Public Policy and Soil Health: Conflicts and Solutions

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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.

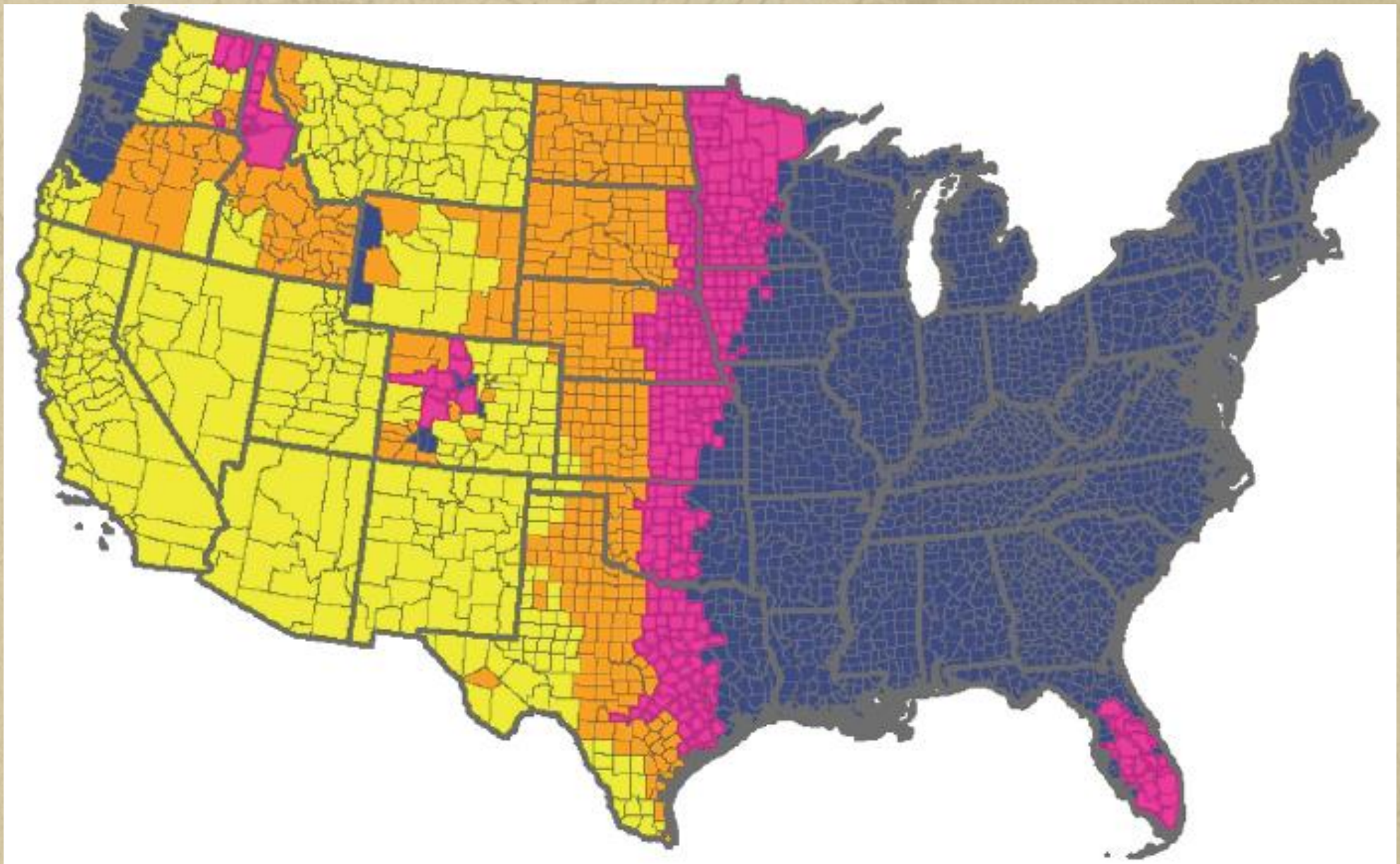
Some current issues between policy and soil health

- 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

Consultant: Adopt new, sustainable practices for weeds

By **Mikkel Pates, Forum News Service** on Dec 19, 2016 at 11:49 a.m.

