

Agriscience Fair



CDE Handbook

Agriscience Fair

PURPOSE:

The North Dakota Agriscience Fair recognizes student researchers studying the application of agricultural scientific principles and emerging technologies in agricultural enterprises. The agriscience fair is for middle and high school students.

CATEGORY DESCRIPTIONS

Student researcher(s) can compete in the state Agriscience Fair in one of six categories:

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

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

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

DIVISIONS

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

- Division 1 — individual member in grades 7 and 8.
- Division 2 — team of two members in grades 7 and 8.
- Division 3 — individual member in grades 9 and 10.
- Division 4 — team of two members in grades 9 and 10.
- Division 5 — individual member in grades 11 and 12.
- Division 6 — team of two members in grades 11 and 12.

RULES

For rules related to types of eligible research (extension projects, use of vertebrates, hazardous materials, etc.), disqualification, and plagiarism please reference pages 11-14 of the National FFA Agriscience Fair Handbook.

PRIOR TO CONVENTION

A copy of the student's abstract is due May 15th. Abstracts are to be emailed to agriscience@ndffa.org.

Project Components to bring to State FFA Convention

WRITTEN REPORT

The full written report must be completed and brought to State FFA Convention for judging. As developing student researchers, the expectations for the written report are slightly different for Divisions 1 and 2 (seventh and eighth grade students) compared to Divisions 3, 4, 5 and 6. The purpose of the rubric for Divisions 1 and 2 is to introduce young student researchers to the process of scholarly thinking. As the student researcher ages, skills grow and advance to utilize the rubric for Divisions 3 to 6 (grades 9 to 12). Students **must** use the National Agriscience Fair Templates for their written reports (found on the State FFA website). For more information about the paper requirements, please reference pages 17-22. Please bring a copy of the written report to State FFA Convention and leave at the student's display.

DISPLAY

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
- Title of category
- Division (1, 2, 3, 4, 5 or 6).

State Agriscience Fair participant(s)' display shows the results of the study utilizing a display board no larger than the provided dimensions:

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

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

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

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

INTERVIEW

All contestants are required to meet face to face with the judges to explain their projects. Explanation and questioning may not exceed 10 minutes (students will be given a 2-minute warning). The interview is an opportunity for judges to ask questions about the project. A team project must be presented by a team of two. If only one team member is present, the team

cannot rank higher than second overall. Last minute substitutions are not permitted. Judges will ask questions to determine the extent of the knowledge gained, your understanding of your project, how it relates to your SAE and possibly how your project relates to other FFA activities. The following is a list of example questions that may be asked:

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

North Dakota State Agriscience Fair Judging Rubric (7-8th)

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
Knowledge Gained	There is evidence the student researcher(s) have acquired scientific skills and/or knowledge by doing this project.	The is some evidence that the student researcher(s) have acquired scientific skills and/or knowledge by doing this project.	There is no evidence that the student researcher(s) have acquired scientific skills and/or knowledge by doing this project.	15 pts	_____ x 3 =_____ _____
Scientific Research	The problem is clearly stated. The researcher(s) use scientific facts as a basis for new conclusions. The 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 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 researcher(s) use some scientific facts as a basis for new conclusions. The 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 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 researcher(s) do not use scientific facts as a basis for new conclusions. The 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 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 pts	_____ 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 pts	_____ x 3 =_____ _____
Thoroughness/ Information	The researcher(s) clearly communicate the original plan and adaptations that may have been made to the study. Facts and principles the 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.	The researcher(s) partially communicate the original plan and adaptations that may have been made to the study. Facts and principles the 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.	The researcher(s) do not communicate the original plan and adaptations that may have been made to the study. Facts and principles the 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 pts	_____ 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 pts	_____ x 3 =
Visual Display	The data is presented in the best manner for the particular type of information involved. No spelling errors are present. The exhibit demonstrates general neatness and attractiveness. The display is presented in a logical and interesting manner.	The data is presented in a logical manner for the particular type of information involved. Some spelling errors are present. The exhibit lacks general neatness and attractiveness. The display is presented in a logical yet uninteresting manner.	The data is not presented in a rational manner for the particular type of information involved. Several spelling errors are present. The exhibit lacks general neatness and attractiveness. The display lacks logic and appears uninteresting.	15 pts	_____ x 3 =
Total Presentation Score (120 pts possible)					

