



# **INNOVATIVE COVER CROP MANAGEMENT STRATEGIES**

## **DATA COLLECTION MANUAL**

## PROJECT FUNDING



The funding is provided through the USDA's Natural Resources Conservation Service (NRCS) On-Farm Conservation Innovation Trial. Newly authorized in the 2018 Farm Bill, On-Farm Trials support more widespread adoption of innovative approaches, practices, and systems on working lands.

## PROJECT MANAGEMENT



North Jersey RC&D was awarded a 2019 NRCS CIG On-Farm Conservation Innovation On-Farm Trials. On-Farm Trials projects feature collaboration between NRCS and partners to implement on-the-ground conservation activities and evaluate their impact.

North Jersey Resource Conservation and Development is a non-profit dedicated to fostering agricultural sustainability. North Jersey RC&D works throughout Sussex, Warren, Hunterdon, Morris, Somerset & Union counties.

Visit our website, [www.northjerseyrcd.org](http://www.northjerseyrcd.org), to learn more about our programs, initiatives, and events.

## Do you have questions or need help?

**Do you have questions about the study design and requirements, data collection, or financial incentives.**

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**Do you have questions about planting equipment, planting green, cover crop selection and NRCS requirements?**

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**Do you have questions about pest management (diseases, insects, etc.), nutrient management, or herbicide selection and application?**

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## Project Goals

Thank you for participating in this important research of innovative cover crop management strategies. This is one the largest nationwide studies evaluating spring cover crop management on working farms. The data you report will be instrumental to better understanding the economic, social and soil health impacts of planting green, roller crimping, and grazing cover crops.

**Thank you for your time and careful attention to detail.**

**Results of the study will be used to establish the following:**

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**Improved understanding of the impact of delayed termination strategies on soil health.** Research will quantify exact impact on soil organic carbon, soil organic matter, nitrogen dynamics, soil structure, soil biological activity, and soil temperature and cover.

**Regional insight into ideal equipment retrofits:** Using your experiences, we will produce a equipment reviews that can guide subsequent farmers' purchases and reduce financial risks associated with new equipment purchases.

**Cover crop growth characteristics in the Northeast:** The results will be used to establish the relationship between cover biomass production, height, growth stage, growing degree days (GDD), and days since planting. This information may be used to inform future NRCS practice standards.

**Detailed methodologies for innovative termination strategies informed by large scale, farmer-executed OFT:** Research plots are often not indicative of real-world farming conditions. Results of this on-farm research will guide factsheets and other outreach materials that accurately characterize each innovative cover crop termination strategy including detailed instructions, potential problems and verified solutions.

**Regional insight into potential economic gains and losses associated with innovative practice implementation:** Your records with be used to better understand potential economic losses and gains will have clear data from other local farms to guide decisions.

# Summary of Data Collection Requirements

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## WHAT ARE CONTROL AND TREATMENT FIELDS?

This is an on-farm research trial. The goal of the research study plot is to determine the economic and soil health impacts of innovative spring cover crop management strategies. To do so, we will be comparing your current practices (burning down before planting, tillage, etc.) against fields that were roller crimped.

### Treatment Fields

These are the fields that you are roller crimping for TWO years.

### Control Fields

These are the fields where you will implement your standard cover crop spring management. In most cases, cover crop in these fields will be burned-down weeks before planting, tilled, or planted green.

## WHAT ABOUT THE OTHER FIELDS, NOT DESIGNATED AS RESEARCH PLOTS?

Most farmers in the program are trying an innovative spring cover crop management strategy on many fields. Although we aren't asking farmers to collect detailed notes about each field, we are interested in hearing about how successful the practices were in different types of fields. Did the treatment work better on one soil type or another? Did different cash crops respond differently? Try to keep notes regarding where the practice was most successful and least successful. We will be scheduling on-farm interviews during July and August to discuss what worked and what didn't work across all the treatment fields and complete a basic economic assessment.

## WHAT ARE RESEARCH PLOTS?

The majority of the research will be conducted on two fields designated the "Treatment Research Plot" and the "Control Research Plot". North Jersey RC&D will be comparing cover crop and soil characteristics in these two fields only.

**This manual is designed to record data for the research plots only.** Although you are likely roller crimping cover crop in many fields, **you should only record agronomic data on the two research plots.**

## HOW WILL TREATMENT AND CONTROL DIFFER?

**Both plots need to be planted in a fall cover crop.**

Planting timing, composition, and rate may differ between the control and treatment plots; however, we appreciate it if they are as similar as possible.

**Both plots need to be planted with the same type of cash crop each year.**

Cash crop variety and planting date will likely differ -- that is fine, so long as they are planted in the same cash crop. (i.e. Both are planted with corn the first year and soybeans the second year)

**Cover Crop Spring Management will vary between the plots.** The cover crop will be terminated at different times, using different methods.

**Nutrient management, herbicide application, and pest management will vary between the plots.** We would be most interested in recording how the practice influences pest management and nutrient management.

# On-Farm Cover Crop Research Trial



### Treatment

- Control
- Grazing

- Planting Green
- Roller Crimping

### Research Plot

- Research Plot



# NOTES

Why did you select these fields?

For fields that don't have a history of non-till management, describe a typical annual tillage practices?

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Research plots shall be two fields, in close proximity, with similar cropping history and anticipated crop rotation.

- Treatment Field:** This is the field that you will try roller crimping for TWO years.
- Control Field:** This is the field where you will implement your normal cover crop spring management. In most cases, these fields be burned-down weeks before planting, tilled, or planted green.

If the fields are not "no-till", record a "0"

# FALL 2020

# Research Plot History

Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>		Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>				
Farm, Tract and Field Number						
How many years has the field been in continuous non-till	_____ Years Continuous No-till	_____ Years Continuous No-till				
How many years has the field been cover cropped?	_____ Years of Winter Cover Crop	_____ Years of Winter Cover Crop				
2020 Cash Crop						
How would to rate the field quality?						
Compared to your other farmland, how would you rate this farmland?	<input type="radio"/> Poor Quality	<input type="radio"/> Fair Quality	<input type="radio"/> Good Quality	<input type="radio"/> Very Good Quality	<input type="radio"/> Excellent	<input type="radio"/> Poor Quality <input type="radio"/> Fair Quality <input type="radio"/> Good Quality <input type="radio"/> Very Good Quality <input type="radio"/> Excellent
How would you characterize the field draining characteristics	<input type="radio"/> Poorly Drained	<input type="radio"/> Somewhat Poorly Drained	<input type="radio"/> Moderately Well Drained	<input type="radio"/> Well Drained	<input type="radio"/> Very Well Drained	<input type="radio"/> Poorly Drained <input type="radio"/> Somewhat Poorly Drained <input type="radio"/> Moderately Well Drained <input type="radio"/> Well Drained <input type="radio"/> Very Well Drained
How would you characterize the level of soil compaction in the field?	<input type="radio"/> Extremely Compact	<input type="radio"/> Considerable Compaction	<input type="radio"/> Moderate Compaction	<input type="radio"/> Low Compaction	<input type="radio"/> No Compaction	<input type="radio"/> Extremely Compact <input type="radio"/> Considerable Compaction <input type="radio"/> Moderate Compaction <input type="radio"/> Low Compaction <input type="radio"/> No Compaction

# NOTES

How did you select a cover crop species and rate? Is this a new species or rate for you? Did you encounter any problems while planting the cover crop?

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# FALL 2020

# Cover Crop Application

**COVER CROP COMPOSITION & RATE:** Record every cover crop species in the mix and how much of each was applied.  
*EXAMPLE: 50 lbs. Cereal Rye + 5 lbs. Crimson clover)*

**COVER CROP SEED SOURCE:** Record where you purchased the cover crop seed and if the seed was certified.  
*EXAMPLE: King's Agri-seed, neighbor, grown yourself, etc.*

**COMMON EXAMPLES OF APPLICATION METHODS**

- No-till drill
- Conventional drill
- Broadcasted
- Aerial seed
- Broadcasted and incorporated to a depth of 1"

**RATE THE QUALITY OF STAND:** How would you rate the quality of the cover crop stand? Is it spotty and uneven or did you achieve full germination.

