



Illinois FFA AgriScience Fair Handbook

Contents

General Guidelines

Application Process

Selecting a Division

Selecting a Category

Preparing Your Materials

Report

Abstract

Display

Interview

*Information for the Day
of the Event*

Awards & Recognition

*AgriScience Fair
Scoresheet*

APA Styles

Sample Abstract

Illinois FFA AgriScience Fair

The FFA Agriscience Fair is designed for students interested in scientific principles and emerging technologies in the agricultural industry. The 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.

GENERAL GUIDELINES:

To qualify for the Illinois FFA Agriscience Fair 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. Students must be in grades 7 - 12 and conduct a scientific research project pertaining to the agriculture and food science industries and, present their findings to a panel of judges with a display and a report during the Illinois FFA State Convention. 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.

For rules regarding Human Vertebrate and Non-Human Vertebrate please reference the National FFA AgriScience Handbook available at www.ffa.org.

APPLICATION PROCESS:

- Submit the AgriScience Fair Registration Form via Google Forms by April 15th. A link to the forms will be provided at the Illinois Association FFA website. When you register you need to have the following information available:
 - Your “Project Title”.
 - The AgriScience Fair “Division” in which your project will be competing.
 - The “Category” in which your research was conducted.
 - Your “Name” if an individual project or the names of both you and your research partner if this is a team project.
 - The name of your “FFA Chapter”. Team event entries require both student researchers to be from the same FFA Chapter.
 - Your “FFA Advisor’s Name”. If you have more than one advisor, use the one that supervised your research.
 - “Advisor’s E-mail Address”.
 - The “Purpose” of your research project (hypotheses).
 - The “Procedures” used in conducting your research.
 - The “Conclusions” you reached as a result of your research.

*THE PURPOSE, PROCEDURES, AND CONCLUSIONS SHOULD NOT BE LONGER THAN 150 WORDS COMBINED.

- Applications will be reviewed to:
 - Determine the agriculture relevance of the project
 - To insure projects are entered in the proper category and that the project is scientific in nature.Participants with projects that are accepted for the AgriScience Fair will be notified by May 15th.

SELECTING A DIVISION:

Students can compete in the AgriScience Fair as an individual or as a team. Each member and/or team may enter only one project. Exhibited projects and project reports will be the result of the students' own efforts. A team is a maximum of two members working cooperatively on the same project.

- 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 - Teams 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 level is determined by the grade of the student at the time of application. Teams may consist of two students from different grades; however, the grade of the older student will be used to determine the division for competition.

SELECTING A CATEGORY:

Students must identify the appropriate category for their project. Any project that is placed in a questionable category will be submitted to the National FFA Organization for review prior to the Illinois FFA AgriScience Fair.

- ***Animal Systems***
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***
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. The study of systems, instruments and technology used in waste management; the study of the management of soil, water, wildlife, forests, and air as natural resources and their influence on the environment.

Examples:

- Effects 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**

The study of product development, quality assurance, food safety, production, sales and service, regulations 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**

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**

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 Systems**

The study of human behavior and the interaction of individuals in and to society, including agricultural education, agribusiness economic, agricultural communication, agricultural leadership and other social science applications in agriculture, food and natural resources.

Examples:

- Investigate perceptions of community members towards 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 economical 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

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.

PREPARING YOUR MATERIALS:

- **Format of the Report:**

The report should be printed on 8 1/2" x 11" white bond paper. The report will have 1" margins. Font size must be 12 using Arial, Courier or Times New Roman font. The APA style recognized citation system should be used throughout the report.

- **Completing the Abstract**

You should limit your abstract to 3 paragraphs (about 150 words total) focusing on the purpose, procedure and conclusion. In the section labeled "**Purpose**" you should tell what you set out to investigate. In the "**Procedure**" section, tell the steps of the process you used in your research. The "**Conclusion**" should tell what you discovered through your research.

- **Developing Your Display:**

All projects must have the following information attached to the exhibit:

- Name of person(s) responsible for developing the project
- Chapter name
- Title of category entered
- Division entered (1, 2, 3, 4, 5, 6)

The exhibit panels must be constructed to be stable and free standing. The maximum size for a project is 48 inches wide by 30 inches deep (the distance from front to back) by 36 inches high (from top of table to top of display). Tables will be provided and will not exceed a height of 36 inches.

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. Failure to meet these requirements will result in disqualification.

- ***Preparing Your Interview:***

The interview is an opportunity for judges to ask you questions about your project. Interview and questions for Agriscience fair participants will normally be 5-10 minutes and not exceed 15 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 a white rating. The interview portion is used to help judges determine both the extent to which you actually participated in the project and your knowledge gained.

INFORMATION FOR THE DAY OF THE EVENT

The Illinois FFA AgriScience Fair will be held the Tuesday of the Illinois FFA State Convention. Official dress is required for this event.

