

# INTERSEEDING COVER CROPS

---



**Dan Towery**

**ACS** Ag  
Conservation  
Solutions, LLC

*"Blending Ag Profitability While Enhancing the Environment"*



# INTERSEEDING COVER CROPS

## EARLY



**Dan Towery**

**ACS** Ag  
Conservation  
Solutions, LLC

*"Blending Ag Profitability While Enhancing the Environment"*





# INTERSEEDING COVER CROPS

## EARLY

## &

## LATER



## Dan Towery

**ACS** Ag  
Conservation  
Solutions, LLC

*"Blending Ag Profitability While Enhancing the Environment"*



# INTERSEEDING - LATER

---



- Typically late August to early September
- Approximately 6 weeks before potential harvest date
- Residual herbicides & rates may need to be tweaked



# INTERSEEDING - LATER

- Seeded 8/23
- Annual ryegrass, crimson clover, radish



Harvested 9/21

# SEEDING LATER – DURING HARVEST

---





# SEEDING LATER – DURING HARVEST

---



- Annual ryegrass seeded with harvest
- Seeding dates need to match harvest dates

# INTERSEEDING EARLY – NOT EXACTLY NEW

CIRCULAR 305

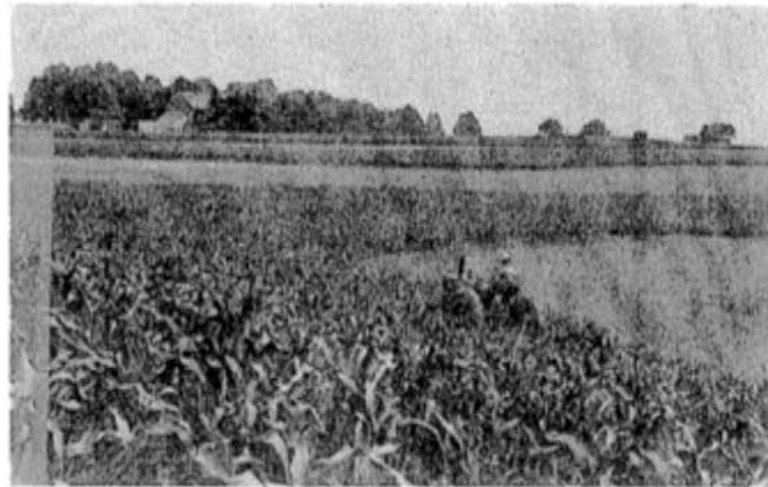
FEBRUARY 1907

## EFFICIENT CORN GROWING



Satisfaction in a crop well grown.

The Pennsylvania State College  
SCHOOL OF AGRICULTURE  
Agricultural Extension Service  
State College, Pennsylvania



The last cultivation of corn planted in contour strips.

### COVER CROPS IN CORN

Where corn ground is not to go into winter grain, sowing a cover crop is always desirable. If successful it covers the soil and reduces winter washing and the leaching out of plant food. It also adds organic matter through its top and root growth and helps maintain soil condition. The cheapest, surest, and most generally satisfactory cover crop is domestic ryegrass sown at about 20 pounds to the acre. If sown before or right after the last cultivation, before the season normally becomes too dry, a good stand generally is secured. A cover crop is particularly valuable on washy slopes and where corn is to be followed by corn or potatoes.



# WHERE WILL IT WORK? – NORTHERN CORN BELT

---

- Not widely adopted yet
- But innovators have been steadily increasing usage
- Quebec – acres > since 2009
- Research – **Penn State**, U of Wisconsin, U of Minnesota, Ohio State, Michigan State, Iowa State, N&S Dakota

# INTERSEEDING PRINCIPALS

- ▶ Short residual herbicide program required
- ▶ Seed between V4 –V6 (6-10” tall)
- ▶ Covers grow 6-8” in height and go “semi-dormant” as
- ▶ Covers start growing again when corn dries down and more sunlight reaches the covers
- ▶ **NO YIELD DRAG** and occasionally a small yield bump.
- ▶ Improved weed control – observation
- ▶ Allows one to seed covers that need started before harvest (which increases diversity)



# RESIDUAL HERBICIDES

---

- Used in many of our major crops
- Usually soil applied – but not always
- Generally provide 8 to 12 weeks of weed control
- If Half-life too short - lack of residual weed control (performance reduced)
- If Half life too long - carryover to following crop
- Interseeded cover crops are particularly vulnerable

# HERBICIDE PERSISTENCE

---

- **Half-life**: the amount of time needed to degrade half of the herbicide present.

