

	<h1>NOTE</h1>	LandWISE Inc PO Box 85 HASTINGS www.landwise.org.nz Phone 06 870 1587
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Reduced Tillage and Soil Condition

LandWISE reduced tillage trials have shown successful crop establishment requires 'good' soil condition at planting. Many disappointing trial results have been attributed to poor soil condition through winter pugging or compaction.

If the soil condition is poor it may not be immediately suitable for reduced tillage. Stock pugging, traffic or cultivation compaction, impermeable pans or gleyed soils all indicate the need for remedial action.

How to Check Soil Condition

The quickest and easiest method to assess soil condition is a Visual Soil Assessment (VSA). This involves digging a couple of holes, one in the middle of the paddock (ensure you are away from gateways or traffic laneways) and one under a fence line, making a few observations and then comparing the two results. VSA guidebooks and scorecards are available from LandWISE or your Regional Council.

VSA scores are also a good way to assess trends in paddock soil condition over a period of time, especially if you keep annual records.

Soil Condition Checklist to Ensure Success

Soil surface: The paddock does not have to be 'dead flat' but the planter must be able to achieve a consistent seed depth and good seed to soil contact. This is particularly important with no-tillage, as there is a much greater variation between drills and their ability to deal with an uneven surface and residue.

Soil compaction: The planter and plants can often cope with shallow compaction, (this varies with crop and machinery). Deep compaction may require remedial action such as ripping or aerating. To reduce compaction minimise traffic and weight, keep to 'tramlines', and keep any compaction shallow.

Soil drainage: Drainage problems caused by compaction can be alleviated by aerating or ripping rather than shallow cultivation. If a soil has a natural tendency to waterlog artificial drainage may be worth considering.

Soil fertility: Incorporation of fertiliser is not always possible under reduced tillage. Alternatives include broadcasting early, applying starter fertiliser 'down the spout', and side dressing.

Fallow period: Spray out four to six weeks before cultivation to allow root break down and aid tine cultivation. This improves planting ease and seed to soil contact and is

critical for pest and disease management. Certain machines (i.e. the strip-till rotary hoe) allow a shorter or no fallow period before cultivating.

Soil moisture: Soil must be moist enough for germination and dry enough for good aeration. The worm test (when the soil is rolled in your hand it just starts to crumble) is an easy means of assessing ideal soil conditions. Over time reduced tillage can limit the extremes of drought and water logging through increased water holding capacity and improved drainage.