

ADMINISTRATION OF MEDICINES TO DAIRY COWS (Level 3) – Part II

Topic	Training & information Content
9.1	Introduction to Animal health (Prevention vs curative health care)
9.2	Health signals
9.3	Biosecurity of dairy farms
9.4	Tick born diseases (Prevention and treatment)
9.5	Worm infections (Prevention and treatment)
9.6	Vaccination schedule and planning
9.7	Mastitis prevention and treatment
9.8	California Mastitis Test
9.9	Usage and storage of veterinary medicines on dairy farms
9.10	Administering of medicines to dairy cows
9.11	Instruction use of injectors into teat canal
9.12	Key performance indicators (KPIs) for monitoring health status of dairy herd



1. You will learn about (learning objectives):

- What medicines to use for dairy cows
- How to read a medicine label
- How to apply the medicines
 - Orally
 - On the skin
 - Injection
 - Spraying



IMPORTANT

This module has two parts; this is part II – ensure you download Part I.

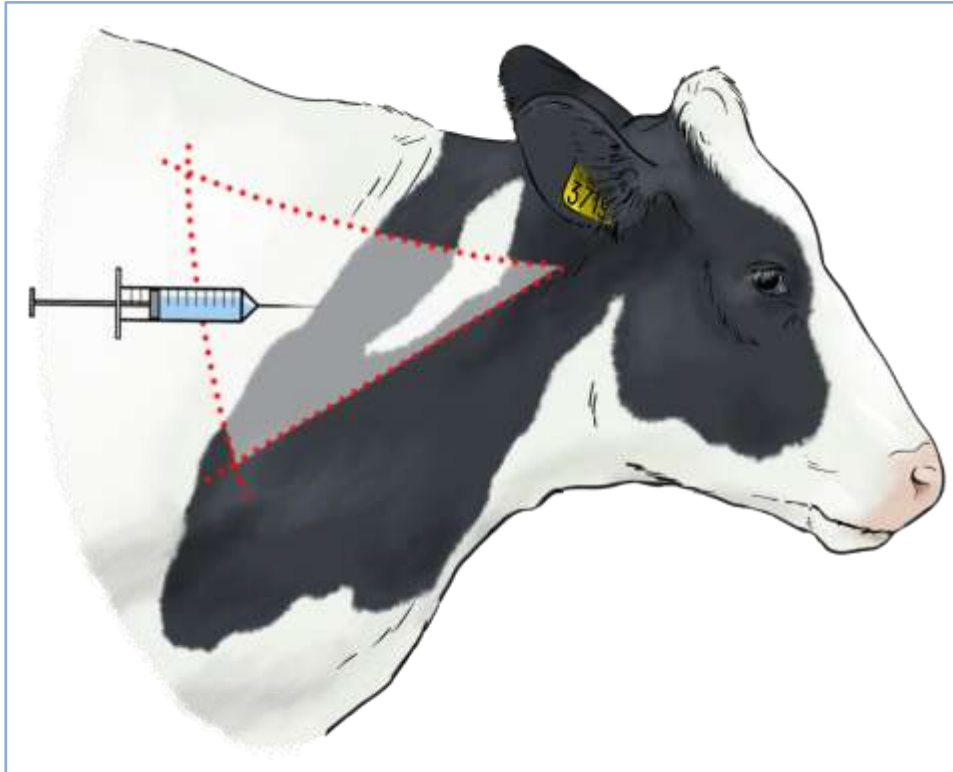


2. Restrain the cow before injection

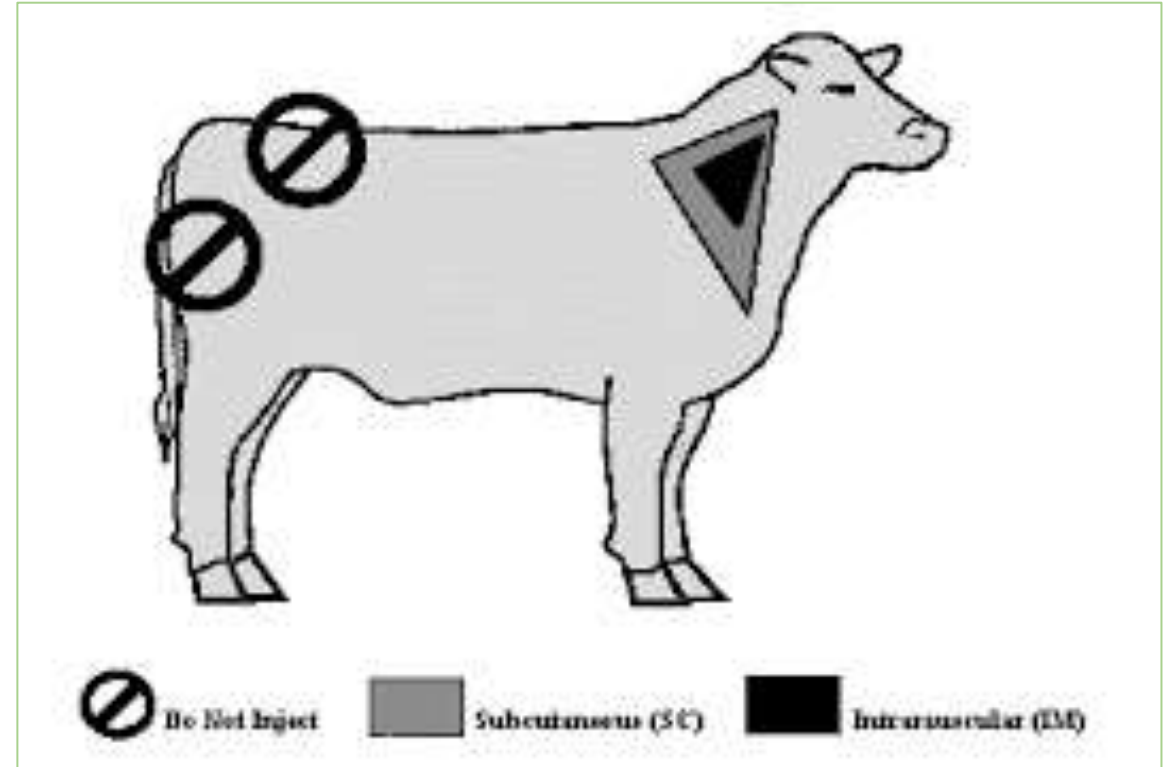
- Restrain the cow before giving the injection.
- It is much easier and safer to give injections to livestock that have been tamed.
- You can use a head gate or drift gate to restrain the cow.
- Whatever method of containment you use, always make sure that the cow is restrained so that you or anyone else cannot get hurt.
- A drift gate is a narrow barn with adjustable walls, which is large enough for one adult cow.
- The panels prevent the animal from moving. It may also have a calming effect on the animal. There are also fences at the front and back to keep the animal still.
- This makes the neck easy to reach for injections.



