

Agriscience Fair Timeline and Guidelines

- I. Brainstorm project topic/question to be answered and turn in 9/4
- II. Research and create an abstract of your background information to be turned in 9/7
- III. Complete list of materials and hypothesis turn in by 9/14
- IV. Intended Procedures turn in by 9/21
- V. Test with experiment...testing, trials, data collection, etc. must be done between 9/24 – 11/16. Thursdays in class will be used as data collection days all other data collection must be done on students own time.
- VI. Results analyzation rough draft turn in by 11/30
- VII. Final project must be completed and turned in by 12/12
- VIII. Presentations will begin 12/13

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 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 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 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.

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.

ENVIRONMENTAL SERVICES/NATURAL RESOURCE SYSTEMS (ENR)

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.

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.

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.

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.

SOCIAL SCIENCE (SS)

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

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 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 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.

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.

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

Utilize the rubric for Divisions 3-6 (grades 9-12) attached.

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 as: 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.

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 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.

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 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.

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 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

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.

DISPLAY EXHIBIT

Each exhibit should include information relevant to the study. Your 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 back to front) Failure to meet these requirements will result in a 20 point reduction in grade. 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.

PRESENTATION

All students will present their projects to the class and answer questions. Explanation and questioning may not exceed 15 minutes. 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?

Helpful Tips

Managing Outcomes

- Do not change your hypothesis
- Do not omit evidence that is for or against your hypothesis
- If the outcome is different than the hypothesis, suggest why
- State what could/should happen next

Displaying your results

- Be creative and organized
- Do not clutter
- Use relevant photos and simple, correct captions (50 words or less)

Remember

- Display is less than 10% of the total project score
- Keep it simple
- Posters are great for displaying information –see regulations in the handbook
- Required written report templates available on FFA.org

Written Report template -> <https://ffa.app.box.com/s/t5pvfe6c4h7swafslji5tfox3my2cw2s/file/289990393154>