

Interseeding Cover Crops into Field Crops Systems: Geography makes a Difference

Marisol Berti,
Professor



Karen Renner, Professor

Aaron Brooker, PhD
graduate student

Douglas Toussaint Farms
North Dakota State Univ.

Hasenick Brothers Farms
Michigan State Univ.

Why Interseed cover crops?

- Build soil organic matter by adding carbon to the soil
- Protect the soil from erosion in the fall and spring
- Improve nutrient cycling
- Increase microbial activity
- Suppress weeds



Interseeding cover crops in corn V2-V7:

- Limited window to seed a cover crop following corn grain harvest in Michigan



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Interseeding cover crops in corn V2-V7: Why?

- Limited window to seed a cover crop following corn grain harvest
- Weather may limit interseeding in early fall when corn senescences
- Provide a **longer time period to benefit** from cover crops
 - Soil health benefits
 - Weed suppression



TERMINOLOGY for the MWCCC and the other regional organizations

- **Aerial** seeding = airplane
- **Interseeding** = seeding in a growing crop
 - **Drill** interseeding
 - **Broadcast** interseeding



Where does the term '***overseeding***' fit?

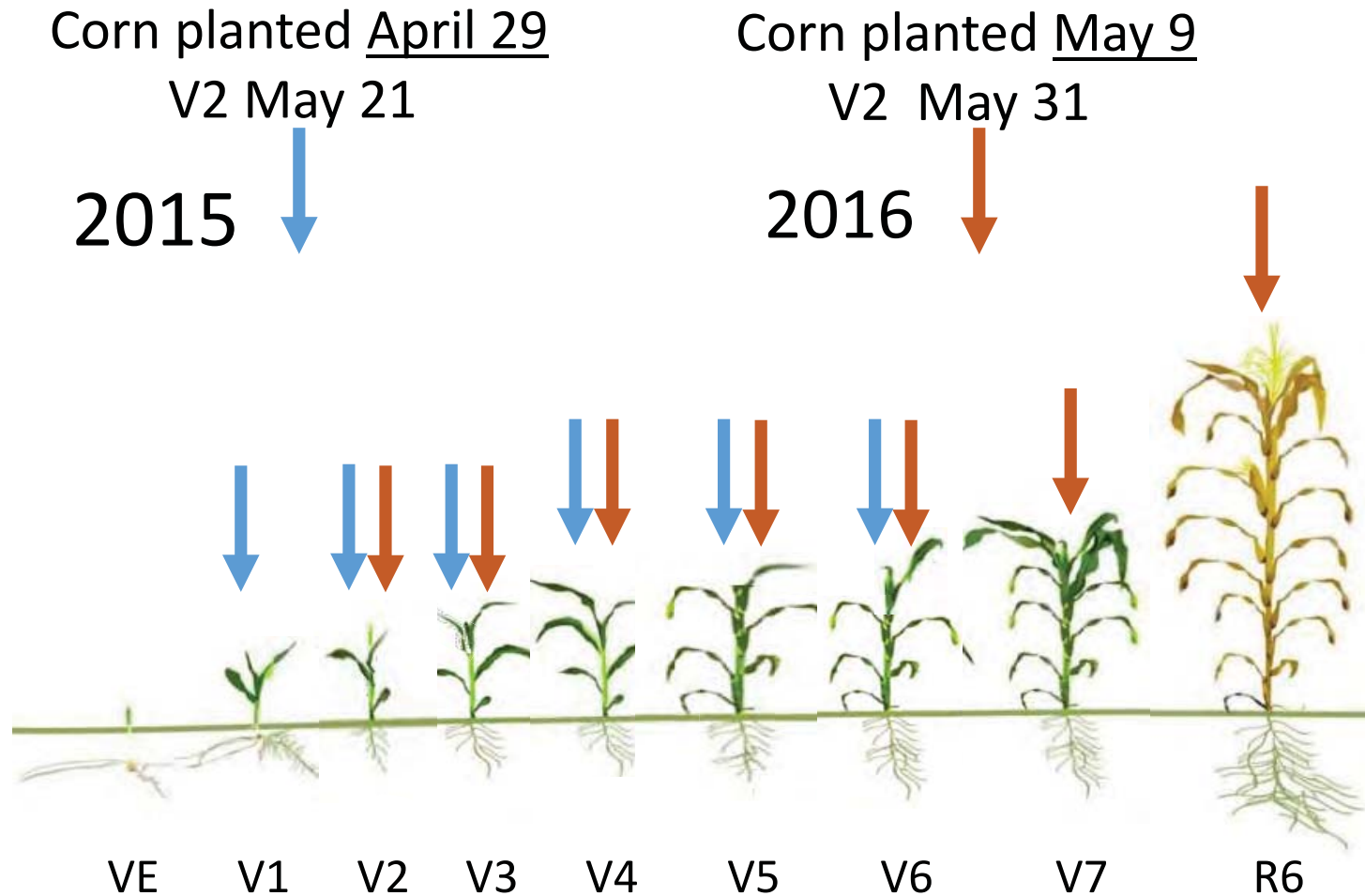


Research Questions in Michigan

1. Can cover crops **establish** successfully in corn from V1-V7?
2. Are interseeded cover crops **competitive** with corn?
3. Can **preemergence herbicides** be used to suppress weeds in interseeded cover crops?

