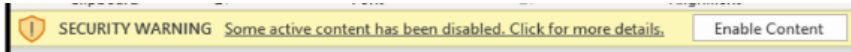


Macros must be Enabled for the IR to properly function.



Only the Seeding Plan worksheet has user entered data. The Crop Districts, Rates, and Plant Info worksheets are for reference only.

**USDA**  
United States Department of Agriculture

### Understanding IR components

Producer: [ ] County: [ ] Farm: [ ] Program: [ ] Contract #: [ ] CIN: [ ]  
Planting Zone: [ ] Section: [ ] Tract: [ ] Field No(s): [ ] Acres: [ ]  
Township: [ ] Tier: [ ] Range: [ ]

**CLEAR SHEET** (This button will clear all user entered data. It does not reset Seeding Timeframe or Seeding Method.)

**Plan Map must be attached.**  
Utility Safety/ One-Call System Information:  
IowaOneCall.com or Call 811  
Not Applicable for Cover Crops.

**Text boxes with orange halo provide specific instruction. Will not be on printed report.**

**Workbook is designed to be viewed at 100% zoom. Information should print properly even if not displaying correctly on screen.**

**Enter Seeding Timeframe, Seeding Method and Species prior to clicking on 'Hide Extra Rows'. This button will condense the IR for printing.**

**If changes to the seeding plan are needed after clicking 'Hide Extra Rows', 'Unhide All Rows' will unhide the rows for additional entry. It will not reset any information entered.**

**Hide Extra Rows**  
**Unhide All Rows**

**Seeding Timeframe:** ☐ Fall Seeding ☒ Spring Seeding ☐ Winter Seeding  
**Seeding Method:** ☐ Drill Planter/Broadcast with Incorporation ☐ Broadcast Not Incorporated

**Planned Termination Method:** [ ] **Termination Timing:** [ ]

**Management Considerations:**  
Plant growth stage, cold stratification, and environmental conditions affect soil moisture and snow cover all impact herbicide performance. Successful establishment of cover crops with an aerial or broadcast incorporated seeding depends on having adequate moisture for germination and establishment. A moist seedbed at time of application or a forecast of rain within ~10 days of seeding is recommended.

**Planned Cover Crop Mixture:**  
Use bulk rate for seed with a minimum of 1000 PLS. Use rate based on PLS lbs. for all other seed. *Approximate*

Cover Crop Species	Rate (lb/acre)	Acres	Planting Date	Rate (lb/acre)	Planting Date	Rate (lb/acre)	Planting Date	Rate (lb/acre)	Planting Date	Rate (lb/acre)	Planting Date

**Spring/Summer**

Start	Start Prime	End Prime	End

**USDA**  
United States Department of Agriculture

### Understanding IR components

County must be selected for tables to function. Planting Zone will automatically fill once county is selected.

Drop down menus are used to assist entry. The scroll button on your mouse does not work with Excel drop down menus.

Blue cells throughout the sheet indicate user entered data.

To standardize the IR format, Iowa One Call block is included. No entry required for Cover Crops.

Goals and Objectives should be why the producer is putting cover crops into the system which may be different than the overall conservation plan.

Description of work should include pertinent information to help document the system cover crops are being incorporated into. Rotation, tillage, grazing, etc.

Producer: **Ima Farmer**  
County: **BENTON** Farm: **1234** Program: **EQIP** Contract #: **746114\*\*\*\*\*** CIN: **44199**  
Planting Zone: **East\_Central** Section: **23** Tract: **1234** Field No(s): **1,5,8** Acres: **125**  
Township: **Cedar** Tier: **86N** Range: **11W**

**Crop Year/Planned Crop:** **2021/Corn, 2022/Soybeans, 2023/Corn**

**Plan Map must be attached.**

**Utility Safety/ One-Call System Information:**  
IowaOneCall.com or Call 811  
Not Applicable for Cover Crops.

**Goals and Objectives:**  
Incorporate cover crops into crop rotation to improve soil health

**Description of work:**  
Currently a corn soybean rotation is being used with soybeans being no-tilled into corn stalks and corn planted into spring finished soybean stubble. The planned system is to apply no-till in both crops with a cover crop that will overwinter.



United States Department of Agriculture

## Understanding IR components

Use Checkboxes to identify Practice Purpose.

Select the Seeding Timeframe and Seeding Method using the Option Buttons. The circle size cannot be resized bigger as it is set by Excel.

### Practice Purpose:

- ☐ Reduce erosion from wind and water.
- ☒ Maintain or increase soil health and organic matter content.
- ☒ Reduce water quality degradation by utilizing excessive soil nutrients.

- ☐ Suppress excessive weed pressures and break pest cycles.
- ☒ Improve soil moisture use efficiency.
- ☒ Minimize soil compaction.

Standard statement will populate anytime Aerial/Broadcast Not Incorporated

Seeding Timeframe: ☒ Fall Seeding ☐ Spring Seeding

Seeding Method: ☐ Drill/Planter/Broadcast with Incorporation

☐ Interseed V4-V6 Corn ☐ Summer Seeding

☒ Aerial/Broadcast Not Incorporated

Planned Termination Method:

Termination Timing:

Cover Crop will be terminated at time of planting for soybeans and 2 weeks prior to planting for corn.

Document planned method and timing for termination of cover crops.

### Management Considerations:

Plant growth stage, cold climatization, and environmental conditions such as soil moisture and snow cover all impact tolerance to low temps. Successful establishment of cover crops with an aerial or broadcast not incorporated seeding depends on having adequate moisture for germination and establishment. A moist seedbed at time of application or a forecast of rain within ~10 days of seeding is recommended. Field is near main electric transmission line. Aerial applicator needs to be comfortable with application. Backup plan would be to utilize a high boy broadcast spreader.

Additional management considerations can be entered to help the client be successful

### Planned Cover Crop Mixture:

Use bulk rate for seed with a minimum of 80% PLS. Use rate based on PLS lbs. for all other seed. Automatically calculated below. All seed must be tested for germination and purity by a Certified Seed Lab. Test will be no older than 12 months.

Fall

Natural Resources Conservation Service  
nrcs.usda.gov/



United States Department of Agriculture

## Understanding IR components

Seed with 80% PLS or greater is based on bulk seed rate.  
**% PLS = % Germination X % Purity**

Seed must be tested for germination and purity by a Certified Seed Lab within 12 months of seeding.

This cell auto populates based on Seeding Timeframe selected above.

### Planned Cover Crop Mixture:

Use bulk rate for seed with a minimum of 80% PLS. Use rate based on PLS lbs. for all other seed. Automatically calculated below. All seed must be tested for germination and purity by a Certified Seed Lab. Test will be no older than 12 months.

Fall

		Full Seed		Rate		Planting		Approx.		Crop		Start		End	
Cover Crop Species		Rate #/ac	Acres	Germ %	Purity %	% of Full Rate/Mix	Rate lb./ac	Total lbs.	Depth (in)	Low Temp. Tolerance	Type	Start	Prime	End	End
Camelina, Winter		4	125	85.0%	95.0%	38%	1.5	190	0.25-0.5	to - 20 F	CSB	8/7	8/22	10/24	11/5
Rye, Winter/Cereal		45	125	85.0%	95.0%	50%	22.5	2813	0.25-2.0	to - 30 F	CSG	8/7	8/22	10/24	11/5
Oats		60	125	85.0%	95.0%	25%	15.0	1875	1.0-2.0	to 25 F	CSG	7/1	8/22	9/11	9/26

Species list has a drop-down menu that is filtered by Seeding Timeframe selected above.