	<u>50%</u>	<u>25%</u>	<u>12.5%</u>	<u>6%</u>
• <u>2,4-D</u>	1 day	14 days	28 days	35 days
• <u>Atrazine</u>	60 days	120 days	180 days	240 days



# GRASS HERBICIDES: RISK OF INTERSEEDED COVER CROP INJURY

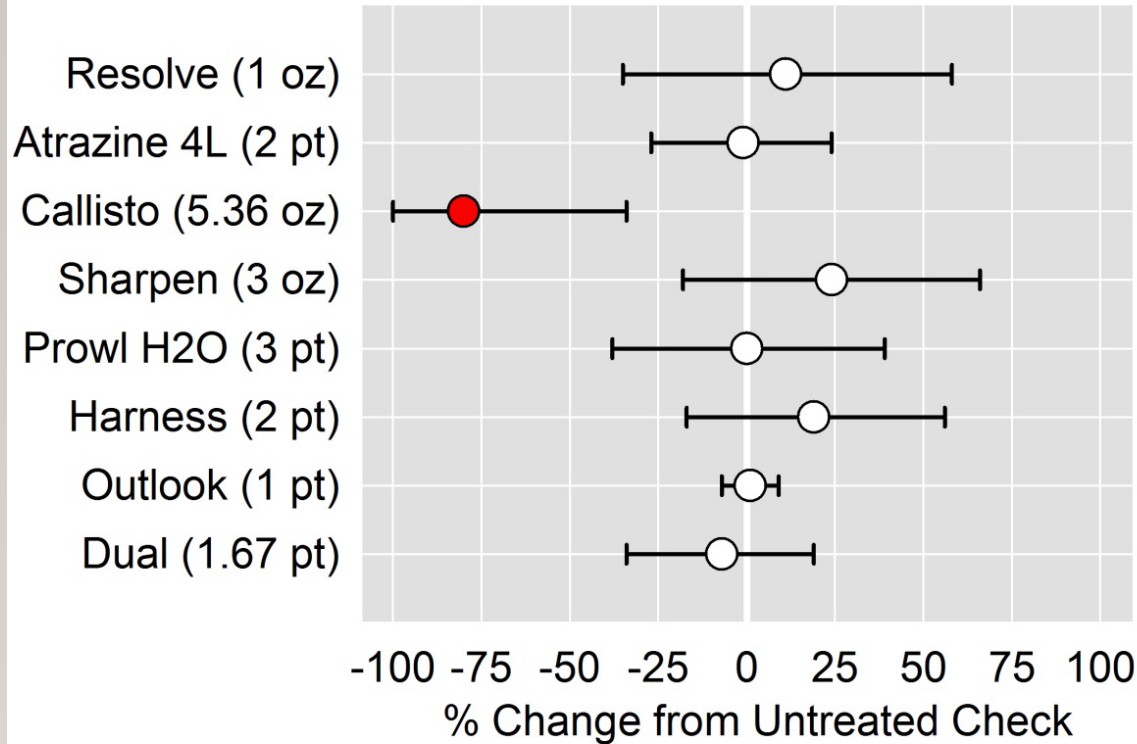
	A. ryegrass	R Clover	Annual Ryegrass RedClover
• Dual II Mag 7.64 EC 1.67 pt IX	NO	Maybe	NO
• Zidua 85 WG 2.5 oz IX	NO	Maybe	NO
• Outlook 6 EC 1/2 pt 1/2	OK	OK	OK
• Outlook 6 EC 1 pt	Maybe	OK	Maybe
• Harness 7 EC 1 pt 1/2X PRE	OK	OK	OK
• Harness 7 EC 2 pt IX PRE	Maybe	OK	Maybe
• Prowl H2O 3.8 CS 1.5 1/2X PRE	OK	OK	OK
• Prowl H2O 3.8 CS 3 pt IX PRE	NO	Maybe	NO

