Midwest Cover Crops Council Resources for Cover Crop Success

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Welcome

The mission of the Midwest Cover Crops Council is to facilitate widespread adoption of cover crops across the Midwest.





Overview of resources, new/revised

- Website
- Pocket guide
- Recipes
- Decision tool
- Seeding Rate Calculator
- Crop Advisor Modules
- Conference

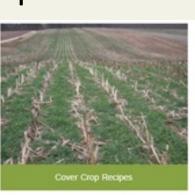


www.midwestcovercrops.org Bookmark our SEADCH Getting Started ~ Selector Tools Species ~ States/Provinces ~ About ~ Subscribe to MCCC listserv Other Resources Cover Crop Termination Guideline for Unfavorable String Weather Home » States/Provinces » Indiana Conditions May 21, 2020 Browse by category Getting Started, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Ontario, South Indiana Collaboration of MCCC Board of Directors Select Category Cover crop research, extension, and demonstration activities in Indiana have included using cover crops to recycle nutrients and May 2020 minimize leaching into tile drains, improve soil health, reduce erosion, suppress pests, and improve crop yields. Farmer-initiated Cover Crop Termination Guidelines for Unfavorable Spring Weather Conditions demonstration sites provide locations for local field days and other educational events. The Indiana NRCS has several programs to Forage (32) Getting Started (159) assist farmers with implementing cover crops as part of a total conservation and energy system on their farm. Equipment (14) Management (71) Indiana Cover Crop Recipe - Post Corn, Going to Soybean: Use Cereal Rye Planting (41) Termination (41) 2019 Indiana State Report - MCCC Annual Meeting Herbicide Carryover (8) Indiana Cover Crop Recipe - Post Soybean, Going to Corn: Use Oats/Radish Recent Midwest Research Publications (8) March 7, 2020 Indiana, Stat Species (211) Brassicas (79) Shalamar Armstrong - Purdue University Please scroll down to read extension publications from Indiana. Black mustard (9) Eebruary 2020 Brown/Indian mustard (10) 2019 Indiana State Report - MCCC Annual Meeting Field mustard (13) Oilseed radish (59) Local Resources State Contacts Research & Outreach Rapeseed (25) Turnip (24) These resources can help with technical support and answer questions White mustard (10) from a local perspective at no cost. Winter canola (8) Yellow mustard (13) **Cover Crop Considerations for Prevented Planting** Indiana Natural Resources Conservation Service (NRCS) June 7, 2019 Find your local NRCS Field Service Center ota Missouri Nebraska North Dakota Obio Ontario Planting South Dakota State/Province Wisconsin Purdue Extension Collaboration of MCCC Board of Directors Find your County Purdue Extension Office Indiana Association of Soil and Water Conservation Districts (SWCD) Midwes Find your County SWCD ove Conservation Cropping Systems Initiative (CCSI) is a partnership between numerous organizations in Indiana all working rops toward improving soil health and soil productivity. Counci

Getting Started



- Cover Crop Recipes
- Planting
- Equipment
- Management
- Termination











Field Guide

3rd edition is printed and available for order!

Contents

Basic Structure of the Guide

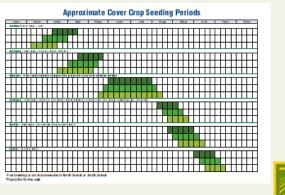
- 1. Getting started, choosing cover crops, suggested covers
- 2. Seeding methods
- 3. Terminating cover crops, planting green, herbicide carryover
- 4. Pests—insects, slugs, voles, nematodes, diseases
- 5. Effects on cash crops, economics, climate/plant type considerations, crop insurance and USDA program considerations
- 6. Species sections, with characteristics, goal ratings, seeding rates, and cautions for grasses, legumes, non-legume broadleaves, up-and-coming species, and species commonly used in mixes.



Cover Crop Seeding Windows

- Climate data has been updated
- Recommended seeding dates across the Midwest were revised
- More locally precise dates in the decision tool





Cover Crop Seeding

Producers and manufacturers continue to develop/modify equipment for planting cover crops in a timely manner. New specialized equipment has been detailed in the new edition.