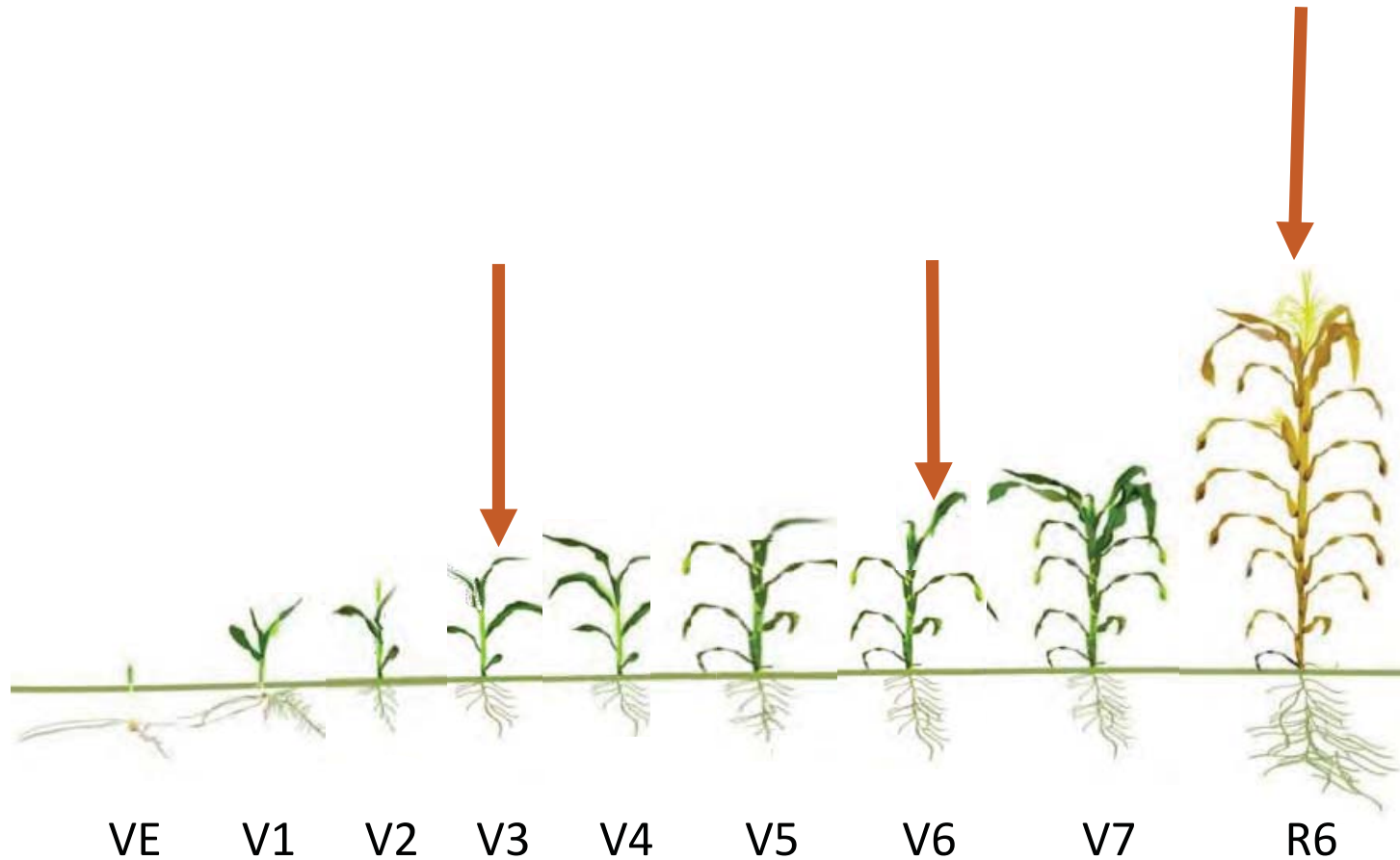


Interseeding Cover Crops – Timing in Michigan



ON-FARM in Michigan: V3 V6 R6 only

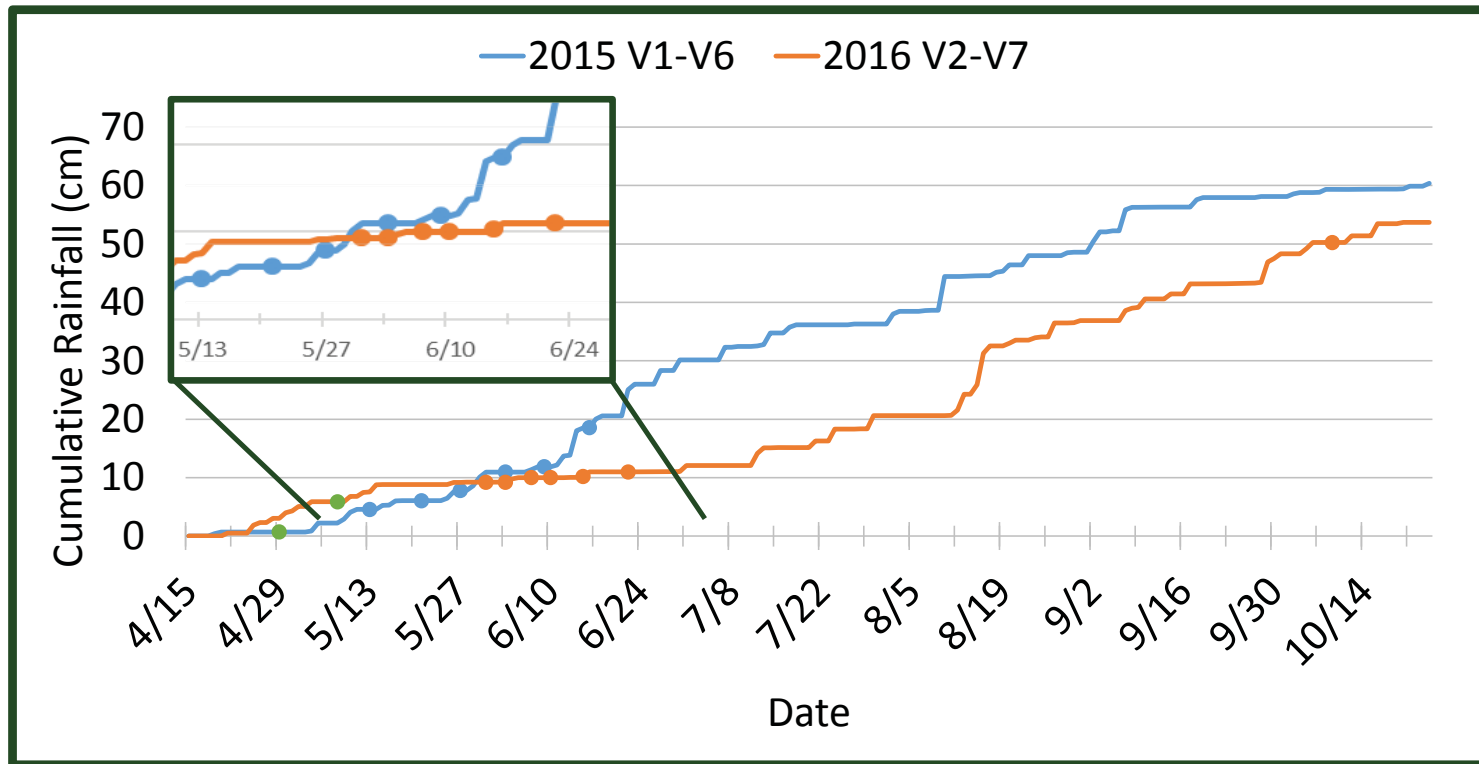
Interseeding timings



7 days after seeding at V2 – it takes about a week after the first rain for the interseeding to emerge



Rainfall soon after interseeding affected cover crop establishment



Green circles represent corn planting each year. Blue and orange circles represent interseeding dates.