- 1 - 0% -20% coverage
- 2 - 21% to 40% coverage
- 3 - 41% to 60% coverage
- 4 - 60% - 80% coverage
- 5 - 80% - 100% coverage

**WHAT WOULD YOU DO DIFFERENT?** Are you considering planting at a different rate, planting a different cover crop variety or mix, or planting at a different time of year?

	Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>				Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>			
COVER CROP APPLICATION								
Cover Crop Composition & Rate								
Pure Seed % of Cover Crop								
Seed Class	○ Certified	○ Uncertified or Common	○ VNS	○ Bin Run	○ Certified	○ Uncertified or Common	○ VNS	○ Bin Run
Cover Crop Application Date	_____ / _____ / 2021				_____ / _____ / 2021			
Cover Crop Seed Source								
Application Method								
FALL AND WINTER COVER CROP GROWTH								
How would you rate the quality of the stand from 1 to 5?	CIRCLE RATING 1   2   3   4   5				CIRCLE RATING 1   2   3   4   5			
Would you do anything different next year?								

# NOTES

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LEGUMES: Nitrogen fixation in clovers and vetches peaks at flowering. Understanding the cover crop maturity, help us predict how much nitrogen the cover crop contained, when it was terminated.



# SPRING 2021

# Cover Crop Termination

	Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>	Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>																				
Date Cover Crop was terminated?	_____ / _____ / 2021	_____ / _____ / 2021																				
Termination Method	<input type="radio"/> Herbicide <input type="radio"/> Tillage <input type="radio"/> Roller Crimping <input type="radio"/> Other: _____	<input type="radio"/> Herbicide <input type="radio"/> Tillage <input type="radio"/> Roller Crimping <input type="radio"/> Other: _____																				
Cover Crop Height at Termination	_____ <input type="radio"/> Inches    OR <input type="radio"/> Feet	_____ <input type="radio"/> Inches    OR <input type="radio"/> Feet																				
Were Legumes (Clover and Vetch) Present?	<input type="radio"/> Yes _____ <input type="radio"/> Not flowering <input type="radio"/> No <input type="radio"/> Some flowering <input type="radio"/> Full bloom	<input type="radio"/> Yes <input type="radio"/> Not flowering <input type="radio"/> No <input type="radio"/> Some flowering <input type="radio"/> Full bloom																				
FOR THOSE USING HERBICIDE...																						
List out all herbicide applied to cover crop and the application rate  *If you apply Nitrogen (UAN) during burn-down, be sure to record details on fertilizer page.	<table border="0"> <tr> <td>HERBICIDE NAME</td> <td>RATE (GAL/ACRE)</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> </table>	HERBICIDE NAME	RATE (GAL/ACRE)	_____	_____	_____	_____	_____	_____	_____	_____	<table border="0"> <tr> <td>HERBICIDE NAME</td> <td>RATE (GAL/ACRE)</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> </table>	HERBICIDE NAME	RATE (GAL/ACRE)	_____	_____	_____	_____	_____	_____	_____	_____
HERBICIDE NAME	RATE (GAL/ACRE)																					
_____	_____																					
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HERBICIDE NAME	RATE (GAL/ACRE)																					
_____	_____																					
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_____	_____																					
_____	_____																					
Herbicide application conditions	<input type="radio"/> Morning <input type="radio"/> Cloudy <input type="radio"/> Afternoon <input type="radio"/> Partly Cloudy <input type="radio"/> Evening <input type="radio"/> Mostly Sunny <input type="radio"/> Sunny	<input type="radio"/> Morning <input type="radio"/> Cloudy <input type="radio"/> Afternoon <input type="radio"/> Partly Cloudy <input type="radio"/> Evening <input type="radio"/> Mostly Sunny <input type="radio"/> Sunny																				



# NOTES

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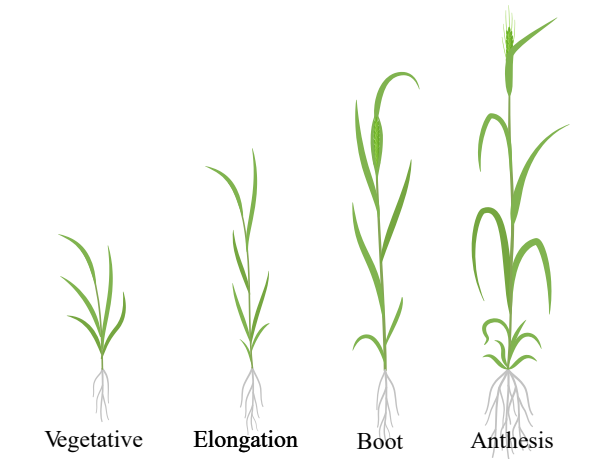
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# SPRING 2021

# Roller Crimping Supplement

Did you mount the roller crimper on the front of the tractor or was it pulled behind the tractor?

How mature was the grass at the time of termination?



## Treatment Plot (Cover Crop Terminated with Roller Crimper)

Roller Crimping Placement	<input type="radio"/> In front of Tractor	<input type="radio"/> Behind Tractor
Cover Crop Maturity at time of roller crimping	<input type="radio"/> Vegetative <input type="radio"/> Elongation	<input type="radio"/> Boot <input type="radio"/> Anthesis
Did roller crimp cover crop multiple times?	<input type="radio"/> No <input type="radio"/> Yes, _____ Weeks after cover crops were initially terminated	
Did you roller-crimp cover crop while planting cash crops?	<input type="radio"/> No <input type="radio"/> Yes,	
How long did it take to complete one pass with the roller crimper?	_____ Hours	
How would you rate your experience roller crimping?	<input type="radio"/> Poor <input type="radio"/> Fair <input type="radio"/> Good <input type="radio"/> Excellent	
What would you change next year?		

# NOTES

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# SPRING 2021

# Spring Tillage

- COMMON EXAMPLES OF TILLAGE EQUIPMENT / IMPLEMENTS**
- Anhydrous applicator
  - Bedders
  - Chisel plow
  - Conservation Till
  - Conventional Till
  - Cultipacker
  - Cutting Disc
  - Disc
  - Disc Plough
  - Field cultivator
  - Hippers
  - Moldboard plow
  - No Till/ Direct Seed
  - None
  - Not Reported
  - Ridge Till
  - Rotary harrow
  - Rotary hoe
  - Strip Till
  - Sub Till
  - Sweep Tillage
  - TurboMax
  - Vertical tillage
  - Zone till
  - Shallow Tillage

Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>			Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>	
Did you use tillage to prepare the fields for planting?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
If you marked yes above, complete the section below.				
First Pass	_____	_____	_____	_____
	Implement	Depth (inches)	Implement	Depth (inches)
Second Pass	_____	_____	_____	_____
	Implement	Depth (inches)	Implement	Depth (inches)
Third Pass	_____	_____	_____	_____
	Implement	Depth (inches)	Implement	Depth (inches)
Fourth Pass	_____	_____	_____	_____
	Implement	Depth (inches)	Implement	Depth (inches)
Fifth Pass	_____	_____	_____	_____
	Implement	Depth (inches)	Implement	Depth (inches)

# NOTES

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# SPRING 2021

# Cash Crop Planting (Part 1)

EXAMPLE: Grain corn, soybeans, silage, or sorghum

EXAMPLE: 112 day corn, 3.3 Soybeans, etc

EXAMPLE: 38,000 seed per acre OR  
1 plant every 6' or 67 lb/seeded acre

EXAMPLE: 30" rows spacing, 15" row spacing

SEED TREATMENTS: List any chemicals that have been applied to the seeds including fungicides and insecticides

Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>		Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>
Cash Crop Species		
Cash Crop Maturity Rating		
Cash Crop Population		
Cash Crop Row Spacing		
Planting Depth		
Seed Treatments		

# NOTES

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**Example:** Record the brand and model of planter or drill used.  
12 row CASE IH 1200 Series Early Riser Planters

**ROW CLEANER TYPE:**  
Record the brand of row cleaner, if known. If you aren't sure, try to record as much information as possible including if it is fixed to frame (fixed) or capable of adapting to varying terrain independently of the row unit (floating). In addition, record what type of tract wheel was mounted on the row cleaner.



