

# Agriscience Fair Tips from the Pro's

1. Every kid in the program has to do an agriscience fair project. It's for a grade and they all have to exhibit at the local agriscience fair. The fair just happens to occur at an FFA awards banquet, Alumni meeting, FFA degree ceremony, etc. Be sure community members to attend and serve as judges.
2. Align the projects to the categories and divisions of the national contest. Makes it easier to select who advances to the state level for you. Of course, only the FFA members get to advance. If a kid has a really cool project, might just be an incentive to pay their dues.

## Categories

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

## Divisions

- Division I – Individuals in grades 7, 8 and 9
- Division II – Individuals in grades 10, 11 and 12
- Division III – Teams in grades 7, 8 and 9
- Division IV – Teams in grades 10, 11 and 12

3. Follow these steps for introducing and getting them to work on it:
  - a. What is the big question about anything agriculturally related you want to answer?  
Big questions can be about nearly anything:
    - Which is better John Deere or Case (or insert any brand debate)?
    - Which tastes better, Coke or Pepsi (or insert any brand debate)
    - Do consumers prefer grass fed beef over grain fed?
    - What factor most influences a consumer's choice to purchase X item?
    - Which brand of feed results in the most rate of gain in an animal? (adhere to ethical treatment of animals!)
    - Does the level of CO2 in the greenhouse affect plant growth?
    - Which welding rod creates the strongest weld?
    - Are nails stronger than screws?
    - Does nitrogen runoff from farm fertilizers or golf courses increase the amount of algae in nearby ponds?
    - Does feeding Calcium supplement to hens increase egg nutritional values?
    - Why do some ag students become FFA members and others don't?
  - b. Once they have the question, time to apply the scientific method to figure out the answer. See the Agriscience Fair Resource Guide or talk to your resident science fair teacher (might be in the middle school).
4. Make sure students ask the experts! They can talk to extension agents, university researchers, local producers, etc. They need to do more than searching on the internet! And a single page, printed sheet from a website on the internet is not a good reference.
5. If you can partner with real researchers, they'll often help the student work through setting up the research, collecting and analyzing the data.
6. Chunk up the project into parts students can deliver in stages so it's not so overwhelming for them or you. (The English teacher does the same thing with research papers.)
7. Use the contest rubric for grading. Makes it much easier to justify making them all do one and is a great way to help student understand what is expected.
8. Need help call the teachers who have been doing it a while! Nina Crutchfield, [ncrutchfield@ffa.org](mailto:ncrutchfield@ffa.org), can give you contact info.

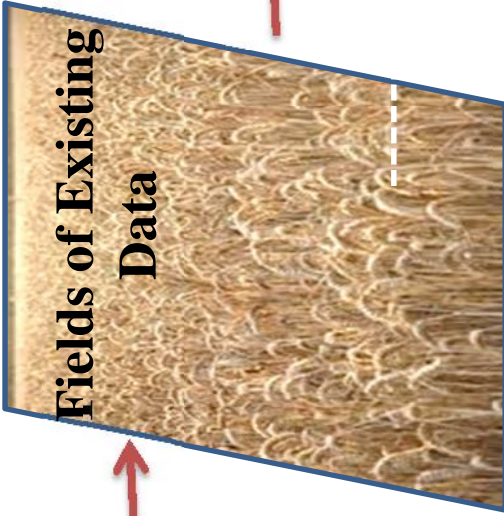
# Agriscience Fair Tips from the Pro's

Begin with Instruction!

1. Look for a question to answer or problem to solve



2. Talk to the experts, read the results of other research on the topic



3. Formulate what you think the answer will be based on what you already know.

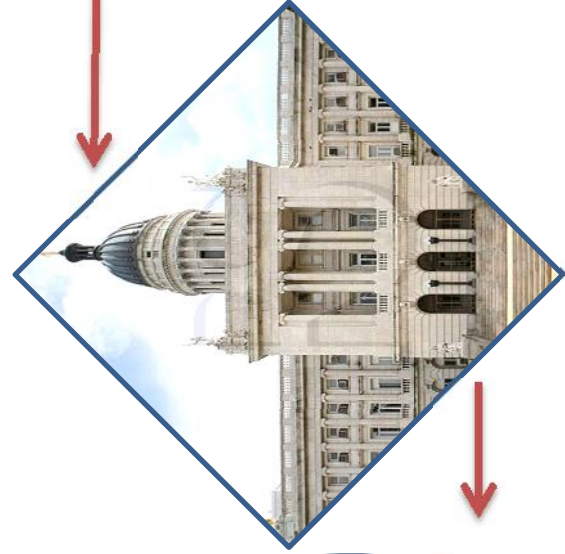


**Hypothesis Bridge**

**Tell the World**



6. Share your results with others.



**Court of Decision**

5. Was your hypothesis right or wrong?



**Test the Guess**

4. Design the experiment/survey, gather the data, analyze it



NATIONAL  
FFA ORGANIZATION

## NMAETA Summer Conference: Agriscience Fair

Created: 6/2015

*How to engage students, generate research topics, conduct a project, integrate it into the classroom, integrate it into an SAE, and create a meaningful display!*

