



# Proper Care & Handling of Vaccines

*Don't let handling errors cause vaccine failure.*

by Heather Smith Thomas

To be effective, vaccines must be properly handled. Always follow label directions for handling and storage, keeping vaccines refrigerated at proper temperatures — within the temperature range stated on the label — until use. When using them, keep vaccines cool and out of direct sunlight.

It's fine to use an old refrigerator to store vaccine in your barn or shop, but make sure it still works efficiently. Some older units tend to freeze the items placed near the cooling unit. If the door doesn't seal properly, items stored in the door may get too warm in the summer.

When you've spent money for vaccine and go to all the time and trouble to get your cattle in and put them through the chute, you

certainly don't want vaccination failure due to human error in handling and/or storage.

When purchasing vaccines — whether from a mail order or online source or from a local distributor such as your veterinarian or feed store — make sure they have been properly shipped and handled. If you order vaccines yourself, get them from a company that you can trust. Sometimes it's best to just buy locally, when you can be sure that they've been refrigerated at proper temperatures. Your veterinarian or local supplier will usually make sure that vaccines were kept cool during shipment and immediately refrigerated upon arrival.

Once you pick up the vaccine, keep it at proper temperature

until you get home. Transporting vaccines in an insulated cooler in your vehicle is always wise — to keep them from freezing in winter or getting too warm in summer. An ice pack or cold pack in your insulated container is a good idea in summer.

## Check labels

Be sure to read the labels for proper storage temperature. It's also a good idea to check your refrigerator temperature. Several studies have shown that many refrigerators are a little warmer or colder than the ideal temperature. This variation may not matter for keeping your food cool for short periods but could make a difference when storing something like vaccine for a long time. Over time, being too warm or too cold could affect the efficacy of the vaccine.

Many people have a small or old refrigerator in the barn to store vaccine. You have no idea whether this refrigerator is working properly unless you make a point to monitor the temperature. If a refrigerator is outside, it may be affected by the outdoor temperature — especially if it's a small refrigerator.

When working cattle, knowing you will be out at the chute awhile, always use an insulated container for the vaccine, and take only the amount of vaccine you plan on using for the first several hours. When it runs out, get more from your refrigerator. Keep the ice chest or container covered while working cattle. This precaution not only keeps the vaccine at proper temperature longer but will also keep dust and dirt from getting on the bottles.

## Bottle size

Buy vaccine in feasible sizes — something you will use within a reasonable time. Many people buy the largest bottles because these are cheaper per dose. But if the vaccine is no longer effective by the time you give it, you haven't saved money. Buying smaller vials that will only be out for a short time is probably safest.

If you are using a large bottle, taking it out of the cooler periodically to refill your syringe will eventually get it too warm. By contrast, a smaller vial can be taken out once and used up, leaving the future doses still in the cooler. When using a multi-dose killed product, you may want some of it to booster the cattle a few weeks later, and you don't want to be keeping a large bottle that's already been outside awhile.

Modified live virus products should always be used up within one hour of taking them out of the cooler and mixing them. This short time span makes it especially important to use small bottles that

can be used up quickly and won't be sitting there between refills.

Sometimes things happen unexpectedly — such as the cows breaking out or a cow getting past the headcatch — and you have to deal with the problem before you can continue vaccinating. It's better to have just a few doses “go bad” because of the delay than a big bottle.

## Storage length

The killed vaccines (like clostridial vaccines) will keep longer because you don't have to mix them just before use, and there's not as much urgency to use them up immediately. You should buy enough of the product to use again if you need to booster that vaccination. You should always booster with the same product.

A different brand might have a different adjuvant, for instance, and might not create effective immunity when boosted. When ordering or buying any vaccine that requires a booster, be sure to get enough of the same product for that purpose.

When using the vaccine as a booster later, any remainder should be stored at proper temperature, and if you take vaccine out of the bottle more than once, make sure that you are always putting a clean, sterile needle into the bottle. Never insert a used needle to withdraw more vaccine.

One solution is to leave a clean needle in the top of the bottle, and use just that one needle for withdrawing the vaccine while you are working the cattle. The more you puncture the top of the vial, the more you compromise that vaccine. It's best to just use the one needle, left in place, until that vial is empty.

## Clean needles

It's also important to use clean needles on your syringes. Some people use multi-dose syringes when vaccinating large groups of cattle, but if possible, it is best to use smaller, single dose syringes with a new, sterile needle for each animal. If you are vaccinating one or two animals, a single dose syringe is more accurate in dosage than a larger one, especially for a 2 cc injection. Even when using a multi-dose syringe, it pays to use a new needle for each animal.

In certain instances, using the same needle for several cows — with the needles getting dirty — has caused tetanus. In some parts of the country where there's risk for anaplasmosis, you should never use the same needle on different animals. This disease is readily transmitted by needles. The value of one dead cow would have paid for a lot of needles and for your time in changing needles. It really doesn't take that much time to



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change and use a new needle for each animal, especially when using low-stress handling techniques and not hurrying. If you are going to go to all the expense and effort of vaccinating cattle, you want to do it correctly.

### Syringe tips

When you are using multi-dose syringes and giving several vaccines at once, it's important to make sure you never get the syringes mixed up. A good way to prevent mix-ups is to color code the syringes with tape or some other marking device (like tying different colored yarn to the handles) so you always know which one you are grabbing.

If one of the vaccines should be given in 2 cc doses and the other is 5 cc, this amount (difference) would create a problem if you put it into the wrong syringe. Also, if you

accidentally refill one of the syringes with the wrong vaccine, the residue left in the syringe could inactivate the vaccine you filled it with. Some of the ingredients in a killed product or bacterin (such as the clostridial vaccines) may inactivate a modified-live virus vaccine, for instance. Even two clostridial vaccines from different companies should not be mixed. If they contain different adjuvants, they may not be compatible, and the residue from one might diminish the effectiveness of the other.

Since some products are so readily inactivated by any kind of antibiotic or disinfectant, you should never wash or clean a syringe with disinfectant or soapy water. The best thing to use is hot water with several rinses. If you want to be sure that the syringe is clean, you can use boiling water.

### Other tips

Another tip that some veterinarians suggest is to always give a certain vaccine in the same location —such as clostridials on the right side of the neck and viral vaccines on the left or one of them higher on the neck and another closer to the shoulder, for instance. If you keep records, you can write down which vaccine went where, and then, if there's a problem such as excessive swelling or some other reaction, you know which vaccine it was.

When giving multiple products at the same time, be sure to space them far enough apart so they can't migrate in the tissues and mix together, or this intermixing may diminish their effectiveness. There should always be at least 5 inches between injections. Some products (like injectable dewormers) are very irritating to the



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tissues, and you don't want to put any vaccines near those injections.

Always read labels and check expiration dates. Some products will probably stay good a little longer than the expiration date, but others will not. Pay close attention to expiration dates, and make sure that when you buy vaccines, they will still be good at the time you plan to use them. Order just the amount you need, and don't be tempted to keep the extra doses that you might have left over — because they won't be any good later. **HW**