tracking the telltale changes in dry matter intake and digestion as indicated by manure that can signal problems like insufficient effective fiber.

■ **Effective herd-health programs.** The scramble to acquire a steady supply of replacement heifers during high turnover or expansion tempts most managers to shortcut biosecurity. Iowa State interviewed managers and vets for 18 rapidly expanding dairies and found six in 10 bought replacements from

sources that couldn't supply health histories. Less than half required health tests on incoming cattle. And half didn't quarantine those new heifers before introducing them into the string. Not surprisingly, the rate of involuntary culling went up during expansions. Plus, high rates of BVD vaccination notwithstanding, half of the interviewed managers said BVD was a notable problem, as well as heel warts.

■ **Comfort.** It's obvious, but bears repeating: Cow comfort is not just a productivity issue. It also plays a critical role in longevity. Poorly built and poorly maintained stalls don't encourage rest. Uncertain footing in slick, abrasive or poorly maintained alleys contributes to laminitis, white line separation and heel erosion.

■ **Mastitis control.** Several research studies have concurred that mastitis and resulting udder health issues are second only to failed reproduction as the reason for culling good cows. Renewing and monitoring your front-line in mastitis control—milk crews—can pay back in increased herd life.

■ **Know when to say when.** The only thing worse than wasting the investment in high-priced heifers by culling too early is throwing good money after bad by culling too late. UC Davis researchers suggest too many operations still base culling entirely on a list of test-day weights, rather than a deeper economic analysis.

VALUE OF REDUCED HERD TURNOVER

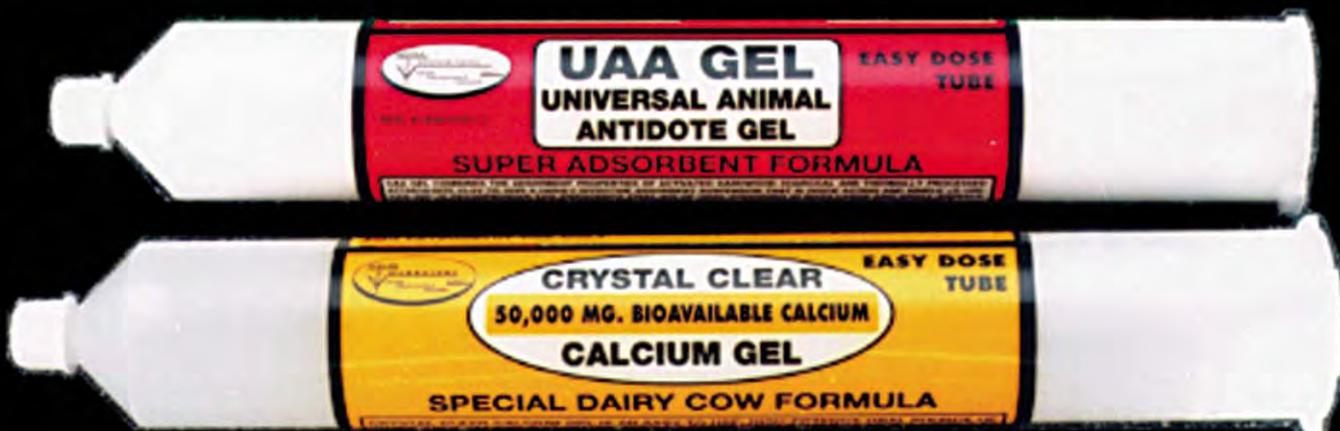
By modeling DHIA data, Wisconsin Farm Management Specialist Bruce Jones estimates that dropping cull rates from a typical 33 percent to an optimal 23 percent annually can increase net returns per cow by up to \$103.



Based on \$1,800 replacement cost, \$13 milk and average production of 26,014 pounds. Source: Bruce Jones, University of Wisconsin.

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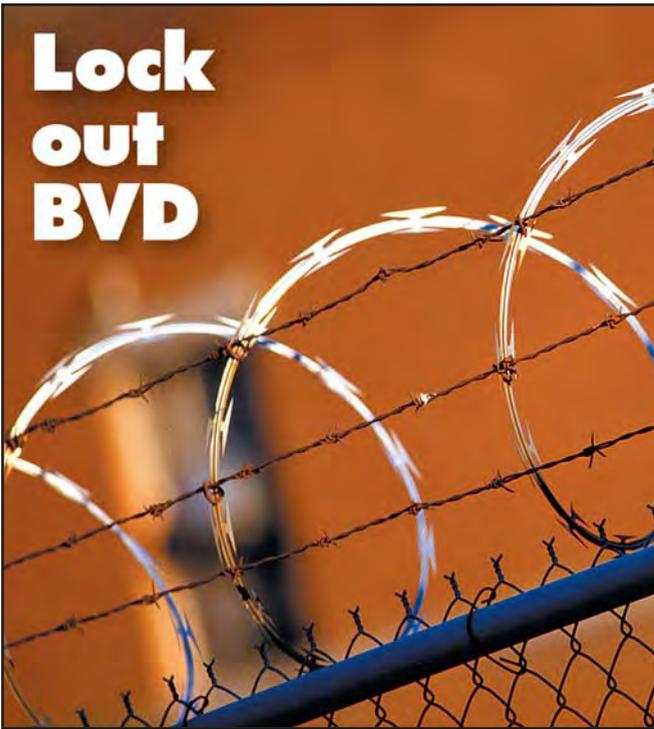


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Lock out BVD



New tools mean it's no longer necessary to just live with this nagging disease. Here are three steps to eliminate it from your herd

Link to a more detailed description of this program at www.DairyHealthUpdate.com



Many dairies continue to simply hold their own against BVD, counting themselves lucky to escape with the small losses that may occur in exchange for no significant wrecks. However, the following three-step procedure—outlined by Pfizer technical service veterinarians Dale Grotelueschen and Vic Cortese—can eventually eradicate the disease from commercial dairies.

Step 1: Herd monitoring

Absent a history of diagnosed BVD outbreak, your vet should start with blood testing to see if the herd has been exposed. Using either paired serum samples over time from the same animals, individual testing on a representative sample of

six- to eight-month-old heifers, testing of newborns before they ingest colostrum, or ongoing monitoring of a few, unvaccinated “sentinel” animals, titer level tests can indicate whether active BVD infection is circulating in the herd.

Step 2: Test and cull

If herd monitoring discovers BVD exposure, several affordable and practical lab tests are available to help your veterinarian identify persistently infected individuals for culling. PI animals are those infected during gestation, which serve as a reservoir of constant virus recirculation.

tested by groups, as selective culling begins.

Testing should begin with a BVD RNA probe to detect the virus in the bulk tank. If it's negative, you can consider the milk string PI-free and keep them all, focusing only on dry cows and replacements. If the bulk-tank test shows positive, then all individuals must be

Cattle should be age-grouped to prevent contact between calves and pregnant cows during the test-and-cull phase. Those that test negative can stay; positives must be retested in 30 days. Negatives at that point can also stay, but positives should be culled.

Purchased replacements, including bulls and custom-raised heifers, should get the same round of tests before introduction into the herd. Purchasing only heifers already tested BVD-negative can avoid the on-farm quarantine and test period.

Step 3: Vaccination/biosecurity

Ongoing vaccination during eradication, using the new BVD vaccine that carries a label claim for fetal protection, helps reduce the number of PI calves born to infected cows remaining.

infected animal is missed or if BVD is somehow reintroduced into the herd. In low-risk herds that can't economically justify heavy culling, fetal-protective vaccination can also be specifically targeted toward preventing PI carriers.

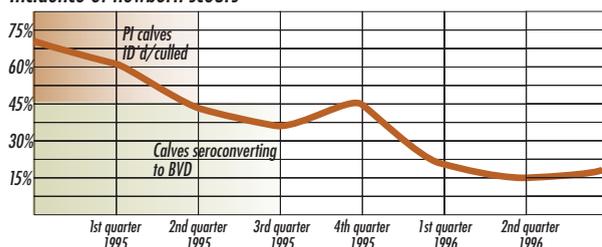
Then, even after screening and testing has culled out all PI carriers, BVD vaccination should continue. Vaccination helps limit the economic consequences of disease from BVD exposure if an

Finally, follow a biosecurity program that controls the movement of people, animals and other disease vectors in the herd.

PLUS, IMPROVEMENTS IN CALF HEALTH

Swedish researchers tracked the effect on newborn calf scouring after closing a dairy and eradicating BVD. They found a significant decrease in incidence and relative risk of diarrhea the first 31 days of life.

Incidence of newborn scours



Source: Journal of the American Veterinary Medical Association, June 15, 1999.

