

National Weed Science Contest
Hosted by: Bayer Crop Science
Location: Union City, TN
Date: July 25 2023 – July 27 2023

The National Weed Science Contest is a joint activity between the Northeastern, North Central, Southern, and Western Weed Science Societies. The purpose of this national contest is to provide a competitive educational experience from which students from universities across the country can broaden their applied skills in Weed Science. The contest provides an opportunity for students to meet and interact with each other, be exposed to researchers from other universities and industry, and apply what they have learned using a contest to measure their capabilities. It is also hoped that the contest will promote the discipline of Weed Science and elevate the interest level of those participating in the discipline of Weed Science.

CONTEST RULES

A. Eligibility: Any undergraduate or graduate student currently enrolled and pursuing an A.S., B.Sc., M.Sc. or Ph.D. is eligible to participate. Eligibility includes A.S. students, including 2-year schools, who will compete as undergraduate individuals and teams. Each team will consist of three or four members. If a team has four students, the top three scores will be used to calculate a team score. If a team has three students, all three scores will be used to calculate the team score. A team may be composed of: (a) graduates, (b) undergraduates, or (c) combination (graduates and undergraduates). A combination team must compete as a graduate team; however, the undergraduate students remain eligible for individual undergraduate awards. Conversely, universities within a region may form a three or four-member team with students from different universities if all participating universities in the joint team have no other teams competing. There is no restriction on the number of teams a single college or university may enter in the contest; however, if resources become constrained universities that bring multiple teams may be asked to reduce their level of participation and preference will be given to graduate student teams. If a college or university does not have sufficient students for a team of three, students may enter as individuals, but will not be eligible for a team award.

All students graduating with an A.S. or B.Sc. degree six months before the contest (and not actively enrolled in a graduate program) will be able to participate as an undergraduate. Each society will be required to bring a minimum of 2 teams to compete at the society level.

Note: student cell phones or other communication devices will not be permitted during the contest. Students should leave their cell phones and devices with their coaches during the day of the contest. Any violation of this rule will result in disqualification of that student from the contest.

B. Awards: Plaques and/or trophies will be awarded for the following categories:

National Level

Hosts of the National Weed Science Contest will be presenting awards at the national level. All awards at the national level are the responsibility of the host. The breakdown below is

how plaques will be awarded.

Team – Members of the top overall graduate and undergraduate team will be awarded a plaque. Weed identification, written test and sprayer calibration, unknown herbicides, and problem solving will determine the overall contest winner in both the graduate and undergraduate divisions.

Individual – The highest combined scores from the weed identification, written calibration test, unknown herbicides, and problem-solving events will determine the overall top graduate and top undergraduate individual winners and will be recognized with a plaque. The team sprayer calibration event will not count towards individual scores.

Society Level

Host(s) of the National Weed Science Contest will not be presenting awards at the society level. All awards at the society level are the responsibility of each individual society's weed contest committee. Societies are not required to present awards at the society level. The breakdown below is only a suggestion of how plaques could be awarded should a society chose to do so.

Team – Members of the top three overall graduate and undergraduate teams in each society will be awarded a plaque. Weed identification, written test, sprayer calibration, unknown herbicides, and problem solving will determine the overall contest winner in both the graduate and undergraduate divisions.

Individual – The highest combined scores from the weed identification, written calibration test, unknown herbicides, and problem-solving events will determine the overall top three graduate and top three undergraduate individual winners. Each winner will be recognized by a plaque. The team sprayer calibration event will not count towards individual scores.

Teams are expected to compete in a society that recognizes them as part of their current region. Some teams have the option of competing in one of two regional societies. For example, "North Carolina State University" is recognized by the SWSS and NEWSS, "University of Kentucky" is recognized by the NCWSS and SWSS, and "Oklahoma State University" is recognized by the SWSS and WSWS. An example of a team regional declaration that would be invalid would be if the "University of Maine" decided to compete as a WSWS team. Teams must declare which society they are competing with before the competition begins or will be designated by the host.