Cover Crops Interseeded in Michigan-fall 2015



Tillage radish
interseeded in V4 corn
on June 3 in Michigan

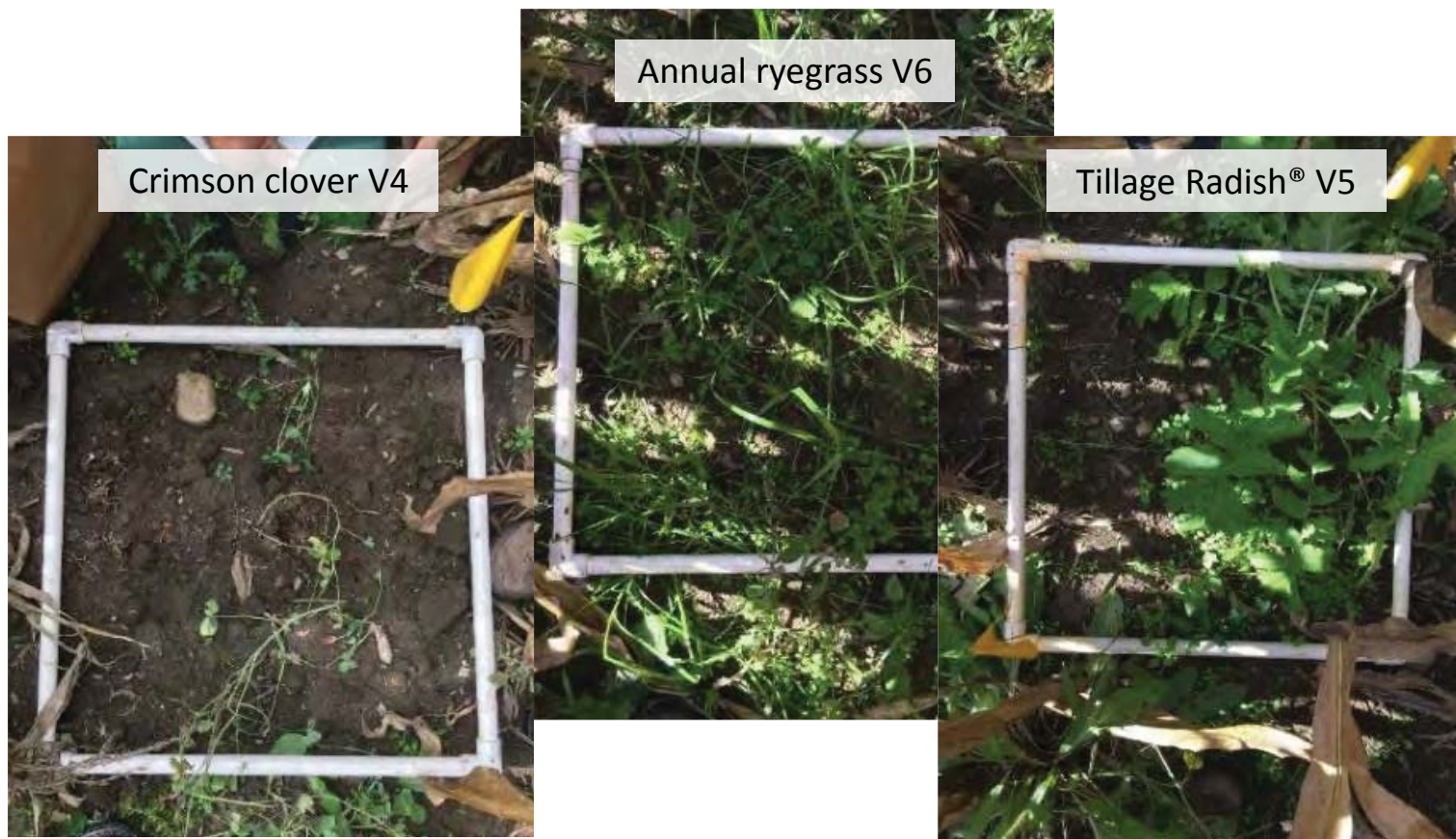
Picture
taken on
July 15



Cover crops on October 15 in Michigan 2015



Cover Crops in October– 2016



RESULTS:

