



## **Farm Journal Foundation Learning Materials**

A Teacher's Guide & Resource to:  
Business and Culture of U.S. Agriculture Modules

### **Purpose**

This guide is to provide teachers insight into the objectives of Farm Journal Foundation's Business and Culture of U.S. Agriculture e-learning modules. This guide is also intended to provide you, as the educator, with an understanding of what level of learning this material is at, how to integrate these modules in a variety of classroom settings/subject areas and questions to use to assess your students' retention and understanding of the material.

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## Learning Levels & Overview

\*Each of the four thematic chapters from the home page contain about 10 minutes worth of video content. Each chapter contains two to three smaller video sections that last between two and seven minutes.

**Audience:** Primarily consumers unfamiliar with agriculture. This guide helps take these modules into a classroom for use in a 5th grade level (minimum) to freshman level introductory courses at a university level.

- **Beyond the classroom:** These engaging agriculture videos are adaptable in a variety of settings from the classroom, to a youth development/Extension learning event or a general consumer education event.

### **Overview of the four chapters provided:**

#### **Chapter 1 - Agriculture in the United States**

This chapter is a broad understanding of the agriculture industry in the U.S. In the first video set titled “What We Grow,” statistics on key commodities grown in the U.S. and our agricultural food markets are shared, the top row crops, livestock and markets in U.S. agriculture are listed, and A.G. Kawamura speaks on the value of transparency in agriculture. According to this section, gaining consumers’ business is the ultimate goal of U.S. farmers and ranchers, so keeping agriculture transparent can only further build trust with consumers. In the second section, “How Agriculture Impacts Our Economy,” Kip Tom from Tom Farms is featured. He explains the importance of agriculture to the U.S. economy and how it supports other industries including equipment manufacturers, researchers, banks and more.

#### **Chapter 2- The Life of Farmers & Ranchers**

Within this chapter are three video sections: “Living in Agriculture Communities,” “Most Farms are Family Owned” and “Women in Agriculture.” In the first section, it is explained that, while farming is a dynamic and global business, it is carried out in small, tight-knit communities. Annie Dee of Dee River Ranch in Alabama shares about life on her farm and the importance of working together as farmers. John Pendergrass also shares his farming experience in this section, but he focuses more on the farmers’ connections to the community and how farmers and ranchers act as vital members of their communities, schools, and local economies, keeping small town America thriving. The next section shares surprising statistics about how common family farms are and how farming families sustain their farms. Kip Tom from Tom Farms shares his family’s process of creating a succession plan for their farm here. Lastly, the short women in agriculture section identifies how common and in what way women are involved in agriculture.

#### **Chapter 3- Stewardship of Natural Resources**

This chapter is split into three sections. In the first section, “Conservation of Water, Soil, and Air,” it is explained that farmers and ranchers are acutely aware of the impact they have on their environment and the health and well-being of their livestock. John Pendergrass of Arkansas shares his belief in caring for his cattle at Pendergrass Cattle Company and Danny Murphy of Mississippi is primarily a crop farmer that has established a variety of conservation practices including terraces and no- till to protect and maintain the health of his soil for

generations to follow him. However, farmers must always balance environmental sustainability with business sustainability; this idea is explored in the second section “The Connection Between Environmental & Business Sustainability.” Lastly, the “Managing Risks” section explains the variety of risks farmers and ranchers face daily including pests, weeds, markets, consumers, trade agreements and weather conditions. Zach Ducheneaux helps identify these risks by concluding the section with his perspective.

#### **Chapter 4- What We Eat from Seed to Table**

The first section of this interactive chapter, “Learn How Our Food Travels From Seed To Table,” reveals the various industries, companies, processors and retailers that work in conjunction with producers in our food value chain to ensure a safe and affordable end product for the consumer. It features input from farmers Danny Murphy and Annie Dee, and it includes interactive click to learn modules. In “What Farmers Want You to Know,” the videos express how much farmers and ranchers are striving to improve transparency and communication with consumers as each generation becomes farther removed from agriculture. Indiana and Alabama producers share how they advocate in their communities, states and country for the practices they rely on for business and environmental stability.