The default is set at 85% Germination and 95% Purity (80.75% PLS). If the germination and purity of seed is known – enter the actual percentages. If it is not, then the default rates can be used for planning. If purchased seed has a PLS less than 80%, these values should be adjusted to document proper seeding rate.

Enter % Full Rate to build seeding mix. Cell will be red until at least 100% of a mix is entered. Seeding plan may be over 100%.

Increase rate based on purpose. Consider at least 200% for grazing, weed control, or erosion control.

nrcs.usda.gov/





United States Department of Agriculture

## Understanding IR components

Rows 57-60 will allow up to 4 non-listed species to be entered. When non listed species are used, the ARC will need to sign the Approval signature block.

Up to 20% of a full rate mix can be a non-listed species.

This row will be hidden for printing. i.e. clicking 'Hide Extra Rows'.

Non-Listed Species w/ARC Approval	Full Seed Rate lb/ac	Acres	Germ %	Purity %	% of Full Rate Mix	Rate lb/ac	Total lbs	Planting Depth (in)	Approx. Low Temp. Tolerance	Crop Type	Start	Start Prime	End Prime	End
Phacelia	8	125	85.0%	95.0%	20%	1.6	200	0.25	18F	CSB				9/26
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			133%		39.0 lbs. per Acre		4877.5 Total Pounds							

Totals will be shown at the bottom of the species selection table.

Non-Listed Species: Fill in information for seeding depth, Low Temp Tolerance, Crop Type, and Seeding window. Fall Seeding end of seeding period is critical date. Spring and Summer beginning and ending dates are critical.



United States Department of Agriculture

## Understanding IR components

Seeding Window will show a graphic of marginal (yellow) and preferred (green) seeding dates. For any non-listed species, refer the producer to the entered dates.

A summary of the proper start and final seeding dates are shown in the Date Table. These dates are based on the species in the mix with the most limiting seeding window for the seeding timeframe.

Another place for notes to be added for client to consider.

### Planned Cover Crop Mixture:

Use bulk rate for seed with a minimum of 80% PLS. Use rate based on PLS lbs. for all other seed. Automatically calculated below. All seed must be tested for germination and purity by a Certified Seed Lab. Test will be no older than 12 months.

Cover Crop Species	Rate lb/ac	Acres	Germ %	Purity %	% of Full Rate Mix	Rate lb/ac	Total lbs	Planting Depth (in)	Approx. Low Temp. Tolerance	Crop Type	Start	Start Prime	End Prime	End
Camelina, Winter	4	125	85.0%	95.0%	38%	1.5	190	0.25-0.5	to - 20 F	CSB	8/7	8/22	10/24	11/5
Rye, Winter/Cereal	45	125	85.0%	95.0%	50%	22.5	2813	0.25-2.0	to - 30 F	CSG	8/7	8/22	10/24	11/5
Oats	60	125	85.0%	95.0%	25%	15.0	1875	1.0-2.0	to 25 F	CSG	7/1	8/22	9/11	9/26
Phacelia	8	125	85.0%	95.0%	20%	1.6	200	0.25	18F	CSB				9/26
			133%		39 lbs. per Acre		4878 Total Pounds							

### Seeding Window

	March	April	May	June	July	August	September	October	November
Camelina, Winter						8/1 - 8/22	-	-	10/24 - 11/5
Rye, Winter/Cereal						8/1 - 8/22	-	-	10/24 - 11/5
Oats	7/1 - 8/22	8/22 - 9/11	9/11 - 9/26	-	-	-	-	-	-
Phacelia	See Seeding Dates Entered Above								

### Date Table

First date to seed for selected timeframe:	7-Aug	
Preferred seeding date range:	22-Aug	11-Sep
Last date to seed for selected planting timeframe:	26-Sep	

### Notes:

Oats do not fly as far in the spread pattern of the plane. Some streaking of the oats is probable.

[nrcs.usda.gov/](https://nrcs.usda.gov/)





United States Department of Agriculture

## Understanding IR components

'Approved by' signature only required when planner does not have adequate JAA or when non-listed species are included in mix which need ARC approval.

Landowner/Operator signature. Make sure they understand what is required to properly apply the seeding plan.

Certification for seeding being completed needs to be signed by employee with proper JAA.

Landowner/Operator signature is optional for completion certification.

### Practice Specifications Approval and Completion Certification:

Design, Installation, and Layout Approval:

Designed by:

H.T. Help

Date:

2/28/2021

Job Approval Authority (JAA):

IV

Approved by:

Area ARC

Date:

3/1/2021

Job Approval Authority (JAA):

V

Approved by signature only required if Planner does not have proper JAA or for ARC approval of non-listed species.

#### Landowner/Operator Acknowledges:

- I have received a copy of the specifications and understand the contents, including the scope and location of the practice.
- I have obtained all necessary permits and/or rights in advance of practice application, and will comply with all ordinances and laws pertaining to the application of this practice.
- No changes will be made in the installation of the job without prior concurrence of the NRCS.
- Maintenance of the installed work is necessary for proper performance during the life of the practice. The practice life is 1 year. Program requirements may require longer maintenance, check the program contract.

I have reviewed all specifications and agree to install as specified:

Landowner/Operator Signature:

Ima Farmer

Date:

3/2/2021

I certify implementation of this conservation practice is complete, meets criteria for the stated purpose(s) and meets the NRCS conservation practice standard and specifications.

Approved by:

Date:

Job Approval Authority (JAA):

Notes:

I certify that the cover crop seeding was completed according to this seeding plan.

Landowner/Operator Signature (Optional):

Date:

### OPERATION AND MAINTENANCE:

Evaluate the cover crop to determine if the cover crop is meeting the planned purpose(s). If the cover crop is not meeting the purpose(s) adjust the management, change the species of cover crop, or choose a different technology.



United States Department of Agriculture

## Understanding IR components

### Practice Specifications Approval and Completion Certification:

Design, Installation, and Layout Approval:

Designed by:

H.T. Help

Date:

2/28/2021

Job Approval Authority

Approved by:

Date:

Job Approval Authority

Approved by signature only required if Planner does not have proper JAA or for ARC approval of non-listed species.

#### Landowner/Operator Acknowledges:

- I have received a copy of the specifications and understand the contents, including the scope and location of the practice.
- I have obtained all necessary permits and/or rights in advance of practice application, and will comply with all ordinances and laws pertaining to the application of this practice.
- No changes will be made in the installation of the job without prior concurrence of the NRCS.
- Maintenance of the installed work is necessary for proper performance during the life of the practice. The practice life is 1 year. Program requirements may require longer maintenance, check the program contract.

Spring seeded cover crops need to be seeded as soon as possible in the spring. Cover crop will be allowed to grow for a minimum of 5 weeks after emergence before termination (minimum of 6 weeks after seeding).

