

# Cattle tick: use of chemical treatments on cattle tick carriers

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Animal Biosecurity and Welfare, NSW DPI

These steps must be followed when chemically treating cattle tick carriers for cattle tick prior to entry into NSW or prior to movement from properties in NSW under biosecurity restrictions. Cattle tick carriers are cattle, bison, buffalo, deer, sheep, goats, camelidae family (eg alpacas, llamas, Arabian camels) and equidae family (eg horses, ponies, donkeys, mules).

Cattle tick carriers must have a supervised chemical treatment by an authorised officer or biosecurity certifier to meet the risk minimisation requirement as detailed in the Biosecurity Order (Permitted Activities) 2017, a biosecurity undertaking or a biosecurity direction.

## Types of chemical treatment

Chemical treatment used must be suitable for the cattle tick carrier being treated. Options include:

- Plunge dip
- Powered spray
- Injectable (only in limited circumstances for a supervised chemical treatment)
- Pour on (only in limited circumstances for a supervised chemical treatment, **not for entry into NSW**)

### Plunge dip

1. The acaricide concentration must be maintained at the appropriate level to ensure the treatment is effective.
  - The capacity of the dip must be accurately calibrated. This ensures the correct ratio of acaricide and water are added when replenishing the solution.
  - The dip volume must be monitored on a regular basis during the tick season to ensure it does not drop by more than 2,000 litres before being replenished.

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- The dip should be replenished as required to minimise the effect of stripping. The amount of chemical added must be calculated based on the volume of water added.
  - Water should only be added to offset the loss of water through evaporation.
  - The acaricide concentration should be adjusted in the event of flooding.
  - The chemical concentration of the dip should be adjusted promptly when needed. If analytical results differ by +/- 30% from recommended concentration a partial adjustment is recommended pending results of a further sample.
  - The volume of the dip must be recorded before and after each day of dipping, and must always be measured at the same point.
  - The dip, sump, crush, draining pen and surrounding area must be kept clean to prevent pollution of the dip.
  - The acaricide must be measured accurately and premixed in water before adding to the dip. If possible, the chemical should be added on non-dipping days or stirred thoroughly prior to dipping.
2. The following records must be kept:
- date of activity or event
  - loss of water through evaporation or excess water entering the dip through flooding
  - volume of water added for evaporation loss
  - volume of water and acaricide added for topping up or compensating for flooding
  - volume of dipping fluid at commencement of dipping
  - volume of dipping fluid at completion of dipping
  - number and species of carriers dipped
  - laboratory results of samples submitted
3. Samples must be submitted to a laboratory facility:
- for testing either on a monthly basis during the recognised tick season, or within 30 days prior to using the facility.
  - An authorised officer or accredited certifier may take samples or require additional samples be collected and submitted to demonstrate that the chemical in the dip is at the correct concentration.
4. Additional best practices to ensure carriers safety and optimal results include:
- Remove the plug between the dip and the sump or draining pen prior to dipping and replace after dipping to prevent flooding.
  - Stir the dip prior to dipping carriers, either mechanically by a pump, or by dipping a number of carriers (20 to 50 depending on the acaricide). Any carriers used as stirrers must be re-dipped.
  - Do not dip over-heated or stressed carriers.
  - Dip adults and young carriers separately.
  - Monitor the speed and frequency of carriers entering the dip and regulated to prevent accidents and ensure the entire beast, including the head and ears are wet.

## Powered Spray

1. Powered spraying may only be used to treat a high risk tick carrier if one of the following conditions are met.
  - The carrier is able to be led and can be tied up during treatment.
  - Small numbers of carriers require treatment and a plunge dip cannot be adequately stirred.
  - Small numbers of carriers with wide sets of horns (e.g. longhorn or buffalo) are presented, and cannot safely entry into a plunge dip.
2. Prepare and maintain the recommended concentration of acaricide in the spray unit by ensuring:
  - the total capacity of the spray tank is accurately measured so that the correct ratio by volume of acaricide and water are added.
  - the spray tank must be calibrated so that the amount of acaricide and water prepared is correct to complete the treatment.
  - the acaricide is measured accurately before being added to the water in the spray tank.
  - for a **supervised treatment** – the acaricide is added to the water in the presence of the accredited certifier prior to treatment.
3. Spray units must be maintained as follows:
  - Spray tank, hoses and hand piece must be kept in good working order. There should be no leaks from the hand piece, hoses or tank.
  - The spray unit must deliver a low-pressure high-volume output and the hand piece must be able to be adjusted to control the required flow dependant on the situation.
  - The acaricide solution must be stirred prior to spraying cattle tick carriers. Stirring can be done mechanically by using the hand piece to re-circulate the acaricide back into the spray tank.
4. The following information must be kept:
  - Date of activity
  - Volume of water and acaricide added
  - Volume of spraying fluid at start of spraying
  - Volume of spraying fluid at end of spraying
  - Number and species of carriers sprayed

Additional best practices for optimal results include:

- Start by aiming the nozzle at the animal's feet using a fine spray at first, gradually increasing the volume output.
- Move up the front leg to the top line of the animal. Work the acaricide into the coat of the animal by directing the spray horizontally across the body, leaving the head dry, until the underline is reached.
- Inspect the animal to ensure that the rump and tail have been thoroughly sprayed

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- Inspect under the front shoulder, the udder and the flank to ensure these areas have been thoroughly sprayed.
- Ensure the mane of equines has been thoroughly sprayed.
- Repeat the above steps on the opposite side of the animal.
- Start spraying the head by standing either directly in front or slightly to the side of the animal. Start with a fine spray, gradually increasing the volume output to thoroughly wet the area.
- Inspect the ears and under the jaw to ensure these areas have been thoroughly sprayed.
- Carefully visually inspect the whole animal to make sure all areas have been treated. Watch as the animal moves to check all hard to access areas have been treated.