Level	Place	Plaques Awarded
National Level	1 st Place Graduate Team	4
	1 st Place Undergraduate Team	4
	1 st Place Graduate Individual	1
	1 st Place Undergraduate Individual	1
	1 st place Weed ID Grad/Undergrad	2
	1 st place team sprayer calibration G/U	2
	1 st place written problems G/U	2

	1 st place problem solving G/U	2
	1 st place unknown herbicide G/U	2
Society Level	NEWSS, SWSS, NCWSS, WSWS	Per society
	1 st Place Graduate Team	4
	2 nd Place Graduate Team	4
	3 rd Place Graduate Team	4
	1 st Place Undergraduate Team	4
	2 nd Place Undergraduate Team	4
	3 rd Place Undergraduate Team	4
	1 st Place Graduate Individual	1
	2 nd Place Graduate Individual	1
	3 rd Place Graduate Individual	1
	1 st Place Undergraduate Individual	1
	2 nd Place Undergraduate Individual	1
	3 rd Place Undergraduate Individual	1
	1 st place Weed ID Grad/Undergrad	2
	1 st place team sprayer calibration G/U	2
	1 st place written problems G/U	2
	1 st place problem solving G/U	2
	1 st place unknown herbicide G/U	2

C. Events: The contest will consist of four major events.

1) WEED IDENTIFICATION (100 points) Plants will be grown in either a field nursery or greenhouse pots and may be in any stage of growth or development, including seed samples. From this list, 30 weeds will be presented in identifiable condition for the contest. Weeds may be presented in any stage of growth or development (seeds, seedlings, mature weeds or plant parts). No more than five specimens shall consist of weed seeds only. Students will have 40 minutes to complete this event.

Undergraduate students will be responsible for correct identification of twenty-five weed species using either the correct scientific name or common name (either will be accepted) with correct spelling. An additional five species will need to be identified by correct scientific name (genus and species) underlined in addition to common name with correct spelling. These individuals will be clearly marked “scientific name and common name both”. Total points available for each of the twenty-five weed species whereby a common and/or scientific name is required is 3 points. Total points for the five weed species whereby a common and scientific name are required is 5 points, wherein 3 points correspond to the common name and 2 points for the scientific name.

Graduate students will be responsible for correct identification of twenty-five weed species using both the correct scientific name or common name with correct spelling. Total points available for each of the twenty-five weed species whereby a common and scientific name is required is 3 points; in which 2 points correspond to the common name and 1 point for the scientific name. Total points for the five weed species whereby seed, a common and scientific name are required is 5 points; wherein 3 points correspond to the common name and 2

points for the scientific name.

Spelling is absolute, meaning points are either fully awarded or not at all. Partial credit will not occur for misspellings. While touching of plants may be required to aid in weed identification, willful destruction of plants to prevent others from observing key characteristics will result in disqualification.

Common names, scientific names, and spellings must conform to the most current “A composite list of weeds”, compiled by the USDA PLANTS database (<https://plants.sc.egov.usda.gov/java/>). A list of weeds for the identification is provided below.

NOTE: For the 2023 National Weed Science Contest, those weeds that are highlighted red will NOT be included in the competition.