3. Where to give injection: Muscle vs Subcutaneous



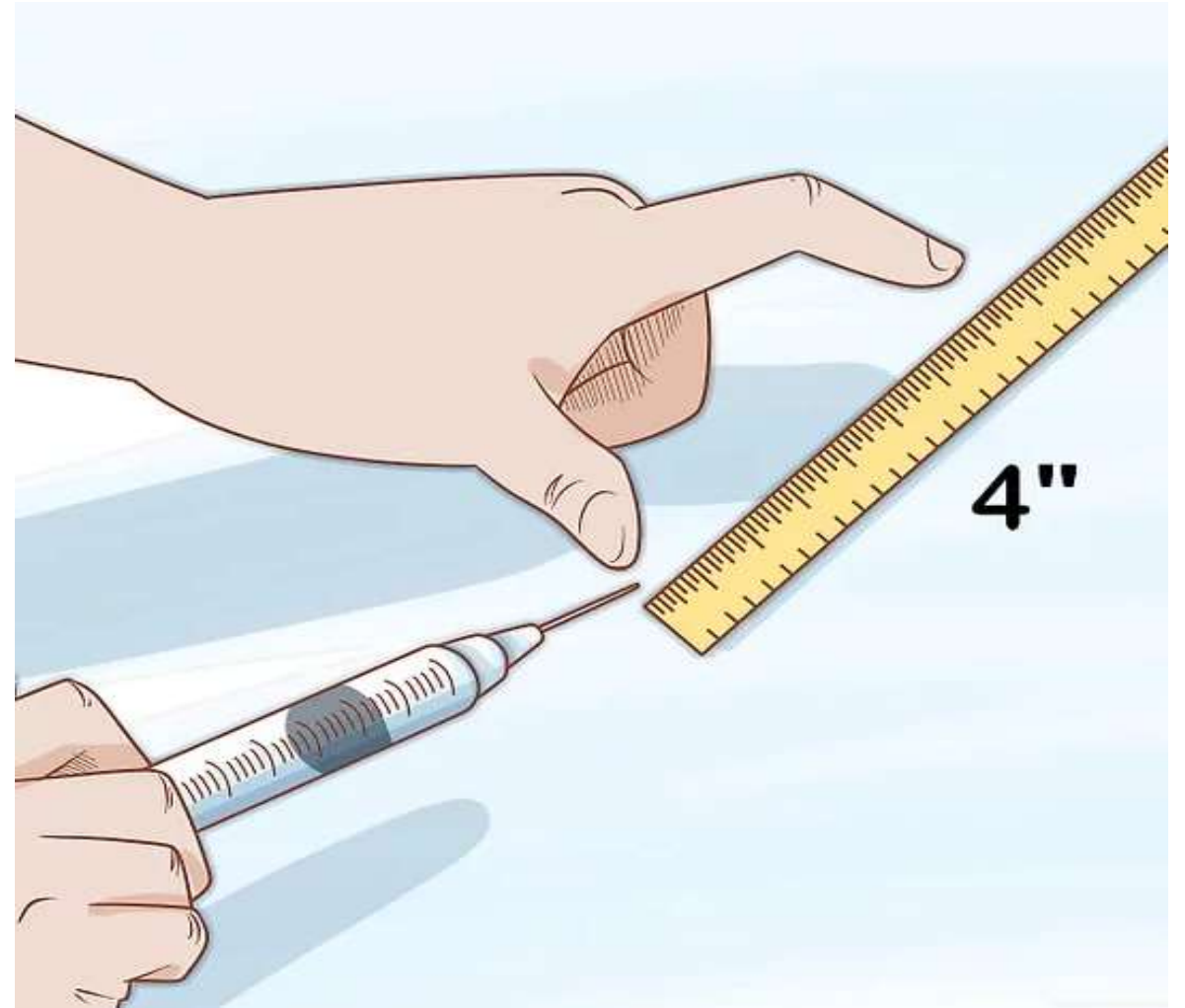
- The neck is the preferred spot.
- When to inject for more days, switch from left to right and keep distance of a few centimeters between the injection spots.



- Never give an intramuscular injection in the rear leg or rump regardless of the animal's age or use.
- The chance to inject between the muscles is big when inject into the rump.
- By injecting into the rear leg you put medicine with the risk on scars into the most expensive part of meat.