Specialized Equipment added:

- Early season interseeder
- Harvester mounted seeder
- Tillage tool mounted seeder
- Drone



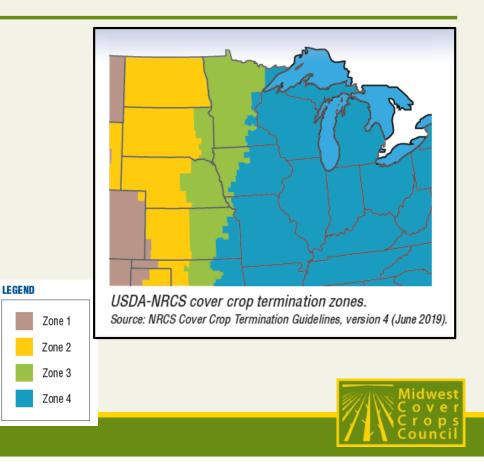
Cover Crop Termination Guidelines

- For farmers new to growing cover crops
 - 2 weeks before planting or
 - when cover crops are 6-12 inches tall
 - and actively growing
- With experience, farmers may find they can maximize benefits by terminating later



Termination Guidelines

- USDA map provides termination deadlines for RMA eligibility
- Check out "Cover Crop Termination Guidelines for Unfavorable Spring Weather Conditions" on <u>midwestcovercrops.org</u>



Planting Green

- Planting a cash crop directly into a standing cover crop that is still green
- Has grown in popularity the last several years, particularly with soybeans.
- Advantages and challenges are discussed.

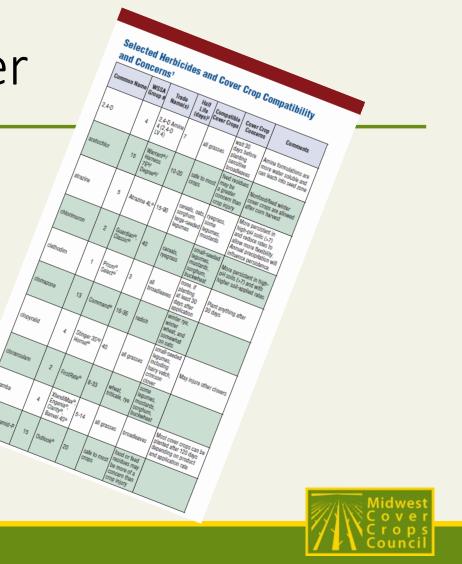




Cover Crop Effects

Herbicide Carryover

- Corn and Soy herbicides are listed in the same table
- Organized by common name, instead of trade name



Cover Crop Economics

- Possible positive and negative effects on cash crop yields.
 - Experience and good management can boost success.
- Soil productivity and health improve slowly over many years.
 - May improve yields more in stressful years than in years with good weather.



Cover Crop Economics

- Economic impacts vary greatly, depending on:
 - Specific cover crop and cash crop,
 - specific management practices,
 - weather and climate, and
 - length of time the system has included cover crops.
- SARE Technical Bulletin is referenced, for other shortterm economic benefits possible, such as weed control, ameliorating soil compaction, integrating livestock, and others

Cover Crop Species

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Cover Crop Species

- All seeding rates are given as a range to encompass a wide set of conditions and purposes
- Updated photos
- Leaf collar region photos for grass identification





Seeding Rate Adjustments

All seeding rates are given as pure live seed (PLS) — see page 186.

Seeding rates are given as a range. The drilled rates are at the low end, broadcast with shallow incorporation rates are typically 10 percent higher than the drilled rate, and broadcast without incorporation seeding rates are typically 20 percent higher than the drilled rate. Some species may require an even higher rate for aerial seeding (for example, annual ryegrass). When deciding on which rate to use, remember to adapt these recommendations to the conditions where (and when) you plant:

Reasons to increase seeding rates include:

- As you move north, you may need higher seeding rates to achieve the desired biomass.
- As you reach the end of the optimum seeding window, you may need higher seeding rates.
- If weed management, erosion control, or grazing is a primary purpose, then increase seeding rates.
- If seed size is larger than average for your variety (think plants/acre), then you may need to increase seeding rates.
- If you are using coated seed, make sure to calculate PLS (see page 186).

Reasons to decrease seeding rates include:

- As you increase soil fertility and/or add manure, you may need lower seeding rates.
- The better the seed-to-soil contact for the seeding method, the lower the seeding rate.
- The more diverse the seed mix, the lower the seeding rate will be.
- Precision planters require lower seeding rates.



