

TSU Nursery Field Day
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Cover Crops in the Nursery

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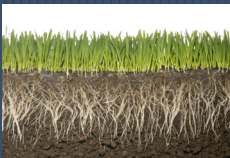

Objectives

- Discuss benefits/challenges of cover crops
- Discuss types of cover crops





Introduction

- What is a cover crop?
 - Planted to improve soil
 - Planted in rotation with cash crop
 - Intercropped with cash crop




Introduction

- Crop production
 - Depletes soil nutrients
 - Damages soil structure
 - Yields decline over time
- Cover crops
 - Improve soil health
 - Enhance cash crops
 - Long term benefits

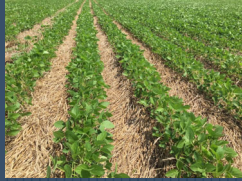
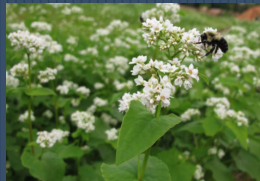
Benefits of Cover Crops

- Soil quality
 - Reduce erosion
 - Improve infiltration rate/conserves moisture
 - Build organic matter
 - Reduce compaction
- Soil fertility
 - Fix nitrogen
 - Scavenge nutrients

Benefits of Cover Crops

- Suppress pests
 - Weeds
 - Insects
 - Soil-borne pathogens
 - Nematodes
- Other
 - Habitat for pollinators & beneficial insects
 - Reduce nutrient/pesticide runoff
 - Reduce pesticide use

Cover Crops

- Challenges
 - Extra cost
 - Seed
 - Specialized equipment
 - Extra time/effort
 - Compete with cash crop
 - Proper timing
 - Cover crop selection




Cover Crops



- Widely used in other cropping systems
 - Agronomic (row) crops
 - Pre-plant
 - Rotation
 - Vegetables
 - Green manure
 - Rotation
 - Orchards/Vineyards
 - Improve soil quality
 - Maintain middles







Current Nursery Practices

- Maintain middles and access roads
 - Grasses (fescue)
 - Plethora of weeds
 - Mow
- Clean rows (ideally)
 - Post- and pre-emerge herbicides
- Tillage (roto-tiller/disc)
 - Not recommended
 - Increases erosion/compaction
 - Nutrient loss


Cover Crops in Nurseries

- Current cover crop practices
 - Pre-plant
 - Sudangrass
 - Green manure (build organic matter)
 - During production
 - Sow in middles
 - Crimson clover


Cover Crops in Nurseries

- Expanded use
 - Cool season blends
 - Warm season species??
 - Seeding methods



Planting Methods

- Broadcast
 - Small seeded species (clover, ryegrass, etc.)
 - Herd Spreader
 - Relatively inexpensive
- All-purpose seeder
 - More versatile
 - Increased soil contact
 - Improved germination/establishment
 - More expensive
 - Require more HP


Types of Cover Crops – Cool Season

- Legumes
 - Crimson clover - annual
 - Austrian winter pea
 - Red clover – annual/biennial
 - White clover - perennial
- Grasses/non-legumes
 - Triticale
 - Winter/cereal rye
 - Annual ryegrass
 - Brassicas
 - Mustard
 - Tillage radish ('Nitro')
 - Buckwheat

Types of Cover Crops – Warm Season

- Legumes
 - Cowpea
 - Field peas
 - Soybean
 - Annual lespedeza??
 - Hyacinth bean??
- Grasses/non-legumes
 - Sorghum-sudangrass
 - Millet
 - Japanese, browntop, proso, & pearl
 - Buckwheat
 - Oilseed radish
 - Mustard

Previous and Current Work

- Planting date
 - Cool season cover crops
 - Late Aug / early Sept
 - More biomass/weed suppression
- Planting method
 - All-purpose seeder
 - Improves establishment



Previous/Current Work

- Suppresses borer attacks
 - FHAB
 - Cover crop height (12"+)
 - Crimson clover/winter wheat
- Warm season cover crops
 - Cowpea and Japanese millet
 - Broadcast v/s All-purpose seeder
 - TBD



Current/Future Work

- Cover crop blends
 - Cool season
 - Warm season
 - On-farm trials
 - NRCS collaboration
- Cover crop termination
 - Mowing v/s roller/crimper



USDA-NRCS EQIP Program

- Financial incentives for planting cover crops
- Contact local NRCS office



Acknowledgements



Questions?