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Treats Chronic Endometritis in Cattle?	Yes	Yes

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Safety and Toxicity
Laboratory Animals: Dinoprost was non-teratogenic in rats when administered orally at 1.25, 3.2, 10.0 and 20.0 mg/kg/day from day 6th-15th of gestation or when administered subcutaneously at 0.5 and 1.0 mg/kg/day on gestation days 6, 7 and 8 or 9, 10 and 11 or 12, 13 and 14. Dinoprost was non-teratogenic in the rabbit when administered either subcutaneously at doses of 0.5 and 1.0 mg/kg/day on gestation days 6-18 or 5.0 mg/kg/day on days 6-18 of gestation. A slight and marked embryo lethal effect was observed in dams given 1.0 and 5.0 mg/kg/day respectively. This was due to the expected luteolytic properties of the drug. A 14-day continuous intravenous infusion study in rats at 20 mg PGF_{2α} per kg body weight indicated prostaglandins of the F series could induce bone deposition. However, such bone changes were not observed in monkeys similarly administered dinoprost tromethamine sterile solution at 15 mg PGF_{2α} per kg body weight for 14 days.
Cattle: In cattle, evaluation was made of clinical observations, clinical chemistry, hematology, urinalysis, organ weights and gross plus microscopic measurements following treatment with various doses up to 250 mg dinoprost administered twice intramuscularly at a 10 day interval or doses of 25mg administered daily for 10 days. There was

no unequivocal effect of dinoprost on the hematology or clinical chemistry parameters measured. Clinically, a slight transitory increase in heart rate was detected. Rectal temperature was elevated about 1.5° F through the 6th hour after injection with 250 mg dinoprost, but had returned to baseline at 24 hours after injection. No dinoprost associated gross lesions were detected. There was no evidence of toxicological effects. Thus, dinoprost had a safety factor of at least 10X on injection (25 mg luteolytic dose vs. 250 mg safe dose), based on studies conducted with cattle. At luteolytic doses, dinoprost had no effect on pregnancy. If given to a pregnant cow, it may cause abortion; the dose required for abortion varies considerably with the stage of gestation. Induction of abortion in heifer cattle at stages of gestation up to 100 days of gestation did not result in dystocia, retained placenta, or death of heifers in the field studies. The smallness of the fetus at this early stage of gestation should not lead to complications at abortion. However, induction of parturition or abortion with any exogenous compound may precipitate dystocia, fetal death, retained placenta and/or metritis, especially in latter stages of gestation.
Swine: In pigs, evaluation was made of clinical observations, food consumption, clinical pathologic determinations, body weight changes, urinalysis, organ weights, and gross and microscopic observations following treatment with single doses of 10, 30, 50 and 100 mg dinoprost administered intramuscularly. The results indicated no treatment related effects from dinoprost treatment that were deleterious to the health of the animals or to offspring.
Mares: Dinoprost tromethamine was administered to adult mares (weighing 200 to 485 kg; 2 to 20 years old), at the rates of 0, 100, 200, 400, and 800 mg per mare per day for 8 days. Route of administration for each dose group was both intramuscularly (2 mares) and subcutaneously (2 mares). Changes were detected in all treated groups for clinical (reduced sensitivity to pain; locomotor incoordination; hyperreflexia; sweating; hyperthermia, labored

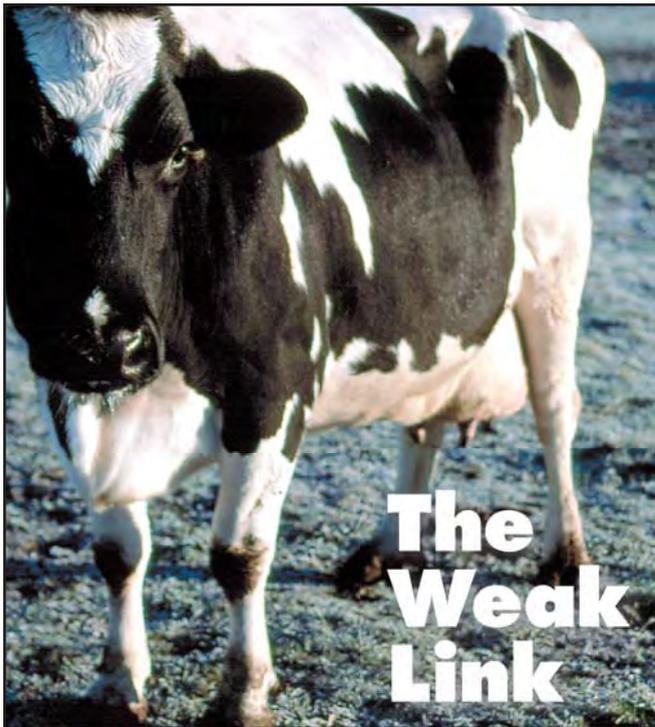
respiration), blood chemistry (elevated cholesterol, total bilirubin, LDH, and glucose), and hematology (decreased eosinophils; increased hemoglobin, hematocrit, and erythrocytes) measurements. The effects in the 100 mg dose, and to a lesser extent, the 200 mg dose groups were transient in nature, lasting for a few minutes to several hours. Mares did not appear to sustain adverse effects following termination of the side effects. Mares treated with either 400 mg or 800 mg exhibited more profound symptoms. The excessive hyperstimulation of the gastrointestinal tract caused a profuse diarrhea, slight electrolyte imbalance (decreased sodium and potassium), dehydration, gastrointestinal irritation, and slight liver malfunction (elevated SGOT, SGPT, at 800 mg only). Heart rate was increased but pH of the urine was decreased. Other measurements evaluated in the study remained within normal limits. No mortality occurred in any of the groups. No apparent differences were observed between the intramuscular and subcutaneous routes of administration. Luteolytic doses of dinoprost tromethamine are on the order of 5 to 10 mg administered on one day, therefore, dinoprost tromethamine sterile solution was demonstrated to have a wide margin of safety. Thus, the 100 mg dose gave a safety margin of 10 to 200 for a single injection or 80 to 160X for the 8 daily injections. Additional studies investigated the effects in the mare of single intramuscular doses of 0, 0.25, 1.0, 2.5, 3.0, 5.0 and 10.0 mg dinoprost tromethamine. Heart rate, respiration rate, rectal temperature, and sweating were measured at 0, 0.25, 0.50, 0.75, 1.0, 1.5, 2.0, 3.0, 4.0, 5.0, and 6.0 hr. after injection. Neither heart rate nor respiration rates were significantly altered (P>0.05) when compared to contemporary control values. Sweating was observed for 0 of 9, 2 of 9, 7 of 9, 9 of 9, and 8 of 9 mares injected with 0.25, 1.0, 2.5, 3.0, 5.0, or 10.0 mg dinoprost tromethamine, respectively. Sweating was temporary in all cases and was mild for doses of 3.0 mg or less but was extensive (beats of sweat over the entire body and dripping) for the 10mg dose.

Sweating began within 15 minutes after injection and ceased by 45 to 60 minutes after injection. Rectal temperature was decreased during the interval 0.5 until 1.0, 3 to 4, or 5 hours after injection for 0.25 and 1.0 mg, 2.5 and 3.0, or 5.0 and 10.0 mg doses groups, respectively. Average rectal temperature during the periods of decreased temperature was on the order of 97.5 to 99.6, with the greatest decrease observed in the 10 mg dose group.
WARNINGS: Not for human use. Women of child-bearing age, asthmatics, and persons with bronchial and other respiratory problems should exercise extreme caution when handling this product. In early stages, women may be unaware of their pregnancies. Dinoprost tromethamine is readily absorbed through the skin and can cause abortion and/or bronchospasms. Direct contact with the skin should, therefore, be avoided. Accidental spillage on the skin should be washed off immediately with soap and water. Use of this product in excess of the approved dose may result in drug residues.
PRECAUTIONS: Do not administer to pregnant cattle unless abortion is desired. Do not administer intravenously (IV) as this route might potentiate adverse reactions. Cattle administered a progestogen would be expected to have a reduced response to ProstaMate Sterile Solution. Aggressive antibiotic therapy should be employed at the first sign of infection at the injection site whether localized or diffuse. As with all parenteral products careful aseptic techniques should be employed to decrease possibility of post injection bacterial infections.
Swine: Do not administer to sows and/or gilts prior to 3 days of normal predicted farrowing, as increased number of stillborn and postnatal mortality may result.
Mares: ProstaMate Sterile Solution is ineffective when administered prior to day-5 after ovulation. Pregnancy status should be determined prior to treatment, since ProstaMate has been reported to induce abortion and parturition when sufficient doses were administered. Mares should not be treated if they suffer from either acute or sub-

acute disorders of the vascular system, gastrointestinal tract, respiratory system, or reproductive tract. Do not administer by intravenous route. Nonsteroidal anti-inflammatory drugs (i.e., indomethacin) may inhibit prostaglandin synthesis, therefore these drugs should not be administered concurrently.
ADVERSE REACTIONS: Cattle: 1. The most frequently observed side effect is increased rectal temperature at a 5X or 10X overdose. However, rectal temperature change has been transient in all cases observed and has not been detrimental to the animal. 2. Limited salivation has been reported in some instances. 3. Involuntary administration might increase heart rate. 4. Localized post injection bacterial infections that may become generalized have been reported. In rare instances such infections have terminated fatally. See PRECAUTIONS.
Swine: The most frequently observed side effects were erythema and pruritus, slight incoordination, nesting behavior, itching, urination, defecation, abdominal muscle spasms, tail movements, hyperpnea or dyspnea, increased vocalization, salivation, and at the 100 mg (10X) dose only, vomiting. These side effects are transitory, lasting from 10 minutes to 3 hours, and were not detrimental to the health of the animal.
Mares: The most frequently observed side effects are sweating and decreased rectal temperature. However, these have been transient in all cases observed and have not been detrimental to the animal. Other reactions seen have been increase in heart rate, increase in respiration rate, some abdominal discomfort, locomotor incoordination, and lying down. These effects are usually seen within 15 minutes of injection and disappear within one hour. Mares usually continue to eat during the period of expression of side effects. One anaphylactic reaction of several hundred mares treated with dinoprost tromethamine sterile solution was reported but was not confirmed.
IMPORTANT: Cattle: No milk discard or pre-lactation drug withdrawal

