

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 615 per person

A. Identification	50 samples at 6 points	300 points
B. Management Tests	45 questions at 3 points	135 points
C. Practicums	3 practicums at 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. Questions will be related to any of the following for the following crops: morphology, production practices, harvesting and storage, quality, marketing, insects, diseases and agronomic terms.

Odd Convention Years- Soybeans, Wheat, Sugar beets.

Even Convention Years- Corn, Alfalfa, Oats

5. 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, variety trials.

6. Scantron to be used as of 25 convention.

<https://www.judgingcard.com/ScanSheets/samples/708-5-Agronomy.pdf>

7. Tiebreakers are as follows:

1-ID

2-Total practicum score

3-Total test score

8. References are found on page 5 for the agronomic test.

Practicum Descriptions

Soils, Every year

Students will use information off 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, soil maps.
- Analyze web soil survey data and answer questions related to
 - o Relative drainage (e.g., poor, moderate, well).
 - o Relative topographic position (e.g., summit, slope, depression).
 - o Depth to water table.
 - o Frost free period.
 - o Identify the USDA land capability classes and answer problem-solving questions related to various classes.
 - o Use soil survey to locate specific sites, use of suggested soil spots and questions related to the soil survey map.
 - o 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.

Insect Practicum-Odd Convention Years

Ten samples will be identified according to insect name (4 points), economic impact (3 points) and mouth part (3 points).

Refer to the Insect Identification Practicum Scorecard for additional details.

Insects Practicum Reference List-Odd Convention Years Resource

Vascular Bundles (Va)
 More than one (M)
 Insects Practicum

C=Chewing
 PS=Piercing Sucking
 RS=Rasping Sucking
 S=Siphoning

F =(Fruit/Flower destruction)
 IS= Indicator species
 R= Removal of plant fluids)
 V= Vegetative destruction

Sample #	Insect Identification										Economic Impact				Mouth Parts										
	Identification										Beneficial	Fruit/Flower destruction	Vegetative part destruction	Indicator species	Removal of plant fluids	Chewing	Chewing-hopping	Piercing-sucking	Rasping-sucking	Siphoning					
	Tens Digit				Ones Digit																				
3	1	2	3	4	0	1	2	3	4	5	6	7	8	9	B	F	V	EV	IS	R	C	CH	PS	RS	S
7	0	1	2	3	4	5	6	7	8	9	B	F	V	EV	IS	R	C	CH	PS	RS	S				
1	1	2	3	4	0	1	2	3	4	5	6	7	8	9	B	F	V	EV	IS	R	C	CH	PS	RS	S
2	1	2	3	4	0	1	2	3	4	5	6	7	8	9	B	F	V	EV	IS	R	C	CH	PS	RS	S
3	1	2	3	4	0	1	2	3	4	5	6	7	8	9	B	F	V	EV	IS	R	C	CH	PS	RS	S
4	1	2	3	4	0	1	2	3	4	5	6	7	8	9	B	F	V	EV	IS	R	C	CH	PS	RS	S
5	1	2	3	4	0	1	2	3	4	5	6	7	8	9	B	F	V	EV	IS	R	C	CH	PS	RS	S
6	1	2	3	4	0	1	2	3	4	5	6	7	8	9	B	F	V	EV	IS	R	C	CH	PS	RS	S
7	1	2	3	4	0	1	2	3	4	5	6	7	8	9	B	F	V	EV	IS	R	C	CH	PS	RS	S
8	1	2	3	4	0	1	2	3	4	5	6	7	8	9	B	F	V	EV	IS	R	C	CH	PS	RS	S
9	1	2	3	4	0	1	2	3	4	5	6	7	8	9	B	F	V	EV	IS	R	C	CH	PS	RS	S
10	1	2	3	4	0	1	2	3	4	5	6	7	8	9	B	F	V	EV	IS	R	C	CH	PS	RS	S