## Potential High Risk Products

• ~ containing Dual: Acuron, Bicep/Cinch, Camix, Expert, Halex GT, Lumax/Lexar, Zemax

• ~ containing Zidua: Anthem

# RED CLOVER





# BROADLEAF HERBICIDES: RISK OF INTERSEEDED COVER CROP INJURY

	A. ryegrass	R Clover	A Ryegrass & C Clover
• Resolve 25 DF 0.5 oz ½X	OK	OK	OK
• Resolve 25 DF 1 oz 1X	OK	OK	OK
• Atrazine 1 pt ½X	OK	Maybe	Maybe
• Atrazine 2 pt 1X	Maybe	Maybe	Maybe
• Atrazine 3 pt 1½X	NO	NO	NO
• Metribuzin 4 oz 1X	NO	OK	Maybe
• Sharpen 1.5 fl oz ½X PRE	OK	OK	OK
• Sharpen 3 fl oz 1X PRE	Maybe	Maybe	Maybe
• Balance Flex 2 SC 5.3 fl oz 1X PRE	Maybe	Maybe	Maybe

**HIGH RISK:** Callisto 4 SC 5.4 fl oz 1X PRE~ containing Callisto: Acuron, Camix, Halex GT, Instigate, Lumax/Lexar, Realm O, Revulin, Resicore, Zemax containing >1.5 lb atrazine: Expert, Bicep/Cinch Magnu

# CROP CROP

# INTERSEEDING OPTIONS

## Winners

---

- ▶ Annual Ryegrass
- ▶ Crimson Clover
- ▶ Berseen clover
- ▶ Diakon radish
- ▶ Medium red clover
- ▶ Hairy vetch
- ▶ Rapeseed
- ▶ Turnip
- ▶ Cowpea

## Maybe? - in Northern Cornbelt

- ▶ Cereal rye
- ▶ Oats



# SEEDING TECHNIQUES

---

- Hand seeding





# SEEDING EQUIPMENT

---



-Seeding covers while  
side-dressing N



# INTERSEEDING COVERS

IOWA





# INTERSEEDING - ROTARY HOE WITH LINEAR SEEDER

---



# INTERSEEDING TECHNIQUES

High clearance seeder

---





# INTERSEEDING COVERS - WISCONSIN

---





# INTERSEEDER DRILL

## – PENN STATE

---



# INTERSEEDER DRILL – BZ MANUFACTURING

---





# BEST OPPORTUNITIES

---

- ▶ Corn < 36,000 population
- ▶ Corn >36,000 population use upright leaf
- ▶ N-S rows allow more sunlight between the rows than E-W rows
- ▶ Corn < 7 feet tall

# AMBIENT LIGHT

---

- N-S rows 17% more light than E-W rows
- 24K vs 30K – 28% less ambient light N-S rows
- 30K vs 35K – 14% less ambient light N-S rows
  
- 24K vs 30K – 19% less ambient light E-W rows
- 30K vs 35K - 7% less ambient light E-W rows

