2012 NORTHEASTERN COLLEGIATE WEED SCIENCE CONTEST

RULES AND REGULATIONS

PURPOSE

The purpose of the Northeastern Collegiate Weed Science Contest is to provide an educational experience for students at northeastern colleges and universities to broaden their applied knowledge and skills in weed science. The contest provides an opportunity for students to meet and visit with each other, interact with researchers from other universities and industry, and apply what they have learned in preparation for the contest. It is also hoped that the contest will increase the visibility of Weed Science and intensify the participants' interest in the discipline of Weed Science.

ELIGIBILITY

Any undergraduate or graduate student enrolled in a degree program is eligible to participate in the contest. All students will compete in the same contest, but separate awards will be given to graduate and undergraduate contestants. Students from a college or university can compete as a team or teams of three or four members, or as individuals. A team may be composed of all graduate students, all undergraduate students, or a combination of graduates and undergraduates. A combination team must compete in the graduate division, but any undergraduate members on the team will be eligible for individual awards in the undergraduate division. A team of two members will only be allowed if no more than two students are participating from the same school.

A student can compete in the undergraduate division if they are currently enrolled in an undergraduate studies program or if they earned a B.A. or B.S. degree no more than 6 months prior to the contest. A student is eligible to compete a maximum of three times in the undergraduate division, and a maximum of four times in the graduate division. Participation in contests prior to 2002 will not be counted against a student's eligibility.

EVENTS

The contest will consist of four events. Each of these events will be worth 100 points for a total of 400 possible points.

I. WEED IDENTIFICATION

At least 3 months prior to the contest, a weed identification list will be sent to the coach or contact person for each participating college or university. The list will contain the accepted common and scientific names of each species according to *Composite List of Weeds* (Weed Science Society of America, 1989). Students will be responsible for correctly spelling the common names and scientific names of the weeds on this list.

Twenty-five 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. Broadleaf seedlings with four true leaves or less need to be identified by genus only. For example, a smooth pigweed seedling with four or fewer leaves can be identified only as pigweed or *Amaranthus*. Grass seedlings must be identified to species (i.e. giant foxtail or *Setaria faberi*).

Students must identify 20 weeds by either common name or scientific name (either will be accepted). Five other weeds (clearly marked "scientific name only") must be identified by genus and species. The correct identification of each weed is worth 3 points. One (1) point will be deducted for a slight misspelling of the common or scientific name (such as incorrect capitalization, a one-letter error, or "*arvensis*" instead of "*arvense*"). Two (2) or more points will be deducted for a more serious mis-

spelling, an incomplete name, or the incorrect choice of closely related weeds (i.e. green foxtail instead of yellow foxtail).

In addition, students must choose a biological characteristic for each weed from a list of four, only one of which is correct. These could include growth habit, reproduction, habitat, seed dispersal mechanism, native origin, leaf shape, etc. Choice of the correct characteristic will be worth 1 point. Correct identification and choice of the correct biological characteristic will be worth a total of 4 points. In the example below, for common lambsquarters, 3 points would be awarded for the correct identification and 1 point for choosing "summer annual."

	Name (3 points)	Circle the correct characteristic for each weed (1 point)			
1	common lambsquarters	summer annual	herbaceous perennial	monocot	forms stolons

Contest organizers may also include up to ten weeds of local importance on the weed list, of which a maximum of two may be included in the actual contest. Organizers must inform the coaches of the additional weeds in their weed list sent to the coaches.

At the discretion of the contest organizers, one of the specimens may not be included on the weed identification list. If so, the botanical key pages contained in the book *Weeds of the Northeast* (R.H. Uva, J.C. Neal and J.M. DiTomaso, 1997) will be available to the students. This book is published by Comstock Publishing Associates, a division of Cornell University Press.

II. APPLICATION TECHNOLOGY

Each component of the application technology event will be worth 50 points.

A. Written Test on Sprayer Calibration

Ten written questions (each worth 5 points) will cover all aspects of sprayer calibration, such as volume of spray needed, amount of herbicide needed per gallon or liter, etc. The major reference will be the Tee Jet Agricultural Spray Products Catalog from Spraying Systems Company, but other sources may be used. One of these questions will be used for the sprayer calibration part of the application technology section. Test information should be provided in both English and metric units. A 30-minute time limit will be imposed for the written test.

B. Sprayer Calibration

Each student will calibrate a CO_2 backpack sprayer based on one of the problems selected from the written test on calibration. No additional calculations will be necessary to perform this calibration. If the individual answered the written test question incorrectly, the correct answer will be given so the calibration can be performed. All sprayer components will be provided. Sprayers should consist of a four-nozzle boom. Contestants MUST provide a stopwatch and non-programmable calculator for their own use. Each person 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.