#### **Objectives**

Viewers/Students will:

- Have a basic understanding of the various facets of the agriculture industry.
- Be able to identify the top commodity crops in the United States.
- Diagram the sectors/steps through the value chain from seed to table to comprehend and explain visually the key aspects of these steps that ensure our food supply is safe, efficient and available to all.
- Evaluate technology’s numerous roles and improvements that continue to aid farmers and producers in advancing their operations with efficiency, production, safety, health and sustainability concerning both crop and animal production.
- Recognize types of pollinators and the role these pollinators have on producing a variety of crops and everyday food items.
- Explain the natural resources farmers strive to protect and maintain and the methods they use to conserve these resources through management practices and technology.

### **Classroom Integration**

\*For teachers of agricultural science, especially those at the secondary and technical school levels, the applicability of the agricultural information in these chapters is clear. For teachers in different subject areas and at different grade levels, the connections can be difficult to find. This section provides some suggestions, tips and ideas to exemplify how the vital agricultural information in these chapters can be used to meaningfully supplement the existing curriculum requirements in your classes.

#### **English Language**

- English lesson topics (such as communication styles, authorial and reader perspectives, and writing narrative) can be addressed using videos from all four chapters as examples or as a way to establish set in a lesson. For example:
  - Using A.G. Kawamura’s video from Chapter 1, a multiple perspectives activity asking students to consider how changing the degree of transparency with which the author writes affects the content and reader response can be created. This activity would help students to analyze writing with a consideration for authorial intent.
  - Using the “Most Farms are Family Owned” section of chapter 2, a language narrative writing direct instruction lesson can be designed. This can be accomplished by using John Pendergrass’s narrative about how his farm supports his community as a model for students’ personal narratives about how their families interact with the community.
  - Using Annie Dee’s presentation from chapter 4, a lesson that explores the effect of bias and reputation on communication can be created. This video would serve as the “hook” for a lesson after allowing students to discuss their current concepts of farmers and how that differs from reality.
- On the other hand, all four chapters can be viewed over the course of several days to:
  - Build agriculture vocabulary lessons in connection with class content.
  - Inspire authentic writing assignments such as writing letters to farmers thanking them for their work and writing letters to policy makers advocating for support of agriculture.
  - Supplement thematic lessons for other literature, from *The Lorax* by Dr. Seuss to *Silent Spring* by Rachel Carson.

#### **History/Geography**

- History, Geography and Social Studies curriculum lesson topics (such as cultural differences in daily life, how terrain affects agriculture and how agriculture affects society) can be addressed using videos from all four chapters as “real life” examples or ways to establish set in the lesson. For instance:
    - Using the “What We Grow” videos from Chapter 1, a lesson that explores how the uniquely varied climate of the U.S. fosters the growth of a variety of crops. This lesson would use this video as an example of the crops available in the U.S. and would be most beneficial when supplemented with similar lists from other countries.
    - Using the “Living in Agriculture Communities” videos from chapter 2, it is possible to introduce a Social Studies lesson about how family structures affect individual
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social roles. After listening to the videos in the section, comparisons can be encouraged with short reflective writing assignments or readings from journals about family life in medical or high-class family structures.

- Using the “Women in Agriculture” section found in chapter 2, a lesson demonstrating the accomplishments of women can be supported for the field of agriculture. This could be a part of a unit that demonstrates the accomplishments of people who defied expectations including people from the women’s rights movements in the 1950s.
- Using the interactive farm value chain from “Learn How Our Food Travels From Seed To Table” in chapter 4, the interconnectedness of different fields can be exemplified using the agricultural field as a model. This example can help communicate the big idea that social systems are interconnected.
- On the other hand, all four chapters can be viewed over the course of several days to
  - Build agriculture vocabulary lessons in connection with class content.
  - Inspire local application projects exploring the farms and food production structures that exist in the community (interviews with farmers; studies of local/state agricultural laws and regulations; relationships between farmers, suppliers and business owners to provide for the community.)

## **Math**

- Math curriculum lesson topics (such as basic statistical analysis, ratio comparisons, and managing risk/cost) can be addressed using videos from chapters 1, 2 and 4 as “real life” connections or ways to establish set in a lesson. For example:
  - Using the “How Agriculture Impacts Our Economy” section of chapter 1, an introductory lesson can be created to introduce the concept of taxation in the context of imports and exports.
  - Using the “Most Farms Are Family Owned” section of chapter 2, a lesson defining demographic or census data and how to compare it can be introduced, centering on the question of how it is possible to know how many farms are family owned, let alone 99% of them.
  - Using the “Learn How Our Food Travels from Seed to Table” section of chapter 4, a real-life example of managing financial risk can introduce a lesson on cost benefit analysis or the value of differentiating one’s portfolio.

