

Gaining Resilience, One Conservation Step at a Time

Practical Farmers of Iowa
Sponsored by Trees Forever
McQuown/Turman Field Day
Red Oak, Iowa
June 15, 2017

Today's Agenda

- ▶ 10:00 - Welcome/Introductions
- ▶ 10:05 - Presentations in the Shop
 - ▶ Brief Resilient Farms History
 - ▶ Landowner/Farm Operator Relations
 - ▶ Cover Crops/Other Conservation Practices
- ▶ 10:25 - Riparian Buffer
- ▶ 10:45 - STRIPS
- ▶ 11:00 - Farm Site Tours and Lunch (Groups of 10-15)

Group	11:00-11:35	11:35-12:10	12:10-12:30	12:30-1:00	1:00-1:30
A	Prairie STRIPS	Riparian Buffer	ILF Conservation Station	Lunch	Produce Garden/Solar Array
B	Riparian Buffer	Prairie STRIPS	ILF Conservation Station	Lunch	Produce Garden/Solar Array

- ▶ 1:30 - Thank You/Travel Home Safely

Today's Hosts & Speakers

- ▶ Stefan Gailans, Research & Field Crops Director - Practical Farmers of Iowa
- ▶ Maggie McQuown & Steve Turman, Hosts/Owners - Resilient Farms
- ▶ Bryan & Lisa Huff, Farm Operators - Resilient Farms
- ▶ Lindsey Barney, District 9 Forester - Iowa Dept. of Natural Resources
- ▶ Brad Riphagen, Field Coordinator - Trees Forever
- ▶ Tim Youngquist, STRIPS Farmer Coordinator & Ag Specialist - ISU



THE FUTURE OF **FAMILY FARMS**

Practical Farmers' Legacy Letter Project

EDITED BY **TERESA OPHEIM**

Resilient Farms

The background of the slide features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, creating a modern and organic feel.

