

Junior Agronomy Contest

Revised: April 5, 2016

I. Eligibility

- A. Read General Rules
- B. Two teams per county or a maximum of eight participants.

II. Procedures

The Agronomy Contest is composed of three sections:

A. Component Descriptions

a. Identification - 120 points (24 specimens at 5 points each)

Students will identify 10 plant specimens, 10 seed specimens, and 4 farm equipment specimens. Ideally, the plants should be live specimens and can represent any stage of development. However, they could be press mounts or photographs. Plant specimens should be equally divided between crop and weed plants. Each seed specimen must be real seed, no photographs of seeds. Seed specimens should be equally divided between crop and weed seeds. Specimens can only come from the ID list's provided. Each specimen will be worth five points.

****Note:**** Some ID lists will include scientific names which are provided to assist in finding reference materials for proper specimen identification. Students are not required to know the scientific name for any New Mexico 4-H Agronomy Contest specimen!

(Answers will be recorded in the top Identification division on the back of the scantron using 1-48. Each specimen has an assigned number on its ID list. Use these numbers for scantron answers.)

b. Placing classes - 100 points (2 classes at 50 points each)

There will be two placing classes each having four samples. Students will rank the four samples in proper order based on quality, uniformity, and shelf life of each sample. One class will be representative of each of the following categories; grain crops (seed samples), forage crops (loose or baled hay or green chop), and fruit or vegetable crops (fruits, berries, leaves, tubers etc). Class specimens will only be chosen from the provided "Crops ID list".

(Answers will be recorded in the placing classes portion of the scantron.)

c. Insect Identification – 60 points (3 specimens totaling 10 points each)

This component will consist of identifying insects. Additionally students will have to identify characteristics related to the individual insect. Students will identify three insects (10 points each) along with the following characteristics for each insect identified:

- a. Life cycle of each specimen (5pts.)
- b. Mouth part (5pts.)

III. SCORING

Identification	120 points
Placing Classes	100 points
Insect Identification	60 points
Individual Score	280 points
Team Score	840 points

IV. TIE BREAKER

Individual ties will be broken using the following tiebreakers.

1. Highest score on the Identification
2. Highest score on the Pest Identification
3. Highest score on the Placing classes

Team ties will be broken using the following tiebreakers.

1. High Individual

- all references are listed on the following pages -

V. REFERENCES (by component section)

Identification

a. General Plant Identification resources.

- 10. Field identification of the 50 most common plant families in temperate regions (including agricultural, horticultural, and wild species)** by Struwe, L.. Rutgers University, New Brunswick, NJ, USA. 2009. Published by the author, available at <http://www.rci.rutgers.edu/~struwe/>.
- 11. Plant Identification Basics** by Mangold, J. and Parkinson, H., Montana State University Extension Service, September 2013. *pdf available at* <http://msuextension.org/publications/AgandNaturalResources/MT201304AG.pdf>.
- 12. Plant ID Basics** by Sellers, B.A., University of Florida, IFAS Extension. 2009. *Slides available at* http://weedext.ifas.ufl.edu/slides/Plant_ID_Basics/index.html.
- 13. Identifying Pasture Grasses** by Undersander, D., Casler, M., and Cosgrove, D., Cooperative Extension of the University of Wisconsin–Extension, publication-A3637. 1996. *pdf available at* <http://learningstore.uwex.edu/assets/pdfs/A3637.pdf>
- 14. Plant Identification**, Plant Materials Technical Note No. 5, United States Department of Agriculture, Natural Resources Conservation Service, September 2010. *pdf available at* http://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/wapmctn6329.pdf.
- 15. Identification: Characteristics of Grasses**, Agriculture and Natural Resources, University of California. 2014. available at: <http://www.ipm.ucdavis.edu/PMG/WEEDS/ID/idcharac.html>.

b. Crops plants and seeds identification resources

- 16. Crops CDE ID powerpoints**, Indiana 4-H Youth Development, Purdue University Extension. 2008. *available at:* <http://www.four-h.purdue.edu/cde/crops.cfm>.

(Powerpoint slides showing several specimens of crop plant and seed id and weed plant and seed id. Slides highlight distinguishing characteristics.)
- 17. Cucurbit Seed Production, An organic seed production manual for seed growers in the Mid-Atlantic and Southern U.S.**, Carolina Farm Stewardship Association, 2005. available at: <http://www.carolinafarmstewards.org/wp-content/uploads/2012/05/CucurbitSeedProductionver1.4.pdf>.

