



Agronomy CDE

Purpose

The purpose of the Agronomy Career Development Event is to create interest and promote understanding in agronomy by providing opportunities for recognition through the demonstration of skills and proficiencies.

Objectives for this event are:

- Demonstration of basic knowledge of agronomic sciences;
- Exploration of career opportunities, skills, and proficiencies in the industry;
- Understanding sustainable agriculture and environmental stewardship through the use of Integrated Pest Management and Best Management Practices.

State Event Superintendent

The superintendent for this event is Joshua Bledsoe, State Agricultural Education Leader, Department of Agriculture and Human Sciences, NCSU, Campus Box 7654, Raleigh, NC 27695-7654.

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Eligibility and General Guidelines

This event is open to all FFA chapters and FFA members in good standing. FFA Members may not participate in a career development event that leads to a state level event after July 1, following their high school/early college graduation. Members winning a previous state event in this area or who have participated in a previous national event in the area are ineligible.

Each chapter may send one team to compete at the state event. Teams shall consist of three or four members. Four scores will count towards the team total (a three-member team will earn a zero for the 4th score). No alternates are allowed in state events. Any alternate found participating in a state event will result in total team disqualification.

FFA members may also participate as individuals in this event. A chapter may have up to two members participate as individuals as long as the chapter does not have a team participating in the event. Their scores will only count toward individual recognition, and will not be tallied as a team score.

The use or possession of cellular phones or any other mobile electronic communication device is prohibited during any state-level career development event. Any violation of this rule by any team member will result in total team disqualification.

FFA members participating in career development events that require the use of calculators may only use non-programmable/non-graphing calculators that do not have the ability to communicate with other calculators. Calculators will be screened prior to the start of a CDE for acceptability. Students caught using data stored on a calculator or communicating with other calculators will result in a total team disqualification for the event.



Any member found cheating in any state-level career development event will result in total team disqualification for that event.

The North Carolina FFA Association, in keeping with the FFA mission and purposes, does not permit the use of tobacco products, e-cigarettes, vapes, or Juuls at any FFA facility or at any FFA activity.

At the North Carolina FFA State Convention, participation in more than one FFA CDE is permitted as long as events are not being held concurrently and no special provisions are required to facilitate participation.

In compliance with the Americans with Disabilities Act, North Carolina FFA will honor requests for reasonable accommodations made by individuals with disabilities. Please direct accommodation requests through the CDE/LDE Accommodation Request [Form](#). If the accommodation can be made for all and/or doesn't provide an unfair advantage, then every effort will be made to provide the accommodation. Requests can be accommodated more effectively if notice is provided at least 10 days before the event.

Middle School Participation

Middle school students and teams may participate in Career Development Events or Leadership Development Events. The top middle grades team will be recognized at the state FFA convention. Middle school participants should designate during registration.

Dress Code

Participants are required to follow the North Carolina FFA Career Development Event Dress Code. A ten percent reduction in the total team score will be taken if a participant violates the dress code. Participants are allowed to wear long pants, an appropriate shirt with a collar or an appropriate high school or FFA t-shirt or they may wear official dress as described in the FFA manual.

Procedures for Administering the Event

The event coordinator shall be responsible for setting up the event, choosing event officials, judges, and materials. At the state level, students will use the Horticulture CDE #105482 scan sheet to bubble in their answers. Students will also be given a copy of the plant, insect and equipment to reference the correct number for bubbling purposes. Students will not need to memorize the ID #.

Part 1: General Knowledge Exam - 100 points

Fifty objective multiple choice questions will be given to each participant. Questions will come from the references listed at the conclusion of this document.

Part 2: Annual Practicum – 320 Points

Students will identify 32 weed and/or crop plants and/or weed and/or crop seeds. Live plant specimens will only be used and may be in any stage following emergence. The crop seeds will be shown as untreated seeds. The seed head for all grasses should be shown, as a dried specimen, a picture or actively growing on the plant. Students will have one minute to identify each specimen. Refer to the North Carolina Plant and Seed List.



