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Knowledge to Go Places



Farm Security Buffers

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Buffers have been used successfully on farms for many years to prevent soil erosion and capture water-borne nutrients and contaminants. Consideration must now be given to using buffers in farm security systems. With 2001's Foot and Mouth Disease scare, and recent incidents of on-farm terrorism since September 11th, "No Trespassing" signs have replaced most "Welcome" signs that were once traditional to dairy farms. Farmers and research facilities have had to deal with vandalism of equipment, crops, and animal facilities for many years, some even choosing to move or close because of the harassment. South African farmers have seen their farms overrun and some farmers and families have been slain by indigenous groups. Thankfully, we have not seen this level of lawlessness in our nation, however, the boldness of some radical groups is alarming.

Depending on the level of security you want and need, the following three essential areas could be as intense or as lax as you feel appropriate:

Controlled Farm Access

For the highest degree of security, not just the front entrance, but all entrances to the farmstead must restrict access and be monitored and patrolled. Don't expect visitors to automatically come to the parlor office to ask permission to videotape your facilities and the animals in your "hospital pen". Requiring appointments of salesmen, etc., plus incorporating many other procedures will necessitate that everyone follow specific organizational procedures in spite of the inconveniences and hardships that will occur. However, acts of terrorism that contaminate your milk or feed supply, injure your animals, make slanderous videotapes, or put farm family and personnel in danger will be the real hardships.

Specific Biosecurity Measures To Prevent Spread of Disease

Both on-farm and between-farms procedures must be instituted to protect your animals and your source of income. Refer to printed materials available from reliable industry resources in consultation with your veterinarian for the specifics essential for your farm.

Controlled Farm Image

"Perception is reality" has governed the behaviors of many farm critics as they attack farmers through media spots or in the courts with fuel obtained from public records of violation notices. Dead animals piled at the roadside for the rendering truck, or cows mired in muddy corrals with roadside fence lines, are the kiss of death to today's dairy businesses. A new line of defense must be employed to bring back the reality of the saying, "Out of sight, out of mind." Attractiveness of publicly visible farm facilities will go a long way in preventing criticism and negative public relations. Animal housing, corrals, wastewater ponds, manure storage, compost piles, and feed storage must have both a visual buffer and an ecological buffer. The visual buffer implies trees and shrubbery or other appropriate buffer types. A CREP buffer, taking advantage of the financial provisions in its development, might be strategically feasible in some situations. Invest in and develop a positive image.

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Monitor Bulls Closely to Avoid Problems in Dairy Operations

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Natural service (NS) bulls are commonly employed on U.S. dairy farms, particularly on newly established large dairies. Bulls may be employed exclusively at first, then progressively less as improved management allows more emphasis to be placed on genetic progress within the herd. Problems can arise because dairy bulls often are not subjected to close scrutiny or monitoring. In addition, management practices on many dairies are not conducive to optimal bull-breeding performance. As a result, many dairies fail to obtain optimal reproductive performance from NS bulls.

NS bulls provide the default option when the effective implementation of artificial insemination (AI) is difficult or not cost effective. Bulls are used in breeding management schemes to eliminate perceived obstacles to AI, including costs and lack of qualified personnel to adequately perform tasks such as heat detection. A common perception is that a motivated bull generally will detect more heats than will humans, particularly if the latter are poorly trained or motivated. Theoretically, bulls should also be able to deposit semen at the most advantageous time for female fertility, as they work around the clock and often service receptive females a number of times. Bulls continue to be used in dairy herds because they provide an alternative to managing a heat-detection or an estrus-synchronization program and save the cost of implementing a successful AI program.

Problems can arise as encountered on a 2,500-cow dairy in southwest Kansas. Many of the bulls at the dairy were observed to be tentative in their footing. Twenty-one of 98 bulls examined, a total of 21 percent, were classified as poor breeding prospects and recommended to be culled. An additional seven bulls had problems that might compromise breeding success but that could improve with time. The most common bull problem encountered was lameness with factors such as poor concrete texture and free-stall design probably contributing to this problem. Additionally, a number of bulls showed evidence of seminal vesiculitis.