I have reviewed all specifications and agree to install as specified:

Landowner/Operator Signature:

Ima Farmer

Date:

3/2/2021

Spring seeding timeframe will populate a statement directly above the landowner/Operator signature emphasizing the requirements for the spring seeding timeframe.

Natural Resources Conservation Service

[nrcs.usda.gov/](https://nrcs.usda.gov/)



## 340 -- Cover Crop Implementation Requirements

Producer: <input style="width: 100%;" type="text"/>	Program: <input style="width: 100%;" type="text"/>	Contract #: <input style="width: 100%;" type="text"/>	CIN: <input style="width: 100%;" type="text"/>
County: <input style="width: 100%;" type="text"/>	Farm: <input style="width: 100%;" type="text"/>	Tract: <input style="width: 100%;" type="text"/>	Field No(s): <input style="width: 100%;" type="text"/>
Planting Zone: <input style="width: 100%;" type="text"/>	Section: <input style="width: 100%;" type="text"/>	Township: <input style="width: 100%;" type="text"/>	Tier: <input style="width: 100%;" type="text"/>
		Acres: <input style="width: 100%;" type="text"/>	Range: <input style="width: 100%;" type="text"/>

Crop Year/Planned Crop: <input style="width: 90%;" type="text"/>	<b>Plan Map must be attached.</b>
------------------------------------------------------------------	-----------------------------------

<b>Goals and Objectives:</b> <input style="width: 98%; height: 40px;" type="text"/>	Utility Safety/ One-Call System Information: <b>IowaOneCall.com or Call 811</b> Not Applicable for Cover Crops.
----------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------

<b>Description of work:</b>
-----------------------------

<b>Practice Purpose:</b>	
<input type="checkbox"/> Reduce erosion from wind and water. <input type="checkbox"/> Maintain or increase soil health and organic matter content. <input type="checkbox"/> Reduce water quality degradation by utilizing excessive soil nutrients.	<input type="checkbox"/> Suppress excessive weed pressures and break pest cycles. <input type="checkbox"/> Improve soil moisture use efficiency. <input type="checkbox"/> Minimize soil compaction.

Seeding Timeframe:	<input checked="" type="radio"/> <b>Fall Seeding</b>	<input type="radio"/> <b>Spring Seeding</b>	<input type="radio"/> <b>Interseed V4-V6 Corn</b>	<input type="radio"/> <b>Summer Seeding</b>
Seeding Method:	<input checked="" type="radio"/> <b>Drill/Planter/Broadcast with Incorporation</b>		<input type="radio"/> <b>Aerial/Broadcast Not Incorporated</b>	

Planned Termination Method: <input style="width: 90%;" type="text"/>	Termination Timing: <input style="width: 90%;" type="text"/>
----------------------------------------------------------------------	--------------------------------------------------------------

<b>Management Considerations:</b> Plant growth stage, cold climatization, and environmental conditions such as soil moisture and snow cover all impact tolerance to low temps.

<b>Planned Cover Crop Mixture:</b> <small>Use bulk rate for seed with a minimum of 80% PLS. Use rate based on PLS lbs. for all other seed. Automatically calculated below. All seed must be tested for germination and purity by a Certified Seed Lab. Test will be no older than 12 months.</small>											<b>Fall</b>			
Cover Crop Species	Full Seed Rate #/ac	Acres	Germ %	Purity %	% of Full Rate/Mix	Rate lb./ac	Total lbs.	Recommended Planting Depth (in)	Approx. Low Temp. Tolerance	Crop Type	Start	Start Prime	End Prime	End
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										

## 340 -- Cover Crop Implementation Requirements

			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
	Full Seed Rate #/ac	Acres	Germ %	Purity %	% of Full Rate/Mix	Rate lb./ac	Total lbs.	Planting Depth (in)	Approx. Low Temp. Tolerance	Crop Type	Start	Start Prime	End Prime	End
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
			85.0%	95.0%										
					0%	0 lbs. per Acre		0 Total Pounds						

Seeding Window									
	March	April	May	June	July	August	September	October	November

Date Table		
First date to seed for selected timeframe:	0-Jan	
Preferred seeding date range:	0-Jan	0-Jan
Last date to seed for selected planting timeframe:	0-Jan	
Notes:		

Practice Specifications Approval and Completion Certification:				
Design, Installation, and Layout Approval:				
Designed by:		Date:		Job Approval Authority (JAA):
Approved by:		Date:		Job Approval Authority (JAA):
Approved by signature only required if Planner does not have proper JAA or for ARC approval of non-listed species.				
Landowner/Operator Acknowledges:				

## 340 -- Cover Crop Implementation Requirements

- a. I have received a copy of the specifications and understand the contents, including the scope and location of the practice.
- b. I have obtained all necessary permits and/or rights in advance of practice application, and will comply with all ordinances and laws pertaining to the application of this practice.
- c. No changes will be made in the installation of the job without prior concurrence of the NRCS.
- d. Maintenance of the installed work is necessary for proper performance during the life of the practice. The practice life is 1 year. Program requirements may require longer maintenance, check the program contract.

I have reviewed all specifications and agree to install as specified:

<b>Landowner/Operator Signature:</b>		<b>Date:</b>	
------------------------------------------	--	--------------	--

I certify implementation of this conservation practice is complete, meets criteria for the stated purpose(s) and meets the NRCS conservation practice standard and specifications.

<b>Approved by:</b>		<b>Date:</b>		<b>Job Approval Authority (JAA):</b>	
---------------------	--	--------------	--	--------------------------------------	--

**Notes:**

I certify that the cover crop seeding was completed according to this seeding plan.

<b>Landowner/Operator Signature (Optional):</b>		<b>Date:</b>	
-----------------------------------------------------	--	--------------	--

### OPERATION AND MAINTENANCE:

Evaluate the cover crop to determine if the cover crop is meeting the planned purpose(s). If the cover crop is not meeting the purpose(s) adjust the management, change the species of cover crop, or choose a different technology.

## Cover Crop Seeding Dates by Crop District

Click the button for your Zone to show the seeding dates.

