

Proposed Minnesota Agronomy CDE Rules

1. The contests will consist of the following parts for each individual. The top 3 scores will make up the team score. Total points will be 500 per person

Identification	50 samples (6 points each)	300 points
Management Tests	45 questions (3 points each)	135 points
Practicums	3 practicums (60 points each)	180 points

2. Each contestant will work individually and be scored individually. A team will consist of four members. The scores for the top three-team members will be the team's score.
3. Management Test Rotation: The following rotation of crops has been developed for use in the Management Test section of the CDE. Each crop will have 15 questions at 3 points per question.

Odd Convention Years- Soybeans, Wheat, Sugar beets.
Even Convention Years- Corn, Alfalfa, Oats

4. Practicums: will each be 10 questions at 6 points per question. Practicums will be rotated the following years:

Every year: Soils practicum.

Odd Convention Years: Insects, fertilizer.

Even Convention Years: Plant Disorders and Variety Trials.

Tiebreakers

1. ID
2. Total practicum score
3. Total test score

CROP ID LIST

Practicum Information

Soils, every year

Students will use information from the soils web survey. <https://websoilsurvey.nrcs.usda.gov/app/>

Members will analyze a given soil and answer questions related to the survey, such as

- Identify various soil structures: web soil survey, custom soil resource report, and soil maps.
- Analyze web soil survey data and answer questions related to
 - Relative drainage (e.g., poor, moderate, well).
 - Relative topographic position (e.g., summit, slope, depression).
 - Depth to water table.
 - Frost-free period.
 - Identify the USDA land capability classes and answer problem-solving questions related to various classes.
 - Use soil survey to locate specific sites, use of suggested soil spots and questions related to the soil survey map.
 - Interpret graphs and tables of data based on soil parameters

Fertilizer-Odd Convention Years

Fertilizer questions will be based off 1 crop fertilizer guide of off

<https://extension.umn.edu/nutrient-management/crop-specific-needs> . Students will interpret and answer questions related to the guide. 5/10 of the questions will come from tables/graphs. 10 questions at 6 points per question.

Insect/Pest Practicum-Odd Convention Years

Ten samples will be identified according to insect name (2 points), economic impact (2 points), and mouth part (2 points).

Refer to the Insect Identification Practicum Scorecard for additional details.

Insects Practicum Reference List-Odd Convention Years Resource

Mouthparts

C: Chewing

PS: Piercing Sucking

RS: Rasping Sucking

S: Siphoning

Economic Impact

B: Beneficial

F: Fruit/Flower destruction

V: Vegetative destruction

FV: Fruit/flower and vegetative destruction

IS: Indicator species

R: Removal of plant fluids)

Insect Identification																			
Sample #	Identification										Economic Impact		Mouth Parts						
	Example										Beneficial	Fruit/Flower destruction	Vegetative part destruction	Indicator species	Removal of plant fluids	Chewing	Piercing-sucking	Rasping-sucking	Siphoning
1	3	1	2	3	4	5	6	7	8	9									
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Name of Insect/Pest	Mouthpart	Destruction
11. Alfalfa Weevil, Adult or Larva	C	V
12 Aphid	PS	R
13. Corn earworm, adult	S	IS
14. Corn rootworm, larva	C	F & V
15 Corn rootworm, adult	C	F & V
16. Corn earworm, larva	C	V
17. Cutworm adult	S	IS
18. Cutworm Larva	C	V
19. European corn borer, adult	S	IS
20. European corn borer, larva	C	F & V
21. Grasshopper	C	V
22. Japanese Beetle	C	F & V
23. Lady beetle, Adult or Larva	C	B
24. Leafhopper	PS	R
25. Spider mite	RS	V
26. Stink bug	PS	R
27. Wireworm	C	V

Variety Trials-Even Convention Years

Variety trial questions will be based on 1 report (any crop) from the University of Minnesota Variety trials at <https://varietytrials.umn.edu/> . Members will answer questions related to information found in the report. 5/10 of the questions will come from tables/graphs.

Disorders Practicum Reference List-Even convention years

Ten samples will be identified according to category, causal agent, and damage location/parts displayed. Refer to the Agronomic Disorders Practicum Scorecard for the category (2 points), agent (2 points) and damage location/parts displayed (2 points) lists. An example of the table on the scantron is shown below.

We will only use the vegetative or reproductive parts for the parts displayed/damage location.

For bacteria, fungus, nutritional we will only use the disorders from this list

-bacteria blight

(Bolded below)

Bacterial blight(B)

Bacterial wilt on alfalfa(B)

Black stem rust (Fn)

Brown stem rot(Fn)

Corn smut(Fn)

Crown rust on oats(fn)

Ergot(Fn)

Eyespot (Fn)

Goss wilt (B)

Grey leaf spot(Fn)

Leaf rust(Fn)

Loose smut(Fn)

Nitrogen

deficiency(Nu)

Northern leaf blight (Fn)

Phosphorous

deficiency(Nu)

Phytophthora root rot(Fn)

Potassium

deficiency(Nu)

Southern leaf

blight(Fn)

Tar Spot on Corn(Fn)

White Mold(Fn)

Causal Category

Biological (B)

Cultural (C)

Environmental (E)

Agents

Bacteria (B)

Compaction (Co)

Drought (D)

Frost Damage (Fr)

Agents Cont.

