National Weed Science Contest
Hosted by: Valent, BASF, Bayer, Corteva
Location: Seymour, IL
Date: July 25, 2019

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

	2nd Place Graduate Team	4
	3rd Place Graduate Team	4
	1st Place Undergraduate Team	4
	2nd Place Undergraduate Team	4
	3rd Place Undergraduate Team	4
	1st Place Graduate Individual	1
	2nd Place Graduate Individual	1
	3rd Place Graduate Individual	1
	1st Place Undergraduate Individual	1
	2nd Place Undergraduate Individual	1
	3rd Place Undergraduate Individual	1
	1st place Weed ID Grad/Undergrad	2
	1st place team sprayer calibration G/U	2
	1st place written problems G/U	2
	1st place problem solving G/U	2
	1st 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.

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.

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 honeyvive 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 shepherd’s-purse
Thlaspi arvense field pennycress

Caprifoliaceae Honeysuckle Family
Lonicera japonica Japanese honeysuckle

Caryophyllaceae Pink Family
Cerastium fontanum mouseear chickweed
Stellaria media common chickweed

Chenopodiaceae Goosefoot Family
Chenopodium album common lambsquarters
Kochia scoparia kochia
Salsola tragus Russian thistle

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
Avena fatua wild oats
Bromus secalinus cheat
Bromus tectorum downy brome
Cenchus spinifex field sandbur
Digitaria ischaemum smooth crabgrass
Digitaria sanguinalis large crabgrass
Echinochloa crus-galli barnyardgras
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

Polygonum pensylvanicum Pennsylvania smartweed
Polygonum persicaria ladysthumb
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

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.

Name:_____ **University: _____**

Score: _____/100 **Undergrad Team: _____**

* = both common and scientific name required

	common name	**scientific name**
***1.**		
2.		
3.		
4.		
***5**.		
6.		
7.		
8.		
9.		
***10.**		
11.		
12.		
13.		
14.		
***15.**		
16.		
17.		
18.		
19.		
***20.**		
21.		
22.		
23.		
24.		
25.		
26.		
27.		
28.		
29.		
30.		

Name:_____

University: _____

Score: _____/100

Graduate Team:_____

common name	**scientific name**
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____
9. _____	_____
10. _____	_____
11. _____	_____
12. _____	_____
13. _____	_____
14. _____	_____
15. _____	_____
16. _____	_____
17. _____	_____
18. _____	_____
19. _____	_____
20. _____	_____
21. _____	_____
22. _____	_____
23. _____	_____
24. _____	_____
25. _____	_____
26. _____	_____
27. _____	_____
28. _____	_____
29. _____	_____
30. _____	_____

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 deduced 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 CO_2 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) then 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 45 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

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.

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)	ivyleaf 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
	Amaranth spp (redroot, Palmer, waterhemp)
	large crabgrass

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

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	Karmex	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	dinitroanaline	Microtubule Inhibitor	3	PRE	1596 g ai/ha
pyroxasulfone	Zidua	isoxazoline	LCFA Inhibitor	15	PRE	60 g ai/ha
S-metolachlor	Dual II Magnum	chloroacetamide	LCFA Inhibitor	15	PRE	1423 g ai/ha
sulfentrazone	Spartan	triazolinone	PPO inhibitor	14	PRE	32 g ai/ha
glyphosate	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	ACCase 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	ACCase 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	bipyridylium	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.

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		