

The *Colorado Reader* is a FREE cross curricular resource designed to reinforce Colorado Academic Standards using real-world, fact-based, unbiased agricultural and food content that is relatable to students.

NEW: Colorado Readers are now available on interactive virtual platforms!

The Colorado Foundation for Agriculture understands the ever-changing dynamics of teaching environments across Colorado schools. To help teachers and students utilize and learn from the *Colorado Reader*, we have created an interactive virtual version of the content of this *Reader*, which is now available on multiple educational platforms. This interactive virtual version includes all of the non-fiction reading content and fun, interactive assessments of student understanding. Current and previous issues of the *Colorado Reader* are also available in the CFA Digital Library in a flip-book format. Access both the interactive virtual and digital flip-book versions by going to GrowingYourFuture.com; under the Education Center, click on Colorado Reader > Current Issues. The *Colorado Reader* can be taught using both synchronous and asynchronous teaching. Some teachers also find the *Colorado Reader* a great resource to use on substitute teacher days. Link to resources: <http://bit.ly/Reader-Corn>

Purpose

Students will examine the value of corn production, different types of corn, many uses of corn, and learn that field corn is the major grain crop in Colorado and the U.S. They will also explore the parts and life cycle of the corn plant. Students will meet a Colorado corn farmer and learn some of the many careers involving corn - from seed to product.

Cross Curricular Connections and Colorado Academic Standards

3rd Grade Science: Life Science

- Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. (3-LS1-1)

4th Grade Science: Life Science

- Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. (4-LS1-1)

5th Grade Science: Life Science

- Support an argument that plants get the materials they need for growth chiefly from air and water. (5-LS1-1)

3rd Grade Social Studies: Geography

- Use geographic tools to develop spatial thinking.

4th Grade Social Studies: Geography

- Use geographic tools to research and answer questions about Colorado geography.

3rd, 4th, 5th Grade Reading, Writing, and Communicating: Reading for all Purposes

- Apply strategies to fluently read, comprehend, interpret, and analyze various types of informational texts.

Vocabulary

bioplastics: a group of plastics made from biological materials like plant starches, cellulose, oils, or protein

bushel: for corn, a unit of weight equal to 56 pounds

by-products: in agriculture, secondary products produced from the main product of a crop or animal; for example, cornstarch is a by-product of corn

corn: also known as maize, a tall cereal plant

endosperm: tissue formed within a seed that contains energy (starch) and protein for the germinating seed

ethanol: a renewable fuel that is made from corn and powers vehicles

germ: the living embryo of the corn kernel that contains the essential genetic information, enzymes, vitamins, and minerals for the kernel to grow into a corn plant

germination: the step a seed goes through to become a plant; requires warmth, moisture, and air

harvest: the process of removing the corn kernels from the plant

insecticide: a substance used to protect plants against insects

irrigation: a technology that supplies water to land or crops to help them grow

kernel: the seed of corn

leaf collar: the light-colored, collar-like band located at the base of a leaf, near the stem or stalk of the plant

nitrogen: one of the essential nutrients to corn

nonrenewable resources: limited natural resources that cannot be replaced or reproduced within a generation and cannot be managed for renewal; examples: oil, soil, mineral resources (lead, iron, cobalt, zinc, etc.)

pericarp: the outer, protective covering of the corn kernel
recyclable: capable of being recycled

phosphorous: one of the essential nutrients to corn

pollination: the transfer of pollen to produce a seed

potassium: one of the essential nutrients to corn

renewable resources: natural resources that can be replaced naturally or by human efforts at a sustainable rate; examples: forests, fish, wildlife, agriculture, plants, animals

silk: the threadlike part of the ear of corn that produces each individual kernel when pollinated

stalk: the main stem of a corn plant

tassel: the top of the corn plant that produces pollen to pollinate the silk on the ear of corn

Guide for how to use the *Colorado Reader* with your students.

Corn: It's Feed. It's Fuel. It's Food. It's Everything!

Background Information

Share this background information with your students and discuss the provided vocabulary words.

Corn is a versatile crop. It is the major grain grown in Colorado and the United States. Corn is Colorado's third greatest agricultural product, generating \$532 million in 2017. Of all the corn grown in the U.S. and in Colorado, 99% of that corn is dent corn or field corn. You wouldn't want to eat the corn in most of the corn fields that you see as it is dent corn, not sweet corn. Corn is a monocot plant that has many purposes. Much of the dent corn becomes livestock feed and ethanol fuel, or is exported as value-added products. But dent corn is used in over 4,000 edible and nonedible products. It helps make shampoo, gum, marshmallows, plastic, tooth brushes, and much more. Colorado is not part of the Corn Belt region of the United States (twelve Midwestern states: IA, IL, NE, MN, IN, WI, MI, SD, KS, MO, KY, OH) where corn is the predominant crop grown. However, corn is a economically valuable crop in Colorado.

