Procedure

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Ground control of locusts

Authorised by (DPI)	Deputy Director General Biosecurity & Food Safety	**Authorised date (DPI)**	16/07/2015
Authorised by (LLS)	Senior Executive Team	**Authorised date (LLS)**	01/06/2015
Authorisation period		**Effective date**	27/07/2015

1. Application / Scope

- Control of locusts is the responsibility of the land manager according to the *Local Land Services Act 2013*.
- Ground control is conducted or coordinated by Local Land Services (LLS) according to the *Locust response - Control* policy. NSW Department of Primary Industries (NSW DPI) personnel will assist as required.
- Land managers, contractors and LLS personnel are responsible for ensuring ground control of locusts is conducted according to the relevant legislation and regulations to ensure safety for non-target areas, people and the environment.

2. Abbreviations / Definitions

- Buffer zones or no-spray zone - an area in which direct application of the agricultural chemical is prohibited; this area is specified as the distance between the closest point of direct chemical application and the nearest boundary of a site to be protected, unless otherwise specified on a product label - definition from Australian Pesticides and Veterinary Medicines Authority (AVPMA).
- LLS: Local Land Services
- NSW DPI: NSW Department of Primary Industries
- OEH: Office of Environment and Heritage
- SDS: safety data sheet – required for each insecticide
- SWMS: safe work method statement
- ULV: ultra-low volume

3. Resources / Equipment

- Communication equipment eg mobile phone
- First aid kit - suitable for the area and number of people on site
- Forms
- Global positioning system (GPS for accurate location of locust control)
- Hand held weather/wind meter (for recording wind speed, temperature etc)
- Magnifying glass
- Mister on a suitable vehicle
- Personal Protective Equipment (according to the Safety Data Sheet - SDS)
- Relevant and approved insecticides and associated SDS, label and permit
- Sprayer suitable for the control site
- Tablet devices

4. Warnings

- Risks associated with the use of insecticides and associated impact on the environment and personnel have been identified in the following risk assessments:
    - Insecticide application for locust control

    - Use of spray units to deliver insecticide for the control of plague locusts
- Safe Work Method Statements (SWMS) have been developed to identify, assess and control risks associated with ground control:
    - Driving vehicles
    - Manual handling – stores
    - Property visits
- LLS personnel, contractors and landholders responsible for spray operations should ensure that tasks are conducted according to their current SWMS.
- Always read and comply with label directions.
- Personnel applying insecticides have been trained and hold the required chemical application qualification.
- Contractors must be engaged and inducted in accordance with NSW Trade and Investment contracting requirements including current insurance and licences.

5. Procedure

5.1. Notification

Public and private land managers must notify their local LLS when locusts (any stage) are present on their property.

LLS must notify all registered apiarists in the area where insecticides may be used. A general public notification may also inform land managers who have unregistered hives.

All lands that may be subject to environmental constraints, threatened or endangered species, biological control agents or organic farms should be identified, noted, mapped and available as a resource for LLS, NSW DPI and Australian Plague Locust Commission.

Where LLS are conducting ground control on behalf of a land manager, land managers must be notified prior to each spray event.

5.2. Equipment and insecticide

Insecticide for control of locusts must be issued by LLS according to the procedure *Insecticide management for locusts*.

Only equipment listed on the insecticide label or permit can be used to apply the insecticide. Misters can only be used to spray emulsifiable concentrate formulations of fenitrothion (e.g. Fenitrothion 1000).

Ground application of emulsifiable concentrate/suspension concentrate insecticide may be applied to banding nymphs and roosting adults.

The use of Ultra Low Volume insecticide supplied by NSW DPI for control of banding nymphs and roosting adults is permitted provided it is applied using equipment listed on the label.

5.3. Calibration of equipment

All equipment must be calibrated prior to application of insecticide to deliver the recommended amount of insecticide in mL/ha.

Calibrate equipment and record calibration each time it is used.

5.4. Contractors

- Contractors are engaged according to NSW Trade and Investment contracting procedures.
- Contractors must meet safety and licencing requirements, and be able to supply records of evidence of hours worked with preference for Global Positioning System tracking with time logs, or as a minimum, written spray records including calibration records. Obtain a copy of spray record template or example of records intended to be used by contractor to ensure

requirements can be addressed.

- Obtain a quote for tasks that includes:
    - general site location
    - area to be sprayed
    - an hourly rate that is all inclusive.

  Quotes are to be received on letterhead (if available) with a minimum of a name, Australian Business Number (ABN) and contact details of contractor.
- Complete the *Contractor induction checklist*.
- Supply contractors with a Task Request number for each property and hazard identification (from the *Landholder Consultation Record*) prior to the task commencing.
- For payment, contractors submit to LLS, a tax invoice with Task Request number, spray record including the location, area sprayed, conditions, insecticide sprayed, calibration records and time/date of task completion.
- Spray records must be forwarded to the land manager by the contractor or by agreement with LLS.

