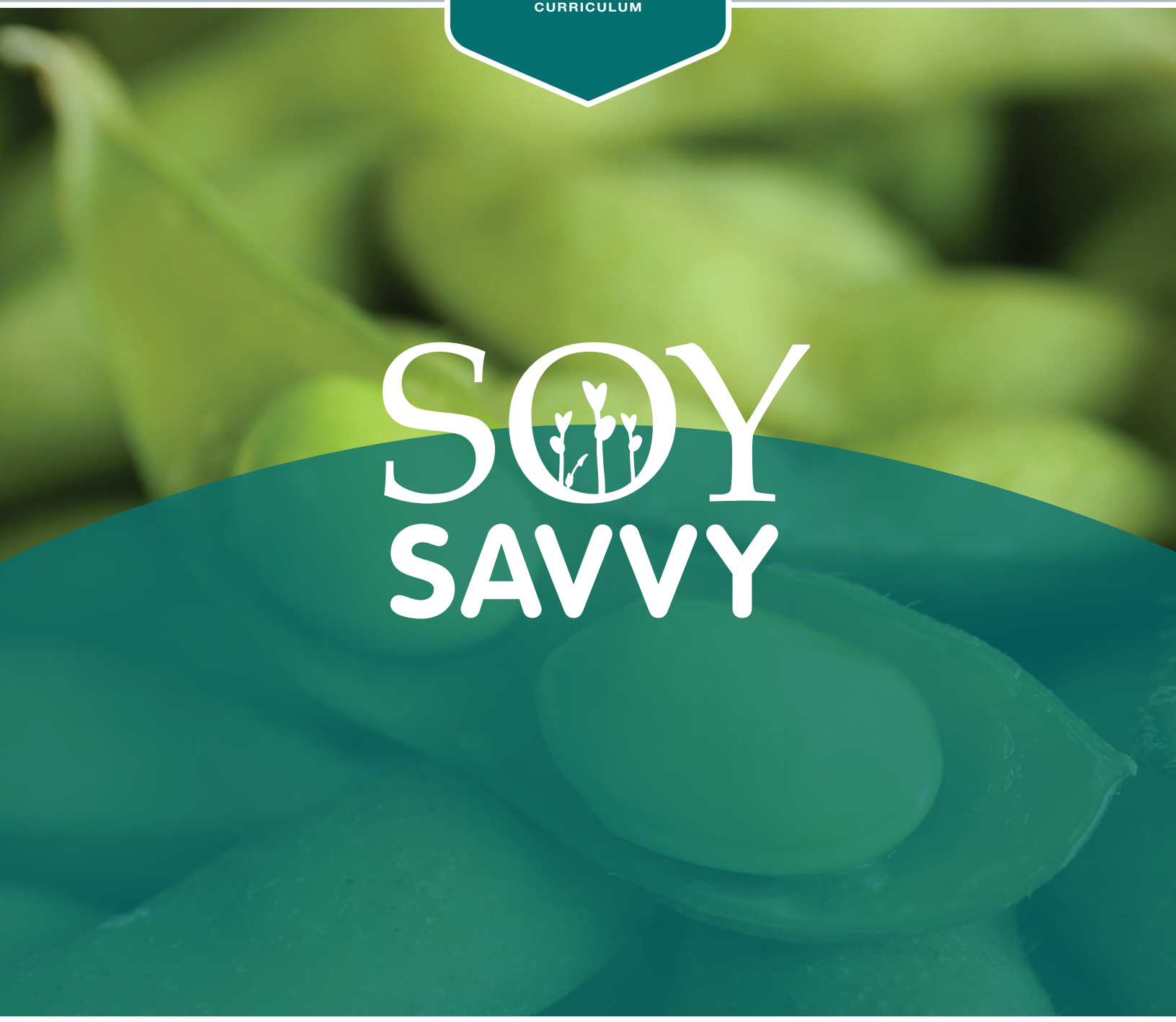
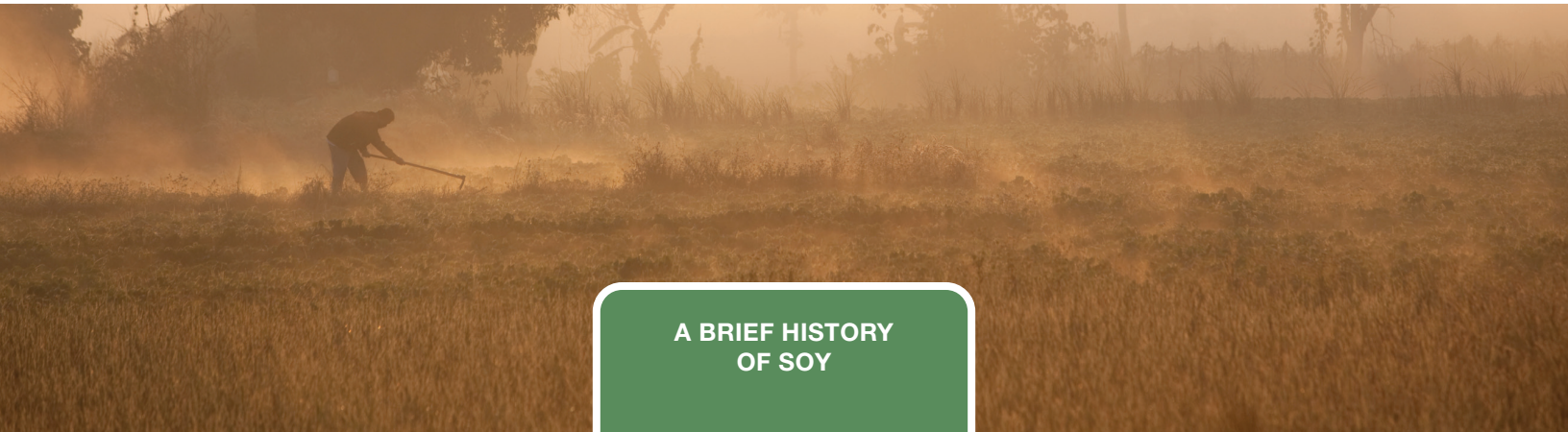
MIDDLE SCHOOL
CURRICULUM