period is required for labeled uses.
Swine: No pre-lactation drug withdrawal period is required for labeled uses.
Mares: Not for use in horses intended for food.
DOSAGE AND ADMINISTRATION
Cattle: ProstaMate Sterile Solution is supplied at a concentration of 5 mg dinoprost per mL. ProstaMate is luteolytic in cattle at 25 mg (5 mL) administered intramuscularly. As with any multidosed vial, practice aseptic techniques in withdrawing each dose. Clean and disinfect the vial closure prior to entry with a sterile needle.
Swine: ProstaMate Sterile Solution will induce parturition in swine at 10 mg (2mL) when injected intramuscularly. As with any multidosed vial, practice aseptic techniques in withdrawing each dose. Adequately clean and disinfect the vial closure prior to entry with a sterile needle.
Mares: 1. Evaluate the reproductive status of the mare. 2. Administer a single intramuscular injection of 1 mg per 100 lbs. (45.5 kg) body weight which is usually 1 mL to 2 mL ProstaMate Sterile Solution. 3. Observe for signs of estrus by means of daily teasing with a stallion, and evaluate follicular changes on the ovary by palpation of the ovary per rectum. 4. Some clinically anestrus mares will not express estrus but will develop a follicle which will ovulate. These mares may become pregnant if inseminated at the appropriate time relative to follicular rupture. 5. Breed mares in estrus in a manner consistent with normal management. Dinoprost tromethamine is administered once as a single intramuscular injection of 1 mg per 100 lbs (45.5 kg) body weight which is usually 1 mL to 2 mL of ProstaMate containing 5 mg dinoprost as the tromethamine salt per milliliter.
HOW SUPPLIED: ProstaMate Sterile Solution is available in 10 and 30 mL vials.
STORAGE CONDITIONS: Store at controlled room temperature 20° to 25° C (68° to 77° F).
ANADA 200-253, Approved by FDA. Manufactured by Phoenix Scientific, Inc., St. Joseph, MO 64503

Link to more information at
www.DairyHealthUpdate.com



The Weak Link

Dry-cow therapy has been identified as the best point to apply pressure against mastitis. How's it working for you?

A Dry cow mastitis management has been identified as perhaps the most important critical control point to cut herd-wide mastitis. But sometimes, practices cause as many problems as they solve. Check yours:

1 Don't selectively treat. National Mastitis Council now recommends that all cows receive dry-cow therapy at dry off. Research out of England confirms that picking and choosing may end up costing you more in new cases than it saves in drug costs.

The research, in January's *Journal of Dairy Science* found that cows that didn't get dry-cow antibiotic suffered triple the infection rate with new mastitis by calving time as treated cows did. Untreated cows also experienced more dry-period clinical mastitis cases than the treated ones.

2 Monitor results. Other recent research has suggested that simple comparisons of the SCC on quarter composites from the last test day of the previous lactation and first test day of the current lactation can signal dry-cow treatment failures. The data is easily acquired from typical herd computer records systems or DHI records.

The study suggests that even if cows are simply grouped into high- and low-SCC categories, such infection and cure-rate data can signal not just treatment problems, but entire dry-off procedures that need investigation.

3 Manage to prevent infection. Of course, mastitis tubes aren't the end-all. But if you're going to use them, there's no sense using them wrong. Make sure your dry cow management doesn't introduce additional chance for infection. Check that crews:

- Take care with dry-off procedure sanitation and protocol.
- Pay attention to dry-cow environment.
- Vaccinate with a commercial J-5.
- Control flies.

4 Dry treat heifers. Today's heifer-replacement situation—dairy heifers that are collected from diverse regions, commingled and shipped after sale—causes as many as 90 percent to freshen mastitic, according to one estimate.

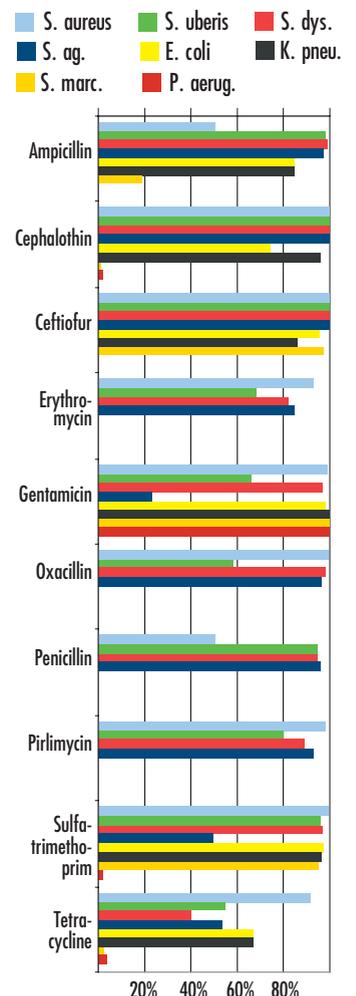
Research that confirms dry treatment can impact that infection rate suggests dairies should take

STILL POTENT

Michigan State researchers tested the effectiveness of mastitis antibiotics against 2,778 isolates of suspected mastitic milk submitted to the state lab from 1994 to 2000.

Contrary to the conventional wisdom that organisms are becoming drug-resistant, they instead found drug effectiveness was steady—and actually improving in some cases.

Percent of mastitic organisms susceptible to common drugs



Source: RJ Erskine and others, *Journal of Dairy Science*, May 2002.

a look at adding springers to the dry-cow treatment regime. Always do this only under your veterinarian's advice.

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EXPECT MORE



Synchronization and intensive breeding programs not living up to your expectations? Check this list of common contributors to failure

Expectations often fail, it is said, and they fail most where the most is promised. Managers who have fought to make a timed breeding program work and failed only because of one missed element can relate. Run down this list of checkpoints to make sure yours stays on target.

Missed timing. One recent estimate suggests that as many as 30 percent of AI services are placed at the wrong stage of the estrous cycle. Mistiming a second injection in a two- or three-shot regimen can waste previous efforts and is a common cause of failures. Not surprisingly—a Virginia Tech survey on why producers avoid breeding programs found that confusion over scheduling ranked second only to hormone cost as the deal-killer.

Silver-bullet syndrome. Good management won't

flow out of a syringe in a synchronization program any more than in any other application. The No. 1 ingredient to success when you start a new program is patience. It takes time, experience and good record-keeping to establish targets and then gauge performance.

Insufficient employee training/follow-through.

Once you've set those program benchmark, monitored records, and seen a problem emerge, the first point to examine is whether the protocols were followed by everybody involved.

Were personnel trained fully, both in the techniques and the underlying purpose for them? Are they motivated—both tangibly and intangibly—to see the program through, or are they rushed and pulled by other responsibilities in the operation?

Weak transition management. Poor transition cow management that doesn't overcome the negative energy balance as soon as possible leaves reproduction programs down the line built on a foundation of sand. Any reproductive program should be prefaced with a thorough condition-scoring effort.

Too short a voluntary waiting period. Debate hasn't ended on the most cost-effective voluntary waiting period—particularly when BsT enters the picture—but synch programs are most successful when a high percentage of the herd is cycling. Research has suggested, therefore, that a timed-insemination voluntary waiting period may need

HEAT DETECTION

Synchronization programs may make heat detection more convenient and efficient by increasing estrous activity, but it won't practically replace the need for good heat detection.

And that heat detection is still the greatest contributor to reproductive inefficiency in most herds.

Recent studies confirm at least one reason why: The average duration of an estrus for cows in milk is only around eight to nine hours—and can go as low as an average 4.5 hours for individual operations.

That means if workers are only heat checking once a day for 20 minutes, chances are good they're going to miss a large number.

The bottom line: Heat detection activities still need to be frequent, long, regular, done at the same time daily, assigned to somebody who is responsible for making sure it's done, and conducted by somebody who's trained and attuned to the subtle signs beyond just mounting activity.

to go up to 60 or 70 days. **Failure to preg check.** The quicker you get semen back into open cows, the better chance of pregnancy. Monthly preg checks may not be sufficient to quickly identify open cows.

Link to a list of different synchronization programs at www.DairyHealthUpdate.com

Mastitis Control Products

- America's first choice for mastitis control
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ToMORROW®/CEFA-DRI® (cephapirin benzathine)			
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- Specific products for both lactating and dry cows
- Veterinary formulations when *Staph. aureus* and *Strep. ag.* are the diagnosed cause of mastitis



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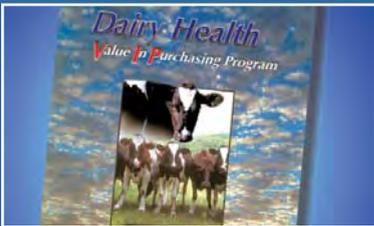
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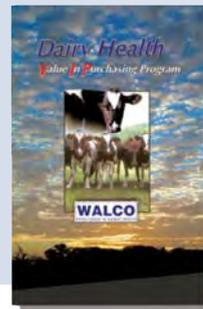
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The latest on profitable health control

Vol. 5, No. 1 ■ Fall

**Updates:
Ultrasound,
Crypto,
More**
page 4

**BVD
Research
Updates**
page 12

**Trace
Mineral
Nutrition**
page 14



NEW
4-way protection

AGAINST THIS ARSENAL BVD DOESN'T STAND A CHANCE

It's all-out war. On one side, BVD. It causes respiratory disease and immunosuppression in young stock, reducing productivity. Bad for cattle. Bad for business.

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That's because Arsenal 4.1 protects against NCP biotypes, the viruses that have been found to cause up to 95% of BVD outbreaks.¹ What's more, Arsenal 4.1 contains the 1b subtype of

BVD, the predominant cause of BVD-linked respiratory disease in calves today.² Most modified live 4-way vaccines don't.

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www.livestock.novartis.com

¹ Chase CL. Department of Veterinary Science, South Dakota State University, Brookings, SD.

² Fulton RW. Bovine viral diarrhoea virus antigenic diversity: impact on disease and vaccination programmes. *Biologicals*. 2003;31:89-95.

