Agriscience Fair Program

2017-2021

NATIONAL FFA
AGRISCIENCE FAIR

Table of Contents

Official Rules and Policies
for the National FFA Agriscience Fair Program for 2017–2021.

Refer to the Agriscience Fair Program webpage at FFA.org/agriscience fair for the most up-to-date edition of the handbook.

Contact:
Agriscience Fair Education Specialist
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Indianapolis, IN 46268-0960
317-802-4402
agriscience@ffa.org

FFA Vision

Students whose lives are impacted by FFA and agricultural education will achieve academic and personal growth, strengthen American agriculture and provide leadership to build healthy local communities, a strong nation and a sustainable world.

FFA Mission

FFA makes a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through agricultural education.

The Agricultural Education Mission

Agricultural education prepares students for successful careers and a lifetime of informed choices in the global agriculture, food, fiber and natural resources systems.

The National FFA Organization is a resource and support organization that does not select, control, or supervise state association, local chapter or individual member activities. Educational materials are developed by FFA in cooperation with the U.S. Department of Education as a service to state and local agricultural education agencies.

The National FFA Organization affirms its belief in the value of all human beings and seeks diversity in its membership, leadership and staff as an equal opportunity employer.

Philosophy

The National FFA Organization is dedicated to organizing experiences that will meet the future needs of students while accomplishing the current purposes of agricultural education.

The National FFA Agriscience Fair Program is designed for students interested in scientific principles and emerging technologies in the industry of agriculture. The National FFA Agriscience Fair provides middle and high school students the opportunity to achieve local, state and national recognition for their accomplishments in agriscience. This program also gives students a chance to demonstrate and display agriscience projects that are extensions of their agriscience courses.

The National FFA Organization assumes the leadership role in developing and continuously improving relevant FFA awards and recognition programs.

National awards and recognition programs should reflect instruction that currently takes place in the entire agricultural education program, including classroom instruction, laboratory instruction, individualized instruction in leadership and the supervised agricultural experience (SAE) program. Events are intended to be an outgrowth of instruction. Also, it is appropriate for the national organization to develop events and awards that stimulate instruction in emerging areas that reflect both current and future community, national and global workforce needs. Those events should be developed with significant input from FFA members, teachers, partners, respective industry sponsors and others involved in agricultural education. The National FFA Organization continues to encourage accessibility and provide opportunities for achievement and recognition for students with diverse backgrounds.

Agriculture, Food, and Natural Resources (AFNR)
Career Cluster Content Standards

Agriculture is a highly technical and ever-changing industry upon which everyone is dependent. In order to maintain agriculture as the nation's No. 1 industry, it is crucial to understand the importance of agriscience, marketing strategies, safe food production and continuous research. Strong, relevant agriscience programs are one way to maintain the nation's agricultural edge.

The National Council for Agricultural Education has provided permission to the National FFA Organization for the use of the National AFNR Career Cluster Content Standards in the development of their educational resource materials. The National Council for Agricultural Education are the owners and developers of the National AFNR Career Cluster Content Standards 2015 and reserve all rights to the original material that is used here with permission. In addition, The National Association of State Directors of Career and Technical Education/National Career Technical Education Foundation (NASDCTE/NCTEF) have provided permission to use the Common Career and Technical Core (CCTC) Standards in support of this project. NASDCTE/NCTEF are the owners and developers of the Common Career and Technical Core (CCTC) Standards 2012 and reserve all rights to the original material that is used here with permission.

The National AFNR Career Cluster Content Standards are a guide to develop well-planned curriculum in agriscience education to be delivered to students throughout the country. For a complete copy of the AFNR Career Cluster Content Standards, please visit FFA.org/thecouncil/afnr.

The National FFA Organization has adopted the AFNR Career Cluster Content Standards and integrated them into national award and recognition programs for the benefit of the members, school administration and agriculture as a whole.

Introduction

PROGRAM PURPOSE

The National FFA Agriscience Fair recognizes student researchers studying the application of agricultural scientific principles and emerging technologies in agricultural enterprises. The agriscience fair is for middle and high school students. Participation begins at the local level and progresses to state and national levels.

SELECTING A TOPIC AND DEVELOPING A PROJECT

When selecting an agriscience research topic, consider the ongoing SAE program as a good place in which to begin. Quality experimental SAE programs are well suited for all students and can be easily incorporated into any SAE program. Experimental SAEs can provide valuable learning experiences for students with agriscience-related career goals (as well as those with other career interests).

Developing a quality agriscience project includes and requires

- Focusing on an important agricultural issue, question or principle.
- Specific research objectives.
- Using a number of steps.
- Following a scientific process to collect and analyze data.
- Student commitment to a moderate or substantial amount of time.
- Teacher supervision.

CATEGORY DESCRIPTIONS

Student researcher(s) can compete in the national agriscience fair in one of six categories:

- Animal Systems.
- Environmental Service/Natural Resource Systems.
- Food Products and Processing Systems.
- Plant Systems.
- Power, Structural and Technical Systems.
- Social Science.

Biotechnology Systems is the study of using data and scientific techniques to solve problems concerning living organisms with an emphasis on applications to agriculture, food and natural resource systems. Because of this, biotechnology research is incorporated into all categories listed depending on the study conducted. Biotechnology Systems is not its own category.

The Environmental Service/Natural Resource Systems (ENR) category will be combined in 2017. Depending on participation, it may be split in the future.

Animal Systems (AS)

The study of animal systems, including life processes, health, nutrition, genetics, management and processing, through the study of small animals, aquaculture, livestock, dairy, horses and/or poultry.

Examples

- Compare nutrient levels on animal growth
- Research new disease control mechanisms
- Effects of estrous synchronization on ovulation

- Compare effects of thawing temperatures on livestock semen
- Effects of growth hormone on meat/milk production

*Environmental Service/Natural Resource Systems (ENR)**
*This category remain combined. Depending on participation, they may be split in the future.

- Environmental Service Systems: The study of systems, instruments and technology used to monitor and minimize the impact of human activity on environmental systems.
- Natural Resource Systems: The study of the management, protection, enhancement and improvement of soil, water, wildlife, forests and air as natural resources.

Examples
- Effect of agricultural chemicals on water quality
- Effects of cropping practices on wildlife populations
- Compare water movements through different soil types

Food Products and Processing Systems (FPP)
The study of product development, quality assurance, food safety, production, regulation and compliance and food service within the food science industry.

Examples
- Effects of packaging techniques on food spoilage rates
- Resistance of organic fruits to common diseases
- Determining chemical energy stored in foods
- Control of molds on bakery products
- Effects of the amount of sucrose used in baked goods
- Use of a triangle test in sensory science

Plant Systems (PS)
The study of plant life cycles, classifications, functions, structures, reproduction, media and nutrients, as well as growth and cultural practices, through the study of crops, turf grass, trees and shrubs and/or ornamental plants.

Examples
- Determine rates of transpiration in plants
- Effects of heavy metals such as cadmium on edible plants
- Compare GMO and conventional seed/plant growth under various conditions
- Effects of lunar climate and soil condition on plant growth
- Compare plant growth of hydroponics and conventional methods

Power, Structural and Technical Systems (PST)
The study of agricultural equipment, power systems, alternative fuel sources and precision technology, as well as woodworking, metalworking, welding and project planning for agricultural structures.

Examples
- Develop alternate energy source engines
- Create minimum energy use structures
- Compare properties of various alternative insulation products
- Investigation of light/wind/water energy sources

Social Science (SS)

The study of agricultural areas including agricultural education, agribusiness, agricultural communication, agricultural leadership and sales in agriculture, food and natural resources.

Examples

- Investigate perceptions of community members toward alternative agricultural practices
- Determine the impact of local/state/national safety programs upon accident rates in agricultural/natural resource occupations
- Comparison of profitability of various agricultural/natural resource practices
- Investigate the impact of significant historical figures on a local community
- Determine the economic effects of local/state/national legislation impacting agricultural/natural resources
- Consumer confidence and understanding of food labels
- Economic effect of employment rate and meat consumption

Understanding the Award Program

ELIGIBILITY OF PARTICIPANTS

Membership

Each participant must be a current dues-paying FFA member in good standing with the local chapter, state FFA association and National FFA Organization during the school year in which the participant qualified to participate at the national level.

In the event that a participant's name is not on the chapter's official roster for the year in which the dues were owed, a past due membership processing fee, in addition to the dues, must be paid prior to the national event. The National FFA Organization will set the processing fee amount annually.