WEST FARGO, N.D. – It might take a weed "disaster" before the majority of farmers adopt newer, more sustainable practices, said Lee Briese of Edgeley, N.D. The crop consultant has been with Centrol Inc. of Twin Valley, N.D., for more than 17 years, and deals with 39 clients in six counties. He spoke Dec. 13 at the annual Conservation Tillage Conference in Fargo, N.D.

"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."

http://www.prairiebusinessmagazine.com/business/agriculture/4182927-consultant-adopt-new-sustainable-practices-weeds

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

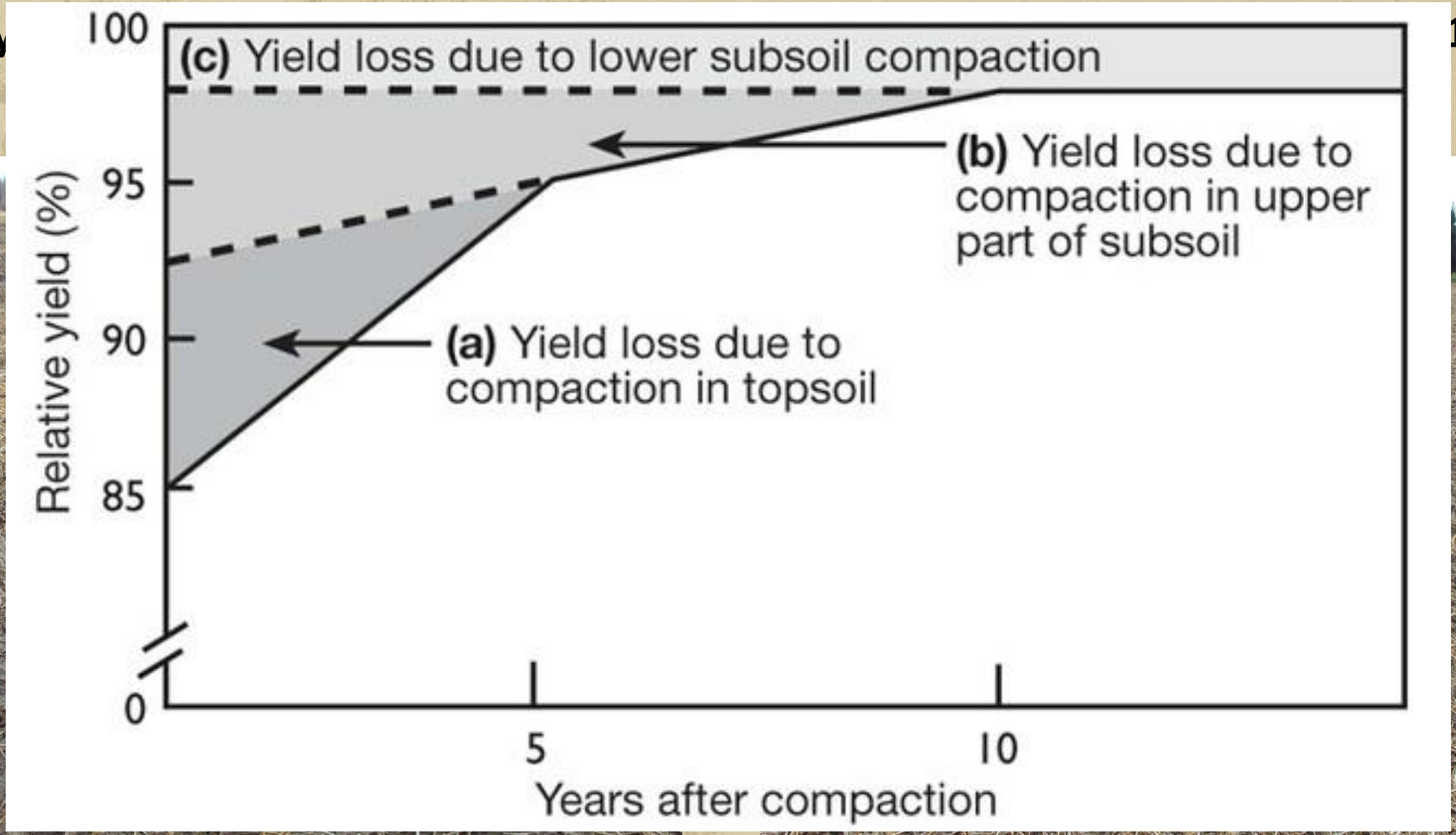
Soybeans harvested 72 hours after 1.5 inch rain event