Popular Cover Crop Species

office to be aware of their requirements. **Cover Crops Species** The following pages provide basic information about several of the region's most common cover crop species: Grasses .72 annual ryegrass. barley (winter and spring). .76 .80 Japanese millet. Oats oats (spring and winter). .84 .88 pearl millet. .92 rye (winter). **Cereal Rye** .96 sorghum-sudangrass, sorghum. 100 sudangrass.. triticale (winter and spring). .104 wheat (winter and spring). 108 Legumes .112 alfalfa. clover, berseem. .116 **Crimson clover** 120 clover, crimson. .124 clover, red., .128 clover, white. Hairy vetch field/winter pea. .132 .136 hairy vetch. sweetclover .140 Non-legume Broadleaves .144 buckwheat. .148 forage brassicas. Radish .152 mustards. 156 radish. .160 rapeseed. Rapeseed .164 turnip (forage type). 66

New to the Field Guide

White Clover



Forage Brassicas

cabbage, kale, collards, leaf turnip, hybrids





Balansa Clover







New Section "Species Commonly used in a Mix"



Includes photos of seeds, seedlings, and plants

Common Species in Cover Crop Mixes

	W	ol- or 'arm- ason¹	Grass Legum or Broadle	e, Cl	ostrate, limbing, Upright ³	Biomass Potential (low, medium, high) ⁴	Fibrous Root or Tap Root ⁵	Seeds/	Ίb.	De	ding pth hes)		Comments
chickling vetch <i>Lathyrus sativus</i>		С	L		Ρ	L	Т	2,50	C	3/4-1	1 1/2	Us	ought tolerant. e pea/vetch/lentil oculum.
chickpea <i>Cicer arietinum</i>		W	L		U	L	Т	2,20	C		/2- 1/2		ought tolerant. Use ickpea inoculum.
common vetch <i>Vicia sativa</i>		Germa millet <i>Setaria</i>	n/foxtail italica	w	G	U	н	F	19	0,000	1/2-3	V4	No prussic acid toxicity.
faba bean		lentils <i>Lens c</i>	ulinaris	С	L	Р	L	т		,000-),000	1- 1 1/		Drought tolerant. Use pea/ vetch/lentil inoculum.
Vicia faba, minor (use forage type)		mung l <i>Vig na i</i>		w	L	U	м	т	11			1 1/4- 2 1/4 Drought and heat tolerant. Use peanut/lima bean inoculum.	
flax Pan		proso Panicu miliace	m	w	G	U	н	F	84	I,000	1/2-3	/4	No prussic acid toxicity.
usitatissimum		teff <i>Eragro</i>	stis tef	w	G	U	L	F	1,50	000,000	1/8-1	/4	High-quality forage. Very digestible fiber.

1 C=cool-season. W=warm-season. 2 G=grass. L=legume. B=broadleaf. 3 P=prostrate. C=climbing. U=upright. 4 L=low. M=medium. H=high. 5 F=fibrous root. T=taproot.



Field Guide Available Now!



Go to "Other Resources" on the main menu of <u>www.midwestcovercrops.org</u>

https://edustore.purdue.edu/

\$6/guide or 10% discount on a box of 25



Recipes

These publications are intended to provide a starting point for farmers who are new to growing cover crops. With experience, farmers may fine-tune the use of cover crops for their systems.



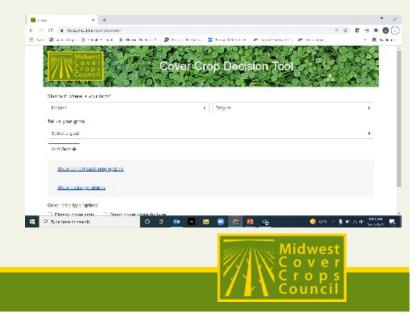
Indiana Recipes

- Post Corn, Going to Soybean: Use Cereal Rye
- Post Soybean, Going to Corn: Use Oats/Radish
- Additional recipes available for other Midwest states

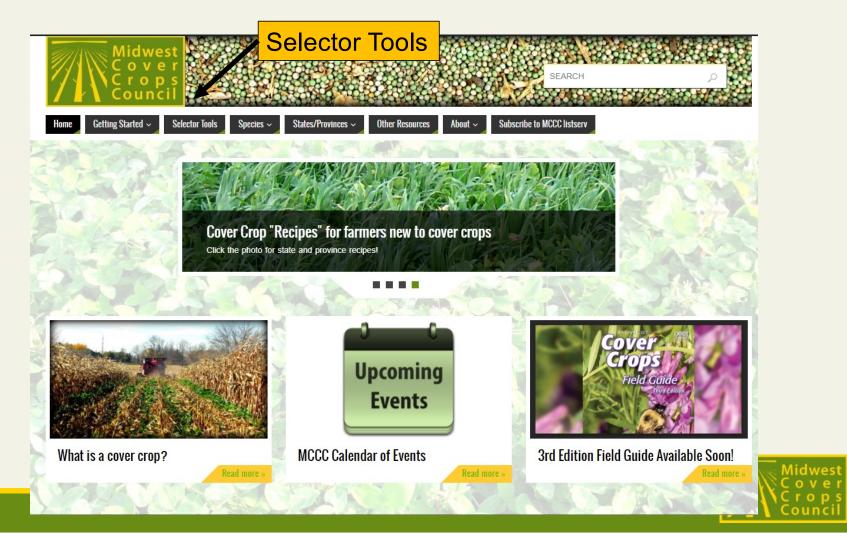


Selector/Decision Tool

- For those wanting more options after the "recipes", use the Decision Tool
- Mobile friendly
- State teams update periodically (next winter for IN)