The participant, at the time of his/her selection as a national participant, must be

- A secondary education (grades 7–12) FFA member during the school year in which the participant qualified to participate at the national level. A graduating senior is considered eligible to compete at the state and national level up to and including his/her first national convention following graduation.

- Enrolled in at least one agricultural education course during the school year in which the participant qualified to participate at the national level and/or follow a planned course of study. Either course must include a supervised agricultural experience program, the objective of which is preparation for an agricultural career.

Each member and/or team may enter only one project. Exhibited projects and written reports will be the result of the students' own efforts. A team is a maximum of two members working cooperatively on the same project. Teams can be made up of two students in different grades but will compete in the division in which the older participant would qualify.

If a student moves to a different chapter or a different state once he/she has qualified as a state representative in the agriscience fair, that student may be allowed to compete in the national event with the school he/she qualified with during the qualifying year. Team members must be from the same chapter at the time of qualification.

Once a student places in the top three of a division and category, he/she can no longer compete in that division and category regardless of the research subject.

> *Example: If a student wins Animal Systems Division I as a 7th grader, they can no longer participate in that Division. They can compete in Animal Systems Division II as an 8th grader or even Animal Systems Division 5 as an 11th grader.*

- Students who wish to continue research on the same topic or who have won a division and category are encouraged to seek additional recognition using the proficiency award or star award.

- If a student wishes to continue with the same research, at least one variable must be changed and the data must be from the current year. For more information place consult the Extension of Agriscience Fair portion of this handbook (page 13).

- Students may compete in another agriscience research category within the agriscience fair.

- Students may not participate in more than one category and division of the agriscience fair each year.

DIVISIONS

The National FFA Constitution provides flexibility to meet the needs of all students. Competition is open to all FFA members in grades 7–12. There are six divisions:

- **Division 1** — individual member in grades 7 and 8.

- **Division 2** — team of two members in grades 7 and 8.
- **Division 3** — individual member in grades 9 and 10.
- **Division 4** — team of two members in grades 9 and 10.
- **Division 5** — individual member in grades 11 and 12.
- **Division 6** — team of two members in grades 11 and 12.

Grade is determined by the grade level of the member at the time of qualification at the state level. If a team is composed of two members that span two divisions, the team must compete in the division in which the oldest student qualifies. For example, a team of two members in grades 10 and 11 must compete in Division 6. State FFA associations with qualifying competitions may have up to 36 entries, one in each category and each division. For example, an association may have an entry in Plant Systems in Division 1, 2, 3, 4, 5 and 6. State FFA associations may not have more than one entry in a category/division.

RULES

Project Rules

If there are any questions regarding policies and procedures, contact the National FFA Agriscience Fair education specialist prior to beginning the research: agriscience@ffa.org or 317-802-4402.

GENERAL

1. All studies not meeting the criteria of the National FFA Agriscience Fair, but are otherwise permissible, must be conducted in a Regulated Research Institution (RRI). A Regulated Research Institution is defined as a professional research/teaching institution that is regularly inspected by the USDA and is licensed to use animals covered by the Animal Welfare Act and may also be subject to U.S. Public Health Service Policy. Also included are federal laboratories such as National Institutes of Health and Centers for Disease Control. In addition, pharmaceutical and biotechnology companies and research institutes that utilize research animals that are not covered by the Animal Welfare Act but have been an operational Institutional Animal Care and Use Committee and are in compliance with U.S. federal laws are included in this definition. In these studies, proper documentation must be presented and the project must be reviewed by the National FFA Organization prior to experimentation.

2. A research project may be part of a larger study performed by professional scientists, but the project presented by the student researcher(s) must be only their own portion of the complete study.

3. Data may not be added to the research project after state level selection. Projects may not have more than one year of data included. See "Extension of Agriscience Fair Projects" for additional information about extension projects.

HUMAN VERTEBRATE

The following policies will govern the use of human beings in agriscience fair research projects:

1. No projects involving human cultures of any type (mouth, throat, skin or otherwise) are allowed. However, tissue cultures purchased from reputable biological supply houses or research facilities are suitable for the student researcher(s)' use.

2. Projects that involve taste, color, texture or any other choice are allowed but are limited to preference only. Quantities of normal food and non-alcoholic beverages are limited to normal serving amounts or less. No project may use drugs, food or beverages in order to measure their effect on a person.

3. The only human blood that may be used is that which is either obtained through a blood bank, hospital or laboratory. No blood may be drawn by any person or from any person specifically for an agriscience project. This rule does not preclude student researcher(s) making use of the data collected from blood tests not made exclusively for an agriscience project.

4. Psychological, educational and opinion studies are allowed. Projects that involve learning, ESP,

motivation, hearing and vision are also permitted (examples might include surveys, questionnaires, tests, etc.).

5. Data/record review studies in which the data is taken from preexisting data sets that are publicly available and/or published and do not involve any interaction with humans or the collection of any data from a human participant for the purpose of the research project are allowed.

6. No project will be allowed that is in violation of these rules. No person may perform any experiment for student researcher(s) that violates any of the rules.

NON-HUMAN VERTEBRATE

The following policies will govern the use of non-human vertebrates in agriscience fair research projects:

1. The use of vertebrate animals in agriscience projects is allowable under the conditions and rules below. Vertebrate animals are defined as
    a. Live, nonhuman vertebrate mammalian embryos or fetuses.
    b. Tadpoles.
    c. Bird and reptile eggs within three days (72 hours) of hatching.
    d. All other non-human vertebrates (including fish) at hatching or birth.

2. Vertebrate animal studies may be conducted at a home, school, farm, ranch, in the field, etc. This includes
    a. Studies of animals in their natural environment.
    b. Studies of animals in zoological parks.
    c. Studies of livestock that use standard agricultural practices.
    d. Studies of fish that use standard aquaculture practices.

3. Intrusive techniques used cannot exceed momentary pain and must comply with commonly accepted agriculture and livestock management procedures.

4. Student researcher(s) are prohibited from designing or participating in an experiment associated with the following types of studies on vertebrate animals:
    a. Induced toxicity studies with known toxic substances that could cause pain, distress or death, including but not limited to alcohol, acid rain, harmful chemicals or heavy metals.
    b. Behavioral experiments using conditioning with aversive stimuli, mother/infant separation or induced helplessness.
    c. Studies of pain.
    d. Predator/vertebrate prey experiments.

5. Food and water cannot be used or withheld for more than 24 hours for maze running and other learning or conditioning activities.

6. The student researcher(s) and advisor have the responsibility to see that animals are properly cared for in a well-ventilated, lighted and warm location with adequate food, water and sanitary conditions. Care must be taken to see that organisms are properly cared for during weekends and vacation periods.

7. Livestock or fish raised for food using standard agricultural/aquacultural production practices may be euthanized by a qualified adult for carcass evaluation.

8. No vertebrate animal deaths due to the experimental procedures are permitted in any group or subgroup.
    a. Studies that are designed or anticipated to cause vertebrate animal death are prohibited.
    b. Any death that occurs must be investigated by a veterinarian or another professional qualified to determine if the cause of death was incidental or due to the experimental procedures. The project must be suspended until the cause is determined and then the results must be documented in writing.
    c. If death was the result of the experimental procedure, the study must be terminated, and the study will not qualify for the National FFA Agriscience Fair.

9. Projects that involve behavioral studies or newly hatched chickens or other birds will be allowed, provided no change has been made in the normal incubation and hatching of the organism and all vertebrate rules are followed.

Extension of Agriscience Fair Projects

The completion of a research project can generate additional research questions that are worthy of investigation. Participants will have the opportunity to conduct this additional research as long as the current year's project could not have been done without what was learned from the past year's research. This project would now be considered an extension project for competition.

1. Student researcher(s) may use findings of previous research to formulate their research hypothesis; however, the student researcher(s) will be evaluated on research they have conducted in the twelve months prior to June 15 annually.

2. Previous research and information should only be included in the Literature Review/Other's Work by citing the student researcher(s)' previous work in the same fashion as other scholarly sources. Additionally, student researcher(s)' work could be used to inform discussions and conclusions indirectly (not specifically listed). Judging will be based on the current year of research.

3. The project must document that the additional research is an expansion based on the findings of prior work (e.g., testing a new variable or new line of investigation, etc.) Repetition of previous experiments with the same methodology and research question or increasing sample size are examples of unacceptable extensions and will be ranked as a participant at the national prequalifying judging event.

4. The log book and project display must reflect the current year's work only. The project title displayed in the finalist's booth should not mention years (e.g., "Year Two of an Ongoing Study"). Supporting log books (not research papers) from previous related research may be exhibited on the table properly labeled as such.