Amaranthaceae Amaranth (Pigweed) Family

Amaranthus blitoides prostrate pigweed

Amaranthus palmeri Palmer amaranth

Amaranthus retroflexus redroot pigweed

Amaranthus rudis common waterhemp

Apiaceae (Umbelliferae) Parsley Family

Daucus carota wild carrot

Conium maculatum poison hemlock

Apocynaceae Dogbane Family

Apocynum cannabinum hemp dogbane

Asclepiadaceae Milkweed Family

Asclepias syriaca common milkweed

Asclepias verticillata whorled milkweed

Cynanchum laeve honeyvine milkweed

Asteraceae (Composite) Aster Family

Achillea millefolium common yarrow

Ambrosia artemisiifolia common ragweed

Ambrosia trifida giant ragweed

Arctium minus common burdock

Carduus nutans musk thistle

Centaurea biebersteinii spotted knapweed

Cichorium intybus chicory

Cirsium arvense Canada thistle

Cirsium vulgare bull thistle

Conyza canadensis horseweed

Eclipta prostrata eclipta

Galinsoga quadriradiata hairy galinsoga

Helianthus annuus common sunflower

Lactuca serriola prickly lettuce

Packera glabella butterweed

Senecio vulgaris common groundsel

Solidago canadensis Canada goldenrod

Taraxacum officinale dandelion

Tragopogon dubius Western salsify

Xanthium strumarium common cocklebur

Brassicaceae (Cruciferae) Mustard Family

Alliaria petiolata garlic mustard

Barbarea vulgaris yellow rocket

Sinapis arvensis wild mustard

Capsella bursa-pastoris shepherds purse

Thlaspi arvense field pennycress

Caprifoliaceae Honeysuckle Family

Lonicera japonica Japanese honeysuckle

Caryophyllaceae Pink Family

Cerastium fontanum mouse-ear chickweed

Stellaria media common chickweed

Chenopodiaceae Goosefoot Family

Chenopodium album common lambsquarters

Bassia scoparia kochia

Salsola tragus Russian thistle

RESTRICTED

Commelinaceae Spiderwort Family

Commelina communis Asiatic dayflower

Convolvulaceae Morningglory Family

Calystegia sepium hedge bindweed

Convolvulus arvensis field bindweed

Ipomoea hederacea ivyleaf morningglory

Ipomoea lacunosa pitted morningglory

Ipomoea purpurea tall morningglory

Cuscuta L. dodder

Cucurbitaceae Gourd Family

Sicyos angulatus burcucumber

Cyperaceae Sedge Family

Cyperus esculentus yellow nutsedge

Cyperus rotundus purple nutsedge

Dipsacaceae Teasel Family

Dipsacus fullonum common teasel

Dipsacus laciniatus cutleaf teasel

Equisetaceae Horsetail Family

Equisetum arvense field horsetail

Euphorbiaceae Spurge Family

Acalypha ostryifolia hophornbeam copperleaf

Acalypha virginica Virginia copperleaf

Chamaesyce maculata spotted spurge

Euphorbia esula leafy spurge

Fabaceae Bean Family

Lespedeza cuneata sericea lespedeza

Pueraria montana kudzu

Sesbania herbacea hemp sesbania

Trifolium repens white clover

Geraniaceae Geranium Family

Erodium cicutarium redstem filaree

Geranium carolinianum Carolina geranium

Geranium dissectum cutleaf geranium

Haloragaceae Watermilfoil Family

Myriophyllum spicatum Eurasian watermilfoil

Hydrocharitaceae Frog's-bit Family

Hydrilla verticillata hydrilla

Labiatae (Lamiaceae) Mint Family

Glechoma hederacea ground ivy

Lamium amplexicaule henbit

Lamium purpureum purple deadnettle

Lemnaceae Duckweed Family

Lemna minor common duckweed

Liliaceae Lily Family

Allium vineale wild garlic

Ornithogalum umbellatum Star of Bethlehem

Lythraceae Loosestrife Family

Lythrum salicaria purple loosestrife

Malvaceae Mallow Family

Anoda cristata spurred anoda

Abutilon theophrasti velvetleaf

Hibiscus trionum Venice mallow

Malva neglecta common mallow

Sida spinosa prickly sida

Molluginaceae Carpetweed Family

Mollugo verticillata carpetweed

Moraceae Mulberry Family

Fatoua villosa mulberry weed

Phytolaccaceae Pokeweed Family

Phytolacca americana common pokeweed

Plantaginaceae Plantain Family

Plantago lanceolata buckhorn plantain

Plantago major broadleaf plantain

Poaceae (Gramineae) Grass Family

Andropogon virginicus broomsedge bluestem

Avena fatua wild oat
Bromus secalinus cheat
Bromus tectorum cheatgrass
***Cenchrus spinifex* field sandbur**
Digitaria ischaemum smooth crabgrass
Digitaria sanguinalis large crabgrass
Echinochloa crus-galli barnyardgrass
Eleusine indica goosegrass
Elymus repens quackgrass
***Eragrostis cilianensis* stinkgrass**
Eriochloa villosa woolly cupgrass
***Microstegium vimineum* Japanese stiltgrass**
Panicum dichotomiflorum fall panicum
Panicum miliaceum wild proso millet
***Phragmites australis* common reed**
***Poa annua* annual bluegrass**
Setaria faberi giant foxtail
Setaria pumila yellow foxtail
Setaria viridis green foxtail
Sorghum bicolor shattercane
Sorghum halepense johnsongrass
Urochloa platyphylla broadleaf signalgrass

Polygonaceae Buckwheat Family

Polygonum aviculare prostrate knotweed
Polygonum convolvulus wild buckwheat

Other resources include:

Weeds of the Northeast, 1997. Uva, R.H., J.C. Neal, and J.M. DiTomaso, eds., Cornell University Press, Ithaca, NY.

