Managing for Healthier Soils and Cleaner Water

Cover Crop Symposium
August 7, 2019
Hershey Farms
Elizabethtown, PA

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Challenges related to the Chesapeake Bay Watershed

• Lancaster County has longest list of impaired streams in Pennsylvania
• Importing manure from Maryland
• WIP III Program
• Millions of dollars in grants to implement BMP

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• Cover Crops
• Planting Green
• Interseeding / Cover Crop Establishment
• Cover Crop / Bio-mass management
• Increases water holding capacity
• Reduces weed pressure
• Less herbicide
• Reduces crop stress
• Reduced slug pressure
• Increase organic matter
• Carbon sequestration
• Treat your Cover Crop like a “Cash Crop”
Choosing cover crop that benefits the soil & soil biology

- Cereal rye
- Wheat, rye, canola
- Oats, rye, Balansa clover, canola
- Annual rye grass, oats, crimson clover, radish, Austrian winter peas
- Barley, oats, hairy vetch
- Barley, oats, radish

Rates: Less is more
Keeping the soil covered 365 days
Green cover – little is better than nothing
Planting green

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8000# Bio-mass

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Growing cover crops gives you three options...
C / N Ratio

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Providing armor for the soil

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Cover crop bio-mass helps reduce soil temperature and stress on crop development & growth

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5 things to remember

• Start simple
• Select the right equipment
• Select the right corn hybrids
• Nitrogen penalty due to the high carbon
• Select the right rate & right herbicide
Handles Tough Crops

Cover-Crop Roller tests at 90% minimum crop knockdown and handles tough crops like hairy vetch and rye.

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Saves Time
With the Cover Crop Roller mounted on the front of a tractor, a farmer can roll and plant all in the same pass.

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Interseeding in June

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30” / 60” Corn
Early interseeding observations

- Incorporation is necessary
- Seeding rate of radish should be 2 lbs or less
- Early V5 is better than later
- Shade tolerant species is key factor
- Interseeded crop does not negatively effect cash crop
Challenges related to interseeding

• Need to plan ahead
• Herbicides
• A small planting window
• Finding the most effective seed mix for your location
• Selecting seed that will enhance soil biology and soil health
• Adequate sunshine & moisture
Late seeding cover crop
Rye 25 lbs, Wheat 25 lbs, Vetch 10 lbs
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How do you know if interseeding is right for you?

• Do you want to protect your soil from drying out and heat stress?
• Do you want to add carbon / organic matter to your soil?
• Are you trying to create a grazing crop for late fall?
Key things to remember when interseeding

• Start with small acres
  ▶ Use a grass and legumes in the mix
  ▶ Use as many shade tolerant species as possible
  ▶ Plan a herbicide selection accordingly
  ▶ Performance could vary from year to year

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Manure Management

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7,000 gallon liquid hog manure

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Spring Soil 24" Nitrate

Cover Crop: 124 lbs. NO$_3$-N/Acre
No Cover: 202 lbs. NO$_3$-N/Acre
Difference: 78 lbs. NO$_3$-N/Acre

Site

Cover | No Cover
--- | ---
1 | 400
2 | 300
3 | 250
4 | 200
5 | 150
6 | 100
7 | 75
8 | 50
9 | 25
10 | 10
11 | 5
12 | 0
13 | 5
14 | 10
15 | 15
16 | 20
17 | 25
18 | 30
19 | 40
Ave | 150
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Tons of soil & nutrient loss

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1. No-Till
   • Increased Soil aggregation
   • Increased Water infiltration
   • Carbon sequestration

2. Soil Fertility
   • Enhanced by cover crop, crop rotation, animal manure
3. Building biological activity
   • Restores the soil energy system
   • Stimulated by multi-species cover crops
   • Encourages beneficial insects

4. Well managed grazing system
   • The “Cadillac” of soil health
   • Increases soil fertility and captures energy from the sun
Two most important resource: Our Water and ......
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PA No-Till Alliance Board

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Outreach Support

• Stroud Water Research

• National Fish & Wildlife Foundation (NFWF)

• Growing Greener (GG)
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Activities

• Provide speakers to Conservation District Meetings throughout the state (no charge)
• Participate at Penn State Ag Progress Days – 3 day outdoor event
• Partnered with Stroud to produce a video “Lay of the Land” (available on YouTube)
• Farmer to Farmer mentoring program
• Town hall meetings
• Board members serve on State and County conservations boards, WIP committees, Local Ag Advisory Boards and more

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