The practice of running bulls in mixed-age groups with large numbers of females in free stalls and on concrete contributed to the dairy's bull problem. In this case, running older bulls with younger bulls, particularly in confined spaces, could have lowered activity by the younger group. Older bulls, even if they are infertile, tend to be dominant and more aggressive than their younger rivals. Older bulls also pose a human safety risk.

Consider the following recommendations when using bulls in a commercial dairy:

- Subject all virgin bulls to a breeding soundness evaluation (BSE) before admitting them to the herd.
- Give bulls a physical exam every 6 months and a full breeding soundness exam every 12 months.
- Provide adequate handling facilities for the handling of bulls to reduce the risk of injury to both animals and personnel.
- Give bulls in free-stall housing regular access to dirt lots.
- Monitor working bulls daily. It is important for personnel to be especially alert for signs of lameness. Early detection of lame bulls is critical. Treat or replace lame or injured bulls as soon as possible.
- Bulls in breeding groups may be rotated into the breeding herd for one or two weeks, followed by the same time for rest.
- Bulls ideally should be less than 2.5 years of age, to avoid being too aggressive and large. Heavy bulls should not be retained on the dairy.
- A suitable bull-to-female ratio is approximately one bull for 12 to 25 open cows.
- If a dairy has large breeding pens with large numbers of animals, it may be beneficial to distribute open cows over more pens to reduce the number of bulls in any given pen.
- Avoid drastic changes in diets fed to bulls. Don't put bulls abruptly onto the same diets as lactating cows without slowly increasing intake and energy in steps.
- Minimize the effects of heat stress by providing shade and a cooling system.
- Subject bulls to the same vaccination and preventive health program as the cows (with the exception of vaccinations for brucellosis, trichomoniasis and MLV IBR).

So What About This New Teat Dip?

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How many times over the last few years have you approached one of your trusted advisors and asked that question? There is a dizzying array of teat dips available. The most reliable dips are those which have claims that are backed by extensive research and years of on-farm experience. The National Mastitis Council (NMC) publishes a summary of peer-reviewed publications on teat dip efficacy; since 1980, forty-two studies have been published which show the efficacy of different teat dips. The NMC website can be found at <http://www.nmconline.org/docs/Teatbibl.pdf>. Use caution in interpreting these tables, since each trial is unique, and may not represent the same challenge that is faced by *your own* cows on *your* facility, in *your* climate.

We prefer to recommend dips that have been proven over many years of field experience, as opposed to the dips that have passed the “experimental challenge” trials, but may not have been used by more than a select few dairies during the trial period. Dips that have recently appeared on the market may be so new that they are lacking research data. In that case, you may be taking a chance by switching from a proven dip to an unproven one, just because it’s new and potentially less expensive. How do you make decisions about which dip to use? In this article we will focus exclusively on the selection of *post-milking teat dips*.

The single most important method for control of contagious mastitis pathogens is the proper application of an effective postmilking teat dip. By proper application, we mean that immediately after machines are removed, all four teats must have every surface of the teat that was in contact with the machine covered completely with post-milking teat dip.

What Kind of Mastitis Do You Have?

If you are struggling with a contagious mastitis problem due to the all-too-familiar *Staphylococcus aureus* (*S. aureus*), *Mycoplasma*, or *Streptococcus agalactiae* (*Strep ag*), your choice is simple. Many experts agree on the post-dip recommendation for such herds: 1.0% iodine with 10% glycerin produced by a major reputable manufacturer year round. There are other products available that may also work in contagious mastitis herds, but we have the most experience with the iodine products.

Herds that routinely purchase heifers or cows should also consider using 1.0% iodine with 10% glycerin throughout the year, since introduction of new animals is the number one method for bringing contagious pathogens to your home herd. Our recommendation in open herds that purchase animals is to culture individual cows as they arrive or freshen, and to monitor the bulk tank at a MINIMUM of once per month.

What Kind of Disinfectant is in the Dip?

