

Summary

This project came about following a suggestion from the Australian Cotton Ginners Association.

The cotton ginning sector currently produces around 143,500 tonnes of trash per year, and current methods of use / disposal are marginally adequate. It is expected that in the near future, new methods of use / disposal will be required.

Composting is a process of oxidising organic materials to produce heat, gases, and more stable organic materials termed humus, which have a vital role in soil health. Composting represents a controlled form of what goes on in stockpiles at present, and is a leading candidate method of using / disposing of gin trash.

Before composting can be widely adopted, questions must first be answered about what is in the organic material prior to composting, what is left after composting, and whether it can be done at reasonable cost keeping in mind its low mass and low value per unit volume.

Gin trash and mixtures of gin trash were composted using a minimum of equipment and labour inputs. Questions of cotton pathogens and synthetic chemical residues were addressed by lab testing pre- and post- composting. Guidelines were developed for overcoming practical problems. Wetting the trash initially was a problem until water was applied at low rates often, timed to operate during the early hours of the morning to minimize drift and evaporation. The trash was handled so that all of it spent enough time in the hot zone within the windrow for the heat to remove pathogens and chemical residues. Work was done to develop better methods of determining the time to end composting so that immature compost does not compete with young plants for nitrogen. Guidelines are included on how to use the compost for best agronomic results.