Just off the press

Go to DairyHealthUpdate.com to link to more information on these current dairy-health research studies:

➤ Feeding excess phosphorus to lactating cows — at 0.48 percent of the TMR — was not found to make any significant improvement in their length of estrus, the number of mounts, or the time spent mounting during estrus. The authors suggest the conventional wisdom that phosphorus increases intensity of estrus stems from early studies on cows not provided sufficient phosphorus to begin with.

Source: Theriagenology, In Press, 2003.

➤ Based on almost 2,000 blood samples from 65 California dairies, 9.4 percent were calculated to be positive for Johne's disease. Infection was highest in the north; lowest in the central region.

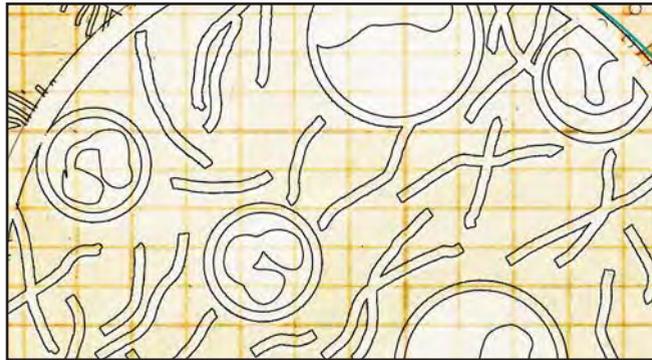
Source: Preventive Veterinary Medicine, Aug. 28, 2003.

➤ Calves were fed milk replacer containing four times the daily dose of decoquinat (Deccox[®]) recommended to control coccidiosis, and then intentionally infected with increasing levels of Cryptosporidium. The decoquinat did not help control scours nor affect the amount of Crypto organisms shed into the environment.

Source: Journal of the American Veterinary Medical Association, Sept. 15, 2003.

➤ Feeding calves milk replacer that uses protein derived from animal serum instead of whey protein decreased their death rate by up to 80 percent and days scouring by 30 percent. A previous study showed that feeding calves challenged with Coronavirus a milk replacer containing bovine serum decreased disease signs and improved feed intake.

Source: Journal of Dairy Science, February 2003; Journal of Dairy Science, May 2002.



Latest BVD research

4 Health Updates

- Ultrasound for hoof care
- Using urine pH to indicate milk fever risk
- Do high production demands really increase metabolic disease?
- Cryptosporidium reservoirs in soil
- More

10 Health Product News

- New internal teat sealant • Broad-protection BVD vaccine
- New injectable trace-mineral supplement • More

12 BVD Research News

New studies on the importance of BVD infection in the womb to later health, the impact BVD plays on reproductive efficiency, and more.

14 Trace Mineral Nutrition

The latest research updates on the value of trace mineral supplementation to cattle health and reproduction.

WANT FURTHER UPDATES?

This icon you'll find throughout your issue of Dairy Health Update, means you have immediate access to more information, by visiting DairyHealthUpdate.com and clicking on the link.

Inside this issue

Featured health products

2 New Arsenal[™] from Novartis Animal Vaccines

BVD doesn't stand a chance against a single subQ dose of this four-way.

4 Probios[®] gel, Cal-C-Fresh and Keto-Nia-Fresh

Vets-Plus oral gels will help your fresh cows make a smooth transition.

5 Acquire[™], Lifeline[™] and Gammulin[™] from APC

No time for sick calves? Boost your colostrum-management program.

6 Bovi-Bond[™] Hoof Block Adhesive from Vettec

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13 New Mineral-Max[™] from RXV

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15 Free Prima Tech Vaccinator from Intervet

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Ultrasound to check hoof trimming

Noting that the traditional methods of checking sole thickness after a hoof trim—either testing the give with your thumb or extrapolating from the claw length—are too subjective or too variable, respectively, University of Tennessee veterinarians tested the practicality of ultrasound for the task.

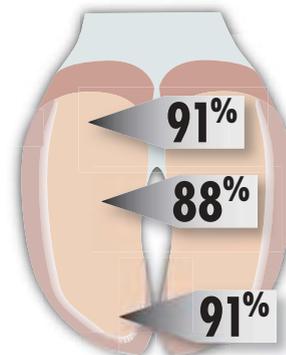
Twenty-four adult Holsteins randomly selected from a 100-cow commercial dairy were Dutch trimmed and then checked using a handheld "B-mode" ultrasound unit.

The researchers were able to successfully image the sole horn, the underlying soft tissue, and third phalanx in 81 percent of the hooves. For the remaining 19 percent, the reason for failure to get a usable image was in most cases because the cow collapsed in the standing chute, likely because the

Ultrasound accuracy

Austrian research showed ultrasound to be over 90 percent accurate in judging sole thickness.

Correlation with actual thickness



Source: The Veterinary Journal, May 1999.

procedure took too long, the authors suggest.

Although they didn't compare their ultrasound readings to actual sole thickness to assess accuracy, the authors noted a 1999 study that did just that. That research found ultrasound had about a 90 percent correlation with the actual thickness as determined by dissection.

Source: Journal of the American Veterinary Medical Association, Aug. 15, 2003.

Do high production demands really cause metabolic disease?

Danish researchers reviewed the previous findings of 11 epidemiological and 14 genetic studies from Scandinavia, the United States and Canada, to try to establish a connection between high milk yield and susceptibility to metabolic diseases.

Using lactational incidence rates, they found:

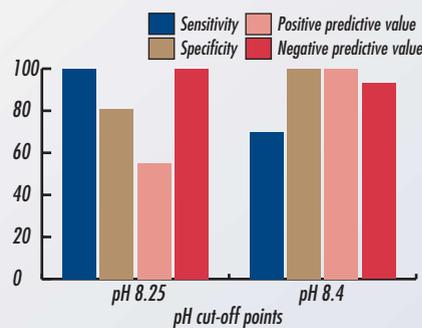
- Dystocia: No significant relationship.
- Milk fever: Contradictory. Phenotypically, there's not much correlation; genetically, correlations are contradictory and range widely.
- Ketosis. Phenotypically, little to no correlation has

been shown. Genetically, there does appear to be a connection with selection for milk yield.

- Displaced abomasum. No likely correlation.
- Cystic ovaries. Some apparent risk with higher yields.
- Metritis. No likely correlation.
- Lameness. No phenotypical relationship to yield, but there was a genetic correlation.
- Mastitis was the only disease showing a clear relationship between milk yield and infection. Continued selection for higher milk yields will likely make it worse.

Source: *Livestock Production Science*, October 2003.

Urine pH to assess milk fever risk



Urine pH, a common tool for gauging the success of DCAD rations for closeup cows, can also be used as an accurate test for predicting which cows will be milk-fever cases when done 48 hours before calving. A new

study compared the urine pH of 107 Holsteins not being given anionic salts to their eventual susceptibility to milk fever. It showed that when pH rose above 8.4, it predicted 70 percent of milk-fever cases with no false positives; lowering the test cut-point to 8.25 predicted all cases, but also had more false positives. The researchers suggested using the 8.25 cutoff in the field because, even though its low "positive predictive value" would cost you in treating false-positives, that cost would be minor compared to the cost of missing and not treating a true positive.

Source: The Veterinary Journal, In Press 2003.

Calf Care To-Do List

☐ Set up an ongoing colostrum-management program to monitor the number of successful passive-transfer calves on the farm. Randomly select 10 to 12 calves between 6 to 12 hours after birth to test their total protein levels in the blood. For colostrum-fed calves, you should target a reading of 5.2 g/dL. Inadequate total protein levels can, first, tell you whether calves are achieving proper immunity and second, help you target improvements to high-risk groups.

According to research done by the University of Wisconsin and published in the *American College of Veterinary Internal Medicine Journal*, maternal colostrum can become bacterial soup fed to calves at their most vulnerable stage of life. Eighty-two percent of colostrum samples exceeded the industry standard of 100,000 cfu/mL and many exceeded 1 million cfu/mL. Many common errors that can lead to this. Colostrum may sit un-refrigerated for several hours before being fed, refrigerated or frozen. Once it reaches refrigeration, it may go into old, unreliable refrigerators, or into five-gallon buckets that don't allow for sufficient, quick cooling. If frozen, it may suffer quality reductions during the period between thawing and feeding.

☐ Although commercial products have traditionally been viewed—rightly so—as supplements to natural colostrum, a true colostrum replacer is now available on the market. Using a colostrum replacer offers several benefits that can make it a more cost-effective option than trying to manage pooled natural colostrum:

- ✓ Ending the use of pooled colostrum permits you to break the reinfection cycles of diseases passed from dams to calves, particularly Johne's, bovine leukosis virus, tuberculosis and bovine viral diarrhea virus, without resorting to expensive and unproven colostrum pasteurization.
- ✓ Because IgG (immunoglobulins/globulin protein) level is standardized and proven, it takes the risk out of colostrum management, because you know there is an adequate amount of IgG to get the calf to successful passive transfer.
- ✓ It offers significant labor efficiencies: Calves can be fed in less time than it takes to milk for maternal colostrum, for instance.

☐ Recognize that even under the best colostrum-management program, quality can be extremely variable based on levels of stress on the dam. Stress tends to lower the concentration of IgG in colostrum. These groups could include:

- ✓ First calf heifers
- ✓ Cows effected with clinical and sub-clinical diseases
- ✓ High-producing dairy cows

If you're concerned about colostrum quality or if colostrum tests poorly, it's a simple matter that can be corrected with a colostrum supplement. Remember, serum-derived supplements are absorbed by the calf better than supplements derived from dried colostrum, thus providing more value for the dollar.

☐ Once you get the calves through the critical colostrum-feeding period, consider adding an immune-system support additive to waste milk or milk replacer, either for high-risk calf groups or for all calves. As little as one-quarter ounce per day can help improve the strength of the immune system and help calves fight off common early challenges like rota, corona and cryptos.