Northwest

North Central

Northeast

West Central

Central

East Central

Southwest

South Central

Southeast

Unhide All



U.S. Department of Agriculture Crop Reporting Districts

Species	Northwest																																				
	March			April			May			June			July			August			September			October			November												
Barley, Spring	3/23	-	4/7	-	-	-	5/4	-	-	5/29						8/6	-	8/18	-	9/6	-	9/18															
Barley, Winter																8/6	-	8/18	-	9/6	-	9/18															
Mungbeans							5/17	-	-	-	-	-	-	-	-	8/5	-	-	-	-	-	-	-														
Buckwheat							5/17	-	-	-	-	-	-	-	-	-	-	-	-	-	9/6																
Camelina, Winter																8/6	-	8/18	-	-	-	-	-	-	10/17	-	10/31										
Clover, Berseem			4/7	-	4/18	-	-	-	-	5/23						8/6	-	-	8/24	9/6																	
Clover, Crimson			4/7	-	4/18	-	-	-	-	5/23						8/6	-	-	8/24	9/6																	
Clover, Red	3/23	-	4/7	-	-	-	-	-	-	5/23						8/6	-	-	-	9/6	9/12																
Clover, White	3/23	-	4/7	-	-	-	-	-	-	5/23						8/6	-	-	-	9/6	9/12																
Cowpea							5/17	-	-	-	-	-	-	-	-	8/5	-	-	-	-	9/6																
Flax	3/23	-	4/7	-	-	-	-	-	-	6/5				7/17	-	8/6	-	-	-	9/6	-	9/18															
Kale	3/23	-	4/7	-	-	-	-	-	-				7/5	-	-	7/24	-	-	-	9/6	-	9/18															
Millet							5/17	-	-	-	-	-	-	-	-	8/5	-	-	-	-	-	-															
Mustard	3/23	-	4/7	-	-	-	-	-	5/18							8/6	-	-	-	9/6	-	9/18															
Oats	3/23	-	4/7	-	-	-	5/4	-	-	-	-	-	-	-	-	-	-	-	-	9/6	-	9/18															
Pea, Field/Winter			4/7	-	-	-	-	-	5/23							8/6	-	8/18	-	9/6	-	9/18															
Radish			4/7	-	-	-	-	-	-	-	-	-	-	-	-	8/6	-	-	-	9/6	-	9/18															
Rapeseed	3/23	-	4/7	-	-	-	-	5/17	-	-	-	-	-	-	-	8/6	-	-	-	9/6	-	9/18															
Rye, Winter/Cereal																8/6	-	8/18	-	-	-	-	-	10/17	-	10/31											
Ryegrass, Annual			4/7	-	-	-	-	5/17	-	-	-	6/17			7/17	-	-	8/17	-	-	9/18																
Sorghum, Forage							5/17	-	-	-	-	-	-	-	-	8/5	-	-	-	-	-	-															
Sorghum-Sudangrass							5/17	-	-	-	-	-	-	-	-	8/5	-	-	-	-	-	-															
Sudangrass							5/17	-	-	-	-	-	-	-	-	8/5	-	-	-	-	-	-															
Sunflower						5/4	-	-	-	-	-	-	-	-	-	8/5	-	-	8/24																		
Sunn Hemp							5/17	-	-	-	-	-	-	-	-	8/5	-	-	8/24																		
Teff							5/17	-	-	-	-	-	-	-	-	8/5	-	-	8/24																		
Triticale, Winter																8/6	-	8/18	-	-	-	-	-	10/17	-	10/31											
Turnip			4/7	-	-	-	-	-	-	-	-	-	-	-	-	8/6	-	-	-	9/6	-	9/18															
Vetch, Common			4/7	-	-	-	-	-	-	5/23					7/24	-	-	-	8/24	9/6																	
Vetch, Hairy			4/7	-	-	-	-	-	-	6/5						8/6	-	-	-	9/6	9/12																
Wheat, Spring	3/23	-	4/7	-	-	-	5/4	-	-	5/29						8/6	-	8/17	-	9/6	-	9/18															
Wheat, Winter																8/6	-	8/17	-	-	-	-	-	10/2	10/16												

Species	North Central																																				
	March			April			May			June			July			August			September			October			November												
Barley, Spring	3/19	-	4/3	-	-	4/30	-	-	-	5/27						8/7	-	8/20	-	9/8	-	9/22															
Barley, Winter																8/7	-	8/20	-	9/8	-	9/22															
Mungbeans							5/13	-	-	-	-	-	-	-	-	8/6																					
Buckwheat							5/13	-	-	-	-	-	-	-	-	-	-	-	-	9/8																	
Camelina, Winter																8/7	-	8/20	-	-	-	-	-	-	-	-	-	-	10/20	-	11/3						
Clover, Berseem			4/3	4/15	-	-	-	-	-	5/20						8/7	-	-	8/26	9/8																	
Clover, Crimson			4/3	4/15	-	-	-	-	-	5/20						8/7	-	-	8/26	9/8																	
Clover, Red	3/20	-	4/3	-	-	-	-	-	-	5/20						8/7	-	-	-	9/8	9/15																
Clover, White	3/20	-	4/3	-	-	-	-	-	-	5/20						8/7	-	-	-	9/8	9/15																
Cowpea							5/13	-	-	-	-	-	-	-	-	8/6																					
Flax	3/20	-	4/3	-	-	-	5/13	-	-	-	6/2				7/17	-	8/7	-	-	9/8	-	9/22															
Kale	3/20	-	4/3	-	-	-	5/15	-	-	-					7/4	-	-	-	7/24	-	-	9/8	-	9/22													
Millet							5/13	-	-	-	-	-	-	-	-	8/6																					
Mustard	3/20	-	4/3	-	-	-	5/15	-	-	-	-	-	-	-	-	8/7	-	-	-	9/8	-	9/22															
Oats	3/19	-	4/3	-	-	4/30	-	-	-	-	-	-	-	-	-	-	-	8/20	-	9/8	-	9/22															
Pea, Field/Winter			4/3	-	-	-	-	-	-	5/20						8/7	-	-	8/26	9/8																	
Radish			4/3	-	-	-	-	-	-	-	-	-	-	-	-	8/7	-	-	-	9/8	-	9/22															
Rapeseed	3/20	-	4/3	-	-	-	5/13	-	-	-	-	-	-	-	-	8/7	-	-	-	9/8	-	9/22															
Rye, Winter/Cereal																8/7	-	8/20	-	-	-	-	-	-	-	-	-	10/20	-	11/3							
Ryegrass, Annual			4/3	-	-	-	5/13	-	-	-	6/16				7/17	-	-	8/19	-	-	-	9/22															
Sorghum, Forage							5/13	-	-	-	-	-	-	-	-	8/6																					
Sorghum-Sudangrass							5/13	-	-	-	-	-	-	-	-	8/6																					
Sudangrass							5/13	-	-	-	-	-	-	-	-	8/6																					
Sunflower				4/30	-	-	-	-	-	-	-	-	-	-	-	8/6	-	-	8/26																		
Sunn Hemp							5/13	-	-	-	-	-	-	-	-	8/6	-	-	8/26																		
Teff							5/13	-	-	-	-	-	-	-	-	8/6	-	-	8/26																		
Triticale, Winter																8/7	-	8/20	-	-	-	-	-	-	-	-	-	10/20	-	11/3							
Turnip			4/3	-	-	-	-	-	-	-	-	-	-	-	-	8/7	-	-	-	9/8	-	9/22															
Vetch, Common			4/3	-	-	-	-	-	-	5/20					7/24	-	-	-	8/26	9/8																	
Vetch, Hairy			4/3	-	-	-	-	-	-	-	6/2					8/7	-	-	8/26	9/8	9/15																
Wheat, Spring	3/19	-	4/3	-	-	4/30	-	-	-	5/27						8/7	-	8/20	-	9/8	-	9/22															
Wheat, Winter																8/7	-	8/20	-	-	-	-	-	-	-	-	10/6	-	10/19								



[illegible][illegible]