## **Science**

- Science curriculum lesson topics (such as sustainability, world hunger, and weather) can be addressed using videos from all 4 chapters - but primarily chapters 3 and 4 - as “real life” connections or ways to establish set in a lesson. For example:
  - Using the interactive technology section from chapter 4, a lesson introducing the environmental and biological challenges to agriculture can be created to support a unit about plant growth.
  - Using Zach Ducheneaux’s speech in the “Managing Risk” section of chapter 3, a theoretical lesson about the need for problem solving in the scientific process can be supported. Since these lessons often function as motivating lessons as well, this video can serve as the reference for a mini-lesson about the importance of a

problem-solving attitude in this class by reminding students about the importance it has in the “real world.”

- Using Danny Murphy’s story about how his family revitalized their farm in the first section of chapter 3, a lesson on plant regrowth, the soil system, nitrogen fixing, or any other soil health related topics can be clearly supported. This video is short and highly applicable to the soil health unit of secondary Earth science lessons.
- On the other hand, all four chapters can be viewed over the course of several days to:
  - Support an agriculture education unit, connecting to several of the state required science curriculum objectives.
  - Inspire local application projects exploring the farms, food production structures and the local climate’s effect on living matter (Ex: planting a class garden, asking a local farmer to talk about the soil health or their farms weather risk management plans)

## Differentiation Tips

\*Differentiation according to a lead researcher and professor of teaching at the University of Virginia, Carol Ann Tomlinson, is teaching with the awareness that each students' learning style and levels of readiness vary prior to creating a lesson plan. This section is to assist with fostering some differentiating instruction with this e-learning material to engage all of your students.

Source: Cathy Weselby, [www.resilienteducator.com](http://www.resilienteducator.com)

### 1. Content

- Some of your students may be familiar with agriculture already, while others have no concept of growing up on a farm or in a rural setting. Accommodate for these differences by pairing students with a level of mastery to agriculture with those that are unfamiliar to share their experience and knowledge base.
- For students with lower level understanding of these e-modules, review our assessment section or the videos yourself to create a vocabulary lesson (build understanding.)
- Have students create a PowerPoint highlighting one topic area within the e-learning material that they want to expand on.

### 2. Process

- This e-learning material hits on auditory and visual learners however, you may want to expand this material to include your kinesthetic learners ways to do so may include:
  - Including an experiment pertinent to the learning material
  - Going on a farm tour
  - Play a game, whether online or outside pertinent to the module

### 3. Product

- What do you want your student to complete that reflects their comprehension of the module's content, options include:
  - Students could write a report regarding an element of agriculture discussed in the module.
  - For those visual learners in your classroom, have them summarize a key topic in the module via an infographic.
  - For an auditory learner they may prefer providing a synopsis of a key topic in the module via an oral report.
  - For a kinesthetic learner, have them demonstrate a key topic in the module (i.e. demonstrate how to vaccinate a beef steer).

### 4. Learning environment

- This varies, but providing a quiet space is key. Being that this e-learning material is related to agriculture, take your students outside to demonstrate some of the topics mentioned (i.e. look for pollinators, create a feed mix, load a syringe, etc.)

## Assessment Resources

\*These questions exclude content found in the bonus videos

### “Agriculture in the United States”

1. What are the four main crops grown in the United States?  
**Answer: Corn, Soybean, Wheat, Cotton (any order)**
  
2. The United States is the world’s largest producer of what three livestock species?  
**Answer: Beef, Dairy and Poultry (any order)**
  
3. The U.S. pork industry is the third largest pork producer in the world. (True/False)  
**Answer: False, second**
  
4. 8% of U.S farmers market their food locally, direct to consumers. (True/False)  
**Answer: True**
  
5. 25% of U.S. farm products are exported each year. The five leading export market countries for the U.S. include: Canada, China, Mexico \_\_\_\_\_ and \_\_\_\_\_.  
**Answer: European Union and Japan (either order)**
  