— By Mike Smith



Functional Proteins
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and nutrition

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“Treating sick calves
was not on my
'to do'
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YOU NEED. APC's functional protein approach to calf management is the most effective, all-natural calf health and nutrition program available. ACQUIRE, a complete colostrum replacer, is the only one with 125 grams of globulin protein per 500 gram dose. Not only a time saver, ACQUIRE provides producers with a strategy to reduce disease transfer of Johne's, BLV and TB from cow to calf via colostrum.

LIFELINE, a colostrum supplement mixed with maternal colostrum, will compensate for natural colostrum variability with 50 grams of globulin

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Risk factors for harboring *Cryptosporidium*

Recognizing that studies assessing the environmental contamination with *Cryptosporidium* have focused almost exclusively on water sources, Cornell researchers instead tested 782 soil samples from 37 Upstate New York dairies. They then matched the organism's prevalence against management and farm factors to identify risks for contamination on a dairy.

As you might expect, they found a high risk of *Crypto* contamination in areas where manure-handling and barn-cleaning equipment was stored, as well as in fields that were

being actively farmed—where fresh manure was spread. Although they didn't find a connection between the number of animals actively infected and the level of *Crypto* in the soil, they suggest that finding merely demonstrates the tendency for *Crypto* to accumulate in the soil over time.

In contrast to those expected findings, one surprising result was the connection between soil acidity and *Crypto* prevalence.

The researchers found the risk of environmental contamination went down as soil alkalinity rose.

Likelihood of *Cryptosporidium* contamination

Acidic soils (pH between 3.7 and 6.4)	
Neutral soils (pH between 6.5 and 7.5)	.53 times less likely
Alkaline soils (pH 7.6 and 9.75)	.35 times less likely

They showed it was less likely to detect *Cryptosporidium* oocysts in neutral soil—that with a pH between 6.5 and 7.5—or basic soil—that with a pH between 7.6 and 9.75. This finding is in direct opposition to past studies, which showed that *Crypto* was unable to survive acidic environments.

The Cornell research also tested for the related organism *Giardia*. They showed prevalence of *Giardia* in animals, grass cover on fields, higher moisture in the soil and access by cattle all increased risk for finding that organism in soil.

Source: *Journal of Dairy Science*, March 2003.

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UPDATE

 **WALCO**
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There are two types of diarrhea



- can you see the difference?

Secretory diarrhea

is observed in newborn calves (0-5 days old) and is caused by bacteria like E.coli. The gut cells are intact; however, bacteria are adhered to the surface of the cells. They produce a toxin, which increases the secretion of fluid and electrolytes to the gut lumen, with diarrhea as a result.

Osmotic diarrhea

is observed in older calves (1-3 weeks old) and is caused by viruses and cryptosporidia. The gut cells are damaged, and absorption of nutrients, fluid and electrolytes is disrupted. Consequently, most of the undigested feed passes through the small intestine, with increased secretion of fluid and subsequently diarrhea as the result.

Deliver[®] with Dialine[®] can be used for both types of diarrhea without knowing the cause. Dialine[®] is unique in its composition; it binds water, bacteria, and toxins in the gut, and leads these elements out with the feces. This binding capacity reduces the period of diarrhea two to three days.



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Deliver with Dialine is a Danish product,
and is sold in more than 25 countries all over the world.
Produced by Pharmalett AIS



There are two types of rehydration solutions



- do you know the difference?

Hypertonic solution

(e.g., electrolytes mixed with milk)
A hypertonic solution can be used in calves with secretory diarrhea only. A hypertonic solution is "too strong" in calves with osmotic diarrhea, because the gut cells are damaged.

Isotonic solution

(e.g., Deliver with Dialine® mixed in water)
An isotonic solution can be used in both types of diarrhea, i.e., secretory and osmotic diarrhea. An isotonic solution is "neutral" and does not harm the damaged gut cells.

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Persistent BVD protection

The Breed- Back™ FP vaccine line is engineered to provide 90 percent to 99 percent protection against persistently infected calves due to BVD Types 1 and 2. A controlled study also showed 90 percent to 99 percent effectiveness in preventing abortions due to BVD Type 2. In controlled studies, vaccination with Breed-Back FP prevented shedding of IBR, BVD Types 1 and 2, PI3, and BRSV, compared to controls. Available with five-way Lepto, in 10- 20- and 100-mL bottles.

NEW Arsenal™ 4.1

New Arsenal 4.1 from Novartis provides proven protection against the BVD that's most likely to cause a BVD respiratory outbreak: NCP 1b. It provides proven protection in tough challenge models against BVD Type 1 and Type 2, IBR, PI3, and BRSV. Trials demonstrate:

- Arsenal 4.1 showed significant protection against BVD Type 2. The BVD Type 2 trial used a strong challenge, with a 25 percent mortality rate in non-vaccinated animals.

- Even with a single subcutaneous dose, Arsenal 4.1 was able to significantly control clinical signs associated with BRSV.
- Arsenal 4.1 significantly protected against PI3 in challenge trials, demonstrated by significant differences in clinical scores and virus shedding.
- Arsenal 4.1 demonstrated significant protection against IBR as demonstrated through differences in temperature responses, clinical scores and virus shedding between vaccinated and



control calves.

- In all of these challenge trials, Arsenal 4.1 was administered both subcutaneously and intramuscularly. Both routes were found to be equally effective.



Full brucellosis licensure

After seven years' use under conditional license to further state and federal efforts to eradicate brucellosis, Colorado Serum's Brucella Abortus Vaccine, Strain RB-51 Live Culture, has been upgraded to full licensure by USDA. The full licensing confirms the manufacturer has supplied safety, efficacy, and potency studies to satisfy USDA. RB-51 is capable of creating immunity in vaccinated animals while not inducing antibodies that confuse serological diagnostic tests.

Injectable minerals

New MineralMax™ injectable from RXV Products is a chelated supplemental source of zinc, manganese, selenium and copper. Elemental minerals are provided as zinc oxide, manganese sulfate, sodium selenite and copper carbonate. Recommended dosages, by subcutaneous injection,

are between 1 mL per 100 pounds and 1 mL per 200 pounds of weight, depending on age. Suggested use in dairy cows is three weeks before calving and insemination, and five months in milk. Calves should be dosed at 1 day old and weaning; heifers, every three months, especially five weeks before breeding.



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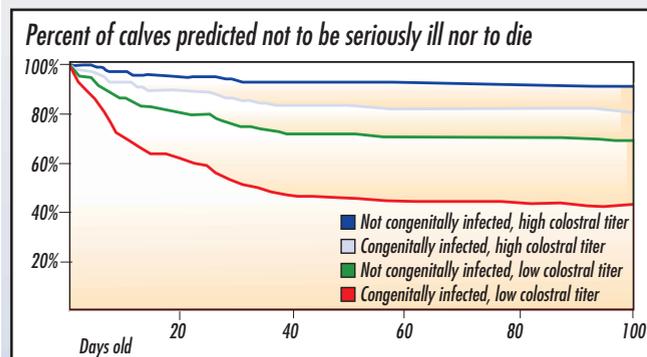
Just because a BVD-infected fetus didn't go PI doesn't mean you've escaped damage caused by the disease; plus, BVD's effect on reproduction

Bovine Viral Diarrhea and its control continues to be a focus of intense research. Some current findings include:

- When a fetus gets infected during gestation, it typically results in one of three outcomes:
 - Before 40 days of gestation...Abortion.
 - Between 40 and 125 days...Creation of the persistently infected state.
 - After 125 days...No problems.

Wondering whether BVD infection during that

A study that followed newborn heifers, infected in the uterus with BVD, to the calf ranch found those infected before birth—even if they didn't turn PI—were much more likely to die or get sick later than non-infected calves, particularly if they didn't get full colostrum protection.



last five-month window is really as harmless as traditionally believed, University of California Davis researchers cross-sampled 446 newborns from two different large drylot dairies. They tested for BVD infection at birth—so-called "Congenital Infection," or CI—then followed the heifers for 10 months. They found that even though both herds vaccinated for BVD and there had been no recent clinical signs of BVD, 10 percent of calves were CI—an incidence they termed surprisingly high.

More importantly, their results show the fallacy in the long-accepted belief that if a fetus escapes the PI state or other rare birth defects, it will turn out normal and productive. On the contrary, CI calves in the study were 2.3 times more likely to either die or have to be treated for at least three days at the calf ranch. Their calculations predicted that about 57 percent of the disease episodes experienced by CI calves were attributable to the CI state.

The study's lead author, Claudia Muñoz-Zanzi, now at University of Illinois, suggests their results demonstrate how BVD infection weakens an animal's immune system. She noted the risk of morbidity increased in CI calves born in summer vs. those born in fall, suggesting BVD left those calves relatively more vulnerable to typical calf-ranch factors like heat stress, high bacterial growth, and contaminated environments.

Source: *American Journal of Veterinary Research*, March 2003.

■ French researchers collected reproduction records from over 150,000 inseminations on 122,697 cows in 6,149 herds in western France. At the same time, they conducted a series of bulk-tank tests to categorize each herd's BVD status. Based on antibody levels and how fast levels changed between tests, the researchers categorized the herds as to how recently they became BVD infected, and whether they were recovering.

Then, by matching up only the records from an AI that occurred during a known period of risk for BVD infection in that AI's herd, the researchers developed a statistically powerful picture of BVD's affect on conception and early pregnancy.