**DOWN PRESSURE:** How much down pressure did you apply to opening disks to achieve the necessary depth?

- Low: 50 to 100 lbs                  • High: 250 to 300 lbs
- Medium: 100 to 250 lbs              • Very High: 400 to 500 lbs

If you use a variable rate system, estimate an "average" amount

**CLOSING WHEELS:** Record the brand of closing wheels, if known. If you aren't sure, try to record the type of closing system used.

## SPRING 2021

## Cash Crop Planting (Part 2)

	Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>		Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>	
Planting Equipment Used				
Did you use a Row Cleaner?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
<i>If you used a row cleaner, record type and characteristics.</i>	Brand and Type		Brand and Type	
	<input type="radio"/> Fixed <input type="radio"/> Floating <input type="radio"/> Unknown	<input type="radio"/> Straight Tooth <input type="radio"/> Swept Back Tooth <input type="radio"/> Shark Tooth <input type="radio"/> Unknown	<input type="radio"/> Fixed <input type="radio"/> Floating <input type="radio"/> Unknown	<input type="radio"/> Straight Tooth <input type="radio"/> Swept Back Tooth <input type="radio"/> Shark Tooth <input type="radio"/> Unknown
Did you use a Coulter?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
Down Pressure Setting*	<input type="radio"/> Low <input type="radio"/> Medium <input type="radio"/> High <input type="radio"/> Very High	<input type="radio"/> Variable Rate <input type="radio"/> Unknown	<input type="radio"/> Low <input type="radio"/> Medium <input type="radio"/> High <input type="radio"/> Very High	<input type="radio"/> Variable Rate <input type="radio"/> Unknown
What types of closing wheels did you use?	Brand and Type		Brand and Type	
	<input type="radio"/> Rubber Smooth Wheels <input type="radio"/> Iron Smooth Wheels <input type="radio"/> Short Spiked <input type="radio"/> Long Spiked	<input type="radio"/> Double Disk and Press Wheel <input type="radio"/> Combination of smooth and spiked	<input type="radio"/> Rubber Smooth Wheels <input type="radio"/> Iron Smooth Wheels <input type="radio"/> Short Spiked <input type="radio"/> Long Spiked	<input type="radio"/> Double Disk and Press Wheel <input type="radio"/> Combination of smooth and spiked

# NOTES

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**SOIL MOISTURE: How would you describe the soil moisture content at time of planting?**

**Wet:** Soil easily balls up and water can be squeezed out

**Perfect:** Ball of soil feels slightly moist to the touch and form a weak ball while gripped in your hand, but it won't leave dirt stains.

**A little dry:** Soil crumbles in hand and cannot form a ball

**A little wet:** Soil balls up and feels muddy

**Dry:** Soil is hard

**QUALITY OF THE SEED SLOT CLOSURE:** Closing wheels should pack the soil around the seed to ensure proper seed to soil contact and uniform emergence.

- Poor: Large gaping seed slot with seeds occasionally visible.
- Fair: Seed slot larger open at top but seeds are covered
- Good: Seed slot is a visible slit
- Excellent: Seed slot is barely discernible; complete slot closure.

# SPRING 2021

## Cash Crop Planting (Part 3)

	Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>					Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>				
Planting Date	_____ / _____ / 2021					_____ / _____ / 2021				
Cover Crop Height at time of Planting (if applicable)	_____ feet					_____ feet				
How would you ranking the following planting conditions?										
Soil Moisture	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Wet	A little wet	Perfect	A little dry	Dry	Wet	A little wet	Perfect	A little dry	Dry
Soil Temperature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Under 43° F	44°-47° F	48°-51° F	51°-54° F	Over 55° F	Under 43° F	44°-47° F	48°-51° F	51°-54° F	Over 55° F
Quality of Seed Slot Closure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
	Poor	Fair	Good	Excellent	Poor	Fair	Good	Excellent		
Did you notice hair-pinning?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
	Significant	Some	A little	None	Significant	Some	A little	None		
Did cover crops wrap around row cleaners and closing wheel?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
	Significantly	Some	A little	None	Significant	Some	A little	None		

# NOTES

Describe your planting experience in more detail. What went well and what didn't work well? Did the cover crop interfere with planting in any way?

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**Did the cover crop interfere with cover the cash crop emergence?** Are you happy with the crop germination? Were the cash crop slower to emerge? Did the cover crop shade the emerging cash crop?



# SPRING 2021

# Cash Crop Planting (Part 4)

	Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>				Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>			
How would you rate the experience planting?	<input type="radio"/> Poor	<input type="radio"/> Some	<input type="radio"/> A little	<input type="radio"/> None	<input type="radio"/> Poor	<input type="radio"/> Some	<input type="radio"/> A little	<input type="radio"/> None
Did the cover crop interfere with planting?	<input type="radio"/> Significant	<input type="radio"/> Some	<input type="radio"/> A little	<input type="radio"/> None	<input type="radio"/> Significant	<input type="radio"/> Some	<input type="radio"/> A little	<input type="radio"/> None
Did you notice an impact of the planting condition to cash crop emergence?								
Would you do anything different next year?								

# NOTES

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If you are using a fertilizer with a brand name or chemical name (ie. UAN), record in the chart. If you are applying a compost, record the type of compost and nutrient analysis, if known.

- 0-0-50 dry
- 0-14-14 liquid
- 10-20-10 Dry
- 12-12-12 Liquid
- 15-8-4 Liquid
- 18-0-0 Dry
- 18-18-18 Dry
- 28-0-0-5 Liquid
- Ammonium Sulfate - Dry
- CAN-17 Liquid
- Nphuric 15-0-0-49 Liquid
- UAN28 Liquid (10.66 lb/gal)
- UAN32 Liquid (11.1 lbs/gal)
- Urea 20 Liquid (9.33 lbs/gal)

If you apply Nitrogen (UAN) during burn-down, be sure to record details this page, as well.

# SPRING 2021

# Fertilizer in Treatment Fields

**Treatment Plot**  
*(Cover Crop Terminated with Roller Crimper)*

What fertilizer you apply to crops in the spring? Please record details about every nitrogen, phosphorous, and potassium source applied to the cropland before, during, or immediately after planting.

Application Date	Fertilizer Name	Fertilizer analysis (such as 15-8-4)	Dry or Liquid	Rate of application	Fertilizer application method	Application Notes
___ / ___ / 2020	_____	___ - ___ - ___ N            P            K	<input type="radio"/> Liquid <input type="radio"/> Dry	_____ lb/acre	<input type="radio"/> In-furrow <input type="radio"/> 2x2 Sub-surface <input type="radio"/> Dribbled on Surface <input type="radio"/> Broadcast on Surface <input type="radio"/> Broadcast and incorporated <input type="radio"/> Mixed with Herbicide	<input type="radio"/> Preplant <input type="radio"/> At time of Seeding <input type="radio"/> After Emergence
___ / ___ / 2020	_____	___ - ___ - ___ N            P            K	<input type="radio"/> Liquid <input type="radio"/> Dry	_____ lb/acre	<input type="radio"/> In-furrow <input type="radio"/> 2x2 Sub-surface <input type="radio"/> Dribbled on Surface <input type="radio"/> Broadcast on Surface <input type="radio"/> Broadcast and incorporated <input type="radio"/> Mixed with Herbicide	<input type="radio"/> Preplant <input type="radio"/> At time of Seeding <input type="radio"/> After Emergence
___ / ___ / 2020	_____	___ - ___ - ___ N            P            K	<input type="radio"/> Liquid <input type="radio"/> Dry	_____ lb/acre	<input type="radio"/> In-furrow <input type="radio"/> 2x2 Sub-surface <input type="radio"/> Dribbled on Surface <input type="radio"/> Broadcast on Surface <input type="radio"/> Broadcast and incorporated <input type="radio"/> Mixed with Herbicide	<input type="radio"/> Preplant <input type="radio"/> At time of Seeding <input type="radio"/> After Emergence
___ / ___ / 2020	_____	___ - ___ - ___ N            P            K	<input type="radio"/> Liquid <input type="radio"/> Dry	_____ lb/acre	<input type="radio"/> In-furrow <input type="radio"/> 2x2 Sub-surface <input type="radio"/> Dribbled on Surface <input type="radio"/> Broadcast on Surface <input type="radio"/> Broadcast and incorporated <input type="radio"/> Mixed with Herbicide	<input type="radio"/> Preplant <input type="radio"/> At time of Seeding <input type="radio"/> After Emergence

# NOTES

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If you are using a fertilizer with a brand name or chemical name (ie. UAN), record in the chart. If you are applying a compost, record the type of compost and nutrient analysis, if known.