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

Compaction

Soy

1.5



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

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Post Flood and Fallow Syndrome Examined

by Daniel Wiersma and Paul Carter

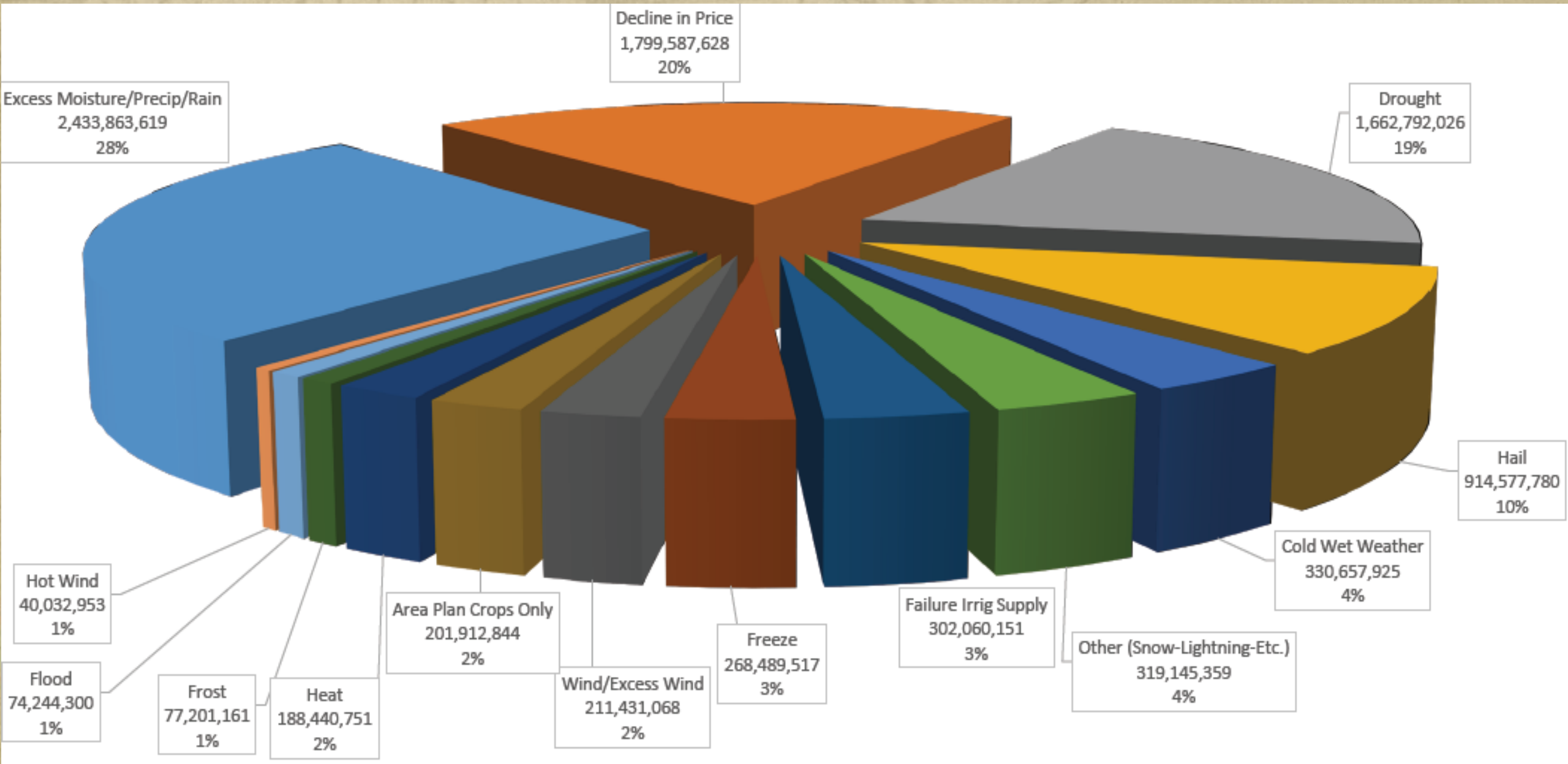
Summary

- 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.
- This *Crop Insights* reviews post-flood and fallow syndrome, its causes, and possible agronomic management options to prevent it.

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



Infiltration and Drainage

- SOM plays a significant role in soil aggregation