Participants should bring at least two 3-ring binders with the following information included to the AgriScience Fair at the Illinois FFA State Convention for competition purposes:

- Project Report in the order designated in the National AgriScience Fair Application with the appropriate titles:
 - Title Page
 - Abstract
 - Introduction
 - Review of Literature (at least 6 pages in length recommended for the national level)
 - Materials & Methods
 - Results
 - Discussion and Conclusion
 - References (at least 12 references recommended for the national level)
 - Acknowledgements

As projects are judged, National entries will be identified. All National entries **MUST** turn in the following information in an envelope at that time. Materials should not be in binders, sheet protectors or any other presentation format. Materials should be stapled together.

Failure to have this envelope of information available at the AgriScience Fair will result in forfeiting the National Entry status.

- National AgriScience Fair Application - Completed with ALL signatures
- Project Report stapled in the order designated in the National AgriScience Fair Application with the appropriate titles:
 - Title Page
 - Abstract
 - Introduction
 - Review of Literature (at least 6 pages in length recommended for the national level)
 - Materials & Methods
 - Results
 - Discussion and Conclusion
 - References (at least 12 references recommended for the national level)
 - Acknowledgements

All National Finalist will have the opportunity to submit revisions to the Illinois FFA Center by June 25th or date set by the designated staff member.

Tentative Schedule of Events

- | | |
|------------------|--|
| 9:00-9:30 a.m. | Exhibitor & Judges Check-In in Designated Area - Students set up displays |
| 9:30-9:45 a.m. | Exhibitor Meeting with the AgriScience Fair Chairman for specific details of the event prior to judging. The Chairman should be made aware of any schedule conflicts at this time in order that accommodations can be addressed with judges. |
| 9:45-10:00 a.m. | Judges Meeting |
| 10:00-12:00 p.m. | Judging Process - Students will be judged by a qualified committee for their division and category ranking. Lunch will be provided to judges. |
| 12:30-1:00 p.m. | Final Category Winners Chosen |

Students must remain in the designated AgriScience Fair area until they are released by the AgriScience Fair Chairman in order to be considered for awards.

AWARDS:

The top project for each division/category will be named a National Finalist Candidate for that area. Additional special awards will be designated as funding is available.

Advisors will be notified via e-mail of their student's ranking following the event on Tuesday afternoon. All participants will be awarded with ribbons and medals for their participation in the AgriScience Fair based on the following score ratings:

- National Finalist Candidate Rating - Purple Rosette
- Blue Rating/Ribbon - score of 130-110 points
- Red Rating/Ribbon - score of 109-89 points
- White Rating/Ribbon - score of 88-0 points

Recognition at Tuesday Night Awards Dinner:

Successful participants will be recognized at the AgriScience Fair Awards Dinner to be held on Tuesday evening during the Illinois FFA State Convention. All participants are invited to attend this event.

The following awards being presented:

- a. National Finalist Candidates
- b. Special Awards - as funding allows

Instructions for National Finalist Candidates:

To be named a National Finalist Candidate for the Illinois FFA AgriScience Fair, student(s) must receive a blue rating for their project, be selected as the top project in their Division/Category, and turn in the following information in an envelope at that time. Materials should not be in binders, sheet protectors or any other presentation format. Materials should be stapled together. **Failure to have this envelope of information available at the AgriScience Fair will result in forfeiting the National Finalist Candidate status.**

- National AgriScience Fair Application - Completed with ALL signatures
- Project Report stapled in the order designated in the National AgriScience Fair Application with the appropriate titles:
 - Title Page
 - Abstract
 - Introduction
 - Review of Literature (at least 6 pages in length recommended for the national level)
 - Materials & Methods
 - Results
 - Discussion and Conclusion
 - References (at least 12 references recommended for the national level)
 - Acknowledgements

All National Finalist will have the opportunity to submit revisions to the Illinois FFA Center by June 25th or date set by the designated staff member.

Illinois FFA Staff will review materials and declare Illinois FFA's National entries. After the entries are declared, students must be certified on the National FFA website by the chapter advisor by July 15th. If they are selected as one of the Top 15 in their respective category during pre-qualifying national judging, they will be invited to compete at the National AgriScience Fair during the National FFA Convention in the fall.

Score Sheet/Rubric

Student(s) _____ Chapter: _____

Category: _____ Division: _____

Area	High Points 5-4 points	Medium Points 3-2 points	Low Points 1-0 points	Points Possible	Points Earned
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	
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. Abstract is clear.	Abstract describes the purpose, methods, results and conclusions. Abstract does not include cited references. Abstract is longer than one page. Abstract is vague.	Abstract poorly describes the purpose, methods, results and conclusions. Abstract includes cited references. Abstract is longer than one page. Abstract is unclear.	5	
Review of Literature	The information includes 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. How the project might complement existing information is not clear.	The literature review does not detail what information currently exists concerning the research project. How the project might complement existing information is not clear.	10	<hr/> x 2 = <hr/>
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.	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.	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.	15	<hr/> x 3 = <hr/>
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 incomplete. 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.	15	<hr/> x 3 = <hr/>
Total Score From Page 1 of Score Sheet (50 points possible)					