www.midwestcovercrops.org

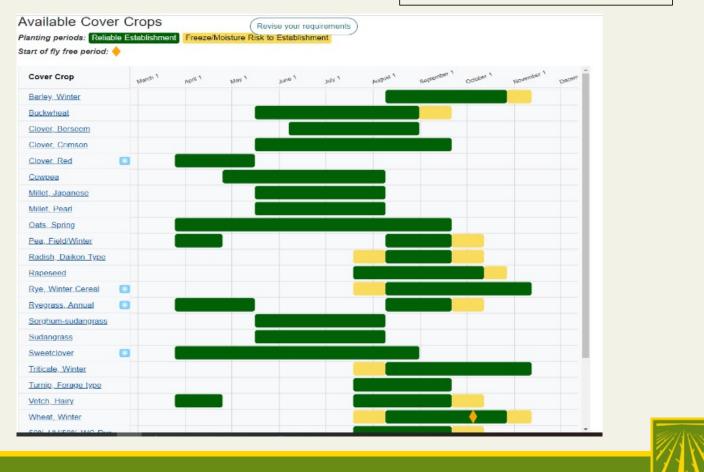


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Lawrence Co., Indiana

www.midwestcovercrops.org Cover Crop Decision Tool

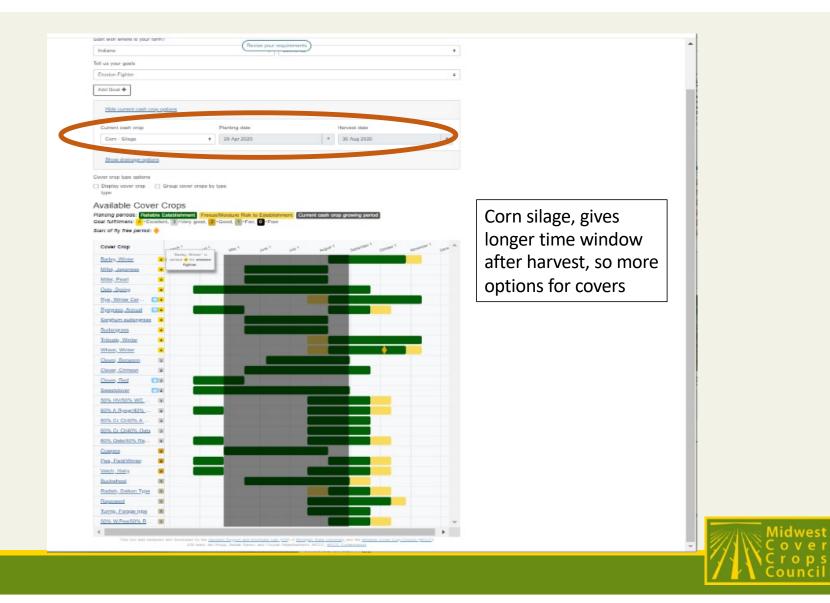
Midwest Cover Crops Council

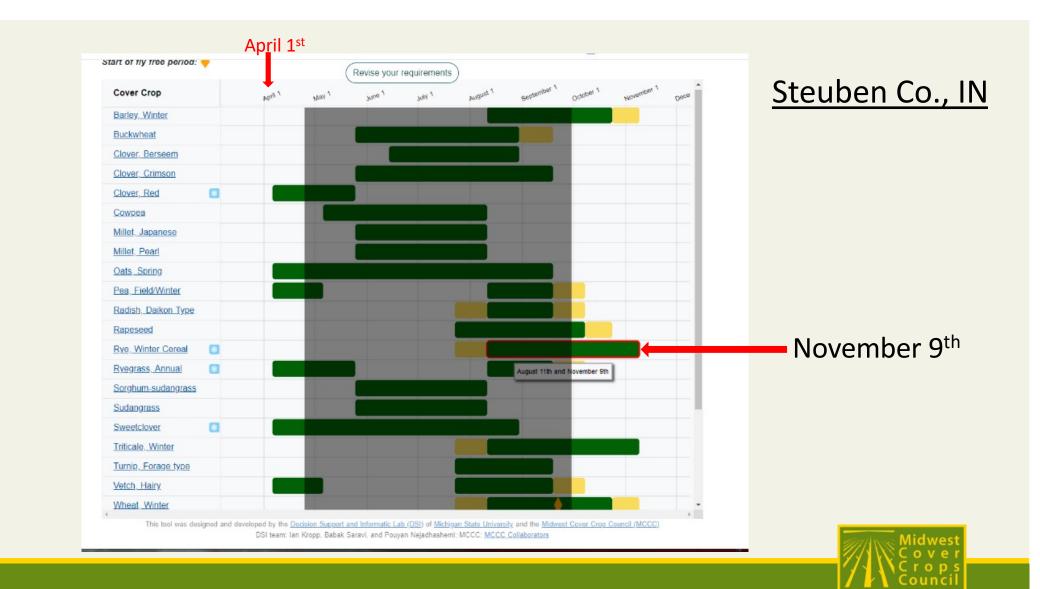


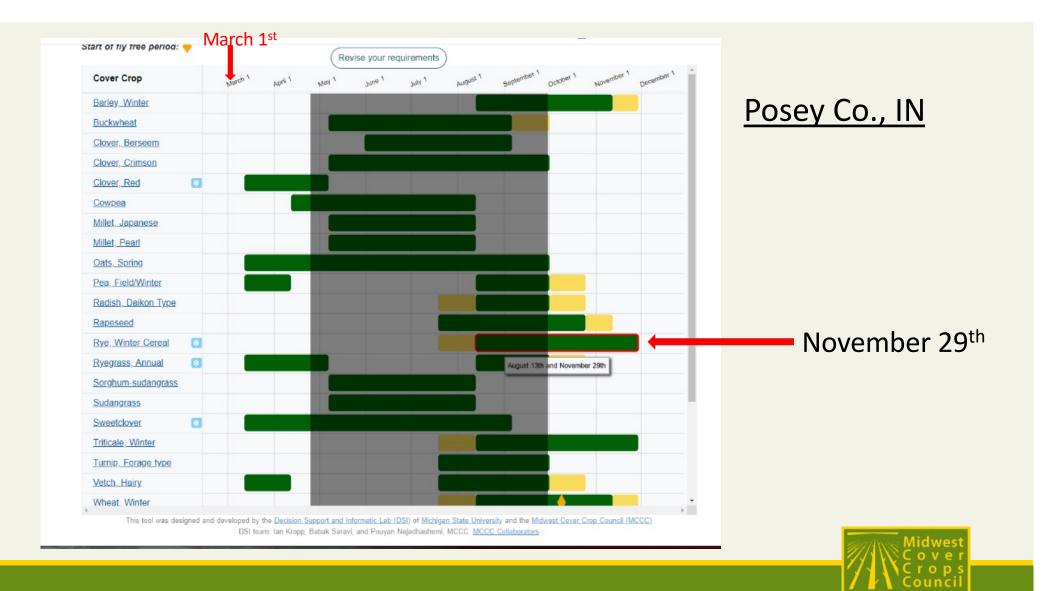
Erosion fighter was the goal selected here. Can choose up to 3 goals.

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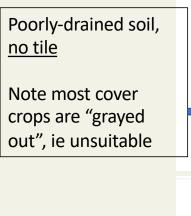






Parke Co., IN

PURDUE







Poorly-drained soil, with tile

Note most cover crops are now suitable to grow. (Green is reliable seeding dates)

