Prescription development for variable rate soybean seeding using the Directed Rx system

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CONVENTIONAL VARIABLE RATE PRESCRIPTION METHODOLOGY

Typical Steps in Developing Variable Rate Prescriptions
1. Zone Development
2. Productivity Assessment by Zone
3. Rate Assignment
4. Rate Assessment

Prescription Then Based on Generic Data

A NEW CONCEPT IN VARIABLE RATE PRESCRIPTION DEVELOPMENT: D-Rx
THE CLEMSON "DIRECTED PRESCRIPTION" SYSTEM
How It Works: D-Rx Idealized Concept

![Graph showing yield profit vs. soil characteristic]

2016 SOYBEAN SEEDING RATE D-Rx RESULTS

Year 1 (2016) D-Rx Test: Asgrow 69X6 (Grp VI)

![Soil EC, Yield, and Seeding Rates graphs]

Results from Year 1 (2016) D-Rx Test

![Graph showing return above cost vs. average EC]

Prescription from Year 1 (2016) D-Rx Test

![Graph showing relationship between seeding rate, average EC, and profit]

Closer Look at 2016 Seeding Rates

![Graph showing variation in return above cost with seeding rate]

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Closer Look at 2016 Seeding Rates

Year 2 (2017) D-R Test: Asgrow 69X6 (Grp VI)

Year 2 (2017) D-R Results: Yield

Year 2 (2017) D-R Results: Profit

2017 SOYBEAN SEEDING RATE TEST

Year 2 (2017): D-R Analysis
Seed Rate to Maximize Yield: Y1 and Y2 Comparisons

<table>
<thead>
<tr>
<th>Plant</th>
<th>Year 1</th>
<th>Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precip</td>
<td>3.4&quot;</td>
<td>9.6&quot;</td>
</tr>
<tr>
<td>Prior crop</td>
<td>Corn</td>
<td>Beans</td>
</tr>
<tr>
<td>RY yield</td>
<td>1.9 bu/ac</td>
<td>1.1 bu/ac</td>
</tr>
<tr>
<td>RY $ potential</td>
<td>$9.6/ac</td>
<td>$8.4/ac</td>
</tr>
</tbody>
</table>

CONCLUSIONS

Conclusions

- Variable rate seeding showed potential for yield and profit benefits in both years
  - 1.9 bu/ac and 1.1 bu/ac
  - $9.6/ac and $8.4/ac
- Seed rate trend to maximize profit was not the same in both years
  - Number of potential factors
  - Application of Y1 RY in Y2 still profited $3.4/ac more than most profitable uniform rate

Conclusions

- Variable rate soybean seeding can certainly be profitable
  - ...if you can get the prescription right
  - More work needs to be done to understand profit- and yield-driving factors vs. seed rates
- Many SC soybean growers already own variable rate seeding technology
  - Generally only used on corn crop
  - Development of recommendations for use in soybeans would likely be profitable

Questions

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