



Ideas for Agriscience Fair Projects

Many students, and teachers for that matter, think that the Agriscience Fair project has to be something amazing, complex, and outstanding. Unfortunately, this type of thinking is counterproductive to developing ideas. It's best to start by keeping it simple. We do "science projects" in our everyday life. Think about it:

- How do you select produce at the grocery store?
- Why do you buy one product over another?
- Why do you use 89 octane over 90?
- Why did you choose the car you did?
- How do you choose a new car?
- What's the best way to get to the store?
- Which feed should I choose for my market steer?

So start with a simple straight-forward project. Students can build on that topic over the years (if they continue on). Judges are looking for growth. Growth of the student, growth of the project, growth over time (for multi-year projects). Judges prefer a simpler project that is well done and of which the student can clearly and accurately describe what was done and why it was done to a more in depth/complex project that was poorly done or which the student doesn't fully understand.

Power, Structure and Technical

- Strength of concrete mixtures
- Which metal is best for _____(application)?
- Best turbine design for wind capture
- Best crop sprayer design for _____
- Most efficient solar collection device
- What effect does ethanol have on fuel efficiency?
- Tensile strength

- Compare some common irrigation systems for energy efficiency, effectiveness, and water use.
- How does irrigation accumulate salts in the soil?
- How can we reduce soil erosion on cultivated land?
- Demonstrate the use of hydraulics in doing work. Show how a small force on a small piston will balance a larger force on a larger piston.
- Demonstrate effects of pressure on liquid level and flow. Show how friction reduces pressure.
- Demonstrate effects of wire size on current flow and voltage. Show how voltage drop affects the intensity of a light bulb.
- Demonstrate the effects of heat on various types of metal. Show how heat causes distortions, hardening, annealing, and crystallizing on mild steel.
- Demonstrate the use of gears in power transmissions. Show the relationship between the gear size and speed in a transmission or transaxle.
- Demonstrate and explain how the differential in the rear axle of a tractor operates.
- What are the sources of water for urban and agricultural uses in your county? Survey aquifers, water uses, consumptive use regulations, etc.
- How does a specific wetland area influence water quality and supply?
- Is methane capture a viable source of energy for dairy operations?
- Best type of insulation
- Does size of sand particles affect the strength of concrete?
- Comparison of the load-bearing strength of various types of wood
- Effects of water on the strength of concrete
- Are nails stronger than screws?

Plant Science

- Fruit diameter between organic vs. traditional tomatoes
- Wheat variety tests
- Plant yield- mass/size of plant
- Best design for drip irrigation
- Type of irrigation system on plant production
- Color of plastic on plant production (plasticulture)
- Pot color on plant production
- Plant spacing on yield (yield per unit area)
- LED lights on plant growth
 - Which color of light promotes vegetative growth
 - Which color of light promotes flowering
 - Effect of light intensity
 - Effect on moths
- Effect of legume plants vs conventional fertilizer on plant production
- Organic vs. synthetic pesticides/fertilizers
- Ag lime vs. pelleted li me
- Watering with rain water vs tap water or irrigation water
- Sugar on growth (in water or foliar application)
- Best method of composting
- Compost tea (how its made, number of bugs, compost vs tea)
- Nitrogen run-off from organic fertilizers
- Type of potting media (plant growth, nutrient run-off, etc)
- How much nitrogen is needed for a legume to nodulate? (count nodules)
- Best cut flower preservative
- Examine whether or not the shape/angle of the stalk cut has any effect on the life of cut flowers.

- Lawn mower settings on lawn health
- Pot size on growth/flowering/vegetative growth
- Best method of biological/environmental/chemical control for gnats
- Effects of crowding on (species)
- The effects of soil compaction on plant growth in greenhouse pots
- Does crowding affect plants?
- Does colored mulch affect the growth rate of a plant?
- Does the respiration rate indicate the rate of plant growth?
- Factors that increase the decomposition rate of leaves
- What happens if you grow sweet potatoes next to other plants? (Allelopathy)
- Can plants become more salt tolerant?
- Seed germination at varying depths
- Temperature effects on seed germination
- Soil Types on seed germination
- Seed soaking effects on germination (vary length of time or types of solutions)
- Dormancy time: can dormancy periods be artificially shortened
- Factors that affect plant cloning
- Factors that affect rooting of asexual cuttings
- Germination and Seedling Growth under water stress
- Use of a warm germination and cold vigor test to determine germination and vigor of damage and undamaged seeds
- Different light spectrums effect on seed germination
- Are there really lunar influences on seed germination?
- How do different treatments change how fast seeds sprout?
- What effect does seed size have on how well a crop like oats or wheat grows?
- What are the effects of gravity on seed sprouting?
- Does electric or magnetic fields affect seed sprouting or plant growth?
- Would microwaves have an effect on seed germination?
- Does moisture pH affect sprouting of grass seeds?

In a hoop house: (could make a good multi-year project, recommended to focus on one variable at a time)

- Comparison growth inside vs outside of hoop house
 - Could also do planting dates, yield
- Effect of humidity
- Effect of light intensity (light meters to measure)
- Effect of temperature (air, soil)

Environmental Science

- Type of deer feed
- Effectiveness of different calls
- Calcium in soil on deer antlers
- Run-off studies (nutrient, pesticide, herbicide, etc)
- Effects of controlled burns on erosion/invasive species/ecosystem/etc
- The effect of air pollution on algae, protozoa, fish, insects or mosses and lichens
- Which native southern pine produces the strongest lumber?
- Effect of wind turbines on wildlife (prairie chickens)
- Which food waste products create the best compost?
- Best plant material to use as a sound barrier
- Best plant material to use as a wind block

- Methods to remove plastic from oceans
- Effect of plastics on aquatic life
- Best method for bioremediation of oil in sea water
- Best type of water break for islands or coast lines (rising sea levels)
- Best method of desalinating water for drinking (livestock and human), irrigation

Social Science

- Perception of GMO's (different demographics, different stores, etc)
- Perceptions of hydroponics
- Perception of organic
- Examining consumer preferences regarding locally grown vs. large scale commercially grown produce
- Food preference per social groups
- What affects how people spend their grocery dollar?
- Perceptions of effectiveness of leadership camp on student development
- Comparison of consumer acceptance of high style vs. traditional floral designs

Animal Science

- Diet- monoculture vs diverse diet
- Grazing at risk stockers (wheat vs mixed cover crops)
- Organic feed vs non-organic feed for chickens
- Protein conversion in horses
- Effect of fitness on recovery heart rate in horses
- Effect of music on horses resting heart rate
- Effect of hormones on timed breeding of cattle
- Effect of dissolved oxygen on aquaculture systems
- Best type of aquaponics system for the classroom
- How smart are (species)?
- Do horses prefer a specific color feeder?
- What wood do termites like best
- Will feeding live insects to chickens increase egg production?
- How does feed influence egg production?
- Does feeding calcium supplement to hens increase egg nutritional values?

Food Products and Processing

- Taste test- comparing products
 - high fructose vs sugar
 - organic vs traditional
 - hydroponic vs traditional
 - grass fed vs conventional
 - how much (salt, sugar, seasoning) can be put in before tasting
- Effect of type of packaging on food products
- Natural preservatives vs synthetic
 - Ability of cinnamon and curry to inhibit bacterial growth
- Best produce washes
- Best type of preservation for foods
- Nutritional value of foods under different conditions
- Nutritional value of foods cooked at home vs. commercial
- Types of food additives
- Best method of storing fruits

- Antibacterial properties of mushrooms
- Does the type of light in a meat counter affect the quality of meat?
- Does cooking method change the nutritional value of foods?