5. Longitudinal studies are permitted under the following conditions:
    a. The study is a multi-year study testing or documenting the same variables in which time is a critical variable (e.g., effect of high rain or drought on soil in a given basin; return of flora and fauna in a burned area over time).
    b. Each consecutive year must demonstrate time-based change.
    c. The display board must be based on collective past data and its comparison to the current year data set. No raw data from previous years may be displayed.

6. All extension projects must be reviewed and approved each year and forms must be completed for each year.

7. Successive year projects must indicate change or growth in the project from the previous year(s) in the log books and complete the continuation form in the application.

NOTE: For an extension project to be eligible for competition in the agriscience fair, the project extension form in the online application must be completed and will include the abstract for all other prior years. The documentation should be clearly labeled in the upper right-hand corner with the year (i.e., 2018–2019). Please retain all prior years' paperwork in case event officials request additional documentation.

Multiple Research Projects from a Chapter

If more than one agriscience project is entered from the same chapter and/or school, then projects must differ in

- Research hypotheses (questions or objectives).
- Findings related to the research hypothesis (questions or objectives).
- Conclusions.
- Recommendations.
- Student researcher(s) (each student researcher may only participate in one project).

Each of the published authors must have made a unique and substantial contribution to the research endeavor. It is standard that peripheral contributions be acknowledged (i.e., the student researchers would like to thank Mrs. Smith's Seventh Period Animal Science Class for their assistance in...).

Disqualification

A project will be disqualified if

1. Teams or participants arrive after the designated interview time.

2. Any assistance is given to a team or participant from any source other than the agriscience fair officials or assistants once judging has begun.

3. The superintendent stops any participants for manners they deem to be hazardous to themselves or others. Such removal will constitute immediate disqualification.

4. The participant does not complete the event he/she starts, unless prior permission from the superintendent has been obtained.

5. Participants access and/or utilize personal electronic communication devices during the entire course of the event. Participants who access personal electronic communication devices without prior approval of the superintendent will be disqualified (examples include iPads, tablets, computers, cell phones, WiFi devices, etc.).

6. An advisor, coach, parent or fellow chapter member is in the judging area once judging officially begins. Any advisor, coach, parent or fellow chapter member found in the judging area may disqualify their participant.

7. Any participant, advisor or chapter member tampers with another participant's display.

8. The display fails to meet the requirements. See the "Display" section of this handbook for more information.

9. A student substitution is made. See the "Interview" section of this handbook for more information.

10. The participant fails to meet any rules or participation guidelines set forth in this handbook.

11. Participants commits plagiarism.

12. Participants conducts unethical research.

13. The student(s) have previously placed in the top three of a division and category at the national level and competes again in the same division and category.

14. Participants alter the application and/or written report template.

PLAGIARISM

An agriscience fair project must be the result of a student's own effort and ability. However, in securing information such as direct quotes or phrases, specific dates, figures or other materials, that information must be marked and identified appropriately. Non-compliance represents plagiarism and will automatically disqualify a participant.

Student researcher(s) may not

- In any way falsify a permission form, scientific paper or display.
- Use another person's results or thoughts as their own even with the permission of this person. This includes work done by a family member or a mentor.
- Use information or data obtained from the internet without proper citation.
- Re-enter a project with only minor changes.

Ethics Statement

Scientific fraud and misconduct is not condoned at any level of research or competition. Plagiarism, presentation of other researcher's work as one's own, and fabrication or falsification of data will not be tolerated. Fraudulent projects will result in disqualification from the National FFA Agriscience Fair. Unethical behavior will result in notification to the student researcher(s)' local school administration. Exhibited projects and project reports shall be the result of the student researcher(s)' own effort.

Required Forms

As a part of the national competition application process, the application and written report must be stapled together and postmarked to the National FFA Organization no later than July 1. This date serves as the national agriscience fair application and certification deadline. The required forms are located in the Application Center on FFA.org.

If the application and written report are not stapled together and postmarked by July 1, the fair participant(s) will automatically be marked as a participant and the project will not be judged.

Accessibility for All Students

All accommodation requests must be submitted by Aug. 15 and are outlined on ffa.org.

State Selection and Certification of Participants

States must electronically approve applications for submission to National FFA by July 1.

- The state advisor or state FFA officials must certify that participants are eligible. If an ineligible student participates in the agriscience fair, the member or team will be disqualified.
- Both members of a team project must be from the same chapter upon qualification.
- Members must qualify at the state level in the category and division in which they are to participate at the national level.
- Projects must be selected at a state or interstate agriscience fair event held between the immediate previous national FFA convention and prior to the national FFA convention in which they are participating.
- An entry processing fee (certification fee) will be charged for projects selected as national finalists at the prequalifying judging facilitated by the National FFA Organization.

Agriscience Fair Prequalifying

All students must be certified online by the local FFA advisor by July 1. All students qualified to participate in the National FFA Agriscience Fair must have their complete final written report, entry form and all supporting certification forms stapled together and postmarked to the National FFA Center by July 1. Incomplete submissions will be marked as participants only and not ranked.

A maximum of 12 applicants in each category and division, as determined by a screening panel using the appropriate prequalifying rubric, will be certified to participate at the National FFA Agriscience Fair. An entry processing fee (certification fee) will be charged for participation of each project named as a national finalist. Please review the Scoresheets and Rubrics section of this handbook for more information.

Scores from the written report submitted for prequalifying will count as 25 percent of the overall score. Interview judges will not see the scores from the written report and the convention score will account for 75 percent of the overall score.

If a project is missing a report component, for example the Acknowledgements, this section of the scorecard at the prequalifying judging event will be marked as a zero and will be taken into account for the

prequalifying score.

A project will be marked as a participant for the following reasons: incomplete application, missing signatures, data added after state level selection, project is not related to agriculture, project is declared in the wrong category, the wrong written report template is used, no research is conducted, project is not declared or certified by the deadlines, version numbers differ throughout the application.
A project will be marked as bronze if it did not meet the minimum score at prequalifying judging to qualify for an invitation to the National FFA Convention & Expo.

APPEAL PROCESS

If a written appeal is filed within seven calendar days after results announcement, national staff will review the appeal. The appeal process is applicable only for scoring errors and does not apply for projects marked as participants or disqualifications.

Upon receiving input from the team leader and division director, the national staff will accept or deny the appeal. The national staff's recommendation will be shared with the appeals committee and National FFA chief operating officer for further input, if necessary.

The written appeal must be filed with the National FFA Organization's Agriscience Fair education specialist responsible for scoring the event within seven calendar days of the results announcement and accompanied by a $50 filing fee. The fee will be returned if the appeal is justified.

Appeals should be mailed to
Agriscience Fair Education Specialist
6060 FFA Drive
P.O. Box 68960
Indianapolis, IN 46268-0960

The appeals committee will be chaired by the National FFA Awards and Recognition Advisory Committee chairperson who will in turn appoint a representative of each of the following organizations:

- National Association of Supervisors of Agricultural Education (NASAE).
- National Association of Agricultural Educators (NAAE).
- American Association for Agricultural Education (AAAE).
- National FFA Organization Agriscience Fair education specialist.

Any ruling on the appeal provided by the FFA chief operating officer will be considered final.

Recognition

Chapter level: Winners may be selected annually in each FFA chapter. The winner can represent any of the agriscience category areas (based on state rules for competition).

State level: Winners from each division in all categories may be selected annually in each of the chartered state FFA associations. Each of those winners' applications and reports should be sent to the National FFA Center for prequalifying judging. See the "Agriscience Fair Prequalifying" section of this handbook for more information.

National level: Selected participants from each state may be forwarded for national competition. A maximum of 12 applicants in each category and division will be considered a national finalist and invited to compete in the National FFA Agriscience Fair to be held at the National FFA Convention & Expo.

Project Components

LOG BOOK

The log book is one of the most important pieces of a research project. It will contain accurate and detailed notes of a well-planned, implemented research project. The notes should be a consistent and thorough record of the project. These notes will be the greatest aid when composing the written report.

WRITTEN REPORT

The full written report and application must be postmarked to the National FFA Center by July 1 for the prequalifying judging event facilitated by National FFA. As developing student researchers, the expectations for the written report are slightly different for Divisions 1 and 2 (seventh and eighth grade students) compared to Divisions 3, 4, 5 and 6. The purpose of the rubric for Divisions 1 and 2 is to introduce young student researchers to the process of scholarly thinking. As the student researcher ages, skills grow and advance to utilize the rubric for Divisions 3 to 6 (grades 9 to 12). See Prequalifying Rubric: Divisions 1–2 and Prequalifying Rubric: Divisions 3–6 for additional information.

