



AGRONOMY

Career Development Event

OBJECTIVES

Through participation in the national event, participants will be able to:

- Demonstrate knowledge and skills used in agronomic sciences.
- Explore career opportunities, skills and proficiencies in the agronomy industry
- Determine the ability to identify agronomic:
 - Crops
 - Weeds
 - Seeds
 - Insects
 - Diseases
 - Plant nutrient deficiencies
 - Plant disorders
- Evaluate a scenario and develop a crop management plan including crop selection, production and marketing.
- Demonstrate understanding of sustainable agriculture and best management practices.

EDUCATIONAL STANDARDS

For educational standards, please refer to the Agronomy Handbook located at <https://www.ffa.org/participate/cdes/agronomy/>

Equipment

Students are to **bring their own** pencils and clipboards

CONTEST PERSONNEL

Judges

Judges will be selected by the contest superintendent.

Superintendent

The superintendent will monitor the contest room and assist the judges as they compile their final placing.

The superintendent will adequately prepare the judges before the event competition.

PROCEDURE

Contest Procedures

Each member will compete in all of the following events:

- Identifications:
 - Field crop and seed identification: Each contestant will identify 10 field crops plants and 10 sample crop seeds. Field crop plant and seed will be selected from the following list (See attached Crops Identification List)
 - Weed plant identification: Each contestant will Identify 10 weed plants. Weed plants (either live or mounted) will be selected from the following list (See attached Crops Identification List)
 - Weed seed identification: Each contestant will Identify 10 weed species. Weed seeds will be selected from the following list (See attached Crops Identification List)
 - Insect identification: Each contestant will Identify 10 insects. Insects will be selected from the following list. For a document containing the Insect pictures, go to: <https://michiganffa.org/wp-content/uploads/2020/03/Agronomy-Insect-Pictures.doc>
- Crop Science Test:
 - Each contestant will complete a 25-question test. Multiple choice, true & false or matching questions will be used.

Ex:

1.)	Winter wheat is planted in:	
	a. May	b. July
	c. September	d. November
	e. February	
2.)	The preferred pH for crop production where most nutrients are available to the crop plants is:	
	a. 5.5	b. 7.5
	c. 6.5	d. 8.5
3.)	The signal word indicating the most toxic pesticide is:	
	a. danger	b. warning
	c. caution	d. stop

- Agronomic Scenario Questions:
 - Each Contestant will read two scenarios and answer 5 questions on each, for a total of 10 multiple choice or true/false questions. Questions will be from the Michigan Agriscience and Natural Resource core unit 200, as well as Extension bulletins and manuals such as the Tri-state Fertilizer recommendations, the Pesticide Applicator manual, Including pesticide labels.
- Crop Production Equipment Identification:
 - Most of the products we eat and use around the house contain grain or some type of plant fiber grown as a crop. Each contestant will be asked to identify 10 pieces of crop production equipment that are found and used around the farm. The crop production equipment will be selected from the following list:

Air Seeder (Tool and cart together)	Hay merger
Anhydrous applicator with tank	Hay mower conditioner
Articulated tractor	Hay rake
Grain head for combine	Hearing protection
Back pack sprayer	Hydraulic cylinder/hose
Bale wagon (kick or flat)	Irrigation - Traveling gun
Baler	Irrigation Pivot
Bean harvester head	Liquid manure tank/applicator
Bed mulcher	Manure spreader
Bed shaper	Moldboard plow
Broadcast spreader	Potato harvester
Chemigation unit for irrigation	PPE (all equipment)
Combine (with or without harvesting head)	Press wheel
Conveyor/Elevator/Auger	Pressure regulator
Corn head for combine	PTO shaft
Cultipacker	Round baler
Cultivator	Row planter
Disk	Skid steer
Disk chisel	Sprayer
Draper head for combine or swather	Square baler
Field Cultivator	Sugar beet harvester
Forage harvester	Sweep net
GPS receiver	Vegetable transplanter
Grain bin/leg	Virtual terminal/monitor/controller
Grain drill	V-Ripper

- Crop Disorders:
 - Each contestant will Identify 10 crop disorders. There will either be live plant specimens OR pictures of the various disorders. The crop disorders will be taken from the following list:

Blight	Nitrogen deficiency
Cankers	Phosphorus deficiency
Drought	Potassium deficiency

Fusarium head blight (head scab)	Root rots
Galls	Rusts (wheat, corn, soybean)
Grey leaf spot (Corn)	Smut
Herbicide damage - 2,4-D	Soybean cyst nematode
Herbicide damage - Dicamba	Stalk rots (Gibberella and charcoal)
Herbicide damage - Glyphosate	Sudden death syndrome (soybean)
Iron deficiency	White mold
Manganese deficiency	Wilts (Verticillium wilt)
Mosaics (TMV)	Zinc deficiency

All participants must be members in good standing with the Michigan FFA Association and on the official roster.

