Administer Drugs Properly

The best way to avoid problems is to follow label instructions and identify each animal receiving the drug at the time it is administered. It is important to concentrate on administering drugs properly.

The following points will help achieve the best results when working cattle.

Select the best route of administration.

Drugs can be administered at least nine different ways:

1. Oral
2. Intravenous
3. Topical
4. Subcutaneous
5. Intramammary
6. Intramuscular
7. Intrauterine
8. Intraruminal
9. Intrapertitoneal

The recommended routes of administration are provided on the label. Only one route of administration may be specified or options may be given. Give the drug subcutaneously when the choice is either subcutaneous or intramuscular injection.

Choose the best location for the injection.

The best location for an injection is not necessarily the most convenient. It is the site where the product will be most beneficial without the risk of damaging expensive cuts of meat.

Generally, it is best to keep all injections in front of the shoulder. Never inject into the top butt or top of the rump (Figure 8).

![Figure 8](image)

For both vaccines and antibiotics, the triangular mass of neck muscle is the preferred site for both intramuscular and subcutaneous injections (Figure 9). However, avoid intramuscular injections if possible. Note the location of the skeletal bones of the neck. Give all injections in the blue target area (Figure 10).

Use the “tented method” when giving the shot subcutaneously. Pull skin away from the neck to make sure the injection goes underneath the skin (Figure 11).

Never inject more than 10 ml (cc) into one site.

When making multiple injections, keep injection sites at least 5 inches apart, being careful not to reuse injection sites. Use both sides of the animal if necessary.

Avoid administering injections to wet or manure-covered areas to minimize the risk of injection-site reactions.

Properly restrain animals.

Proper restraint is essential to minimize the risk of human injury (Figure 12). It is also important for working cattle in a manner that will minimize the possibility of damage to the animal and to reduce the incidence of injection-site reactions. For further information, refer to the “Handle Cattle to Avoid Scars and Bruises” section.

Mark and separate syringes.

Use different syringes for modified live vaccines and for bacterins, or killed products.

Mark the modified live syringes and keep separate.

If traces of bacterin are left in a syringe that is later used for a modified live product, the bacterin could destroy the modified live virus.
Use transfer needles.

If a product needs to be reconstituted, such as a modified live vaccine, use a transfer needle to help make the process easier and more sanitary.

To use transfer needles, stick one end into the sterile liquid or diluent. The other end of the transfer needles goes into the freeze-dried cake of bacterin or vaccine. There should be a vacuum to pull the liquid immediately into the vial containing the bacterin. If this vacuum does not exist, discard the vaccine since it may be contaminated.

Keep mixing.

Mix the vaccine thoroughly before using, especially large dose bottles. Stop and shake the bottle periodically to prevent the vaccine from settling out, causing administration of an inconsistent amount of antigen in each injection.

A modified live vaccine, once mixed, begins to lose potency. Mix just enough vaccine for about 30 minutes’ use. Keep the vaccine cool and out of sunlight.

Sanitation is essential.

Sanitation is essential in minimizing the risk of spreading infection, contaminating vaccines or causing injection-site reactions.

Use separate needles for filling the syringes and injecting the animals.

Change needles frequently – with each syringeful or every 10 to 15 injections.

Replace burred or bent needles immediately. A burred or bent needle will cause greater tissue damage when entering the animal and will increase the risk for the entrance of foreign matter.
Sterilize syringes and needles properly.

Use boiling water only to clean modified live vaccine syringes. Even a trace of disinfectant can inactivate a modified live vaccine.

When processing cattle, rest syringes and implant guns on a paint roller tray with a disinfectant-soaked sponge.

Do not use a disinfectant with syringes and needles used to administer a modified live vaccine.

Make sure the injection site is clean and free of mud and manure. Try to avoid injecting damp or wet cattle.

**Get the air out of syringes.**

After filling, pump the syringe enough to move the vaccine up to the needle tip to ensure that no air is trapped in the syringe.

Air trapped in the syringe can be injected with the vaccine, causing the wrong dosage to be administered or vaccine to leak from the injection site.

**Choose the correct needle.**

In selecting the correct needle size, length is important to ensure that the drug gets into the animal properly with the least amount of tissue damage. (Figure 13).

Use 18- or 16-gauge needles, 1/2 to 1 1/2 inches long, to administer a subcutaneous shot.

Use 18- or 16-gauge needles, 1 to 1 1/2 inches long, to administer an intramuscular shot.

A 14-gauge needle is not recommended. It is twice the diameter of a 16-gauge needle, increasing the risk of tissue damage and leakage from the injection site.

Never use damaged or dull needles (Figures 14-15). Avoid injection-site leakage when using smaller needle sizes by slowing down.

**Don’t combine vaccines.**

Mixing two different vaccines will not produce one that will protect against both diseases.

Mixing unlike products can destroy the effectiveness of both products.

If the combination you want is not available, give separate injections at least five inches apart.