

# Hi-Tech Organic Vegetables Production

Dan Bloomer and James Powrie, LandWISE

Lawson's Organic Farms integrate the best of organic, biological and conventional toolkits.



*Scott Lawson uses GPS to reduce traffic and cultivation impacts on soil*



*Massive labour savings from GPS guided machine weeding of carrots*

Scott Lawson's philosophy is simple: "The health of our soils relates directly to the health of our community. My intention is to promote healthy soils to produce healthy food, for healthy people."

"We adopted RTK GPS two years ago to drive straight lines and save costs. GPS lets us do things we wanted to do before but couldn't. It is an essential tool for us now."

"We operate a controlled traffic farming (CTF) system. Precision GPS guidance and CTF keeps our cultivation, planting and mechanical and thermal weeding equipment on the same tracks. We are using GPS for capturing yield data, fertility and pH information. We have also begun mapping our soils with an EM38 soil electromagnetic conductivity sensor which helps identify texture and water holding differences."

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Scott says GPS allows straight lines to be driven by any operator, saving inputs and making operations quicker and cheaper. RTK GPS guides the tractor to within 1-2 cm of the same wheel tracks, year after year.

Now he uses GPS guidance to control traffic and get on top of soil compaction. Scott's controlled traffic system is seasonal, because current tractors and crop harvesters have different wheel track widths. All operations except harvest are in the controlled traffic system so plants get the growth benefit.

Chemical weed management tools available to organic farmers are very limited. So Scott makes more use of hand, mechanical and thermal weeding.

Precise GPS guidance has allowed planting of bullet straight rows and mechanical weeding machines to guide close to the crop row. This reduced expenditure on hand weeding which is slow, expensive and requires intensive labour management.

Thermal weeding with steam kills emerging weeds. Timing is critical and so controlled traffic is a bonus. The formed tracks have an enhanced ability to carry traffic, even when ground conditions are wetter than ideal.

Mechanical and thermal weeding, as pursued by organic growers like Scott, are receiving more interest from conventional growers. Some weeds cannot be easily taken out of some crops with selective herbicides.

Scott is intrigued by the view some folks have of organics. “If I asked some fellow growers if they’d like to try the organic weeding methods I am applying, they’d likely tell me where to get off. If I ask if they’d like to weed mechanically using GPS and eliminate expensive selective herbicides from their programme, their ears prick up.”



*Scott Lawson and Vicki Meech are BioGro certified farmers who use precision agriculture techniques on their Hawke's Bay farm*



*Hand weeding is an expensive option*