

Soil management-unleashing productive potential - Focus Session GRDC Research Updates. Tuesday 28, 2017

This focus session boldly attempted a new approach. Wayne Pluske of Equii led an interactive discussion. He was joined on stage by four consultants: Craig Topham, Agrarian; Adriaan de Waal, Soil Fertility Management; Tim Boyes, agVivo and David Sermon, ConsultAg and four Department of Agriculture WA project leaders: Chris Gazey, soil acidity; Steve Davies, water repellence, Wayne Parker, soil compaction and David Hall, subsoil constraints. The focus session was attended by over 80 people who participated and stayed right to the end.

The panel first talked about the actions necessary to fix yellow sandplain soil with a deep compaction layer. Soon this was made more complex by the addition of a subsurface acidity layer followed by surface water repellence. The challenges became progressively harder especially when the overarching seasonal limitations particularly in the eastern wheatbelt were introduced. Constraints associated with duplex sandy gravels including water holding and nutrient leaching, and questions such as to rip or not to rip were pondered. The degree of topsoil development as a result of years of no-till and the potential for biopores to be destroyed were all up for discussion. Options to improve access to water and nutrients on gravelly pale deep sands were considered before the really hard one – a calcareous loamy earth rounded out the set. The final consensus for this one was OK in a good season but the best option was to farm it to a realistic potential.

Conclusions

- It is absolutely essential to properly diagnose what you are dealing with before applying soil renovation practices. Mistakes can be very costly.
- There is insufficient investment in soil testing when the size of the management decisions are taken into account.
- Simply digging a hole and having a look when a crop is growing and observing root growth or pushing a steel rod into the ground to detect compacted layers can provide a lot of very cheap but extremely useful information.
- Where possible address multiple constraints such as water repellence, compaction and subsurface acidity at the same time.
- For constraints related to very difficult to fix soil types such as shallow soils with sodic subsoils farming to realistic potential is recommended.

Future action

Future focus sessions of this type could be taken to the regional research updates and growers or consultants could be asked to submit their problem profiles for submission. The soil types would be locally relevant and be advertised prior to the event. Prior sampling would be necessary to support the discussion and local consultants would be encouraged to be involved. The DAFWA Soil Productivity portfolio of projects would be responsible.