Divisions 1–2 (Grades 7–8)	Divisions 3–6 (Grades 9–12)
See Summary area of the Written Report section of this handbook.	**ABSTRACT** A brief summary of the paper, which concisely describes the purpose, methods, results and conclusions. The abstract may include potential research applications or future research. The abstract should not contain cited references. It should be no longer than one page and in paragraph form. Because this is the first page of the project report, it will be where the reader forms an opinion on the study. In the abstract, arrange the points in this order: 1. Purpose. 2. Procedure. 3. Results. 4. Conclusions. This section would include methods, primary results/effects of major treatments and main conclusions. Do not include discussion, citations and footnotes, or references to tables and figures.

Divisions 1–2 (Grades 7–8)	Divisions 3–6 (Grades 9–12)
IMPORTANCE The importance answers the question "Why was the work done?" Provide an explanation of • Why the research topic is important to the agriculture industry. • What problem the investigation attempts to solve. Each point should be addressed in a paragraph for a minimum of two paragraphs in the importance section.	**INTRODUCTION** The introduction answers the question "Why was the work done?" It provides background on the subject in several paragraphs. The introduction should clearly state the problem that justifies conducting the research, the purpose of the research, its impact on agriculture, the findings of earlier work, and the general approach and objectives. You must cite sources for statements that are not common knowledge. The last paragraph of the introduction includes the objectives of the study.
OTHER'S WORK The other's work section details the information that currently exists concerning the research topic. What other information did the student researcher(s) read before conducting the project? What information did student researcher(s) look up during the investigation? Reference information regarding where the publication was found should be listed, then a brief summary should be written by the student researcher(s) for each publication. Publications could include articles about similar studies, similar research methods, history of the research area and any other items that support the current knowledge base for the research topic.	**LITERATURE REVIEW** The literature review should detail what information currently exists concerning the research project. Information in the review should be written in APA style and should include publications used for the research. Publications cited could include articles about similar studies, similar research methods, history of the research area, and any other items that support the current knowledge base for the research topic and how the project might complement existing information.
MATERIALS AND METHODS This section enables others to reproduce the results by duplicating the study. Write in first person, encompass all materials required and explain the study design by sharing the technical and experimental procedures used. If used, any statistical procedures are included here.	**MATERIALS AND METHODS** A well-written materials and methods section enables others to reproduce the results by replicating the study. Write in past tense, third person, encompass all materials required, state the hypothesis/research questions and explain the study design by sharing the technical and experimental procedures employed. With fieldwork, describe the study site. Include any statistical procedures employed.

Divisions 1–2 (Grades 7–8)	Divisions 3–6 (Grades 9–12)
HYPOTHESIS/ANTICIPATED RESULTS The student researcher(s) state the hypothesis and/or anticipated results. What are the expected results of the study?	

RESULTS This section is a summary of the results, even if they are not what was hypothesized. Do not include discussion or conclusions about the data. Tell the reader exactly what was discovered and what patterns, trends or relationships were observed. Decide on the most meaningful way to present the data (tables, figures), and refer to them in the text. Data should be able to stand alone in the form of tables and/or figures. Data should not be added after the state level selection as it may alter the discussion and conclusions.	**RESULTS** This section is a summary of the results, even if they are not what was hypothesized. Do not include discussion or conclusions about the data. Tell the reader exactly what was discovered and what patterns, trends or relationships were observed. Decide on the most meaningful way to present the data (tables, figures), and refer to them in the text. Data should be able to stand alone in the form of tables and/or figures. Data should not be added after the state level selection as it may alter the discussion and conclusions.

DISCUSSION In this section, the student researcher(s) should include information about the meaning of the results, how the results relate to the Other's Work section and what impact the study has on the agriculture industry.	**DISCUSSION AND CONCLUSIONS** In this section, draw conclusions from the results of the study and relate them to the original hypothesis. It is helpful to briefly recap the results and use them as a foundation for the conclusions. If the results were not what was expected, take this opportunity to explain why. Give details about the results and observations by elaborating on the mechanisms behind what happened. Tie the study in with the literature, but do not hesitate to offer sound reasoning of your own. Discussion should refer to facts and figures in the results section and provide recommendations for practice and future research. Discussion and conclusions should also address the impact the research has on the agriculture industry.

Divisions 1–2 (Grades 7–8)	Divisions 3–6 (Grades 9–12)
CONCLUSIONS In the conclusion, the student researcher(s) should share recommendations on what should be done or what should change as a result of the research. It is helpful to briefly recap the results and use them as a foundation for the conclusions. If the results were not what was expected, take this opportunity to explain why. The student researcher(s) should share what the next steps are to continue the study.	
See Other's Work area of the Written Report section of this handbook.	**REFERENCES** Only significant, published and relevant sources accessible through a library or an information system should be included. All citations in the text must be included in the reference section. When information or facts are used that are not common knowledge, give credit to the source of that information by citing a reference. Use the APA style recognized citation system throughout the report.
SUMMARY The summary should be two to three paragraphs describing the study conducted. Describes why the student researcher(s) chose to conduct the study, why the study is important to the agriculture industry, how the student researcher(s) conducted the study, what the student researcher(s) found by conducting the study and how the results apply within the agriculture industry.	*See Abstract area of the Written Report section of this handbook.*
ACKNOWLEDGEMENTS Acknowledge anyone who helped in any aspect of the project in this section.	**ACKNOWLEDGEMENTS** Acknowledge anyone who helped in any aspect of the project in this section.

Divisions 1–2 (Grades 7–8)	Divisions 3–6 (Grades 9–12)
SKILL DEVELOPMENT The student researcher(s) select three appropriate competencies based on the study conducted. Two competencies must be from the study's primary pathway, and the third can be from any pathway. The student researcher(s) demonstrate skills that are appropriate for the scope of the project. The project demonstrates application of skill attainment with measurable impact on the overall study.	**SKILL DEVELOPMENT** The student researcher(s) select five appropriate competencies based on the study conducted. Three competencies must be from the study's primary pathway, and the other two can be from any pathway. The student researcher(s) demonstrate skills that are appropriate for the scope of the project. The project demonstrates application of skill attainment with measurable impact on the overall study.
SPELLING/GRAMMAR The student researcher(s) should use correct spelling, complete sentences and proper grammar throughout the report.	**APA STYLE/SPELLING** The student researcher(s) should use correct spelling, complete sentences, proper grammar and appropriate APA-style writing throughout the report.

Format of Report

The report should be printed on 8 ½ x 11-inch white paper. The report will have 1-inch margins. Font size must be 12 using Arial, Courier or Times New Roman font. The written report template is required and is available on FFA.org/agrisciencefair by division.

Framework of Report

Student(s) must use the division appropriate written report template available on FFA.org/agriscience fair or the following headings to create a research report. All reports must meet the additional criteria listed in the *Format of Report* section.

Divisions 1–2 (Grades 7–8)	Divisions 3–6 (Grades 9–12)

• Title Page
  ○ Project Title
  ○ Includes student's name(s), chapter, state, category Division
• Importance
  ○ Why is this topic important to the agriculture industry?
  ○ What problem does the investigation solve for agriculture?
• Other's work
• Materials and Methods
• Hypothesis/Anticipated Results
• Results
• Discussion
  ○ What do the results of the study mean?
  ○ How are they related to what others found in the "Other's Work" section?
• Conclusions
• Summary
• Acknowledgements
	• A short title
	  ○ 50 character or less
	• Title Page
	  ○ Project Title
	  ▪ Maximum 3 lines/15 words
	  ○ Includes student's name(s), chapter, state, category Division
	• Abstract
	  ○ No longer than one page
	• Introduction
	• Literature Review
	• Materials and Methods
	• Results
	• Discussions and Conclusions
	• Acknowledgements
	• References

DISPLAY

Display Requirements

Each exhibit should include information relevant to the study. All projects must have the following information attached to the exhibit:

- Name of agriscience fair participant(s) responsible for developing the project.
- Chapter name, state.
- Title of category.
- Division (1, 2, 3, 4, 5 or 6).

National agriscience fair participant(s)' display shows the results of the study utilizing a display board no larger than the provided dimensions:

- 36 inches high (from top of table to top of display).
- 48 inches wide.
- 30 inches deep (the distance from front to back).