4. Vary the injection sites

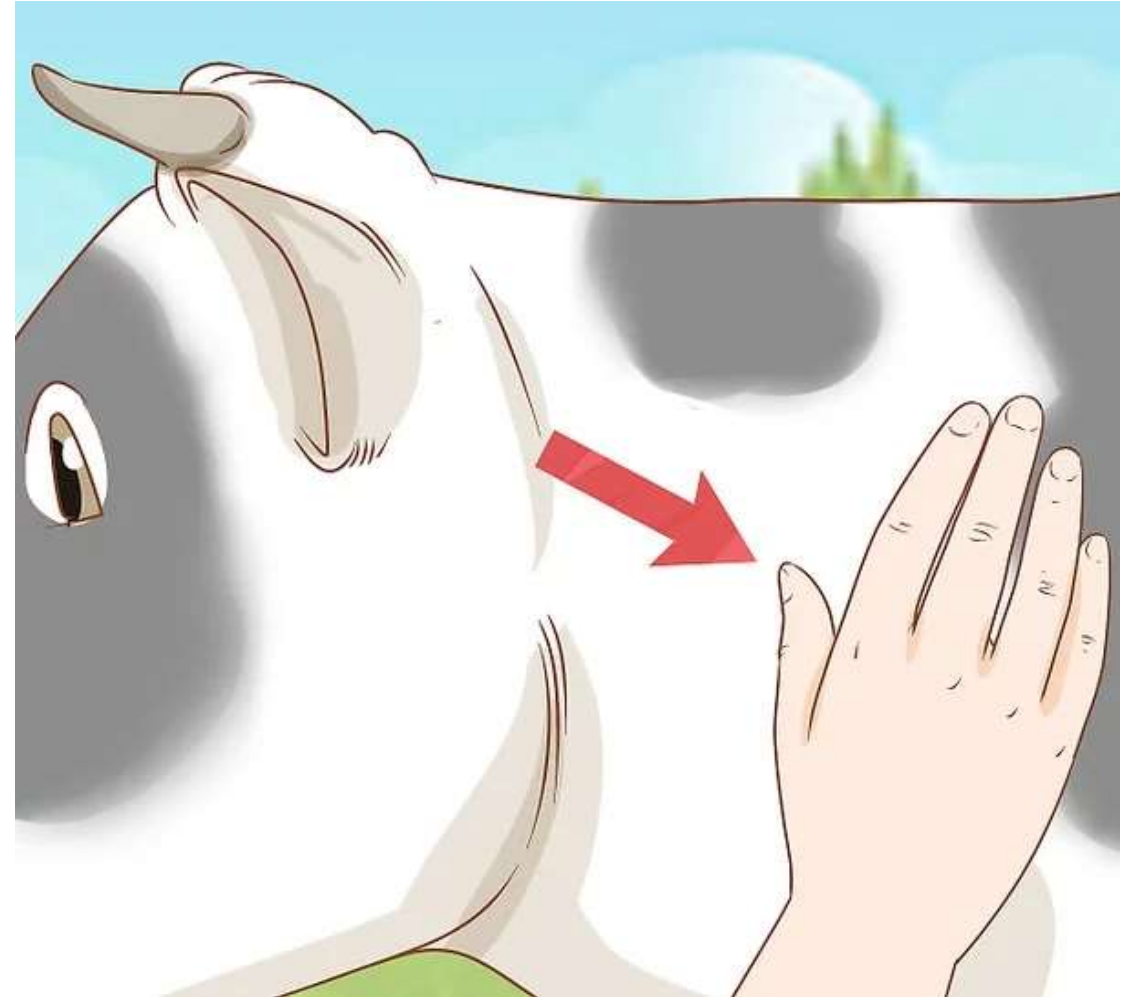
- If you need to administer more than one vaccination or medicines, the next injection should be done at least 4 inch (about the width of your palm) from the site of the first injection.
- If the medicine is always injected into the same spot, it is more difficult for the cow's body to absorb it.
- The medicines can also react with each other and become ineffective, or cause an adverse reaction that can kill the animal.



5. Giving injection into the muscle (IM)

Reduce the painful feeling of the penetrating needle

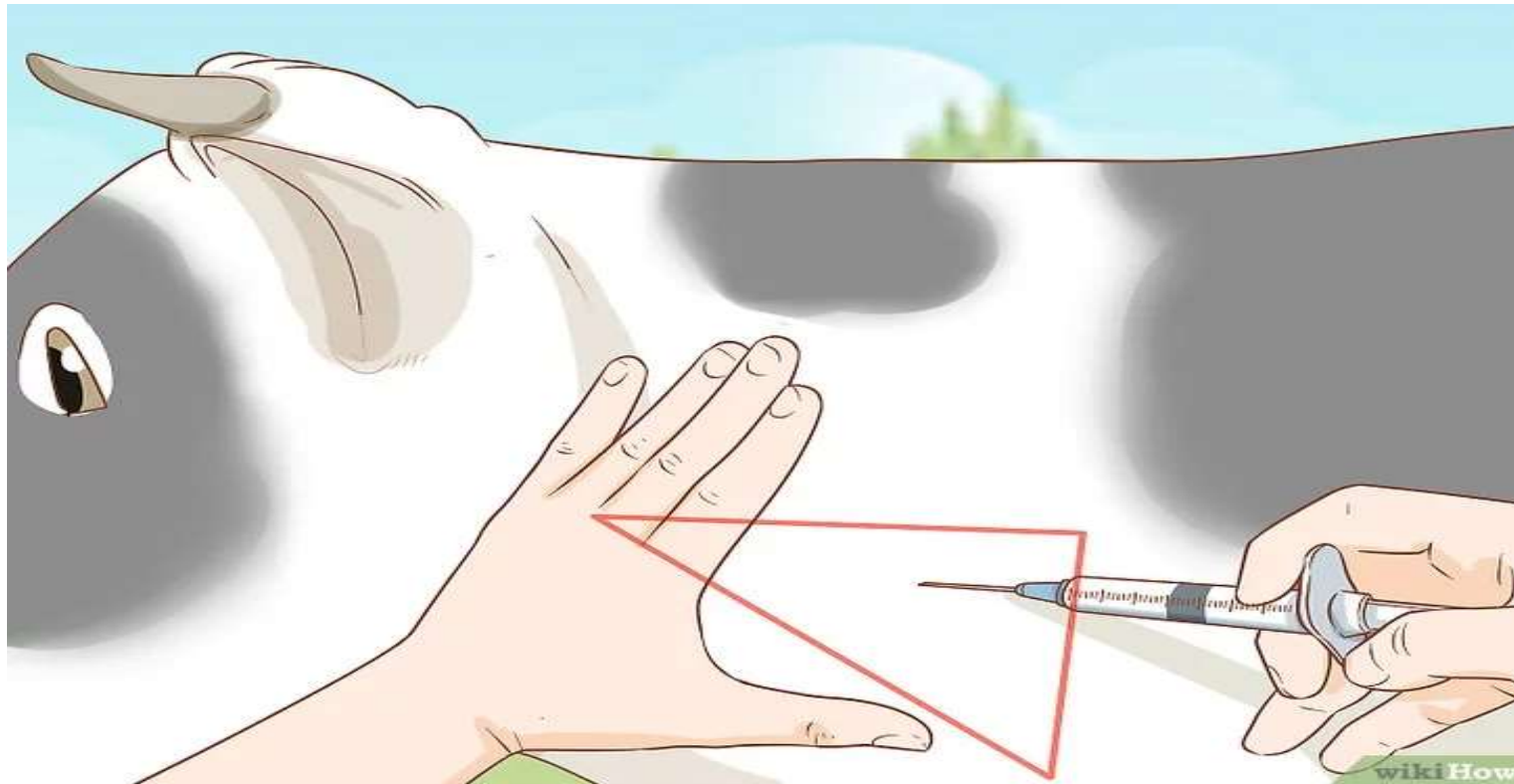
- Since intramuscular injections are more painful than subcutaneous injections, you should try to reduce the pain cow feels when the needle is put in.
- To reduce the pain, most vet doctors hit the cow's neck two or three times firmly with the palm of their hand before inserting the needle.
- It is highly recommended to follow this method.
- Hitting the cow's neck with your hand desensitizes the nerves, so the cow probably won't feel the needle's penetration and won't be so startled.



