



Managing compaction for greater farm resilience



Project Background

Simon Wilcox is the Potato crop supervisor for A.S. Wilcox and Sons, one of the leading suppliers of potatoes and onions to fresh and processing markets. An important component of their Pukekohe operation is the early market. This means planting, growing and harvesting during the most challenging time of year, which puts extra pressure on soil resources. Previous work in the Franklin Sustainability Project has highlighted just how important good soil management practices are to retain high yields and reduce soil and nutrient loss. However, compaction has remained a big concern over the years and most growers have had to balance supply continuity against working in less-than-ideal soil conditions. Mother-nature sometimes wins.

To minimise damage to soils in these and other situations A.S. Wilcox and Sons are currently looking at controlled traffic farming approaches. By driving in the same place they aim to reduce compaction to wet soils. As with many solutions there are significant costs involved with changing systems. Equipment and practices need to be reconfigured. As a part of this process they're keen to know what compaction can cost them, not only in yield, but also in loss of soil condition. Compaction is one of the quickest ways to ruin soil structure, and in most cases the residual effects persist for years.



Project Goal

Several new initiatives have started at A.S. Wilcox and Sons this year through the 'Holding it together' project. They're all driven by the same goal – a desire to increase the resilience of their soils and to capture any associated benefits (economic and environmental) into their farming operations. To do this Simon has identified several fields where the effect of winter planting operations in wet and dry soil conditions on compaction can be followed. Rain shelters were placed in these fields during May, and planting will occur in July (typically the wettest month). He's keen to see what type of yield loss is associated with planting compaction, and follow closely what is happening to soil condition in affected and unaffected zones.

In a separate field they're also testing gypsum amendment as one way to 'condition' soil. Gypsum flocculates clay particles, and can improve structure and porosity on heavy soils. If the soil has better infiltration and drainage characteristics, compaction issues should be reduced.

In another field they're also keen to test the furrow diking approach. While sediment traps have proved effective for them in Pukekohe, they see a clear benefit from tackling the problem in-field rather than the 'ambulance at the bottom' of the cliff. Diking creates small soil dams in the wheel track, and can effectively control surface runoff, therefore reducing the loss of their productive and fertile topsoil.



FURTHER INFORMATION //

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ACKNOWLEDGMENTS //

This work is funded by MAF-SFF, Fresh Vegetable Product Group, Potatoes NZ, Ballance Agri-Nutrients, Hawke's Bay Regional Council, Horizons Regional Council, Auckland Regional Council and Environment Waikato.