The complete display, which includes methods of attaching as needed (easel, stand, etc.,) cannot exceed the dimensions of:

- 38 inches high (from top of table to top of display).
- 50 inches wide.
- 30 inches deep (the distance from front to back).

At the National FFA Agriscience Fair, tables will be provided and will not exceed a height of 36 inches. Failure to meet these requirements will result in disqualification.

The display must consist of a stable, free-standing display board on the provided table top not to exceed the sizes outlined above. No props, logbooks, handouts, or electronics are permitted. No tablets, iPads, cell phones, or other electronic devices will be permitted. Internet access will not be provided.

Posters can be created utilizing Microsoft PowerPoint slide format; however, this is not required. Participant(s) are responsible for providing backing for the poster if needed.

Display Safety Rules

1. If an exhibit becomes unsafe or unsuitable for display, it will be removed and deemed ineligible for any awards.

2. Electricity will not be provided or permitted as part of a display at the National FFA Convention & Expo.

3. Displays will consist of the following items:
   - A free-standing display board not to exceed the dimensions listed in the "Display Requirements" section of this handbook.
   - No additional props, logbooks, handouts, or electronics are permitted in project displays.
   - If Display Requirements fail to be met, please see "Disqualification" section.

INTERVIEW

All national finalists are required to meet face to face with the judges to explain their projects. Explanation and questioning may not exceed 15 minutes. The interview is an opportunity for judges to ask questions about the project. Interview and questions for agriscience fair participants will normally be five to 10 minutes. A team project must be presented by a team of two. If only one team member is present, the team cannot rank higher than fourth overall. Substitutions are not permitted and will cause disqualification. Judges will ask questions to determine the extent of the knowledge gained, your understanding of your project, how it relates to your SAE and possibly how your project relates to other FFA activities. The following is a list of example questions that may be asked:

1. How and why was the project selected?
2. What was your goal? What did you plan to accomplish in your project?
3. Were there any surprises in your project? How did you handle them?
4. What did you learn from the experience?
5. How much time did you devote to the project?
6. What kept you from being discouraged?
7. How did you manage time for this project in relation to your other activities?
8. How would you advise others doing a project? What is the value of completing an agriscience fair project?
9. How can your findings and conclusions be applied in the agriculture, food and natural resources industry?

Interview Schedule Conflicts

All national finalists are required to meet face to face with the judges to explain their projects. Participants/teams unable to meet with judges during the allotted time will be disqualified. Substitutions are not permitted. No exceptions will be made due to participation in other events (i.e., National FFA Band or Chorus).

Members who have qualified to participate in more than one category of National FFA Award or Recognition Activities (e.g., CDEs/LDEs, proficiency or stars finalist) must notify their state FFA officials within five working days after being selected or certified to participate. State FFA officials will contact appropriate national program staff by the appropriate date to determine if accommodations for dual participation can be arranged. Under no circumstances will the accommodation impact the published schedule, overall integrity of the event or other participants' abilities to be fairly evaluated. In some cases, due to the published schedule, no accommodations will be made. In these cases, the participant will need to choose. This policy does not supersede existing event policies that restrict multiple participation.

PROCESS FOR IMPLEMENTATION:

- The local agriculture teacher notifies state FFA officials of conflict.
- State FFA officials notify appropriate national FFA program staff.
- Program staff will contact event superintendents to discuss published event schedules and possible accommodations. National FFA staff will make final determination after obtaining input from event superintendents.
- Program staff will communicate the decision to state FFA officials in writing with a copy of the final decision sent to state FFA officials, event superintendent(s) and participant(s).

OFFICIAL DRESS

Participants are expected to observe the National FFA Code of Ethics and the proper use of the FFA jacket during the agriscience fair. (Please reference the latest edition of the Official FFA Manual.) Official dress is highly recommended for the interview and awards presentation and recognition.

Scoresheets and Rubrics

This section contains scoresheets and rubrics utilized by judges to evaluate written reports and interviews. As developing student researchers, the expectations for the written report are slightly different for Divisions 1 and 2 (grades 7 to 8) compared to Divisions 3 through 6 (grades 9 to 12). Please note that these written reports are evaluated differently.

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Prequalifying Scoresheet: Divisions 1–2 (Grades 7–8)

Student Researcher(s) State

Category Division

Area		Points Possible	Points Earned
Importance	The importance includes a one paragraph answer for each question that clearly answers • Why is the topic important to the agriculture industry? • What problem does the investigation solve for agriculture?	10	
Other's Work	Clearly details what information currently exists concerning the research project. Reference where the information was found (website, book, article, etc.) is listed, then a paragraph written by the student researcher(s) clearly describing the reference and information is provided for each publication used.	15	
Materials and Methods	Clearly written to enable others to replicate the study and results. Section is written in first person and encompasses all materials required. If used, the statistical procedures are included.	10	
Hypothesis/ Anticipated Results	Student researcher(s) clearly state the hypothesis and/or anticipated results.	5	
Results	Written results of the project are summarized. Trends and relationships are clearly addressed. No conclusions are made in this section. Data that can stand alone in the form of tables and/or figures are included.	20	
Discussion	The discussion includes clear, detailed answers for each question: • What do the results of the study mean? • How are they related to what others found in the "Other's Work" section?	10	
Conclusions	The conclusion clearly states what should be done and/or changed as a result of the research. Clearly states what the next steps are to continue the research.	10	
Summary	The summary is two to three paragraphs describing the study conducted. Describes why the student researcher(s) chose to conduct the study, why the study is important to the agriculture industry, how the study was conducted, what was found by conducting the study and how the results apply within the agriculture industry.	5	
Acknowledgements	Detailed list or paragraph is included acknowledging anyone who assisted with any aspect of the project and how they helped.	5	
Skill Development	All three competencies (two from primary pathway, one from any other pathway) demonstrate skills that are appropriate for the scope of the research project. The project demonstrates application of skill attainment with significant measurable impact on the overall project.	5	
Spelling/Grammar	Student researcher(s) use complete sentences; no spelling or grammar errors present.	5	
	TOTAL SCORE (100 points possible) *This constitutes 25% of the overall score to determine final ranking.*		

**In the event of a tie, qualification for the agriscience fair will be based on the scores received in the following sections in order: discussion, conclusions, results, importance, summary.*

Prequalifying Rubric: Divisions 1–2 (Grades 7–8)

Area	High Points 5–4 points	Medium Points 3–2 points	Low Points 1–0 points	Points Possible	Points Earned
Importance	The importance includes a one paragraph answer for each question that clearly answers: • Why is the topic important to the agriculture industry? • What problem does the investigation solve for agriculture?	The importance includes a one paragraph answer for each question that vaguely answers: • Why is the topic important to the agriculture industry? • What problem does the investigation solve for agriculture?	The importance includes a one paragraph answer for each question that poorly answers: • Why is the topic important to the agriculture industry? • What problem does the investigation solve for agriculture?	10	_____ x 2 = _____
Other's Work	Clearly details what information currently exists concerning the research project. Reference where the information was found (website, book, article, etc.,) is listed, then a paragraph written by the student researcher(s) clearly describing the reference and information it provided for each publication used.	Poorly details what information currently exists concerning the research project. Reference where the information was found (website, book, article, etc.,) is listed, then a paragraph written by the student researcher(s) vaguely describes the reference and information it provided for each publication used.	Does not detail what information currently exists concerning the research project. Reference where the information was found (website, book, article, etc.,) is listed, then a paragraph written by the student researcher(s) poorly describes or is not included on what the reference says for each publication used.	15	_____ x 3 = _____
Materials and Methods	Clearly written to enable others to replicate the study and results. Section is written in first person and encompasses all materials required. If used, the statistical procedures are included.	Not written clearly to enable others to replicate the study and results. Section may or may not be written in first person and encompasses all materials required. The statistical procedures are included but are unclear.	Written poorly so that others cannot replicate the study and results. Section is not written in first person and does not encompass all materials required. The statistical procedures are not included.	10	_____ x 2 = _____
Hypothesis/ Anticipated Results	Student researcher(s) clearly state the hypothesis and/or anticipated results.	Student researcher(s) vaguely state the hypothesis and/or anticipated results.	Student researcher(s) do not state or poorly state the hypothesis and/or anticipated results.	5	
Results	Written results of the project are summarized. Trends and relationships are clearly addressed. No conclusions are made in this section. Data that can stand alone in the form of tables and/or figures are included.	Written results of the project are incompletely summarized. Trends and relationships are vague. No conclusions are made in this section. Data that can stand alone in the form of tables and/or figures are sometimes included.	Written results of the project are poorly summarized. Trends and relationships are not addressed. Data is not appropriately included as tables and figures.	20	_____ x 4 = _____