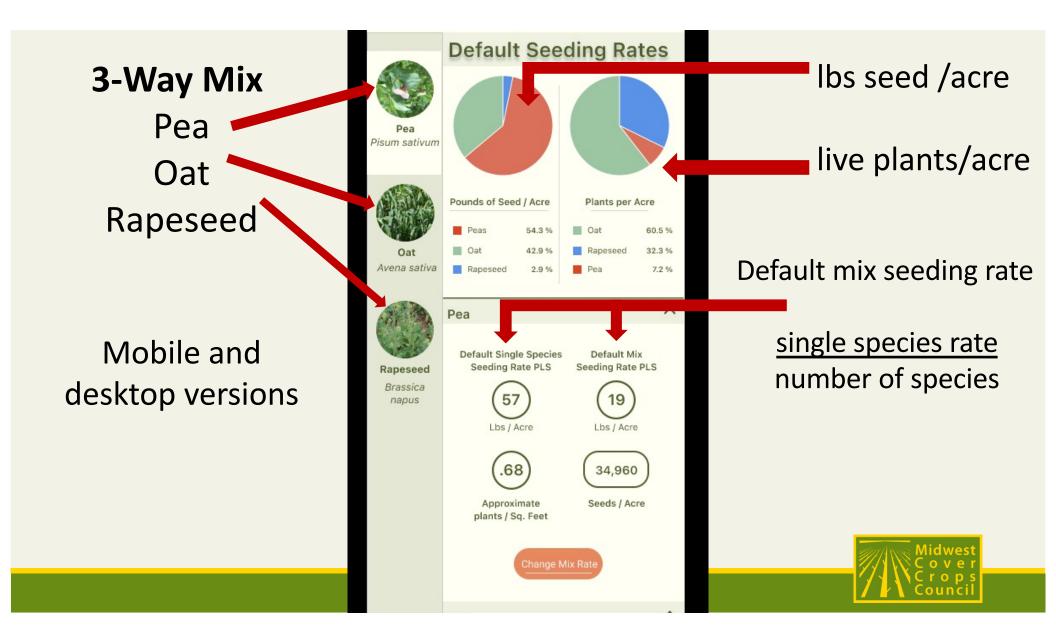


Cover Crop Information Sheet Considerations for using 60% Oats/40% OSR in Indiana							
There are no special considerations							
Web link	s to information on using Cover Crops in Ir	ndiana can be found at: <u>http://mccc.msu.ed</u>	na can be found at: <u>http://mccc.msu.edu/states/indiana.html</u>				
Loca	tion Information		Cultural Traits				
	Indiana - All Counties Average	Scientific Name:		Oats			
Cash Crop:	None or Prevented Planting	Scientific Name:		Radish, Oilseed			
Plant Date:	None		Cool Season Annual	Oats			
Harvest Date:			Cool Season Annual	Radish, Oilseed			
Soil Drainage Class:	None	Growth Habit:		Oats Datistic Offered			
	No	Growth Habit:		Radish, Oilseed			
Flooding	: NO	Preferred Soil pH: Min. Germination Temp.:					
Couler Crou	Selection Information	Heat Tolerance:					
Cover Crop Selected:		Drought Tolerance:					
Cover Crop Attribute #1:	None	Shade Tolerance:					
Cover Crop Attribute #2:	None	Flood Tolerance:					
Cover Crop Attribute #3:	None	Low Fertility Tolerance:					
Use within the State:	Common	Vinter Survival:					
		Comments:					
Plan	ting Information						
Drilled Seeding Depth:	%-1 Inches						
Drilled Seeding Rate:	18-36 Ib./A PLS Oats						
Drilled Seeding Rate:	2-4 Ib./A PLS Radish, Oilseed						
Broadcast Seeding Rate:	19.8-39.6 Ib./A PLS Oats		Potential Advantages				
Broadcast Seeding Rate:	2.2-4.4 Ib./A PLS_Radish, Oilseed	Soil Impact - Subsoiler:	Very Good				
Aerial Seeding Rate:	21.6-43.2 Ib./A PLS Oats	Soil Impact - Frees P and K:	Good				
Aerial Seeding Rate:	2.4-4.8 Ib./A PLS Radish, Oilseed	Soil Impact - Loosens Topsoil:	Very Good				
Seed Count:	19,600 Seeds/Ib. Oats	Soil Ecology - Nematodes:					
Seed Count:	34,000 Seeds/lb. Radish, Oilseed	Soil Ecology - Disease:	Good				
Frost Seed:	No	Soil Ecology - Allelopathic:	Very Good				
Fly-Free Date:	No	Soil Ecology - Choke Veeds:	Excellent				
Inoculation Type: Comments:		Other - Attract Beneficials:					
Comments:		Other - Bears Traffic: Other - Short Vindows:					
		Comments:	Excellent				
		Comments:					
	nation Information						
Termination Methods:	Freeze						
Comments:			otental Disadvantages				
		Delayed Emergence:	Rarely a problem				
		Increased Veed Potential: Increased Insects/Nematodes:	Rarely a problem Occassionally a minor problem				
L		Increased Insects interaction increases:	Occasionally a minor problem Rarely a problem				
Perfo	mance and Roles	Hinders Crops:	Rarely a problem				
Feiro	manve and notes	Establishment Challenges:					
Legume Nitrogen Source:	No	Till Kill Challenges:	Could be major problem				
Total Nitrogen:	10-60 (Ib./A)	Mow Kill Challenges:	Could be major problem				
Dry Matter:	1700-5500 (Ib./A/yr.)	Mature Incorporation Challenges:	Rarely a problem				
Nitrogen Scanvenger:	Excellent	Comments Pro/Con:					
Soil Builder:	Very Good		1				
Erosion Fighter:	Good						



