Guidelines for 2024 American Royal Collegiate Crops Contest "Team Event"

This event will be held on the afternoon of Monday, November 18, 2004, at the American Royal Complex, 1701 American Royal Court, Kansas City, MO. Teams will consist of three undergraduate student members representing a school. Each school may enter only one three-person team. Schools must register no later than October 18, 2024, to allow for planning.

All schools competing in the full traditional contest on Tuesday are expected to participate in this team event on Monday. However, students participating as official members of a school's team in this event may include alternates that are that are not official contestants competing for that school in the regular competition on Tuesday.

Schools may enter this team event independently, and do not have to participate in any of the regular traditional competition to be held on Tuesday, Nov. 19. However, schools entering independently and not competing in the full traditional competition on Tuesday may register to participate as unscored individuals in just the identification section of the contest on Tuesday if interested. They may also register for the awards banquet at the American Royal on Tuesday evening.

A bus tour will be held on Monday morning prior to the team event. The tour will start at 8:00 am at the National Grain Center, 10383 N Ambassador Dr, Kansas City, MO. The tour will end with a presentation and lunch at the American Royal. The team event competition will begin immediately after lunch.

The results of this event will be recognized separately from the regular traditional competition. Awards for first, second and third place schools will be given. No scores or placings in this event will count in any way toward the traditional competition the following day. The purpose of this event is to evaluate an optional format that might be incorporated into the regular competition in the future.

For 2024, the focus of this team event will be on seed and grain quality topics to complement seed analysis and grain grading components of the traditional fall crops contests. The objective is to provide an expanded, more practical application of seed and grain quality evaluation without the need for the extensive equipment and sample preparation needed to demonstrate specific inspection skills as required in the traditional contest. This event will incorporate concepts of seed testing and grain inspection, while providing a much broader application and understanding of seed and grain quality factors critical to seed and grain crop production, management, storage, marketing and end use.

Contest Structure and Scoring:

Contest components will include four activity stations and a group presentation. Teams will rotate together as a group among stations with 20 minutes allowed per stop. Two consecutive stops will be used for the group presentation. Activity stations will include either individual or team activities as specified at each stop. For team activities, all three members may work together. For individual activities, contestants must work independently. Each activity station will be worth 100 points, and the group presentation will be 100 points, giving a total of 500 points for the overall team score.

Each contestant should bring their own pencils, clipboard, calculator and hand lens. A hand lens may be used to assist with identification of crop or weed seeds or damaged grain samples that might be necessary to evaluate a problem within an activity station. Problems requiring mathematical calculations will be required for both group and individual activities. Contestants must bring their own calculator since phones will not be allowed as calculators.

Two stops will consist of a grain or seed quality scenarios set up as group problems. All three team members may work together to complete the required tasks. Evaluation will be based on group answer

sheets and/or appropriate documents submitted for scoring (ie. certified seed tag label, grain grading official inspection certificate, farmers check for a delivered load of grain, etc.). Scores for these stops will be based on 100 possible group points at each stop.

One stop will consist of multiple individual lab practical demonstrations related to seed or grain quality, each with an associated multiple choice or open-ended question. Each member of the team will answer all of the lab practical questions independently. The total group score for this stop will be an average of all three contestants' individual percentage scores, with 100 possible points for the group.

One stop will consist of multiple individual mathematical problems. Math problems will be related to seed and grain production, harvesting, processing, handling or marketing. Each member of the team will work all of the math problems independently, and will need their own calculator. The total group score for this stop will be an average of all three contestants' individual percentage scores, with 100 possible points for the group.

Two consecutive 20-minute rotation blocks will used by each team to evaluate a problem scenario and give a group presentation recommending an action plan to a hypothetical client. The first 20-minute block will be for analysis and preparation. During the second block, the team will give a 5-minute group presentation followed by some questions from the judges serving as the "client". Evidence of significant participation by all three team members will be included in the evaluation of the group presentation. Scoring will be based on 100 points using the scoring rubric provided at the end of this document.

Please do not hesitate to contact us for additional information about the contest. If your school is at all interested in participating this year or in the future, please send us an email as soon as possible requesting to be added to the mailing list for future updates and registration information.

