2007-2008

AGRONOMY

Effective August 1, 2007

Purpose

The agronomy career development event is designed to assess the student's knowledge of agronomic practices for the production of field and forage crops. A practical examination requires the student to identify specimens of crop and weed plants and seeds, diseases, and insects or their damage. An individual written test cover the use of soil test analysis and County Soil Surveys, current agronomic practices, and fertilizer, pesticide or sprayer calibration problems and their solution. A team evaluation will consist of an applied field management problem.

Date

State: Set annually by the Agricultural Education Service

Location

State: Spring State Contest Site

Contest Rules

1. Each school may enter an unlimited number of dues-paid FFA members as participants, the highest placing 4 individuals will be considered the "team" and the top three individual scores added to the top team event score from their school will be the team score of record.
2. Each school may enter one team in the event.
3. Each contestant/team will be allotted sixty (60) minutes for each of the two (2) areas of the event.

The two areas will be broken down as follows:

1) Individual practicums
   Plant Identification
   Seed Identification
   Insect Identification
   Disease / disorder Identification
   Written test
2) Team event

4. Identification using live or mounted specimens on pins, specimens in vials, dried and mounted specimens, photographs or slides of the specimens, or any other similar presentation methods may be used.
5. Microscopes or magnifying viewing glasses are allowed where necessary for identification.
6. Non-programmable calculators are permitted for use during the written test and team event sections.

Event Format

The event will consist of two areas.

1) Individual practicums

A. The identification of thirty (30) specimens to include 20 crop and weed plants and 10 insects or insect damages.

B. The identification of thirty (30) specimens to include 20 crop and weed seeds and 10 diseases/disorders and deficiencies.

C. A twenty-five question multiple choice test involving the following subjects:

- Soil morphology
- Nutrients and their role in plant development
- Plant anatomy
- Insect anatomy
- Pesticide safety
- Sprayer calibration
- Crop species development (corn, soybean, wheat)
- Calculations or questions from provided charts, seed tags, graphs, tables, soil test analysis or pesticide labels.

2) Team Event

3) Contestants will rotate through the two areas of the event.

4) Specimens for the event will come from the following lists:

PLANTS

alfalfa
barley
barnyardgrass
bluegrass, Kentucky
bindweed (hedge or field)
canola
carrot, wild
chickweed, common
clover, red
clover, white
cocklebur, common
corn
crabgrass (large or smooth)
crownvetch
cucumber
dandelion
deadnettle, purple
dock, curly

dogbane, hemp
fescue, tall
foxtail (any)
garlic, wild
horsenettle
jimsonweed
johnsongrass
lambsquarters, common
horseweed / marestail
milkweed, common
morningglory (any *Ipomoea* sp.)
nightshade, black (eastern)
nutsedge, yellow
oats
orchardgrass
pennycress, field
pigweed (any *Amaranthus* sp.)
plantain, buckhorn
potato
quackgrass
ragweed, common
ragweed, giant
rye
ryegrass (annual or perennial)
shattercane
shepherd's-purse
smartweed (any)
soybean
squash
strawberry
sweetclover
thistle, Canada,
timothy
tomato
velvetleaf
wheat

SEEDS

alfalfa
barley
barnyardgrass
bluegrass, Kentucky
buckhorn plantain
Canada thistle
canola
cocklebur, common
corn, dent
corn, pop
corn, sweet
crownvetch
cucumber
curly dock
dandelion
foxtail (any)
johnsongrass
jimsonweed
lambsquarters, common
morningglory (any)
oats
orchardgrass
pigweed (any *Amaranthus* sp.)
quackgrass
ragweed, common
ragweed, giant
red clover
red wheat
rye
ryegrass (annual or perennial)
shepherd's-purse
smartweed (any)
soybean
squash
sweetclover
tall fescue
timothy
tomato
velvetleaf
white clover
white wheat
wild carrot
wild garlic
yellow nutsedge

INSECTS

Aphids
Armyworm (larvae or adult)
Beetle, bean leaf (adult)
Beetle, blister (adult)
Beetle, Colorado potato (larvae or adult)
Beetle, flea
Beetle, Japanese (adult)
Beetle, lady (adult or larvae)
Beetle, Mexican bean (larvae or adult)
Beetle, Spotted cucumber (southern corn rootworm) (adult)
Beetle, Striped cucumber (adult)
Cutworm (larvae or adult)
Damsel bug (adult)
European corn borer (larvae, adult or damage)
Grasshopper
Green lacewing (adult)
Leafhopper (adult or damage)
Rootworm, Northern corn (adult or damage)
Rootworm, Western corn (adult, larvae)
Stinkbug
Tarnished plant bug (adult)
Two-spotted spider mite (adult or damage)
Weevil, alfalfa (larvae, adult or damage)

DISEASES and DEFICIENCIES

Spring Black Stem of Alfalfa
Corn Smut

DISEASES and DEFICIENCIES Cont.