5.1 Giving the injection into the muscle Cont'd...

Choose a location to give IM injection

- Hold the syringe in your dominant hand (right, if you are right-handed).
- Then identify the injection triangle and choose an area in the centre.
- Then get ready to insert the needle, at a perpendicular angle to the skin.



5.2 Giving the injection into the muscle Cont'd...

Apply the medicine

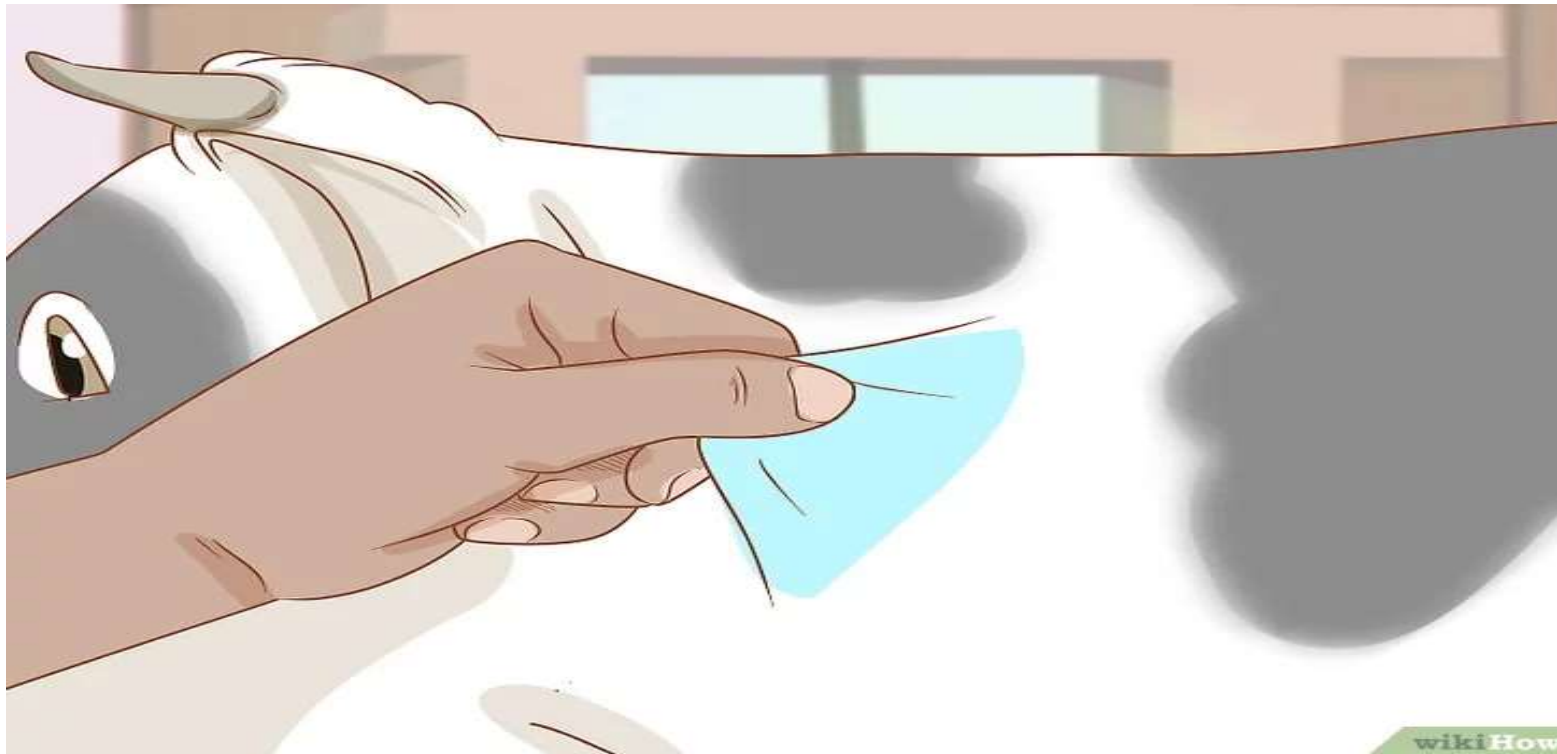
- Once you know you haven't hit a blood vessel, you can apply the medicine.
- Slowly depress the plunger until the cow has received the correct dose.
- After removing the syringe, briefly press the injection site with your fingers to prevent bleeding.