Species	Central																																
	March		April			May				June			July			August			September			October			November								
Barley, Spring	3/18	-	4/1	-	-	4/27	-	-	5/25							8/8	-	8/22	-	9/11	-	9/25											
Barley, Winter																8/8	-	8/22	-	9/11	-	9/25											
Mungbeans								5/11	-	-	-	-	-	-	-	8/7																	
Buckwheat								5/11	-	-	-	-	-	-	-	-	-	-	-	9/11													
Camelina, Winter																8/8	-	8/22	-	-	-	-	-	-	-	-	10/23	-	11/5				
Clover, Berseem			4/1	4/14	-	-	-	-	5/18							8/8	-	-	8/28	9/11													
Clover, Crimson			4/1	4/14	-	-	-	-	5/18							8/8	-	-	8/28	9/11													
Clover, Red	3/18	-	4/1	-	-	-	-	-	5/18							8/8	-	-	-	9/11	9/18												
Clover, White	3/18	-	4/1	-	-	-	-	-	5/18							8/8	-	-	-	9/11	9/18												
Cowpea								5/11	-	-	-	-	-	-	-	8/7																	
Flax	3/18	-	4/1	-	-	-	-	5/11	-	6/1				7/18	-	8/8	-	-	-	9/11	-	9/25											
Kale	3/18	-	4/1	-	-	-	-	5/13					7/4	-	7/25	-	-	-	-	9/11	-	9/25											
Millet								5/11	-	-	-	-	-	-	-	8/7																	
Mustard	3/18	-	4/1	-	-	-	-	5/13								8/8	-	-	-	9/11	-	9/25											
Oats	3/18	-	4/1	-	-	4/27	-	-	-	-	-	-	-	-	-	-	-	8/22	-	9/11	-	9/25											
Pea, Field/Winter			4/1	-	-	-	-	-	5/18							8/8	-	-	8/28	9/11													
Radish			4/1	-	-	-	-	-	-	-	-	-	-	-	-	8/8	-	-	-	9/11	-	9/25											
Rapeseed	3/18	-	4/1	-	-	-	-	5/11	-	-	-	-	-	-	-	8/8	-	-	-	9/11	-	9/25											
Rye, Winter/Cereal																8/8	-	8/22	-	-	-	-	-	-	-	10/23	-	11/5					
Ryegrass, Annual			4/1	-	-	-	-	5/11	-	-	-	6/15		7/18	-	-	-	8/21	-	-	-	9/25											
Sorghum, Forage								5/11	-	-	-	-	-	-	-	8/7																	
Sorghum-Sudangrass								5/11	-	-	-	-	-	-	-	8/7																	
Sudangrass								5/11	-	-	-	-	-	-	-	8/7																	
Sunflower					4/27	-	-	-	-	-	-	-	-	-	-	8/7	-	-	8/28														
Sunn Hemp								5/11	-	-	-	-	-	-	-	8/7	-	-	8/28														
Teff								5/11	-	-	-	-	-	-	-	8/7	-	-	8/28														
Triticale, Winter																8/8	-	8/22	-	-	-	-	-	-	-	10/23	-	11/5					
Turnip			4/1	-	-	-	-	-	-	-	-	-	-	-	-	8/8	-	-	-	9/11	-	9/25											
Vetch, Common			4/1	-	-	-	-	-	5/18					7/25	-	8/8	-	-	8/28	9/11													
Vetch, Hairy			4/1	-	-	-	-	-	6/1							8/8	-	-	-	9/11	9/18												
Wheat, Spring	3/18	-	4/1	-	-	4/27	-	-	5/25							8/8	-	8/22	-	9/11	-	9/25											
Wheat, Winter																8/8	-	8/22	-	-	-	-	-	10/10	-	10/22							

Species	East Central																																
	March		April			May				June			July			August			September			October			November								
Barley, Spring	3/16	3/30	-	-	-	4/24	-	-	5/23							8/8	-	8/23	-	-	9/12	-	9/27										
Barley, Winter																8/8	-	8/23	-	-	9/12	-	9/27										
Mungbeans								5/8	-	-	-	-	-	-	-	8/7																	
Buckwheat								5/8	-	-	-	-	-	-	-	-	-	-	-	9/12													
Camelina, Winter																8/8	-	8/23	-	-	-	-	-	-	-	-	-	10/25	-	11/6			
Clover, Berseem		3/30	-	4/12	-	-	-	-	5/16							8/8	-	-	8/29	-	9/12												
Clover, Crimson		3/30	-	4/12	-	-	-	-	5/16							8/8	-	-	8/29	-	9/12												
Clover, Red	3/16	3/30	-	-	-	-	-	-	5/16							8/8	-	-	-	9/12	9/19												
Clover, White	3/16	3/30	-	-	-	-	-	-	5/16							8/8	-	-	-	9/12	9/19												
Cowpea								5/8	-	-	-	-	-	-	-	8/7																	
Flax	3/16	3/30	-	-	-	-	-	5/8	-	5/30				7/18	-	8/8	-	-	-	9/12	-	9/27											
Kale	3/16	3/30	-	-	-	-	-	5/11					7/3	-	7/25	-	-	-	-	9/12	-	9/27											
Millet								5/7	-	-	-	-	-	-	-	8/7																	
Mustard	3/16	3/30	-	-	-	-	-	5/11								8/8	-	-	-	9/12	-	9/27											
Oats	3/16	3/30	-	-	-	4/24	-	-	-	-	-	-	-	-	-	-	-	8/23	-	-	9/12	-	9/27										
Pea, Field/Winter		3/30	-	-	-	-	-	-	5/16							8/8	-	-	8/29	-	9/12												
Radish		3/30	-	-	-	-	-	-	-	-	-	-	-	-	-	8/8	-	-	-	9/12	-	9/27											
Rapeseed	3/16	3/30	-	-	-	-	-	5/8	-	-	-	-	-	-	-	8/8	-	-	-	9/12	-	9/27											
Rye, Winter/Cereal																8/8	-	8/23	-	-	-	-	-	-	-	10/25	-	11/6					
Ryegrass, Annual		3/30	-	-	-	-	-	5/8	-	-	-	6/14		7/18	-	-	-	8/22	-	-	-	-	9/27										
Sorghum, Forage								5/8	-	-	-	-	-	-	-	8/7																	
Sorghum-Sudangrass								5/8	-	-	-	-	-	-	-	8/7																	
Sudangrass								5/8	-	-	-	-	-	-	-	8/7																	
Sunflower					4/24	-	-	-	-	-	-	-	-	-	-	8/7	-	-	8/29														
Sunn Hemp								5/8	-	-	-	-	-	-	-	8/7	-	-	8/29														
Teff								5/8	-	-	-	-	-	-	-	8/7	-	-	8/29														
Triticale, Winter																8/8	-	8/23	-	-	-	-	-	-	-	10/25	-	11/6					
Turnip		3/30	-	-	-	-	-	-	-	-	-	-	-	-	-	8/8	-	-	-	9/12	-	9/27											
Vetch, Common		3/30	-	-	-	-	-	-	5/16					7/25	-	8/8	-	-	8/29	-	9/12												
Vetch, Hairy		3/30	-	-	-	-	-	-	5/30							8/8	-	-	-	9/12	9/19												
Wheat, Spring	3/16	3/30	-	-	-	4/24	-	-	5/23							8/8	-	8/23	-	-	9/12	-	9/27										
Wheat, Winter																8/8	-	8/23	-	-	-	-	-	-	10/12	-	10/24						