They found that although recent BVD infection didn't affect 21-day return to service—that is, cause a repeat AI before 25 days after a previous AI—it did have a significant effect on the need for a repeat AI after 25 days. Herds classed recently recovered, steadily infected, or recently infected had a relative risk of a post-25-day return to service that was 3 percent, 11 percent and 12 percent higher than other herds, respectively.

That pattern in such a large, controlled data set strongly demonstrates BVD may not affect conception failures caused by failure to settle or early embryonic death, but it has a definite effect on late-embryonic or fetal death.

Source: *Theriogenology*, In Press 2003.



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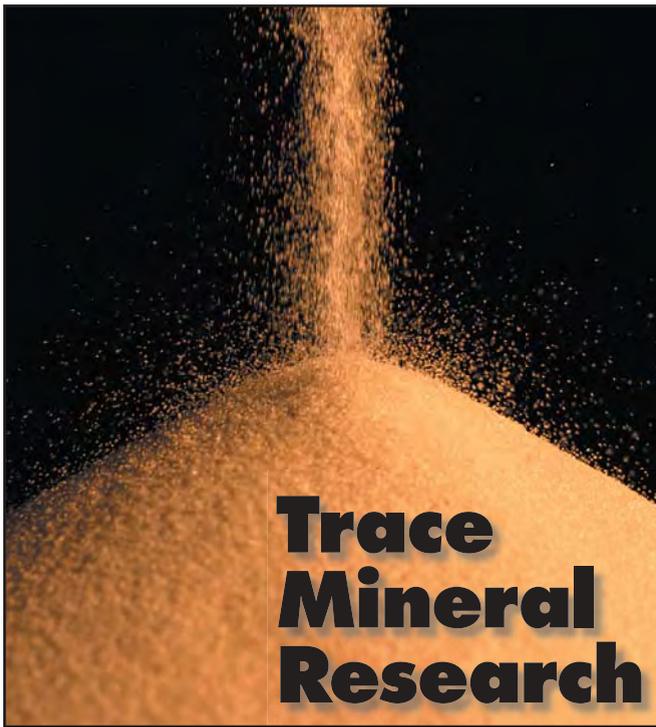
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Trace Mineral Research

Field-trial results demonstrate the effect of trace-mineral supplementation on reproduction; much work remains to be done

Trace elements—particularly zinc, manganese, selenium and copper—are known to affect animal health, production and reproduction. Some recent research highlights include:

■ In reviewing more than 250 studies over the past 50 years, Washington State animal scientists conclude, unfortunately, there's still a lot left to learn about how trace mineral supplementation affects reproduction.

The study, led by molecular biology grad-

uate student Chris Hostetler, notes that although we know zinc, copper and manganese are among the trace minerals that have the greatest impact on reproduction—because they concentrate heavily in the developing fetus—the mechanisms are still poorly understood. That's particularly true when it comes to supplementing above a level that's simply making up for dietary deficiencies.

One traditional problem, as Canadian veterinary researcher Jeffrey Wichtel editorializes in the same journal issue, is that most experiments to understand that mechanism rely on rats, and "...a cow is not a large rat."

More research in livestock to understand how animals use those trace minerals could eventually lead us to the ability to target specific minerals at specific supplementation levels to specific points of production, like conception and gestation, Hostetler predicts.

Source: *The Veterinary Journal*, September 2003.

■ A field trial conducted on a 1,000-cow dairy in California's Central Valley by Valley Veterinarians Inc. tested the reproductive effects of injecting 100 mg of zinc, 100 mg of manganese, 50 mg of copper and 25 mg of selenium four weeks pre-calving and again four weeks pre-breeding in otherwise normally supplemented, healthy cows. The herd averaged a heat detection rate of 57 percent and a pregnancy rate of 18 per-

cent—higher than the state averages of 52 percent and 16.6 percent.

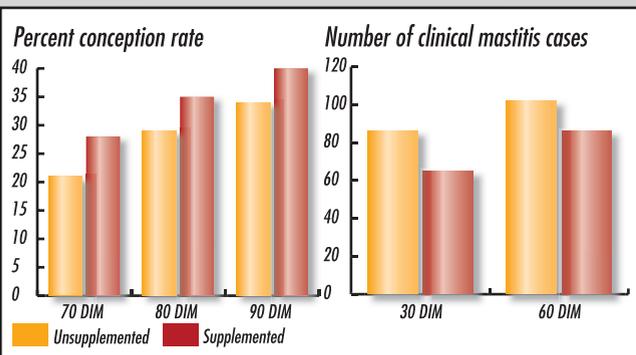
When those 615 supplemented cows were compared to 635 control cows freshening in the same time period, the researchers found:

- No statistically significant difference in somatic cell counts—although both groups were below an 180,000 average.
- A numerical—but not statistically different—improvement in the number of cases of clinical mastitis. Supplemented cows experienced 22 percent less mastitis during the first 30 days of lactation and 13 percent less during the first 60 days.
- Overall pregnancy rate improved from 18 percent to 20 percent in supplemented cows. Because there was no change in heat detection rate, study author Ken Mitchell points out, the improved pregnancy rate must be due entirely to improved conception rate. Supplemented cows showed a statistically significant improvement in conception rates at 70, 80 and 90 days of lactation.

Mitchell suggests the \$4 investment to "top off" cows paid in this trial. First, the tendency for a greater than 10 percent reduction in mastitis cases, at \$150 to \$250 per case, saves an estimated \$7 per cow in the herd yearly. More importantly, the 2 percent pregnancy rate increase, at an estimated \$35 per cow yearly for every 1 percent increase, adds another \$70 per cow per year.

Source: *Bovine Veterinarian*, September 2003.

Field trial results in California showed that injecting additional trace minerals into cows as they moved into close-up groups and again six weeks into lactation made a numerical improvement in clinical mastitis cases and a statistically significant improvement in conception rates.



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Beef and Dairy Producers

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Eligible Products

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Offer

For every Vision vaccine purchase of \$1,000 during the offer period (August 1, 2003 – December 31, 2003), Intervet will provide a Vision 2mL Prima Tech Draw-Off Vaccinator upon proof-of-purchase submission. Submission of multiple invoices to reach \$1,000 purchase level will be accepted.

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Vision Vaccinator Promotion

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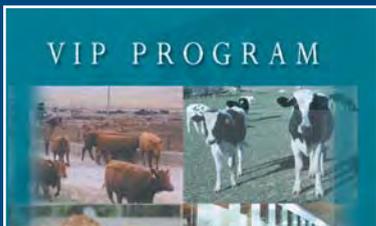
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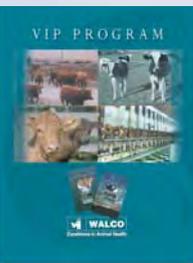
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**Updates:
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Research**

page 4

**BVD
Update**

page 5

**Mastitis
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page 5



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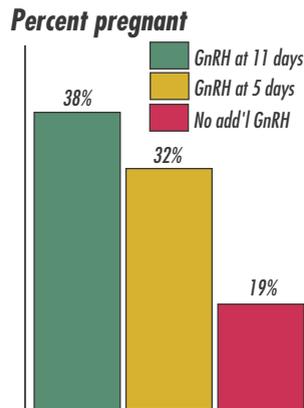
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EXPECT MORE.

Add a post-breeding synch shot?

A study at two sites—in Mississippi and North Carolina—during July and August confirms earlier studies on the positive effect of adding an additional injection of GnRH after breeding to heat-stressed cows. The researchers first synchronized the cycles of 105 lactating Holsteins using the OvSynch protocol. They then added a third GnRH injection to one third of the cows at 5 days after AI and to another third at 11 days after insemination. They found the control cows tended to have lower pregnancy rates, at 19 percent, compared to the average of 35 percent for the treated cows. Although cows treated at day 11 showed a numerically higher rate, at 38 percent vs. 32 percent for those treated at five days, the difference wasn't statistically significant.



Source: Theriogenology Journal, April 15, 2003.

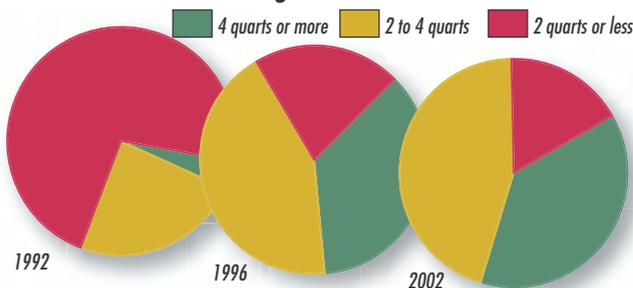
Colostrum intake patterns

Three sets of USDA survey data over the last decade show that US dairies seem to be taking to heart the recommendation that newborn calves get at least a gallon of colostrum when fed by hand. However, it's important to note that about one in five dairies still give calves less than half the recommended amount.

Source: USDA National Animal Health Monitoring System. Percentages in chart represent only the proportion of calves on operations feeding colostrum by hand.

Link to more about this topic at www.DairyHealthUpdate.com

Percent of calves receiving different amounts of colostrum



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3 Health Updates

- Post-breeding GnRH for heat stress
- Patterns of colostrum intake.

4 Health Updates

- Worm burdens on pastured dairy cattle • More.

5 Health Updates

- Update on BVD • Current research from National Mastitis Council.

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Parasite Research Notes

The value of fecal egg counts.
Dutch work confirms that the commonly used fecal egg count test probably doesn't tell you much about the actual worm burdens on pastures by the end of a summer grazing season. The work suggests pasture worm counts may be high enough by autumn—despite what fecals say—that they may affect cow milk production and weight gain in heifers.

Source: Veterinary Parasitology, December, 2002.