(This resource covers cucumber, pumpkins, and squash. It includes information about plant and seed characteristics. It also shows photos and gives information about several of the insects on the Agronomy insect list.)
- 18. Forage Identification Pages**, Purdue University, Department of Agronomy, Agronomy Extension, 2007. *available at:* <http://www.agry.purdue.edu/ext/forages/ForageID/forageid.htm> .

(Covers stem, leaf, flower, and seed characteristics for alfalfa, Ladino clover, sweet clover, red clover, orchardgrass, tall fescue, timothy, and sudangrass.)
- 19. Seed ID Workshop**, The Ohio State University, Ohio Agricultural Research and Development Center. 2009. *available at:* <http://www.oardc.ohio-state.edu/seedid> .

(photos for about half of the crops seed id specimens.)

c. Weeds plants and seeds identification resources

20. Weeds of the West (Fifth Edition) by Larry C. Burrill, Steven A. Dewey, David W. Cudney, B. E. Nelson, Tom Whitson, Tom D. Whitson, L. C. Burrill. Paperback, 630 Pages, Published 1996.

(This is a great book describing the majority of the weed species in the west. It usually has a couple of photos and descriptive plant characteristics).

21. Weed Id Pages, Weeds Society of America. 2014. available at:
<<http://wssa.net/weed/weedidentification/weed-id-pages>>.

(This resource lists all the university weed identification websites. Follow the listings under "Agronomic Crop Weeds". You will find plenty of weed id resources at this one site.)

22. Weed Information, New Mexico State University, Weed Science. 2014. available at:
<<http://weeds.nmsu.edu>>.

d. Entomology Insect Identification resources

23. Who Let the Bugs Out?: A Beginner's Guide to Managing Radical Insects by Timothy J. Gibb. Purdue University, 2013. available at:
<<http://extension.entm.purdue.edu/radicalbugs/default.php?page=home>>.

24. One Hundred Common Insects of New Mexico by Richman, David B., Sutherland, Carol A., and Oseto, Y., New Mexico Cooperative Extension Service, November 1993.
< <http://aces.nmsu.edu/pubs/circulars/CR570.pdf>>

25. Indiana 4-H Entomology, Insect Flashcards, Purdue University Extension. 2011. available at:
<http://extension.entm.purdue.edu/4hyouth/pdf/Flashcards_web.pdf>.

(Great resource containing photos and descriptive information for most of the NM Agronomy listed insects).

26. A Field Guide to Common Texas Insects, Texas A&M University, Department of Entomology. 2012. available at: <<https://insects.tamu.edu/fieldguide>>.

(Insects are sorted by Order. Photos and description of most of the NM Agronomy listed insects).

27. Insect Diagnostic Laboratory, Cornell Cooperative Extension, College of Agriculture and Life Sciences at Cornell University. available at: <<http://idl.entomology.cornell.edu/factsheets>>.

(This resource does not include a lot of the listed insects, but the ones it does have an entire pdf factsheet dedicated to them.)

28. Insect Images, Center for Invasive Species and Ecosystem Health. The University of Georgia. 2010. available at: <<http://www.insectimages.org>>.

(This resource has an extensive photo database for most any insect imaginable. This is primarily a photo site and does not include descriptive information.)

e. Equipment

There are no reference resources for this portion of the Agronomy CDE. A simple Google search for the items on the equipment list will provide the student with plenty of images and information for each equipment specimen.

Plant Common Name

100	Alfalfa
101	Barley
104	Beans
105	Bermuda grass
107	Broccoli
108	Cabbage
109	Carrot
110	Cauliflower
111	Chile pepper
112	Clovers
117	Corn
122	Cotton
127	Lettuce
128	Mellons
131	Oats
134	Onion
135	Orchardgrass
136	Peanuts
138	Potato
141	Rye
142	Sorghum
145	Soybean
146	Spinach
147	Squash
148	Strawberry
149	Sudangrass
150	Beets
151	Sunflower
152	Sweet potato
153	Tall fescue
154	Timothy
155	Tomato
156	Wheat
200	Sowthistle (Annual or Prickly)
201	Barnyardgrass
202	Bull thistle
203	Canada thistle
204	Cheatgrass