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General Guidelines for Possible Contest Topics:

For 2024, the focus of this event will be on seed quality and grain quality topics to complement seed analysis and grain grading components of the traditional fall crops contest. Following are potential topic areas for both group and individual activities and the scenario for the group presentation.

Seed Quality Evaluation – Problems and activities from this area will focus on seed quality. It will include evaluating information relevant to seed testing, genetic purity, seed certification, plant variety protection, patented traits, commercial seed production, seed processing, seed packaging and labelling, seed treatment, seed storage, seed sampling, seed cost comparisons, seed laws and standards, seed marketing, seeding rates, etc.

Some examples of activities might include:

Given information and/or visual components from a seed test (germination, inert matter, weed seed, other crop seed, TZ test), and AOSA seed testing guidelines, complete the seed tag.

Given information from a seed germination and purity test, a field inspection report and state seed certification standards, determine if the seed qualifies for certification.

Given inspection reports for certified seed production fields, determine if there is a basis for rejection. If so, provide options the seed producer might take to pass a follow-up field inspection or lab inspection.

Given data for a hybrid seed production field (field maps, inbred line traits, planting dates and planting conditions, weather conditions, pest problems, harvesting conditions, etc.), determine if there are any potential concerns with seed production and/or genetic purity. If so, provide options for the seed producer to address the concerns.

Given a seed germination blotter with an active germination test, calculate percent germination for the seed lot. Compare normal versus abnormal germination and seedling development in a germination test using correct botanical terms for all seed and seedling structures, as appropriate for a given crop.

Given a picked seed analysis sample for a crop, identify the picked components and calculate percent purity for the seed lot. Indicate if and how any of the picked components are listed on the label.

Given samples of weed seeds that may be found in a seed inspection sample, name their noxious weed classification. Appropriate state seed law regulations or state certification standards will be provided. (Note: This is not the same as the generic classification used for seed analysis in the traditional contest)

Given a commercial bag of crop seed or tag from a bulk seed box, respond to questions relative to seed size/count, seed quality, treatments applied, cultivar name/number, maturity rating, genetic traits (GMO vs traditional), cultivar blends, planter adjustments, etc.

Given spikes and seeds of different small grain varieties and the official publication of the variety registrations from Crop Science or Journal of Plant Registrations, correctly identify the varieties.

Given a seed bag label, identify the appropriate intellectual property rights associated with the cultivar. Identify any patented traits and their purpose.

Given two or more seed lots and recommended seeding rates, calculate differences in the amount of seed needed for a given area or differences in relative seed cost adjusted for quality factors.

Complete calculations on seeding rates and calibration of seeding equipment to meet targeted plant populations. Include adjustments for seed lots of differing quality (ie. Pure Live Seed).

Assuming you are a farmer seed producer (ie. certified wheat, hybrid seed corn), describe differences in production practices compared to commodity grain production (ie. cropping system, tillage, planting practices, seeding rates, isolation, pest management, harvesting, storage, etc.).

Compare seeds of different crops for the factors most likely to cause deterioration of seed quality during seed harvesting, handling and storage.

Grain Quality Evaluation – Problems and activities from this area will focus on grain quality. It will include evaluation of information related to factors impacting grain quality, grain inspection, grain sampling, FGIS grain grading standards, grain handling and storage, quality discounts, grain marketing, mixing and blending, grain quality and classification impacts on end use, etc.

Some examples of activities might include:

Given information and/or visual components from an official FGIS inspection of a grain sample, write the official grade and list the grade determining factors. Official grading standards tables will be provided.

Recognize and understand the use of official tools used for grain inspection (moisture meters, probes and sampling devices, test weight apparatus, Boerner divider, Carter dockage tester, sieve shaker, etc.)

Given a sampling ticket and visual samples or data for items separated from the base sample and from designated cuts from the Boerner divider (all weights provided), calculate the appropriate levels of each factor. Complete a sample pan ticket. Record the official grade and determining factors. Appropriate chapters from the official FGIS Grain Inspection Handbook Book II will be provided.

Given various components separated with the Carter Dockage Tester (all weights provided) for a given crop, calculate the appropriate factors (broken kernels, machine separated foreign material, dockage, etc.). Appropriate chapters from the official FGIS Grain Inspection Handbook Book II will be provided.

