Collecting and Deciphering Precision Ag Data to Improve Your Production Decisions

Herb March, Couse Creek Ranch, Milton-Freewater, OR

Dan Long, USDA-ARS, Pendleton, OR
Time Line

• Herbert March Sr. settled on Basket Mountain and established the farm in 1880
• In 1952, I took over the farm from Leroy March (2\textsuperscript{nd} generation)
• I retired in 1990. Herby March (4\textsuperscript{th} generation) now runs the farm
• Built a no-till drill and started direct seeding: 2004
• Started variable-rate nitrogen application: 2004
• Started mapping grain protein: 2006
• Started growing canola: 2008
• Started auto-steering: 2012
Couse Creek Ranch (x7br)
Physical Characteristics

- Elevation: 1,100 to 3,200 ft.
- Rainfall: 14 to 26 inches
- 6,000 acres
- Winter wheat-chemical fallow
Soils and Parent Material

- Steep slopes, shallow to basalt, rock fragments, soil erosion
Early Variable Rate Application

- Burn the crop in shallow ground.
- Compensated by reducing the nitrogen to about 2/3 of the deeper soils. 1970s
- Set my fertilizer for 30 lb on shallow ground, 50 lb on moderately deep ground, and 70 lb on the deeper ground.
- If it was a wet year, I would go back with 30 lb on the whole field and that would give me 30 lb + what was in the soil on the deep ground, and then 30 lb to compensate for what leached down from the shallow ground. This would give me 30 bu in the shallow ground.
Basis for Management Zones

- Light toned shallow ground identified from near infrared (NIR) aerial images.
- Veris EC maps was used to identify deeper soils in rest of field.
Soil Sampling and Testing
Task Map

- Red = 10 gal
- Yellow = 12 gal
- Green = 14-18 gal
- Blue = 28 gal

- Solution 32 + Thiosul
- Constant 2 gal 10-34
- Constant 3 gal KCl
Custom-built No-till Drill
No Till Drill

- Custom designed and built
- Rawson variable rate controller
- 10 to 40 gal in 1 gal increments
- 31 Kyle Stealth openers
- 32-ft width
- Hydraulic drive for fluid
- Air drive for seed
Guidance system

- Trimble FmX
- Tractor steering plus implement steering
- Orthman steering wheels
Drilling Seed in Heavy Residue
Auto-Steer Operation
Protein Mapping

JD 6622

Textron ProSpectra Grain Analyzer
## 2014 Wheat Summary

<table>
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<th>Gross Bu</th>
<th>Acres</th>
<th>Yield</th>
<th>Dock</th>
<th>Net Bu</th>
<th>Yield</th>
<th>Protein</th>
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| Total Gross             | 204,941.67| 3065.7 | 66.85 | Total Net | 203,847.40 | 66.49 |
Benefits of Matching Fertilizer with Soil Depth

• Avoid loss in crop yield on shallow ground.
• Raise yield by putting the right amount of N on 5-ft deep ground that the soil test indicated was needed.
• Get more out of my investment in fertilizer.
• Use less fertilizer overall.
• Reduce fertilizer cost.
• Get more yield with less fertilizer.
• Achieve consistency in grain quality.
Canola
Where I Am Going Next