6. Giving injection under the skin (SC)

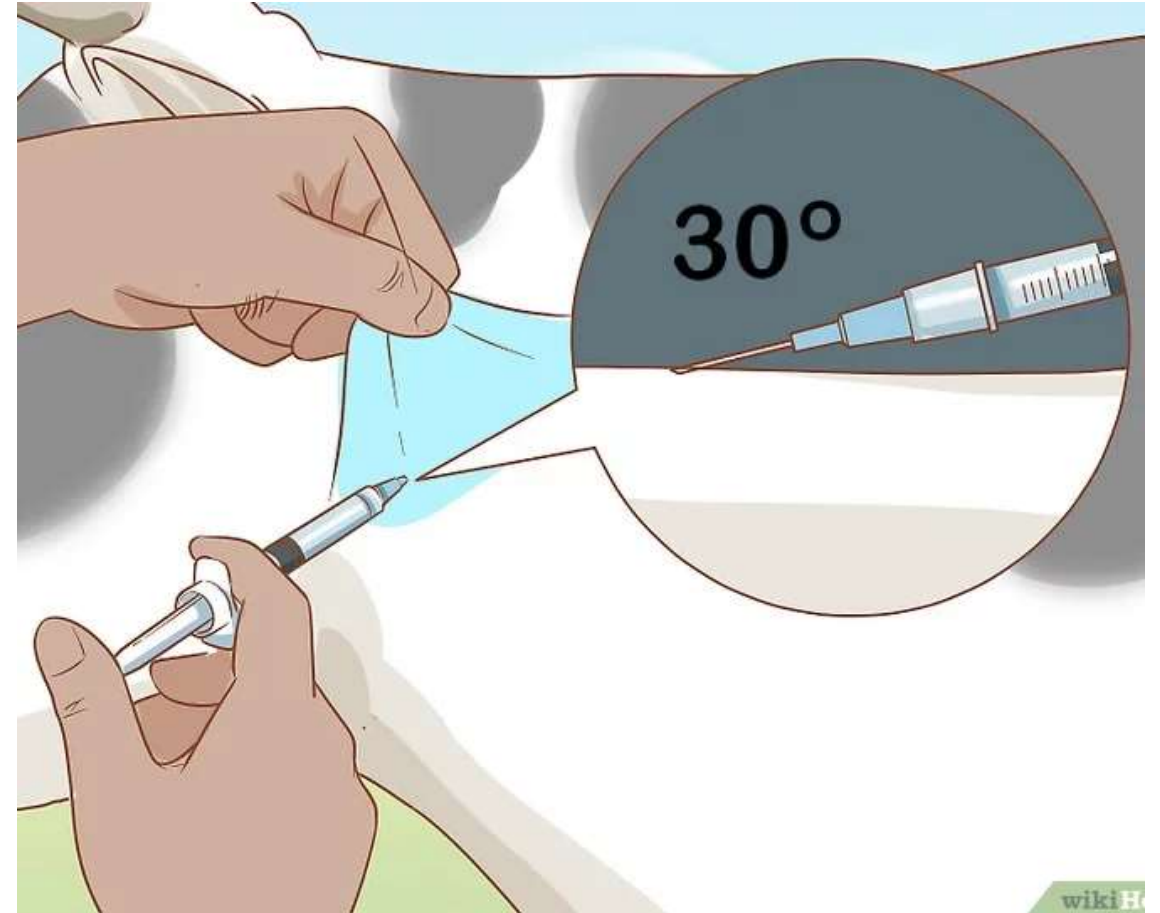
Use the tent technique

- If you're right-handed, hold the syringe in your right hand (and vice versa).
- Identify the injection triangle and choose a spot in the center of this imaginary triangle.
- Use your left hand to pinch some of the animal's skin between your thumb and your index and middle fingers. Lift this piece of skin up from the neck of the animal to form a tent.



6.1 Giving injection under the skin Cont'd...

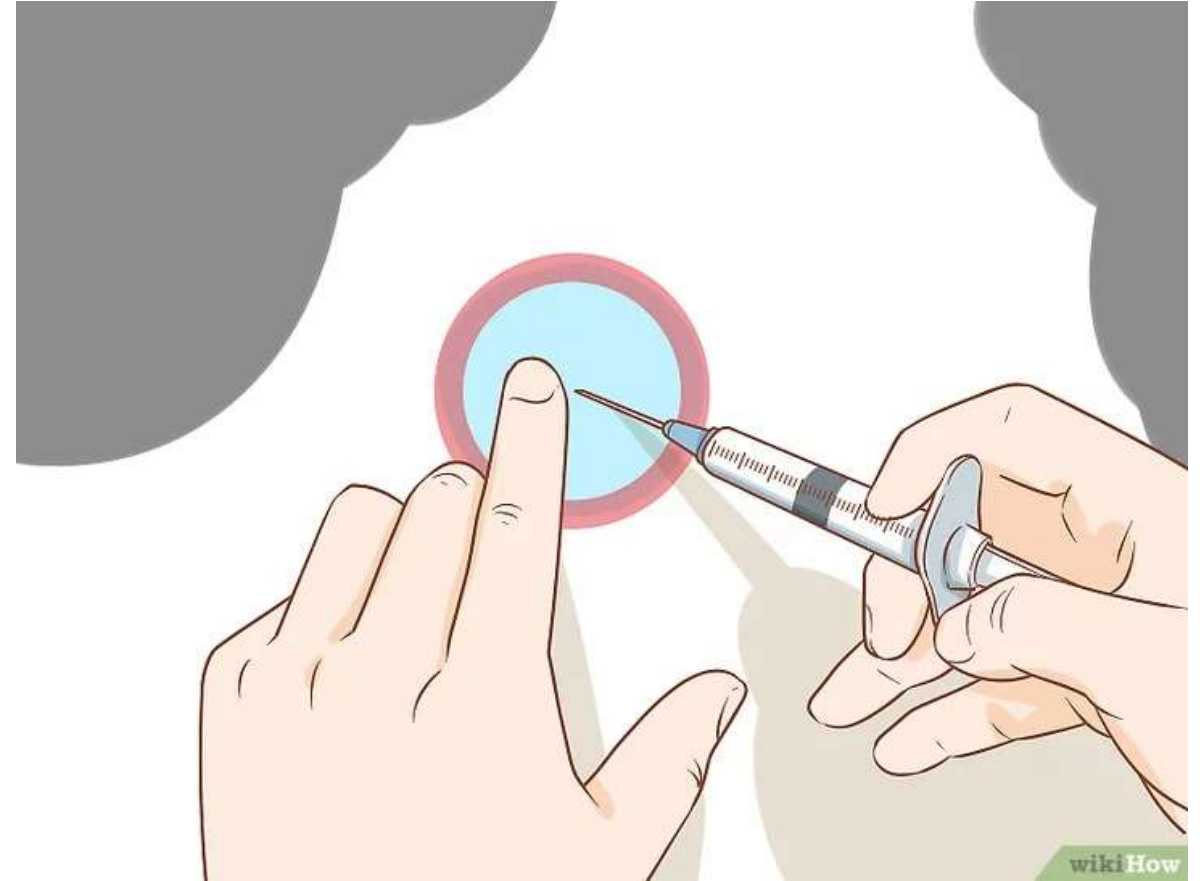
- Bring the needle at an angle of 30 to 45 degrees to the surface of the neck.
- The tip of the needle can be placed under your thumb.
- Where you place the tip of the needle depends on what you feel comfortable with and where you are least likely to prick yourself.
- Be careful not to touch the plunger (for a syringe) or trigger (for a dosing syringe).



