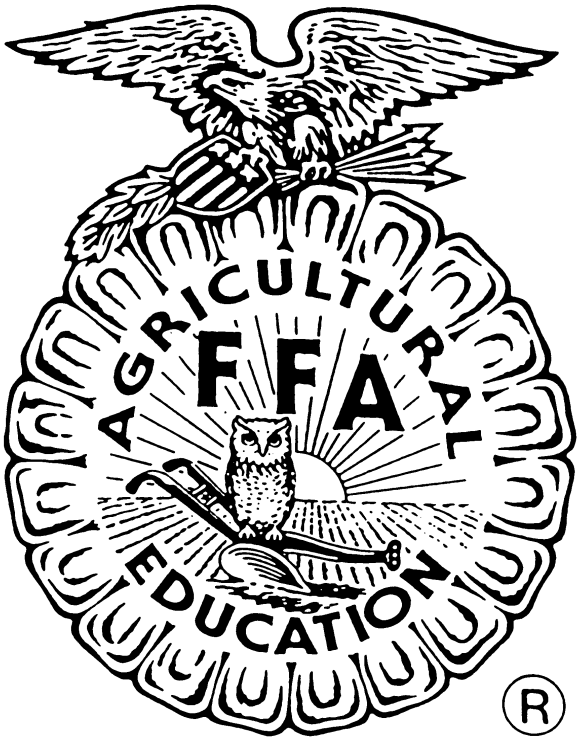
Agriscience Fair

RULES AND REGULATIONS

INDIVIDUAL AND TEAM COMPETITION



ALABAMA FFA ASSOCIATION

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Developed August, 2018

Agriscience Fair

Introduction

The Alabama FFA Agriscience Fair is an exciting opportunity for students interested in scientific principles and emerging technologies in the agricultural industry. The Alabama 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 Alabama FFA Agriscience Fair recognizes students studying the application of scientific principles and emerging technologies in agricultural enterprises. The Alabama FFA Agriscience Fair is for middle and high school students grade 7 -12. Participation begins at the local chapter level and progresses to state and national levels. Areas of participation closely mirror the National Agriculture, Food and Natural Resources Career Cluster Content Standards.

When selecting a topic for your agriscience fair project, consider your ongoing SAE program as a good place in which to begin. Quality experimental SAE projects/activities are well suited for all students and can be easily incorporated into any SAE program. Experimental SAE activities 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 or requires:
• Focusing on an important agricultural/scientific 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.

For National FFA Agriscience Fair Rules or References to the National Agriscience Fair Document visit
https://www.ffa.org/SiteCollectionDocuments/asf_2017_2021_agriscience_fair_handbook.pdf#search=Agriscience%20Fair

Divisions

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. 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.

CATEGORY DESCRIPTIONS

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

- Animal Systems
- Environmental Services/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 Services/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 SERVICES/NATURAL RESOURCE SYSTEMS (ENR)*

*This category will be combined in 2017. 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

ELIGIBILITY

Membership

Each participant must be a current, bona fide, dues paying FFA member in good standing with the local chapter, state FFA association and National FFA Organization at the time of his/her selection and at the time of the event in which he/she participates.

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 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.

PLAGIARISM

An agriscience fair project must be the result of a student’s own effort and ability. However, in securing information as direct quotes or phrases, specific dates, figures or other materials, that information must be marked in “quotes” in manuscripts and identified in the Literature Cited or Reference section of the written report. Non-compliance represents plagiarism and will automatically disqualify a participant

Students 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.

SAFETY RULES

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

2. Projects involving vertebrate animal subjects must conform to the following statement and have a fully completed non-human vertebrate endorsement form submitted: *Experiments on live animals involving surgery, the removal of parts, injection of harmful chemicals and/or exposure to harmful environments are not acceptable at the Alabama FFA Agriscience Fair. Live vertebrates may not be exhibited at the fair.*

3. Hypodermic needles, syringes, crystals [other than sucrose (sugar) and sodium chloride (salt)] and/or toxic and hazardous chemicals are prohibited from display at the Alabama FFA Agriscience Fair. Students should substitute colored water, photographs, three dimensional models or drawings for chemicals and crystals.