Part 3: Insect Identification – 100 Points

Ten samples will be identified according to insect name. The insect specimens can be shown as either live and/or mounted form. Refer to the insect identification list.

Part 4: Equipment and Machinery Identification - 100 Points

Students will identify 10 items from the machinery list. Samples may appear as actual equipment, scale models, toys, or pictures.

Part 5: Usability (Crop Quality) - 100 Points

Students will be given two classes of crop samples: one will be forage and the other a vegetable crop. Each class will consist of four samples of the same crop. Participants will rank each class with a Hormel card (50 points per sample).

Scoring

<i>Maximum Score (Individual)/(Team)</i>	720/2880
General Knowledge Exam	100
Annual Practicum	320
Insect Identification	100
Equipment and Machinery Identification	100
Usability (Crop Quality)	100

Procedure for Determining the State Event Winner When Scores are Tied

In the event a tie score exists, apply the following methods in sequential order until the tie is broken.

1. Compare the total team score for the annual practicum and the higher scoring team is the winner.
2. Compare the total team score for the general knowledge exam and the higher scoring team is the winner.
3. Compare the total team score for the Insect Identification and the higher scoring team is the winner.
4. If these methods fail to break the tie, co-winners will be declared and a run-off event will be held to determine which team will represent North Carolina at the National FFA Convention. The run-off event will follow the same rules as the state event.

Procedure for Determining the State Event Winner When Scores are Tied for Individual Participants

Ties in scores between individuals will be broken by comparing the scores of the portion/section of the event that carries the highest point value. The order of comparison would be Annual Practicum, General Knowledge Exam, Insect Identification, Equipment and Machinery Identification and Usability.



State Awards

The awards for the state event will be presented annually at the state FFA convention to include a team 1st, 2nd and 3rd place plaque and a monetary travel award. The high scoring individual will receive a plaque. The highest-placing middle school team will be recognized only if they are not already among the overall top three teams. If a middle school team places in the top three overall, they will not receive additional middle school-specific recognition.

National Career Development Event Participation

State winning teams advancing to the national career development event will be automatically registered for the national event. It is the responsibility of the FFA Chapter Advisor to complete all necessary national certification and waiver forms and return them to the state FFA Coordinator by the assigned due date. State winning CDE teams that choose not to participate at the national level should contact the state office by Sept. 1 prior to national convention. Teams that fail to inform the state office prior to Sept. 1 will be ineligible to participate in that same CDE for the next year (chapters may appeal to the State FFA Board of Directors). Teams that do not compete at national convention will be required to pay back the \$500 travel award.

Bibliography

Tests used in previous state events are available online at www.ncffa.org to instructors who wish to use them as instructional aids.

The following is a list of the general references for the material covered by the National FFA Agronomy Career Development Event.

1. Ohio Agronomy Guide – Ohio Extension
2. University of Arizona, College of Agriculture- *Plant Growth and Development, Plant Production Management, Weeds, Insects*
3. *Corn and Soybean Field Guide*-Perdue Extension
4. Nasco References
5. University of Illinois, College of Agriculture – *Crop Plant Booklet, Weed Plant Booklet, Field Scouting Manual*
6. *NCSU Forage Crop Evaluation*
7. *Missouri Vegetable Crop Evaluation*

FOR THE PURPOSE OF THE WRITTEN EXAM ONLY - The North Carolina Agricultural Production I/II Outline and Test Bank Questions (Agronomy and Land Management Sections) will be used.