Species	Southwest																											
	March		April			May			June			July			August			September			October			November				
Barley, Spring	3/13	3/27	-	-	-	4/23	-	-	5/22						8/7	-	8/21	-	9/10	-	-	9/25						
Barley, Winter															8/7	-	8/21	-	9/10	-	-	9/25						
Mungbeans							5/7	-	-	-	-	-	-	-	8/5													
Buckwheat							5/7	-	-	-	-	-	-	-	-	-	-	9/10										
Camelina, Winter															8/7	-	8/21	-	-	-	-	-	-	-	10/26	11/8		
Clover, Berseem		3/27	-	4/10	-	-	-	-	5/15						8/7	-	-	8/27	9/10									
Clover, Crimson		3/27	-	4/10	-	-	-	-	5/15						8/7	-	-	8/27	9/10									
Clover, Red	3/14	3/27	-	-	-	-	-	-	5/15						8/7	-	-	-	9/10	-	-	9/17						
Clover, White	3/14	3/27	-	-	-	-	-	-	5/15						8/7	-	-	-	9/10	-	-	9/17						
Cowpea							5/7	-	-	-	-	-	-	-	8/5													
Flax	3/14	3/27	-	-	-	-	-	5/7	-	5/29			7/16	-	-	-	-	9/10	-	-	-	9/25						
Kale	3/14	3/27	-	-	-	-	-	5/9					7/2	-	-	-	-	9/10	-	-	-	9/25						
Millet							5/7	-	-	-	-	-	-	-	8/5													
Mustard	3/14	3/27	-	-	-	-	-	5/9							8/7	-	-	-	9/10	-	-	9/25						
Oats	3/13	3/27	-	-	-	-	4/23	-	-	-	-	-	-	-	-	8/21	-	-	9/10	-	-	9/25						
Pea, Field/Winter		3/27	-	-	-	-	-	-	5/15						8/7	-	-	8/27	9/10									
Radish		3/27	-	-	-	-	-	-	-	-	-	-	-	-	8/7	-	-	-	9/10	-	-	9/25						
Rapeseed	3/14	3/27	-	-	-	-	-	5/7	-	-	-	-	-	-	8/7	-	-	-	9/10	-	-	9/25						
Rye, Winter/Cereal															8/7	-	8/21	-	-	-	-	-	-	-	10/26	11/8		
Ryegrass, Annual		3/27	-	-	-	-	-	5/7	-	-	-	6/12			7/16	-	-	-	8/20	-	-	-	9/25					
Sorghum, Forage							5/7	-	-	-	-	-	-	-	8/5													
Sorghum-Sudangrass							5/7	-	-	-	-	-	-	-	8/5													
Sudangrass							5/7	-	-	-	-	-	-	-	8/5													
Sunflower					4/23	-	-	-	-	-	-	-	-	-	8/5	-	-	8/27										
Sunn Hemp							5/7	-	-	-	-	-	-	-	8/5	-	-	8/27										
Teff							5/7	-	-	-	-	-	-	-	8/5	-	-	8/27										
Triticale, Winter															8/7	-	8/21	-	-	-	-	-	-	-	10/26	11/8		
Turnip		3/27	-	-	-	-	-	-	-	-	-	-	-	-	8/7	-	-	-	9/10	-	-	9/25						
Vetch, Common		3/27	-	-	-	-	-	-	5/15					7/23	-	-	-	8/27	9/10									
Vetch, Hairy		3/27	-	-	-	-	-	-	-	5/29					8/7	-	-	-	9/10	-	-	9/17						
Wheat, Spring	3/13	3/27	-	-	-	-	4/23	-	-	5/22					8/7	-	8/21	-	9/10	-	-	9/25						
Wheat, Winter															8/7	-	8/21	-	-	-	-	-	-	10/10	-	10/25		

Species	South Central																											
	March		April			May			June			July			August			September			October			November				
Barley, Spring	3/15	3/29	-	-	-	4/23	-	-	5/22						8/8	-	8/22	-	-	9/12	-	9/26						
Barley, Winter															8/8	-	8/22	-	-	9/12	-	9/26						
Mungbeans								5/8	-	-	-	-	-	-	8/7													
Buckwheat								5/8	-	-	-	-	-	-	-	-	-	-	-	9/12								
Camelina, Winter																	8/8	-	8/22	-	-	-	-	-	-	10/27	11/10	
Clover, Berseem		3/29	-	4/11	-	-	-	-	5/15						8/8	-	-	8/28	-	9/12								
Clover, Crimson		3/29	-	4/11	-	-	-	-	5/15						8/8	-	-	8/28	-	9/12								
Clover, Red	3/15	3/29	-	-	-	-	-	-	5/15						8/8	-	-	-	-	9/12	9/19							
Clover, White	3/15	3/29	-	-	-	-	-	-	5/15						8/8	-	-	-	-	9/12	9/19							
Cowpea								5/8	-	-	-	-	-	-	8/7													
Flax	3/15	3/29	-	-	-	-	-	5/8	-	5/29			7/17	-	8/8	-	-	-	-	9/12	-	9/26						
Kale	3/15	3/29	-	-	-	-	-	5/10					7/3	-	-	-	-	-	-	9/12	-	9/26						
Millet								5/8	-	-	-	-	-	-	8/7													
Mustard	3/15	3/29	-	-	-	-	-	5/10							8/8	-	-	-	-	9/12	-	9/26						
Oats	3/15	3/29	-	-	-	-	4/23	-	-	-	-	-	-	-	-	-	8/22	-	-	9/12	-	9/26						
Pea, Field/Winter		3/29	-	-	-	-	-	-	5/15						8/8	-	-	8/28	-	9/12								
Radish		3/29	-	-	-	-	-	-	-	-	-	-	-	-	8/8	-	-	-	-	9/12	-	9/26						
Rapeseed	3/15	3/29	-	-	-	-	-	5/8	-	-	-	-	-	-	8/8	-	-	-	-	9/12	-	9/26						
Rye, Winter/Cereal															8/8	-	8/22	-	-	-	-	-	-	-	10/27	11/10		
Ryegrass, Annual		3/29	-	-	-	-	-	5/8	-	-	6/13			7/17	-	-	-	8/21	-	-	-	9/26						
Sorghum, Forage								5/8	-	-	-	-	-	-	8/7													
Sorghum-Sudangrass								5/8	-	-	-	-	-	-	8/7													
Sudangrass								5/8	-	-	-	-	-	-	8/7													
Sunflower					4/23	-	-	-	-	-	-	-	-	-	8/7	-	-	8/28										
Sunn Hemp								5/8	-	-	-	-	-	-	8/7	-	-	8/28										
Teff								5/8	-	-	-	-	-	-	8/7	-	-	8/28										
Triticale, Winter															8/8	-	8/22	-	-	-	-	-	-	-	10/27	11/10		
Turnip		3/29	-	-	-	-	-	-	-	-	-	-	-	-	8/8	-	-	-	-	9/12	-	9/26						
Vetch, Common		3/29	-	-	-	-	-	-	5/15					7/24	-	-	-	8/28	-	9/12								
Vetch, Hairy		3/29	-	-	-	-	-	-	-	5/29					8/8	-	-	-	-	9/12	9/19							
Wheat, Spring	3/15	3/29	-	-	-	-	3/29	-	-	5/22					8/8	-	8/22	-	-	9/12	-	9/26						
Wheat, Winter															8/8	-	8/22	-	-	-	-	-	-	10/12	-	10/26		