4. All necessary chemical glassware must be displayed in a stable manner. The items must be back from the edge of the table and may not be operational at any time.

5. No wild cultures may be incubated above room temperature; no cultures taken from humans or other warm-blooded animals may be used. This includes, but is not limited to, skin, throat and mouth.

6. Only plastic Petri dishes may be used in displays, and they must be sealed.

7. Lasers may not be used in any exhibit.

8. Dangerous and combustible materials are prohibited.

9. No exhibit may have open flames. Any part of an exhibit that can get hotter than 100 degrees Celsius (boiling water temperature) must be adequately protected from its surroundings.

10. Electricity will not be provided or permitted as part of a display at the Alabama FFA Convention.

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 reasearcher(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 publically 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 nonhuman 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. 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. This includes euthanasia.
    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.

8. 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.

CAUSES FOR DISQUALIFICATION

A project may be disqualified if:

1. participant fails to meet any rules or participation guidelines set forth in this handbook.
2. participant(s) fail to complete and submit the Agriscience Fair application to the Alabama FFA Association on time. (April 1 annually)
3. participant(s) fail to meet certification and form requirements specified in the online application and in this document.
4. participant(s) display arrives after the designated set up time has elapsed. The Agriscience Fair display must be setup between 8:00 am and noon on the Wednesday of Alabama FFA State Convention.
5. any assistance is given to a team or participant from any source other than the agriscience fair officials or assistants once judging has begun.
6. the superintendent stops any participants for manners they deem to be hazardous to themselves or others. Such removal will constitute immediate disqualification.
7. the participant does not complete the event he/she starts, unless prior permission from the superintendent has been obtained.
8. 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.,).
9. if 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 to do so may disqualify their participant.
10. any participant, advisor or chapter member tampers with another participant's display.
11. the display fails to meet the requirements. See the "Display" section of this handbook for more information.
12. The following will result in disqualification:
    a. Plagiarism
    b. Unethical research
    c. Study is not related to agriculture
    d. Study is declared in the wrong category

ETHICS STATEMENT

Scientific fraud and misconduct is not condoned at any level of research or competition. Plagiarism, use of 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 elimination from the Alabama FFA Agriscience Fair. Unethical behavior will result in notification to the student's local school administration. Exhibited projects and project reports shall be the result of the student researcher(s) own effort.

MULTIPLE STUDENT RESEARCH PROJECTS

Each chapter may submit one entry per division for each category. Being that there are 6 categories and 6 divisions, a chapter may submit up to 36 entries.

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 7th Period Animal Science Class for their assistance in…).

REQUIRED FORMS AND MAILING CHECKLISTS

As a part of the state/national competition application process, the following forms are required. These forms must be postmarked to the Alabama FFA Organization, P.O. Box 302101, Montgomery, Al 36130-2101, no later than April 1. The required forms are located in the application which is found in the Application Center for each member and are included in the applicationas follows:

I: Complete Project Report

- Title Page
- Abstract
- Introduction
- Literature Review
- Materials and Methods
- Results
- Discussions and Conclusions
- References
- Acknowledgements

II. Agriscience Application Forms (online through member's application center)

- Registration Form
- Research Plan and Approval Form
- Adult Sponsor Checklist
- Hazardous Materials Waiver Form
- Human Vertebrate Form
- Non-Human Vertebrate Form
- Research Funding
- Project Extension Form (when applicable)
- Previous Year Abstract (when applicable)

If the above forms are not postmarked by April 1, the fair participant(s) will be disqualified.

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 April 1 annually. Previous research and information should only be included in the Literature Review/ Other's Work and Discussions/Conclusions section.
2. Judging will be based on the current year of research, not the entire scope of the research project. The project must document that the additional research is an expansion based on 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. The log book, project display and project report must reflect the current year's work only.
3. Displays and application materials 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.
4. 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.
5. All extension projects must be reviewed and approved each year and forms must be completed for each year.
6. 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. Displays must reflect the current year's work only.