- 1. All three cover crops established every year at every interseeding timing**

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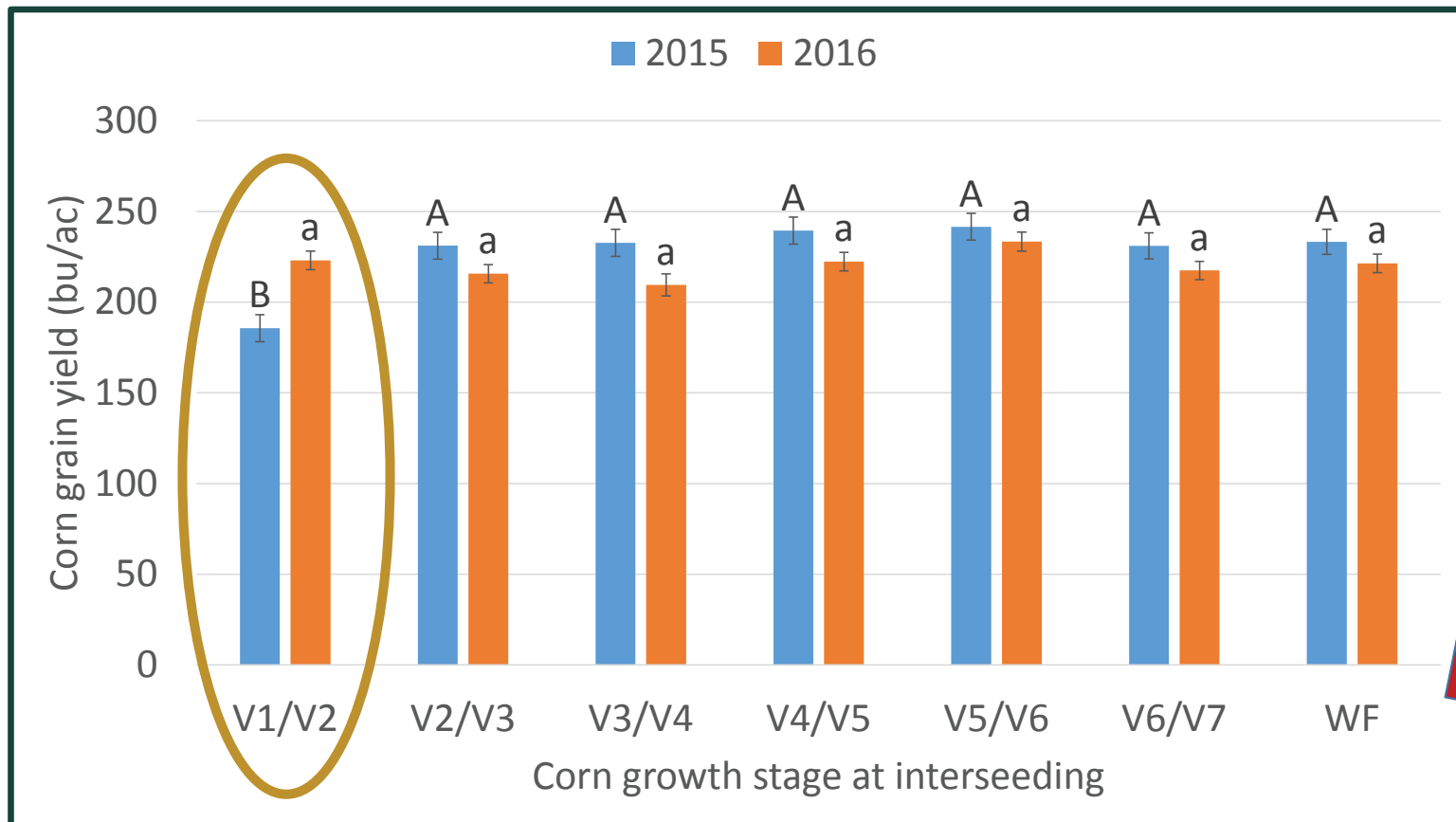
1. All three cover crops established every year at every interseeding timing
2. Annual ryegrass and tillage radish established better than crimson clover
3. **2015 cover crops establishment was much better compared with 2016 when no rainfall occurred for 6 weeks in June and early July ☹️**