North Carolina Association Agronomy CDE: Weeds List

ID #	Weed Name	Form	Latin Name
101	barnyardgrass	plant or seed	<i>Echinochloa crus-galli</i>
102	bindweed, field	plant or seed	<i>Convolvulus arvensis</i>
103	carrot, wild	plant or seed	<i>Daucus carota</i>
104	cheat	plant or seed	<i>Bromus secalinus</i>
105	chickweed, common	plant or seed	<i>Stellaria media</i>
106	cocklebur, common	plant or seed	<i>Xanthium strumarium</i>
107	crabgrass, large	plant or seed	<i>Digitaria sanguinalis</i>
108	crownvetch, trailing	plant or seed	<i>Securigera varia</i>
109	dandelion	plant or seed	<i>Taraxacum officinale</i>
110	dock, curly	plant or seed	<i>Rumex crispus</i>
111	dodder	plant or seed	<i>Cuscuta</i> spp.
112	foxtail, giant	plant or seed	<i>Setaria faberi</i>
113	foxtail, green	plant or seed	<i>Setaria viridis</i>
114	foxtail, yellow	plant or seed	<i>Setaria pumila</i>
115	groundcherry	plant or seed	<i>Physalis</i> spp.
116	horsenettle	plant or seed	<i>Solanum carolinense</i>
117	horseweed (maretail)	plant only	<i>Conzya canadensis</i>
118	jimsonweed	plant or seed	<i>Datura stramonium</i>
119	johnsongrass	plant or seed	<i>Sorghum halpense</i>
120	knotweed, prostrate	plant or seed	<i>Polygonum aviculare</i>
121	kochia	plant or seed	<i>Bassia scoparia</i>
122	kudzu	plant only	<i>Pueraria montana</i> var <i>lobata</i>
123	lambsquarters, common	plant or seed	<i>Chenopodium album</i>
124	lettuce, prickly	plant or seed	<i>Lactuca serriola</i>
125	mallow, common	plant or seed	<i>Malva neglecta</i>
126	milkweed, common	plant or seed	<i>Asclepias syriaca</i>
127	morning glory	plant or seed	<i>Ipomoea</i> spp.
128	mustard, wild	plant or seed	<i>Sinapis arvensis</i>
129	nightshade, black	plant or seed	<i>Solanum nigrum</i>
130	nutsedge	plant or seed	<i>Cyperus</i> spp.
131	oat, wild	plant or seed	<i>Avena fatua</i>



ID #	Weed Name	Form	Latin Name
132	onion/garlic, wild	plant or seed	<i>Allium spp.</i>
133	pennycress, field	plant or seed	<i>Thlaspi arvense</i>
134	pigweed, redroot	plant or seed	<i>Amaranthus retroflexus</i>
135	plantain, broadleaf	plant or seed	<i>Plantago major</i>
136	plantain, buckhorn	plant or seed	<i>Plantago lanceolata</i>
137	puncturevine	plant or seed	<i>Tribulus terrestris</i>
138	purslane, common	plant or seed	<i>Portulaca oleracea</i>
139	ragweed, common	plant or seed	<i>Ambrosia artemisiifolia</i>
140	sandbur, field	plant or seed	<i>Cenchrus spiniflex Cav.</i>
141	shepherd's-purse	plant or seed	<i>Capsella bursa-pastoris</i>
142	sicklepod	plant or seed	<i>Senna obtusifolia</i>
143	smartweed	plant or seed	<i>Persicaria spp.</i>
144	sowthistle	plant or seed	<i>Sonchus spp.</i>
145	spurge, leafy	plant or seed	<i>Euphorbia esula</i>
146	spurge, prostrate	plant only	<i>Ruphorbia prostrata</i>
147	sunflower, common	plant or seed	<i>Helianthus annuus</i>
148	tansymustard, pinnate	plant or seed	<i>Descurainia pinnata</i>
149	thistle, bull	plant or seed	<i>Cirsium vulgare</i>
150	thistle, Canada	plant or seed	<i>Cirsium arvense</i>
151	velvetleaf	plant or seed	<i>Abutilon theophrasti</i>



