

NAROVAC[®]

Anti-TickVaccine (ATV-1)

User Guide



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What is a Tick

Ticks are blood-sucking parasites that attach to animals and sometimes humans. They live by feeding on the blood of their hosts. Ticks are one of the most harmful external parasites in livestock production.

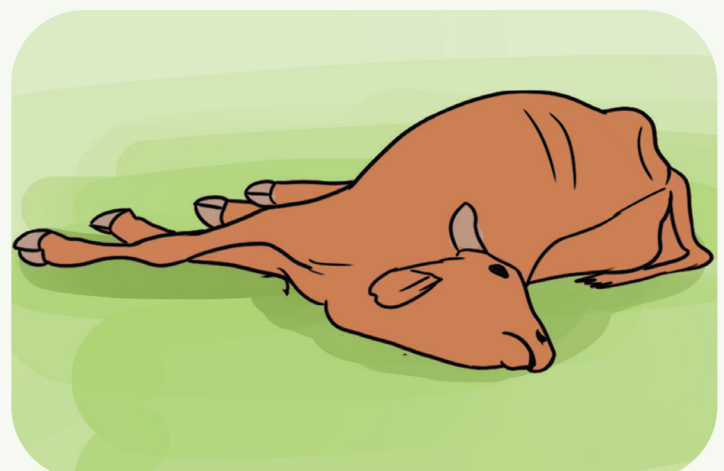
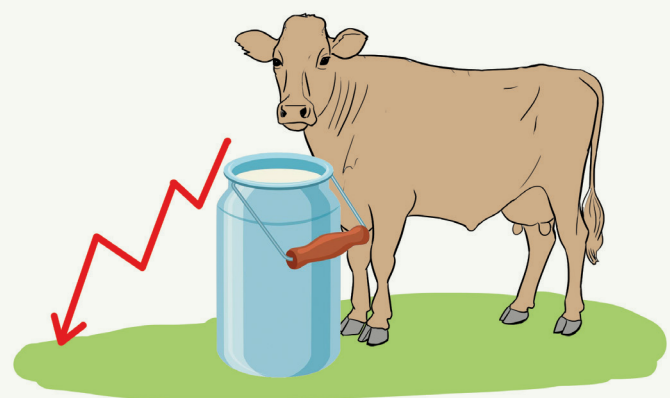


Why should you be concerned about ticks?

Ticks are dangerous because they not only weaken animals by feeding on their blood but also transmit a wide range of serious diseases. Tick-borne diseases can cause severe illness and death in livestock. Some of the major diseases transmitted by ticks include:

- East Coast Fever (Theileriosis)
- Anaplasmosis, Babesiosis (Redwater)
- Heartwater disease

These diseases reduce animal productivity (milk, meat, and hide quality), increase mortality/death rates, and cause major financial losses to farmers through treatment costs and livestock deaths.



What are the conventional methods of Tick control?



Chemical acaricides



Use of anti-tick vaccines

Spraying or dipping animals in chemicals that kill ticks.

- New methods like the anti-tick vaccine offer sustainable, long-term protection by strengthening the animal's immune system against ticks.

NAROVAC® Anti-Tick Vaccine

The National Agricultural Research Organization (NARO) has developed the first anti-tick vaccine in Uganda and Africa.