- 0-0-50 dry
- 0-14-14 liquid
- 10-20-10 Dry
- 12-12-12 Liquid
- 15-8-4 Liquid
- 18-0-0 Dry
- 18-18-18 Dry
- 28-0-0-5 Liquid
- Ammonium Sulfate - Dry
- CAN-17 Liquid
- Nphuric 15-0-0-49 Liquid
- UAN28 Liquid (10.66 lb/gal)
- UAN32 Liquid (11.1 lbs/gal)
- Urea 20 Liquid (9.33 lbs/gal)

If you apply Nitrogen (UAN) during burndown, be sure to record details this page, as well.

# SPRING 2021

# Fertilizer in Control Fields

<b>Control Fields</b>						
What fertilizer you apply to crops in the spring? Please record details about every nitrogen, phosphorus, and potassium source applied to the cropland before, during, or immediately after planting.						
Application Date	Fertilizer Name	Fertilizer analysis (such as 11-52-0)	Dry or Liquid	Rate of application	Fertilizer application method	Application Notes
___ / ___ / 2020	_____	N ____ - P ____ - K ____	<input type="radio"/> Liquid <input type="radio"/> Dry	_____ lb/acre	<input type="radio"/> In-furrow <input type="radio"/> 2x2 Sub-surface <input type="radio"/> Dribbled on Surface <input type="radio"/> Broadcast on Surface <input type="radio"/> Broadcast and incorporated <input type="radio"/> Mixed with Herbicide	<input type="radio"/> Preplant <input type="radio"/> At time of Seeding <input type="radio"/> After Emergence
___ / ___ / 2020	_____	N ____ - P ____ - K ____	<input type="radio"/> Liquid <input type="radio"/> Dry	_____ lb/acre	<input type="radio"/> In-furrow <input type="radio"/> 2x2 Sub-surface <input type="radio"/> Dribbled on Surface <input type="radio"/> Broadcast on Surface <input type="radio"/> Broadcast and incorporated <input type="radio"/> Mixed with Herbicide	<input type="radio"/> Preplant <input type="radio"/> At time of Seeding <input type="radio"/> After Emergence
___ / ___ / 2020	_____	N ____ - P ____ - K ____	<input type="radio"/> Liquid <input type="radio"/> Dry	_____ lb/acre	<input type="radio"/> In-furrow <input type="radio"/> 2x2 Sub-surface <input type="radio"/> Dribbled on Surface <input type="radio"/> Broadcast on Surface <input type="radio"/> Broadcast and incorporated <input type="radio"/> Mixed with Herbicide	<input type="radio"/> Preplant <input type="radio"/> At time of Seeding <input type="radio"/> After Emergence
___ / ___ / 2020	_____	N ____ - P ____ - K ____	<input type="radio"/> Liquid <input type="radio"/> Dry	_____ lb/acre	<input type="radio"/> In-furrow <input type="radio"/> 2x2 Sub-surface <input type="radio"/> Dribbled on Surface <input type="radio"/> Broadcast on Surface <input type="radio"/> Broadcast and incorporated <input type="radio"/> Mixed with Herbicide	<input type="radio"/> Preplant <input type="radio"/> At time of Seeding <input type="radio"/> After Emergence







# NOTES

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### How would you rate weeds pressure in fields?

- **Extreme:** 25% or more weeds
- **High:** 10% weeds
- **Considerable:** 5% weeds
- **Moderate:** 1 to 4% weeds
- **Low:** Virtually no weeds

# SPRING 2021

# Weeds and Additional Herbicide Inputs

	Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>					Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>				
WEED PRESSURE AND CONTROL										
How would you rate weeds pressure in fields?	<input type="radio"/> Extreme	<input type="radio"/> High	<input type="radio"/> Considerable	<input type="radio"/> Moderate	<input type="radio"/> Low	<input type="radio"/> Extreme	<input type="radio"/> High	<input type="radio"/> Considerable	<input type="radio"/> Moderate	<input type="radio"/> Low
Did you take any additional measures <b>to kill weeds</b> ?	<input type="radio"/> No <input type="radio"/> Yes					<input type="radio"/> No <input type="radio"/> Yes				
If you did take additional action <b>to control weeds</b> ?	<input type="checkbox"/> Additional Herbicide (Post-emergence) <input type="checkbox"/> In Crop tillage (between rows) _____ <input type="checkbox"/> Hand-pulling _____ <input type="checkbox"/> Other: _____ Hours Worked					<input type="checkbox"/> Additional Herbicide (Post-emergence) <input type="checkbox"/> In Crop tillage (between rows) _____ <input type="checkbox"/> Hand-pulling _____ <input type="checkbox"/> Other: _____				
If you applied additional herbicides, please record the chemical used and application rate.	CHEMICAL NAME _____ RATE (GAL/ACRE) _____ _____ _____ _____ _____					CHEMICAL NAME _____ RATE (GAL/ACRE) _____ _____ _____ _____ _____				

How would you rate the effectiveness of the treatment in suppressing weeds?

- 1 Very Ineffective   
  2 Ineffective   
  3 No Impact   
  4 Effective   
  5 Very Effective

# NOTES

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## SPRING-SUMMER 2021

## Slugs and Insects

**Description of damage:** Was damage concentrated in Low-lying areas, field edges, headlands, one spot middle of field, etc.

To guide you ratings of damage, use the following general guidelines.

- **Extreme:** More than 25% of the crop destroyed; requires a re-plant
- **High:** Significant damage to 10% to 25% of crops; significant yield decline anticipated
- **Considerable:** Less than 10% of crops show signs of damage; some yield decline anticipated
- **Moderate:** Less than 10% of crops are damaged; crop expected to "bounce-back"
- **Low:** Little to no damage

	Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>					Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>				
How would you rate slug damage?										
Widespread/ field-wide slug damage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Extreme	High	Considerable	Moderate	Low	Extreme	High	Considerable	Moderate	Low
Isolated or patchy slug damage	Description of damage: _____					Description of damage: _____				
	Approximate area damaged: _____					Approximate area damaged: _____				
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Extreme	High	Considerable	Moderate	Low	Extreme	High	Considerable	Moderate	Low
How would you rate insect damage to crops?										
Primary Insect(s) of Concern	_____					_____				
Widespread/ field-wide insect damage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Extreme	High	Considerable	Moderate	Low	Extreme	High	Considerable	Moderate	Low
Isolated or patchy insect damage	Description of damage: _____					Description of damage: _____				
	Approximate area damaged: _____					Approximate area damaged: _____				
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Extreme	High	Considerable	Moderate	Low	Extreme	High	Considerable	Moderate	Low

# NOTES

## SPRING-SUMMER 2021

## Deer and Disease

**Description of damage:** Was damage concentrated in Low-lying areas, field edges, headlands, one spot middle of field, etc.

To guide you ratings of damage, use the following general guidelines.

