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Buffalo flies and their control

Sally Spence

Technical Specialist, Farm Product Integrity, Animal & Plant Biosecurity, Orange

Always read the label

Users of agricultural (or veterinary) chemical products must always read the label and any Permit before using the product, and strictly comply with the directions on the label and the conditions of any Permit. Users are not absolved from compliance with the directions on the label or the conditions of the Permit by reason of any statement made or not made in this publication.

Introduction

The buffalo fly, *Haematobia irritans exigua*, is a small biting fly 3.5 – 4 mm long. It feeds off cattle and buffalo, and causes irritation which can result in reduced production if cattle are heavily infested.

Distribution

Buffalo flies were accidentally introduced into northern Australia from Asia in the mid nineteenth century. Since then they have spread through northern Western Australia, the Northern Territory, Queensland and north-eastern NSW. They first entered NSW in 1978 and since then have slowly spread south.

The distribution of buffalo flies within NSW varies from season to season. In mild winters they have been observed to overwinter as far south as the mouth of the Hastings River. In severe winters they overwinter only in small pockets right on the coast in the far north of the state. The summer and autumn weather conditions then dictate how far they spread from the overwintering sites. Warm, moist conditions favour multiplication and spread.

Life cycle

Buffalo flies live permanently on their host, the females only leaving to lay eggs in freshly deposited dung pats. They feed 10–40 times each day and can only live for 1 or 2 days off the host.

- **Adult flies** live for 2–3 weeks, and females lay eggs from 4 days after they commence sucking blood, and continue to lay eggs until they die.

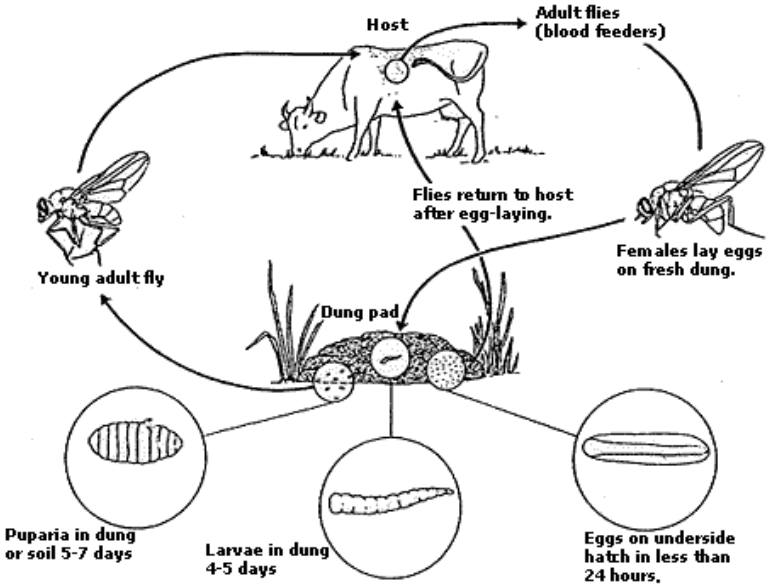

Figure 1. Life cycle of the buffalo fly

- **Eggs** hatch in 15–24 hours under favourable conditions, and hatching rates are greatest between 25°C and 35°C.
- The **larvae** burrow into the dung, moving further in as the surface layers dry out. Optimal larvae survival occurs at about 25°C and 75%–85% dung moisture content – under these conditions, larvae growth is usually completed in 4–5 days.
- **Pupation** takes place in or under the dung pad, and adults emerge in 3–5 days under these conditions. Freezing of the dung pad, such as occurs in a heavy frost, kills any larvae or pupae present in the dung.

The life cycle from egg to adult fly (Figure 1) takes 9–11 days. The life cycle from egg to egg takes 12–14 days, but this time period may extend to several weeks if the weather is cool.

Spread

Spread of buffalo flies between herds and between animals occurs when:

- newly emerged flies are seeking their first host – they can fly up to 10 km in search of a host;
- flies are dislodged from an animal;
- female flies return to a different host after laying eggs in dung.

Movement of infested animals can be an important method of spread between herds.

Effect on cattle

The extent of a buffalo fly infestation varies from animal to animal. Bulls and dark-coated cattle, especially black cattle, seem to carry the largest fly burdens.

- Lower weight gain and lower milk production have been measured in heavily infested cattle. It is generally considered that infestations of more than 200 flies per animal are necessary to reduce production.
- Many infested cattle develop sores in the inner corners of their eyes.
- Some cattle are ‘allergic’ to buffalo flies and are intensely irritated by as few as 4 or 5 flies. These cattle scratch and rub themselves constantly, which results in large sores on their necks and sides. The value of the hide is reduced when cattle have developed skin sores as a result of buffalo fly infestation.