Research Questions in Michigan

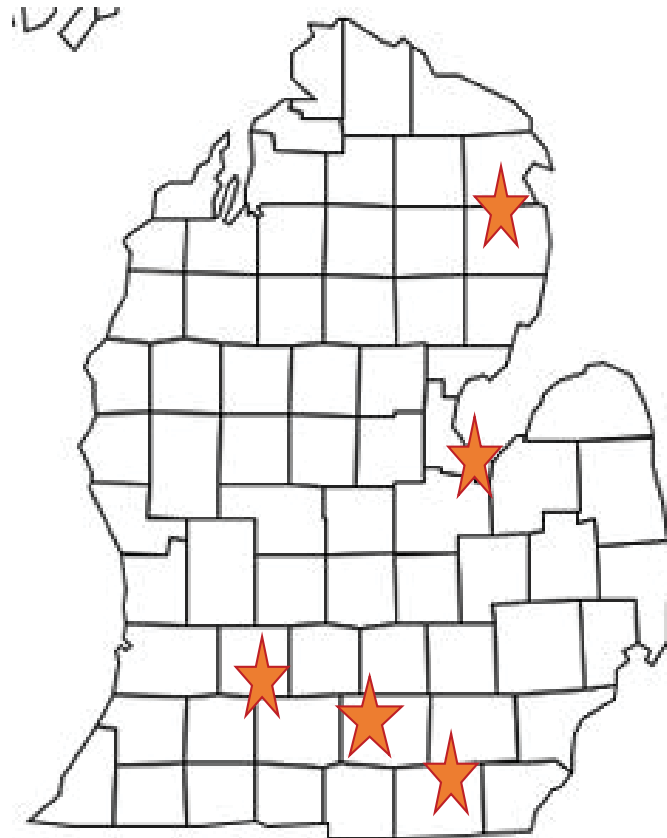
1. Can cover crops establish successfully in corn from V1-V7?
- 2. Are interseeded cover crops competitive with corn?**
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Grain yield was reduced at the V1 interseeding timing in 2015 only



What About On-Farm Results?



Dedecker – Presque Isle



Burk Farms- Bay County



Hasenick Farms- Springport Jackson County



Location	Soil Type	Corn Planting Date	Planting Population Seeds/A	Corn Yield* (bu/ac)	Interseeding Timing	Cover Crops Interseeded
KBS – SW MI	Loam	4/25	26,000	145	V3 V6	annual ryegrass (15 lb/ac) crimson clover (15 lb/ac), dwarf essex rape
Dedecker-Northern	Silt Loam		26,000	65	V3 V7	annual ryegrass (15 lb/ac) crimson clover (15 lb/ac)
Burk - Thumb	Loam	4/17	37,500	178	V3 V6	annual ryegrass (15 lb/ac) crimson clover (15 lb/ac)
Hasenick – S MI	Sandy Loam	5/21	31,750	166	V3 V6	annual ryegrass (8 lb/ac) crimson clover (6 lb/ac) Tillage Radish® (3 lb/ac) 3-way mix (7.5 lb/ac)
Baker – SE MI	Loam	5/25	32,000	177	V5	annual ryegrass + crimson clover; crimson clover + red clover

*** Corn yield did not differ between cover crop treatments and the no cover crop ‘control’ in 2016.**

Research Answers to Date in MICHIGAN

1. Can cover crops establish successfully in corn from V1-V7? **YES – species differ**
2. Are interseeded cover crops competitive with corn? **NO when seeded at V2 or later**
3. Can preemergence herbicides be used to suppress weeds in interseeded cover crops? **YES – if seeding a cover crop mixture herbicide options are more limited**



USDA



USDA – NIFA 2017-2020

Hasenick Brothers Farms experience with interseeding cover crops



Hasenick Brothers Farms: 30 miles south of here and 30 miles east....

- Seeding cover crops:
 - After wheat harvest in late July
 - Standing corn in the fall
 - Interseeding Corn V2-V6
 - Aerial seeding soybeans



Hasenick Brothers Farms: Soils

- Sandy Loam
- non-irrigated
- Soil Organic Matter less than 1.5%
- Rocks....
- We are all no-till
- Corn yields 150-180 bu/A



Hasenick Brothers Farms: Cover Crop Species we have seeded

- Annual Ryegrass
- Cereal Rye
- Medium Red Clover
- Crimson Clover, other clovers
- Tillage Radish
- Rape
- Kale
- Buckwheat
- **many Mixtures**



Why we seed Cover Crops:

- We need to build Soil Organic Matter
- We want the biological activity in the soil year round
- We want root mass –not necessarily aboveground biomass...