6.2 Giving injection under the skin Cont'd...

Guide the needle into the injection site

- Use the index finger of the hand holding the needle to guide the needle into the center of one side of the tent.
- This ensures that you only insert the needle halfway, rather than fully into the skin fold, reducing the chance of hitting a muscle or blood vessel.



6.3 Giving injection under the skin Cont'd...

Administer the injection

- Once the needle is at the required depth, release the skin and push down on the plunger or pull the trigger of the syringe.
- Apply slow, but steady pressure to the syringe.
- Once your injection has been given, withdraw the needle, put the cap on and place the syringe on a dry, clean surface for future use, so as to inject the next animal.



6.4 Giving injection under the skin Cont'd...

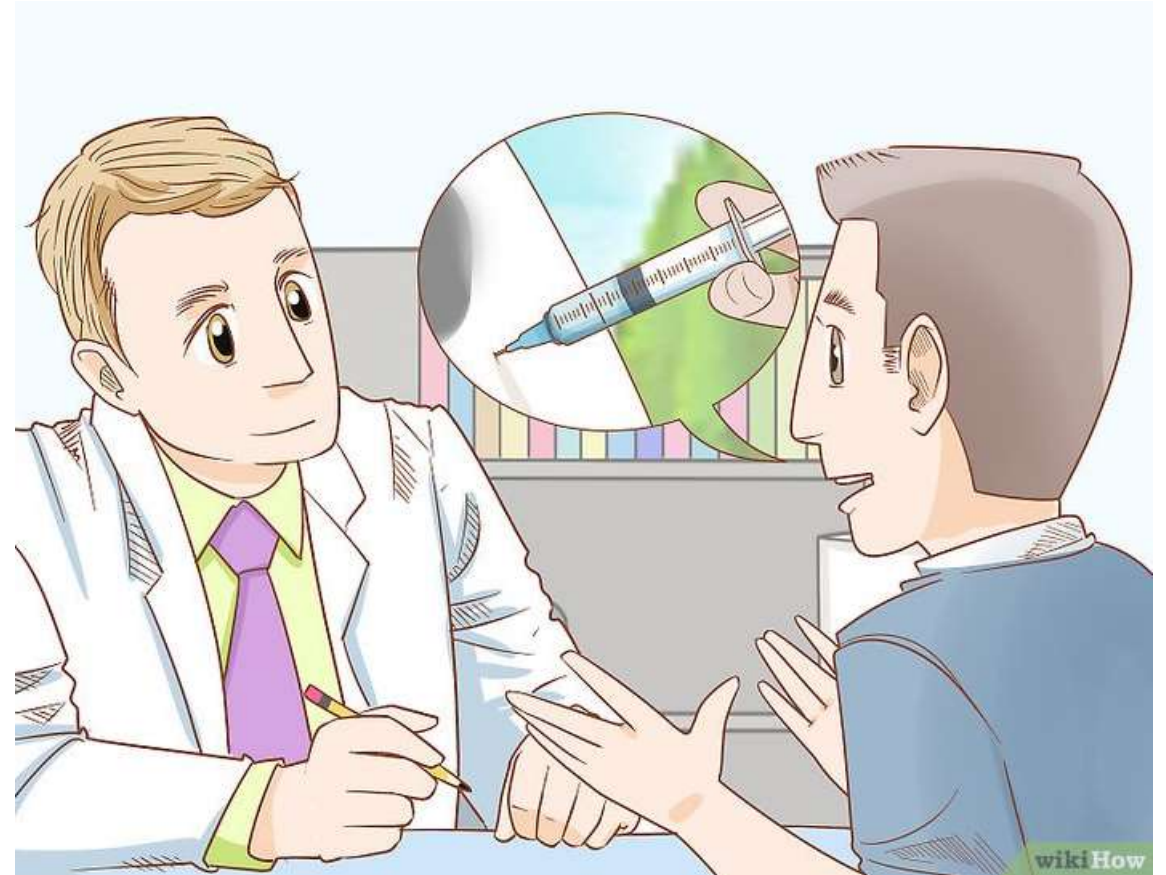
Reduce any bleeding

- Push the injection site with your hand and rub it for a few seconds to keep the site from bleeding too much and to make sure the injection fluid doesn't leak out.
- An SC injection should not bleed as much as an IM or IV injection, if there is bleeding at all. However, there is a greater risk of the injection fluid leaking out. This leakage can be severe if the skin is very tight or if too much liquid has been injected into one spot.