Written Report Score

Area		Points Possible	Points Earned
Importance	In two paragraphs, clearly answers the questions: Why is this topic important to the agriculture industry and what problem does the investigation solve for agriculture?	5 pts	
Other's Work	Clearly details what information currently exists concerning the project. <u>References are included.</u>	8 pts	
Materials and Methods	Clearly written in a way that others could replicate the study and results. Section is written in first person and encompasses all materials required.	6 pts	
Hypothesis/Anticipated Results	The hypothesis and/or anticipated results are clearly stated.	3 pts	
Results	Written results of the project are summarized. Trends and relationships are clearly addressed. <i>No conclusions are made in this section.</i> Data that can stand alone in the form of tables and/or figures are included.	10 pts	
Discussion	Includes clear, detailed answers to the following questions: What do the results of the study mean and how are they related to what others found in the "Other's Work" section.	5 pts	
Conclusions	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.	5 pts	
Summary	Two to three paragraphs describing the study. Describes why they chose to conduct the study, why it is important to the ag industry, how the study was conducted, what was found, and how the results apply within the ag industry.	4 pts	
Acknowledgements	Detailed list or paragraph is included acknowledging anyone who assisted with any aspect of the project and how they helped.	2 pts	
Spelling/Grammar	Complete sentences are used. No spelling or grammar errors are present.	2 pts	
Total Written Report Score (50 pts possible)			
Total Score (presentation + written report= 170 pts possible)			

North Dakota State Agriscience Fair Judging Rubric (9-12th)

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
Knowledge Gained	There is evidence the student researcher(s) have acquired scientific skills and/or knowledge by doing this project.	The is some evidence that the student researcher(s) have acquired scientific skills and/or knowledge by doing this project.	There is no evidence that the student researcher(s) have acquired scientific skills and/or knowledge by doing this project.	15 pts	_____ x 3 =_____ _____
Scientific Research	The problem is clearly stated. The researcher(s) use scientific facts as a basis for new conclusions. The 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 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 researcher(s) use some scientific facts as a basis for new conclusions. The 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 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 researcher(s) do not use scientific facts as a basis for new conclusions. The 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 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 pts	_____ 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 pts	_____ x 3 =_____ _____
Thoroughness/ Information	The researcher(s) clearly communicate the original plan and adaptations that may have been made to the study. Facts and principles the 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.	The researcher(s) partially communicate the original plan and adaptations that may have been made to the study. Facts and principles the 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.	The researcher(s) do not communicate the original plan and adaptations that may have been made to the study. Facts and principles the 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 pts	_____ 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 pts	_____ x 3 =
Visual Display	The data is presented in the best manner for the particular type of information involved. No spelling errors are present. The exhibit demonstrates general neatness and attractiveness. The display is presented in a logical and interesting manner.	The data is presented in a logical manner for the particular type of information involved. Some spelling errors are present. The exhibit lacks general neatness and attractiveness. The display is presented in a logical yet uninteresting manner.	The data is not presented in a rational manner for the particular type of information involved. Several spelling errors are present. The exhibit lacks general neatness and attractiveness. The display lacks logic and appears uninteresting.	15 pts	_____ x 3 =
Total Presentation Score (120 pts possible)					

Written Report Score

Area		Points Possible	Points Earned
Abstract	Abstract is brief and concisely describes the purpose, methods, results and conclusions . Abstract <i>does not include cited references</i> . Abstract is no longer than one page. Arrangement makes the purpose, procedure, results and conclusions clear.	2 pts	
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 .	5 pts	
Literature Review	The literature review details what information currently exists concerning the research project. It should include cited information such as similar studies and research methods, history, and other information that support the current knowledge base for the topic and how the project might complement existing information.	5 pts	
Materials and Methods	Clearly written to enable others to replicate the study and results. Section is written in third person , encompasses all materials required , states the hypothesis/research questions and explains the study design . If used, the statistical procedures are included.	8 pts	
Results	Written results of the project are summarized. Trends and relationships are clearly addressed. <i>No conclusions are made in this section</i> . Data that can stand alone in the form of tables and/or figures are included.	12 pts	
Discussion and Conclusions	Brief recap of the results is included. Conclusions are based on results, incorporates previous literature, and relates directly to the hypothesis. Discussion provides recommendations for future research and impact on the agriculture industry.	12 pts	
References	References contain significant, published and relevant sources.	2 pts	
Acknowledgements	Detailed list or paragraph is included acknowledging anyone who assisted with any aspect of the project and how they helped.	2 pts	
APA Style/Spelling	APA citation style writing is used throughout the written report. No spelling or grammar errors are present.	2 pts	
Total Written Report Score (50 pts possible)			
Total Score (presentation + written report=170 pts. possible)			