Weeds of the Great Plains, 2003. Stubbendieck, J., M.J. Coffin, and L.M Landholt, eds., Nebraska Department of Agriculture, Lincoln, NE.

Weeds of the South, 2009. Bryson, C.T. and M.S. DeFelice, eds., Southern Weed Science Society, Athens, GA.

Polygonum pennsylvanicum Pennsylvania smartweed
Polygonum persicaria ladythumb
Rumex crispus curly dock
Rumex obtusifolius broadleaf dock

Portulacaceae Purslane Family

Portulaca oleracea common purslane

Rubiaceae Madder Family

Galium aparine catchweed bedstraw

Scrophulariaceae Figwort Family

Verbascum thapsus common mullein

***Veronica arvensis* corn speedwell**

Solanaceae Nightshade Family

Datura stramonium jimsonweed

Physalis longifolia var. *subglabrata* smooth groundcherry

Solanum carolinense horsenettle

Solanum ptycanthum eastern black nightshade

Solanum rostratum buffalobur

Typhaceae Cattail Family

***Typha latifolia* common cattail**

2) **APPLICATION TECHNOLOGY** Each component of the two application technology events will be worth 100 points.

- A. Written Test on Sprayer Calibration (100 points): Questions can potentially be related to all aspects of sprayer calibration, such as volume of spray needed, amount of herbicide needed per gallon or liter, nozzle nomenclature and selection, sprayer pressure, droplet size, boom height, drift reduction techniques, etc. The test will be comprised of multiple choice, short answer, and written calculation questions. Correct answers will be specified whether English or metric units are desired. A 45-minute time limit will be imposed for the written test. All participants will take this portion of the calibration event as an individual. Students will be provided with pencils, scratch paper, and calculators.
- B. Sprayer Calibration (100 points): This portion of the calibration will apply to a team score only. All sprayer components, calculators, a TeeJet Agricultural Spray Products Catalog from Spraying Systems Company, and stopwatches will be provided. Use of personal calculators will not be permitted. Safety glasses (provided by the host) are required to be worn by all students, judges, observers, etc. who are in the calibration event area. If the judge sees any student without safety glasses during the time working on the problem (calculations, sprayer setup and calibration, and calibration run), 25 points will be deducted from the team score. There will be one score per team and that one score will count for the team total. This score will not be counted toward an individual's score; however, it will apply towards team scoring and award.
1. Part one (A) of this contest section, entitled "Sprayer Calibration", challenges each team to calibrate a CO₂ backpack sprayer based on a basic written problem that will be calculated during this session. The student must apply a designated number of gallons/acre (liters/hectare) that will be determined by the output of each spray tip and the required amount based on the intended combination of tip selection, pressure and speed. Speed will be timed over a measured course. Time will be used to break any ties. Time will start when the team approaches the spray table. When the team is satisfied that the sprayer is prepared properly, they should notify the judge, the time will be stopped, and the final calibration will begin. If time reaches 25 minutes the judge will instruct the contestants to stop. Once time is stopped, no further adjustments can then be made to the sprayer following this determination by the team. The calibration will be checked with the judge watching for correct boom height, uniformity of spray pattern, and speed. Each nozzle will then be checked for accurate output. Variation in nozzle output of up to +/- 5% will be accepted. As an example, if the correct nozzle output is 90 ml/min, the acceptable range will be 85 to 95 ml/min. For each ml of inaccuracy outside this range, one (1) point will be deducted up to a possible 5 points per nozzle. Obtaining the correct output from all four nozzles is worth 20 points.
 2. Part two (B) of the sprayer calibration, entitled "Sprayer Competency", teams will demonstrate proper sprayer use and accuracy in application. In this part of the contest,

the team will take the calibrated equipment, calculate the amount of pesticides to be added to treat a prescribed area, and will proceed to that prescribed area where they will be judged on the technique and accuracy of their application. If the team accidentally calibrates the sprayer to a different gallons/acre (liters/hectare) than requested in part one ("Sprayer Calibrations") it will not disqualify them from the opportunity to demonstrate proper sprayer use and accuracy with their sprayer calibrated as is. Spray pattern, overlap of spray between passes, and proper boom height will be evaluated by the judges in this portion of the contest as well as accuracy in the application based on the area treated and the mix size of the application.

