



# Illinois 4-H | Spark Ideas. Ignite Possibilities.

Take a trip anywhere across Illinois and you'll see thousands of acres of corn, soybeans, and small grains. This project prepares you for what it takes to understand Illinois' #1 industry. Learn to test corn germination, study growing degree days, experiment with soil tilth, manage pests, calculate drying time, cross pollinate plants, learn about corn markets, and discover the vast number of careers related to corn.



## Exploring 4-H Corn

### Spark Activity: From Kernels of Corn to Ethanol

"Biofuel Blast" is a fun 4-H experiment that demonstrates how plant products are used to make ethanol, a renewable fuel. Check the gas pump the next time your family puts gas in the car, it's probably an "ethanol blend" made from corn right here in the Midwest.

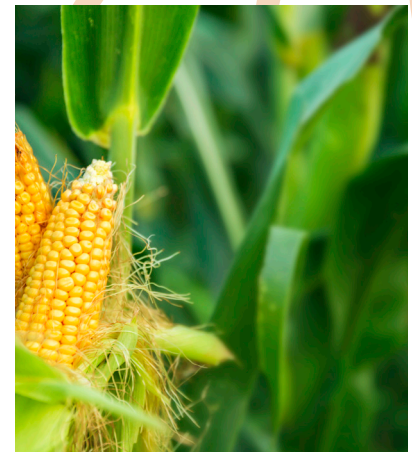
For this activity you will need: 1 empty 20 oz plastic bottle with cap (clean), 3 tablespoons of white granulated sugar, warm tap water, 1 packet dry/quick-rise yeast, 1 - 9" latex balloon, scissors, small plastic funnel - per trial

Procedure: Add yeast and sugar to your bottle using the plastic funnel. Fill your bottle half-full with warm tap water, not hot enough to hurt your hand. Replace cap and shake the bottle to mix the yeast and sugar. Place a balloon over the open top of the bottle and observe. This may take a few minutes.

Document your results: How much time did it take for the balloon to fill? What do you think is causing the balloon to inflate?

Repeat this process with other materials and observe the differences in the process. Experiment with the following sugar replacements: first try 3-4 tablespoons of corn syrup, then try corn plant material / leaves (approx. 4 tablespoons), finally try whole corn kernels. Record the materials you used in each experiment. How long did it take for the balloon to inflate each time? How large did your balloon inflate each time? Measure each balloon's circumference at 10 set time intervals. What do you think contributed to the variation in results?

This is a very basic example of how corn is fermented and made into ethanol to fuel our cars.



## 4-H Project Levels and Goals

### Beginner

- Study parts of a corn plant
- Study the six different corn types
- Learn how pollination works
- Learn the parts inside a seed
- Visit a grain elevator
- Identify products made from corn
- Read the information on a seed corn tag
- Measure corn yields

### Intermediate

- Understand soil tilth
- Learn about soil tests and what nutrients to watch for
- Understand cross breeding of corn plants
- Identify common weeds, diseases, and insects
- Learn about careers in crops
- Understand growing degree days
- Calculate production costs

### Advanced

- Learn to calibrate a corn planter
- Determine economic advantages of transportation in Illinois
- Learn to dry corn properly while maintaining quality
- Learn economics of corn markets
- Describe technology in the field
- Calculate harvest losses and causes
- Identify predominant Illinois soils and their impact on corn productivity

## Put Your Project Into Action

### Show Your Skills

- Showcase different uses of corn
- Yield comparison based on hybrids, planting dates
- Poster detailing information on seed labels
- Photo journal of actual crop fields with or without drainage/irrigation - note growing conditions such as weather, fertilizer, etc.

### Service and Leadership

- Create care packages for farming friends and neighbors during planting or harvest
- Donate a percentage of your corn harvest to support local food banks or food pantries
- Give a presentation on sampling soil
- Plan a tour of a seed corn plant for your group
- Create farm safety rules for your family

### Entrepreneurship

- Grow sweet corn, popcorn or decorative corn to sell at a local farmers market
- Create a corn maze
- Plant a corn plot and evaluate different hybrids

### Technology Connection

- Plant breeding and plant improvements
- GPS yield mapping and automatic steering
- Variable-rate fertilizer application, cover cropping and soil sampling help care for the environment
- Drones identify corn stand counts, and detect plant stress and plant density

### Connecting with a Mentor

- Farmers
- Soil and Water Conservation District staff
- Seed representatives
- Agronomist

### Events

- 4-H Illini Summer Academies
- Crops judging contests
- County and state fairs and shows
- Attend adult pesticide applicator training workshops through University of Illinois Extension
- Farm Progress Show
- Crop Research Field Days - Illinois Extension
- University of Illinois Commercial Ag Programs



### Careers for People Interested in Corn

Farmer	Corn Product Design
Agronomist	Seed Company -
Crop Consultant	Marketing, Sales, Seed
Plant Breeder	Quality Testing,
Extension Educator	or Grower

## Start a Conversation

What are integrated crop management principles?  
How do you calculate growing degree days?  
How can new technology change the way field crops are grown?  
Where does the corn we use today come from?  
What is the ancestor of our modern-day corn plant?

## Want to learn more?

[go.illinois.edu/4Hcorn](https://go.illinois.edu/4Hcorn)

## Explore more at Illinois 4-H!

[4-H.extension.illinois.edu](https://4-H.extension.illinois.edu)



**Illinois Extension**

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College of Agricultural, Consumer and Environmental Sciences  
University of Illinois | U.S. Department of Agriculture | Local Extension Councils Cooperating.  
University of Illinois Extension provides equal opportunities in programs and employment.

**Credits:** Illinois 4-H project guide | 4-H Corn Manual | North Dakota 4-H Project Sheet – 4-H Crop Production | Iowa State University – 4-H Agronomy Project Hot Sheet | University of Illinois Extension staff that contributed to this resource include Kathy Book and Martha Ebbesmeyer. | 4-H Spark Sheets are a collaborative effort of 4-H staff, volunteers, alumni and teens from across Illinois. A big thanks to the many contributors and reviewers!