

# **COW/CALF CORNER**

## **The Newsletter**

**From the Oklahoma Cooperative Extension Service**

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Glenn Selk, Oklahoma State University Emeritus Extension Animal Scientist

## **Don't Waste Your Vaccine Dollars**

Dave Sparks DVM, Oklahoma State University Area Extension Veterinarian

If you purchase vaccine for a disease and inject it into your animals you can rest assured that you won't have to worry about that disease. Right? Wrong! To start with no vaccine is 100% effective at providing immunity to all animals it is administered to. Further, your techniques for purchasing, storage and use of vaccines can diminish their effectiveness tremendously. Although you can't expect perfect protection, there are some common sense things you can do to get the greatest possible benefit from your investment in animal health products.

Proper vaccine management starts at the purchase. If you order vaccines online or via telephone, order them on Monday so they will not be held up over a weekend. Request extra cold packs. When the product arrives check it to see that it is still cold. If it is, store it correctly. If it has become warm, notify the seller immediately. If you purchase vaccines locally either take a cooler with you or request that the retailer provide one. Take or request multiple cold packs or ice. Ask the retailer if there is a thermometer in his refrigerator that is checked regularly and if proper temperature is maintained. Is the vaccine routinely checked for temperature on arrival? If your retailer is not comfortable answering these questions, find a retailer who is. You are making a significant purchase and the retailer should be glad to make sure that you are getting what you are paying for. A recent Idaho study showed that only about 1/3 of retailers' refrigerators that were checked consistently maintained an acceptable temperature. All the precautions you can take in storing and handling vaccines will not help if it is deactivated before it comes into your hands.

Most of us realize that vaccines should be kept in a cool, dark place but research shows that many producers do a poor job of achieving this. Vaccines should be stored between 35 and 45°

F. The University of Idaho study utilized recording thermometers to show that only about 1/3 of producer's refrigerators used for storage of vaccines consistently maintained temperatures within this range. Another 1/3 of those tested never achieved temperatures in the proper range. Too warm temperatures can quickly deactivate the vaccine, but too cold is even worse. Freezing changes the structure of the adjuvant and thus inactivates the product. In bacterins that contain whole cells, such as the clostridial (blackleg) vaccines, freezing ruptures the cells releasing high levels of endotoxin which can cause local reactions or toxic shock. A common practice for producers is to put the new, efficient refrigerator in the house and the old one that was replaced in the barn for storing vaccines. Perhaps it would make more sense, in light of your vaccine investment, to put a modern, smaller and efficient apartment-sized refrigerator in a convenient place for vaccine storage only. Always discard vaccines that have frozen, vaccines that are opened or partially used, and vaccines that are expired.

Proper use of biological products is important also. The first step is to read the label. Almost all vaccines will offer the statement that they are for use in healthy animals. Sick or debilitated animals cannot respond well immunologically to vaccines. The label will also tell you the approved uses, route of administration, and withdrawal time for the product. Always take vaccines to the chute in insulated coolers that will keep them within the proper temperature range. If you use an appropriate cooler you can take enough for the morning or the afternoon, but not both at once. In hot weather use ice or cold packs and keep the cooler out of direct sunlight. In the case of products that require mixing or reconstitution, such as live virus vaccines, only reconstitute what you can use within 1 hour. More smaller packages are better than fewer bigger ones. Use a transfer needle to reconstitute product. Never use a needle that has been used to inject an animal to mix product or refill a syringe. Products that contain whole cells will settle during storage and need to be agitated before use. Over agitation can rupture cells and cause endotoxin release. If needed you should gently rock vaccine products to stir them before use rather than shaking them. When you are finished for the day, discard any opened or partially used products and mark any unopened packages to use first next time.

Most soaps, detergents, and disinfectants can leave residues that may deactivate your biological products when you next use your syringes. After use, disassemble syringes, clean them thoroughly with hot water, and air dry the parts before putting them back together. Storing syringes in clean, dry Ziploc bags will help keep them clean without jeopardizing the effectiveness of the vaccines you will use with them.

I am routinely asked if it is acceptable to use vaccines that have recently gone past their expiration date, or how long past the expiration date it is acceptable to use expired vaccines. I often think of vaccines as similar to insurance. They won't guarantee that you never have a problem but can definitely minimize the impact of the problem. The expiration date is put on the product for a reason. You can choose to have confidence in the vaccine after the expiration date, just as you can choose to have confidence in your insurance after the expiration date of your policy, but be prepared to accept the consequences if you need the protection but find that it is no longer there for you.

## **Storing Colostrum for Optimum Passive Immunity**

Glenn Selk, Oklahoma State University Emeritus Extension Animal Scientist

Cow calf producers are aware that natural colostrum must be ingested by baby calves within 6 hours of birth to acquire satisfactory passive immunity. However some calves do not have ample opportunity to receive colostrum. Perhaps the mother is a thin, two-year-old that does not give enough milk or the baby calf was stressed by a long delivery process and is too sluggish to get up and nurse in time to get adequate colostrum. These calves need to be hand fed stored colostrum in order to have the best opportunity to survive scours infections and/or respiratory diseases. Therefore stored frozen colostrum from a dairy or from other beef cows that lost calves at calving can be on hand to meet these needs.

Colostrum can be refrigerated for only about 1 week before quality (immunoglobulin or antibody concentration) declines. If you store colostrum, unfrozen be sure that the refrigerator is cold (33-35°F, 1-2°C) to reduce the onset of bacterial growth. If the colostrum begins to show signs of souring, the quality of the colostrum is reduced. The immunoglobulin (very large protein) molecules in colostrum that bring passive immunity to the calf will be broken down by the bacteria, reducing the amount of immunity that the colostrum can provide. Thus, it is important that colostrum be stored in the refrigerator for only a week or less.

How long can the frozen colostrum be stored? We often answer this question flippantly by saying, "just as long as you would store frozen fish to eat!" Colostrum may be frozen for up to a year without significant breakdown of the immunoglobulins. However this is one example where improved technology is not in our favor. Frost-free freezers are not the best for long-term colostrum storage. They go through cycles of freezing and thawing that can allow the colostrum to partially thaw. This can greatly shorten colostrum storage life. Freezing colostrum in 1 or 2 quart bottles or 1 quart in 1 gallon zip-closure storage bags is an excellent method of storing colostrum. Many producers have had great success using the zip-closure bags. Use two bags to minimize the chance of leaking, and lay them flat in the freezer. By laying the bags flat, the rate of thawing can be increased, thereby reducing the delay between time of calving and feeding. The freezer should be cold (-20°C, -5°F) - it's a good idea to check your freezer occasionally.

Commercially available colostrum replacers and colostrum supplements can be helpful. The use of these products will be discussed in a later Cow Calf Corner Newsletter.

**WE WISH YOU A HAPPY AND PROSPEROUS NEW YEAR!!**

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