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
Potted plants For example: • potted plants • plant with soil on its roots • appliances that soil or other growing medium is attached to.	**Biosecurity Regulation 2016:** Potted plants must receive chemical treatment and/or be stored correctly. Plants can be stored off-ground, in a covered area, such as a greenhouse or shed. If the plants are on the ground, they must be in a covered area and placed on a solid/uncracked concrete or bitumen slab. Sand is not allowed. The plants can also be placed on a barrier that cannot be penetrated by fire ants. This could be a 200 micron unperforated plastic sheet. Storing the plants on compacted ground is also an option, if the area is chemically treated. It is also important to keep treated areas free of materials that could form a 'bridge'. Think falling twigs, leaves and equipment. **Other:** Inspection of plants, with plant rejected or treatment if ants are found. Property freedom. Bare rooting.	**Movement of potted plants** • Chemical treatment to move products outside the zones should be mandatory as it offers more security and reliability than covered storage. • Property freedom/inspection has limited impact due to the difficulty of detecting new nests or those below the surface. • Moving product within 24 hours of it arriving on site is reasonable from a practical standpoint, but there has been no study to support it. • Moving potted plants to a secure waste facility reduces pest establishment and spread (this is only achieved if the waste facility is secure). • It is recommended that different measures are put in place for the movement of plants in or outside the zones and interstate, compared household plants moved in or outside the zones. **Storage of potted plants** • A fire ant resistant surface, such as compacted ground (but not sand) treated with chemical is most effective. • Concrete or bitumen are effective if there are no cracks or damage to the surface. Fire ants will build nests in cracks or tears, and beneath or in the potted plants.

	Restricted sales to tissue culture, seedlings in plugs or cells.	• If the surface is a hardstand, ants may also nest within material such as spilled media and mulch, and move from that material through the seep holes into the soil or media of a potted plant. • The same as the above applies for plastic sheeting. It must not have tears, holes or gaps. • Fire ants target disturbed, open, moist and reflective areas (such a wet ground or materials that reflect sunlight). Therefore, covering the potted plants is a good way to prevent fire ants flying onto or into the product. Shade cloths and tarpaulins likely reduce the risk. However, only storing in enclosed sheds or greenhouses will provide full protection. • Storing potted plants off the ground helps reduce risk of ground infestation and makes inspecting for fire ants under the stored product easier. A height of at least 50 cm could be useful but there is no study to support this. Storing off the ground only protects from ground ants, not those flying in. • Perimeter or barrier chemical treatment is effective, if the chemical layer remains completely intact (no gaps in coverage). This only protects against ground ants. **Chemical treatment of potted plants** • Potted plants within the production area that are in uncovered growing areas will, in general, need to be managed using chemical treatments. • Repotting plants with soil containing granular chemical treatment is another feasible option however this must be repeated as per the correct retreatment period. • Direct nest injection (DNI) is an effective measure, but only for established nests that are found in or around the plants.

		• Using a fire ant bait at a site where potted plants are being stored will help reduce the local population of fire ants. However, nests that are just newly forming may not take up the bait. **Other** • Property freedom/inspection by a trained/qualified person will have 80 per cent detection confidence for established nests. However, inspections will not detect new, underground nests and, therefore, are not reliable as a stand-alone strategy. • Inspecting consignments of potted plants is likely to detect established nests, but not for new or underground nests, or for individual young mated female fire ants. Most infestations will affect a small proportion of pots. • Storage of a consignment at a distance more then 5m from any untreated plants is not likely to be effective as infestation by a migrating ant can occur across significantly greater distances. This also would be difficult to implement in many dispatch settings. • Market-ready potted plants that have been assembled for display (sale) or distribution have the highest risk scenario with newly formed nests going undetected. This is because potted plants at this stage are less likely to receive any further individual attention. • Sharply tapping a container will encourage aggressive behaviour from worker ants in an established colony, but new nests will not likely be detected. • If bare rooting is performed thoroughly, it is an effective mitigation measure. However, the potted plants should not then be stored with their roots under loose soil. • Nursery plugs and plantlets (from micropropagation) have a negligible risk of infestation.

National Red Imported Fire Ant
Eradication Program

Queensland
Government