7. Giving injection into the vein (IV)

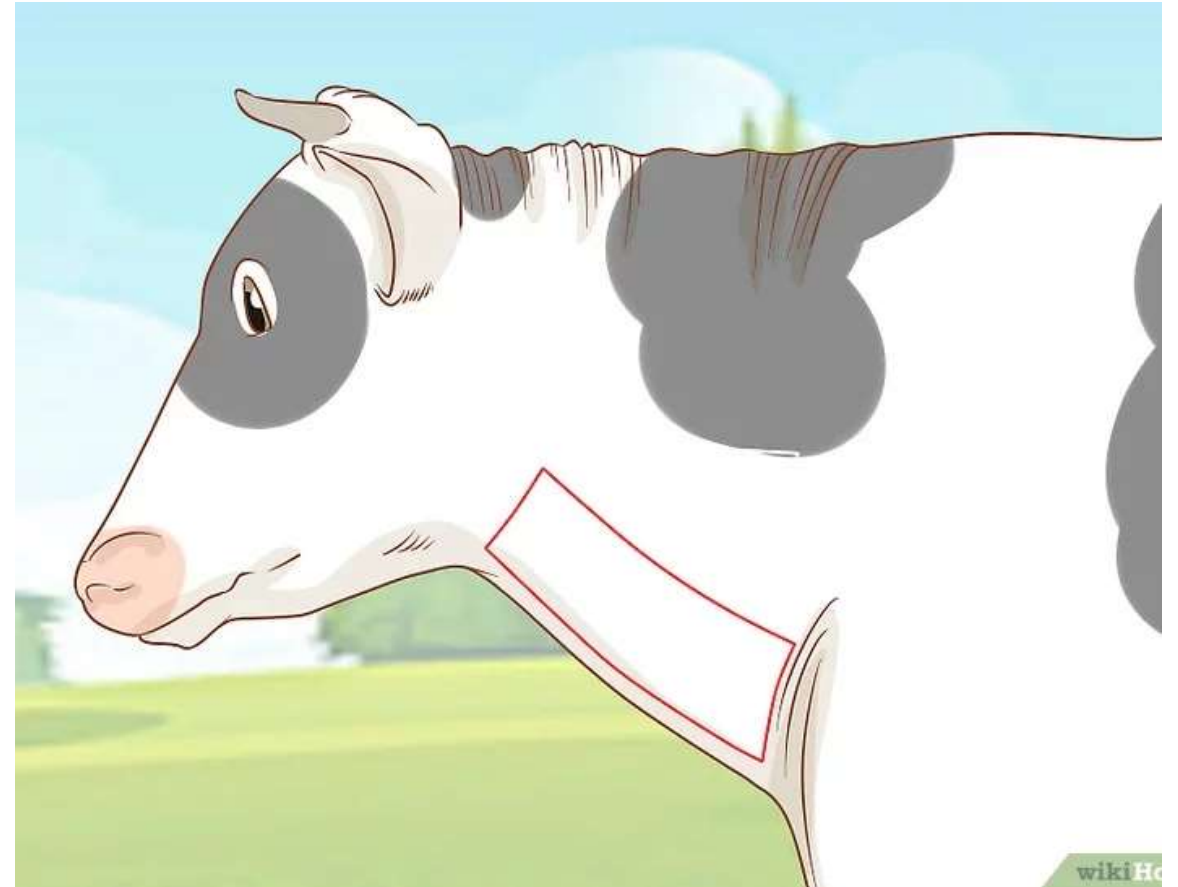
- Seek the help of a vet to administer an intravenous (IV) injection.
- An IV injection requires a lot of skill and practice.
- It is a specialized technique that is not usually performed by the livestock owner.
- If you are unable to properly administer the IV injection or do not know exactly how to do it, contact your vet doctor and have him/her perform the procedure.



7.1 Giving injection into the vein (IV) Cont'd...

Locate the Jugular vein

- You can do this by feeling the side of the neck with your fingers (it's below the imaginary triangle), above the dewlap.
- You will feel the jugular vein throb.
- Once you find it, push on the bottom of the vein to push it out. This will help you find the vein better while applying the injection.



7.2 Giving injection into the vein (IV) Cont'd...

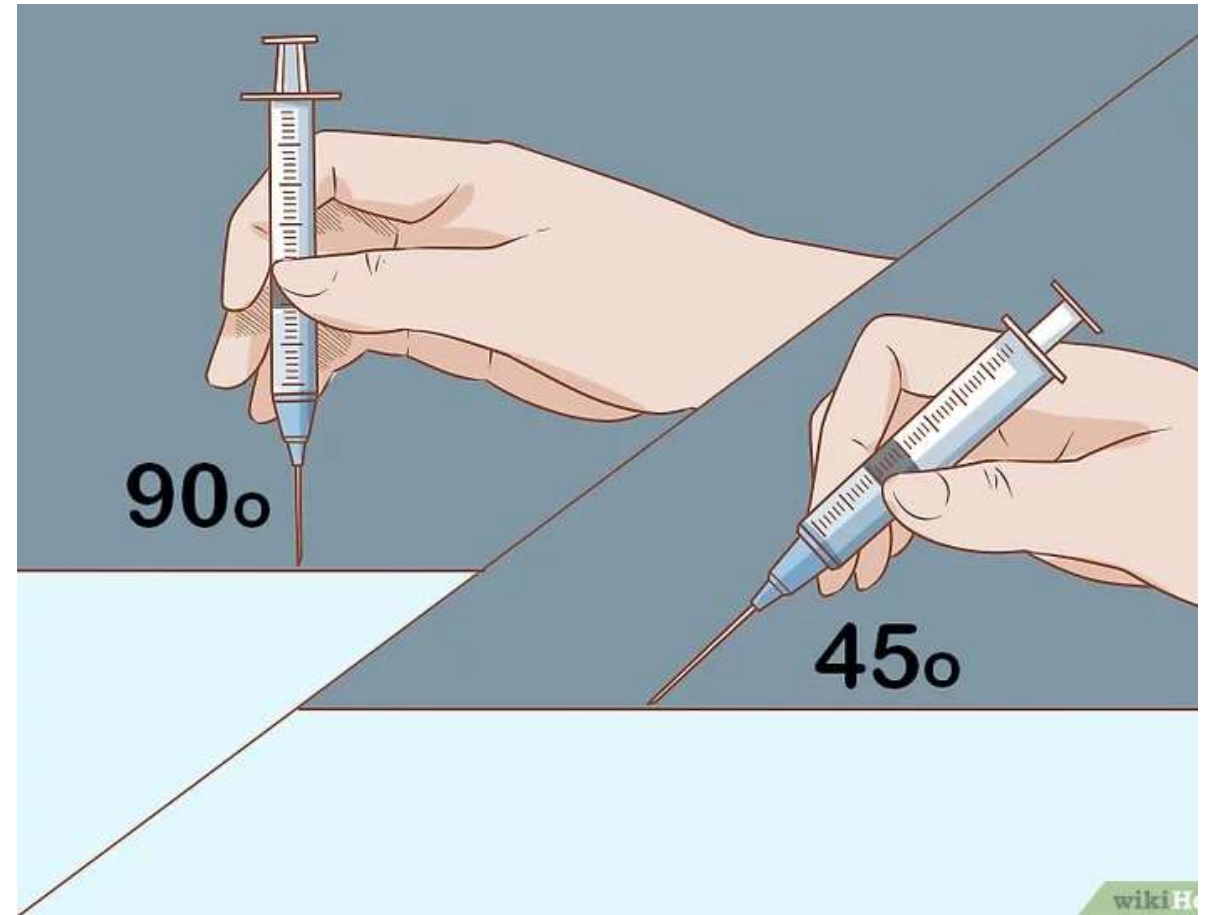
Check that there are no air bubbles in your syringe