Resilient Farms: A Brief History

1899-Present

Landowner/Operator Relations

1997-Present

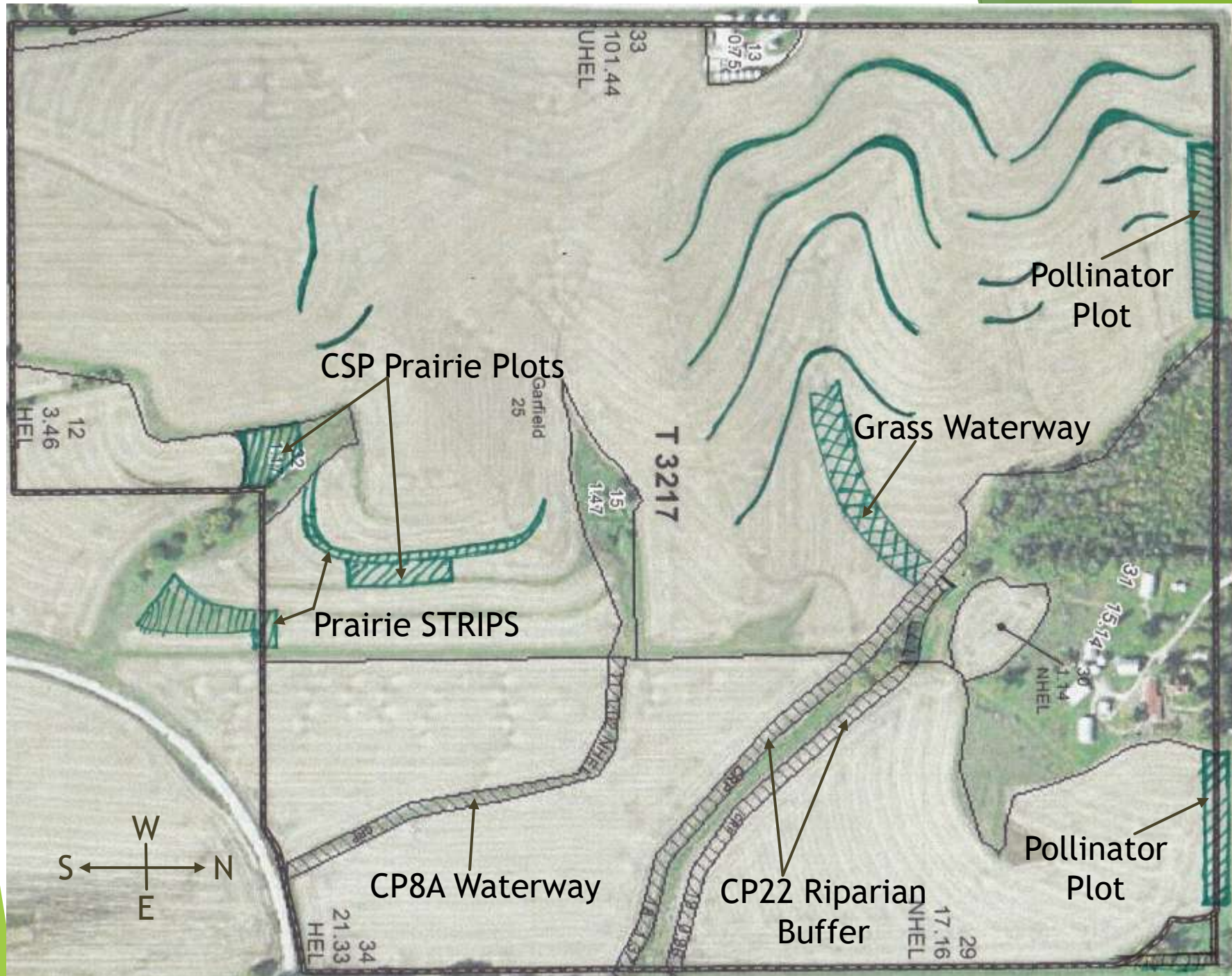
Cover Crops

2013-Present

Year

Resilient Farms: A Brief History

1899	JE/Retta Taylor purchased farm; named it “Pleasant Prospect”.
1920s	JE Taylor built swale terraces; planted pine windbreaks.
1945	Earl McQuown acquired farm. Began contour farming; added ponds.
1980s	Began no-till practice; added 2 hump terraces/tile.
1990s	Bryan/Lisa Huff became tenants; added CRP8A grass waterway.
2004	Signed 10-year Conservation Reserve Program contract.
2011	Maggie McQuown inherited farm; renamed it “Resilient Farms”.
2013	Signed riparian buffer contract; added 2 terraces; 1st cover crop test.
2014	Joined ISU STRIPS program; planted STRIPS; prepped riparian buffer.
2015	Planted riparian buffer in May; 2nd cover crop test.
2016	Planted pollinator plots & cover crop above ponds ; added 3 terraces, 4 mini-dams, tile & grass waterway; 3rd cover crop test; burned STRIPS.
2017	Overseeded STRIPS edges & pollinator plots; seeded riparian buffer.



Landowner/Farm Operator Relations

- ▶ Lease Types
 - ▶ Crop-share; cash rent; flex-rent (2 versions)
 - ▶ Clearly defined roles/responsibilities/guidelines written into lease
- ▶ Guiding Principles for Success
 - ▶ Operation type/equipment compatibility
 - ▶ Long-term view
 - ▶ Mutual respect
 - ▶ Shared values/goals
 - ▶ Open, candid and regular communication
 - ▶ Advanced planning
 - ▶ Flexibility
- ▶ Adapt/Improve: Dual-placement fertilization

Cover Crops: Fall 2013 1st Test

- ▶ Corn ➡ Soybeans
- ▶ 23 acres; oats/tillage radish; aerial helicopter
- ▶ IDALS cost share = \$500 maximum;
owner/operator shared \$643 balance 50/50