A whitish oil-based emulsion vaccine

Packed in vials/glass bottles of 50 containing 50 doses

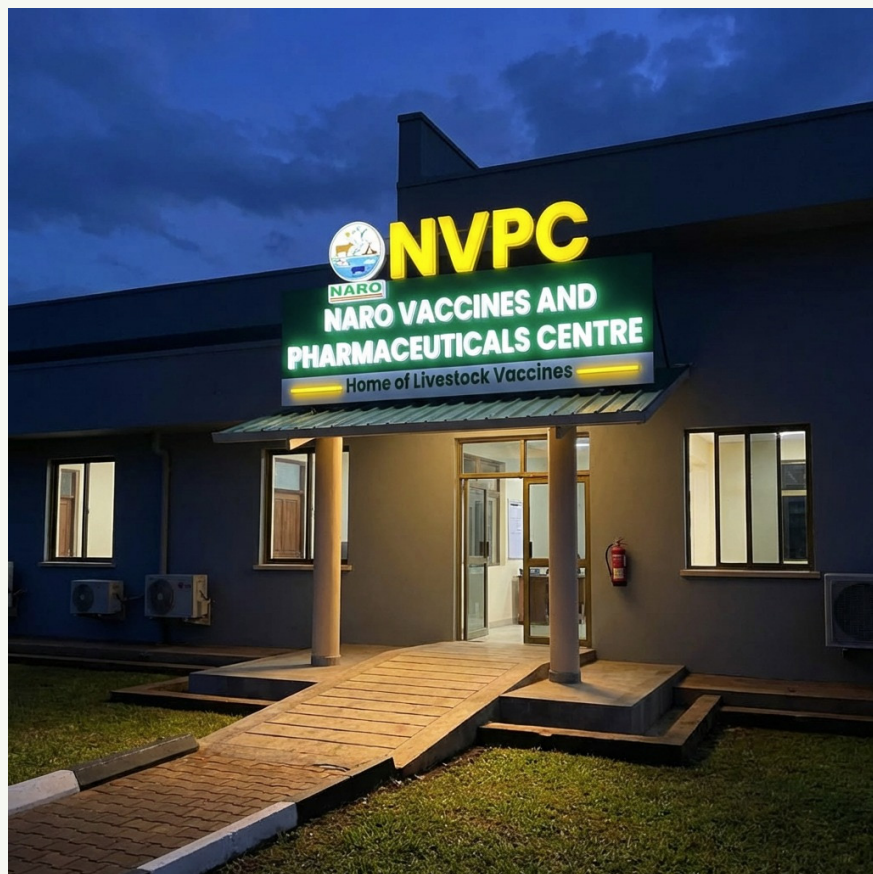
Designed to protect cattle, sheep and goats against common ticks.

- Brown Ear Tick (*Rhipicephalus appendiculatus*)
- Bont Tick (*Amblyomma variegatum*)
- Blue Tick (*Rhipicephalus decoloratus*)

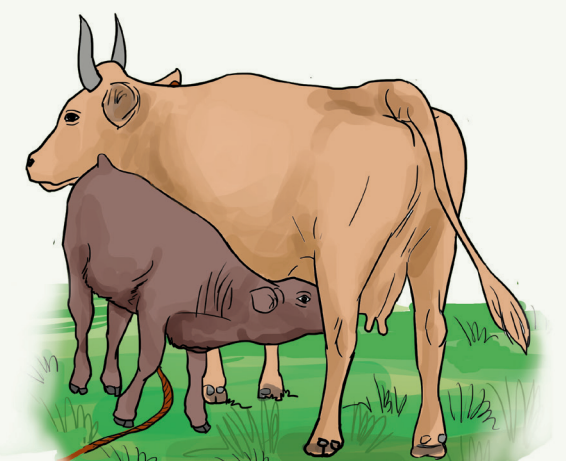
Storage

NAROVAC should be stored at 4-8°C (36°F – 46°F) but not frozen.

Benefits of NAROVAC® Anti-Tick Vaccine



- **Healthier cattle:** NAROVAC® (ATV1) Gradually reduces tick infestations, leading to healthier and more productive animals.
- **Disease prevention:** NAROVAC® (ATV1) potentially reduces the transmission and occurrence of East Coast fever, Babesiosis, and Anaplasmosis, diseases.
- **Cost effective:** NAROVAC® (ATV1) Potentially reduces the long-term costs associated with chemical acaricide use, disease treatment and mortality.
- **Sustainable solution:** NAROVAC® (ATV1) is a more environmentally friendly option compared to conventional chemical dips and sprays, reducing the risk of chemical resistance, environmental pollution and biodiversity loss such as lethal effects on bees, dung beetles, fish and other useful free-living organisms.



How does NAROVAC® (ATV1) work?

When ticks suck blood containing the antibodies, its body functions (feeding, reproduction, growth & immunity) are impaired leading to death and gradual reduction of tick populations in the farms.