- Air bubbles, if injected into the carotid artery, can cause serious health risks and even death.
- If there is air in the syringe when the medicine is in, hold the syringe straight up and tap it with your fingers until the air bubbles float up.
- Remove the bubbles by depressing the plunger slightly until all air bubbles are visibly gone. Some of the medicine will come out of the needle as you do this.



7.3 Giving injection into the vein (IV) Cont'd...

- Insert the needle at a 30 to 45 degree angle to the skin on the neck.
- Insert the needle slowly but firmly into the protruding carotid artery.
- You know you've hit the artery well when just a little pull on the plunger draws blood into the syringe, mixing with the contents.
- Unlike SC and IM injections, this is a good sign here.



7.4 Giving injection into the vein (IV) Cont'd...

Apply the medicine

- Press the plunger very slowly so that the liquid/medicine gradually enters the cow's vein.
- Once you have applied the required amount of medicine, carefully remove the needle.
- Place your hand on the injection site and push for a few seconds to reduce the bleeding that occurs with these types of injections.



8. Spraying cattle

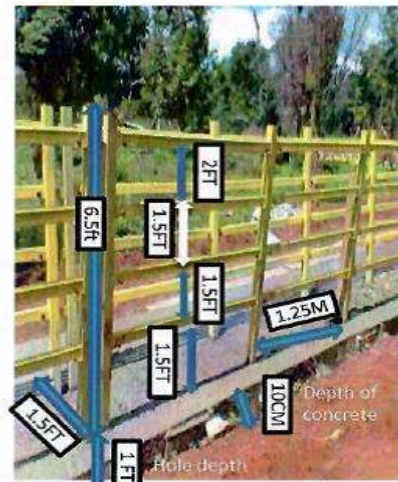
Good spraying requires;

- i. A good crush.
- ii. Good spraying equipment.
- iii. Correct concentration of the acaricide.
- iv. Correct application of the acaricide.
- v. Good safety for the people.

d. **Appropriate and recommended crush**
A good crush with one row of cattle



FRONT VIEW



SIDE VIEW OF THE CRUSH



9. A good crush

A good crush;

- Is easily accessible for cattle.
- Makes it possible that cattle can be sprayed on all sites and sides.
- Has a dry and clean floor.
- Has no spots where cattle can be injured.



A poorly constructed crush where cattle stand next to each other, which makes complete spraying of the cow nearly impossible.

9.1 A good crush Cont'd...



To the left a poor crush.

- Bad floor.
- Too wide, cattle will stay next to each other.
- Many side boards, which makes spraying difficult.



To the right a well constructed crush.

- Good floor.
- Narrow, so cattle stay behind each other.

9.2 A Poor crush



This crush has a wet and muddy floor



10. Good spraying equipment

Good spraying equipment needs;

- To have enough pressure to wet the skin of the animal.
- Nozzles need to work well.



Pump and electric sprayers are sufficient for the job.



With a back spray you need 10 litres to wet the skin, pressure is insufficient.

11. Correct concentration of the acaricide

- A low concentration is not effective and will induce tick resistance.
- A high concentration is also not effective and on top of that, it is expensive.
- Follow the instructions on the label of the bottle.
- Measure the acaricide with the supplied measure beaker or with a medicine syringe.
- Also make sure that you have the right amount of water.



As a general guide:

Amidines	40 ml in 20 litres
Pyrethroids	20 ml in 20 litres
Organophosphates	10 in 20 litres

*But always read label.



11.1 Correct concentration of the acaricide Cont'd...

- Calibrate the jerrycan if it indeed it can hold 20 liters (of water).
- You can do this on a weighing scale.
- If you use a measure cup, calibrate it too. During field tests, it appeared that measure cups purchased together with the acaricide bottle were having deviations of over 10% of the measured amount.
- You can also measure/calibrate with a medical syringe.



12. Correct application of the acaricide

- Do not cause unnecessary stress for the animal.
- Handle animals quietly, do not hit them with sticks.
- The whole body of the animal needs to be covered.
- The acaricide needs to cover the skin (wet hair is not enough), the acaricide needs to penetrate the skin to work properly.
- Make sure the pressure is high enough. Pressure from back spray is too low. You need at least 10 liters to cover the whole skin of the cow. With a bucket pump you need 5 liters per cow.
- Measure this by dividing the number of jerrycans multiplied by 20 liters through the number of animals in the crush.



Good spraying is a big advantage of a spray race.

12.1 Correct application of the acaricide Cont'd...

- Spray according to this scheme BBRH;
 - Back
 - Belly
 - Brisket
 - Rear parts
 - Head
- Spray from both sides of the crush.
- Make sure not only the hair but also the skin gets wet.