Corn Herbicide Damage Symptoms
Gray Leaf Spot of Corn
Nitrogen Deficiency on Corn (leaf only)
Northern Corn Leaf Blight
Phosphorus Deficiency on Corn (leaf only)
Potassium Deficiency on Corn (leaf only)
Powdery Mildew of Cucurbits
Powdery Mildew of Red Clover
Downy Mildew of Soybean
Manganese Deficiency of Soybean (leaf only)
Potassium Deficiency of Soybean (leaf only)
Phytopthora Root Rot of Soybean
Sclerotinia Stem Rot of Soybean
Soybean Herbicide Damage Symptoms
Sudden Death Syndrome of Soybean
Ergot
Fusarium Head Scab of Wheat or Barley
Leaf Rust of Small Grains
Loose Smut of Small Grains
Powdery Mildew of Small Grains
Septoria Leaf Blight of Wheat
Tomato Spotted Wilt

Team Event

Team Management Plan (75 points total, 60 minutes)

125 points maximum for management plan
Students will be provided a scenario of an agronomic situation in which they are to develop a management plan. Teams will be required to develop a written plan that addresses the question in the scenario. Teams will submit their written plan at the end of 60 minutes on the provided worksheet. This plan can include but is not limited to herbicide selection, fungicide selection, integrated pest management, rate calculations, field selection, variety selection, fertilizer and lime recommendations, drainage considerations and operating expenses and loans. The provided worksheet provided will have 20-25 questions that must be answered.

Possible scenario:

Your field measures 1500 ft. X 1750 ft. The field is a silt-loam soil type with a 3 percent slope and no previous drainage problems. You have all necessary equipment. The target plant population for this corn field is 24,000 plants per acre. The growing season is 120 days. Your current crop is a forage legume (i.e. alfalfa/red clover mix). You will rotate to a broadleaf crop following the harvest of the corn. This field has the following weed problems: yellow foxtail, pigweed, velvetleaf, and field bindweed. Develop a management plan that includes but is not restricted to the following: the variety of corn, the amount of seed, projected yield, tillage system, weed control program, and fertilization plan.

The following materials are provided as needed:

- soil test analysis
- Ohio Agronomy Guide
- county soil survey
- seed tag information
- variety trial data
- herbicide, insecticide and fungicide labels
- seed, fertilizer, and herbicide costs
- plus any other pertinent information

Scoring Guide

1. **Individual**

Section 1 - 30 specimens (20 weed and crop - plants, 10 insects and damages) x 5 points = 150 points
Section 2 - 30 specimens (20 weed and crop-seeds, 10 diseases and deficiencies) x 5 points = 150 points
Section 3 – 25 question written test
25 questions X 5 points = 125 points.
Total Possible 425 points per individual.

2. Team

Team evaluation worth 125 points
There will be no more than 4 students making up a group for this team event. Schools may have more than one group. Schools having more than one group will have the highest score of all groups reported as the team event score.

Individual placings determined by individual practicum score.
Team placings determined by top three individual scores added to the team score.
Total Possible 1400 points

References

Applying Pesticides Correctly and *Ohio Agronomy Guide*, Ohio Cooperative Extension.
County Soil Survey
http://maize.agron.iastate.edu/corngrows.html
http://www.extension.iastate.edu/pages/hancock/agriculture/soybean/bean_develop/ , Iowa State Extension.
www.cdms.net (all pesticide labels)

Other helpful resources…
Weed Control Guide for Ohio and Indiana Field Crops pages 1-24. This guide has information that supports material covered in *Applying Pesticides Correctly*. It also has equations for pesticide application and sprayer calibration.

Study material for the disease and deficiency section can be found in the following references.
Compendium of Corn Diseases
Compendium of Soybean Diseases
Compendium of Small Grain Diseases
These are available from OSU bookstores and other bookstores in the Columbus campus area, or by contacting:
The American Phytopathological Society
3340 Pilot Knob Road
St. Paul, Minnesota 55121
Wheat Disease Control in Ohio, Ohio Cooperative
Extension Bulletin 785

Ohio Agricultural Education Curriculum Materials Service Catalog. Please consult this catalog for seed sets, insect sets, plant mounts as well as numerous quality slide series, filmstrips, pamphlets, computer software, student manuals and teacher guides covering many general and specific topics on field crops, insects, diseases and pests. Contact them at the following address:
Ohio Agricultural Education
Curriculum Materials Service
Room 254, 2120 Fyffe Road
The Ohio State University
Columbus, Ohio 43210-1067
Telephone: (614) 292-4848
FAX: (800) 292-4919 (24 hr/day)
Internet: wwaideli@magnus.acs.ohio-state.edu
Web Site: http://ad254-5.ag.ohio-state.edu/OCMS

Special notes and helps!
Corn herbicide damage symptoms may be prepared and usually are chosen from the following list:
Command, Balance and Callisto – turns corn white
Gramoxone Extra – burns and causes water-soaked spots
Banvel or 2,4D- fused brace roots
Soybean herbicide damage symptoms may be prepared and usually are chosen from the following list:
ALS Herbicide – turns veins red of some broadleaf species
Gramoxone Extra – burns and causes water-soaked spots
Balance – turns soybeans white
Banvel or 2,4D- twisted plants and cupped leaves.

Any questions about this Career Development Event should be directed to:
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