When a tick sucks blood from a vaccinated animal;



Its feeding is impaired



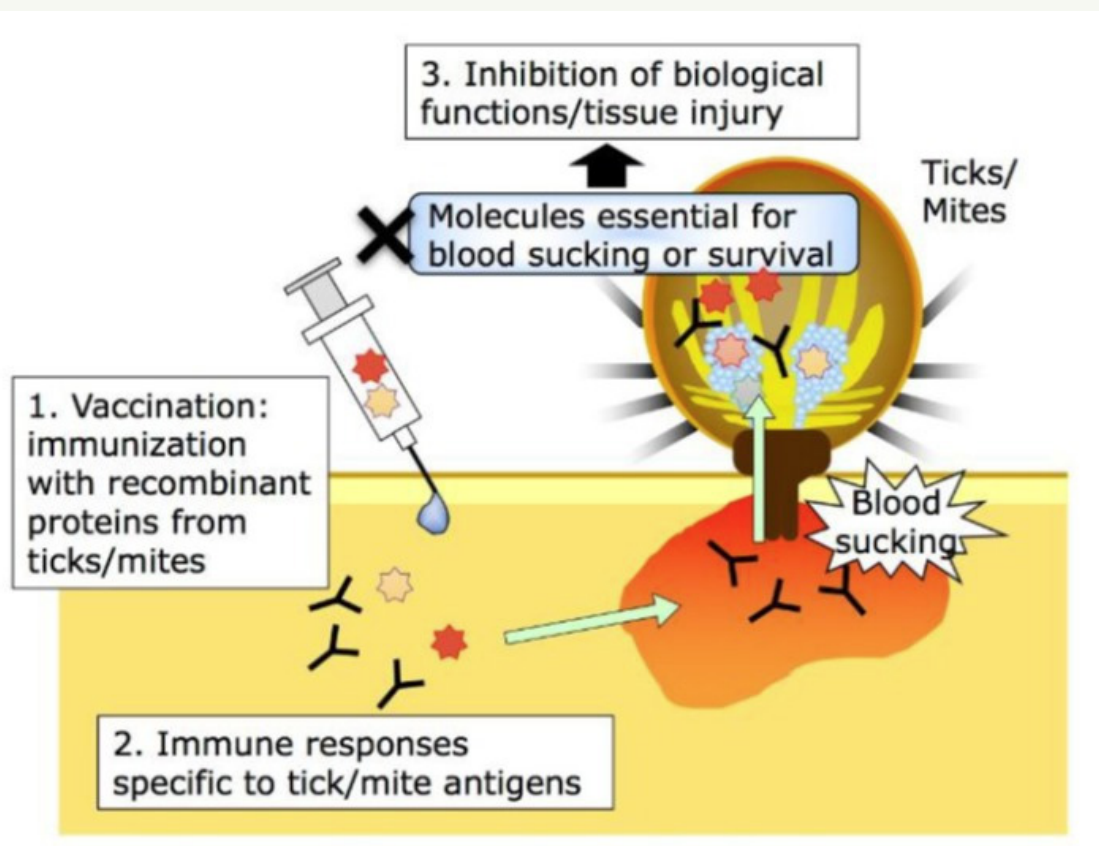
It stops laying eggs



May fall off the animal



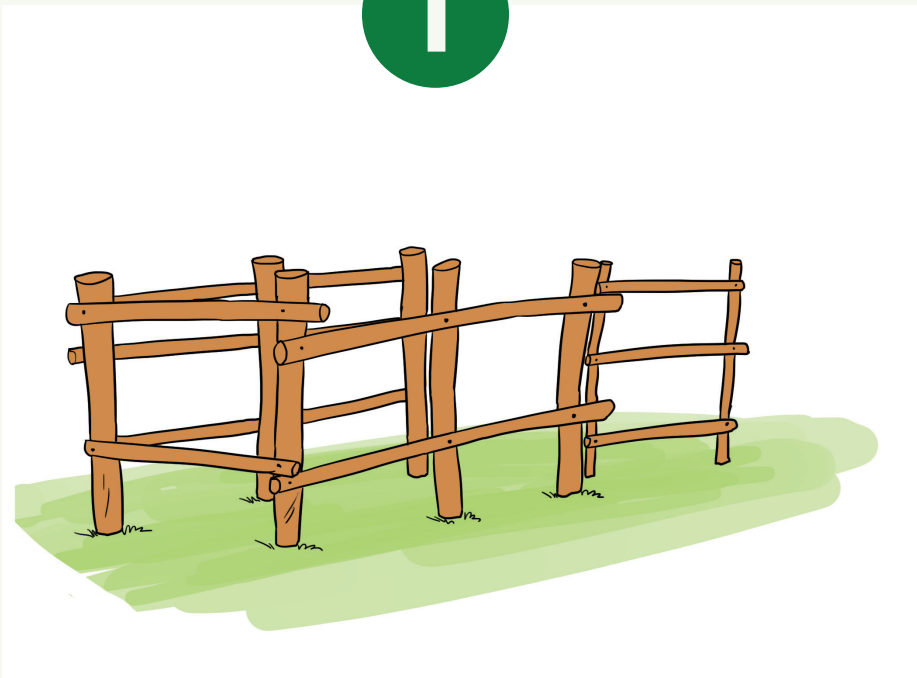
Tick gradually weakens to death



How to use NAROVAC® (ATV1)