- **Extreme:** More than 25% of the crop destroyed; requires a replant
- **High:** Significant damage to 10% to 25% of crops; significant yield decline anticipated
- **Considerable:** Less than 10% of crops show signs of damage; some yield decline anticipated
- **Moderate:** Less than 10% of crops are damaged; crop expected to “bounce-back”
- **Low:** Little to no damage

	Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>					Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>				
How would you rate deer damage?										
Widespread/ field-wide deer damage	<input type="radio"/> Extreme	<input type="radio"/> High	<input type="radio"/> Considerable	<input type="radio"/> Moderate	<input type="radio"/> Low	<input type="radio"/> Extreme	<input type="radio"/> High	<input type="radio"/> Considerable	<input type="radio"/> Moderate	<input type="radio"/> Low
Isolated or patchy deer damage	Description of damage: _____					Description of damage: _____				
	Approximate area damaged: _____					Approximate area damaged: _____				
	<input type="radio"/> Extreme	<input type="radio"/> High	<input type="radio"/> Considerable	<input type="radio"/> Moderate	<input type="radio"/> Low	<input type="radio"/> Extreme	<input type="radio"/> High	<input type="radio"/> Considerable	<input type="radio"/> Moderate	<input type="radio"/> Low
How would you rate disease damage to crops?										
Primary Diseases of Concern	_____					_____				
Widespread/ field-wide disease damage	<input type="radio"/> Extreme	<input type="radio"/> High	<input type="radio"/> Considerable	<input type="radio"/> Moderate	<input type="radio"/> Low	<input type="radio"/> Extreme	<input type="radio"/> High	<input type="radio"/> Considerable	<input type="radio"/> Moderate	<input type="radio"/> Low
Isolated or patchy disease damage	Description of damage: _____					Description of damage: _____				
	Approximate area damaged: _____					Approximate area damaged: _____				
	<input type="radio"/> Extreme	<input type="radio"/> High	<input type="radio"/> Considerable	<input type="radio"/> Moderate	<input type="radio"/> Low	<input type="radio"/> Extreme	<input type="radio"/> High	<input type="radio"/> Considerable	<input type="radio"/> Moderate	<input type="radio"/> Low



# NOTES

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# FALL 2021

# Yield

If you don't have a yield monitor, please estimate yield to the best of your ability.



	Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>	Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>
Harvest Date	_____ / _____ / 2021	_____ / _____ / 2021
Yield	_____ per _____ Units (lb, bu., etc.) Area (acre, field, etc)	_____ per _____ Units (lb, bu., etc.) Area (acre, field, etc)
Percent Moisture (if applicable)	_____ %	_____ %
What factors do you think contributed to yield decline?	<input type="checkbox"/> Planting Conditions <input type="checkbox"/> Drought <input type="checkbox"/> Weed Pressure <input type="checkbox"/> Hot temperatures <input type="checkbox"/> Insect Damage <input type="checkbox"/> Cool Temperatures <input type="checkbox"/> Slug Damage <input type="checkbox"/> Other: <input type="checkbox"/> Disease / Fungus <input type="checkbox"/> Nutrient Deficiencies	<input type="checkbox"/> Planting Conditions <input type="checkbox"/> Drought <input type="checkbox"/> Weed Pressure <input type="checkbox"/> Hot temperatures <input type="checkbox"/> Insect Damage <input type="checkbox"/> Cool Temperatures <input type="checkbox"/> Slug Damage <input type="checkbox"/> Other: <input type="checkbox"/> Disease / Fungus <input type="checkbox"/> Nutrient Deficiencies

**YEAR  
TWO**



# NOTES

How did you select a cover crop species and rate? Is this a new species or rate for you? Did you encounter any problems while planting the cover crop?

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# FALL 2021

# Cover Crop Application

**COVER CROP COMPOSITION & RATE:** Record every cover crop species in the mix and how much of each was applied.  
*EXAMPLE: 50 lbs. Cereal Rye + 5 lbs. Crimson clover*

**COVER CROP SEED SOURCE:** Record where you purchased the cover crop seed and if the seed was certified.  
*EXAMPLE: King's Agri-seed, neighbor, grown yourself, etc.*

**COMMON EXAMPLES OF APPLICATION METHODS**

- No-till drill
- Conventional drill
- Broadcasted
- Aerial seed
- Broadcasted and incorporated to a depth of 1"

**RATE THE QUALITY OF STAND:** How would you rate the quality of the cover crop stand? Is it spotty and uneven or did you achieve full germination.

- 1 - 0% -20% coverage
- 2 - 21% to 40% coverage
- 3 - 41% to 60% coverage
- 4 - 60% - 80% coverage
- 5 - 80% - 100% coverage

**WHAT WOULD YOU DO DIFFERENT?** Are you considering planting at a different rate, planting a different cover crop variety or mix, or planting at a different time of year?

	<b>Treatment Plot</b> <i>(Cover Crop Terminated with Roller Crimper)</i>					<b>Control Plot</b> <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>				
<b>COVER CROP APPLICATION</b>										
Cover Crop Composition & Rate										
Pure Seed % of Cover Crop										
Seed Class	○ Certified	○ Uncertified or Common	○ VNS	○ Bin Run	○ Certified	○ Uncertified or Common	○ VNS	○ Bin Run		
Cover Crop Application Date	_____/_____/2021				_____/_____/2021					
Cover Crop Seed Source										
Application Method										
<b>FALL AND WINTER COVER CROP GROWTH</b>										
How would you rate the quality of the stand from 1 to 5?	CIRCLE RATING				CIRCLE RATING					
	1	2	3	4	5	1	2	3	4	5
Would you do anything different next year?										



# NOTES

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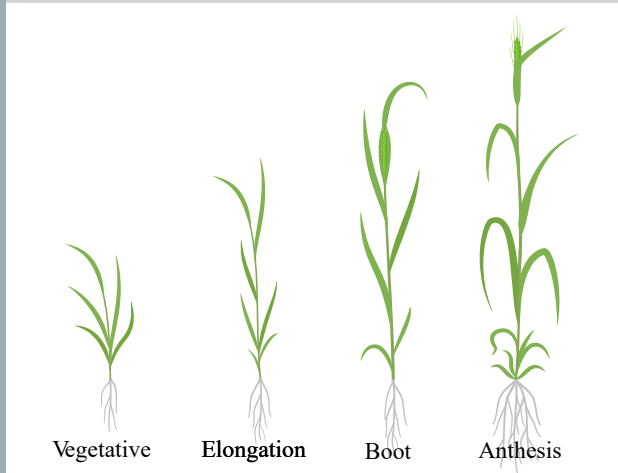
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## SPRING 2022

### Roller Crimping Supplement

Did you mount the roller crimper on the front of the tractor or was it pulled behind the tractor?

How mature was the grass at the time of termination?



Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>	
Roller Crimping Placement	<input type="radio"/> In front of Tractor <span style="margin-left: 200px;"><input type="radio"/> Behind Tractor</span>
Cover Crop Maturity at time of roller crimping	<input type="radio"/> Vegetative <span style="margin-left: 200px;"><input type="radio"/> Boot</span> <input type="radio"/> Elongation <span style="margin-left: 200px;"><input type="radio"/> Anthesis</span>
Did roller crimp cover crop multiple times?	<input type="radio"/> No <input type="radio"/> Yes, _____ Weeks after cover crops were initially terminated
Did you roller-crimp cover crop while planting cash crops?	<input type="radio"/> No <input type="radio"/> Yes,
How long did it take to complete one pass with the roller crimper?	_____ Hours
How would you rate your experience roller crimping?	<input type="radio"/> Poor <span style="margin-left: 60px;"><input type="radio"/> Fair</span> <span style="margin-left: 60px;"><input type="radio"/> Good</span> <span style="margin-left: 60px;"><input type="radio"/> Excellent</span>
What would you change next year?	