Cover Crops: Fall 2013 1st Test



2013 Test Oats/Tillage Radish: Planted 9/3/13, Video 10/27/13



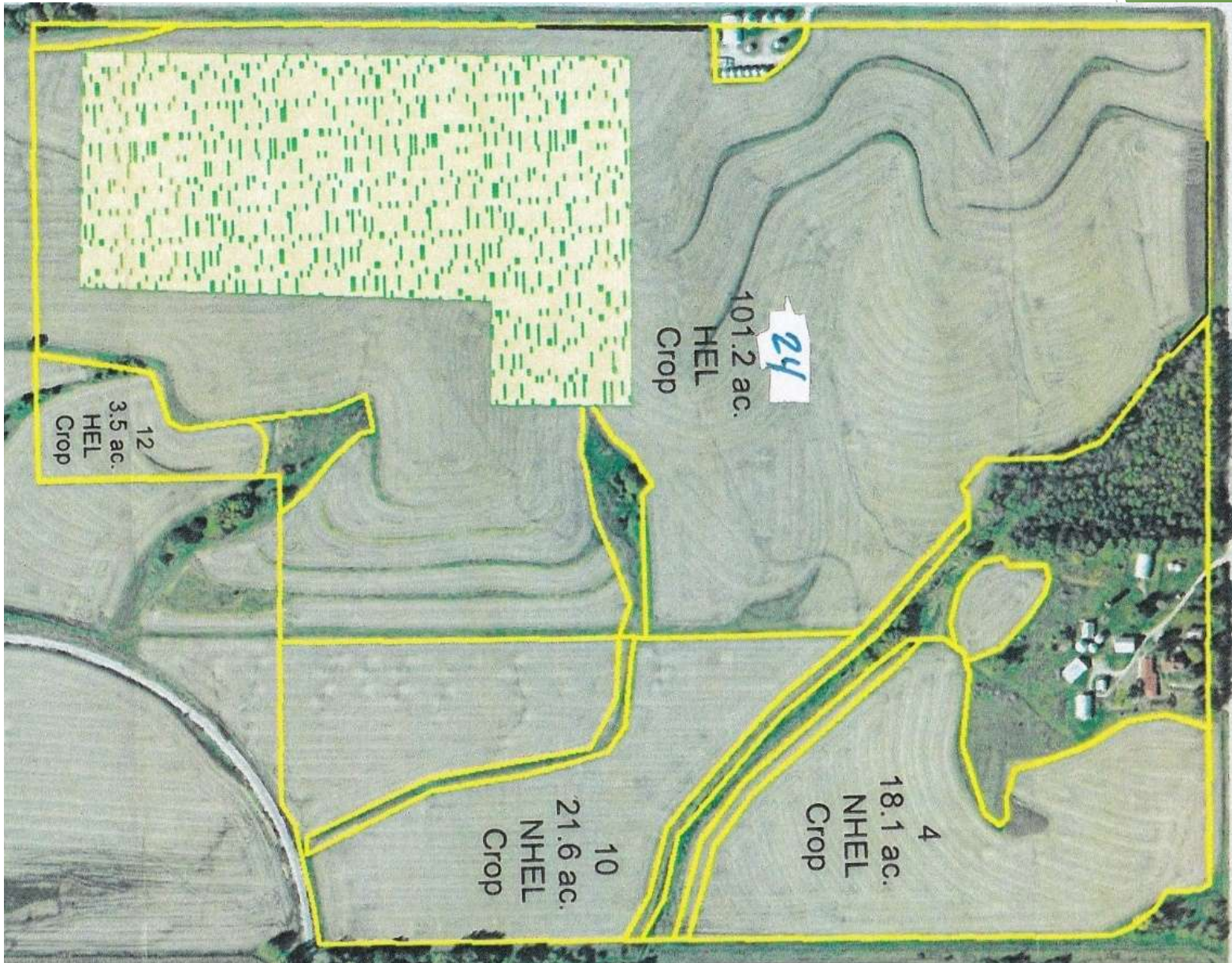
2013 Oats/Tillage Radish: Post-Harvest, 10/27 & Post-Snow 11/18