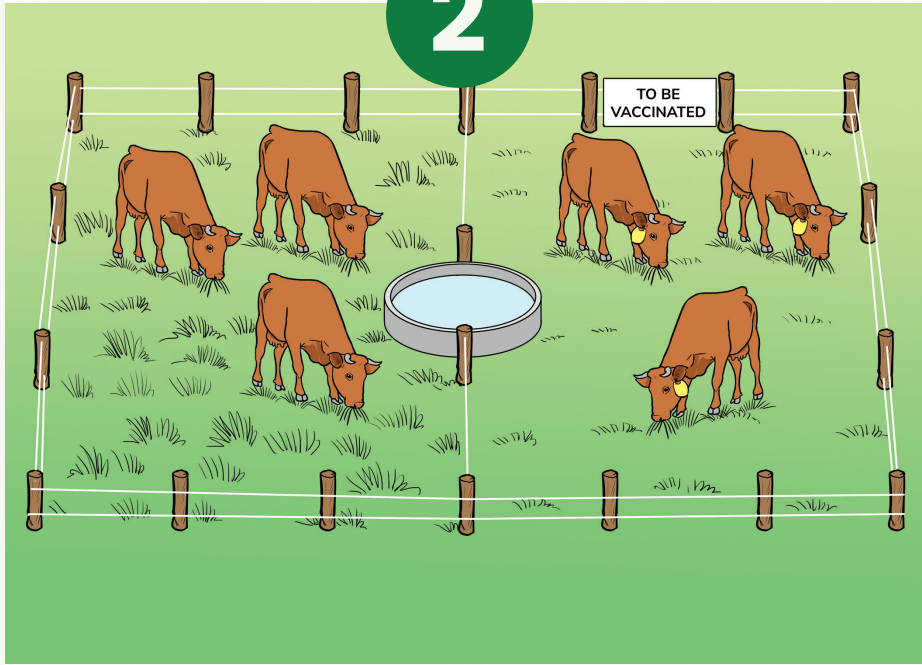
Preparing for vaccination

1



Build or repair the restraint cattle crush

2



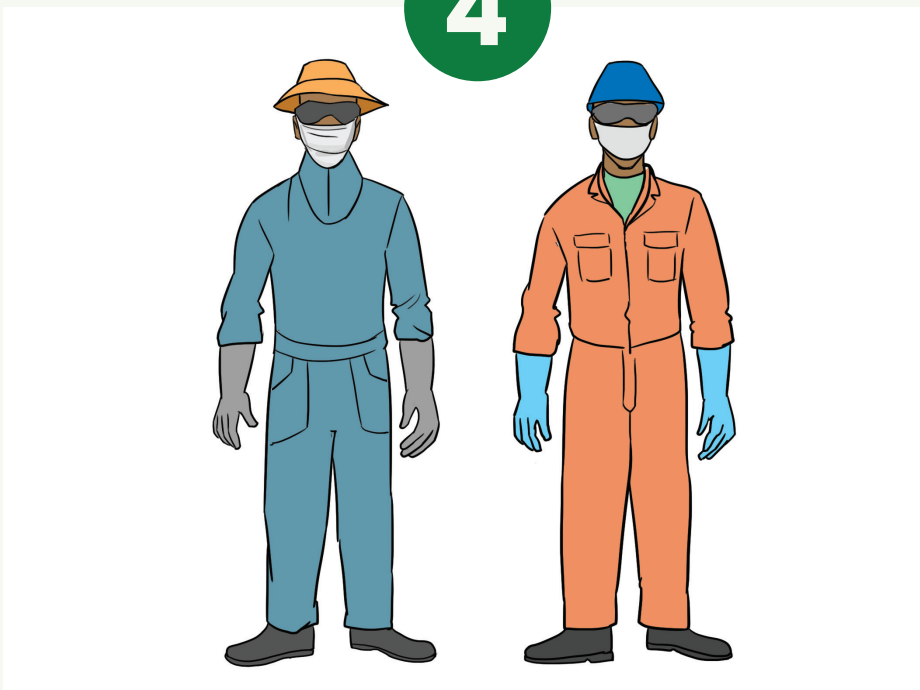
Identify the animals to be vaccinated by tagging or any other methods

3



Ensure animals get adequate feed and water

4



Mobilise adequate labor to support the vet during vaccination

5



Prepare the vaccination record book

During vaccination

