



# Evaluating 4-H Agriculture and Natural Resource Exhibits

The Agriculture and Natural Resources Department (ANR) is designed to allow 4-H'ers to demonstrate knowledge and skills gained through agriculture and/or natural resource project participation. The department encompasses over forty project areas so exhibits may convey a wide range of concepts and ideas. This department allows youth to create an exhibit illustrating an idea or a product (with the exception of an actual animal) that demonstrates their learning.

## A. General Objectives of Agriculture and Natural Resources projects:

1. Develop skills in decision making, communication, leadership, citizenship, learning to learn, coping with change and enhancing self-image.
2. Develop a knowledge and respect for agriculture and natural resources and their importance to the local community, state, nation and world within yourself and others.
3. Develop skills that contribute to responsible, profitable, efficient production, processing or marketing of agriculture products while maintaining or improving our resource base.
4. Adopt and apply the best management practices and results of research to agriculture and to natural resources.
5. Learn and apply basic science principles.
6. Explore career, job and productive leisure opportunities.
7. Understand the need for conserving natural resources today and for the future.

**Note:** Individual projects within the Agriculture and Natural Resources category have more specific objectives. See project guidelines for more information.

## B. Current Trends and Issues in Agriculture and Natural Resources

Agriculture is changing at an alarming rate, and there is no indication this will slow as we move through the 21<sup>st</sup> Century. Farmers, their supporting industries, and consumers are all affected by these changes. What are some of the trends in agriculture today?

Expect to see youth grapple with new trends and issues in agriculture and natural resources as the following.

### 1. Technology

- Scientists now have the ability to physically insert genes from one species to another, from different varieties of a given species, or from other sources. Some of this was possible through simple genetic selection in the past, but now is possible much faster-and from more sources than ever before. These Genetically Modified Organisms (GMOs) are a major issue both in the United States and in the countries we do export business with, particularly the European Union and Japan.
- Global Positioning Systems (GPS) have been used by military for many years, but now allow farmers to track performance and nutrient requirements for very

small sections of land. They can apply the correct amount of fertilizer, herbicides, and seeding rates based on the ability of the soil to produce more or less yield. Monitors can measure yields in a combine, translate it to a computer, uplink it to the satellite, and downlink it to your home computer or your chemical supplier.

- Animal research now allows us to fine-tune nutritional requirements based on genetic, environmental and health variables. Implants and feed additives allow producers to increase the growth rate and efficiency of animals and better match nutritional needs of the animal. Implants and feed additives have been approved by the USDA for many years, but also are under scrutiny by our export market.
- There are environmental concerns about these trends, as well. Some believe that “fooling Mother Nature” through direct genetic manipulation in plants and animals is an untested technology that may bode ill for both human and environmental health in the future. The EEC, for example, is bowing to consumer demands that, correct and well-founded or not, refuses to eat GMO-based foods.

## **2. Markets**

- Farmers are also facing changes in marketing of the foods they raise. Organic foods, both meat and produce, are growing rapidly. Today about \$4.5 billion of organic production is raised organically, and this is increasing about 20% annually. In Iowa about 100,000 acres of crop ground is in organic production. Many health conscious consumers are willing to pay more for organically produced food than ever before.
- Specialty markets are also growing. Some consumers want to buy “natural” foods, which are not quite as stringent as organic, but share some type of non-traditional production methods. Other farmers are marketing their product direct to consumers, either through CSA’s (Community Supported Agriculture) or other direct systems. Berkshire Gold pork and Laura’s Lean beef are just a few examples of differentiated products.

## **3. Resources**

- Farmers are continuing to be squeezed by increasing costs of production and decreasing market prices. Even small operations are faced with large fixed costs for machinery and land.
- Mergers in the input industries are also increasing. Fewer companies own larger shares of the input market, thus reducing the competition and allowing input costs to continue to increase. Together with the technological changes above, this vertical integration of agriculture leads some to be concerned about the control of prices and distribution of food in the future. Consumer choices may, or may not, be affected by such trends. The ability of people to influence how a crop is produced may be affected, as well.

#### **4. Consumers**

- Historically, consumers have not played an active role in agriculture, but the 21<sup>st</sup> century is changing that also. More focus is placed on the quality attributes that the consumer wants. In some cases, consumers are willing to pay more for the type of product they would like to eat; organic, natural, antibiotic free, etc.
- Focus has been placed on food quality and safety. Pork producers must now participate in the Pork Quality Assurance training to be able to market hogs. Additional testing for residues, concern about injection sites, and animal handling to prevent stress are being addressed by today's producers.
- Protection of the environment is still a focus of consumers. Producers struggle between how to be as efficient in producing a crop as possible, without endangering the biggest natural resource they have, the land, and the other species with who we share the planet.

#### **5. Many of the same trends and issues in Agriculture are those of Natural Resources.**

- People of Iowa want to be assured of high quality drinking water and water that is suitable for a sustainable fishery. To ensure quality of water and soil on farms, people are managing watersheds. These areas of land that drain into a specific river or stream require landowners to work collectively, often across political boundaries and, instead, paying more attention to ecological boundaries, like watersheds. Landowners do many things to improve the drainage on their watershed such as putting in buffer strips, terracing, practicing no-till, etc. and putting marginal lands back under permanent vegetative cover through such programs as the Conservation Reserve Program (CRP), the Wetlands Reserve Program (WRP), and others.
- Volunteer programs in many areas are increasingly involving citizens directly with natural resource management. Participation in conservation organizations is at an all-time high. Programs like NatureMapping and IOWATER involve citizens directly in biodiversity and water quality monitoring—IOWATER is sponsored by the IDNR and NatureMapping by Extension. Both involve several other agencies and organizations and a wide-variety of adult and youth volunteers in their implementation.
- More wildlife exotics are being brought into the state and raised for local distribution. Expect to see projects on emus, llamas, ostrich, elk, bison, fallow deer, and various exotic fish species. Iowa has 89,000 farm ponds and many farmers find fish raising fun and profitable.
- Expect to see youth with projects in environmental issues.
  - a) Iowa Environmental issues include:
    - 1) Habitat Loss and Disappearing Wildlife
    - 2) Air Pollution
    - 3) Water Pollution-
    - 4) Agricultural Practices
    - 5) Energy Use- "Global Climate Change
    - 6) Waste Management

Information about these issues are discussed in the Iowa Environmental Issues booklet series. Order IAN-101-107 . Each booklet is \$1.00. Contact ISU Extension Distribution Center, Printing and Publication Building, ISU, Ames, IA 50011

- b) Other issues include:
  - 1) Deer hunting in Urban Centers
  - 2) Hog Confinement Operations

### **C. Helpful Hints and Special Evaluation Considerations**

1. Remember the emphasis is on continues project learning and growth. The exhibit emerges from the 4-H'ers goal identified at the beginning of the 4-H year. The exhibit is the result of need and interest by the 4-H'er rather than a selection based on the fair list.
2. Exhibits that result in a product (i.e. leaf collection, plate of tomatoes) may have special standards to be used in the evaluation process. These are noted on the evaluation sheets as appropriate.
3. In some cases youth will exhibit something that is an outgrowth of an ag/natural resources project which may more closely reflect the subject matter expertise of another judge (i.e., garden idea that describes a preservation technique or a community recycling campaign that demonstrates the leadership skills of the youth). When this occurs, you may wish to request that another judge provide consultation.

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