Cover Crops: Fall 2015 2nd Test

- ▶ Corn → Soybeans
- ▶ 24 acres; cereal rye/rapeseed; aerial helicopter; seeded mid-September
- ▶ IDALS cost share @ \$25/ac x 24 ac = \$600; owner/operator shared \$270 balance 50/50
- ▶ Operator terminated CC prior to Spring planting

Cover Crops: Fall 2015 2nd Test



Cover Crops: Nov 5, 2015



Cover Crops: March 2, 2015



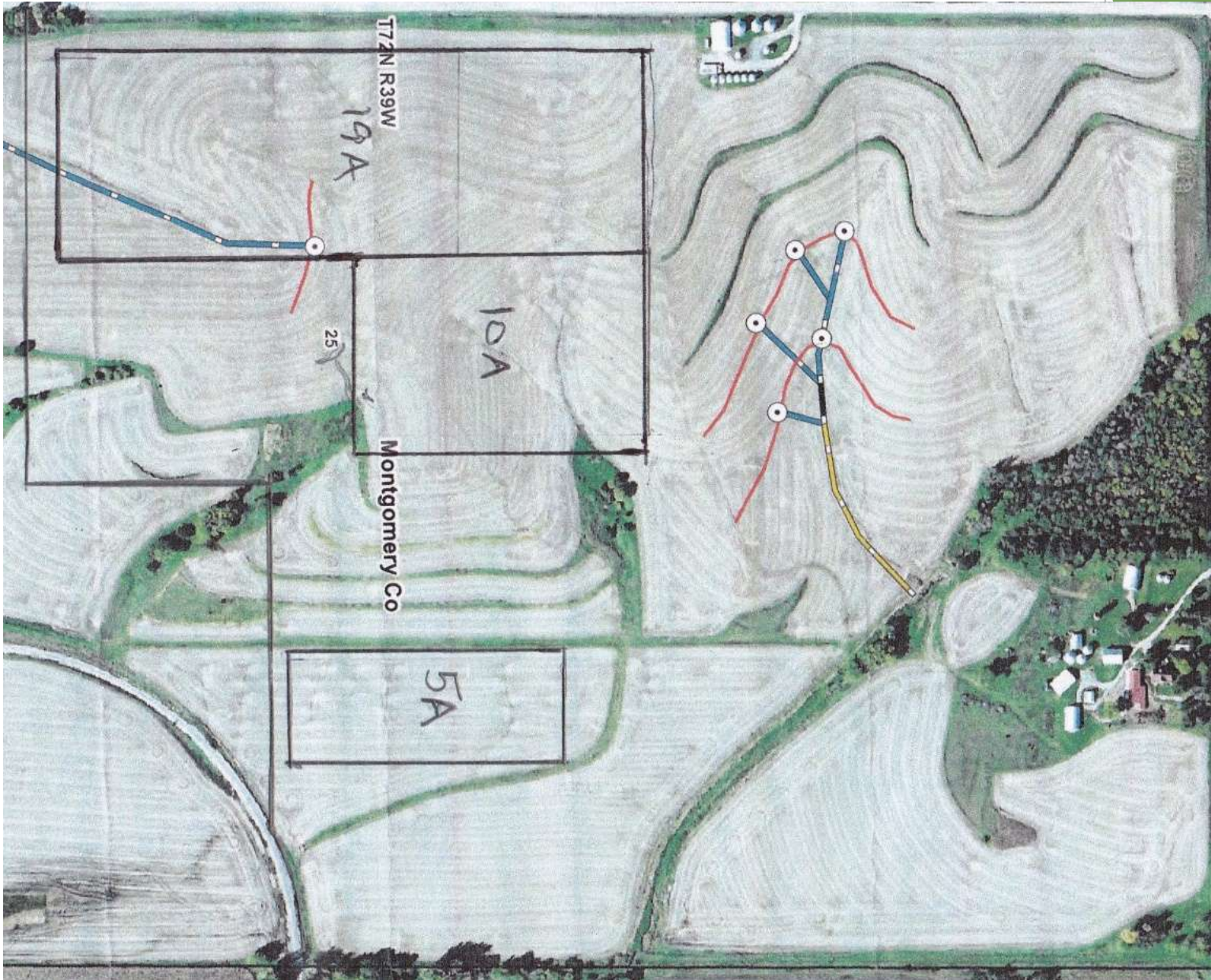
Cover Crops: Fall 2016 3rd Test

- ▶ Soybeans ➡ Corn
- ▶ 35 acres; oats/tillage radish; aerial helicopter
- ▶ No cost share; owner paid \$1210 cost
- ▶ Some cereal rye/rapeseed left in hopper germinated, operator had to terminate in Spring

Cover Crops: Fall 2016 Bonus Test

- ▶ My siblings farms; Huffs are farm operators
- ▶ Corn ➡ Soybeans
- ▶ 180 acres; cereal rye/rapeseed; aerial plane
- ▶ No cost; part of Walnut Creek Watershed program
- ▶ Operator terminated CC prior to Spring planting