Organic iodine compounds (iodophors) have become the basis for many popular dips. Their benefits are extremely well documented with research and years of field experience, despite concerns regarding the effect of iodine vapors on milker health, as well as the level of iodine in bulk milk. Iodine dips are available in a variety of concentrations from 0.10% to 1.0%, but the critical issue is the amount of “free” available iodine to achieve rapid kill of bacteria. Most experts recommend 1.0% in herds with contagious mastitis.

Less well-known disinfectants include chlorhexidine, sodium chlorite/lactic acid, and lauricidin. The efficacy of these dips is usually reported to be similar to that of the iodines. These dips may be less irritating to milkers and avoid the iodine residue issue; however, they are less frequently used and we do not have as much field experience with them.

Does the Dip Contain Skin Emollients?

Aside from the germicidal activity of a postmilking teat dip, the most important characteristic of a dip is its emollient capability. It is well documented that chapped, cracked, and irritated teat skin leads to increases in mastitis, particularly due to *S. aureus*. Dips must contain skin softeners and protectant, such as glycerine, collagen or lanolin, to keep the teat skin and teat ends soft and healthy. Check skin condition of your cows today: are they free of scabs, cracks, and peeling flakes of skin? Be sure milkers are applying teat dip in the

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(Teat Dip, continued from page 3)

correct manner following every milking. If milkers are doing their job, and any of these skin abnormalities are present, consider switching to a dip that has more emollients, or superior emollients. Not all emollients are beneficial to the skin of cows' teats, so "more" is not always better. There are different grades of emollients, some of which can actually remove essential oils from the skin. One of the reasons we prefer to see teat dip that has been purchased from a major reputable manufacturer is that the ingredients are of consistently high quality.

One other important characteristic of a postmilking dip is its color on teat skin. A dark brown iodine dip or other dark colored dip can easily be seen on teats as the cows exit the parlor and move to the feed bunk. Managers should be able to walk behind cows and quickly determine whether all teats of each cow were dipped appropriately.

Do You Know Anyone Else Who Has Used the Dip?

Ask reliable neighbors and trusted advisors what dips they have used with good results. Keep in mind that different dairies have different bacteria and environmental conditions that challenge cows on a daily basis. Try to learn what your specific requirements are, based on the climate, housing, and type of bacteria present in your herd. Remember, proper use of a good post-dip is the *single most important method for control of contagious mastitis*. You may find yourself in serious trouble in a short time with a unique, trendy, inexpensive (or expensive~!) dip that turns out to be ineffective at controlling mastitis on your dairy.

Has the Dip Been Tested in University Trials?

If a new dip is being promoted to you, it is absolutely essential that you ask about published research comparing the new dip to established products. Be aware that trials conducted by a university are not guaranteed to be unbiased (free of flaws favoring the product), but usually they will be honest about providing positive and negative findings. A well-designed trial showing positive results has the potential to benefit your operation, but again you must keep in mind where the study was performed, type of climate, numbers of cows, etc. The type of research study most applicable and scientifically valid is designed in the following manner:

Uses natural exposure: Cows are enrolled in their farm environment, and exposure to mastitis organisms is only during the natural day-to-day life of milking cows. In other words, the teats are not dipped in a bacterial-enriched broth of challenge organisms.

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Uses a control group: Infection rates must be compared between the group of cows using the new dip and either an un-dipped group or a group using an established proven dip. Both groups must be monitored under similar if not identical conditions: same time of year, same environmental conditions, similar age and stage of lactation.

Conducts the trial over multiple seasons: This should assure us that the dip is effective under a variety of conditions, including cold and/or muddy weather.

Includes an evaluation of teat condition: This is not provided on the NMC website. You would need to find the original article to see if teat condition was evaluated.

How Much Does It Cost?

Obviously, this must be a consideration in any decision-making process on dairies, but simply choosing the least expensive dip can lead to disaster in no time. Well-tested, effective, long proven post-dips are not going to be the least expensive. Don't cut corners just to save a few dollars now, only to lose thousands later, following the rampant spread of contagious mastitis or severe chapping of teats. We consider a high quality teat dip to be an investment in the future of your cows, especially if there are any contagious bacteria in the bulk tank.

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