

2022 WATERHEMP QUESTIONNAIRE

PURPOSE: Waterhemp is a prolific and competitive weed that has biotypes resistant to multiple herbicide groups. The purpose of this survey is to gather information on the distribution of waterhemp and associated farming practices to inform the development of effective management programs. Location information will be used for research purposes only; mapping of the distribution of waterhemp for publication purposes will only be done at the level of the municipality.

INSTRUCTIONS: Fill out the tables below to the best of your ability for a single field. If multiple fields have waterhemp present, please fill out additional questionnaires.

Date: _____

Farm name:			
Producer name:			
Phone number:			
E-mail:			
Field Address:		Field #:	
Municipality:			

1. Waterhemp Presence		
1.1. What was the percentage cover of waterhemp in the field?		
<1%	1-5%	6-25%
26-50%	51-75%	>75%
1.2. What was the predominant stage of waterhemp found?		
Seedling: 2 true leaves or less		
Vegetative < 10 cm: vegetative stage measuring less than 10 cm		
Vegetative > 10 cm: vegetative stage measuring more than 10 cm		
Vegetative > crop: vegetative stage taller than the crop (the type of crop must be stated)		
Flowering: stamens and pistils are visible		
Seeding: presence of mature seeds		
1.3. What was the general distribution of waterhemp in field?		
Isolated plants	Plants in rows	
Patches of plants	Randomly distributed plants	
1.4. Has waterhemp been present in this field in the past? If so, what year was it first detected in this field?		
NO		
YES <i>If yes, specify year of first detection:</i>		
1.5. What other species of pigweed (amaranth) are present? Please check all that apply		
Redroot pigweed	Green pigweed	Prostrate pigweed
Smooth pigweed	Tumble pigweed	
Other:		

1.6. Are you aware of the presence of waterhemp elsewhere within the municipality that you farm?		
NO YES		
1.7. Have you changed any on-farm practices in response to the detection of waterhemp within your municipality or field?		
NO YES <i>If yes, please list changes:</i>		
1.8. Do you plan to test the waterhemp population for herbicide resistance?		
NO YES		
1.9. How does the presence of waterhemp (herbicide resistant or not) affect your business? Choose all the options that apply to you.		
No effect	Loss of land value	
Increased production cost	Loss of yield	
Loss of crop quality	Having a bad reputation	
Loss of opportunity to have (receive) contractor services		
Loss of opportunities to offer contractor services		
Reduction of crop marketing opportunities (loss of market)		
Other (specify):		
1.10. What is the estimated average cost of waterhemp on your farm, caused either by loss of yield or crop quality or increased inputs (e.g., herbicides)?		
Less than \$10/ha	\$11-20/ha	\$21-30/ha
\$31-40/ha	\$41-50/ha	More than \$50/ha
There is no cost	I don't know	

2. Current Crop (2022 Growing Season)		
2.1. What crop and variety is currently being grown in the field? Please note any hybrid technologies.		
2.2. When was the crop sowed?		

3. Tillage Methods

3.1. Was the field tilled after harvest in the fall of 2021?

NO *If no, please skip to question 3.4*

YES *If yes, provide date(s):*

3.2. Please select the tillage methods used and specify the number of times that you used each implement.

Implement	# of Times	Implement	# of Times
Anhydrous knives		Heavy harrow	
Cultivator (heavy-duty spikes)		Harrow	
Cultivator (heavy-duty sweeps)		Harrowpacker	
Cultivator (field)		Rodweeder	
Tandem disc (3" deep or less)		Packer	
Tandem disc (more than 3" deep)		Other (specify):	
Moldboard plough			
Discer			

3.3. To what depth was the soil tilled?

--

3.4. Was the field tilled before seeding in the spring of 2022?

NO *If no, please skip to section 4*

YES *If yes, provide date(s):*

3.5. Please select the tillage methods used and specify the number of times that you used each implement.

Implement	# of Times	Implement	# of Times
Anhydrous knives		Heavy harrow	
Cultivator (heavy-duty spikes)		Harrow	
Cultivator (heavy-duty sweeps)		Harrowpacker	
Cultivator (field)		Rodweeder	
Tandem disc (3" deep or less)		Packer	
Tandem disc (more than 3" deep)		Other (specify):	
Moldboard plough			
Discer			

3.6. To what depth was the soil tilled?

--

4. Cover Crops

6.1. Please select any cover crops you planted following the harvest in the fall of 2021. *Check all that apply and provide details on planting.*

Cover Crops	Planting Details (e.g., underseeded, off season)
Alfalfa	
Barley	
Buckwheat	
Common vetch	
Hairy vetch	
Oats	
Oilseed radish	
Pea	
Pearl millet	
Radish	
Red clover	
Ryegrass	
Sunflower	
Sweet clover	
Other:	
Other:	

5. Weed Management

5.1 Please fill out the table with information regarding herbicide products applied for the current crop.

Herbicide Name	Date	Application Rate	Target Weed(s)
I. Herbicide(s) applied pre-harvest in 2021:			
II. Herbicide(s) applied post-harvest in 2021:			
III. Herbicide(s) applied pre-emergence in 2022:			
IV. Herbicide(s) applied post-emergence in 2022:			

5.2. Do you rotate herbicides?

NO

YES

If yes, please describe the rotation you use:

5.3. Do you do hand weeding?

NO

YES

If yes, please estimate the number of hours spent weeding per hectare:

6. Fertilizer Practices

6.1. Do you bring in manure or municipal compost from outside the farm? *Please check.*

NO *If no, please skip to section 7*

YES

6.2. In relation to any externally sourced manure/municipal compost, please specify its:

Type	Source	Rate of Application

7. Field History

7.1. What crops have been grown and herbicides used in the field in the past 5 years? *Please specify crop and variety and note any hybrid technologies.*

Year	Crop and Variety	Herbicides applied:
2021		Before seeding or crop emergence
		After crop emergence
		Pre-harvest
		After harvest
2020		Before seeding or crop emergence
		After crop emergence
		Pre-harvest
		After harvest
2019		Before seeding or crop emergence
		After crop emergence
		Pre-harvest
		After harvest
2018		Before seeding or crop emergence
		After crop emergence
		Pre-harvest
		After harvest
2017		Before seeding or crop emergence
		After crop emergence
		Pre-harvest
		After harvest

8. Service Contracting

8.1. Do you use any agricultural service contractors and/or do you provide any services to other farms? Please check.

NO *If no, please skip to question 9.1*
YES

8.2. If you checked “yes”, please list the services being contracted out and/or provided (e.g. tillage, seeding, weeding, spraying, etc.)

Agricultural service contractors used on farm	Services provided to other farms

8.3. Do contractors clean their machinery before entering the fields?

NO
YES

9. Biosecurity Measures

9.1. What biosecurity measures do you implement on your farm?

--