



## Screw-worm fly

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### Summary

Screw-worm fly, a serious threat to our pastoral industries, occurs in almost all tropical countries except Australia. In this farmnote, its life cycle and potential impact on cattle, sheep, dogs and humans are described, and measures to ensure early detection of its entry into Australia, and procedures for submitting samples of live maggots found in unusual cases of fly strike are outlined.

Screw-worm fly is found in the coastal swamps of Papua New Guinea adjacent to the Torres Strait and throughout much of Indonesia. Sea trade with these areas could introduce it to Australia and it could also be introduced in a fly strike wound on a person or pet arriving in Australia. These risks highlight the need for quarantine vigilance and public awareness.

### Life cycle

Screw-worm flies are related to blowflies that cause fly strike in Australia. There are two species, known as Old World and New World screw-worm fly. They cause a severe form of wound strike. All warm-blooded animals are susceptible including livestock, pets, wildlife and humans. Screw-worm flies only breed on the wounds of living animals.

The female fly lays up to 250 eggs on the edge of a fresh wound. After hatching, the larvae (or maggots) enter the wound and burrow into the underlying tissue to feed. As they grow, they form a seething mass of maggots and cause extensive tissue damage that is susceptible to further strikes. After about seven days the larvae drop from the wound to pupate in the soil. Adults emerge in about seven days, and the female fly mates four to five days after hatching.

The whole life cycle can be completed in just 20 days. The tissue damage caused by the maggots results in production losses, as well as deaths, particularly from navel strike in calves. Screw-worm fly strikes are also ideal sites for secondary blowfly strikes. Common sites for strike include wounds from husbandry practices such as castration, dehorning, branding, tailing and mulesing of sheep. Other common sites are navels, genitals, wire cuts and tick bites.

### Potential impact

A large area of tropical and sub-tropical Australia has suitable environmental conditions and hosts to support screw-worm fly all year round. If left uncontrolled, the fly

could infest 2.9 million square kilometres of Australia. In Western Australia, the fly would probably remain restricted to the north of the State. The most serious effect would be on cattle and sheep industries. In some herds 10 to 15 per cent of cattle could be struck at any one time. The greatest source of loss would be the death of newborn calves as a result of navel strike, which can be as high as 30 to 50 per cent.

If screw-worm fly were to become established here, it could cost Australia more than \$400 million each year in lost production and control measures. Management practices in extensive areas would have to change to combat the problem, and some northern cattle properties could cease to be viable. Humans, companion animals and wildlife could also be affected by screw-worm. This would have serious implications for community health in the north of Australia.

Should screw-worm fly be detected, an intensive control and eradication program would be required. This would involve movement restrictions, surveillance, traceback, and inspection and treatment of affected animals. Eradication would depend on the success of a campaign to annihilate breeding numbers through the release of millions of sterile male screw-worm flies. It is estimated that it could take up to five years to eradicate an outbreak of screw-worm fly from Australia. Early detection and containment of an outbreak would be critical to the successful outcome of an eradication program.

### Surveillance

In Western Australia, officers from AQIS (Australian Quarantine and Inspection Service) and the Department of Agriculture undertake surveillance for screw-worm fly. This is aimed at early detection of an incursion. The program includes placement of screw-worm lure traps for adult flies around livestock export ports and high-risk areas, and inspection of livestock for fly strike. Quarantine officers also inspect returning livestock vessels to monitor the effectiveness of pre-entry insecticide treatments.

The submission of maggots from cases of fly strike in the Kimberley is also encouraged through extension work by field staff. Maggot collection kits are distributed to pastoralists, veterinarians and community health staff as required. Pastoralists can help by reporting unusual cases of fly strike and submitting maggots for identification to the NAQS (Northern Australian Quarantine Strategy) entomologist in Broome. All cases of fly strike in cattle should be investigated.

### Important Disclaimer

*The Chief Executive Officer of the Department of Agriculture and the State of Western Australia accept no liability whatsoever by reason of negligence or otherwise arising from the use or release of this information or any part of it.*

## How to submit maggots for identification

Live maggots must not be sent - they should be killed first.

- Collect about 20 maggots from deep in the wound.
- Drop maggots into boiling water for one to two minutes to kill them, and then place them in a small bottle with 70 per cent alcohol as a preservative. Methylated spirits can be used in place of alcohol.
- Record animal details and package together with the sealed sample.
- Notify and submit the sample to your nearest District Veterinary Officer at the Department of Agriculture or post to the NAQS entomologist at AQIS in Broome.