Cover Crops: Fall 2016 3rd Test



2016 Oats/Tillage Radish: Aerial Seeded 9/24 & Establishment 10/8



Riparian Forest Buffer 2014-Present

Riparian Buffer Plan

- ▶ May 2013 - Woodland Stewardship Plan by DNR Forester Lindsey Barney
- ▶ Sept 2013 - CP22 CRP Contract/Plan Approved
 - ▶ 2.4 Acres - about 1/3 mile long
 - ▶ Each side: 40 feet + 15 foot grassy lane = 55 feet to row crops
 - ▶ Four rows each side, planted 10 feet apart
 - ▶ 2 rows of trees + 2 rows of shrubs
 - ▶ 700 trees, planted in pairs 10 feet apart
 - ▶ 900 shrubs, planted in blocks of four 6 feet apart
- ▶ Cost-Shares: FSA CRP & Trees Forever Working Watersheds Grant

Riparian Buffer Plan

Row 4 - 10' back from row 3

- button bush, chokecherry, hazelnut, high bush cranberry

Row 3 - 10' back from row 2

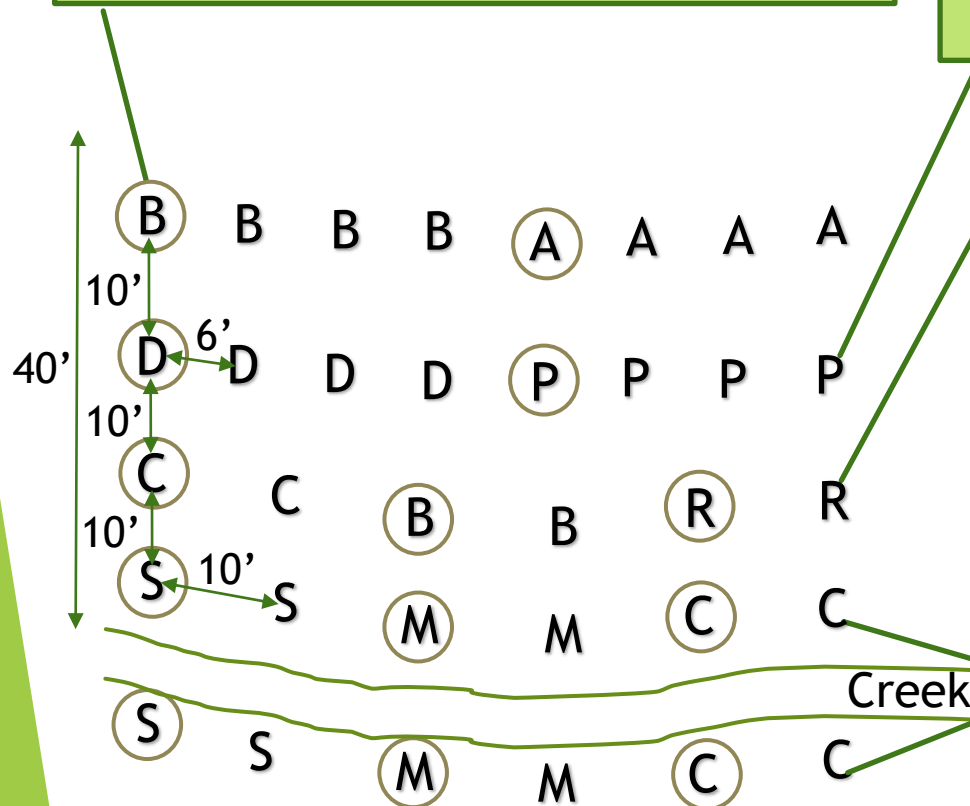
- grey dogwood, high bush cranberry, redbud, red osier dogwood, wild plum