Minimising the use of chemicals

There are several reasons why the use of chemicals to control buffalo fly populations should be avoided. Some of the chemicals used to treat buffalo flies result in residues in meat. Cattle must be withheld from sale for considerable periods after treatment in order to ensure that there are no residues present in meat products. This complicates the marketing of cattle during the buffalo fly season.

Buffalo flies have already developed resistance to the synthetic pyrethroid group of chemicals and there is evidence that resistance is emerging to the organophosphate group of chemicals. Unless care is taken they will also develop resistance to other chemical groups. When resistance develops, it means the duration of chemical control is reduced. Minimising the use of chemicals delays the development of resistance, as does rotating between chemical groups.

Non-chemical control methods

Buffalo fly trap

The buffalo fly trap was initially developed by CSIRO. The trap consists of a rounded clear plastic tent through which the cattle walk. The flies are brushed off the cattle within the tent and are then trapped inside where they die of desiccation. The trap removes 80% of the buffalo flies each time the cattle pass through it. Provided cattle pass through the trap every day or every second day, sufficient fly control is usually achieved to the extent where chemical control is no longer required.

Buffalo fly traps are ideal for dairy farms and can be successfully used for beef cattle. Cattle can be trained to use the trap before the buffalo fly season starts.

Buffalo fly tunnel trap

The buffalo fly tunnel trap was developed by the Queensland Department of Primary Industries as an aid to buffalo fly control. Full plans and advice on building the tunnel trap are available from Queensland DPI's website at www2.dpi.qld.gov.au/beef/11925

Dung beetles

Dung beetles break down and bury dung pats, which are the breeding site for buffalo flies. Very large populations of dung beetles are required before reductions in buffalo fly populations are observed. Different species of dung beetles can be introduced to an area to extend the period of dung beetle activity.

Treating cattle with synthetic pyrethroid insecticides makes their dung toxic to dung beetles for a few days after treatment. Some macrocyclic lactone chemicals are toxic to dung beetle larvae (check the label of the products you are considering buying).

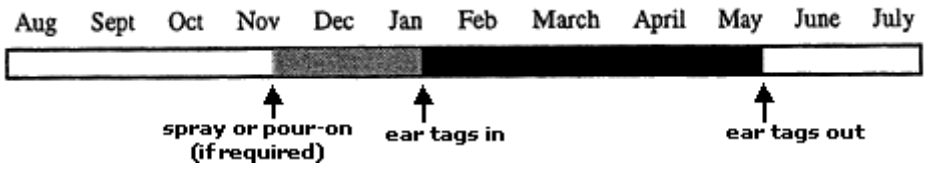

Figure 2. When to use insecticidal ear tags

See Primefact 442 *Dung beetles – working for you* for more detailed information.

Culling allergic cattle

A very small number of cattle in the herd are intensely irritated by buffalo flies. Herd treatments are often based on the severe response exhibited by these few cattle. By culling these cattle, treatment need not be given until buffalo fly numbers have built up and the herd, as a whole, is starting to show 'fly worry'.

Chemical treatments

See the warning at the beginning of this publication.

Various chemical groups are registered for use to control buffalo flies in NSW. They include synthetic pyrethroids (SP), organophosphates (OP) and macrocyclic lactones (ML). These chemicals are available in a variety of application methods, including spray, pour-on, and insecticidal ear tag.

Delay treatment for as long as possible; tolerate a few flies. Monitor your cattle and treat only when there are more than 200 flies per animal, or when focus animals (such as bulls) show 'fly worry'.

Insecticidal ear tags are recommended for the peak fly period from late January to May (see Figure 2). To slow the onset of fly resistance to the insecticides used in the ear tags, it is recommended that the type of ear tag be rotated. Use an OP tag for 2 or 3 years and then an SP tag for 1 year.

If a treatment is needed before late January, use a spray or pour-on before the ear tags are applied. Again it is important to rotate the chemicals to slow the development of resistance:

- Use an SP or ML spray or pour-on if you intend using OP ear tags.
- Use an OP or ML spray or pour-on if you intend using SP ear tags.

Use the number of ear tags per animal as recommended by the manufacturer. Place tags in the back of the ear.

Remove ear tags after the control period noted on the label has passed (usually between 10 and 16 weeks). Avoid treating once the ear tags are removed; tolerate a few flies.

Precautions

When any chemical treatment is used on cattle:

- read the label;
- follow the manufacturer's recommendations – it is an offence not to follow the instructions on the label;
- apply the recommended amount to each animal (underdosing encourages resistance; overdosing can result in residues);
- if using a spray application, spray with large droplets, not a fine mist;
- keep records of the chemical used, the dose rate and the date;
- handle chemicals with care – wear protective clothing.

Figure 3. Removal of ear tags. Remove insecticidal

*ear tags after **four months** to stop resistance developing in buffalo flies.*

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