North Carolina Association Agronomy CDE: Crops List

ID #	Crop Name	Form	Scientific Name
201	alfalfa	plant or seed	<i>Medicago sativa</i>
202	barley	plant or seed	<i>Hordeum vulgare</i>
203	bermudagrass	plant or seed	<i>Cynodon dactylon</i>
204	black bean	seed only	<i>Phaseolus vulgaris</i>
205	broccoli	plant only	<i>Brassica oleracea var. italica</i>
206	buckwheat	plant or seed	<i>Fagopyrum sagittatum</i>
207	cabbage	plant only	<i>Brassica oleracea</i>
208	canola	plant or seed	<i>Brassica napus</i>
209	cantaloupe	plant or seed	<i>Cucumis melo var. cantalupensis</i>
210	carrot	plant only	<i>Daucus carota L. var. sativus</i>
211	cauliflower	plant only	<i>Brassica oleracea var. botrytis</i>
212	cereal rye	plant or seed	<i>Secale cereale</i>
213	chickpea	seed only	<i>Cicer arietinum</i>
214	chili pepper	plant or seed	<i>Capsicum annuum</i>
215	corn	plant only	<i>Zea mays</i>
216	cotton	plant or seed	<i>Gossypium hirsutum</i>
217	cranberry	plant only	<i>Vaccinium macrocarpon</i>
218	cucumber	plant or seed	<i>Cucumis sativus</i>
219	dent corn	seed only	<i>Zea mays var. indentata</i>
220	dry bean	plant only	<i>Phaseolus vulgaris</i>
221	durum wheat	seed only	<i>Triticum durum</i>
222	flax	plant or seed	<i>Linum usitatissimum</i>
223	hops	plant only	<i>Humulus lupulus</i>
224	Kentucky bluegrass	plant or seed	<i>Poa pratensis</i>
225	lentil	plant or seed	<i>Lens culinaris</i>
226	lettuce	plant or seed	<i>Lactuca sativa</i>
227	lima bean	seed only	<i>Phaseolus lunatus</i>
228	oat	plant or seed	<i>Avena sativa</i>
229	onion	plant or seed	<i>Allium cepa</i>
230	orchardgrass	plant or seed	<i>Dactylis glomerata</i>
231	pea	plant or seed	<i>Pisum sativum</i>



ID #	Crop Name	Form	Scientific Name
232	peanut	plant or seed	<i>Arachis hypoggaea</i>
233	pinto bean	seed only	<i>Phaseolus vulgaris</i>
234	popcorn	seed only	<i>Zea mays var. everta</i>
235	potato	plant only	<i>Solanum tuberosum</i>
236	red bean	seed only	<i>Phaseolus vulgaris</i>
237	red clover	plant or seed	<i>Trifolium pratense</i>
238	red wheat	seed only	<i>Triticum aestivum</i>
239	rice	plant or seed	<i>Oryza sativa</i>
240	safflower	plant or seed	<i>Carthamus tinctorius</i>
241	sorghum	plant or seed	<i>Sorghum bicolor</i>
242	soybean	plant or seed	<i>Glycine max</i>
243	spinach	plant or seed	<i>Spinacia oleracea</i>
244	squash	plant or seed	<i>Curcubita pepo</i>
245	strawberry	plant only	<i>Fragaria L.</i>
246	Sudangrass	seed only	<i>Sorghum bicolor</i>
247	sugar beet	plant or seed	<i>Beta vulgaris</i>
248	sugarcane	plant only	<i>Saccharum L.</i>
249	sunflower	plant or seed	<i>Helianthus annuus</i>
250	sweetclover	plant or seed	<i>Melilotus albus</i>
251	sweet corn	seed only	<i>Zea mays var. saccharate</i>
252	sweet potato	plant only	<i>Ipomoea batatas</i>
253	tall fescue	plant or seed	<i>Festuca arundinacea</i>
254	timothy	plant or seed	<i>Phleum pratense</i>
255	tobacco	plant or seed	<i>Nicotiana tabacum</i>
256	tomato	plant or seed	<i>Lycopersicon esculentum</i>
257	watermelon	plant or seed	<i>Citrullus lanatus</i>
258	wheat	plant only	<i>Triticum aestivum</i>
259	white bean	seed only	<i>Phaseolus vulgaris</i>
260	white clover	plant or seed	<i>Trifolium repens</i>
261	white wheat	seed only	<i>Triticum aestivum</i>