NAROVAC® (ATV1) should be administered by a licensed veterinarian or an animal health worker under the supervision of a licensed veterinarian

Shake gently before use

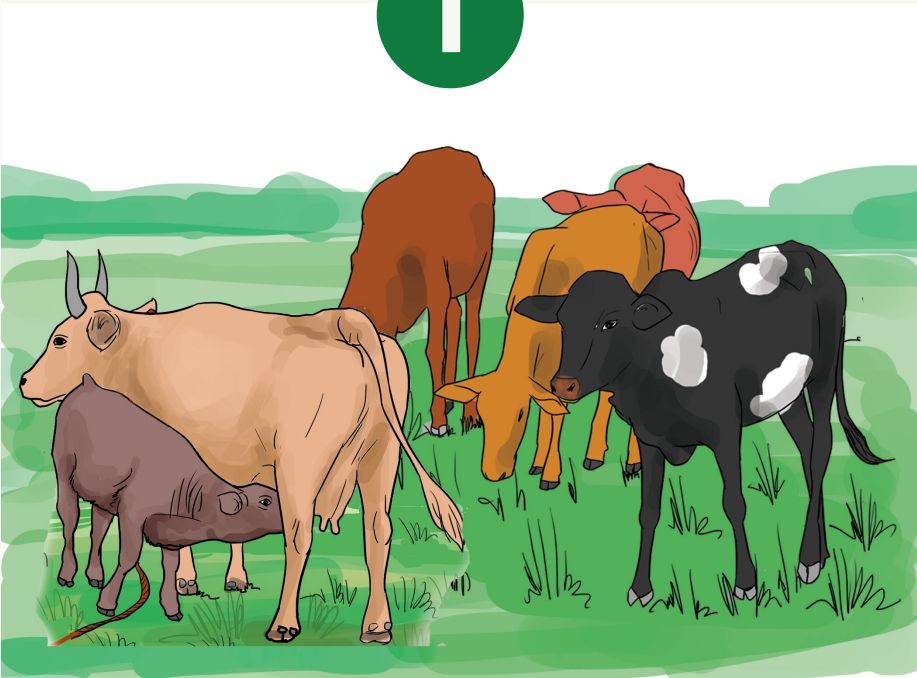


Administration Regime: Vaccinate animals on Day 1, and give the first booster dose on Day 30, and every 6 months.	
Injections	Days/ months
1 st Dose	Day 0
2 nd booster dose	4 (after 30 days)
3 rd booster dose (After the first vaccination)	24 (six months after the second dose)