SOY SAVVY



A BRIEF HISTORY OF SOY

I. Enduring Knowledge:

Because soybeans are an important agricultural commodity in Wisconsin students should know about the history and development of soybeans as an important crop in Wisconsin and the world.

Learning Targets:

1. Students will know that soybeans were originally from China, but now constitute an important agricultural product in the United States.
2. Students will know how historical events and scientific discoveries influenced the dynamic growth of soy cultivation in the United States.

II. Teacher Background Materials:

This DVD about the origin and history of soybeans tells about early explorers, seafaring merchants, ancient Oriental cultures, and American inventors and agricultural pioneers.

Soybeans have been cultivated in China for human consumption for 3,000 – 5,000 years. Originally called “shu”, wild soybeans were domesticated over the course of thousands of years by Chinese farmers. Soybeans are easy to grow because they thrive in many different soils and climates.

Soybeans are toxic if eaten raw, so the Chinese developed a number of techniques to cook the edible seeds. They processed the bean curd to create dishes like tofu, and to ferment the beans to create miso, tempeh and a wide range of other delicious soy foods. Today they are a staple in Chinese culture and cuisine.

The story of how the soybean traveled around the world is a fascinating one. Chinese merchants traded soy with neighboring Japan and Korea, where it also became an important food. As sea routes were developed, soybeans were used as an inexpensive ballast to keep the ships steady. They were left behind as the ships loaded other cargo to take back to Asia.

In 1765, the first bag of soybeans arrived in the colony of Georgia from London by a seaman named Samuel Bowen. Not long after, the first soybean seeds were planted on a plantation in Savannah. During the 1800s soybeans were grown as a cover crop or for forage for cattle. Its nutritional value in terms of protein and as a source of oil was not known.

World War II caused a major disruption in supply of soybean oil from China, which was a major producer and exporter of bean oil until then. At the time the United States imported 40% of China's bean oil. To meet the demand, United States farmers started raising large quantities to supply soybean oil for both food and industrial applications.

As the size of farms changed from the small family operations to large industrial farming operations, the demand for high protein soybean meal grew. The turkeys, pigs, chickens, and cattle of these farms needed a large source of protein to grow big quickly.

Today demand for soy products continues to grow—not only for animal feed, which is the major consumer, but also for human consumption and industrial applications. (Soy is an added ingredient in many foods, such as cereals, margarines, etc., and also found in industrial products, such as soy-based plastics, lubricants and soy textile fabrics.)

