Yield Monitoring and Mapping

Introduction

Yield monitors provide producers with the ability to collect spatial crop yield data (Fig. 1). Yield data can be used to generate yield maps, diagnose problems and serve as the basis of site-specific management (SSM). Yield monitors use a DGPS receiver, a computer or user interface, and sensors to accurately measure the amount of crop harvested at a specific location and time. Yield monitors are installed on harvesting equipment and are available for a variety of crops including grain (corn, wheat, soybeans, etc.) and cotton. In addition to measuring yield, these systems often provide other useful features such as collecting grain moisture content and elevation data along with the ability to spatially mark points or areas of interest (e.g. pest and weed infestations) during harvest. Yield data is typically recorded to a storage device (e.g. data storage card or USB drive) which can then be transferred to a desktop AgGIS package for processing, viewing, and analyses. Generated maps depicting yield variations and year-to-year trends can be used to improve farm management decisions and ultimately crop productivity.

Figure 1. Example of a farm management decision based on using a yield map to apply lime site-specifically. The wheat yield map prior to liming (a) coincides with the pH map (b) with extremely low pH existing on the east side of this field. The before (a) and after (c) wheat yield maps illustrate a positive result by applying appropriate amounts of lime to specific areas to correct this issue. Similar site-specific analyses using yield maps can be conducted for nutrients and other crop inputs to support management decisions.

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Benefits
Profitability depends on how the data collected from a yield monitor is used. Each user may have different management objectives which can be supported using yield monitoring data. Here are some benefits a yield monitor may provide:

- On-the-go yield comparison through instantaneous yield measurements
- Make grain storage decisions based on moisture readings in the field
- Load trucks/wagons accurately
- Basis for site-specific management
- In-depth performance analysis
  - High and low yielding areas
  - Magnitude of yield differences across fields
- Ability to conduct on-farm trials
  - Tailor management practices, evaluate varieties, nutrients, and other inputs
  - Maximize returns
- Landlord negotiations to perform land improvements, split on crop shares, or modify lease agreements

Yield Monitor Maintenance and Calibration
The accuracy of yield map data is totally dependent upon the monitors maintenance and calibration. Sensors need to be checked routinely to ensure they are performing correctly and that they are free of debris buildup. Manufacturers outline required maintenance and calibration procedures within their user manuals. Erroneous data can lead to improper management decisions. This point is especially important for producer’s conducting on-farm research. Remember, yield maps are only as accurate as the data collected to generate them.

Available Systems
A partial list of companies providing yield monitoring systems.

<table>
<thead>
<tr>
<th>Company</th>
<th>System Name</th>
<th>Crop Type</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>AgLeader</td>
<td>Precision Farming System</td>
<td>Grain, Cotton</td>
<td><a href="http://www.agleader.com">www.agleader.com</a></td>
</tr>
<tr>
<td>CNH</td>
<td>Advanced Farming System</td>
<td>Grain, Cotton</td>
<td><a href="http://www.cnh.com">www.cnh.com</a></td>
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<tr>
<td>John Deere</td>
<td>GreenStar</td>
<td>Grain, Cotton</td>
<td><a href="http://www.deere.com">www.deere.com</a></td>
</tr>
<tr>
<td>AGCO</td>
<td>Fieldstar</td>
<td>Grain</td>
<td><a href="http://www.agcotechnologies.com">www.agcotechnologies.com</a></td>
</tr>
</tbody>
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Find additional information at: [www.AlabamaPrecisionAgOnline.com](http://www.AlabamaPrecisionAgOnline.com)

Disclaimer
The mention of trade names and commercial products is for informational purposes and does not necessarily imply endorsement by the Alabama Cooperative Extension System.

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