Subsequently vaccinate once every 6 months

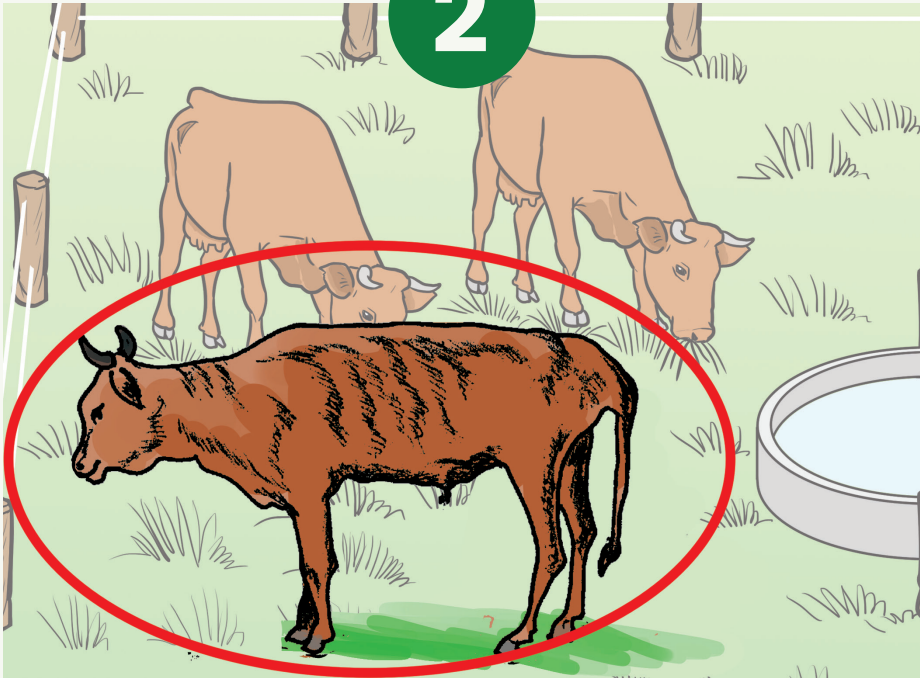
To ease vaccination by the vet & avoid double vaccination

1



Ensure all animals that are one month and older on the farm are presented for vaccination

2



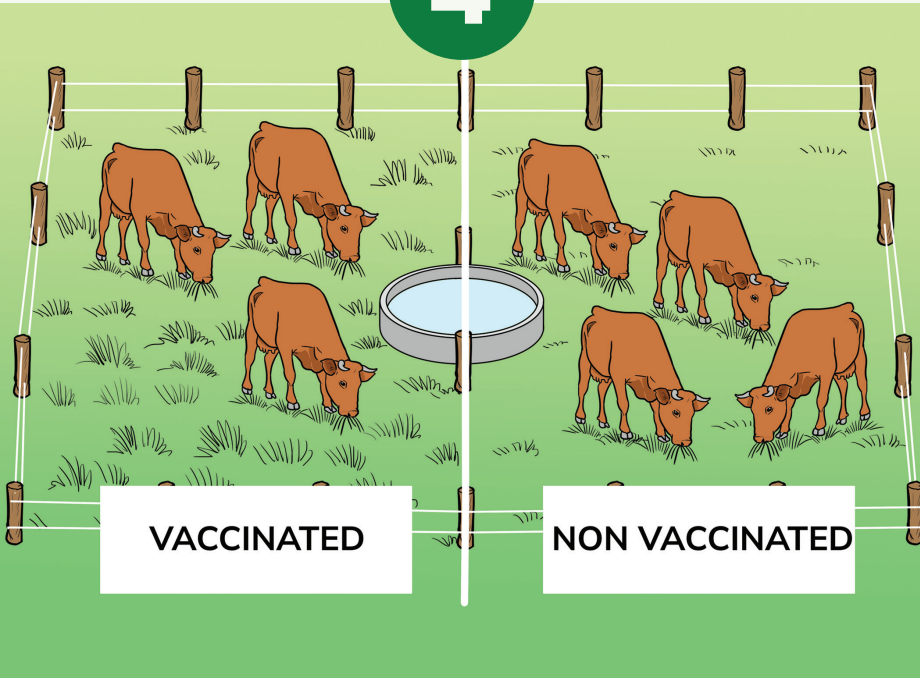
Declare sick animals to avoid vaccinating them