Area	High Points 5–4 points	Medium Points 3–2 points	Low Points 1–0 points	Points Possible	Points Earned
Discussion	The discussion includes clear, detailed answers for each question: • What do the results of the study mean? • How are they related to what others found in the "Other's Work" section?	The discussion includes vague answers for each question: • What do the results of the study mean? • How are they related to what others found in the "Other's Work" section?	The discussion poorly answers each question: • What do the results of the study mean? • How are they related to what others found in the "Other's Work" section?	10	_____ x 2 = _____
Conclusions	The conclusion clearly states what should be done and/or changed as a result of the research. Clearly states what the next steps are to continue the research.	The conclusion vaguely states what should be done and/or changed as a result of the research. The next steps for research are unclear.	The conclusion poorly states what should be done and/or changed as a result of the research. The next steps for research are not included.	10	_____ x 2 = _____
Summary	The summary is two to three paragraphs describing the study conducted. Describes why the student researcher(s) chose to conduct the study, why the study is important to the agriculture industry, how the study was conducted, what was found by conducting the study and how the results apply within the agriculture industry.	The summary is two to three paragraphs vaguely describing the study conducted. Vaguely describes why the student researcher(s) chose to conduct the study, why the study is important to the agriculture industry, how the study was conducted, what was found by conducting the study and how the results apply within the agriculture industry.	The summary is two to three paragraphs that poorly describes the study conducted. Why the student researcher(s) chose to conduct the study, why the study is important to the agriculture industry, how the study was conducted, what was found by conducting the study and how the results apply within the agriculture industry is unclear.	5	
Acknowledge-ments	Detailed list or paragraph is included acknowledging anyone who assisted with any aspect of the project and how they helped.	A list or paragraph is included acknowledging anyone who assisted with any aspect of the project.	A list or paragraph is not included acknowledging anyone who assisted with any aspect of the project and how they helped.	5	
Skill Development	All three competencies (two from primary pathway, one from any other pathway) demonstrate skills that are appropriate for the scope of the research project. The project demonstrates application of skill attainment with significant measurable impact on the overall project.	Some of the competencies somewhat demonstrate skills that are appropriate for the scope of the research project. The project demonstrates application of skill attainment with incomplete measurable impact on the overall project.	Very few competencies are listed and are not appropriate for the scope of the research project. The project does not demonstrate application of skill attainment and has no measurable impact on the overall project.	5	

Area	High Points 5–4 points	Medium Points 3–2 points	Low Points 1–0 points	Points Possible	Points Earned
Spelling/ Grammar	Student researcher(s) use complete sentences; no spelling or grammar errors present.	Student researcher(s) use complete sentences; minor spelling or grammar errors present.	Student researcher(s) do not use complete sentences; excessive spelling or grammar errors present.	5	
			TOTAL SCORE (100 points possible) *This constitutes 25% of the overall score to determine final ranking.*		

**In the event of a tie, qualification for the agriscience fair will be based on the scores received in the following sections in order: discussion, conclusions, results, importance, summary.*

Prequalifying Scoresheet: Divisions 3–6 (Grades 9–12)

Student Researcher(s) State

Category Division

Area		Points Possible	Points Earned
Abstract	Abstract is brief and concisely describes the purpose, methods, results and conclusions. Abstract does not include cited references. Abstract is no longer than one page. Arrangement makes the purpose, procedure, results and conclusions clear.	5	
Introduction	Introduction answers the question "Why was the work done?" It clearly states the problem that justifies conducting the research, the purpose of the research, its impact on agriculture, the findings of earlier work and the general approach and objectives.	10	
Literature Review	The literature review details what information currently exists concerning the research project. The information includes materials used in the research and material cited such as articles about similar studies, similar research methods, history of the research area and other items that support the current knowledge base for the topic and how the project might complement existing information.	10	
Materials and Methods	Clearly written to enable others to replicate the study and results. Section is written in third person, encompasses all materials required, states the hypothesis/research questions and explains the study design. If used, the statistical procedures are included.	15	
Results	Written results of the project are summarized. Trends and relationships are clearly addressed. No conclusions are made in this section. Data that can stand alone in the form of tables and/or figures are included.	20	
Discussion and Conclusions	Brief recap of the results is included and shows how they were the foundation of the study. Sound reasoning is shown that conclusions are based on results, incorporates previous literature and relates directly to the hypothesis. Discussion refers to or references facts and figures in results section and provides recommendations for practice, future research and the impact on the agriculture industry.	20	
Acknowledgements	Detailed list or paragraph is included acknowledging anyone who assisted with any aspect of the project and how they helped.	5	
References	References contain significant, published and relevant sources.	5	
Skill Development	All five competencies (three from primary pathway, two from any other pathway) demonstrate skills that are appropriate for the scope of the research project. The project demonstrates application of skill attainment with significant measurable impact on the overall project.	5	
APA Style/Spelling	APA citation style writing is used throughout the written report. No spelling or grammar errors are present.	5	
	TOTAL SCORE (100 points possible) *This constitutes 25% of the overall score to determine final ranking.*		

**In the event of a tie, qualification for the agriscience fair will be based on the scores received in the following sections in order: discussion and conclusions, results, introduction, abstract*

Prequalifying Rubric: Divisions 3–6 (Grades 9–12)

Area	High Points 5–4 points	Medium Points 3–2 points	Low Points 1–0 points	Points Possible	Points Earned
Abstract	Abstract is brief and concisely describes the purpose, methods, results and conclusions. Abstract does not include cited references. Abstract is no longer than one page. Arrangement makes the purpose, procedure, results and conclusions clear.	Abstract describes the purpose, methods, results and conclusions. Abstract does not include cited references. Abstract is longer than one page. Arrangement makes the purpose, procedure, results and conclusions vague.	Abstract poorly describes the purpose, methods, results and conclusions. Abstract includes cited references. Abstract is longer than one page. Arrangement makes the purpose, procedure, results and conclusions unclear.	5	
Introduction	Introduction answers the question "Why was the work done?" It clearly states the problem that justifies conducting the research, the purpose of the research, its impact on agriculture, the findings of earlier work, and the general approach and objectives.	Introduction answers the question "Why was the work done?" It vaguely states the problem that justifies conducting the research, the purpose of the research, its impact on agriculture, the findings of earlier work, and the general approach and objectives.	Introduction does not answer the question "Why was the work done?" It does not state the problem that justifies conducting the research, the purpose of the research, its impact on agriculture, the findings of earlier work, and the general approach and objectives.	10	_____ x 2 = _____
Literature Review	The literature review details what information currently exists concerning the research project. The information includes materials used in the research and material cited such as articles about similar studies, similar research methods, history of the research area and other items that support the current knowledge base for the topic and how the project might complement existing information.	The literature review poorly details what information currently exists concerning the research project. The information may or may not include materials used in the research. Some materials cited include articles about similar studies, similar research methods and history of the research area. How the project might complement existing information is not clear.	The literature review does not detail what information currently exists concerning the research project. There is no information included or it does not reference materials used in the research. No information cited such as articles about similar studies, similar research method, or history of the research area. How the project might complement existing information is not clear.	10	_____ x 2 = _____
Materials and Methods	Clearly written to enable others to replicate the study and results. Section is written in third person, encompasses all materials required, states the hypothesis/research questions and explains the study design. If used, the statistical procedures are included.	Not written clearly to enable others to replicate the study and results. Section may or may not be written in third person, encompasses all materials required, states the hypothesis/research questions and explains the study design. The	Written poorly so others cannot replicate the study and results. Section is not written in third person, does not encompass all materials required for the research and hypothesis/research questions are not stated. The statistical procedures are not included.	15	_____ x 3 = _____