Row 2 - 10' back from row 1

- black cherry, bur oak, downy hawthorn, hackberry, northern red oak, shagbark hickory, sycamore

Row 1 - along creek bank

- black willow, cottonwood, silver maple, swamp oak



Riparian Buffer Timeline

- ▶ Spring 2013 - Began kill of reed canary grass and other invasive species
 - ▶ Controlled burn
- ▶ Fall 2013 - Ongoing kill of reed canary grass
 - ▶ Controlled burn
 - ▶ Mowed and weed wacked
 - ▶ Sprayed with Rodeo/Fusillade herbicide mix
- ▶ Spring 2014 - Final kill of red canary grass/other vegetation
 - ▶ Controlled burn
 - ▶ Mowed and weed wacked
 - ▶ Sprayed with Rodeo/Fusillade herbicide mix

May 29, 2013



April 27, 2014



May 9, 2015: Set-up



May 18, 2015: Planting



Shelters or Cages

- ▶ Very important for success - 575 total
- ▶ Economical Cages:
 - ▶ Tenax Plastic Poultry Fence 3' x 25' roll cut into 50" lengths (6 cages/role)
 - ▶ 4' Angle iron posts
 - ▶ 8" Cable ties - 3-4 per cage
- ▶ Testing: Plantra plastic grow tubes
 - ▶ Expensive
 - ▶ Not suitable for shrubs and some tree species
- ▶ Tested Repellex and hot pepper ointment



May 23, 2015: Shelters



June 10, 2015: Arrowheads/Milkweed & Butterflies





Fa

July 17, 2016: Mareetail Jungle



July 17, 2016:
Button Bushes





March 15, 2017: Start of Year 3



April 2017: Blossoms Everywhere



May 2017: Mid-Contract Spot Spraying



May 28, 2017: Field Day Prep



Riparian Forest Buffer

What worked?

- ▶ Cost share/professional assistance
- ▶ Weather - good rain
- ▶ Species selection
- ▶ Cages/Deer Repellant
- ▶ Lots of time/hard work weeding/mowing/trimming

What needs improving?

- ▶ More resource research
- ▶ Wish we had planted straighter rows
- ▶ Better timing on weed control; no 2,4-D
- ▶ Wider buffer to include a native grass zone

What's next?

- ▶ Ongoing maintenance - move cages, apply Deer Stopper, mow/trim
- ▶ Thinning as trees grow/canopy
- ▶ Begin upper creek - Eliminate invasive grasses/trees- reed canary, black locust, honeysuckle

Prairie STRIPS and Other Prairie Plots 2014-Present

ISU STRIPS Cooperator Program

- ▶ STRIPS stands for Science-based Trials for Row crops Integrated with Prairie Strips.
- ▶ Converted 2 brome buffers into 2 prairie STRIPS