# INTERSEEDING POTENTIAL

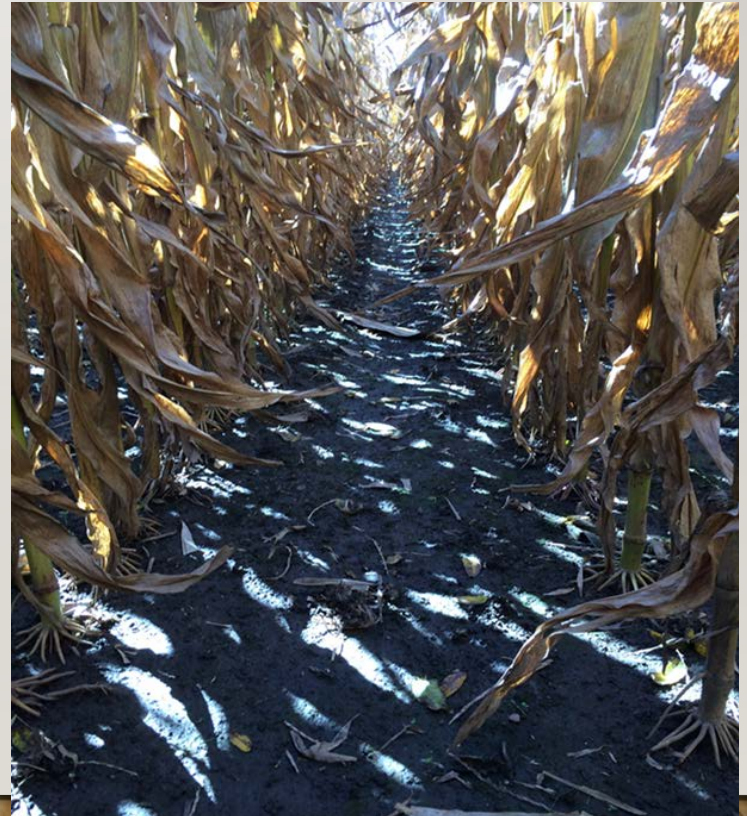
## ISSUE

CORN POPULATION >35K WITH HORIZONTAL LEAF ARCHITECTURE

---



## TOO MUCH SHADE





# INTERSEEDING RESULTS EARLY NOVEMBER

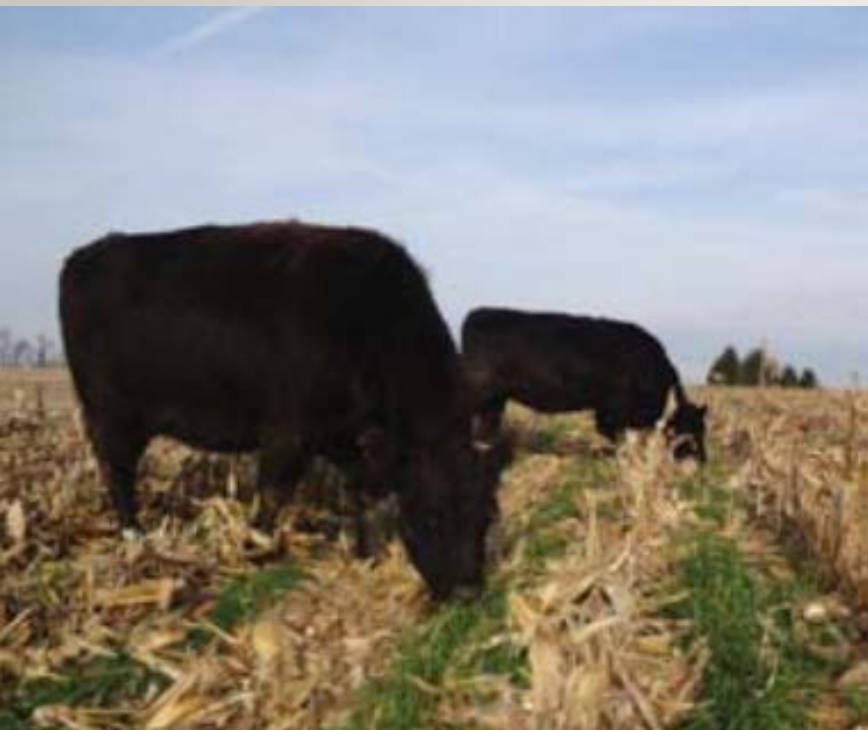


# ADDITIONAL RESOURCES

---

- <https://extension.psu.edu/cover-crop-interseeder-and-applicator>
- <https://extension.psu.edu/cover-crop-interseeder-improving-the-successin-corn>
- <http://ipcm.wisc.edu/blog/2017/05/considerations-for-2017-cover-crop-interseeding/>





# ACS

**Ag  
Conservation  
Solutions, LLC**

**Dan Towery**  
*Ag Consultant*

2632 North 9th Street  
Suite D  
Lafayette, IN 47904

765-490-0197  
(fax) 765-429-4301

[dan@agconservationsolutions.com](mailto:dan@agconservationsolutions.com)  
[www.agconservationsolutions.com](http://www.agconservationsolutions.com)

*"Blending Ag Profitability While Enhancing The Environment"*