5.5. Ground control procedure

5.5.1. Risk assessment

Conduct a risk assessment prior to conducting ground control. Considerations include:

- safety of workers including contractors, land holders and the community
- local hazards – eg terrain, overhead lines
- buffer zones around sensitive areas – see 5.5.6 (below)
- weather conditions – forecast storms, rain and wind
- potential impact to other lands – untreated locusts may migrate, spray drift, insecticide treated locusts moving to organic properties
- insecticide type – refer to *Insecticide management for locusts* procedure.

5.5.2. Permission

- If personnel (Authorised Officer) are required to enter land to control locusts on behalf of the landholder, LLS should obtain occupier approval to enter land. Approval can be obtained up to three months prior.
- Authorised Officers entering and spraying land without occupier's permission should only occur with approval of the State Controller.

5.5.3. Exceptional circumstances

- Landholders can request assistance from LLS due to exceptional circumstances. Each request will be considered and approved on a case-by-case basis. All options for control must be explored before assistance to landholders is approved by the LCC or LLS (if a LCC is not activated).
- If a landholder has requested assistance, an independent LLS Officer completes a property assessment using the *Assessment for Engaging a Ground Spray Contractor* form; a *Post Control Check* (if spraying has already occurred); and seeks permission to spray on the *Landholder Consultation Record*.
- The land manager will be responsible for the reimbursement of control costs (excluding insecticide cost) within a reasonable time as determined by NSW DPI in consultation with the land manager.

5.5.4. Withholding periods (WHP) and grazing intervals (GI)

- Refer to the brochure 'Australian Plague Locust, Landholder Control Strategies for NSW' and the SAFEMEAT brochure 'Plague locusts, wingless grasshoppers and livestock residues'.
- WHP, GI and other intervals apply to livestock, crops and pasture and are specified on the product label and permit.
- Always check the label and permit for current withholding periods and to ensure that the insecticide is registered or permitted for application on pastures or specific crops.

5.5.5. Application

- The amount of product required per hectare is specified on the label or the permit.
- It is a legal requirement under the *Pesticides Act 1999* for the user to ensure they use the application rate as indicated on the label or permit.
- Re-spraying intervals must be followed as per the label/permit.

5.5.6. Buffer zones

- May be specified on the product label or permit.
- Sensitive areas include (but are not limited to):
  - waterways (including dry watercourses, troughs, tanks and dams)
  - crops, pastures and animals (impacts on withholding period/grazing interval)
  - organic farms – refer to Appendix 3
  - aquaculture operations
  - threatened species – refer to Appendix 1
  - apiary sites and foraging areas – refer to Primefacts
  - biological control sites – refer to Appendix 2
  - habitation, eg houses, urban areas, school bus runs.

5.5.7. Spraying technique

- Spray in a series of runs beginning at the downwind edge of the target should ensure that the vegetation in which the locusts are located and also the vegetation into which the locusts are moving (approximately 1 boom width or approximately 20 m ahead) are covered.
- A lethal dose is accumulated by the locusts through direct contact with the spray mixture and through ingestion and contact with sprayed foliage.
- Spraying should not be undertaken if rain is imminent. Always check the label or permit requirements.

5.5.8. Control of nymphs

- Control should occur from the second to fourth instar when banding.
- Do not undertake while nymphs are still hatching as re-infestation will quickly occur.
- If control is not undertaken until nymphs are fifth instar or fledgling, they may disperse over a wide area and might not be viable to spray.

5.5.9. Control of adults

- Spraying of roosting adults would normally be undertaken in the late evening or early morning. Consideration should be given to the height of the spray equipment depending on the vegetation and locust activity.

5.5.10. Post control check

- Record observations on a *Post Control Check* form.
- Conduct according to the procedure *Surveillance and reporting of locusts*.

5.5.11. Records

- All spray records must be maintained for insecticide applications in accordance with the *Pesticides Act 1999*.
- The *Australian Plague Locust Spray Record* form or a suitable alternative can be used.