11. Alfalfa Weevil, Adult or Larva	C	V
12 Aphid	PS	R
13. Corn earworm, adult	S	IS
14. Corn earworm, 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	PS	R
26. Stink bug	PS	R
27. Wireworm	C	V

Variety Trials-Even Convention Years

Variety trial questions will be based off 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. Refer to the Agronomic Disorders Practicum Scorecard for the category (3 points), agent (4 points) and damage location (3 points) lists. An example of the table on the scantron is shown 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)

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

Causal Category

- Biological (B)
- Cultural (C)
- Environmental (E)

Agents

- Bacteria (B)
- Compaction (Co)
- Drought (D)
- Frost Damage (Fr)
- 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)

Crops ID Sheet Name _____ School _____

(P)=Plant only (S)=Seed only

Crop Plants & Seeds

- _____ 101 Barley, Six-Rowed
- _____ 102 Buckwheat
- _____ 103 Canola
- _____ 104 Corn (P)
- _____ 105 Corn, dent (S)
- _____ 106 Corn, pop (S)
- _____ 107 Corn, sweet (S)
- _____ 108 Fieldbean
- _____ 109 Fieldpea
- _____ 110 Flax
- _____ 111 Grain Sorghum
- _____ 112 Oat
- _____ 113 Rye
- _____ 114 Soybean
- _____ 115 Sugar beet
- _____ 116 Sunflower
- _____ 117 Wheat (P)
- _____ 118 Wheat, durum (S)
- _____ 119 Wheat, red(S)
- _____ 120 Wheat, white (S)
- _____ 121 Wild rice (S)

Forage, Seeds and Plants

- _____ 201 Alfalfa
- _____ 202 Alsike clover
- _____ 203 Crownvetch
- _____ 204 Kentucky Bluegrass
- _____ 205 Orchard grass
- _____ 206 Red clover
- _____ 207 Sudan grass
- _____ 208 Sweet clover
- _____ 209 Tall fescue
- _____ 210 Timothy
- _____ 211 White Clover

Weeds

- _____ 301 Amaranth, Palmer (P)
- _____ 302 Barnyardgrass
- _____ 303 Bindweed, Field
- _____ 304 Brome, Downy (P)
- _____ 305 Buckwheat, wild
- _____ 306 Burdock, common
- _____ 307 Carrot, wild
- _____ 308 Chickweed, common
- _____ 309 Cocklebur, common
- _____ 310 Crabgrass, Large
- _____ 311 Dandelion
- _____ 312 Dock, Curly
- _____ 313 Dodder
- _____ 314 Foxtail, Giant
- _____ 315 Foxtail, Green
- _____ 316 Foxtail, Yellow
- _____ 317 Horseweed (Marestail)
- _____ 318 Johnsongrass
- _____ 319 Knotweed, Prostrate
- _____ 320 Kochia
- _____ 321 Lambsquarter, common
- _____ 322 Lettuce, Prickly
- _____ 323 Mallow, common
- _____ 324 Milkweed, common
- _____ 325 Mustard, Wild
- _____ 326 Nightshade, Eastern Black
- _____ 327 Nutsedge, Yellow
- _____ 328 Oats, wild
- _____ 329 Onion/Garlic, wild
- _____ 330 Pennycress, Field
- _____ 331 Pigweed, Redroot
- _____ 332 Plantain, Broadleaf
- _____ 333 Purslane, common
- _____ 334 Quackgrass
- _____ 335 Ragweed, Common
- _____ 336 Ragweed, Giant
- _____ 337 Russian knapweed
- _____ 338 Sowthistle
- _____ 339 Spurge, Leafy
- _____ 340 Spurge, Prostrate
- _____ 341 Sunflower, Common
- _____ 342 Thistle, Bull
- _____ 343 Thistle, Canada
- _____ 44 Thistle, Russian
- _____ 345 Shepherd's purse
- _____ 346 Smartweed
- _____ 347 Velvetleaf
- _____ 348 Waterhemp (P)

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.