Species	Southeast																																
	March		April			May			June			July			August			September			October			November									
Barley, Spring	3/12	3/25	-	-	4/18	-	-	-	5/19						8/9	-	8/24	-	-	9/15	-	-	10/1										
Barley, Winter															8/9	-	8/24	-	-	9/15	-	-	10/1										
Mungbeans								5/4	-	-	-	-	-	-	8/8	-	-	-	-	9/15													
Buckwheat								5/4	-	-	-	-	-	-	-	-	-	-	9/15														
Camelina, Winter															8/9	-	8/24	-	-	-	-	-	-	-	10/31	-	11/15						
Clover, Berseem		3/25	-	4/8	-	-	-	-	5/11						8/9	-	-	8/31	-	9/15													
Clover, Crimson		3/25	-	4/8	-	-	-	-	5/11						8/9	-	-	8/31	-	9/15													
Clover, Red	3/12	3/25	-	-	-	-	-	-	5/11						8/9	-	-	-	-	9/15	9/23												
Clover, White	3/12	3/25	-	-	-	-	-	-	5/11						8/9	-	-	-	-	9/15	9/23												
Cowpea								5/4	-	-	-	-	-	-	8/8																		
Flax	3/12	3/25	-	-	-	-	-	5/4	-	5/27				7/17	-	8/9	-	-	-	9/15	-	-	10/1										
Kale	3/12	3/25	-	-	-	-	-	5/6					7/2	-	7/25	-	-	-	-	9/15	-	-	10/1										
Millet								5/4	-	-	-	-	-	-	8/8																		
Mustard	3/12	3/25	-	-	-	-	-	5/6							8/9	-	-	-	-	9/15	-	-	10/1										
Oats	3/12	3/25	-	-	4/18	-	-	-	-	-	-	-	-	-	-	-	-	8/24	-	9/15	-	-	10/1										
Pea, Field/Winter		3/25	-	-	-	-	-	5/11							8/9	-	-	8/31	-	9/15													
Radish		3/25	-	-	-	-	-	-	-	-	-	-	-	-	8/9	-	-	-	-	9/15	-	-	10/1										
Rapeseed	3/12	3/25	-	-	-	-	-	5/4	-	-	-	-	-	-	8/9	-	-	-	-	9/15	-	-	10/1										
Rye, Winter/Cereal															8/9	-	8/24	-	-	-	-	-	-	10/31	-	11/15							
Ryegrass, Annual		3/25	-	-	-	-	-	5/4	-	-	-	6/11		7/17	-	8/9	-	8/23	-	-	-	-	10/1										
Sorghum, Forage								5/4	-	-	-	-	-	-	8/8																		
Sorghum-Sudangrass								5/4	-	-	-	-	-	-	8/8																		
Sudangrass								5/4	-	-	-	-	-	-	8/8																		
Sunflower				4/18	-	-	-	-	-	-	-	-	-	-	8/8	-	-	8/31															
Sunn Hemp								5/4	-	-	-	-	-	-	8/8	-	-	8/31															
Teff								5/4	-	-	-	-	-	-	8/8	-	-	8/31															
Triticale, Winter															8/9	-	8/24	-	-	-	-	-	-	10/31	-	11/15							
Turnip		3/25	-	-	-	-	-	-	-	-	-	-	-	-	8/9	-	-	-	-	9/15	-	-	10/1										
Vetch, Common		3/25	-	-	-	-	-	5/11						7/25	-	-	-	8/31	-	9/15													
Vetch, Hairy		3/25	-	-	-	-	-	-	5/27						8/9	-	-	-	-	9/15	9/23												
Wheat, Spring	3/12	3/25	-	-	4/18	-	-	-	5/19						8/9	-	8/24	-	-	9/15	-	-	10/1										
Wheat, Winter															8/9	-	8/24	-	-	-	-	-	10/17	-	10/30								

## IOWA SEEDING RATES \*

Species Common Name	Planting Depth (inches)	Single Species Seeding Rates		Approx. Low Temperature Tolerance	Approx. seeds per pound
		Drilled/Broadcast Incorporated (lbs/ac)	Broadcast Not Incorporated (lbs/ac)		
Cool Season Grasses					
Annual Ryegrass	0.25-0.50	12	14	to 0 <sup>0</sup> F	190,000
Spring Barley	0.75-2.0	60	60	to 25 <sup>0</sup> F	18,000
Winter Barley	0.75-2.0	60	60	to 0 <sup>0</sup> F	18,000
Oats	1.0-2.0	60	60	to 25 <sup>0</sup> F	15,000
Winter Cereal Rye	0.25-2.0	45	45	to - 30 <sup>0</sup> F	12,000
Spring Wheat	0.5-1.5	60	66	20 to 25 <sup>0</sup> F	14,000
Winter Wheat	0.5-1.5	45	45	to -15 <sup>0</sup> F	14,000
Winter Triticale	1.5-2.0	45	45	to -20 <sup>0</sup> F	11,000
Warm Season Grasses					
Forage Sorghum	0.75-1.5	15	17	to 32 <sup>0</sup> F	14,000
Sorghum-Sudangrass	0.75-1.5	15	17	to 32 <sup>0</sup> F	20,000
Sudangrass	0.75-1.6	15	17	to 32 <sup>0</sup> F	20,000
Teff	0.25	4	5	to 32 <sup>0</sup> F	1,000,000
Milletts	0.5-1.0	10	12	to 32 <sup>0</sup> F	80,000
Cool Season Broadleaves					
Canola/Rapeseed	0.25-1.0	3	4	to 0 <sup>0</sup> F	175,000
Camelina, Winter	0.25-0.5	3	4	to -20 <sup>0</sup> F	400,000
Radish	0.25-0.5	5	6	to 15 <sup>0</sup> F	34,000
Turnip	0.25-0.5	3	4	to 10 <sup>0</sup> F	170,000
Collards or Kale	0.25-0.5	3	4	to 15 <sup>0</sup> F	175,000
Mustard	0.25-0.5	3	4	to 15 <sup>0</sup> F	170,000
Flax	0.5-1.5	15	18	24 to 26 <sup>o</sup> F	80,000
Warm Season Broadleaves					
Buckwheat	0.5	45	50	to 32 <sup>0</sup> F	19,500
Sunflower	0.75-1.5	3	5	22 to 25 <sup>0</sup> F	8,000
Cool Season Legumes					
Hairy Vetch	0.5-1.5	12	14	to -20 <sup>0</sup> F	12,000
Common Vetch	0.5-1.5	20	26	to 10 <sup>0</sup> F	8,000
Crimson Clover	0.25-0.5	10	11	to 10 <sup>0</sup> F	107,000
Berseem Clover	0.25-0.5	8	9	15 to 20 <sup>0</sup> F	206,880
Red Clover	0.25-0.5	8	10	to -30 <sup>0</sup> F	184,000
White Clover	0.25	5	7	to -40 <sup>0</sup> F	500,000
Winter Pea	1.0-3.0	45	45	to -10 <sup>0</sup> F	3,200
Warm Season Legumes					
Cowpea (summer pea)	0.75-1.0	30	38	to 32 <sup>0</sup> F	4,000
Mungbean	1.5-3.0	15	18	to 32 <sup>0</sup> F	7,000
Sunn Hemp	0.5-1.0	15	22	to 32 <sup>0</sup> F	15,000

\* Up to 20% of the seed mix can be other species not listed in the MCCC's-Cover Crop Decision Tool if approved by the ARC (Area Resource Conservationist). The ARC will determine the lbs. of the species needed to meet the % of seed mix up to the 20% limit.