Area	High Points 5–4 points	Medium Points 3–2 points	Low Points 1–0 points	Points Possible	Points Earned
		statistical procedures are included but are unclear.			
Results	Written results of the project are summarized. Trends and relationships are clearly addressed. No conclusions are made in this section. Data that can stand alone in the form of tables and/or figures are included.	Written results of the project are incompletely summarized. Trends and relationships are vague. No conclusions are made in this section. Data that can stand alone in the form of tables and/or figures are sometimes included.	Written results of the project are poorly summarized. Trends and relationships are not addressed. Data is not appropriately included as tables and figures.	20	_____ x 4 = _____
Discussion and Conclusions	Brief recap of the results is included and shows how they were the foundation of the study. Sound reasoning is shown that conclusions are based on results, incorporates previous literature and relates directly to the hypothesis. Discussion refers to or references facts and figures in results section and provides recommendations for practice, future research and the impact on the agriculture industry.	Brief recap of the results is included and shows how they were the foundation of the study. Unsound reasoning is shown that conclusions are based on results, vaguely incorporates previous literature and partially relates to the hypothesis. Discussion refers to or references facts and figures in results section and provides recommendations for practice, future research and the impact on the agriculture industry.	No recap of the results is included or poorly shows how they were the foundation for the study. Conclusions are not based on results, previous literature not included and do not relate directly to the hypothesis. Discussion poorly refers to or references facts and figures in the results section and does not provide recommendations for practice, future research and does not illustrate the impact on the agriculture industry.	20	_____ x 4 = _____
Acknowledge-ments	Detailed list or paragraph is included acknowledging anyone who assisted with any aspect of the project and how they helped.	A list or paragraph is included acknowledging anyone who assisted with any aspect of the project.	A list or paragraph is not included acknowledging anyone who assisted with any aspect of the project and how they helped.	5	
References	References contain significant, published and relevant sources.	References listed are somewhat significant, published and relevant sources.	References listed are not significant, published and relevant sources.	5	
Skill Development	All five competencies (three from primary pathway, two from any other pathway) demonstrate skills that are appropriate for the scope of the research project. The project demonstrates application of skill attainment with significant measurable impact on the overall project.	Some of the competencies somewhat demonstrate skills that are appropriate for the scope of the research project. The project demonstrates application of skill attainment with incomplete measurable impact on the overall project.	Very few competencies are listed and are not appropriate for the scope of the research project. The project does not demonstrate application of skill attainment and has no measurable impact on the overall project.	5	

Area	High Points 5–4 points	Medium Points 3–2 points	Low Points 1–0 points	Points Possible	Points Earned
APA Style/Spelling	APA citation style writing is used throughout the report. No spelling or grammar errors are present.	APA citation style writing is used. Minor spelling or grammar errors are present.	APA citation style writing is not used. Excessive spelling or grammar errors are present.	5	
			TOTAL SCORE (100 points possible) *This constitutes 25% of the overall score to determine final ranking.*		

**In the event of a tie, qualification for the agriscience fair will be based on the scores received in the following sections in order: discussion and conclusions, results, introduction, abstract.*

Convention Scoresheet: Divisions 1, 3, 5 (Grades 7–12)

Student Researcher(s) State

Category Division

Area		Points Possible	Points Earned
Knowledge Gained	Is there evidence the student researcher(s) have acquired scientific skills and/or knowledge by doing this project? Does the student researcher recognize the scope and limitation of the problem he or she has selected?	15	
Scientific Research	Has the problem been clearly stated? Have the student researcher(s) used scientific facts as a basis for new conclusions? Are the student researcher(s) aware of the basic scientific principles that lend support to the methods used and conclusions reached? Can the research be the basis for further study? Have the appropriate methods and scientific design principles been applied? Are the student researcher(s) aware of the empirical method (the necessity of repeating trials) and the importance of controlling the variables in order to reach valid conclusions?	30	
Collaboration	Is there evidence of collaboration present? Identify the portions of the project representing the work of others. Others include student researchers, teachers, specialists in the field of study, etc.	15	
Thoroughness/ Information	How successfully was the original plan carried through to completion? Were adaptations to the study made? If so, were they made in a way that upholds the integrity of the study? Are known facts and principles stated correctly and used accurately? Have the results of experiments been reported accurately even though faulty experimental methods or conditions may have made the data unreliable? If so, have these errors been noted? Did the student researcher(s) identify areas of weakness in the study?	30	
Results/ Conclusions	Have the student researcher(s) started with known facts and drawn their own conclusions? Are the conclusions consistent with the data and/or observations? Did the student researcher(s) share what was learned as a result of the research? Can student researcher(s) effectively communicate the results and impact of the study?	15	
Visual Display	Has the data been presented in the best manner for the particular type of information involved? Are spelling errors present? Does the exhibit demonstrate a general neatness and attractiveness? Is the display presented in a logical and interesting manner?	15	
	TOTAL SCORE (120 points possible) *This constitutes 75% of the overall score to determine final ranking.*		

**In the event of a tie, winner will be determined based on the score of the written report. If a tie still exists, the tie will be broken on scores received in the following sections in order: knowledge gained, thoroughness/information, results/conclusions.*

Convention Rubric: Divisions 1, 3, 5 (Grades 7–12)

Area	High Points 5–4 points	Medium Points 3–2 points	Low Points 1–0 points	Points Possible	Points Earned
Knowledge Gained	There is evidence the student researcher(s) have acquired scientific skills and/or knowledge by doing the project. The student researcher(s) exhibit knowledge of the scope and limitations of the problem selected.	There is some evidence that the student researcher(s) have acquired scientific skills and/or knowledge by doing this project. The student researcher(s) have limited knowledge of the scope and limitations of the problem selected.	There is no evidence that the student researcher(s) have acquired scientific skills and/or knowledge by doing this project. The student researcher(s) do not recognize the scope and limitations of the problem selected.	15	_____ x 3 = _____
Scientific Research	The problem is clearly stated. The student researcher(s) use scientific facts as a basis for new conclusions. The student researcher(s) are aware of the basic scientific principles that lend support to the methods used and conclusions reached. The research is the basis for further study. The appropriate methods and scientific design have been applied. The student researcher(s) are aware of the empirical method and the importance of controlling the variables in order to reach valid conclusions.	The problem is not clearly stated. The student researcher(s) use some scientific facts as a basis for new conclusions. The student researcher(s) have limited knowledge of the basic scientific principles that lend support to the methods used and conclusions reached. With some modification, the research could be the basis for further study. Some of the appropriate methods and scientific design have been applied. The student researcher(s) are partially aware of the empirical method and the importance of controlling the variables in order to reach valid conclusions.	The problem is not stated. The student researcher(s) do not use scientific facts as a basis for new conclusions. The student researcher(s) are unaware of the basic scientific principles that lend support to the methods used and conclusions reached. The research cannot be the basis for further study. Inappropriate methods and a flawed scientific design have been applied. The student researcher(s) are unaware of the empirical method and do not recognize the importance of controlling the variables in order to reach valid conclusions.	30	_____ x 6 = _____
Collaboration	There is clear evidence of collaboration. The student researcher(s) identified portions of the project representing the work of others.	There is lack of clear evidence of collaboration, or the student researcher(s) do not identify portions of the project representing the work of others.	There is lack of clear evidence of collaboration, and the student researcher(s) do not identify portions of the project representing the work of others.	15	_____ x 3 = _____

Thorough-ness/ Information	Student researcher(s) clearly communicate the original plan and adaptations that may have been made to the study. Any adaptations made uphold the integrity of the study. Facts and principles the student researcher(s) state are correct and accurate. All results of the experiments are reported accurately based on methodology used. Any errors and weaknesses in the study are identified, if applicable.	Student researcher(s) partially communicate the original plan and adaptations that may have been made to the study. Any adaptations made may uphold the integrity of the study. Facts and principles the student researcher(s) state are partially correct and accurate. Most results of the experiments are reported accurately based on methodology used. Most errors and weaknesses in the study are identified, if applicable.	Student researcher(s) do not communicate the original plan and adaptations that may have been made to the study. Adaptations made do not uphold the integrity of the study. Facts and principles the student researcher(s) state are inaccurate. Results of the experiments are not reported accurately based on methodology used. Errors and weaknesses in the study are not identified.	30	_____ x 6 = _____
Results/ Conclusions	The student researcher(s) use known facts to draw conclusions. Conclusions are consistent with the data and/or observations presented. The student researcher(s) clearly share what was learned as a result of the research. The student researcher(s) effectively communicate the results and impact of the study.	The student researcher(s) use known facts to draw conclusions. Conclusions are inconsistent with the data and/or observations presented. The student researcher(s) ineffectively share what was learned as a result of the research. The student researcher(s) ineffectively communicate the results and impact of the study.	The student researcher(s) do not use known facts to draw conclusions. Conclusions are inconsistent with the data and/or observations presented. The student researcher(s) do not share what was learned as a result of the research. The student researcher(s) do not communicate the results and impact of the study.	15	_____ x 3 = _____
Visual Display	The data is presented in the best manner for the particular type of information involved. No spelling errors are present. The exhibit demonstrates general neatness and attractiveness. The display is presented in a logical and interesting manner.	The data is presented in a logical manner for the particular type of information involved. Some spelling errors are present. The exhibit lacks general neatness and attractiveness. The display is presented in a logical yet uninteresting manner.	The data is not presented in a rational manner for the particular type of information involved. Several spelling errors are present. The exhibit lacks general neatness and attractiveness. The display lacks logic and appears uninteresting.	15	_____ x 3 = _____
			TOTAL SCORE (120 points possible) *This constitutes 75% of the overall score to determine final ranking.*		