- Excess/limited moisture is more a function of soil than climate.

Monoculture

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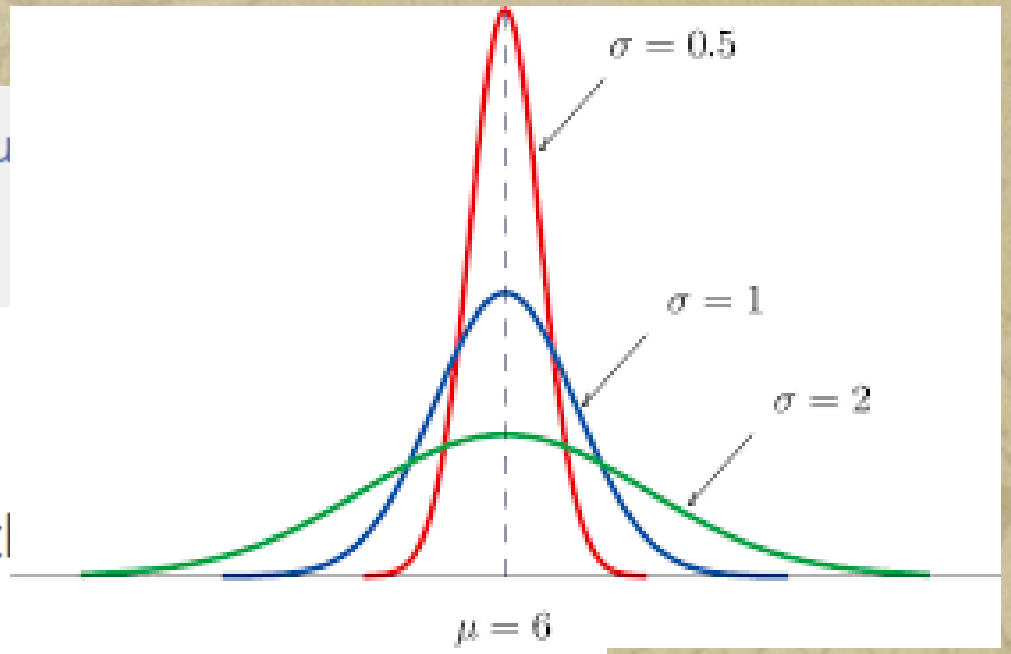
RESEARCH ARTICLE

Increasing Crop Diversity Mitigates Weat[illegible] Improves Yield Stability

Amélie C. M. Gaudin, Tor N. Tolhurst, Alan P. Ker, Ken Janovicek, Cristina Tortora, Ralph C. Martin, William Deen



- 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

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Thursday, November 16, 2017

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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