

Characteristics of the ideal orchard ground-cover species

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Most orchards in New Zealand have 1-2 m wide herbicide strips under tree rows with mown grass alley-ways between these strips. British research has shown higher fruit yields can be obtained by keeping all of the ground under trees bare. However this can lead to problems including increased soil compaction and reduced soil organic matter levels which may affect long-term sustainability of these orchards. Constant use of herbicides is required to keep soil bare, whether in strips or for complete ground clearance.

This poster paper will review research that has been conducted into using ground-cover species under orchard trees in temperate parts of the world to reduce the need for herbicides. The attributes of species required for such a role will be listed and the short-falls of species presently used in this role will be mentioned. For example, grasses require regular mowing, and clovers host many harmful organisms and attract bees to orchards when insecticides are being used.

Research is being conducted at Massey University at present to screen various ground-cover species for their suitability for suppressing weeds in orchards. Although much of the groundcover work to date has been conducted using no herbicides, we are looking at species that are tolerant of such knock-down herbicides as glyphosate or paraquat. The primary aim is to reduce the use of residual herbicides so that leaching into ground water becomes less likely, to minimize the risk of residues in fruit, and to meet public pressure to reduce the use of persistent pesticides. Using species which can tolerate glyphosate or paraquat would assist with the establishment and management of such swards. However little herbicide should be required once the species were established. This work would be outlined in the poster paper in conjunction with the literature review.