Utilization of John Deere’s Cotton HID System to Aid Production Decisions

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Harvest Identification (HID) & Cotton Pro

- Commercially available in 2012
- Current standard factory option on the 770 model cotton harvesters
  - Originally an option for the 7760 & 690 models

- The HID system comes with several features:
  - Utilizes embedded RFID tags in cotton plastic wrapping
  - On-board module weighing system
  - Moisture sensor inside the accumulator
Why should we begin to care about fiber quality?

Yield does pay the bills, but why not optimize the amount of money you are making.

Should field performance be measured by only what the yield monitor says?

With a procedure developed, we are beginning to show fiber quality can be traced and used as a field performance metric.
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Materials

- Trimble Nomad
- Trimble RFID Nomad attachment
- MyJD account linked with grower’s accounts
- Module scale
- Android tablet with the “RFID Cotton Module Scan” application downloaded
- UGA Extension Enterprise Budget
Study Locations

Colquitt, GA – Cloverleaf Gin
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Methods

• Machines were calibrated to ensure accurate yield data

• Modules produced were labeled and scanned using RFID reader and Module Scan Application

• Matched module label with each gin’s individual labeling system
Methods

• After quality data were received, the bale quality grades were averaged from each module using a python program.

• Using module wrapping timestamp and travel path of the machine, the harvested area can be estimated and recorded.
  • example (fid: 0-1991)

• Fiber quality data were assigned to each of the points and imported/joined in ArcGIS.
Methods

• Using the exported planting operation file, planting data can be shown

• This data can be spatially joined with the harvest operation file

  • Allows for a georeferenced points to have both operation’s attributes
Methods

• Knowing the area that each module represents in a field, the average seeding rate, variety used, average yield level, and fiber quality can allow for an economic understanding.

• Using the UGA Enterprise Budget, which provides a basic estimate cost for cotton production, allows for the input of the grower’s actual data.

• Net profit was obtained for each module, and showed true profitability of the different treatments.
## 2021 Irrigated Cotton Enterprise Budget

*Developed by UGA Extension*

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<th>Variable Costs</th>
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<th>Amount</th>
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<th>Cost/Acre</th>
<th>Cents/lb</th>
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Summary

• The HID system is used to identify and record the RFID tag assigned serial number, and referenced to assign fiber quality data back to each individual module.

• Utilizing the recorded travel path and the time stamp feature of the HID system, the module averaged fiber quality data can be assigned to areas in the field.

• This allows for the spatial visualization of the various fiber parameters and economic value of the fiber from each module.
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Questions?