# NOTES

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# SPRING 2022

# Cash Crop Planting (Part 1)

SPRING 2022

EXAMPLE: Grain corn, soybeans, silage, or sorghum

EXAMPLE: 112 day corn, 3.3 Soybeans, etc

EXAMPLE: 38,000 seed per acre OR  
1 plant every 6' or 67 lb/seeded acre

EXAMPLE: 30" rows spacing, 15" row spacing

SEED TREATMENTS: List any chemicals that have been applied to the seeds including fungicides and insecticides

	Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>	Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>
Cash Crop Species		
Cash Crop Maturity Rating		
Cash Crop Population		
Cash Crop Row Spacing		
Planting Depth		
Seed Treatments		

# NOTES

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# SPRING 2022

# Cash Crop Planting (Part 2)

**Example:** Record the brand and model of planter or drill used.  
12 row CASE IH 1200 Series Early Riser Planters

**ROW CLEANER TYPE:**  
Record the brand of row cleaner, if known. If you aren't sure, try to record as much information as possible including if it is fixed to frame (fixed) or capable of adapting to varying terrain independently of the row unit (floating). In addition, record what type of tract wheel was mounted on the row cleaner.



Straight Tooth      Swept Back Tooth      Shark Tooth

**DOWN PRESSURE:** How much down pressure did you apply to opening disks to achieve the necessary depth?  
 • Low: 50 to 100 lbs      • High: 250 to 300 lbs  
 • Medium: 100 to 250 lbs      • Very High: 400 to 500 lbs  
 If you use a variable rate system, estimate an "average" amount

**CLOSING WHEELS:** Record the brand of closing wheels, if known. If you aren't sure, try to record the type of closing system used.

	<b>Treatment Plot</b> <i>(Cover Crop Terminated with Roller Crimper)</i>		<b>Control Plot</b> <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>	
Planting Equipment Used				
Did you use a Row Cleaner?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
<i>If you used a row cleaner, record type and characteristics.</i>	Brand and Type  <input type="radio"/> Fixed <input type="radio"/> Straight Tooth <input type="radio"/> Floating <input type="radio"/> Swept Back Tooth <input type="radio"/> Unknown <input type="radio"/> Shark Tooth <input type="radio"/> Unknown		Brand and Type  <input type="radio"/> Fixed <input type="radio"/> Straight Tooth <input type="radio"/> Floating <input type="radio"/> Swept Back Tooth <input type="radio"/> Unknown <input type="radio"/> Shark Tooth <input type="radio"/> Unknown	
Did you use a Coulter?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
Down Pressure Setting*	<input type="radio"/> Low <input type="radio"/> Medium <input type="radio"/> High <input type="radio"/> Very High	<input type="radio"/> Variable Rate <input type="radio"/> Unknown	<input type="radio"/> Low <input type="radio"/> Medium <input type="radio"/> High <input type="radio"/> Very High	<input type="radio"/> Variable Rate <input type="radio"/> Unknown
What types of closing wheels did you use?	Brand and Type  <input type="radio"/> Rubber Smooth Wheels <input type="radio"/> Double Disk and Press Wheel <input type="radio"/> Iron Smooth Wheels <input type="radio"/> Combination of smooth and spiked <input type="radio"/> Short Spiked <input type="radio"/> Long Spiked		Brand and Type  <input type="radio"/> Rubber Smooth Wheels <input type="radio"/> Double Disk and Press Wheel <input type="radio"/> Iron Smooth Wheels <input type="radio"/> Combination of smooth and spiked <input type="radio"/> Short Spiked <input type="radio"/> Long Spiked	

# NOTES

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**SOIL MOISTURE: How would you describe the soil moisture content at time of planting?**

**Wet:** Soil easily balls up and water can be squeezed out

**Perfect:** Ball of soil feels slightly moist to the touch and form a weak ball while gripped in your hand, but it won't leave dirt stains.

**A little dry:** Soil crumbles in hand and cannot form a ball

**A little wet:** Soil balls up and feels muddy

**Dry:** Soil is hard

**QUALITY OF THE SEED SLOT CLOSURE:** Closing wheels should pack the soil around the seed to ensure proper seed to soil contact and uniform emergence.

- Poor: Large gaping seed slot with seeds occasionally visible.
- Fair: Seed slot larger open at top but seeds are covered
- Good: Seed slot is a visible slit
- Excellent: Seed slot is barely discernible; complete slot closure.

# SPRING 2022

## Cash Crop Planting (Part 3)

	Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>					Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>				
Planting Date	_____ / _____ / 2021					_____ / _____ / 2021				
Cover Crop Height at time of Planting (if applicable)	_____ feet					_____ feet				
How would you ranking the following planting conditions?										
Soil Moisture	<input type="radio"/> Wet	<input type="radio"/> A little wet	<input type="radio"/> Perfect	<input type="radio"/> A little dry	<input type="radio"/> Dry	<input type="radio"/> Wet	<input type="radio"/> A little wet	<input type="radio"/> Perfect	<input type="radio"/> A little dry	<input type="radio"/> Dry
Soil Temperature	<input type="radio"/> Under 43° F	<input type="radio"/> 44°-47° F	<input type="radio"/> 48°-51° F	<input type="radio"/> 51°-54° F	<input type="radio"/> Over 55° F	<input type="radio"/> Under 43° F	<input type="radio"/> 44°-47° F	<input type="radio"/> 48°-51° F	<input type="radio"/> 51°-54° F	<input type="radio"/> Over 55° F
Quality of Seed Slot Closure	<input type="radio"/> Poor	<input type="radio"/> Fair	<input type="radio"/> Good	<input type="radio"/> Excellent		<input type="radio"/> Poor	<input type="radio"/> Fair	<input type="radio"/> Good	<input type="radio"/> Excellent	
Did you notice hair-pinning?	<input type="radio"/> Significant	<input type="radio"/> Some	<input type="radio"/> A little	<input type="radio"/> None		<input type="radio"/> Significant	<input type="radio"/> Some	<input type="radio"/> A little	<input type="radio"/> None	
Did cover crops wrap around row cleaners and closing wheel?	<input type="radio"/> Significantly	<input type="radio"/> Some	<input type="radio"/> A little	<input type="radio"/> None		<input type="radio"/> Significant	<input type="radio"/> Some	<input type="radio"/> A little	<input type="radio"/> None	

# NOTES

Describe your planting experience in more detail. What went well and what didn't work well? Did the cover crop interfere with planting in any way?

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**DID THE COVER CROP INTERFERE WITH COVER THE CASH CROP EMERGENCE?** Are you happy with the crop germination? Were the cash crop slower to emerge? Did the cover crop shade the emerging cash crop?



# SPRING 2022

# Cash Crop Planting (Part 4)

	<b>Treatment Plot</b> <i>(Cover Crop Terminated with Roller Crimper)</i>	<b>Control Plot</b> <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>
How would you rate the experience planting?	<input type="radio"/> Poor <input type="radio"/> Some <input type="radio"/> A little <input type="radio"/> None	<input type="radio"/> Poor <input type="radio"/> Some <input type="radio"/> A little <input type="radio"/> None
Did the cover crop interfere with planting?	<input type="radio"/> Significant <input type="radio"/> Some <input type="radio"/> A little <input type="radio"/> None	<input type="radio"/> Significant <input type="radio"/> Some <input type="radio"/> A little <input type="radio"/> None
Did you notice an impact of the planting condition to cash crop emergence?		
Would you do anything different next year?		



# NOTES

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- If you are using a fertilizer with a brand name or chemical name (ie. UAN), record in the chart. If you are applying a compost, record the type of compost and nutrient analysis, if known.
- 0-0-50 dry
  - 0-14-14 liquid
  - 10-20-10 Dry
  - 12-12-12 Liquid
  - 15-8-4 Liquid
  - 18-0-0 Dry
  - 18-18-18 Dry
  - 28-0-0-5 Liquid
  - Ammonium Sulfate - Dry
- CAN-17 Liquid
  - Nphuric 15-0-0-49 Liquid
  - UAN28 Liquid (10.66 lb/gal)
  - UAN32 Liquid (11.1 lbs/gal)
  - Urea 20 Liquid (9.33 lbs/gal)

If you apply Nitrogen (UAN) during burn-down, be sure to record details this page, as well.

# SPRING 2022

# Fertilizer in Treatment Fields

**Treatment Fields**

What fertilizer you apply to crops in the spring? Please record details about every nitrogen, phosphorous, and potassium source applied to the cropland before, during, or immediately after planting.

