AUTOMATED DEPTH PEANUT DIGGER

Digger Performance Across Soil Types

Sandy Soil

Clay Soil

Automated Blade Depth Control

Further Development of Depth Gauge

2013 True Digging Losses, lb/ac dry basis

- Sand Zone
- Medium Zone
- Clay Zone

Too Shallow  |  Sand  |  Medium  |  Clay  |  Too Deep

Ground Level Optimal Blade Depth
Testing on 6-row Diggers

KMC 2-Row Tests

Digger Performance - KMC 2-Row Tests

Determining Digging Losses

Digging Losses - KMC 2-Row Tests - Virginia Type
Upcoming Digger-Related Work

• Automated blade depth
  – Evaluate best depth automation control method
  – Further refine depth gauge design
  – Commercial prototypes in 2016

• Effects of travel speed and chain speed
  – Digging losses and yield effects
  – Towards automation

• Irrigation prior to digging
  – Develop recommendations
  – Cost-benefit analysis
  – Dry year benefits

PEANUT YIELD MONITOR

2015 Yield Monitor Research

• Commercial prototypes
  – Deere GS3 platform
  – Deere cotton sensor
  – Amadas 2108, 2110, 9970, 9980

• Moisture sensing
Error vs. Load Number

Stationary Testing – June 2015

Dry Tests
Wet Test 1
Wet Test 2
Wet Test 3

1:1

Stationary Test Predictions

2015 Research – Moisture Correction of Mass Flow

Without Moisture Correction

Avg. Abs. Error = 11.9%
Avg. Abs. Error = 18.8%

With Moisture Correction

Avg. Abs. Error = ±0.5 %, w.b.

Preliminary Kernel Moisture Sensing Results

Preliminary Hull Moisture Sensing Results

Avg. Abs. Error = ±0.8 %, w.b.
Upcoming Yield Monitor-Related Work

- Wrap-up algorithm development
  - Yield prediction with moisture correction
  - On-the-go moisture sensing
- Commercial prototypes in 2016
- Combine load sensing
  - Header losses
  - Tailings losses
- Management applications of peanut yield data

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