Plant Common Name

205	Common chickweed
206	Common cocklebur
207	Common lambsquarters
208	Common mallow
209	Common mullein
210	Common purslane
211	Common wild sunflower
212	Curly dock
213	Dandelion
214	Dodder
215	Field bindweed
216	Field sandbur
217	Flixweed/ Tansy mustard
218	Foxtail, green
219	Foxtail, yellow
220	Ground cherry
221	Horseweed (Marestail)
222	Jimsonweed
223	Johnsongrass
224	juglerice grass
225	Kochia
226	London rocket
227	Morning glory
228	Nutsedge
229	Palmer amaranth/Pigweed
231	Prickly lettuce
232	Prostrate spurge
233	Puncturevine
234	Quackgrass
235	Rescuegrass
236	Russian knapweed
237	Russian thistle
238	Shepardspurge
239	Silverleaf nighshade
241	Wild oats

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Insect Common Name

400	Alfalfa weevil
401	Aphids
402	Armyworm
403	Assassin bug
404	Bean weevil
405	Blister beetle
406	Boll weevil
408	Colorado potato beetle
409	Corn earworm
410	Cricket
411	Cucumber beetle
412	European corn borer
413	Flea beetle
414	Grasshoppers
415	Honey bee
416	Japanese beetle
417	Lacewing
418	Lady beetle
419	Leaf hopper
420	Leafcutter bee
432	Leafminer fly
421	Mexican bean beetle
422	Pink boll worm
423	Plant bug (lygus)
430	Sawtooth grain beetle
407	Spider mites
425	Squash bug
426	Stinkbug
427	Thrips
428	Tobacco/ Tomato hornworm
429	Variegated cutworm
424	White fringed beetle
434	White grub
433	Whitefly

Metomorphosis (life cycle)

500	Simple (incomplete)
501	Complete
502	None

Mouth Parts

600	Chewing
601	Sucking
602	Combination of sucking & chewing
603	None

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Equipment Name

300	Air compressor/hose
301	Anemometer
302	Backpack sprayer
303	Baler
304	Bean Harvester head (for combine)
305	Bed mulcher
306	Bed shaper
307	Center pivot
308	Chemigation unit
309	Combine
310	Conveyor/elevator
311	Corn harvester head (for combine)
312	Cotton picker/stripper
313	Crop cultivator
314	Crop disc cultivator
315	Fertilizer broadcaster
316	Field shovel
317	Forage harvester
318	Gauge wheel
319	Grain auger
320	Grain moisture meter
321	Grain storage bin/dryer
322	Hay rake
323	Hearing protection
324	Hitch pin
325	Hoe
326	Hydraulic hose
327	Liquid manure/fertilizer spreader
328	Manure spreader (dry)
329	Module builder
330	Moldboard plow
331	Mower
332	Nozzle bodies (flood, flat fan, cone)

Equipment Name

333	Pea harvester
334	Peanut digger
335	Plow (soil chisel)
336	PPE (all equipment)
337	Press wheel
338	Pressure gauge
339	Pressure regulator
340	PTO shaft
341	Rotary hoe
342	Seed plate
343	Soil probe
344	Soil thermometer
345	Sprayer
346	Swather
347	Sweep net
348	Tensiometer
349	Tractor
350	Vegetable transplanter

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Seed Common Name

100	Alfalfa
101	Barley
102	Bean, Lima
103	Bean, Pinto fieldbean
105	Bermuda grass
106	Blackeye cowpea
109	Carrot
111	Chile pepper
113	Clover, Ladino
114	Clover, Red
115	Clover, Sweet
116	Clover, White
118	Corn, Dent
119	Corn, Flint
120	Corn, Popcorn
121	Corn, Sweet
123	Cotton, American pima
124	Cotton, Upland
125	Cucumber
127	Lettuce
129	Mellon, Cantalope
130	Mellon, Watermelon
132	Oats, red
133	Oats, white
134	Onion
135	Orchardgrass
136	Peanuts
137	Peas
138	Potato
139	Pumpkin
140	Rice
141	Rye
143	Sorghum, White grain
144	Sorghum, yellow grain
145	Soybean
149	Sudangrass

Seed Common Name

150	Beets
151	Sunflower
152	Sweet potato
153	Tall fescue
155	Tomato
157	Wheat, Durum
158	Wheat, Hard red spring
159	Wheat, Hard red winter
160	Wheat, White
201	Barnyardgrass
203	Canada thistle
204	Cheatgrass
206	Common cocklebur
207	Common lambsquarter
211	Common wild sunflower
212	Curly dock
213	Dandelion
214	Dodder
215	Field bindweed
216	Field sandbur
218	Foxtail, green
219	Foxtail, yellow
220	Ground cherry
223	Johnsongrass
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