Vocabulary:

1. **ballast:** heavy substance used to improve the stability and to control the draft of a ship
2. **bean curd:** the mashed soybeans that are allowed to sour; used widely in Asian cooking; also called "tofu"
3. **exports:** products from one country sold and shipped to other nations around the world
4. **imports:** products brought in from another country
5. **forage:** animal food, generally taken by browsing or grazing
6. **toxic:** poisonous

III. Before Viewing the Video:

1. Ask the students if they know what soybeans are used for.
2. Make a list of their responses on the blackboard to be referred to after viewing the video.

IV. Viewing Guide:

1. Have students draw a timeline in their notebooks. Start with 2,000 B.C. and end in 2012.
2. As they listen to the chronology of the development and use of soybeans in the U.S. have them write notes on their timeline.

At the start of the timeline one would write: soybeans grown wild in China, developed into a food source. Between 2,000 B.C. and the early 1300s: China traded soybeans with Korea and Japan; at 1765: soybeans brought to colony of Georgia; 1800s soybeans grown for cover crops or for animal forage; at 1940: United States expand growth of soybeans for export of soybean oil; 1950s family farms begin to be expanded into large agricultural operations and demand for animal feed is increased; 2012, today there is a huge demand for soybean products for use in human and animal foodstuffs, as well as in industrial products.

V. Discussion Guide:

1. In small groups, have students compare their timelines. Then make a master timeline for the classroom.
2. Ask students to discuss some of the impact of the historical changes to their lives, from Chinese agriculture to modern uses of soybeans.
3. Since soybeans are an extremely important agricultural product in Wisconsin and in the U.S., soybean cultivation is a major contributor to the economy that the students live in. There are many opportunities to work in soybean related fields, such as food science, agriculture science, culinary development, farming; processing plants, etc.

VI. Evaluation:

1. An informal assessment can be made of students' notes and participation in discussion.
2. Activities can be assessed using rubrics based on good research, presentation, and material construction.

Suggestions for extended learning:

1. Research the contributions of George Washington Carver to agriculture, specifically but not limited to soybeans; and Henry Ford to the development of soy products for car manufacturing.
2. Research all the soy foods that are sold in a local grocery store. Take pictures or collect packaging and make a display.
3. Research what industrial uses soybeans are part of.
4. Find out how many acres of soybeans are raised in Wisconsin. See if you can figure out the value of just the soybeans to the GDP of our state.
5. Visit a farm that grows soybeans, or invite a farmer to visit your class.

The following Wisconsin Student Proficiency Standards can be met by teaching *A Brief History of Soy*:

Geography: "Students in Wisconsin will learn about geography through the study of the relationship among people, places, and environments."

- **8th grade**: A.8.1, A.8.3, A.8.10, A.8.11

History: "Students in Wisconsin will learn about the history of Wisconsin … examining change and continuity over time in order to develop historical perspective, explain historical relationship, and analyze issues that affect the present and the future."

- **8th grade:** B.8.1, B.8.7, B.8.8

Economics: "Students in Wisconsin will learn about production, exchange, and consumption so that they can make informed economic decisions."

- **8th grade:** D.8.3, D.8.4, D.8.7, D.8.11

Wisconsin Teacher Standards which can be met with this curriculum, including rationale:

Standard 1: Subject matter
This curriculum provides information not readily available in other forms.
A teacher using this material will be well informed about the subject matter.

Standard 3: Adapt instruction
This curriculum provides suggestions for learners with a variety of intelligences and levels of ability.

Standard 4: Instructional strategies
The curriculum includes the use of technology to gain information and suggestions for using research in extending learning.

Standard 5: Individual and group motivation
Both the use of prior knowledge and carefully designed group projects promote motivation for students to learn.

Standard 6: Verbal and nonverbal communications
Instructional media and technology that promotes active learning are key parts of this curriculum.

Standard 7: Organizes and plans systematic instruction
The curriculum is organized to support teacher knowledge, to draw on and motivate students to engage in active learning, and promotes active inquiry, collaboration, and supportive interaction in the classroom.

Standard 8: Formal and informal assessments
Suggestions for a variety of assessments, both formal and informal, are offered in the curriculum.

Standard 10: Fosters relationships
This curriculum could be used to create relationships with local soybean farmers through field trips or class speakers.