Introductory Video

Share this video from the Colorado Corn Administrative Committee with your students. It is a kid friendly link (without ads or other popups).

Link: <https://coloradocorn.com/education/>

Colorado Reader

Pass out one copy of the *Colorado Reader* to each student. Also, make one copy of the Student Worksheet included in your classroom set packet and hand out to each student. You could also send these items home with your students (or include in homework/enrichment packets) to complete at home on virtual learning days. Ask your students to read the *Colorado Reader*, complete the activities within the *Reader*, and then complete the Student Worksheet. Answers to the activities in the *Reader* and the Student Worksheet are below, should you desire to collect and score responses. An online assessment for student responses is also available. Link: <http://bit.ly/Reader-Corn>

Enriching Activities

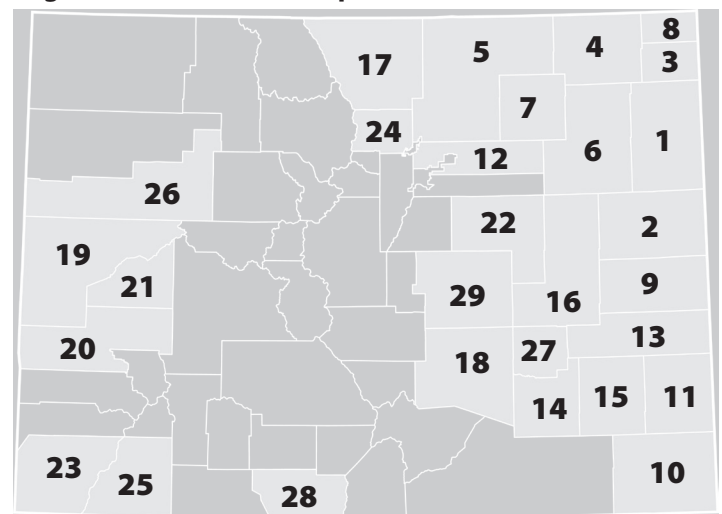
Corn Revolution Video: This is a fun, educational, original music video about corn from the Peterson Farm Brothers. The link provided is a safe YouTube link without any ads, popups, or suggested videos. <http://bit.ly/PetersonBrosCorn>

Making Bioplastics: The instructions for the Making Bioplastics is included in your *Reader* package. This activity may be done as a class, in small groups, or make copies of the instructions and ask student to complete at home. Students may have most or all of the supplies already at home. There are student observation questions to fill out will doing the activity.

Classroom Visits & Field Trips: Professionals from Colorado Corn and Corteva Agriscience are available for in-person or virtual classroom visits. Class field trips to the Corteva Research Station near La Salle are also possible. To learn more, contact Jennifer at 720-788-3224.

Farming in a Glove (Corn Seeds): This kit contains instructions and enough materials for 35 students to plant five varieties of corn seeds; popcorn, Indian corn, field corn, sweet corn and flour corn - in the fingers of a food handler's glove and the cotton necessary to sprout them. Given a few days and some water, the glove will be alive with growing sprouts - baby plants that your students can observe. An excellent activity for teaching plant growth and genetic differences. Cost: \$12.00 Order kit here: <https://bit.ly/3iRboLf>

Page 1: Colorado Corn Map



Page 2: Types of Corn

Top to bottom: popcorn, sweet corn, flint corn, flour corn, dent corn

Investigate: Answers will vary but should include mention of the differences in color, size, and shape of the corn kernels.

Student Worksheet

1. Answers will vary based on where students live. Use chart on Page 1 to find answers for each student.
2. A total of 98,784 pounds of corn can be harvested from ten acres of corn.
3. Bioplastic and biofuels are renewable resources because they are made from products such as corn that can be produced in agriculture at a rate equivalent to the demand.
4. A seed needs warmth, moisture, and air to germinate.
5. The 4Rs farmers use when applying fertilizer are right source, right rate, right timing, and right placement.
6. A hard frost in Colorado on May 19 would most likely kill a corn plant that was planted on May 1.
7. A severe drought in Colorado in the month of July would greatly reduce the yield (up to 20%) of corn planted on May 1.