• NOTE: For an extension project to be eligible for competition in the agriscience fair, documentation must include the project extension form, the current year's abstract and 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.

RECOGNITION

Chapter Level – Winners may be selected annually in each FFA chapter for each division and category. The winner can represent any of the agriscience category areas.

State Level –Each state winner for each category and division shall be eligible to enter the National FFA Agriscience Fair pre-screening. This is required before moving on to compete at the national level agriscience fair. See the Alabama FFA Contest and Awards Booklet for state level award details.

National Level – Selected participants from each state may be forwarded for national competition. A national winner will be selected in each category. National winners will be presented with pins and plaques at the awards reception during the national convention. Additional awards may become available as funded by special project sponsors above and beyond the core sponsorship for the National FFA Agriscience Fair. They may include, but are

not limited to, scholarships and cash awards to category/division winners. These awards will be appropriate for each category/division, but not necessarily equal or identical.

AGRISCIENCE FAIR COMPONENTS

WRITTEN REPORT

The full written report and application must be postmarked to the Alabama FFA Association by April 1. As developing student researchers, the expectations for the written report are slightly different for Divisions 1 and 2 (7th and 8th 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 3-6 (grades 9-12). See "Prequalifying Rubric: Divisions 1-2" and "Prequalifying Rubric: Divisions 3-6" for additional information.

FORMAT OF REPORT

The report should be printed on 8 1/2" x 11" white paper. The report will have 1" margins. Font size must be 12 using Arial, Courier or Times New Roman font. The project report template is required and is available on www.FFA.org/agrisciencefair by division.

DISPLAY REQUIREMENTS *(SETUP BETWEEN 8:00a.m. and 12:00p.m. on Wednesday of Convention)*

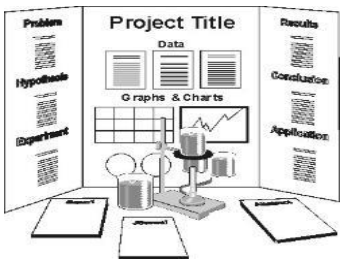
Each exhibit should include information relevant to the study. All projects must have the following information attached to the exhibit:

- 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 not to exceed the dimensions of:

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

At the Alabama FFA Agriscience Fair, tables will be provided. 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. The student researcher(s) may also have the log book and up to five copies of the written report as part of the display. The log book and copies of the written report are optional. No additional props, 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.



WRITTEN REPORT SCORESHEET: Divisions 1-2 (Grades 7 and 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**	**X 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 =**
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	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	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 =**

	"Other's Work" section?	"Other's Work" section?			
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**	
Acknowledgements	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	Some of the competencies	Very few competencies are listed		

	(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.	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.	and are not appropriate for the scope of the research project. The project does not demonstrate application of skill attainment and has no measureable impact on the overall project.	**5**	
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.

WRITTEN REPORT SCORESHEET: 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 includes 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 methods, 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 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 and explains the study design. The statistical procedures are included but are unclear.	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 is not stated. The statistical procedures are not included.	**15**	**X 3 =**
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/references to 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/references to 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 and do not relate directly to the hypothesis. Discussion poorly refers/references to 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 =**
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**	
Acknowledgements	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 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	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 measureable impact on the overall project.	**5**	

	measurable impact on the overall project.				
APA Style/ Spelling	APA citation style is used. No spelling or grammar errors are present.	APA citation style is used. Minor spelling or grammar errors are present.	APA citation style 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.

DISPLAY SCORESHEET: DIVISION 1-6 (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**	**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 =**
Thoroughness/ 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.

Alabama Agriscience Fair Scoring Summary Sheet

Student(s) :_____Chapter:_____

Category: _____ Division: _____

	Written Report Score	Display Score	Total Score
Judge 1			
Judge 2			
Judge 3			
Total of all three Judges: (FINAL SCORE)			

Category Scoring Totals Sheet

Category_____Division_____

Chapter Name	Student (s)	Total Score	Ranking

Sample Logbook

You must keep careful records of all that you do and all that happens during your project. This should be in the form of a daily diary called a logbook.

