Precision Agriculture Technologies for the Australian Nut Industries

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Precision agriculture

• In-field conditions often vary with time and location
• Precision management can manage variability through spatial monitoring and control of irrigation, herbicide, nutrients
• Potential collaborators
Precision technology research at NCEA

• NCEA has projects in a range of agricultural industries to deal with:
  – In-field position for tracking and monitoring
  – Sensors for crop growth and yield monitoring
  – Automating irrigation
  – Site-specific herbicide application
  – Equipment monitoring and evaluation

• Precision technologies can be applied to all nuts
Things we can do when we have spatial referencing

• Mapping (yield, soil parameters, elevation,) at much less than a block level enabling
• Variable application, machine control
• Guidance (concentrate on other things, constrain compaction...)
• Data logging and traceability
• Zonal management (matching inputs to potential yield)
• Canopy management
Spatial referencing issues
Irrigation control and automation

• Sensors for measuring in-field crop/soil variability
• Control systems for determining irrigation
• Site-specific irrigation application hardware
On-the-go crop monitoring

• Camera-based sensors:
  – Macadamia nut yield monitor
  – Weed monitoring for spot spraying
Importance of the project/research to the industry

• Improved sustainability of nut industry by ensuring that only minimum necessary inputs are applied
• Improved profitability of farms by increasing crop yield and reducing labour
• Reduced input costs
• Enhances grower understanding and influences management decisions
How are nut growers/others going to find out about the project?

- Industry magazines, events
- Field days
- Demonstration trials
- Industry extension teams
- Commercialisation through commercial partners
- Newspapers, radio and television