3



Ensure that all animals are well restrained

4



Ensure vaccinated animals don't mix with non-vaccinated.

After Vaccination

1



Ensure the vet fills and signs the record vaccination card

2



Keep record vaccination card in a safe place

3



Consult and remind the vet when the next vaccination date is due.

4



Ensure that no vaccine waste is left on the farm

5

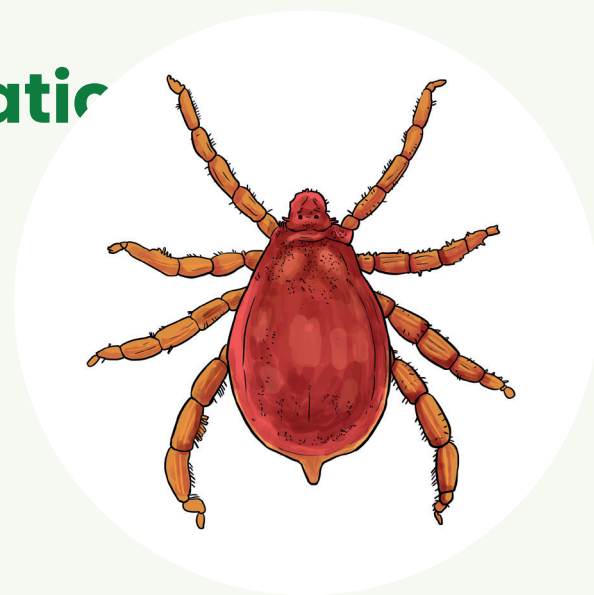


Provide enough feed and water for the vaccinated animals

NAROVAC® (ATV1) reduce tick infestation

Proper use and application of NAROVAC results into a progressive reduction in tick infestation on livestock within the environment, reducing tick infestation.

Natural tick infestations do not stimulate production of protective antibodies against ticks.



NAROVAC® (ATV1) is safe for animals and humans

The development of NAROVAC Anti-Tick Vaccine was conducted under strict regulatory oversight of relevant institutions e.g., NDA

Milk, meat, and other products from vaccinated animals are safe for consumption after vaccination.

No negative effects on animal pregnancy, fertility and reproduction

No negative effects on physiological parameters e.g., body temperature, digestion, respiratory rate, or heart rate.

Contact with vaccinated animals does not pose any risk to human health, including children and infants.

Research by NARO has confirmed that NAROVAC is safe for both animals and humans.

There were no negative effects on fertility, pregnancy, or physiological parameters such as body temperature, digestion, respiratory rate, or heart rate.

The vaccine does not leave any harmful residues in the animal, therefore one can consume its products immediately after vaccination.

The development of NAROVAC Anti-Tick Vaccine was conducted under strict regulatory oversight by:

- The National Drug Authority (NDA)
- The Uganda National Council for Science and Technology (UNCST)
- The National Biosafety Committee (NBC)
- Institutional Biosafety Committees (IBCs)
- Institutional Animal Care and Use Committees (IACUCs)
- Department of Animal Health (MAAIF)
- Independent clinical inspectors

The necessary biosafety measures were implemented throughout the trial phases.



Can NAROVAC be used alongside other tick control measures?

NAROVAC should be integrated with other tick control methods.

Since NAROVAC Anti Tick Vaccine doesn't kill ticks immediately (knockdown effect), ticks will continue to appear on animals but will gradually disappear. The vaccine should be used alongside registered acaricides and other tick control methods (Integrated Tick Management, ITM) until tick populations significantly reduce.