**In the event of a tie, winner will be determined based on the score of the written report. If a tie still exists, the tie will be broken on scores received in the following sections in order: knowledge gained, thoroughness/information, results/conclusions.*

Convention Scoresheet: Divisions 2, 4, 6 (Grades 7-12)

Student Researcher(s) State

Category Division

Area		Points Possible		Points Earned
Knowledge Gained	Is there evidence the student researcher(s) have acquired scientific skills and/or knowledge by doing this project? Does the student researcher recognize the scope and limitation of the problem he or she has selected? *Each team member can receive the maximum of 7.5 points. If a team member is not in attendance the highest point possible for this category is 7.5*	15	*Student #1* 7.5 *Student #2* 7.5	
Scientific Research	Has the problem been clearly stated? Have the student researcher(s) used scientific facts as a basis for new conclusions? Are the student researcher(s) aware of the basic scientific principles that lend support to the methods used and conclusions reached? Can the research be the basis for further study? Have the appropriate methods and scientific design principles been applied? Are the student researcher(s) aware of the empirical method (the necessity of repeating trials) and the importance of controlling the variables in order to reach valid conclusions?	30		
Collaboration	Is there evidence of collaboration present? Identify the portions of the project representing the work of others. Others include student researchers, teachers, specialists in the field of study, etc.	5		
Peer to Peer Collaboration	Evidence during interview of collaboration between teammates. *If only one team member is present, no points will be awarded in this area.*	10		
Thoroughness/ Information	How successfully was the original plan carried through to completion? Were adaptations to the study made? If so, were they made in a way that upholds the integrity of the study? Are known facts and principles stated correctly and used accurately? Have the results of experiments been reported accurately even though faulty experimental methods or conditions may have made the data unreliable? If so, have these errors been noted? Did the student researcher(s) identify areas of weakness in the study?	30		
Results/ Conclusions	Have the student researcher(s) started with known facts and drawn their own conclusions? Are the conclusions consistent with the data and/or observations? Did the student researcher(s) share what was learned as a result of the research? Can student researcher(s) effectively communicate the results and impact of the study?	15		
Visual Display	Has the data been presented in the best manner for the particular type of information involved? Are spelling errors present? Does the exhibit demonstrate a general neatness and attractiveness? Is the display presented in a logical and interesting manner?	15		
	TOTAL SCORE (120 Points possible) This constitutes 75% of the overall score to determine final ranking.			

**In the event of a tie, winner will be determined based on the score of the written report. If a tie still exists, the tie will be broken on scores received in the following sections in order: knowledge gained, thoroughness/information, results/conclusions.*

***If a team project only has one student present, they cannot rank higher than fourth overall. In the "Knowledge Gained" section, team members can receive up to 7.5 points each. Both team members must be present to receive points for "peer-to-peer collaboration".*

Convention Rubric: Divisions 2, 4, 6 (Grades 7–12)

Area	High points 5–4 points	Medium points 3–2 points	Low points 1–0 points	Points Possible	Points Earned
Knowledge Gained	There is evidence the student researcher(s) have acquired scientific skills and/or knowledge by doing the project. The student researcher(s) exhibit knowledge of the scope and limitations of the problem selected.	There is some evidence that the student researcher(s) have acquired scientific skills and/or knowledge by doing this project. The student researcher(s) have limited knowledge of the scope and limitations of the problem selected.	There is no evidence that the student researcher(s) have acquired scientific skills and/or knowledge by doing this project. The student researcher(s) do not recognize the scope and limitations of the problem selected.	15 *Student #1* 7.5 *Student #2* 7.5	_____ x 3 = _____
Scientific Research	The problem is clearly stated. The student researcher(s) use scientific facts as a basis for new conclusions. The student researcher(s) are aware of the basic scientific principles that lend support to the methods used and conclusions reached. The research is the basis for further study. The appropriate methods and scientific design have been applied. The student researcher(s) are aware of the empirical method and the importance of controlling the variables in order to reach valid conclusions.	The problem is not clearly stated. The student researcher(s) use some scientific facts as a basis for new conclusions. The student researcher(s) have limited knowledge of the basic scientific principles that lend support to the methods used and conclusions reached. With some modification, the research could be the basis for further study. Some of the appropriate methods and scientific design have been applied. The student researcher(s) are partially aware of the empirical method and the importance of controlling the variables in order to reach valid conclusions.	The problem is not stated. The student researcher(s) do not use scientific facts as a basis for new conclusions. The student researcher(s) are unaware of the basic scientific principles that lend support to the methods used and conclusions reached. The research cannot be the basis for further study. Inappropriate methods and a flawed scientific design have been applied. The student researcher(s) are unaware of the empirical method and do not recognize the importance of controlling the variables in order to reach valid conclusions.	30	_____ x 6 = _____
Collaboration	There is clear evidence of collaboration. The student researcher(s) identified portions of the project representing the work of others.	There is lack of clear evidence of collaboration, or the student researcher(s) do not identify portions of the project representing the work of others.	There is lack of clear evidence of collaboration and the student researcher(s) do not identify portions of the project representing the work of others.	5	_____ x 3 = _____
Peer to Peer Collabora-tion	There is clear evidence of collaboration. Both team members are present. No points will be award if only one team member is present.	Some collaboration is evident. No points will be award if only one team member is present.	There is lack of evidence of collaboration. No points will be award if only one team member is present.	10	

Area	High points 5–4 points	Medium points 3–2 points	Low points 1–0 points	Points Possible	Points Earned
Thorough-ness/ Information	Student researcher(s) clearly communicate the original plan and adaptations that may have been made to the study. Any adaptations made uphold the integrity of the study. Facts and principles the student researcher(s) state are correct and accurate. All results of the experiments are reported accurately based on methodology used. Any errors and weaknesses in the study are identified, if applicable.	Student researcher(s) partially communicate the original plan and adaptations that may have been made to the study. Any adaptations made may uphold the integrity of the study. Facts and principles the student researcher(s) state are partially correct and accurate. Most results of the experiments are reported accurately based on methodology used. Most errors and weaknesses in the study are identified, if applicable.	Student researcher(s) do not communicate the original plan and adaptations that may have been made to the study. Adaptations made do not uphold the integrity of the study. Facts and principles the student researcher(s) state are inaccurate. Results of the experiments are not reported accurately based on methodology used. Errors and weaknesses in the study are not identified.	30	_____ x 6 = _____
Results/ Conclusions	The student researcher(s) use known facts to draw conclusions. Conclusions are consistent with the data and/or observations presented. The student researcher(s) clearly share what was learned as a result of the research. The student researcher(s) effectively communicate the results and impact of the study.	The student researcher(s) use known facts to draw conclusions. Conclusions are inconsistent with the data and/or observations presented. The student researcher(s) ineffectively share what was learned as a result of the research. The student researcher(s) ineffectively communicate the results and impact of the study.	The student researcher(s) do not use known facts to draw conclusions. Conclusions are inconsistent with the data and/or observations presented. The student researcher(s) do not share what was learned as a result of the research. The student researcher(s) do not communicate the results and impact of the study.	15	_____ x 3 = _____
Visual Display	The data is presented in the best manner for the particular type of information involved. No spelling errors are present. The exhibit demonstrates general neatness and attractiveness. The display is presented in a logical and interesting manner.	The data is presented in a logical manner for the particular type of information involved. Some spelling errors are present. The exhibit lacks general neatness and attractiveness. The display is presented in a logical yet uninteresting manner.	The date is not presented in a rational manner for the particular type of information involved. Several spelling errors are present. The exhibit lacks general neatness and attractiveness. The display lacks logic and appears uninteresting.	15	_____ x 3 = _____
			TOTAL SCORE (120 points possible) This constitutes 75% of the overall score to determine final ranking.		

**In the event of a tie, winner will be determined based on the score of the written report. If a tie still exists, the tie will be broken on scores received in the following sections in order: knowledge gained, thoroughness/information, results/conclusions.*

***If a team project only has one student present, they cannot rank higher than fourth overall. In the "Knowledge Gained" section, team members can receive up to 7.5 points each. Both team members must be present to receive points for "peer-to-peer collaboration".*