Giardia prevalence and control.
Giardia, the scours-causing blood parasite similar to Cryptosporidium, was found in 4 percent of 782 soil samples that Cornell researchers collected from

37 New York dairies—compared to 17 percent positive for Crypto. Canadian researchers demonstrated that the dewormer fenbendazole is an effective treatment against scours and gut damage caused by Giardia.

Source: Preventive Veterinary Medicine, May 30, 2003; Veterinary Parasitology, April 2000; International Journal for Parasitology, January 2001.

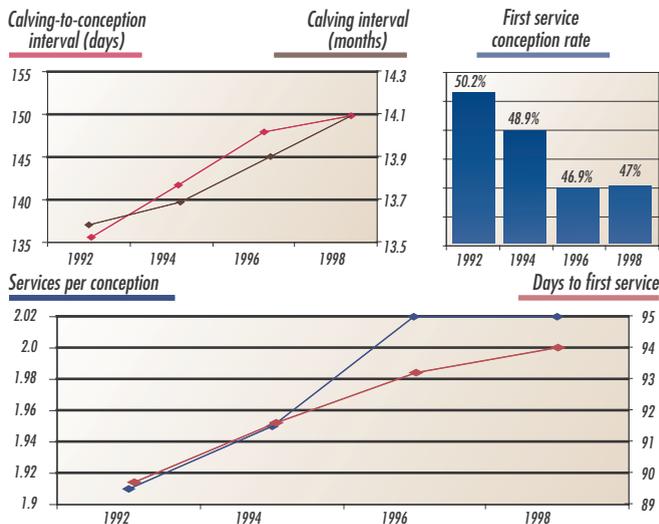
Vaccine marginally effective.
European researchers report the highest protection so far with a vaccine against stomach worms: a 60 percent reduction in fecal egg counts, a significant stunting in the size of worms, and a non-statistically significant 18 percent reduction in total worm counts.

Source: Parasite Immunology, May 2002.

MORE EVIDENCE OF REPRODUCTIVE DECLINE

Ohio State researchers carefully screened and edited DHI records to create a statistically definitive recordset of 44,425 monthly summaries from 1772 herds spanning 1992 to 1998. Subsequent analysis of those cleaned records showed that, as many suspect, reproductive performance of the typical herd fell during the last decade.

Source: Animal Reproduction Science, January 2003.



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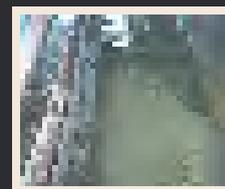
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BVD Research Updates

Mechanics of reproductive damage. Australian researchers compared the ovarian function of BVD-infected vs. uninfected superovulated dairy heifers. They found that infection with Type I BVD while the follicles are developing causes inflammation of the ovaries and damage to the egg-producing cells, leading to delayed or absent ovulation.

Source: Theriogenology, February 2003.

Ease of disease spread.

In continuing testament to how easily BVD can spread through a herd where an unidentified persistently infected animal exists, research in Sweden found:

- Smearing the rubber

membrane of a vaccine bottle with the nasal secretions from a PI calf, drawing vaccine from the bottle and then vaccinating uninfected calves spread BVD to those calves—even though a new disposable syringe and needle were used.

- Calves housed both 1.5 yards and 11 yards from a PI calf for a week caught the disease, with no nose-to-nose contact.

- Calves that were housed in an uncleaned and non-disinfected pen immediately after a PI calf was removed caught the disease. However, calves that entered such a pen after the pen stood empty for four days did not.

Source: The Veterinary Journal, March 2003.

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Treat early postpartum cases?

A total 1851 quarters from 463 cows in 16 Quebec, Ontario and New York dairies were tested before day 4 in milk using the California Mastitis Test. Of the 355 positives, roughly half were treated with cephalosporin; half were left alone to see if they spontaneously cured. The results:

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Meanwhile, another study applied the CMT to every non-heifer and non-diseased cow that calved during a three-week period on an 1,800-cow dairy. Of the 45 CMT positive animals, half were given cephalosporin; half weren't. Treatment resulted in a 68 percent cure rate by day 28 in milk, compared to 32 percent for non-treated. Treatment also reduced the average day-14 Somatic Cell Count to 189, compared to 513 for controls.

Source: National Mastitis Council Annual Meeting Proceedings, 2003.

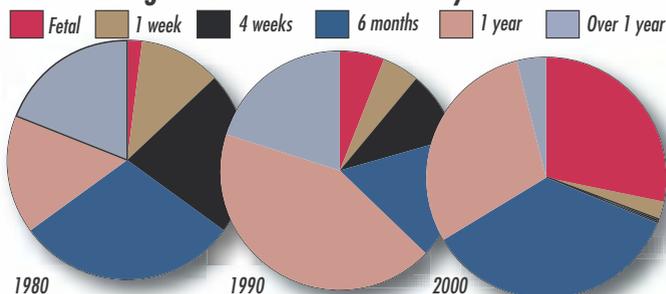
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Calves born from unvaccinated control animals all were persistently infected, as well 78 percent and 60 percent of the calves born from dams vaccinated with the two different inactivated BVD vaccines.

Source: Veterinary Microbiology, Nov. 2002.

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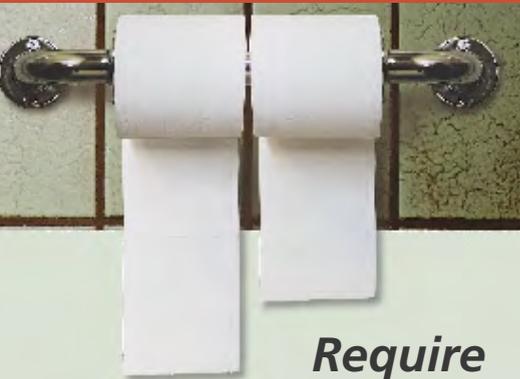
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2 types of calf scours



Require 2 types of solution



All scours are not the same

Secretory diarrhea

- Birth to 5 days old • Bacterial
- Gut cells remain intact
- Calls for a hypertonic solution

Osmotic diarrhea

- 1-3 weeks old • Viral and crypto
- Gut cells are damaged
- Requires a gentler isotonic solution to avoid further harm to damaged cells



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Deliver® With **Dialine®** can be used for both types of diarrhea—without knowing the cause. Deliver's unique composition binds water, bacteria, and toxins in the gut, leads them out with the feces. Reduces scouring to 2-3 days.

Deliver® With **Dialine®**
The 1 choice for all scours

New from your Walco representative

Modified-live BVD vaccine safe during pregnancy

Pfizer's Bovi-Shield® FP™ has now been approved by USDA as safe to use in pregnant cows, when used according to the label.

Pfizer's extensive safety studies showed that giving the vaccine both pre-breeding and then again at 10 times the dose during pregnancy caused no IBR-induced abortions or fetal infection with BVD. In addition, trials studying the



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OvaCyst initiates the release of normal physiolog-

ical levels of endogenous luteinizing hormone, which stimulates ovulation, formation of the corpus luteum and progesterone synthesis.

The recommended intravenous or intramuscular dosage of OvaCyst is 2 mL per cow. Available in six-dose vials.



Footbath acidifier

New ParlorPal, available exclusively from Walco, acidifies and then maintains a low pH in dairy footbaths and bedding.

That lower pH makes ammonia less volatile, thus greatly reducing the amount of ammonia released into the atmosphere.

And because ParlorPal can replace copper sulfate, either fully or in a rotation, it can help reduce

the buildup of copper in the environment.

Recommended usage is 15 to 25 pounds per 50 gallons of footbath capacity, recharged after every 250 cow-passes.

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Link to more information at www.DairyHealthUpdate.com

Bovi-Shield® – the only 4-way modified-live viral (MLV) vaccine approved for use in pregnant cows and calves nursing pregnant cows*.



Now you can put the power of an MLV vaccine to work building the immunity of your entire herd. That's because Bovi-Shield® has been proven safe for use during all stages of pregnancy¹, and for calves nursing pregnant cows, when used according to label directions. So now Bovi-Shield delivers a high level of protection against reproductive and respiratory diseases when animals need it most—prior to periods of peak stress. To learn more about preparing your herd for times of greatest challenge, contact your veterinarian.



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(Abortions can result if not used according to label directions.)

¹Data on file, Studies 2434D-60-01-011, 2434D-60-00-050, 2434D-60-01-010, Pfizer Inc

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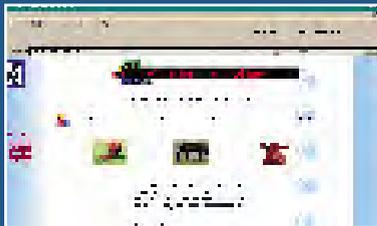
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<u>Purchase...</u>	<u>...and earn</u>
4 gallons	\$20 per gallon
8 gallons	\$30 per gallon
16 gallons	\$40 per gallon
32 gallons	\$50 per gallon

Eligible purchase must be invoiced between Jan. 1, 2003, and May 31, 2003. Cannot be combined with any other Intervet Safe-Guard or Panacur Suspension programs. Available to producers who purchase product for their own cattle. Redemption form with original proof-of-purchase invoice, must be sent by July 31. For a redemption form, go to www.DairyHealthUpdate.com, follow the link to this page, and click on this special offer.

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UPDATE

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Vol. 4, No. 4 ■ Spring

**Updates:
Parasite
Research**

page 4

**BVD
Update**

page 5

**Mastitis
Reports**

page 5



EXPECT RESULTS

Dr. Don Bliss says, "Put your dewormer where the worms are."



With **Safe-Guard**[®] (fenbendazole), the dewormer goes right to where the worms are... the cow's gut. Costly pour-on dewormers can have inconsistent results. **Safe-Guard**[®] protects your herd and your pocketbook by killing internal parasites where they live. Ask your veterinarian, animal health supplier, feed salesman or Intervet representative for **Safe-Guard**[®] today.