### ENGAGING STUDENTS

- Ask students: what have you always wondered?
- Teacher teasers:
  - How can research be integrated into the classroom experience?
  - How can research be integrated into existing SAEs?
- Generating research topics:
  - Categories include:
    - Animal Systems
    - Environmental Services/Natural Resource Systems
    - Food Products and Processing Systems
    - Plant Systems
    - Power, Structural and Technical Systems
    - Social Systems
- What about tricky topics?
  - Some topics are difficult to determine proper category placement
  - Tips:
    - Identify independent (what you manipulate to create change) and dependent (what you expect to change) variables, this helps clarify
  - Still have a question? Email abstract to [agriscience@ffa.org](mailto:agriscience@ffa.org) and request a category determination

### CREATING A PROJECT

- Getting started
  - Pick a subject area, narrow the scope, consider SAE
- Create a hypothesis
  - Translate the problem into a question
- Test the hypothesis
  - Research, redefine problem, revisit the hypothesis, experiment, form conclusion, report results
- Research
  - Primary research
    - Interviews, exploratory experiments, surveys
  - Secondary research
    - Books, journals/newspapers, internet, peer reviewed articles
  - Reporting results
    - Charts, graphs
- Final written report
  - Title page, abstract, introduction, literature review, materials and methods, results, discussion and conclusion, references, acknowledgements
  - There is a suggested template for the written report on FFA.org

### 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 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, there are suggested templates for the written report and poster design available on FFA.org

## BEST PRACTICES

- Consult the handbook
- Follow the rubric
- Use APA style
- Check grammar and spelling
- Cite sources
- Contact state coordinator and/or national staff
- Include and sign all application forms
- Include all components of report based on rubric
- Staple the report and application together for submission
- Upcoming revision

## SAMPLE IMPLEMENTATION PLANS

- Example #1
  - Establish deadlines throughout the year for each step
    - September: topic
    - October: abstract
    - December: literature review
    - January: methods
    - And so on – students then present their project for the final exam based on rubric for program
- Example #2
  - Term 1: teach scientific method (or play off of science class)
  - Term 2: research and conduct experiment
  - Term 3: fill out application, create report, design and assemble board
  - Term 4: compete in the school science fair/agriscience fair
- Example #3
  - Week 1: intro to project, topic selection
  - Week 2: scientific method, lab in class
  - Week 3: finalize topic, draft overview and experiment design
  - Week 4: draft methods/materials
  - Week 5: collect data, draft literature review & hypothesis
  - Week 6-9: collect data, revise/finalize report components, table/graph data
  - Week 10: draft results, data summary, conclusion, recommendations
  - Week 11: revise and finalize report
  - Week 12: papers due
  - Week 13-14: presentation board design & assembly
  - Week 15: Agriscience fair

## PROJECT SIMULATION

- Organic Throwdown
- Over the Rainbow
- Bowties vs Penne
- Searing Revelations
- Salsa Dancing

## RESOURCES

- Program page:
- Official handbook:
- Research Resource Guide:
- Program Overview:
- Tips for Success:
- Contact: [agriscience@ffa.org](mailto:agriscience@ffa.org)

## CONTACT INFORMATION

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# 2015 NMAETA Conference – Agriscience Fair Workshop

## *Research Topic Ideation*

- Effect of wind turbines on wildlife
- Advantages and disadvantages of forest fires
- Advantages and disadvantages of wildfires
- Do white tail deer prefer any one food plot mix over others?
- How does implementation of wildlife feeders affect population density?
- What effects does an ecosystem sustain from removing a feral species?
- Does the integration of an integrated pest management program increase the yield of better boy tomato plants?
- Benefits of hunting
- How are ag producers helping to promote ag compared to years passed?
- How does terrain and landscape effect cattle?
- Terrain and landscape effect on cattle
- Comparing cattle feeds for New Mexico
- Best feed (protein) to put weight on swine
- Feed supplements in show animal production
- Nutrition/growth in regards to animal systems
- Animal growth with different protein amounts
- Can supplements help beef cattle grow longer/fuller hair
- Riparian areas affected by grazing
- How feed effects the animal's digestive tract
- Locoweed effects on pregnancy
- Washing and shearing effects on show lamb fungus in show lambs
- Does the playing of music affect egg production in chickens?
- Will feeding live insects to chickens increase egg production?
- How does feed influence egg production?
- What is the most effective milking system?
- Colostrum at birth and a short period or not at birth and for a week
- Does the timeframe of colostrum intake affect calf growth?
- What are the effects of feral hogs on farmland?
- What color feeder does an animal prefer?
- What wood termites like best
- Difference in show drenches – what works best?