The reduction of ticks on the farm will depend on the management system, if animals are in paddocks, the reduction will be faster but if animals mix with other unvaccinated animals in highly infested environments, the reduction will take a longer time.

After the second vaccination (30 days), the application of acaricides should be reduced by half, subsequently, the frequency of application of acaricides should reduce as the farmer observes reduction in tick infestations.

Accidental spillovers or body contact

Thoroughly wash the area with plenty of clean water.

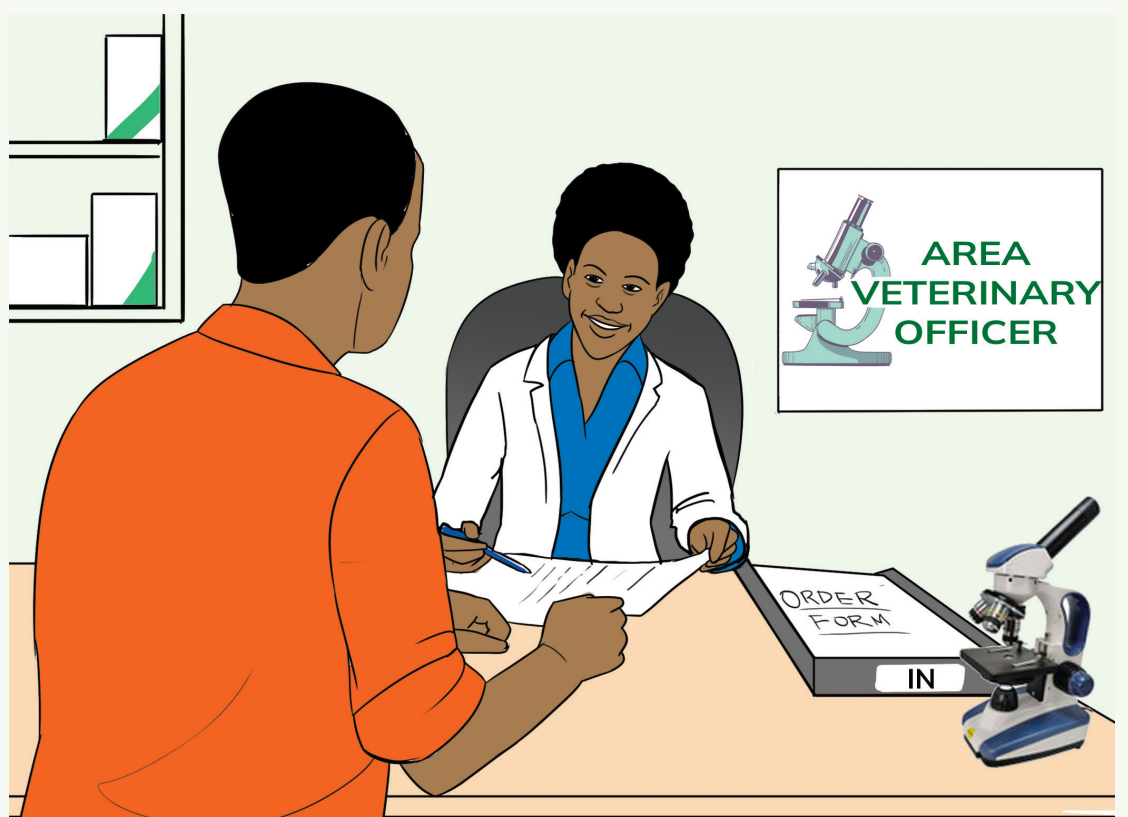
For accidental injection to a human, wipe the injection site with 70% alcohol, or ethanol and seek medical attention.



How to get the vaccine

Farmers can access the vaccine through licensed veterinary professionals and distributors.

To help the vet book/buy/stock the right quantities of the vaccine.



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Contact Information:

NARO Vaccines and Pharmaceuticals Centre
Nakyesasa, Namulonge

-  NAROVAC Anti-Tick Vaccine
-  NAROVAC-ATV
-  NAROVAC Anti-Tick Vaccine
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