Seeding Rate Calculator

- Straightforward seeding rate calculator for complex mixes
- Default seeding rates will be suitable for less experienced growers
- Seeding rates are highly customizable
- Intended to be a learning tool
- In partnership with NRCS, to evaluate for cost share ~draft version is being reviewed by MCCC team~



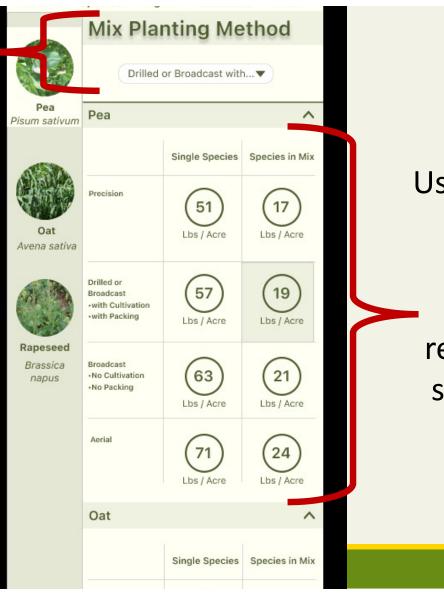
3 Way Mix

-	Default Seeding Rates	
Pea	Show Charts	
Pisum sativum	Pea ^	
	Single Species % of Single Mix Seeding Seeding Rate Species Rate PLS Rate	Single species
Oat Avena sativa	57 t 33% 7 19 Lbs / Acre Recommendation Lbs / Acre	seeding rate divided into
	Step 2:	thirds
	Seeds / Pound Mix Seeding Seeds / Acre Rate	
Rapeseed Brassica napus	1,840 x 19 = 34,690 Lbs / Acre	Adjustable by
	Step 3:	user
	Seeds / Acre % Survival Plants / Acre	
	34,690 x .85 = 28,716	
	Step 4:	Midwe
	Seeds / Acre Sq. Ft. / Acre Approximate Plants / Sq. Ft.	