- Try different types of drench recipes for helping relieve stress and dehydration of show animals
- Diet of livestock animal affect the taste of the meat and dairy products yielded?
- Does type of light in counters effect meat quality?
- Comparison of taste preference of different ground beef mixtures (example: 80/20, 90/10)
- How to get hotter chile?
- How can factories detect food that will cause food born illness before its processed
- Does the fruit wash available at the grocery store improve shelf life?
- How does glucosamine affect pig movement?
- How glucosamine supplements help pigs
- Opinions on grass fed vs traditionally raised
- How can our chapter increase participation of the elderly in our school district?
- What perceptions do administrators have about FFA member engagement?
- Grocery dollar...what affects how it is spent?
- Survey on how much beef is consumed and if it is labeled grass fed or not
- Survey successful people on how FFA helped them be successful
- GMO perceptions survey
- Survey on how to engage shy students
- Effects on artificial light on algae
- Can the addition of artificial light increase the number of algae cells?
- Different irrigation systems in different areas
- How to propagate plants using new forms of growing media/emerging technology?
- How different light affects plant growth
- Effects of roundup ready crops on invasive plant species
- Pesticides – organic compared to traditionally raised
- Which direction do plants grow best? (vertical, upside down, etc)
- Different soils on plants
- Factors affecting growth rate in plants
- When adding salt to the soil, does it speed up or slow down water intake?
- Which food waste creates the best soil in a compost?
- Erosion control in pasture settings
- Can non-native grasses be more productive than native grasses in the state?



## 2015 NMAETA Conference – Agriscience Fair Workshop

### *What do I want to know?*

- How do you motivate students to want to do a project?
- How to implement in classroom
- How to incorporate it into my curriculum
- How to add more science projects to a classroom
- How to incorporate into class
- What kind of projects are used
- What makes a good topic?
- I want to know more about helping students narrow a topic and choose a successful Agriscience fair project
- How to choose a good project/topic
- What areas can students do research?
- Can students do an experiment as long as they have vet approval?
- What the rules and regulations are
- The rules
- More about the requirements and competition itself
- Ideas for creating displays
- What can be displayed with the board
- During the interview, can students show a video clip on a computer of the project in action? For example, the reaction of animals to stimulus?
- How to present and prepare better
- What is the largest part of the project?
- How to do the paper application better. ALL the secrets!
- Criteria for summer judging – how to get our projects through that process so they can go on to national convention
- Paperwork for nationals
- How to successfully train students
- Specifics on the contest – contest types?
- How to win
- More about it
- Everything
- Everything else
- As much as possible

## 2015 NMAETA Conference – Agriscience Fair Workshop

### *What I know...*

- I know that these are projects that assist in the learning of the “how” in agriculture
- Project based learning for students
- Students identify topics that are relevant to them and are interested in expanding their knowledge. Also, opportunity for the student to present/display what they learned.
- Student perform an ag related experiment – collect data, do analysis, present findings
- Can be science fair project, based in research
- It’s a mix of agriculture/science/technology
- Requires planning and organization
- Interesting CDE
- It’s a contest
- National contest
- Basics
- Agriscience is a very broad subject
- There is a wide selection of topics for projects
- I know that Agriscience is very broad and there are lots of categories for Agriscience fair
- Many different categories
- Needs to have an agricultural connection
- There are board size restrictions
- How to make the basic board
- After competing at state there is a preliminary round to turn in before competing at nationals
- Projects are screened before they can participate at nationals
- Deadline to submit materials to national FFA is July 15
- Can have phases or be a continuation
- Has many different subjects (topics)
- I know very little about it
- Nothing
- Que! Nada!
- Not a lot



# Organic Throwdown

Scenario: Your student's mother has been teaching him how to grocery shop effectively and he's sharing with you what he's learned so far. His mother has taught him how to pick fruit that isn't too ripe so it will last longer if it's not eaten right away, how to compare labels for different brands of the same product, and how organically produced foods taste so much better that they are worth the extra money to purchase them. The last item catches your attention and you ask him to describe how his mom came to that conclusion. The student wasn't sure. You go on to ask him his thoughts on the subject only to find he doesn't really have an opinion. You suggest this is a topic perfectly suited for his agri-science research project. If you were to design and execute this research project what would it look like?