Application Date	Fertilizer Name	Fertilizer analysis (such as 15-8-4)	Dry or Liquid	Rate of application	Fertilizer application method	Application Notes
___ / ___ / 2020	_____	___ - ___ - ___ N            P            K	<input type="radio"/> Liquid <input type="radio"/> Dry	_____ lb/acre	<input type="radio"/> In-furrow <input type="radio"/> 2x2 Sub-surface <input type="radio"/> Dribbled on Surface <input type="radio"/> Broadcast on Surface <input type="radio"/> Broadcast and incorporated <input type="radio"/> Mixed with Herbicide	<input type="radio"/> Preplant <input type="radio"/> At time of Seeding <input type="radio"/> After Emergence
___ / ___ / 2020	_____	___ - ___ - ___ N            P            K	<input type="radio"/> Liquid <input type="radio"/> Dry	_____ lb/acre	<input type="radio"/> In-furrow <input type="radio"/> 2x2 Sub-surface <input type="radio"/> Dribbled on Surface <input type="radio"/> Broadcast on Surface <input type="radio"/> Broadcast and incorporated <input type="radio"/> Mixed with Herbicide	<input type="radio"/> Preplant <input type="radio"/> At time of Seeding <input type="radio"/> After Emergence
___ / ___ / 2020	_____	___ - ___ - ___ N            P            K	<input type="radio"/> Liquid <input type="radio"/> Dry	_____ lb/acre	<input type="radio"/> In-furrow <input type="radio"/> 2x2 Sub-surface <input type="radio"/> Dribbled on Surface <input type="radio"/> Broadcast on Surface <input type="radio"/> Broadcast and incorporated <input type="radio"/> Mixed with Herbicide	<input type="radio"/> Preplant <input type="radio"/> At time of Seeding <input type="radio"/> After Emergence
___ / ___ / 2020	_____	___ - ___ - ___ N            P            K	<input type="radio"/> Liquid <input type="radio"/> Dry	_____ lb/acre	<input type="radio"/> In-furrow <input type="radio"/> 2x2 Sub-surface <input type="radio"/> Dribbled on Surface <input type="radio"/> Broadcast on Surface <input type="radio"/> Broadcast and incorporated <input type="radio"/> Mixed with Herbicide	<input type="radio"/> Preplant <input type="radio"/> At time of Seeding <input type="radio"/> After Emergence

# NOTES

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# SPRING 2022

# Fertilizer in Control Fields

If you are using a fertilizer with a brand name or chemical name (ie. UAN), record in the chart. If you are applying a compost, record the type of compost and nutrient analysis, if known.

- 0-0-50 dry
- 0-14-14 liquid
- 10-20-10 Dry
- 12-12-12 Liquid
- 15-8-4 Liquid
- 18-0-0 Dry
- 18-18-18 Dry
- 28-0-0-5 Liquid
- Ammonium Sulfate - Dry
- CAN-17 Liquid
- Nphuric 15-0-0-49 Liquid
- UAN28 Liquid (10.66 lb/gal)
- UAN32 Liquid (11.1 lbs/gal)
- Urea 20 Liquid (9.33 lbs/gal)

If you apply Nitrogen (UAN) during burndown, be sure to record details this page, as well.

## Control Fields

What fertilizer you apply to crops in the spring? Please record details about every nitrogen, phosphorus, and potassium source applied to the cropland before, during, or immediately after planting.

Application Date	Fertilizer Name	Fertilizer analysis (such as 11-52-0)	Dry or Liquid	Rate of application	Fertilizer application method	Application Notes
___ / ___ / 2020	_____	N ___ - P ___ - K ___	<input type="radio"/> Liquid <input type="radio"/> Dry	_____ lb/acre	<input type="radio"/> In-furrow <input type="radio"/> 2x2 Sub-surface <input type="radio"/> Dribbled on Surface <input type="radio"/> Broadcast on Surface <input type="radio"/> Broadcast and incorporated <input type="radio"/> Mixed with Herbicide	<input type="radio"/> Preplant <input type="radio"/> At time of Seeding <input type="radio"/> After Emergence
___ / ___ / 2020	_____	N ___ - P ___ - K ___	<input type="radio"/> Liquid <input type="radio"/> Dry	_____ lb/acre	<input type="radio"/> In-furrow <input type="radio"/> 2x2 Sub-surface <input type="radio"/> Dribbled on Surface <input type="radio"/> Broadcast on Surface <input type="radio"/> Broadcast and incorporated <input type="radio"/> Mixed with Herbicide	<input type="radio"/> Preplant <input type="radio"/> At time of Seeding <input type="radio"/> After Emergence
___ / ___ / 2020	_____	N ___ - P ___ - K ___	<input type="radio"/> Liquid <input type="radio"/> Dry	_____ lb/acre	<input type="radio"/> In-furrow <input type="radio"/> 2x2 Sub-surface <input type="radio"/> Dribbled on Surface <input type="radio"/> Broadcast on Surface <input type="radio"/> Broadcast and incorporated <input type="radio"/> Mixed with Herbicide	<input type="radio"/> Preplant <input type="radio"/> At time of Seeding <input type="radio"/> After Emergence
___ / ___ / 2020	_____	N ___ - P ___ - K ___	<input type="radio"/> Liquid <input type="radio"/> Dry	_____ lb/acre	<input type="radio"/> In-furrow <input type="radio"/> 2x2 Sub-surface <input type="radio"/> Dribbled on Surface <input type="radio"/> Broadcast on Surface <input type="radio"/> Broadcast and incorporated <input type="radio"/> Mixed with Herbicide	<input type="radio"/> Preplant <input type="radio"/> At time of Seeding <input type="radio"/> After Emergence

# NOTES

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**NITROGEN DEFICIENCY:** General yellowing of older leaves (bottom of plant). The rest of the plant is often light green.

**PHOSPHORUS DEFICIENCY:** Leaf tips look burnt, followed by older leaves turning a dark green or reddish-purple.

**POTASSIUM DEFICIENCY:** Older leaves may wilt, look scorched. Interveinal chlorosis begins at the base, scorching inward from leaf margins

**NITROGEN CREDITS FROM LEGUMES:** Legumes fix nitrogen from the air and store it in root nodules. This nitrogen becomes available when the plant dies and decays. If the previous crop was a legume, a credit should be used when calculating fertilizer needs.



# SPRING 2022

# General Fertilizer Use

	Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>	Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>
What factors did you use to determine fertilizer application rates?	<input type="checkbox"/> Yield Goals <input type="checkbox"/> Plant tissues <input type="checkbox"/> Nitrogen Modeling Software <input type="checkbox"/> Pre-sidedress N Testing <input type="checkbox"/> Previous Crop Yields <input type="checkbox"/> Soil Testing	<input type="checkbox"/> Yield Goals <input type="checkbox"/> Plant tissues <input type="checkbox"/> Nitrogen Modeling Software <input type="checkbox"/> Pre-sidedress N Testing <input type="checkbox"/> Previous Crop Yields <input type="checkbox"/> Soil Testing
Did you notice signs of nitrogen, phosphorous, or potassium nutrient differences?		
Did you reduce N application based on nitrogen credits from legumes?		
Would you do anything different next year?		

# NOTES

# SPRING 2022

# Cover Crop Termination Success

What portion of the cover crop was successfully terminated?

- Poor: 25% or more cover crop not killed
- Fair: 10% of cover crop not killed
- Good: 5% of cover crop not killed
- Very Good: 1% of cover crop not killed
- Excellent: Complete termination

When termination is not successful, farmers may need to apply a second pass of post-emergence herbicide, a second pass of the roller crimper, etc. Did you take any of these additional measures to terminate residual cover crop?

If you took subsequent actions to control weeds (summer annual) list on subsequent page.