6. References

Policies

- TI-O-171 Locust response – Control
- TI-O-173 Locust response – Insecticide
- TI-O-172 Locust response - Management
- TI-A-140 - Work health and safety policy

Procedures

- Insecticide management for locusts
- Surveillance and reporting of locusts

Legislation

- Local Land Services 2013
- National Parks and Wildlife Act 1974
- Pesticides Act 1999
- Pesticides Regulation 1995
- Protection of the Environment Operations Act1997
- Threatened Species Conservation Act 1995
- Work Health and Safety Act 2011

Forms

- Assessment for Engaging a Ground Spray Contractor
- Australian Plague Locust Spray Record
- Calibration of misters and boomless jets
- Contractor Induction Checklist
- Post control check
- SMARTtrain Boom Spray Calibration Method

Risk Assessments

- Insecticide application for locust control
- Use of spray units to deliver insecticide for the control of plague locusts

Safe Work Method Statements

- Driving vehicles
- Manual handling – stores
- Property visits

Safety Data Sheets (SDS), labels and permits

Information

- Australian Plague Locust, Landholder Control Strategies for NSW
- Plague locusts, wingless grasshoppers and livestock residues
- Primefact – Pesticides – a guide to their effects on honey bees
- Primefact – Pesticides - reducing damage to honey bees
- Primefact - Spraying locusts with *Metarhizium*
- Spray mister calibration for plague locusts (video)

7. Revision History

Version	Date	Section	Details
1	12 Nov 2008		For approval
2	18 August 2009	All 4 5.2 5.4	Update NSW DPI to I&I NSW Inclusion of SWMS, risk assessments New section to clarify procedure Changed spray technique – distance ahead
3	16 August 2010	2, 5.2 5.4 6	Remove APO/PDO reference Include post control check form & reinfestation option Update references
4	15 May 2015	All	Reformat and review

Contact Officer: State Emergency Coordinator

8. Appendices

Appendix 1: Threated species and habitats (e.g. Plains-wanderer, Bush Stone-curlew, Ibis)

In consultation with the Office of Environment and Heritage (OEH) agreed buffers have been established for aerial and ground control in areas where threatened species or threatened species habitats have been recorded.

- Refer to the maps available through BioMap showing:
    - Bush Stone-curlew point location with 2km habitat range buffer
    - Plains-wanderer primary and secondary habitats
    - Ibis historical/potential breeding sites
    - Examples of minimum spray buffer distances for Bush Stone-curlew and Plains Wanderer – only upwind spray buffers are relevant and distances may be greater (refer to insecticide label)
- Minimum spray buffers for insecticides other than *Metarhizium* for mapped Plains-wanderer habitat areas and Bush Stone-curlew habitat range are:
    - 300m upwind ground spray buffer; and
    - 1.5 km upwind aerial spraying buffer.
- Note 1: Spray buffers are additional to mapped habitat ranges for Bush Stone-curlew and mapped primary/secondary habitats for Plains-wanderer (see example in Appendix 2).
- Note 2: Check the insecticide label requirements – minimum spray buffers may need to be increased to comply with the label.
- When using control agents other than *Metarhizium* around mapped Ibis breeding sites, consult with OEH prior to control to confirm if breeding site is active. If the breeding site is active, undertake a risk assessment with OEH based on activity of site, stage of breeding and feeding range at site to determine appropriate exclusion zone. Spray buffers are to be consistent with insecticide label requirements.
- In circumstances where it is clear that the habitat is no longer suitable to the threatened species an application may be made to OEH for re-classification.

Appendix 2: Biological control sites

When planning locust control in or near identified biological control sites adhere to the following requirements:

- No insecticide application should occur (excluding *Metarhizium*) in the high value and very high value critical biological control nursery sites as mapped in BioMap. Mapped sites include the biological control release point and a minimum spray buffer (see details below).
- Use of *Metarhizium* is permitted within mapped nursery sites buffer areas.
- Comply with insecticide label requirements, particularly upwind spray buffers for sensitive sites. Distances should be measured from the mapped release point with the spray buffer (detailed below) the minimum requirement.
- Consult with NSW DPI, local government and landholders regarding site locations.

The minimum spray buffers around the release point that are mapped in BioMap are:

- High value sites - 300m ground spray buffer and 1km (1000m) aerial spray buffer
- Very high value sites – 1km (1000m) ground spray buffer and 1.5km (1500m) aerial spray buffer

Appendix 3: Organic farms

It is important to complete the *Landholder Consultation Form* prior to issuing any insecticide or when conducting a pre-spraying risk assessment. *Metarhizium* is a biological control agent of choice for these situations. Refer to:

- Section 5.4.3 of the *Insecticide management for locusts* procedure
- Primefact - Spraying locusts with Metarhizium

When a contractor is required to spray on a registered organic property, the contractor will need to undertake a thorough APPROVED decontamination procedure. Refer to Primefact *Spraying locusts with Metarhizium* for the decontamination procedure.

The contractor (or LLS on behalf of the contractor) must supply a copy of the records (spray application and decontamination) including batch numbers and expiry dates of *Metarhizium* to the land manager.