

BREAKOUT C/G

Main Points - Soil

Soil measurements are poor. Need improvement

→ Would improve ability to value land

→ Enable land management practice improvement

Soil Carbon measurements have five year resolution

Soil nitrogen measurements also needed

Sensors needed in quantity not quality

→ Simple, cheap and precise. Accuracy not important

→ Sensing change is more important than sensing level

→ (10 per pair of rows?, hourly measurement?)

Soil should be managed for structure... (aggregates, etc)

Main Points - Plants

Functionality matters more than Architecture

→ (or perhaps architecture is a means to an end)

Breeders not fast and cheap, not perfect.

- Simple, cheap & precise. Precision more important than accuracy. Throughput is key.

Can the plant be used as a biosensor?

Field versus Lab measurements

Consensus: Lab soils are not useful for breeding

→ Not a good chemical, physical or microbial sample

→ Useful for determining biological mechanisms

Traits

Biological Traits

Biomass –Microbial, Root and Aboveground

→ Respiration Measurements (correlate)

Root Exudates & Turnover

→ Chemistry, microbial interaction

Soil Traits (provide a correlation to value)

Soil Carbon & Nitrogen Measurements

Soil Structure Measurements

- Life Cycle Analysis

Value

This breakout was carbon tax pessimistic...
So make the farmer money or it's pointless.

We need a robust LCA for any program in this area.

“Economics is the most important –omics technology”