Precision Scouting and Weed Management Decisions

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Scouting
Level of Precision
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How are we keeping records

• We have so many tools at our disposal today compared to just a few years ago
• All centered around our devices
• Some application platforms are free and others are a paid service
Scouting Apps

- Connected Farm
- FieldNet
- ScoutDoc
- iCropTalk
- FarmLogs
- eCropScout
- AgDNA
- DTN Scout
Limitations

• Most are limited to major crops: corn, soybean, wheat
• None is completely comprehensive:
  • Mapping, building shapefiles
  • Drawing on top of field maps
  • Recording scout routes
  • Geo-referencing
  • Identification Assistance
  • Writing field prescriptions
  • Taking images in field
And we have to rely on Data Networks
We can only see so much from the ground
More may be visible from the sky
Advances in weed scouting
Hiring a Crop Consultant

• Don’t have to bear the cost of drone ownership
• Don’t need the expertise of flying or navigating regulations
• Receive assistance in evaluating drone collected data to make management decisions
Aerial Imagery
We can look for anomalies in the imagery.
We can only see so much from the sky
More may be visible on the ground
Aerial imagery can help us to quickly build scouting routes to optimize time.
What else can aerial imagery help us accomplish?
We can see and distinguish the crop
It only makes sense we should be able to see and distinguish the weeds.
Accuracy of Distinguishing Weeds
Identifying Resistance

Borra-Serrano et al 2015
Satellite Imagery

• In the past satellite may not have been a good selection for scouting
• Satellite images were infrequent, could be skewed by cloud cover, and had low resolution levels
• Now, we have more and more satellites going into space than ever before, and more frequent high resolution imagery to rely on
Farm Shots
Farm Shots: Prescription Scouting
Prescription Scouting to Prescription Weed Control
Robotics
Weed Control Robotics
Optical Spray Technologies like WeedSeeker will reduce herbicide loading in the environment.
Computer vision identifies each individual plant. Machine learning decides how to treat each individual plant. And robotics technology enables the smart machine to take precise action in the field.
• Some technologies augment the scouting experience
• None so far eliminate the need for the following proper equipment:

Good Boots
Keen Eyes
Don’t get too fancy...