Opportunities to Save on Cost of Production



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Dustin Pendell joined the Department of Agricultural Economics as an Associate Professor in 2015. He received his BS in Agribusiness from Illinois State University, MS in Agribusiness Economics from Southern Illinois University and PhD in Agricultural Economics from Kansas State. His research and extension programs are focused in the areas animal health and livestock production economics. He teaches a course at the undergraduate level in data analysis and optimization.

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Robin Reid joined the Agricultural Economics Department at K-State as the Commercial Agriculture Economist in August, 2014. She previously worked for four years as an Extension Agent in the River Valley District, with a focus on livestock production and farm management. Robin grew up on a farm in Wisconsin and earned a B.S. in Agricultural Business from UW-River Falls. She also holds a M.S. in Agricultural Economics from K-State.

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**Dr. Taylor's bio and contact information are in section #5*

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Crops

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Managing Costs & Returns

- What are the cost-return categories that separate the top third profitable farms from the bottom third?

Corn - 2015	High 1/3 $/acre	Mid 1/3 $/acre	Low 1/3 $/acre
Returns			
Yield	124.70	109.00	117.00
Price	3.49	3.46	3.40
Total Returns	**435.20**	**377.14**	**397.33**
VARIABLE COSTS			
Fertilizer/Lime	64.26	79.38	103.22
Seed	59.72	60.03	72.85
Chemicals	38.84	43.50	61.63
Machinery - hired	5.95	7.65	18.25
Other variable costs	87.32	113.72	119.86
Total variable costs	256.09	304.28	375.81
FIXED COSTS			
Depreciation	36.67	38.74	47.07
Unpaid Operator Labor	35.95	31.97	48.51
Land Charge	18.99	26.95	32.57
Other fixed costs	26.21	26.08	38.88
Total Fixed Costs	117.82	123.74	167.03
Total Costs	**373.91**	**428.02**	**542.84**
Returns over TC	**61.293**	**-50.88**	**-145.508**

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Managing Costs & Returns

- Not really
  - Price
- Fixed costs driven by acres
  - High 1/3: 488 ac
  - Low 1/3: 312 ac

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Managing Costs & Returns

- Yes
  - Fertilizer/lime
  - Herbicides and insecticides
  - Seed
  - Hired machinery

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Cost Management Strategies

- Efficient fertility usage
  - Apply fertilizers at a rate determined by soil tests
- Input pricing
  - Early buying, generics, group buying
- Field management
  - Scouting for most effective spray, timing of applications
- Labor-machinery management
  - Use of custom hire vs. own machinery

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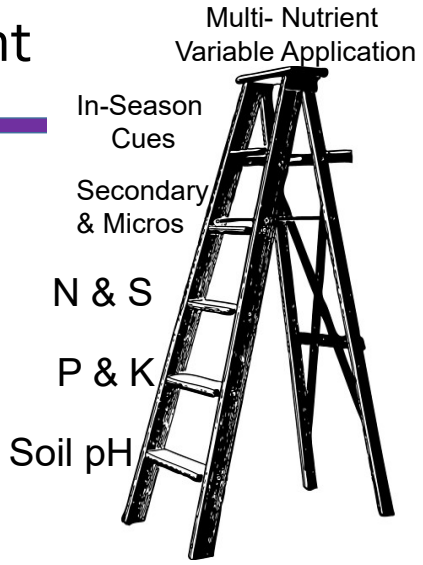
Efficient Nutrient Management

- Soil sampling needed to optimize inputs use without affecting yields
- Nutrient management by priority
  - Soil pH affects all other nutrient availability



Source: Brian Arnall, OSU

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Soil pH Example

- Winter Wheat Yield Response to AgLime

Lime Applied (ECC/ac)	Lime Cost ($/ac)	pH	Yield (bu/ac)	Value of Yield Increase ($/ac) @ $3.75/bu	Net Value ($/ac)
0	0.00	4.6	14	--	--
3,000	36.00	5.1	37	86.25	50.25
6,000	72.00	5.9	38	3.75	-68.25
12,000	144.00	6.4	37	-3.75	-75.75

Source: David Mengel and Ray Asebedo
Lime price: $0.006/lb = $12/ton

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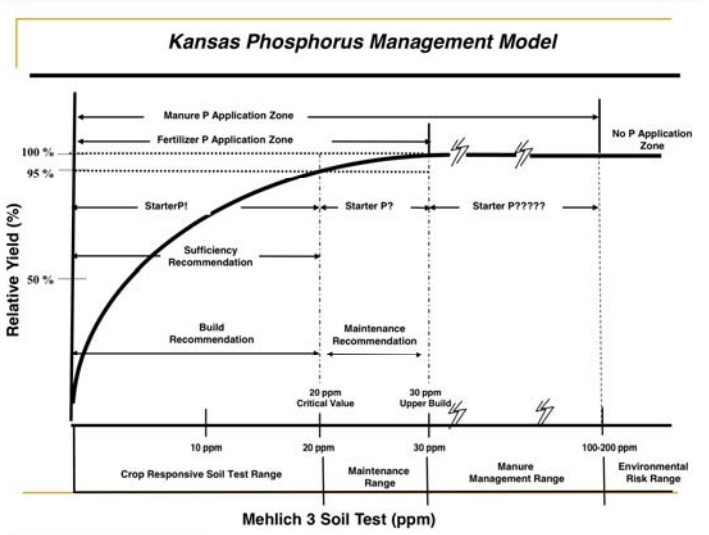
Phosphorus Management