Discussions & Conclusions	Brief recap of the results is included. 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, vaguely incorporates previous literature and partially relates to the hypothesis.	No recap of the results is included or poorly shows 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.	15	$\begin{array}{r} \text{---} \\ \times 3 \\ \text{=} \\ \text{---} \end{array}$
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.	5	
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 used. Minor spelling or grammar errors are present.	5	
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 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 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 of the problem selected.	15	$\begin{array}{r} \text{---} \\ \times 3 \\ \text{=} \\ \text{---} \end{array}$
Scientific Research	The problem is clearly stated. The student researcher(s) are aware of the basic scientific principles. 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) have limited knowledge of the basic scientific principles. With some modification, the research could be the basis for further study. Some appropriate methods and scientific design have been applied. The student researcher(s) are partially aware of the empirical method and controlling the variables.	The problem is not stated. The student researcher(s) are unaware of the basic scientific principles. 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.	15	$\begin{array}{r} \text{---} \\ \times 3 \\ \text{=} \\ \text{---} \end{array}$
Total Score From Page 2 of Score Sheet (60 points possible)					

<p>Thoroughness/ Information</p>	<p>Student researcher(s) clearly communicate 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 are identified, if applicable.</p>	<p>Student researcher(s) partially communicate 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 are identified, if applicable.</p>	<p>Student researcher(s) do not communicate 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 are not identified.</p>	<p>10</p>	<p>_____</p> <p>x 2</p> <p>=</p> <p>_____</p>
<p>Visual Display</p>	<p>The data is presented in the best manner for the information involved. No spelling errors present. The exhibit demonstrates general neatness and attractiveness. The display is interesting.</p>	<p>The data is presented in a logical manner. Some spelling errors are present. The exhibit lacks general neatness and attractiveness. The display uninteresting.</p>	<p>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 is uninteresting</p>	<p>10</p>	<p>_____</p> <p>x 2</p> <p>=</p> <p>_____</p>
<p style="text-align: center;">Total Score From Page 3 of Score Sheet (20 points possible)</p>					
<p style="text-align: center;">Points Page 1 _____ + Points Page 2 _____ + Points Page 3 _____</p> <p style="text-align: center;">TOTAL SCORE (130 points possible)</p> <p>Blue Rating = 130-110 points Red Rating = 109-89 points White Rating= 88-0 points</p>					

APA Format Examples

Books

Author's last name, first initial. (Publication date). *Book title*. Additional information. City of publication: Publishing company.

Example:

Allen, T. (1974). *Vanishing wildlife of North America*. Washington, D.C.: National Geographic Society.

Encyclopedia & Dictionary

Author's last name, first initial. (Date). Title of Article. *Title of Encyclopedia* (Volume, pages). City of publication: Publishing company.

Example:

Bergmann, P. G. (1993). Relativity. In *The new encyclopedia britannica* (Vol. 26, pp. 501-508). Chicago: Encyclopedia Britannica.

Magazine & Newspaper Articles:

Author's last name, first initial. (Publication date). Article title. *Periodical title, volume number(issue number if available)*, inclusive pages.

Example:

Harlow, H. F. (1983). Fundamentals for preparing psychology journal articles. *Journal of Comparative and Physiological Psychology*, 55, 893-896.

Website or Webpage

Online periodical:

Author's name. (Date of publication). Title of article. *Title of Periodical*, volume number, Retrieved month day, year, from full URL

Online document:

Author's name. (Date of publication). *Title of work*. Retrieved month day, year, from full URL

Note: When citing Internet sources, refer to the specific website document. If a document is undated, use "n.d." (for no date) immediately after the document title. Break a lengthy URL that goes to another line after a slash or before a period. Continually check your references to online documents. There is no period following a URL.

Note: If you cannot find some of this information, cite what is available.

Example:

Dove, R. (1998). Lady freedom among us. *The Electronic Text Center*. Retrieved June 19, 1998, from Alderman Library, University of Virginia website:
<http://etext.lib.virginia.edu/subjects/afam.html>

Sample Abstract

PURPOSE: The purpose of my project was to determine how colostrum levels affect immunity in dairy calves. This relates to the agriculture industry as we must continue to find ways to increase rate of gain and growth in dairy calves that are typically bottle fed.

PROCEDURE: Twenty calves were assigned to two separate groups including adequate colostrum and inadequate colostrum. The quality was determined using a refractometer to measure colostrum immunoglobulin levels. Blood was drawn from the calves in each group between one to six days of life and tested for blood serum protein levels, an indicator of immunoglobulin levels. The weights of the calves were also measured at week 2, 4, and 8 of life to determine rate of gain.

CONCLUSION: It was determined that the adequate levels of colostrum equated to the highest levels of blood serum protein and provided active transfer. Inadequate levels had a mean for protein levels below the level considered for active transfer. There was no marked statistical difference in the rate of gain for the two groups; however, further studies would need to be conducted to determine this factor.