North Carolina Association Agronomy CDE: Insects List

ID #	Common Name	Latin Names, Order: Family for Possible Specimens
001	Alfalfa weevil, adult or larva	<i>Hyperica postica</i> , Coleoptera:Curculionidae
002	Aphid	various species, Homoptera:Aphididae
003	Armyworm adult	<i>Pseudaletia unipuncta</i> , Lepidoptera:Noctuidae (true armyworm)
		<i>Spodoptera frugiperda</i> , Lepidoptera:Noctuidae (fall armyworm)
		<i>Spodoptera exigua</i> , Lepidoptera:Noctuidae (beet armyworm)
004	Armyworm Larva	<i>Pseudaletia unipuncta</i> , Lepidoptera:Noctuidae (true armyworm)
		<i>Spodoptera frugiperda</i> , Lepidoptera:Noctuidae (fall armyworm)
		<i>Spodoptera exigua</i> , Lepidoptera:Noctuidae (beet armyworm)
005	Bean leaf beetle	<i>Cerotoma trifurcata</i> , Coleoptera:Chrysomelidae
006	Blister beetle	<i>Epicauta pennsylvanica</i> , Coleoptera:Meloidae (black blister beetle)
		<i>Epicauta pestifera</i> , Coleoptera:Meloidae (margined blister beetle)
		<i>Epicauta vittata</i> , Coleoptera:Meloidae (striped blister beetle)
007	Chinch bug	<i>Blissus leucoptera</i> , Hemiptera:Lygaeidae
008	Colorado potato beetle, adult or larva	<i>Leptinotarsa decemlineata</i> , Coleoptera:Chrysomelidae
009	Corn earworm adult	<i>Helicoverpa zea</i> , Lepidoptera:Noctuidae
010	Corn earworm larva	<i>Helicoverpa zea</i> , Lepidoptera:Noctuidae
011	Corn rootworm adult	<i>Diabrotica barberi</i> , Coleoptera:Chrysomelidae (northern)
		<i>Diabrotica undecimpunctata howardii</i> , Coleoptera:Chrysomelidae (southern)
		<i>Diabrotica vergifera</i> , Coleoptera:Chrysomelidae (western)
012	Corn rootworm larva	<i>Diabrotica</i> sp., Coleoptera:Chrysomelidae



ID #	Common Name	Latin Names, Order: Family for Possible Specimens
013	Cutworm adult	<i>Agrotis epsilon</i> , Lepidoptera:Noctuidae (black cutworm)
		<i>Peridroma saucia</i> , Lepidoptera:Noctuidae (variegated cutworm)
		<i>Striacosta albicosta</i> , Lepidoptera:Noctuidae (western bean cutworm)
014	Cutworm larva	<i>Agrotis epsilon</i> , Lepidoptera:Noctuidae (black cutworm)
		<i>Peridroma saucia</i> , Lepidoptera:Noctuidae (variegated cutworm)
		<i>Striacosta albicosta</i> , Lepidoptera:Noctuidae (western bean cutworm)
015	European corn borer adult	<i>Ostrinia nubilalis</i> , Lepidoptera:Pyrilidae
016	European corn borer larva	<i>Ostrinia nubilalis</i> , Lepidoptera:Pyrilidae
017	Field cricket	<i>Gryllus sp.</i> , Orthoptera:Gryllidae
018	Flea beetle	<i>Chaetocnema pulicaria</i> , Coleoptera:Chrysomelidae (corn flea beetle)
		<i>Systema blanda</i> , Coleoptera:Chrysomelidae (palestriped flea beetle)
		<i>Phyllotreta striolata</i> , Coleoptera:Chrysomelidae (striped flea beetle)
019	Grain weevil	<i>Sitophilus granarius</i> , Coleoptera:Curculionidae (granary weevil)
		<i>Sitophilus oryzae</i> , Coleoptera:Curculionidae (rice weevil)
020	Grasshopper	various species, Orthoptera:Acrididae
021	Green lacewing	<i>Chrysopa sp.</i> , Neuroptera:Chrysopidae
022	Honeybee	<i>Apis mellifera</i> , Hymenoptera:Apidae
023	Imported cabbageworm	<i>Pieris rapae</i> , Lepidoptera:Pieridae
024	Japanese beetle	<i>Popilla japonica</i> , Coleoptera:Scarabaeidae



