



#### UNIT 3: FOOD AND POWER



# THE INVALUABLE SEED

## Note to Teachers

Seeds are key to our past, present and future. Seeds help link us to our past, while seed breeding helps to ensure agriculture's resilience for the future. Diversity not only protects our food supply from the catastrophes of climate change, drought and disease, but also helps to promote a varied diet.

The video around which this lesson is organized also encourages students to see the breeding and saving of seeds as central to food sovereignty—that is, a community's self determination with regards to its food supply.

#### Goals In this lesson, students will

- appreciate seeds as a carrier of life and culture
- understand the significant loss of seed varieties that accompanied industrial farming, and the importance of the efforts to preserve the seeds that remain
- learn that saving seeds protects the rights of peoples to choose the foods they eat

## Objectives

- Students will build a list of characteristics of seeds from their own experience and from a short text.
- Students will use a video to deepen and extend their thinking about seeds, particularly as a source of environmental and cultural conservation.

## Materials

- Jahren, chapter 3, from Lab Girl
- Discussion questions for the video
- "Seed: The Untold Story" (Siegel and Betz, 2016)
- Projection equipment

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Please use this margin to notate how to best adapt this curriculum to your students.

## Instructions

#### Part I: Introduction

1. FOCUSED FREE WRITE: What is a seed? (5 minutes)

Share a sampling of students' responses.

Listen for functional knowledge as well as language. Perhaps write key ideas on chart paper or the board.

**2.** Distribute the two-page chapter on the seed from Hope Jahren's *Lab Girl*. Do a read around or ask students to read it silently and to annotate.

Ask students to look for the ways that the text might echo the ideas in their FFW, and what new ideas they encounter.

- **3.** When students have completed the reading, ask them to add to or adjust their list.
- 4. Review key ideas that have come up so far in discussion.
- 5. Inform students that they will be watching a video that should enhance their understanding and appreciation of seeds.

#### Part II: Video

- 1. Distribute the attached handout. Ask students to read the questions in the advance of the video. Encourage them to watch the video carefully, but to take down a few notes that help them to answer these questions.
- 2. Show video. There is a 90-minute version and a 60-minute version. The 90-minute version is better, but the 60-minute version is also very good. Show whichever one you have time for.
- **3.** Before you open the discussion, give students time to jot down notes about the film, answering the questions posed in the handout.
- **4.** Depending on the time available, begin discussion with small groups. Ask your groups to go through the questions systematically and to answer them as completely as possible, using examples from the film to support their answers.
- **5.** Ask one group to answer the first question, and elicit responses from the other groups. Use this technique to discuss big ideas, and to use the insights and information of subsequent groups to show how one can build an even stronger answer to a question.
- 6. Once you have worked through the questions, open the floor for further questions and comments.
- **7.** At the end of class, return to the question posed at the beginning: What is a Seed?

Listen for the ways in which your students have developed and extended their ideas.





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### Part III: Cooking Lab

Beans and rice are both seeds and, both separately and together, they are central components of many cuisines.

Because they are both "core" foods, as anthropologist Sidney Mintz describes them, the spices and sauces that cooks add to them often reflect the palate and preferences of a culture. Beans and rice, in other words, help to carry the culture and its identity through the specific bean and rice varieties used and the ingredients used to flavor them. Seeds, as the documentary illustrates, transmit culture from one season to the next, and from one generation to another.

In the lab, select a recipe that reflects the cultural origins of at least some of your students. For example, you could prepare a Dominican red bean and rice dish, or an Indian Kitchari. Encourage students who identify with those cultural origins to talk about the dish, and to imagine a world where those beans and rice are no longer available.







## THE INVALUABLE SEED

HOPE JAHREN from LAB GIRL NY: Knopf, 2016

Use the space below to note key ideas, themes, or surprising

takeaways from the reading.

A seed knows how to wait. Most seeds wait for at least a year before starting to grow; a cherry seed can wait for a hundred years with no problem. What exactly each seed is waiting for is known only to that seed. Some unique trigger-combination of temperature-moisture-light and many things is required to convince a seed to jump off the deep end and take its chance—to take its one and only chance to grow.

A seed is alive while it waits. Every acorn in the ground is just as alive as the three-hundred-year-old tree that towers over it. Neither seed nor the old oak is growing; they are both just waiting. Their waiting differs, however, in that the seed is waiting to flourish while the tree is only waiting to die. When you go into a forest you probably tend to look up at the plants that have grown so much taller than you ever could. You probably don't look down, where just beneath your single footprint sit hundreds of seeds, each one alive and waiting. They hope against hope for an opportunity that will probably never come. More than half these seeds will die before they feel the trigger that they are waiting for, and during awful years every single one of them will die. All this death hardly matters, because the single birch tree towering over you produces at least a quarter of a million new seeds every year. When you are in the forest, for every tree you see, there are at least a hundred more trees waiting in the soil, alive and fervently wishing to be.

A coconut is a seed that's as big as your head. It can float from the coast of Africa across the entire Atlantic Ocean and then take root and grow on a Caribbean island. In contast, orchid seeds are tiny: one million of them put together add up to the weight of a single paper clip. Big or small, most of every seed is actually just food to sustain a waiting embryo. The embryo is a collection of only a few hundred cells, but it is a working blueprint for a real plant with root and shoot already formed.

When the embryo within a seed starts to grow, it basically just stretches out of its doubled-over waiting posture, elongating into official ownership of the form that it assumed years ago. The hard coat the surrounds a peach pit, a sesame or a mustard seed, or a walnut's shell mostly exists to prevent this expansion. In the labratory, we simply scratch the hard coat and add a little water and it's enough to make almost any seed grow. I must have cracked thousands of seeds over the years, and yet the next day's green never fails to amaze me. Something so hard can be so easy if you just have a little help. In the right place, under the right conditions, you can finally stretch out into what you're supposed to be.

After scientists broke open the coat of a lotus seed (*Nelumbo nucifera*) and coddled the embryo into growth, they kept the empty husk. When they





# THE INVALUABLE SEED

radiocarbon-dated this discarded outer shell, they discovered that their seedling had been waiting for them within a peat bog in China for no less than two thousand years. This tiny seed had stubbornly kept up the hope of its own future while entire human civilizations rose and fell. And then one day this little plant's yearning finally burst forth within a labratory. I wonder where it is right now.

Each beginning is the end of waiting. We are each given exactly one chance to be. Each of us is both impossible and inevitable. Every replete tree was first a seed that waited.



L.31

**Reading:** DISCUSSION QUESTIONS



## THE INVALUABLE SEED

#### **"SEED: THE UNTOLD STORY"**

(Siegel and Betz, 2016)

Seeds speak to issues of culture, our relationships to the environment, and questions of power. This documentary explores seeds' multifaceted meanings.

#### Questions for Consideration:

1. Will Bonsai uses the image of the "ark" to describe his work as a seed saver. What does he tell us about why he uses this term, and why he understands his work to be of such pressing importance?

2. According to the film, what is at stake when we lose seeds?

3. What role do Patrick and Joe Simcox play in the seed saving movement?

4. How did the Green Revolution alter agriculture? What examples does the documentary provide of the changes it set into play?

**5.** Many scholars stress the importance of Food Sovereignty. On the basis of what you have seen in this documentary, what is food sovereignty, why is it important, and how do we achieve it?