The rates listed are for pure stand seedings. When developing a cover crop mix, take the percent desired by the pure stand rate to determine seeding rate by species.

All seed must be tested for purity and germination by a certified seed lab. The germination test must be no older than 12 months.

No species listed as part of Iowa's Noxious Weed list (Iowa Code Chapter 317) are allowed. The only exception would be seed raised and planted on the same farm.



Plant Information													
Species	Scientific Name	Annual Perennial Biennial	Nutrient Scavenger	Soil Builder	Erosion Protection	Promotes Nitrogen Fixation	Suppress Weeds	Break Compaction Layers	Quick Growth	Supplemental Grazing	Arbuscular Mycorrhizal Fungal Association	Growth Habit	Comments
E = EXCELLENT   VG = VERY GOOD   G = GOOD   F = FAIR   P = POOR													
Cool Season Grasses													
Annual Ryegrass/1	<i>Lolium multiflorum</i>	Annual	VG	VG	VG	N/A	VG	VG	VG	E	Forms Association	Upright	Recommended for advanced cover crop experience, do NOT use VNS (variety not stated seed).
Barley (Winter or Spring)	<i>Hordeum vulgare</i>	Annual	VG	VG	E	N/A	VG	G	VG	VG	Forms Association	Upright	
Oats	<i>Avena sativa</i>	Annual	VG	VG	VG	N/A	VG	G	E	E	Forms Association	Upright	
Cereal Rye	<i>Secale cereale</i>	Annual	E	E	E	N/A	E	VG	E	E	Forms Association	Upright	Winter Cereal Rye is very resilient and can be planted late into the growing season.
Wheat (Winter or Spring)	<i>Triticum aestivum</i>	Annual	VG	VG	E	N/A	E	G	VG	E	Forms Association	Upright	
Triticale	<i>Triticum x Secale</i>	Annual	E	E	E	N/A	E	VG	VG	E	Forms Association	Upright	
Warm Season Grasses													
Forage Sorghum	<i>Sorghum bicolor</i>	Annual	E	E	VG	N/A	E	VG	VG	E	Forms Association	Upright	
Sorghum-Sudangrass	<i>Sorghum sp.</i>	Annual	E	E	E	N/A	E	VG	VG	E	Forms Association	Upright	
Sudangrass		Annual	E	E	E	N/A	E		VG	E	Forms Association	Upright	
Teff	<i>Eragrostis tef</i>	A	G	G	G	N/A	G	G	G	VG	Forms Association	Upright	
Millet		Annual	E	E	VG	N/A	VG	G	E	E	Forms Association	Upright	
Cool Season Broadleaves													
Canola/Rapeseed	<i>Brassica napus</i>	Annual or Biennial	VG	G	VG	N/A	VG	G	VG	G	No Association	Upright	Great spring flowering for pollinators.
Camelina	<i>Camelina sativa</i>	Winter Annual	G	G	G	N/A	F	G	G	F	No Association	Upright	
Radish		Annual	E	VG	VG	N/A	E	VG	E	G	No Association	Upright	May have the ability to break soil borne pests or pathogens
Turnip	<i>Brassica rapa</i>	Biennial	VG	G	G	N/A	VG	G	G	E	No Association	Upright	
Collards or Kale	<i>Brassica sp.</i>	Annual	VG	G	G	N/A	VG	G	G	VG	No Association	Upright	
Mustard	<i>Brassica sp.</i>	Annual or Perennial	G	VG	VG	N/A	VG	G	VG	F	No Association	Upright	May have the ability to break soil borne pests or pathogens
Flax	<i>Linum usitatissimum</i>	Annual	VG	F	F	N/A	G	F	P	P	Forms Association	Upright	
Warm Season Broadleaves													
Buckwheat	<i>Fagopyrum esculentum</i>	Annual	P	G	F	N/A	E	F	E	P	No Association	Semi-upright	Flowering stage is excellent for pollinators.
Sunflower	<i>Helianthus annuus</i>	Annual	P	G	F	N/A	F	F	VG	P	Forms Association	Upright	Flowering stage is excellent for pollinators.
Cool Season Legumes													Inoculant Species to Use
Hairy Vetch/1	<i>Vicia villosa</i>	Annual or Biennial	F	VG	G	E	G	F	P	F	Forms Association	Climbing	Rhizobium leguminosarum

Plant Information													
Species	Scientific Name	Annual Perennial Biennial	Nutrient Scavenger	Soil Builder	Erosion Protection	Promotes Nitrogen Fixation	Suppress Weeds	Break Compaction Layers	Quick Growth	Supple- mental Grazing	Arbuscular Mycorrhizal Fungal Association	Growth Habit	Comments
E = EXCELLENT    VG = VERY GOOD    G = GOOD    F = FAIR    P = POOR													
Common Vetch	<i>Vicia sativa</i>	Annual	F	VG	G	E	G	F	P	F	Forms Association	Semi-upright	Rhizobium leguminosarum
Crimson Clover	<i>Trifolium incarnatum</i>	Annual	G	VG	VG	VG	VG	F	G	G	Forms Association	Semi-upright	Rhizobium trifolii
Berseem Clover	<i>Trifolium alexandrinum</i>	Annual	VG	VG	VG	E	E	F	G	E	Forms Association	Semi-upright	Rhizobium trifolii
Red Clover	<i>Trifolium pratense</i>	Perennial	G	VG	G	VG	VG	F	VG	E	Forms Association	Semi-upright	Rhizobium trifolii
White Clover	<i>Trifolium repens</i>	Perennial	F	G	VG	E	VG	F	P	VG	Forms Association	Prostrate	Rhizobium trifolii
Winter Pea	<i>Pisum sativum</i>	Annual	F	G	VG	E	VG	F	VG	G	Forms Association	Climbing	Rhizobium leguminosarum
Warm Season Legumes													Inoculant Species to Use
Cowpea (summer pea)	<i>Vigna unguiculata</i>	Annual	F	G	E	E	E	F	G	G	Forms Association	Semi-upright	Bradyrhizobium japonicum
Mungbean	<i>Vigna radiata</i>	Annual	F	F	F	G	G	F	G	G	Forms Association	Semi-upright	Bradyrhizobium spp.
Sunn Hemp/1	<i>Crotalaria juncea</i>	Annual	G	G	F	G	G	G	VG	F	Forms Association	Upright	Bradyrhizobium japonicum
/1 = These plants may become weedy or invasive in some regions or habitats and may displace desirable vegetation if not properly managed.													