Identify appropriate sieves for determination of specific quality factors requiring sieving (ie. shrunken and broken kernels in wheat, thin barley, thin oats, etc.) Appropriate chapters from the FGIS Grain Inspection Handbook Book II will be provided.

Given an official FGIS inspection form (ie. REPORT OF GRAIN INSPECTED AND WEIGHED FOR EXPORT, OFFICIAL EXPORT GRAIN INSPECTION CERTIFICATE), respond to questions relative to inspection location and date, sampling method, quantity represented, destination if for export, official grade, grading factor levels, special grades, additional inspection results (protein, oil, mycotoxins, falling number, etc.).

Given two or more grain samples from different market classes, official grades, or levels of a specific quality factor, identify the most appropriate end use. May include other than official grading standard factors (ie. protein, oil, moisture, falling number, identity preserved (IP) factors, specific genetic traits).

Given information on two or more grain lots stored in an elevator, calculate appropriate mixing ratios to meet a target for a given official grade level for one or more factors.

Given a current posted price per bushel and a discount table from a local elevator, plus data collected from the grain sample collected at the scale (TW, moisture, FM, DK, dockage, etc.) calculate the appropriate discount and payment for a truckload of grain delivered to the elevator.

Compare discount calculations for high moisture grain using different methods (weight adjustment to a standard moisture level, price discount based on moisture above a limit, and charges for drying grain).

Compare different crops for the factors most likely to cause deterioration of grain quality during seed harvesting, handling and storage.

Compare factors that may lead to a “Sample Grade” designation for a grain sample. Discuss options for utilization of sample grade grain.

Compare “Special Grade” factors for different crops and describe how they impact value or end use.

Explain the use of official grain inspection standards and grades in grain marketing contracts and futures market contracts.

Group Presentation – Information on a problem related to crop production or marketing that involves a seed and/or grain quality component will be provided. The scenario will be provided with supporting documents critical to solving the problem provided (seed testing results, hybrid/variety descriptions, grain quality measures, field maps, detailed crop production data, etc.). However, team members may use their phones to access any additional internet resources to help evaluate the problem and develop their recommendations for their presentation.

Potential problems may be related to seed quality or grain quality topics as outlined in the previous two sections, but more from the perspective of a farmer, seed producer or industry professional needing to evaluate a situation and take appropriate action. Scenarios may include problems related to seed or grain production, harvesting, processing, handling or marketing. Teams will be expected to evaluate

the scenario and develop a presentation summarizing the problem, identifying the cause of the problem, and providing both current and future recommendations to a hypothetical client.

All teams will have 20 minutes to evaluate the problem, develop recommendations and prepare the presentation. The group will then give a 5-minute oral presentation with their recommendations to the judges, followed by 3 minutes answering questions from the judges. A time warning will be displayed at 4, 5 and 6 minutes. Presentations less than 4 minutes or over 6 minutes will receive a penalty.

The presentation will be verbal and is to be given without the use of PowerPoint slides. Evaluation will be based on the rubric provided. All three team members are expected to participate in the presentation and/or the response to questions.

The team will play the role of a consulting firm that has been engaged to evaluate the problem and make recommendations to a client. The judges will play the role of the client.

The client will be described in the scenario, and might be a grain crop farmer, seed producer producing certified or hybrid seed, seed sales manager, seed processor, grain elevator manager, grain merchandiser, or some other entity depending upon the specific nature of the scenario.

The team can assume that the client knows about the overall scenario and the general nature of the problem, but has sought professional assistance to find out more about the specific details regarding the cause of the problem, and needs current and future recommendations to address the problem.

Scoring Rubric for Group Presentation:

CRITERIA	**Percent of score**
Professional presentation including introduction to judges	15
Assessment of the situation, correct identification of the problem, and explanation of the cause of the problem	30
Recommendations for current year	15
Recommendations for next year (or future years)	15
Response to questions	15
Evidence of contributions by all team members	10
TOTAL	**100**

After a one-minute grace period, a penalty of 5% will be deducted for each 15 seconds under or over the 5-minute time limit.