



## Agronomy – Small Grains Project Brief

### Learning Objectives

- Use correct fertilizer, control weeds and insects and pests.
- Understand how to read and interpret a soil sample.
- Calculate and measure fertilizer needs
- Understand growing cycles of crops

### Fair Projects

- Samples of grain and hay plants
- Chart of growth stages
- Photo story of field stages
- Planning time table and chart
- Develop a seed bed using varieties adapted to your area or state

### Demonstration Ideas

- Soil Sample and Interpret Results
- Farm Safety (Harvest & Storage)
- Determine Moisture of Crop for Harvest

### Field Trips

- Equipment Dealership
- Agriculture Service Center
- MU Experiment Station
- Soil and Water Conservation (NRCS)
- Visit an Amish farm

### Ideas for Speech Topics

- Bio-fuels
- Uses of various crops
- Missouri Farm Facts
- Crops in Missouri –Economic Impact

### Critical Thinking

- Thinking through seed selection
- Deciding when to fertilize
- Understanding herbicides and pesticides
- Understanding proteins related to livestock feed

### Community Service

- Helping clean up a vacant lot
- Organizing a pesticide container collection
- Marking storm drains with no chemicals signs

### Science & Technology

How have you used science and technology in this project area?

Examples:

- Gathering soil and interpreting soil test
- Formulate assumption on seed selection (hypothesis)
- Calculate and measure seed volume
- Calculate and measure fertilizer needs
- Discover and understand the parts of the plants and their functions
- Understand photosynthesis
- Categorize plants by their growing cycles
- Understand soil hydrology process

### Show Me Character

**Trustworthiness** - includes honesty, promise keeping and loyalty.

- Always be honest with your project leader
- If someone asks if you have taken care of your garden - weeding, hoeing and watering - tell them the truth
- It's OK to have family members help; it makes the project more fun!

**Respect** – includes courtesy and proper treatment of people and things.

- Pick your produce on time; don't let it stay on the vine too long
- Remember that you chose this project; you have the responsibility to grow the best product possible
- Are others counting on you? If you have promised someone produce, remember to get it to them on time and in good condition

**Responsibility** - includes the pursuit of excellence, accountability and perseverance.

- Respect Mother Nature
- Provide proper nourishment to the soil by applying nutrients like fertilizer
- Return produce to the earth through composting
- Understand that others may not enjoy every type of produce that you grow

**Fairness** – involves consistently applying rules and standards appropriately for different age groups and ability levels.

- Don't charge others unrealistically high prices for your product. Remember they are helping you by testing your vegetables and telling you what you can improve
- Learn the rules of your local fairs and farmers markets so you know what to expect when you enter and sell

**Caring** - promoting the well being of people and things in a young person's world. It denotes action and not just feelings.

- Share what you have grown with others
- Don't forget the birds and insects; they like to eat leftovers from your produce and can help keep your garden healthy
- Many people can benefit from your garden; think of ways to share your produce with people who may not have fresh food to eat

**Citizenship** - includes making the home community and county a better place to live for themselves and others.

- Grow a garden in community space to see what it's like for people who don't have their own gardens
- Be a good citizen by keeping your space neat and clean

- Don't use more than your share of the ground; remember you're not the only person or animal enjoying the earth
- Share what you know about insects; help others see the benefit of having them around

### Show Me Standards

Missouri 4-H members will acquire the knowledge and skills to gather, analyze and apply information and ideas, communicate effectively, recognize and solve problems, make decisions and act as responsible members of society.

4-H members will acquire a solid foundation which includes knowledge of:

- **Health/Physical Education** – consumer health issues (such as the effects of mass media and technologies on safety and health)
- **Mathematics** – addition, subtraction, multiplication and division; other number sense, including numeration and estimation; and the application of these operations and concepts in the workplace and other situations.
- **Social Studies** – economic concepts (including productivity and the market system) and principles (including the laws of supply and demand)

### Resources

#### 982 Grains

Y620 4-H Project Record, NC  
PS7 Common Small Grain Insects

#### Corn

G4153 Corn Stunting Virus Diseases In Missouri  
M166 Corn Insect Pests: A Diagnostic Guide  
PS4 Corn Insects Above Ground  
PS5 Corn Insects Below Ground

#### Cotton

G4251 Cotton Weed Control  
G4253 Cotton Harvest Aids  
G4261 Cotton Disease And Nematode Management  
G4268 Cotton Plant Development And Plant Mapping

#### Grain Sorghum

G4356 Management of Grain Sorghum diseases in Missouri  
PS26 Grain Sorghum Insect  
PS114 Grain Sorghum Diseases I  
PS115 Grain Sorghum Diseases II

#### Rice

G4361 Guidelines For Producing Rice Using Furrow Irrigation  
MP645 Rice Blast: Identification and Control

#### Soybean

M123 Missouri Soybean Handbook  
LG9820 The Soybean Project

#### Sunflowers

G4290 Sunflower: An American Native  
NCR160 Diseases of Sunflowers

#### Wheat

G4318 Virus Diseases of Wheat  
PS105 Wheat Diseases I  
PS106 Wheat Diseases II

#### Resources for Forages and Grains

G4050 Trouble Shooting Field Crop Problems  
G9112 Interpreting Missouri Soil Test Reports  
G9131 Sampling Plant Tissue and Soil for Analysis  
G9217 Soil Sampling For Hayfields and Row Crops  
PS13 Beneficial Insects in Field Crops

University of Missouri Extension guides available for download at <http://extension.missouri.edu/explore/agguides/crops/>

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For additional resources check with your local University of Missouri Extension Center or [www.4-hmall.org/](http://www.4-hmall.org/)