All sprayer components will be provided. Sprayers should consist of a four-nozzle boom. Each team must choose the appropriate nozzle tips, pressure and speed for accurate calibration and application. Nozzle tips, strainers, and a Tee Jet Agricultural Spray Products catalog will be provided to assist in accurate calibration.

Teams will have a total of 20 minutes to complete both Part I and Part II of the sprayer calibration portion of the National Weed Contest.

Part 1(A)----- Sprayer Calibration (50 points total):

1. Correct problem calculation (30 points)
2. Boom height (10 points total)
3. Walking speed (10 points total)

Part 2(B)----- Sprayer Competency (50 points total)

- 1 & 2. Nozzle and screen selection (20 points total)
3. Spray pattern quality (10 points total)
4. Sprayer output (5 points/nozzle = 20 points total)

National Weed Science Contest: Sprayer Calibration

Name: _____

University: _____

Team: _____

Elapsed Time: _____ minutes _____ seconds

Score (A+B): _____

Problem (Example): *Research scientist Alyssa wants to apply a postemergence herbicide to control weeds that are 3 inches (7.6 cm) tall in a soybean field. The herbicide label requires a delivery volume of 15 gallons per acre (GPA) (140.29 L/ha). Using the equipment provided, determine the proper flat spay tips, pressure, boom height, and ground speed to obtain the needed delivery volume. Assume nozzle spacing is 20 inches (50.8 cm) Target speed of 2.0-3.5 mph (3.2 to 5.6 km/h)*

- | | | |
|----|---|--------------|
| | | Points/Score |
| A. | 1. Correct problem calculations | (30)_____ |
| | 2. Boom Height: _____ inches; _____ cm | (10)_____ |
| | 3. Walking Speed: _____ seconds/50 ft; (15.2 m) | (10)_____ |
| | Total (A) _____/50 | |

- | | | |
|----|---------------------------------|--------------|
| | | Points/Score |
| B. | 1. Nozzle Selection: _____ | (10)_____ |
| | 2. Screen Selection _____ | (10)_____ |
| | 3. Spray Pattern Quality: _____ | (10)_____ |
| | 4. Total from Sprayer Output | (20)_____ |
| | Total (B) _____/50 | |

	Milliliters collected in 15 s	Correct Amt. (mL) (+/-5%)	Points	Score
Nozzle 1			(5)	
Nozzle 2			(5)	
Nozzle 3			(5)	
Nozzle 4			(5)	

3) IDENTIFICATION OF UNKNOWN HERBICIDES

Crop and weed species will be planted and treated with herbicides. Approximately 3 to 4 weeks prior to the contest, PRE- and PRE-plant incorporated applications will be made, with POST treatments applied as necessary to demonstrate selectivity prior to the event. A list of crops, weeds, herbicides and adjuvants are provided below. All herbicides in the list below will be applied at a 1X rate only and only 10 of the 30 herbicides applied will be selected for the contest. From these lists, selections will be made. At least 5 crops but no more than 10 crops from the list below will be used in this portion of the contest. Similarly, at least 5 weeds but no more than 10 weeds from the list below will be used in this portion of the contest. Students will be required to identify the unknown herbicide by visual symptoms on crops and weeds the herbicide previously applied. There will be ten plots and each plot will be worth 10 points. For graduate students and undergraduate students competing on a mix graduate/undergraduate team, scoring will be 5 points for correct common name, 3 points for correct herbicide family, and 2 points for correct site of action and/or group number. For undergraduates, scoring will be 10 points for correct site of action and/or group number. Undergraduates will write both site of action or group number and common name. Undergraduate students will be scored only for correct site of action, correct common name will be used only for tiebreaker. Spelling is absolute, meaning points are either fully awarded or not at all. Partial credit will not occur for misspellings. Students will have 40 minutes to complete this event.