Research Question (Helps when writing out the purpose of the study):

Hypothesis (Predict results):

Background info (what is already known about this topic):

Methodology (Who, What, Where, When, Why):

Items to address include-

- What is the Dependent variable (the thing you want to measure change in)?

- What are the independent variables (the things that cause a change in the dependent variable)?

- Are there any extraneous variables you need to control so they don't influence/taint your results (anything besides the independent variables that could influence the dependent variable and you need to control its influence so it doesn't mess things up)?

- Do you need a control and if so, what is it?

- What supplies do you need to conduct the experiment?

- What procedures will you follow?

Data Analysis: (for purposes of the activity only worry about Frequencies & Means you can put in charts on the board)  
\*Real projects will need real statistical analysis such as t-tests, correlations, regression analysis, etc.

Results/Findings:

Conclusions/Discussion (Be sure to include how this impacts daily life and what future research should be done based on results):

# Searing Revelations

Scenario: You've been discussing the beef industry in your animal science class when a student brings up the topic of cooking times and temperatures for steaks. She describes how it's always a heated discussion at her family gatherings any time her Uncle is cooking steaks because he likes his bloody-rare while everyone else in the family wants their steaks cooked until it's akin to shoe leather. She quotes her father as saying "Only stupid people eat raw meat." This touches off a lively debate with the rest of her classmates. You suggest this is a topic perfectly suited for her agri-science research project. If you were to design and execute this research project what would it look like?

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Very Rare



Rare



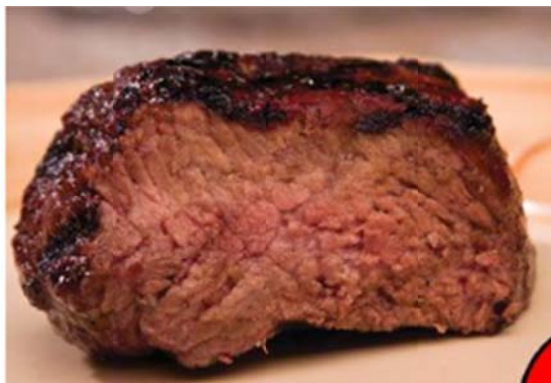
Medium Rare



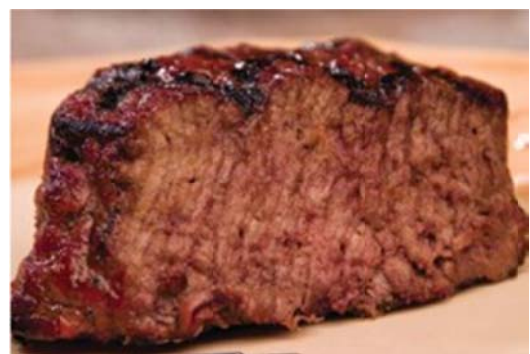
Medium



Well



Very Well



# Bowties vs Penne

Scenario: A family of 5 decided to have spaghetti for supper this week and are grocery shopping for ingredients. Each family member claims their favorite pasta shape is the best one for the dish. After an extended debate on the merits of one shape over another, your student in the family decides that it's a topic perfectly suited for his agri-science research project. If you were to design and execute this research project what would it look like?

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# Over the Rainbow

Scenario: Your student is in US History class and listens as the teacher describes various events and occurrences of the Great Depression. On a tangent, the teacher starts talking about food scarcity and how Americans started turning to alternative products, like Oleo, that were cheaper and wouldn't spoil as quickly. Since the student is on the Milk and Milk Products CDE team, she becomes very interested in the topic. The teacher goes on to describe how people became so accustomed to the yellow color of Oleo that the butter producers started coloring the real butter to reduce customer bias. The student is fascinated by the idea of color influencing whether or not people buy dairy products and if color actually affects the flavor. The student decides that it's a topic perfectly suited for her agri-science research project. If you were to design and execute this research project what would it look like?

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# Salsa Dancing

Scenario: Your student works at a local Mexican restaurant where the customers have been complaining about the management's decision to change the brand of chips normally served with the salsa and many of the dishes. The management dances around the issue, claiming there is no difference. The student decides that it's a topic perfectly suited for her agri-science research project. If you were to design and execute this research project what would it look like?

Research Question (Helps when writing out the purpose of the study):

Hypothesis (Predict results):

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