Examples of actions you may change include:

- Different herbicide mix and/or concentration
- Different timing of herbicide application
- Different timing of roller crimping

	Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>					Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>				
What portion of cover crop was successfully terminated? (See guidance on left)	<input type="radio"/> Poor	<input type="radio"/> Fair	<input type="radio"/> Good	<input type="radio"/> Very Good	<input type="radio"/> Excellent	<input type="radio"/> Poor	<input type="radio"/> Fair	<input type="radio"/> Good	<input type="radio"/> Very Good	<input type="radio"/> Excellent
Did you take any additional measures <b>to kill the cover crop?</b>	<input type="radio"/> No <input type="radio"/> Yes					<input type="radio"/> No <input type="radio"/> Yes				
<p>If you did take additional action <b>to control cover crop</b>, what actions did you take and how many hours did you work?</p> <p>If you applied additional herbicides, please record the chemical used and application rate.</p>	<input type="checkbox"/> Additional Herbicide (Pre-emergence) <input type="checkbox"/> Additional Herbicide (Post-emergence) <input type="checkbox"/> Additional Roller Crimping Pass(s) <input type="checkbox"/> In Crop tillage (between rows) <input type="checkbox"/> Hand-pulling <input type="checkbox"/> Other: _____ Hours					<input type="checkbox"/> Additional Herbicide (Pre-emergence) <input type="checkbox"/> Additional Herbicide (Post-emergence) <input type="checkbox"/> Additional Roller Crimping Pass(s) <input type="checkbox"/> In Crop tillage (between rows) <input type="checkbox"/> Hand-pulling <input type="checkbox"/> Other: _____ Hours				
	CHEMICAL NAME                      RATE (GAL/ACRE) _____ _____ _____ _____					CHEMICAL NAME                      RATE (GAL/ACRE) _____ _____ _____ _____				
Would you do anything different next year?										

# NOTES

# SPRING 2022

# Weeds and Additional Herbicide Inputs

SPRING 2022

How would you rate weeds pressure in fields?

- Extreme: 25% or more weeds
- High: 10% weeds
- Considerable: 5% weeds
- Moderate: 1 to 4% weeds
- Low: Virtually no weeds



Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>			Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>							
WEED PRESSURE AND CONTROL										
How would you rate weeds pressure in fields?	<input type="radio"/> Extreme	<input type="radio"/> High	<input type="radio"/> Considerable	<input type="radio"/> Moderate	<input type="radio"/> Low	<input type="radio"/> Extreme	<input type="radio"/> High	<input type="radio"/> Considerable	<input type="radio"/> Moderate	<input type="radio"/> Low
Did you take any additional measures <b>to kill weeds</b> ?	<input type="radio"/> No <input type="radio"/> Yes					<input type="radio"/> No <input type="radio"/> Yes				
If you did take additional action <b>to control weeds</b> ?	<input type="checkbox"/> Additional Herbicide (Post-emergence)					<input type="checkbox"/> Additional Herbicide (Post-emergence)				
	<input type="checkbox"/> In Crop tillage (between rows) _____ Hours Worked					<input type="checkbox"/> In Crop tillage (between rows) _____ Hours Worked				
If you applied additional herbicides, please record the chemical used and application rate.	CHEMICAL NAME		RATE (GAL/ACRE)		_____	CHEMICAL NAME		RATE (GAL/ACRE)		_____
	_____		_____		_____	_____		_____		_____
	_____		_____		_____	_____		_____		_____
	_____		_____		_____	_____		_____		_____
	_____		_____		_____	_____		_____		_____

How would you rate the effectiveness of the treatment in suppressing weeds?	<input type="radio"/> 1 Very Ineffective	<input type="radio"/> 2 Ineffective	<input type="radio"/> 3 No Impact	<input type="radio"/> 4 Effective	<input type="radio"/> 5 Very Effective
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# SPRING-SUMMER 2021

# Deer and Disease

**Description of damage:** Was damage concentrated in Low-lying areas, field edges, headlands, one spot middle of field, etc.

To guide you ratings of damage, use the following general guidelines.

- **Extreme:** More than 25% of the crop destroyed; requires a replant
- **High:** Significant damage to 10% to 25% of crops; significant yield decline anticipated
- **Considerable:** Less than 10% of crops show signs of damage; some yield decline anticipated
- **Moderate:** Less than 10% of crops are damaged; crop expected to “bounce-back”
- **Low:** Little to no damage

	Treatment Plot <i>(Cover Crop Terminated with Roller Crimper)</i>					Control Plot <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>														
How would you rate deer damage?																				
Widespread/ field-wide deer damage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extreme	High	Considerable	Moderate	Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extreme	High	Considerable	Moderate	Low
Isolated or patchy deer damage	Description of damage: _____					Description of damage: _____														
	Approximate area damaged: _____					Approximate area damaged: _____														
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extreme	High	Considerable	Moderate	Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extreme	High	Considerable	Moderate	Low
How would you rate disease damage to crops?																				
Primary Diseases of Concern	_____					_____														
Widespread/ field-wide disease damage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extreme	High	Considerable	Moderate	Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extreme	High	Considerable	Moderate	Low
Isolated or patchy disease damage	Description of damage: _____					Description of damage: _____														
	Approximate area damaged: _____					Approximate area damaged: _____														
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extreme	High	Considerable	Moderate	Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extreme	High	Considerable	Moderate	Low

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# SPRING-SUMMER 2021

# Pesticides

	<b>Treatment Plot</b> <i>(Cover Crop Terminated with Roller Crimper)</i>	<b>Control Plot</b> <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>																								
Did any pest damage necessitate replanting the field?	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No																								
Did you apply other inputs to manage pest pressure (insect and disease)?	<table border="1"><thead><tr><th>CHEMICAL NAME</th><th>RATE (GAL/ACRE)</th></tr></thead><tbody><tr><td>.....</td><td>.....</td></tr><tr><td>.....</td><td>.....</td></tr><tr><td>.....</td><td>.....</td></tr><tr><td>.....</td><td>.....</td></tr><tr><td>.....</td><td>.....</td></tr></tbody></table>	CHEMICAL NAME	RATE (GAL/ACRE)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	<table border="1"><thead><tr><th>CHEMICAL NAME</th><th>RATE (GAL/ACRE)</th></tr></thead><tbody><tr><td>.....</td><td>.....</td></tr><tr><td>.....</td><td>.....</td></tr><tr><td>.....</td><td>.....</td></tr><tr><td>.....</td><td>.....</td></tr><tr><td>.....</td><td>.....</td></tr></tbody></table>	CHEMICAL NAME	RATE (GAL/ACRE)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
CHEMICAL NAME	RATE (GAL/ACRE)																									
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Do you plan to make any changes next year to minimize pest damage from slugs, insects, deer, or diseases?																										



# NOTES

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If you don't have a yield monitor, please estimate yield to the best of your ability.



# FALL 2022

## Yield

	<b>Treatment Plot</b> <i>(Cover Crop Terminated with Roller Crimper)</i>	<b>Control Plot</b> <i>(Cover Crop Terminated with Herbicide and/or Tillage)</i>
Harvest Date	_____ / _____ / 2021	_____ / _____ / 2021
Yield	_____ per _____ Units (lb, bu., etc.) Area (acre, field, etc)	_____ per _____ Units (lb, bu., etc.) Area (acre, field, etc)
Percent Moisture (if applicable)	_____ %	_____ %
What factors do you think contributed to yield decline?	<input type="checkbox"/> Planting Conditions <input type="checkbox"/> Weed Pressure <input type="checkbox"/> Insect Damage <input type="checkbox"/> Slug Damage <input type="checkbox"/> Disease / Fungus <input type="checkbox"/> Nutrient Deficiencies  <input type="checkbox"/> Drought <input type="checkbox"/> Hot temperatures <input type="checkbox"/> Cool Temperatures <input type="checkbox"/> Other:	<input type="checkbox"/> Planting Conditions <input type="checkbox"/> Weed Pressure <input type="checkbox"/> Insect Damage <input type="checkbox"/> Slug Damage <input type="checkbox"/> Disease / Fungus <input type="checkbox"/> Nutrient Deficiencies  <input type="checkbox"/> Drought <input type="checkbox"/> Hot temperatures <input type="checkbox"/> Cool Temperatures <input type="checkbox"/> Other: