



The Gnatwork

Intended use of resource / data

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Title of resource
Drop Trapping Protocol
Authored by
Hope, A., Gubbins, S., Sanders, C., Barber, J., Stubbins, F., Baylis, M. and Carpenter, S. (2018). Sheep breed and shearing influences attraction and blood-feeding behaviour of <i>Culicoides</i> (Diptera: Ceratopogonidae) on a UK farm. <i>Parasit Vectors</i> , 11(1): 473.
DOI
https://doi.org/10.1186/s13071-018-3003-5
Description
Drop trapping is a means of catching insects, including <i>Culicoides</i> biting midges, that have been feeding or are attracted to a mammalian bait animal, typically a sheep. A net is lowered or dropped down over the restrained animal, trapping insects that fly from near to or on the animal's skin. This method sheet describes its safe use in the field environment.
Intended use
Scientific research use and training purposes.
Restrictions on use
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Resource history
N/A



Drop Trapping Protocol

If using this protocol, please cite:

Hope, A., Gubbins, S., Sanders, C., Barber, J., Stubbins, F., Baylis, M. and Carpenter, S. (2018). Sheep breed and shearing influences attraction and blood-feeding behaviour of *Culicoides* (Diptera: Ceratopogonidae) on a UK farm. *Parasit Vectors*, 11(1): 473.

A. Introduction

Drop trapping is a means of catching insects, including *Culicoides* biting midges, that have been feeding or are attracted to a mammalian bait animal, typically a sheep. A net is lowered or dropped down over the restrained animal, trapping insects that fly from near to or on the animal's skin. This method sheet describes its safe use in the field environment.

B. Materials required

Equipment:

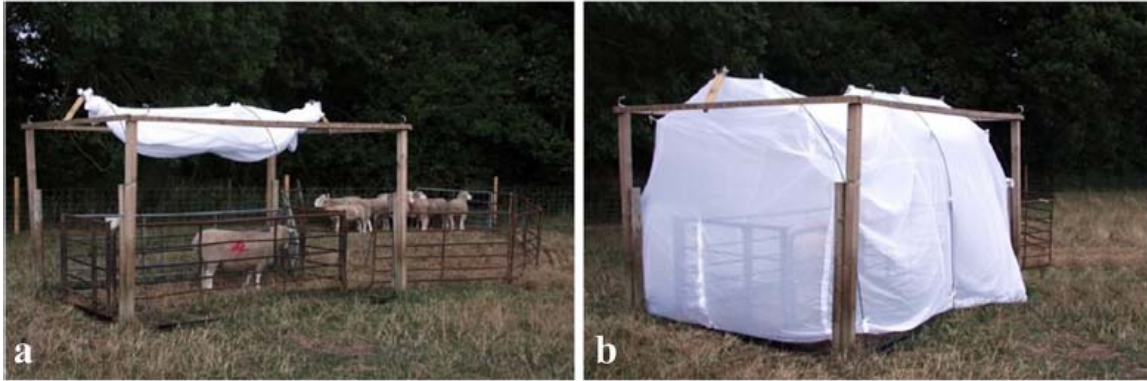
- Drop trap frame: approximately 3 x 2 x 2 metres
- Trap net: very fine cotton mesh to fit frame
- Sheep hurdles and gates
- Kill jar: not PVC based plastic, marked 'A' and 'B'
- Plastic storage containers: screw top, 150 - 250 ml volume
- Cardboard pill box: 150 ml volume with mesh lid and small hole in side
- Cotton wool: absorptive
- Pencil and paper
- Nitrile gloves
- Automatic weather station
- Pooter

Chemicals and reagents:

- Ethanol: for preserving - any grade & make, diluted to 70% with tap water
- Chloroform: for kill jars - any grade & make

C. Method

- C.1 The drop trap is positioned in an area where there is a known *Culicoides* population within a sheep field.
- C.2 Arrange sufficient sheep hurdles into a small corral with a gate and another small exit.
- C.3 Position hurdles and gates to create a crush, or small area in which a single sheep can be kept. The corral and crush should adjoin so the sheep can moved from one to the other through a gate.
- C.4 Position the drop trap frame over the crush and suspend the netting from the frame.
- C.5 Gather the netting to the top of the frame and secure using cord.



Drop trap (a) pre- and (b) post-deployments and the connecting corral containing sheep not used in experimentation
Source: Hope *et al.* (2018).

- C.6 Using gloves, pour 5 ml of chloroform onto wad of cotton wool and place inside cardboard pill box. Place this box inside a kill jar and screw down lid firmly.
- C.7 Gather 10 sheep into the corral.
- C.8 Move a single sheep into the crush and gate off to separate it from the others. Retreat to distance of at least 50 metres for a period of 10 minutes.
- C.9 Return to the trap and release the netting, ensuring the net drops smoothly and quickly all the way to the ground, taking care to avoid distressing the sheep.
- C.10 Enter the trap and use pooter to aspirate *Culicoides* from the net and sheep for a period of 10 minutes.
- C.11 Aspirated *Culicoides* are pootered into a pill box and secured with a cotton wool plug. Mark pill box with date, time and experiment code.
- C.12 Place pill box within kill jar for at least 20 minutes.
- C.13 Empty trap of remaining insects by shaking netting. Raise and secure netting once more. Return sheep to corral.
- C.14 In the intervals between sampling, remove a pill box from the kill jar and place on sheet of white paper. Inside a vehicle, gently shake insects from the sock onto the paper. Tip insects into storage pot and add ethanol as to cover all insects by 10 mm depth. Add paper tag with sample code, date and time of run.
- C.15 Transport samples back to the laboratory for identification.
- C.16 Intervals between sample runs will be dependent on experimental design. Typically, runs will be completed in the period from one hour before to one hour after sunset.
- C.17 Relevant meteorological data can be downloaded from the automatic weather station at any time after the last run of the session.



D. Results

Results of trap collections should be recorded.

E. Maintenance

Where appropriate, equipment is maintained as specified in the manufacturer's instructions.

F. Troubleshooting

Where trapping in the field the greatest emphasis should be given to safety of the humans and livestock present.

G. References

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