Agronomic Disorders																										
Sample #.	Causal Category			Agents																			Parts of Plant Displayed			
				Biological	Cultural	Environmental	Bacteria	Chemical	Compaction	Drought	Frost damage	Fungus	Hail	Heat	Insect	Lightning	Mechanical	Moisture	Nematodes	Nutritional	Pollution	Sun scald				
	Reproductive	Vegetative	Vascular Bundles	More than one																						
1	(B)	(C)	(E)	(B)	Ch	Co	(D)	(Fr)	(Fn)	Ha	Ht	(I)	(L)	Me	Mo	(Ne)	Nu	(P)	(S)	(V)	(W)	(R)	Ve	Va	(M)	
2	(B)	(C)	(E)	(B)	Ch	Co	(D)	(Fr)	(Fn)	Ha	Ht	(I)	(L)	Me	Mo	(Ne)	Nu	(P)	(S)	(V)	(W)	(R)	Ve	Va	(M)	
3	(B)	(C)	(E)	(B)	Ch	Co	(D)	(Fr)	(Fn)	Ha	Ht	(I)	(L)	Me	Mo	(Ne)	Nu	(P)	(S)	(V)	(W)	(R)	Ve	Va	(M)	
4	(B)	(C)	(E)	(B)	Ch	Co	(D)	(Fr)	(Fn)	Ha	Ht	(I)	(L)	Me	Mo	(Ne)	Nu	(P)	(S)	(V)	(W)	(R)	Ve	Va	(M)	
5	(B)	(C)	(E)	(B)	Ch	Co	(D)	(Fr)	(Fn)	Ha	Ht	(I)	(L)	Me	Mo	(Ne)	Nu	(P)	(S)	(V)	(W)	(R)	Ve	Va	(M)	
6	(B)	(C)	(E)	(B)	Ch	Co	(D)	(Fr)	(Fn)	Ha	Ht	(I)	(L)	Me	Mo	(Ne)	Nu	(P)	(S)	(V)	(W)	(R)	Ve	Va	(M)	
7	(B)	(C)	(E)	(B)	Ch	Co	(D)	(Fr)	(Fn)	Ha	Ht	(I)	(L)	Me	Mo	(Ne)	Nu	(P)	(S)	(V)	(W)	(R)	Ve	Va	(M)	
8	(B)	(C)	(E)	(B)	Ch	Co	(D)	(Fr)	(Fn)	Ha	Ht	(I)	(L)	Me	Mo	(Ne)	Nu	(P)	(S)	(V)	(W)	(R)	Ve	Va	(M)	
9	(B)	(C)	(E)	(B)	Ch	Co	(D)	(Fr)	(Fn)	Ha	Ht	(I)	(L)	Me	Mo	(Ne)	Nu	(P)	(S)	(V)	(W)	(R)	Ve	Va	(M)	
10	(B)	(C)	(E)	(B)	Ch	Co	(D)	(Fr)	(Fn)	Ha	Ht	(I)	(L)	Me	Mo	(Ne)	Nu	(P)	(S)	(V)	(W)	(R)	Ve	Va	(M)	

Fungus (Fn)

Hail (Ha)

Insect (I)

Lightning (L)

Mechanical (Me)

Moisture (Mo)

Nematodes (Ne)

Nutritional (Nu)

Virus (V)

Wind damage(W)

Parts of the Plant Damaged

Reproductive parts (R)

Vegetative parts (Ve)

Suggested References

Bryson, C. T., & DeFelice, M. S. (2010). *Weeds of the Midwestern United States and Central Canada*. University of Georgia Press.

Davis, L. W. (1993). *Weed Seeds of the Great Plains: A handbook for identification*. University Press of Kansas.

Delorit, R. J. (1970). *An illustrated taxonomy manual of Weed Seeds*. Agronomy Publications.

Dickinson, R., & Royer, F. (2014). *Weeds of North America*. The University of Chicago Press.

Martin, A. C., & Barkley, W. D. (2000). *Seed identification manual*. The Blackburn Press.

Sheaffer, C. C., & Moncada, K. M. (2009). *Introduction to agronomy: Food, crops, and environment*. Delmar Cengage Learning.

Weeds of the North Central States. (1960). . University of Illinois, College of Agriculture, Extension Service in Agriculture and Home Economics.

NDSU, University of Minnesota, SDSU, Iowa State and other Midwest University/Extension handbooks and guides on a variety of agronomic crops. Example, NDSU's Sugar beet growing guide

Old soil web survey examples can be found on the agronomy CDE page of the National FFA