Sample Logbook

Date: 1/13/11
Today I checked my plants at 12:30 p.m. I noticed that Group A seems to be growing faster than groups B, C and D. Specifically, plant A_2 seems to be growing the best. The plants in Group A are not just taller, but seem to be greener and healthier. It is interesting to note that the plant with the longest root development is plant C_3. I do not know the reason for this. Here is a chart of my results for today:

Plant	Height in cm.	# of Leaves	Root length in cm.	Observations
A1	5	4	3.1	Has not grown
A2	5.2	5	3.4	Has a new leaf
A3	5.3	4	3.4	Is tallest in the group
B1	4.9	4	3.1	Has not changed
B2	4.8	4	3.0	Has not shown growth
B3	4.8	5	2.5	Poor root growth
C1	5.0	4	2.3	Poor root growth
C2	4.3	5	3.4	Lowest height
C3	4.5	4	4.2	Longest roots
D1	4.3	4	3.2	Lowest height
D2	4.7	4	2.9	Low root growth
D3	4.4	4	2.0	Least root development

- ✓ Notice there are comments and a chart for each entry.
- ✓ Developing an outline template for the logbook and photocopying a page for each daily entry can be helpful.
- ✓ The logbook can be created either in a notebook or as a collection of pages.
- ✓ Use a separate page for each daily entry.

SAMPLE TITLE PAGE

"Effects of Light on Plant Growth"

Pete Smith, 11th Grade
Division 2: Individual 10th-12th Grade
Category: Plant Systems
Advisor: Ben Smith

Timbuktu FFA Chapter
Timbuktu High School
123 Smith Rd.
Timbuktu, AL 311101

References

- *Science Fair Handbook for High School Teachers,* order from Instructional Materials Service, Texas A&M University, 2588 TAMUS, College Station, Texas 77843-2588, 979-845-6601 (phone), 979-845-6608 (fax), ims@tamu.edu, http://www.ims.tamu.edu/, Catalog No. 9022, $3.00 each copy.

- *Science Workbook – Student Research Projects in Food, Agriculture, Natural Resources.* Order from Curriculum Materials Service, 1114 Chambers Road, Columbus, Ohio 43212-1702, 614-292-4848 (phone), 800-292-4919 (fax), cms@osu.edu, http://www.cms.ag.ohio-state.edu/OrderForm.pdf, Vendor AG COL, Item 21X, $5.95 each plus shipping and handling.

- **Access Excellence at the National Health Museum**: A website for teachers and students studying biology in the modern world. Developed by Genentech, a San Francisco biotechnology company, www.accessexcellence.com

- **Science Fair Project Resource Guide:** Includes links to other websites that provide science project ideas. This site also gives you a tutorial on "Getting Started", "Choosing a Topic", "Completing the Project", and "Displaying the Project". http://www.ipl.org/youth/projectguide/

- **The Ultimate Science Fair Resources:** This site covers all aspects of developing a science fair project, from start to finish. It also has many links and a supply service. www.scifair.org

- **The Science Club:** A non-profit educational corporation with dozens of links to other science sites, the corporation has a science fair idea exchange and lists of possible science project ideas. http://scienceclub.org/

- **New Science Fairs homepage:** This is a project of the Eastern Newfoundland Science Fairs Council. This homepage is designed to aid students in the most difficult aspect of their science fair experience, getting an idea. They have everything from cool links to information on the Canada-Wide Science Fair. Many science project ideas are included and they are adding more. http://www.oconee.k12.sc.us/walmid/sclinks/Science%20Fair.htm

- **Planet Ag:** The Florida Department of Agriculture developed Planet Ag for students to learn more about environmental science. This site also has lists of ideas for science fair projects. http://www.fl-ag.com/PlanetAg/

- **Science Fair Central at Discovery School:** 250 PROJECT IDEAS. A list of ideas sorted by academic field of study. http://school.discovery.com/sciencefaircentral/elmers/250projectideas.html