Public Policy and Soil Health: Conflicts and Solutions

Ryan Stockwell
stockwellr@nwf.org
715-965-2538
The Changing Context

• Growing Consumer demand
• Growing water quality and environmental issues
• Next Generation of Farmers shifting goals
Unconsidered ramifications of policy decisions:

1. Costs to water utilities
2. Balancing production and profitability
3. Risks managed, but not reduced.
Some current issues between policy and soil health

- Conservation Funding
- Crop Insurance
  - Rules
  - Structured annually
Cover Crops and Crop Insurance

- 3 rule changes in 4 years.
- Cover crops are the ONLY practice with specific rules connected to eligibility.
Terminate cover crop before planting:
- Yellow: 35 days
- Orange: 15 days
- Pink: at planting
- Blue: up to 5 days after planting
Often confused or missed components

1. No till bonus: If using no till, you get an additional 7 days to terminate covers.
2. May plant cover crops into insured crops as long as it doesn’t interfere with crop growth
3. Cover crops cannot be blamed for bad weather delaying termination
“Rules on federal crop insurance create some questions about the risk of planting cover crops and the impact on insured yields.”

“There are times depending on a grower’s risk-benefit process where they’re willing to sacrifice some of the safety net of crop insurance to do some of the management that’s going to help them.”

Long-term risks addressed by Soil Health, but not crop insurance

1. Compaction
2. Salinity
3. Fallow effect of Prevented Plant
4. Infiltration and Drainage
5. Monoculture
Compaction

Soybeans harvested 72 hours after a half inch rain event

Soybeans harvested 72 hours after 1.5 inch rain event

Photos taken November, 2014. No till soybeans harvested 6 days before conventional till.
Compaction

Soybeans harvested 72 hours after a half inch rain event
Soybeans harvested 72 hours after 1.5 inch rain event

http://extension.psu.edu/plants/crops/soil-management/soil-compaction/effects-of-soil-compaction
Salinity

• Causes:
  • Tillage
  • Short rotations

• Solutions:
  • Crop rotation to include cool season crops
  • No till
  • Cover crops
Fallow Effect of Prevent Plant

CROP INSIGHTS

Post Flood and Fallow Syndrome Examined
by Daniel Wiersma and Paul Carter

Summary

- Flooding destroys many acres of cropland each year, leaving fields dead or unplanted for up to a year.
- Crops often exhibit purpling, light green color and poor vigor when planted in fields that have been fallowed for a year or more.
- Mutually beneficial fungi called vesicular-arbuscular mycorrhizae (VAM) enhance nutrient uptake in plants, especially phosphorus.
- Fallowed fields have reduced levels of VAM and may delay nutrient uptake and plant growth.

Deficiencies occur even though soil testing often indicates more available P after flooding than in nonflooded fields. Post flood syndrome, or fallow syndrome, refer to the same phenomenon – crops grown in fields flooded or fallow the previous year that show symptoms of P and zinc (Zn) deficiency, severe stunting, purple or light green color and poorly developed roots. In addition to early season growth symptoms, yields losses can be dramatic in some instances, especially in corn.
Infiltration and Drainage

- Decline in Price: 1,799,587,628 (20%)

- Excess Moisture/Precip/Rain: 2,433,863,619 (28%)

- Drought: 1,662,792,026 (19%)

- Hot Wind: 40,032,953 (1%)

- Flood: 74,244,300 (1%)

- Frost: 77,201,161 (1%)

- Heat: 188,440,751 (2%)

- Area Plan Crops Only: 201,912,844 (2%)

- Wind/Excess Wind: 211,431,068 (2%)

- Freeze: 268,489,517 (3%)

- Failure Irrig Supply: 302,060,151 (3%)

- Cold Wet Weather: 330,657,925 (10%)

- Other (Snow-Lightning-Etc.): 319,145,359 (4%)
SOM plays a significant role in soil aggregation.

Excess/limited moisture is more a function of soil than climate.
Monoculture

- Continuous corn and corn/bean had the highest chance of lowest yields
- Tillage widened the yield curve: higher highs, lower lows
- Rotation benefits increased by up to 16% in challenging weather
**Iowa Farmers Using Cover Crops May Be Eligible for Crop Insurance Premium Reduction**

New IDALS-Funded Program Aims to Incentivize Expanded Use of Cover Crops to Improve Water Quality

*DES MOINES – Iowa Deputy Secretary of Agriculture Mike Naig today announced a new program aimed at increasing acres of cover...*
Philosophically Consistent Farm Policy that Advances Soil Health:

- Farm Bill policies need to consider ramifications of policies
- Crop Insurance needs to consider practices and long-term risks in actuarial calculations
- Make use of data to improve programs and reduce antagonisms