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. Spray pattern and proper boom height will also be evaluated by the judges. Scoring will be based on the accuracy of the calibration and application. Each person will be allotted 15 minutes to complete the calibration. For each minute over 15 min, one (1) point will be deducted from a possible 20 points. Help will be available to assist the student in collecting output from nozzles during calibration.

When the student is satisfied that the sprayer is prepared properly, he or she should notify the judge, and time will be stopped. No further adjustments can then be made to the sprayer. The calibration will be checked with the judge watching for correct boom height (3 points), uniformity of spray pattern (3 points), and speed (4 points). Each nozzle will then be checked for accurate output. Variation in nozzle output of up to +/- 10% will be accepted. As an example, if the correct nozzle output is 90 ml/min, the acceptable range will be 81 to 99 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. If the spray boom does not contain four nozzles, the 20 points possible will be distributed evenly among the number of nozzles used.

III. IDENTIFICATION OF UNKNOWN HERBICIDES

At least 3 months prior to the contest, contestants will be provided with lists of crops and weeds to be planted, as well as herbicides and their approved common names, herbicide families and modes of action. These crops and weeds will be planted in rows at the contest site approximately 1 month before the contest. Herbicides will be applied to plots containing all crops and weeds. The application timing (preemergence or postemergence) for each herbicide will be according to the timing specified in the list provided to the contestants. Herbicide plots may be duplicated. Any untreated plot or plots must be identified as controls. Based on visual symptoms on crops and weeds, students will attempt to identify the herbicides applied to ten (10) plots selected by the contest organizers. Each plot will be worth 10 points: 4 points for identification of the herbicide mode of action, 2 points for the herbicide family, and 3 points for the specific herbicide by approved common name, and 1 point for choosing a correct characteristic from a list of three provided for each herbicides. Characteristics could include symptom response, systemicity, soil interactions, chemistry, etc. For example, for 2,4-D, the student would circle “causes epinastic response” for 1 point.

	Mode of action (5 pts)	**Herbicide family (2 pts)**	**Common name (2 pts)**	**Circle correct characteristic (1 pt)**		
1	plant growth regulator	phenoxy	2,4-D	contact only	low water solubility	causes epinastic response

IV. PROBLEM SOLVING AND RECOMMENDATIONS

All contestants will be provided at least 3 weeks in advance with a list of crops involved in the grower problems planned by the contest organizers. Turf, landscape or ornamental problems may be identified only by these broad designations. Students will not know in advance which problems they will be assigned to at the contest.

This event is to be presented and handled in a "role play" situation. Students will be asked to assume the roles of extension, sales, or research professionals when talking to the grower. Each student will be assigned two problems in field or office situations. The goal is to determine the cause or causes of each problem and to recommend an effective and reasonable course of action. Recommendations must comply with accepted agricultural practices. Students should consider all factors that influence plant growth and development. There may be more than one appropriate recommendation for the grower's situation.

For each problem, a judge will be assigned to evaluate student performance. Points will be assigned in the following categories by the judge in consultation with the grower.

(20 points) How the student interacted with the grower.
(40 points) Method of assessing the problem.
(20 points) Determining the cause of the problem.
(20 points) Recommendation - now and next year.

Contest organizers should divide the problems into two groups: those deemed "more difficult" and those deemed "less difficult" to solve. Each student should be assigned to one problem from both of these groups. Alternatively, a student can be assigned to one problem within the student's discipline and one outside his or her area of concentration. If possible, members of the same team should not be assigned to the same problems. The total possible score is 100 points (average score for the two problems).

SCORING

An advisory panel consisting of five members will be responsible for scoring the contest. The panel will be the final authority for all questions regarding scores. People from the host location and contest volunteers from other locations can serve on the advisory panel. Individuals from the host location will be the authority for questions relating to the field portions of the contest.

AWARDS

Separate awards will be presented for graduate and undergraduate divisions.

Individual Awards

The highest combined score from all four events will determine the individual winners in the graduate and undergraduate divisions. Awards will be presented to the top three graduate individuals and to the top three undergraduate individuals.

For each of the four events, the graduate student and the undergraduate student who earned the highest score will be recognized at the banquet.

Team Awards

For each event, the team score will equal the average of the individual scores among team members. The sum of these four average scores will equal the total team score. Awards will be presented to the top three graduate teams and to the top three undergraduate teams.

WEED CONTEST COMMITTEE

A committee of at least seven people will be responsible for periodically reviewing the rules and procedures for the contest, and proposing and voting on possible changes to the contest rules and/or procedures. The committee will also be responsible for any revisions to the weed identification list and the list of herbicides used in the contest (Addendum 12). Any changes must be approved by a majority of the committee members and be reported to the current year's contest organizer by March 31.

The committee will consist of contest organizers from the current year and previous three contests, the current President and President-elect of the Northeastern Weed Science Society (NEWSS), and the NEWSS Graduate Student Representative. In addition, the committee may choose to include other members, such as experienced contest volunteers or a representative from the Northeast Aquatic Plant Management Society.

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