Prairie STRIPS Seeding Mix

Native Grasses

Big Bluestem*	Canada Wildrye*	Indian Grass*	June Grass	Little Bluestem*
Rough Drop Seed	Sideoats Gramma*			

Native Forbs

Black-eyed Susan*	Butterfly Milkweed*	Canadian Milkvetch	Compass Plant	Foxglove Beardtongue*
Golden Alexander's*	Great St Johnswort	Greyheaded Coneflower	Hoary Vervain*	Illinois Ticktrifol*
New England Aster	Ohio Spiderwort*	Old Field (grey) Goldenrod	Ox-eye (false) Sunflower*	Pale Purple Coneflower*
Partridge Pea*	Prairie Blazing Star	Purple Coneflower*	Purple Prairie Clover	Rattlesnake Master*
Rosinweed*	Stiff Goldenrod	Western Yarrow*	White Prairie Clover	Wild Bergamot*

* Indicates species identified to date

June 19, 2014: Planting STRIPS

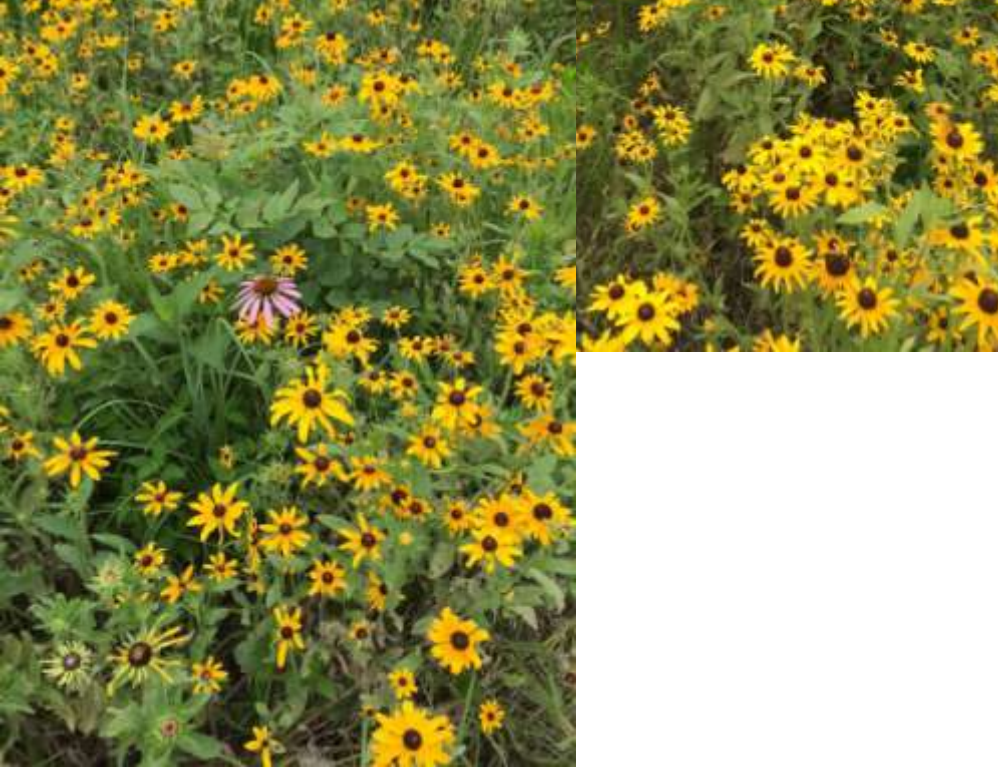
- ▶ Pheasants Forever of Montgomery County Drill
- ▶ Custom Mix: 7 Grasses + 25 Forbs



STRIPS: July 20 & Aug 12, 2014



July 27, 2015



June 14, 2016



June 14, 2016



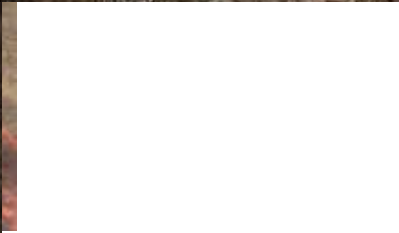
August 7, 2016



August 7, 2016



Dec 22, 2016: Prescribed Burn



Dec 22, 2016: Prescribed Burn



June 3, 2017



ISU STRIPS Cooperator Program

What worked?