The interseeder we built



Interseeder

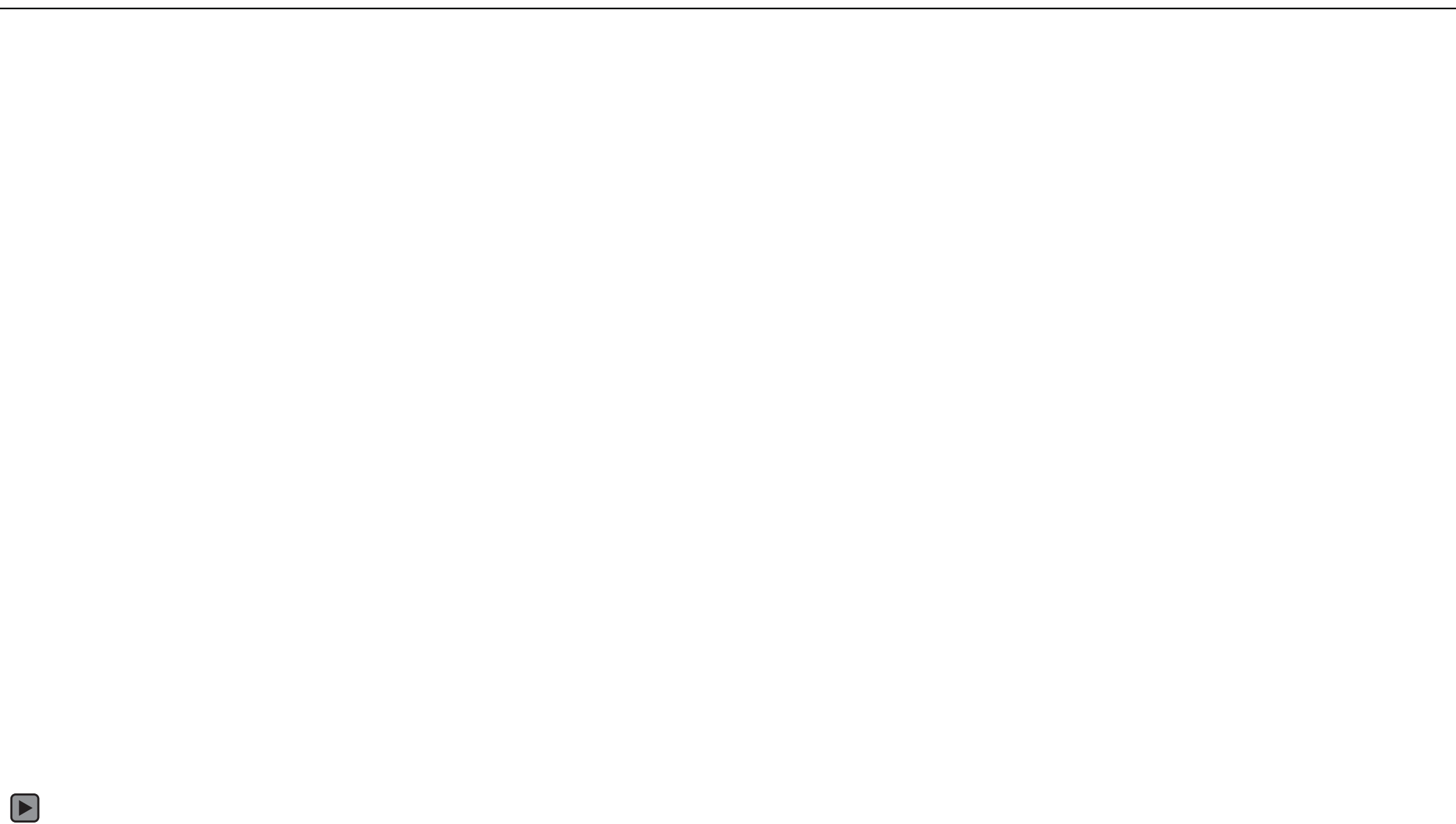






Hasenick's loading cover crop seed





Interseeding in “Tall” Corn in September



Interseeding Small Corn into Residue





March 10... just before the snow



Annual ryegrass, clovers, rape



Planting soybeans