- Soil tests may show you don't need to apply any P at all
  - Consider a sufficiency approach
  - Is a 50% increase in starter P worth a 5% increase in yield?



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Nitrogen Management

- Tools for cutting nitrogen costs without reducing yield
  - Sensor technology
  - Soil testing
- Routine fertility (lime needs)
- Profile nitrogen (residual nitrates)
  - Surface sample (0-6 in)
  - Subsoil sample (6-24 in)

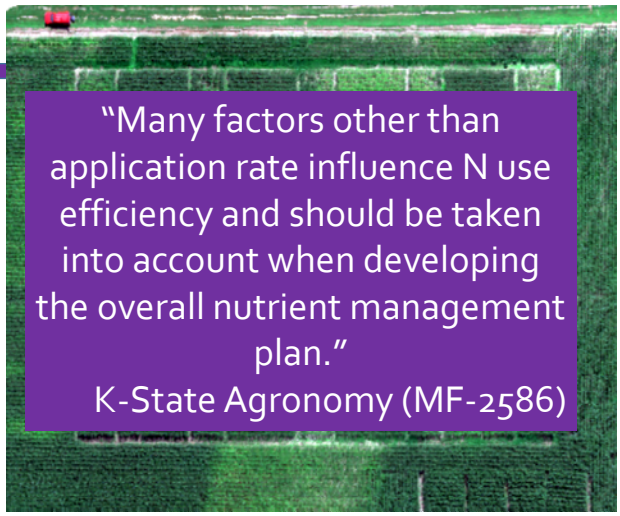

Photo credit: A. R. Asebedo, 2016

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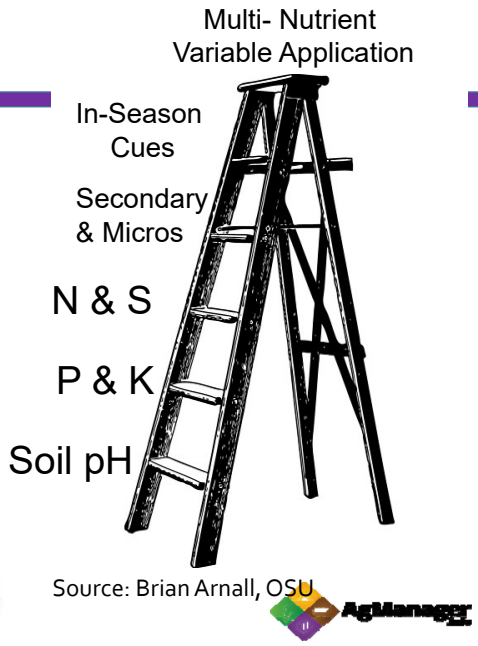
Secondary Macro and Micronutrients

- Do not apply secondary macro or micronutrients without having analytical confirmation (i.e. soil tests, plant analysis) that you need it
- Skipping the first three steps of the nutrient management ladder will result in money lost



Source: Brian Arnall, OSU

Seed Cost Strategies

- Strategies for buying seed
  - Ask for bids from multiple dealers (negotiate)
  - Offer full cash up front (avoid financing charges)
  - Buy before cutoff date in fall (early buy discount)
  - Buy all seed from same dealer (bulk discount)
- What if I am not a 15,000 acre farm?
  - Consider buying seed as a group with neighbors

Chemical Cost Strategies

- Same purchase strategies used for seed
  - Don't buy the day before you apply
- Timing of application is very important
  - Use of a pre-emergent, recognize when it is wearing down
  - Get into field for secondary spray while weeds are small
  - Avoid having to spray multiple times and/or suffer yield declines due to weeds
- What keeps you from getting into the field when you need to?

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Labor-Machinery Management

- Hired machinery costs are high for low 1/3 profit farms
  - Three times higher than high 1/3 profit farms
- If you are waiting on custom work, this could affect your total input costs (spraying example)
  - Can you optimize your labor-machinery portfolio to reduce yield losses and input costs?

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Managing Costs & Returns

- Need good records to make these decisions
  - Data on costs, yields, etc. underlie all these decisions
- Sweat the small stuff
  - Outlook not good for anyone in the next 2-3 years, so every cost category is important
- Recognize the opportunities when they present themselves
  - Determining where to spend money needs same analysis as where to save money

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Thank You

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