- ▶ Use of oats as nurse crop
- ▶ Great species diversity
- ▶ Increase in butterfly and insect activity

What needs improving?

- ▶ Contour Strip Year 1:
 - ▶ Too narrow
 - ▶ No access
- ▶ Edges suffer spray drift
- ▶ Limited prairie STRIPS interspersed with crops

What's next?

- ▶ Convert 2 old fence lines into STRIPS
- ▶ Add a STRIP in NE field rocky area
- ▶ Possibly convert 2 other brome buffers to STRIPS

Riparian Buffer/STRIPS: Weeds & Grasses/Forbs of the Year

Year	Weeds	Grasses	Forbs
2013	Reed Canary, Poison Ivy		Partridge Pea
2014	Reed Canary, Poison Ivy, Pokeweed	Big Bluestem, Canada Wildrye	Partridge Pea
2015	Thistles, Bindweed, Pokeweed, Water hemp, Smartweed	Indian Grass	Black-eyed Susan, Coneflowers, Wild Bergamot, Ox-Eye, Spiderwort
2016	Mares tail, Thistles, Poison Hemlock, Bindweed	Little Bluestem, June Grass, Sideoats Gramma	Swamp Milkweed, Rattlesnake Master, Yarrow, Hoary Vervain
2017	Poison Hemlock, Bedstraw, Thistles, Curly Dock, Henbit		Foxglove Penstemon, Golden Alexanders

Conservation & Ag Management Resources

- ▶ Practical Farmers of Iowa: www.practicalfarmers.org
- ▶ Trees Forever: www.treesforever.org
- ▶ Iowa State University STRIPS Research Project:
www.nrem.iastate.edu/research/STRIPs
- ▶ Iowa DNR Forestry Bureau Services:
www.iowadnr.gov/Conservation/Forestry
- ▶ USDA Farm Services Agency (FSA) Conservation Programs: Search
 - ▶ USDA Conservation Programs: Complete list of FSA Conservation Programs
 - ▶ USDA CRP Practices Library: Complete list of CRP Practices
- ▶ UNI Tall Grass Prairie Center: <https://tallgrassprairiecenter.org/>
- ▶ Iowa Pheasants Forever Native Seed Program:
<http://iowapf.net/NativeGrassProgram.aspx>
- ▶ Iowa State University Extension-Ag Decision Maker:
www.extension.iastate.edu/agdm

Riparian Buffer Design Resources

- ▶ Stewards of our Streams: Buffer Strip Design - Iowa State University
 - ▶ <https://www.leopold.iastate.edu/files/pubs-and-papers/1997-04-stewards-our-streams-buffer-strip-design-establishment-and-maintenan>
- ▶ University of Minnesota Extension
 - ▶ <https://www.extension.umn.edu/environment/agroforestry/riparian-forest-buffers-series/design-of-riparian-forest-buffers/>
- ▶ University of Nebraska Extension
 - ▶ <http://extensionpublications.unl.edu/assets/pdf/g1557.pdf>
- ▶ Maryland Cooperative Extension
 - ▶ https://extension.umd.edu/sites/extension.umd.edu/files/_docs/programs/riparianbuffers/FS725.pdf
- ▶ Soil Bioengineering or Streambank Restoration for Riparian Forest Buffers
 - ▶ https://extension.umd.edu/sites/extension.umd.edu/files/_docs/programs/riparianbuffers/FS729.pdf

Questions? Comments?

Farm Site Tour Groups

Group*	11:00-11:35	11:35-12:10	12:10-12:30	12:30-1:10	1:10-1:30
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*10-15 attendees per group