The highest scores in each practicum will be counted. The same person's scores will be used for the editing and AP tests.

SCORES

	Activity	Possible Score	Time Allowed (Minutes)
1.	Field crop seed identification	50	10
2.	Field crop plant identification	50	10
3.	Weed plant identification	50	10
4.	Weed seed identification	50	10
5.	Crop production equipment	50	10
6.	Insect identification	50	10
7.	Crop disorders	50	10

8.	Crop science test	50	10
9.	Agronomic scenario test	50	20
TOTALS		450	100

Field Crop and Seed Identification

Potential Score -- 100 points

Crop Plant -- 50 points

Seed -- 50 points

Members will identify 10 field crop plants and 10 samples of crop seeds through a quiz.

Completed by all members.

Weed Plant Identification

Potential Score -- 50 points

Each contestant will identify seeds of ten weed species

Completed by all members.

Insect Identification

Potential Score -- 50 points

Each contestant will identify 10 insects.

Completed by all members.

Crop Science Test

Possible Score -- 50 points

Each contestant will complete a 25-question test. Each question will be worth 2 points for a total of 50 possible points.

Completed by all members.

Agronomic Scenario Questions

Possible Points -- 50 points

Each contestant will read two scenarios and answer 5 questions each, for a total of 10 questions.

Completed by all members.

Crop Production Equipment Identification

Possible Points -- 50 points

Each contestant will identify 10 pieces of equipment. Each piece of equipment will be worth 5 points for a total of 50 possible

Completed by all members.

Determining Awards

Team scores will be an aggregate of all members' quizzes and individual practicum scores.

Gold and Silver awards will be determined by the Michigan FFA Association Executive Secretary.

Tie Breaker

1. Agronomic scenario test
2. Written Exam

References

MSU Bulletins NCR-89, 90, 91, 92 Weed Identification
MSU Bulletin E-0791 Problem Perennial Weeds of Michigan
Insect Fact Sheets--MECP/CES Bulletin single page, biology and management in front, 1991 chemical control recommendations on back.

MSU Bulletin E- 2266	Managing Flea Beetles & Springtails in Sugar beets
MSU Bulletin E- 2274	Black Cutworm Management in Sugar Beets
MSU Bulletin E- 1582	Chemical Control of Insects and Nematodes in Field & Forage Crops, 1991 (\$2.50)

Picture Sheets are available from Roxanne Fandel, Extension Secretary, Department of Entomology, MSU (517) 353-3890.

Corn Insects above ground	Picture Sheet #4
Corn Insects below ground	Picture Sheet #5
Common Small Grain Insects	Picture Sheet #7
Common Vegetable Insects	Picture Sheet #9
Common Soybean Insects	Picture Sheet #6
Common Soybean Insects	Picture Sheet #8
Principle Stored Grain Insect	Picture Sheet #1

North Central Regional Publication 281 -- Weeds of the North Central States, MSU Bulletin Office
National Agricultural Supply Co., (NASCO), Ft. Atkinson, Wisconsin. Samples and audio-visual material may be purchased as listed in their catalog.
Hunger Signs in Crops, David McKay, Inc. 750 Third Ave., New York, N.Y. (Good but costly).
USDA Yearbook 1962--Seeds
Numerous commercial concerns may have information on nutrient deficiencies and other activities involved in the contest.

Michigan Agriscience and Natural Resources basis core. (200 Plant Science)

Available for loan from the AEE Resource Center, 10A Ag Hall, MSU.

A0438 Weed Identification (slide/script) -- A series of 122 slides on weeds, including descriptions, characteristics, and growth of grasses, broadleaves, and perennials

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NOTE: Additional training materials will be supplied for identification of seed defects and grain defects to all teams that sign up for the contest.