### **Injectable or pour-on products**

1. An injectable or pour-on may only be used for a supervised chemical treatment in special circumstances with prior approval from the Manager of the NSW Cattle Tick Program. Potential circumstances include:
  - The animal/s cannot be sprayed (e.g. not led and tractable) and there is no plunge dip available to treat the cattle tick carrier or small numbers of carriers require treatment. or
  - Small numbers of carriers with wide sets of horns (e.g. longhorn or buffalo) are presented, and can't safely entry into a plunge dip. or
  - There is known resistance to acaricides currently in use in the plunge dip.

Note: if high risk carriers are to be treated using injectables or pour-ons, calves must also be treated. Endectocides **do not** transfer from cow to calf through the milk.

2. Make sure the cattle tick carrier are accurately dosed by:
  - Using digital livestock scales to weight the carrier receiving the treatment.
  - Visually assess the heaviest carrier in a large mob and only weigh that animal. Dose all the mob at the rate for the heaviest carrier.
  - Draft the carriers into mobs of different weight classes. Dose each mob for the heaviest carrier in the class.

**Note: An accredited certifier or authorised officer must supervise the weighing of the carriers for a supervised treatment.**

3. Maintain application equipment in the following way:
  - Use an automatic applicator that is able to be accurately calibrated.
  - Maintain hoses in good working order. Check there are no leaks from the applicator or hoses.
  - Use either 16 or 18 gauge needles that are no longer than 15mm.
  - Replaced needles regularly when administering injectables.
  - Use an applicator that is approved by the manufacturer for application of the specific chemical, especially when using pour-ons, as some endectocides must be applied in a specific way. For example in narrow strips or fanned.

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- Calibrate the applicator so the required dose is being dispensed.
  - Verify that the correct dose (by volume) is being administered by dispensing at least two doses into a measuring container.
  - Check that the barrel of the applicator is filling completely between each dose dispensed.
4. Apply the chemical as follows:
- Treat all calves individually.
  - If using an injectable endectocide:
    - follow the manufacturer's recommendation;
    - inject the dose **under the skin and not into the muscle**. The skin on the side of the neck is usually preferred site. There should be no friction encountered when administering the dose. If friction is encountered retract the needle depth slightly until no friction is encountered;
  - If using a pour-on endectocide:
    - apply steady pressure to the trigger of the applicator to minimise excessive splashing of chemical off the animal's back during treatment;
    - applied topically along the mid-line of the back from the withers to the tail head of the carrier or as per the manufacturer's recommendations;
    - do not apply the pour-on to wet carriers;
    - do not treat if heavy rain is threatening.
5. Keep detailed records of the following information:
- Endectocide name
  - Endectocide application method
  - Expiry date of endectocide
  - Batch number of endectocide
  - Weight range of cattle tick carriers being treated
  - Dosage rate applied to the cattle tick carrier

### Time limits on moving a carrier

Carriers that have had a supervised chemical treatment must be moved within:

- 24 hours of the risk minimisation requirements being met if the carrier has been treated with an acaricide; or
- Between 4-7 days of the risk minimisation requirements being met if the carrier has been treated with an Endectocide.

## Treatment and re-inspection for failed inspections

**The carrier must not move until all the risk minimisation requirements are met.**

### Carriers that require retreatment

If the carrier fails an inspection within the above timeframes, they must start treatment and inspection again until the carrier meets the risk minimisation requirements.

The chemical manufacturer's recommendations regarding treatment intervals must be complied with.

### Definitions

**acaricide** – an externally applied chemical with a label claim that effectively controls all life cycle stages of the cattle tick.

**chemicals** – acaricides or endectocides used for treatment of cattle tick carriers by plunge dipping, spraying, pour-on or injectable application that include a label claim for the control of cattle ticks.

**dip or dipping** – means to completely immerse a cattle tick carrier in an acaricide in a vat, bath or apparatus of any kind used in connection with the dipping of animals.

**endectocide** - an anti-parasitic chemical that is effective against internal and external parasites.

**injectable** – means an effective external-parasite destroying endectocide which is applied to a cattle tick carrier subcutaneously (by injecting under the skin).

**owner treatment** – a treatment using one of the methods specified in this procedure, applied by a person moving a cattle tick carrier, to meet the risk minimisation requirements of the Biosecurity Manual .

**pour-on** – means an effective external-parasite destroying endectocide which is applied to a cattle tick carrier topically along the mid-line of the back, in a narrow strip between the withers and butt of the tail or as per manufacturer's recommendations.

**powered-spray** or **spray** – means to thoroughly wet the entire skin of a cattle tick carrier with an effective acaricide using spray equipment that delivers a low-pressure high-volume output, either through a 12V or petrol/diesel driven motor.

**resistance** – means a chemical treatment is no longer effective in killing cattle tick.

### More information

## Cattle tick: use of chemical treatments on cattle tick carriers

- Additional information on cattle ticks see: <https://www.dpi.nsw.gov.au/animals-and-livestock/beef-cattle/health-and-disease/parasitic-and-protozoal-diseases/ticks>
- The NSW DPI legislation page at <http://www.dpi.nsw.gov.au/about-us/legislation>
- General Biosecurity enquiries phone 1800 680 244 or email [animal.biosecurity@dpi.nsw.gov.au](mailto:animal.biosecurity@dpi.nsw.gov.au)

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