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## Commonwealth Scientific and Industrial Research Organisation Review: Red Imported Fire Ant Scientific Principles and Controls

### Summary of recommendations for consideration

Materials that may carry fire ants	Current fire ant movement controls (state and interstate requirements)	CSIRO recommendations
<p><b>Animal manure</b></p>	<p><b>Biosecurity Regulation 2016</b> Manure must be stored correctly.</p> <p>It can be stored off the ground and covered or on the ground, however it must be covered and placed on either a solid concrete or bitumen slab with no crack, plastic sheeting (200 microns) or compacted ground that has been treated with an appropriate chemical.</p> <p>Any on-ground storage method requires a chemical treatment to be applied in a 30 cm strip around the perimeter of the stockpile.</p> <p>The stockpile should be routinely disturbed (e.g. turned, screens, crushed, shredded, chipped or washed). This action should be rigorous and occur every 21 days and 24hrs before moving it offsite.</p> <p>There is no need to disturb the material if it is being transported offsite within 24 hours of arriving at your property.</p>	<ul style="list-style-type: none"> <li>• Manure has a similar risk profile to soil but stockpiles are usually smaller and more manageable.</li> </ul> <p><b>Treatment and disturbance of manure</b></p> <ul style="list-style-type: none"> <li>• Property inspection and routine fire ant baiting of the area surrounding the stockpile reduces the risk of infestation, but don't protect against new ants flying in.</li> <li>• Chemical treatment is recommended for some manure piles.</li> <li>• Heat treatment may be a suitable alternative to chemical treatment however more data is required to support this. Heat would have to be applied to the entire stockpile, as fire ants may be able to escape the lethal temperatures.</li> <li>• Moving manure to a secure waste facility reduces pest establishment and spread (this is only achieved if the waste facility is secure)</li> <li>• Bagged products are lower risk than bulk product (stockpiles) as a result of the mechanised bagging process. Most bagged product is also compressed and may be vacuum sealed, reducing possible survival of ants within the material.</li> <li>• Disturbance using a "turning" method must be done vigorously to ensure a queen is separated from her workers, or, to reduce the possibility of 'queenless' workers adopting a new queen and creating a new colony. This would be difficult for operators and inspectors to assess. Moving manure away from the site within 24 hours of</li> </ul>



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excavation is reasonable from a practical standpoint, but there is no study to support it.

- Fumigation with methyl bromide is effective at killing all stages of fire ants; however, it may not be practical and cost-effective.

#### **Storage of manure**

- A fire ant resistant surface, such as compacted ground (but not sand) treated with chemical is most secure.
- Concrete or bitumen are effective if there are no cracks or damage in the surface. Fire ants will build nests in cracks or tears, and beneath or in the manure.
- The same as the above applies for plastic sheeting. It must not have tears, holes or gaps.
- Covering manure is a good way to prevent fire ants flying onto or into the manure. Shade cloths and tarpaulins likely reduce the risk. However, only storing in enclosed sheds or greenhouses will provide full protection.
- Storing manure off the ground helps reduce risk and makes inspecting for fire ants under the stored product easier. No height range has been specified. Manure stored off-ground but only with a small distance between the ground and the product would not protect the manure from infestation. In addition, storing off-ground only protects from ground ants, not those flying in.
- Perimeter or barrier chemical treatments are effective, if the chemical layer remains completely intact (no gaps in coverage). This protects against ground ants.
- Property freedom/inspection by a trained/qualified person will have 80 per cent detection confidence for established nests. If a fire ant detection dog is used, the confidence is 100 per cent. However,



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inspections will not detect new, underground nests and, therefore, are not reliable as a stand-alone strategy.

- Inspecting consignments of manure is likely to detect established nests, but not for new or underground nests, or for individual young mated female fire ants.
- Heat treatment (approximately at a core temperature of 65 C or 70 C for 5 minutes) could be an effective method.