There will also be a control plot identified for easy comparison to the herbicide treated plots. Herbicide plots may also be duplicated. While touching of plants may be required to aid in herbicide identification, willful destruction of plants to prevent others from observing these symptoms will be grounds for disqualification.

Crops list for the herbicide identification plots.	Weed list for herbicide identification plots.
alfalfa	barnyardgrass
snapbeans	broadleaf signalgrass
soybean	downy brome
sunflower	giant foxtail
wheat (spring)	ivy leaf morningglory
grain sorghum	common ragweed
tillage radish	velvetleaf
cereal ryegrass	wild mustard
canola	yellow nutsedge
corn, field	wild oat
cotton	field bindweed
pea, field	common cocklebur
pumpkin	common lambsquarters
	<i>Amaranth</i> spp (redroot, Palmer, waterhemp)
	large crabgrass

Herbicides, Trade Names, Families, Sites of Action, Use Rates, Adjuvants and Application Timings for Identification Exam

NOTE: For the 2023 National Weed Science Contest, those herbicides that are highlighted red will NOT be included in the competition.

Common name	Trade name	Herbicide family	Site of action (SOA)	Group # (SOA)	Application timing	Rate herbicide (g ai/ha) + adjuvant
acetochlor	Harness	chloroacetamide	LCFA Inhibitor	15	PRE	1350 g ai/ha
atrazine	AAtrex 4L	triazine	Photosystem II Inhibitor	5	PRE	2240 g ai/ha
diuron	Diuron 4L	substituted urea	Photosystem II inhibitor	7	PRE	896 g ai/ha
flumioxazin	Valor EZ	N-phenylphthalimide	PPO inhibitor	14	PRE	107 g ai/ha
imazethapyr	Pursuit 2 AS	imidazolinone	ALS inhibitor	2	PRE	70 g ai/ha + NIS 0.25%
isoxaflutole	Balance Pro	isoxazole	HPPD inhibitor	27	PRE	105 g ai/ha
mesotrione	Callisto	triketone	HPPD inhibitor	27	PRE	105 g ai/ha + COC 1%
metribuzin	Metribuzin 75DF	triazinone	Photosystem II inhibitor	5	PRE	840 g ai/ha
pendimethalin	Prowl H2O	dinitroaniline	Microtubule Inhibitor	3	PRE	1596 g ai/ha
pyroxasulfone	Zidua	isoxazoline	LCFA Inhibitor	15	PRE	60 g ai/ha
S-metolachlor	Dual II	chloroacetamide	LCFA Inhibitor	15	PRE	1423 g ai/ha
sulfentrazone	Magnum	triazolinone	PPO inhibitor	14	PRE	32 g ai/ha
glyphosate	Spartan	triazolinone	PPO inhibitor	14	PRE	32 g ai/ha
2,4-D	Roundup PowerMAX	glycine	EPSP Synthase Inhibitor	9	POST	1058 g ai/ha + AMS
2,4-D	2,4-D LV4E	phenoxy-carboxylic-acid	Synthetic Auxin	4	POST	420 g ai/ha
bromoxynil	Buctril	nitrile	Photosystem II inhibitor	6	POST	420 g ai/ha
chlorimuron-ethyl	Classic	sulfonylurea	ALS inhibitor	2	POST	9 g ai/ha + COC 1% v/v
clethodim	Select Max	cyclohexanedione	ACCCase inhibitor	1	POST	210 g ai/ha + NIS 0.25%
clopyralid	Stinger	pyridine carboxylic acid	Synthetic Auxin	4	POST	210 g ai/ha
dicamba	Clarity	benzoic acid	Synthetic Auxin	4	POST	280 g ai/ha
fluazifop-P	Fusilade DX	aryloxyphenoxypropionate	ACCCase inhibitor	1	POST	210 g ai/ha + COC 1%
flumiclorac	Resource	N-phenylphthalimide	PPO inhibitor	14	POST	29 g ai/ha + COC 1%
fomesafen	Reflex/Flexstar	diphenylether	PPO inhibitor	14	POST	219 g ai/ha + NIS 0.25%
glufosinate	Liberty	phosphinic acid	Glutamine Synthetase Inhibitor	10	POST	450 g ai/ha + AMS
halosulfuron-methyl	Sandea	sulfonylurea	ALS inhibitor	2	POST	35 g ai/ha + NIS 0.25%
mesosulfuron	Osprey	sulfonylurea	ALS inhibitor	2	POST	15 g ai/ha + MSO 1%
nicosulfuron	Accent 75WG	sulfonylurea	ALS inhibitor	2	POST	35 g ai/ha + COC 1%
paraquat	Gramoxone	bipyridylum	Photosystem I electron diverter	22	POST	560 g ai/ha + NIS 0.25%
quinclorac	Drive	quinoline carboxylic acid	Synthetic Auxin	4	POST	840 g ai/ha + MSO 1%
saflufenacil	Sharpen	pyrimidinedione	PPO inhibitor	14	POST	62 g ai/ha + MSO 1%
tembotrione	Laudis	triketone	HPPD inhibitor	27	POST	92 g ai/ha + MSO 1%
trifloxysulfuron	Envoke	sulfonylurea	ALS inhibitor	2	POST	5 g ai/ha + NIS 0.25%