ID #	Common Name	Latin Names, Order: Family for Possible Specimens
025	Lady beetle, adult or larva	<i>various species, Coleoptera:Coccinellidae</i>
026	Leafhopper	<i>Empoasca fabae, Homoptera:Cicadellidae (potato leafhopper)</i>
027	Mexican bean beetle beetle adult or larva	<i>Epilachna varivestis, Coleoptera:Coccinellidae</i>
028	Spider mite	<i>various species, Trombidiformes:Tetranychidae</i>
029	Spittlebug	<i>various species, Hemiptera:Cercopidae</i>
030	Squash bug	<i>Anasa tristis, Hemiptera:Coreidae</i>
031	Stinkbug	<i>various species, Hemiptera:Pentatomidae</i>
032	Tarnished plant bug	<i>Lygus lineolaris, Hemiptera:Miridae</i>
033	Thrips	<i>various species, Thysanoptera:Thripidae</i>
034	Tomato or tobacco hornworm	<i>Manduca sp., Lepidoptera:Sphingidae</i>
035	Whitefly	<i>various species, Homoptera: Alceryodidae</i>
036	Wireworm	<i>various species, Coleoptera:Elateridae</i>



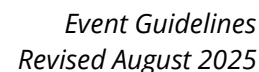
North Carolina Association Agronomy CDE: Crop Quality

Forage Crops (Hay)	Vegetable Crops
<p>Alfalfa Coastal Bermuda Hay Orchardgrass Red Clover Sweet Clover Tall Fescue Timothy White Clover</p> <p>There will be 1 sample section taken from 4 different bales of the same type of hay. Each sample will be laid out to evaluate.</p> <p>Will need to use the placing classes <u>Column #1</u> on the Horticulture Scantron (105482)</p>	<p>Broccoli (1 head per container) Cabbage (1 head per container) Cantaloupe (1 per container) Cauliflower (1 head per container) Chili Pepper (4 – 6 per container) Cucumber (4 – 6 per container) Onion (4 – 6 per container) Potato (4 – 6 per container) Strawberry (4 – 6 per container) Sweetpotato (4 – 6 per container) Squash (4 – 6 per container) Tomato (4 – 6 per container) Watermelon (1 per container)</p> <p>Will need to use the placing classes <u>Column #2</u> on the Horticulture Scantron (105482)</p>

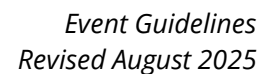


North Carolina Association Agronomy CDE: Machinery List

ID #	Equipment Name	ID #	Equipment Name
301	Backpack sprayer	326	In line ripper
302	Bale wagon (kick or flat)	327	Irrigation – center pivot
303	Bed shaper	328	Irrigation – traveling gun
304	Chemigation unit for irrigation	329	Module builder
305	Combine (maybe displayed with harvesting head attached)	330	Moldboard plow
306	Conveyor/elevator/auger	331	Nurse tank trailer
307	Corn harvester head for combine	332	Pea harvester
308	Cotton picker	333	Peanut digger
309	Cotton stripper	334	Potato harvester
310	Disk	335	PPE (all equipment)
311	Disk chisel	336	Pressure gauge
312	Draper head (for combine)	337	PTO shaft
313	Drawn planter	338	Rotary hoe
314	Fertilizer broadcaster	339	Round baler
315	Field cultivator	340	Soil probe
316	Field shovel	341	Soil thermometer
317	Forge harvester (may be displayed with harvesting head attached)	342	Sprayer
318	GPS receiver	343	Sprayer nozzle
319	Grain bin / leg	344	Square baler (large or small)
320	Grain drill	345	Sweep net
321	Gravity wagon	346	Tensiometer
322	Hand hoe	347	Tracked tractor (any configuration of tracks on a tractor)
323	Hay rake (reel or wheel)	348	V-ripper
324	Hearing protection	349	Vegetable transplanter
325	Hitch pin	350	Virtual terminal/monitor/controller



Written Exam



B 1-10 Insect Identification | 11-20 Equipment Identification