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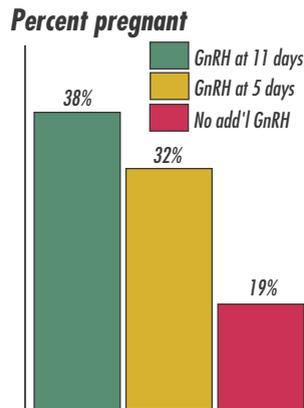
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Intervet

EXPECT MORE.

Add a post-breeding synch shot?

A study at two sites—in Mississippi and North Carolina—during July and August confirms earlier studies on the positive effect of adding an additional injection of GnRH after breeding to heat-stressed cows. The researchers first synchronized the cycles of 105 lactating Holsteins using the OvSynch protocol. They then added a third GnRH injection to one third of the cows at 5 days after AI and to another third at 11 days after insemination. They found the control cows tended to have lower pregnancy rates, at 19 percent, compared to the average of 35 percent for the treated cows. Although cows treated at day 11 showed a numerically higher rate, at 38 percent vs. 32 percent for those treated at five days, the difference wasn't statistically significant.



Source: Theriogenology Journal, April 15, 2003.

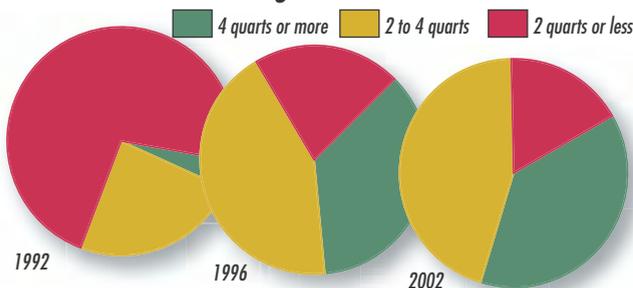
Colostrum intake patterns

Three sets of USDA survey data over the last decade show that US dairies seem to be taking to heart the recommendation that newborn calves get at least a gallon of colostrum when fed by hand. However, it's important to note that about one in five dairies still give calves less than half the recommended amount.

Source: USDA National Animal Health Monitoring System. Percentages in chart represent only the proportion of calves on operations feeding colostrum by hand.

Link to more about this topic at www.DairyHealthUpdate.com

Percent of calves receiving different amounts of colostrum



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3 Health Updates

- Post-breeding GnRH for heat stress
- Patterns of colostrum intake.

4 Health Updates

- Worm burdens on pastured dairy cattle • More.

5 Health Updates

- Update on BVD • Current research from National Mastitis Council.

6 New Products Available from Walco

- Live BVD vaccine for pregnant cows • Handheld ultrasound • More.

2 Safe-Guard® wormer from Intervet

Put worm control where you need it: The gut.

3 Probios® products from Vets Plus™

A natural combination to aid transition.

4 COPPER HOOF 2X™ hoof care aid

Get nature's full power of concentrated ionic copper.

5 Probios® products from Vets Plus™

A natural blend of animal-health expertise.

6 Deliver® with Dialine from Walco

The one simple choice to handle both types of calf scours.

7 Bovi-Shield® vaccine from Pfizer

Finally...a proven safe modified-live viral vaccine for pregnant cows.

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For Fresh Cow Management

Help maintain necessary energy, vitamin and mineral levels and manage your fresh cows for greater productivity...naturally. Together, Probios Bovine One and Vets Plus Cal-C-Fresh and Keto-Nia Fresh Gels will help your fresh cows make a smooth transition.

Some things just work together...Naturally.

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Animal Health & Nutrition
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Parasite Research Notes

The value of fecal egg counts.
Dutch work confirms that the commonly used fecal egg count test probably doesn't tell you much about the actual worm burdens on pastures by the end of a summer grazing season. The work suggests pasture worm counts may be high enough by autumn—despite what fecals say—that they may affect cow milk production and weight gain in heifers.

Source: Veterinary Parasitology, December, 2002.

Giardia prevalence and control.
Giardia, the scours-causing blood parasite similar to Cryptosporidium, was found in 4 percent of 782 soil samples that Cornell researchers collected from

37 New York dairies—compared to 17 percent positive for Crypto. Canadian researchers demonstrated that the dewormer fenbendazole is an effective treatment against scours and gut damage caused by Giardia.

Source: Preventive Veterinary Medicine, May 30, 2003; Veterinary Parasitology, April 2000; International Journal for Parasitology, January 2001.

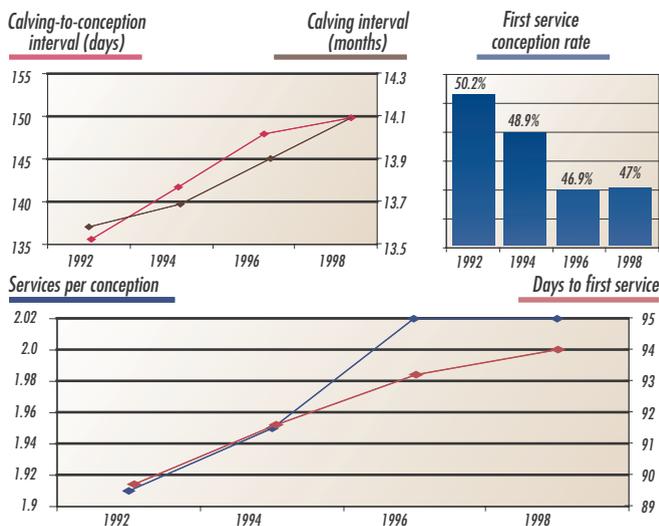
Vaccine marginally effective.
European researchers report the highest protection so far with a vaccine against stomach worms: a 60 percent reduction in fecal egg counts, a significant stunting in the size of worms, and a non-statistically significant 18 percent reduction in total worm counts.

Source: Parasite Immunology, May 2002.

MORE EVIDENCE OF REPRODUCTIVE DECLINE

Ohio State researchers carefully screened and edited DHI records to create a statistically definitive recordset of 44,425 monthly summaries from 1772 herds spanning 1992 to 1998. Subsequent analysis of those cleaned records showed that, as many suspect, reproductive performance of the typical herd fell during the last decade.

Source: Animal Reproduction Science, January 2003.



Your pallet of copper just arrived

Cut foot-bath costs nearly 50 percent with the power of concentrated ionic copper.

Five gallons of new COPPER HOOF 2X replace up to one ton of dry copper sulfate in dairy foot-baths.

COPPER HOOF 2X saves up to 50 percent over dry copper in product cost alone. Convenient liquid form and new concentrated formulation saves additional labor and storage costs.

Unique TRSW-950 carrier maintains the copper in COPPER HOOF 2X as biologically free, active ions. More goes to work fighting hoof problems; less falls out of solution to end up in the lagoon or on your fields.

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COPPER HOOF 1 gallon size	\$8.34
COPPER HOOF 5 gallon size	\$7.18
COPPER HOOF 30 gallon size	\$5.78
Copper sulfate	\$11.00

Now save even more with hands-free foot-bath recharging!

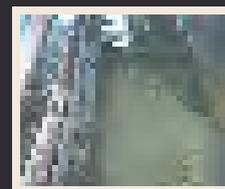
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Auto flush



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Auto Charge

Link to more information at www.DairyHealthUpdate.com

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Working with Nature

BVD Research Updates

Mechanics of reproductive damage. Australian researchers compared the ovarian function of BVD-infected vs. uninfected superovulated dairy heifers. They found that infection with Type I BVD while the follicles are developing causes inflammation of the ovaries and damage to the egg-producing cells, leading to delayed or absent ovulation.

Source: Theriogenology, February 2003.

Ease of disease spread.

In continuing testament to how easily BVD can spread through a herd where an unidentified persistently infected animal exists, research in Sweden found:

- Smearing the rubber

membrane of a vaccine bottle with the nasal secretions from a PI calf, drawing vaccine from the bottle and then vaccinating uninfected calves spread BVD to those calves—even though a new disposable syringe and needle were used.

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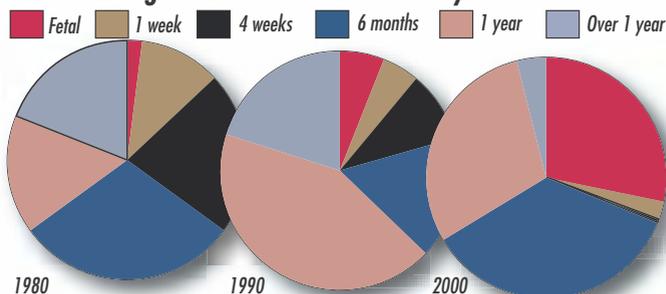
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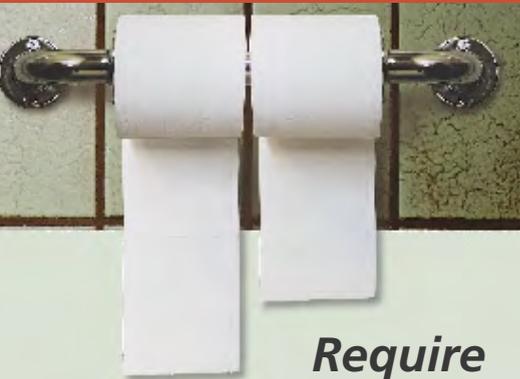
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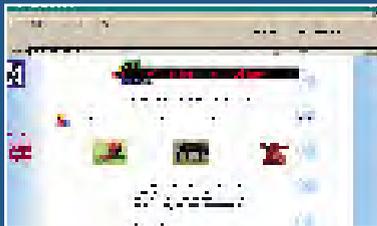
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Value

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