Unknown Herbicide Identification				Name: _____		University: _____	
Undergraduate Teams							
						Team: _____	
Plot	group number or site of action (10 each)			common name (tiebreak)			
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
Total Point: _____/100				Correct: _____/10			

Unknown Herbicide Identification			Name: _____	University: _____
Graduate Teams				
				Team: _____
Plot	common name (5)	herbicide family (3)	group number or site of action (2)	
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
Possible Points	/50	/30	/20	
		Total: _____	/100	

4) PROBLEM SOLVING AND RECOMMENDATION

Students will be required to evaluate a crop production problem in weed management or general horticultural, or agronomic situations and recommend an effective solution to that problem. Recommendations must comply with accepted practices. Students should consider all factors, which influence crop growth and development. Although several possible answers may be correct, the best answer considering all alternatives will be determined by a designated advisory panel. This event is to be presented and handled in a “role-playing” situation. The student will be asked to assume the role of an extension, sales, agronomist or research person when dealing with the client. Commodities (corn, pumpkin, soybean, wheat, tomato, sorghum and sunflower) or scenario (such as herbicide injury, weed resistance, agronomic errors, etc.) are eligible to be the focus of the problem solving and recommendation section. The scoresheets for each “role play” situation is weighted on the following:

- 25 points – How the student approached the client
- 45 points – Assessment of situation; determine the problem
- 15 points – Recommendation – now
- 15 points – Recommendation – next year

Each student will handle one situation, for a total possible score of 100 points. This score will be applied toward the individual and/or team score. This event is 12 minutes long, with

students given a warning at the 10 minute mark.

The top individuals for each “role play” situation will then compete in a final situation. This score will not be counted toward the team and/or individual score but will be utilized to recognize the outstanding graduate and undergraduate student for the event.

PROBLEM SOLVING AND RECOMMENDATION SCORE SHEET

Name: _____ University: _____ Team: _____

Scoring: the following outline is the format to follow when scoring this event

Part A – How the Student Approaches the Grower		
	Points	Score
1. Firm Handshake	5	
2. Confidence / eye contact	5	
3. Questions / listening skills	5	
4. Communication	5	
5. Approach (did grower feel comfortable)	5	
Possible Points	25	

Part B – Assessment of Situation and Determination of Problem		
	Points	Score
1. Ask what the problem or concern is	5	
2. Quality of questions: logic flow	5	
3. Address application, environment, & cultural practices	15	
4. Identified the problem	20	
Possible Points	45	

Part C – Recommendation for Now		
	Points	Score
1. Accuracy of recommendation	10	
2. Approach (Did the grower feel comfortable)	5	
Possible Points	15	

Part D – Recommendation for Next Year and the Future		
	Points	Score
1. Recommendation for preventing the problem in the future, or what to do next year	10	
2. Approach (Did the grower feel comfortable)	5	
Possible Points	15	
Total Score	100	
Problem # ___ RANK		