stable by user

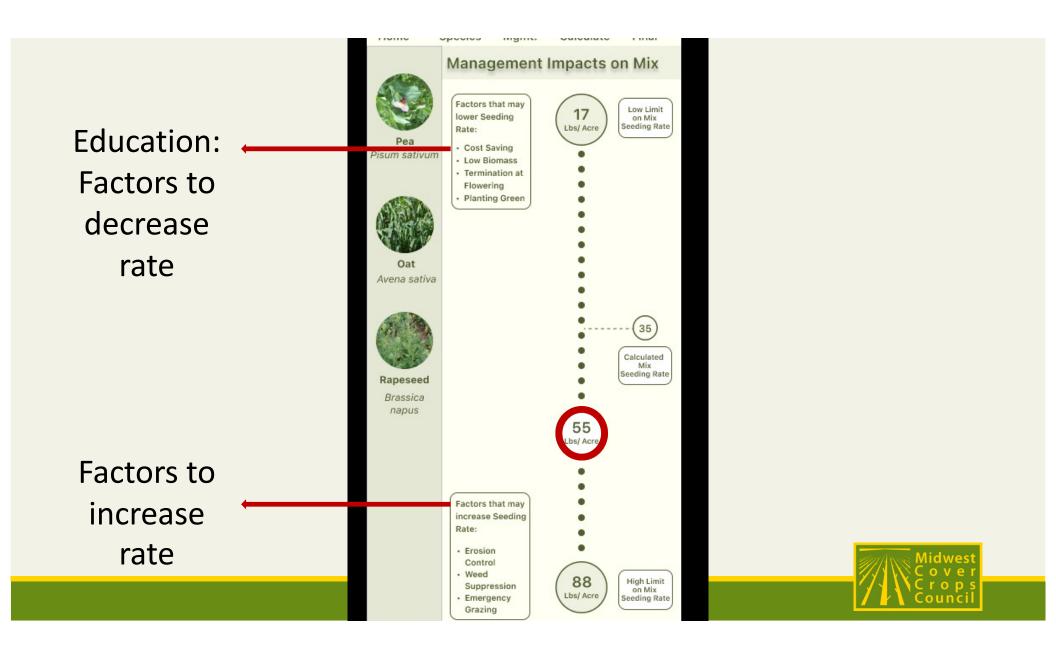
Crop Counci

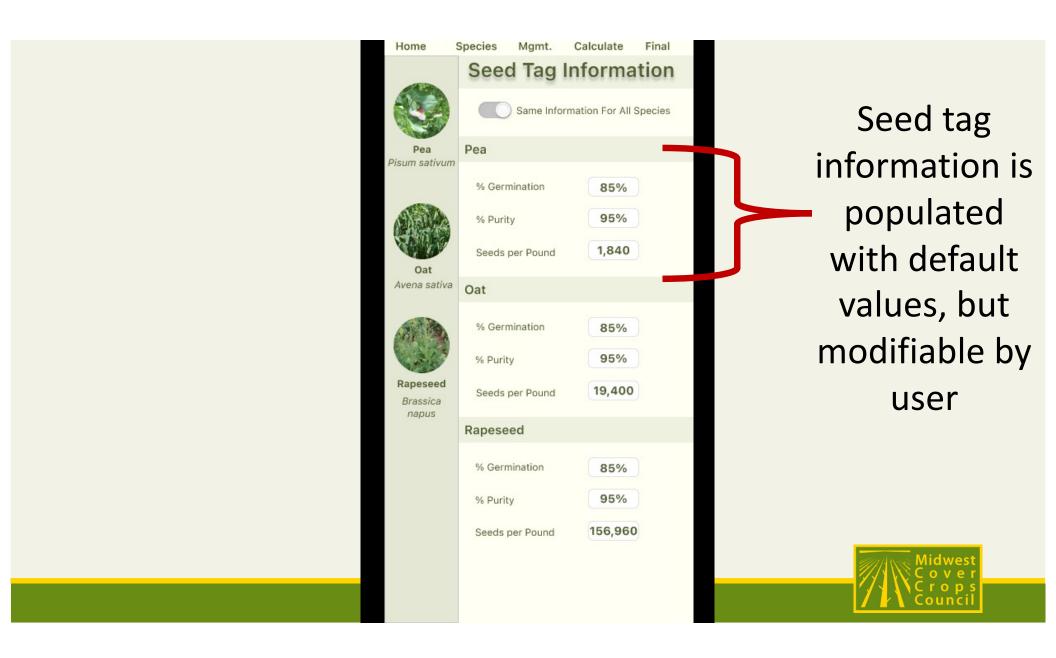
Seeding rate adjusted by planting method

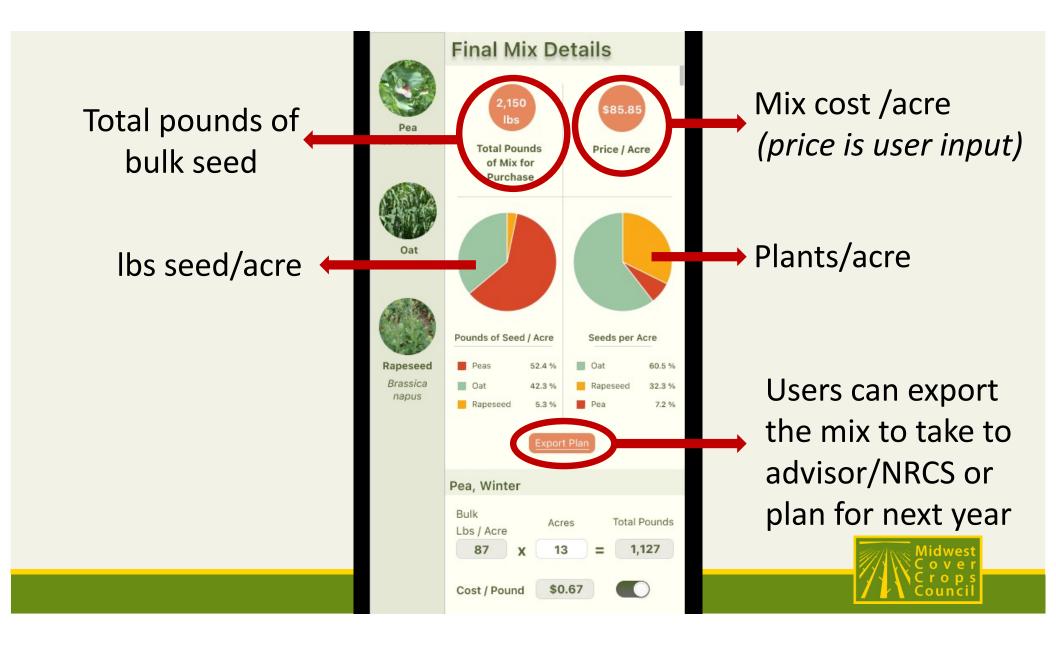


Users learn that less precise planting methods require higher seeding rates

Counci







Coming soon - Crop Advisor Modules

- Series of 10 modules designed for crop advisors
- Powerpoint presentations available for download and use
- Covers topics like soil health, establishment, pests, and economics
- MCCC will host these modules as webinars presented by our experts



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2022 Annual Meeting and Conference

March 7-9, 2022 In partnership with CTC in Ada, OH

Registration opens in January



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Questions

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