6. The U.S. fruit and vegetable sector are a \$5 billion dollar industry each year. Provide two examples of how this industry has expanded its market to consumers in the last decade?  
**Answer: (either of these three, in any order)**
  1. **Online grocery shopping**
  2. **Meal kits**
  3. **Growing organic market**
  
7. According A.G. Kawamura, a California fruit and vegetable producer featured in this tour, creating transparency within our food system means what is occurring between the consumer and the producer?  
**Answer: When there is transparency there is learning being established between the consumer, the end user, and the actual producer.**
  
8. A.G. further detailed the challenge of no transparency between the consumer and producer. Explain one challenge he mentioned if we as agriculturists don’t maintain transparency?  
**Answer: There can be confusion, misguided information, and lack of support for our food system by our peers/consumers**
  
9. Maintaining transparency between the producer and consumer can lead to a more knowledgeable consumer that can become a stronger supporter of our food and agricultural system. (True/False).  
**Answer: True**

10. According to Kip Tom, a large number of products raised in the U.S. are exported, it's important to have a holistic view of all the opportunities to add value to the chain, improve efficiency and affordability of food. (True/False).

**Answer: True**

11. The U.S. is not a leader in global food security. (True/False)

**Answer: False**

12. Farmer education and technology has helped the U.S. go from food \_\_\_\_\_ to food secure.

**Answer: scarcity**

### **“The Life of Farmers & Ranchers”**

1. Ninety-nine% of U.S. farms are operated by families, commonly consisting of multiple of generations (True/False)

**Answer: True**

2. Time and experience are critical in \_\_\_\_\_ solving on the ranch according to John Paul Pendergrass of Arkansas.

**Answer: problem**

3. Succession planning is critical in passing the family farm and legacy to the next \_\_\_\_\_ of your family.

**Answer: generation**

4. What percent of farm operators are women?

**Answer: 30 %**

### **“Stewardship of Natural Resources”**

1. Farmers work in a uniquely close way to natural resources. List three resources that farmers and producers work hard to maintain healthy.

**Answer: Soil, water and air**

2. Livestock producers additionally take strides towards protecting the \_\_\_\_\_ of their animals.

**Answer: well-being (health could work as well).**

3. Danny Murphy, from Murphy farms, was featured in this module. Initially the land his grandfather purchased wasn't very valuable, but what three practices did his family farm establish overtime to improve their land?

**Answer:**

1. **No-till (to minimize soil erosion)**
2. **Adding cover crops**

4. Producers are striving to keep in mind their natural resources available and how to positively balance this with \_\_\_\_\_ costs and \_\_\_\_\_ of their products.

**Answer: operation, revenue**

5. Environmental sustainability is not possible without \_\_\_\_\_ sustainability.

**Answer: business**

**“What we eat from the seed to the table”**

1. Draw/outline and briefly describe each point the journey from seed to table, farm to fork value chain.

**Answer:**

1. **Input companies:** All the companies essential to starting up a farm operation, it consists of the agribusiness sectors. Includes: seeds, fertilizer, crop protection, animal health and nutrition, crop insurance, food ingredients.
  2. **Farmers/Producers:** Combine inputs to provide their main commodities within fuel, fiber and food.
  3. **Traders:** Consolidate commodities from the producers (crops, meats, oils, meat and biofuels) to sell farther up the value chain to organizations that add value to create a consumer face product.
  4. **Food companies:** (bakeries, meat and dairy processors and snacks). Craft products that meet the complex and changing demand of the consumer market.
  5. **Retailers:** Provide platform and reach for consumers to purchase products
  6. **Consumers:** End purchasers of the product, they send signals to the entire value chain based on their preferences, questions and general concerns.
7. Mobile devices/tablets have an advantage to farmers and producers to oversee their operation from wherever they may be in the world. (True/False)

**Answer: True**

8. Wireless sensors collect data on parameters such as? (list at least 2 of the seven mentioned)

**Answer: soil fertility, leaf temperature, leaf area index, water requirements, local climate, infestation, animal well-being (any of these, in any order)**

9. Satellite technology allows plant health, soil moisture, and plant cover from space. (True/False).

**Answer: True**

10. The goal/purpose of variable rate application is to?

**Answer: maximize a field's potential by precisely planting varieties of plants that are best for the soil type and moisture availability of varying areas of a field. It's an opportunity to increase yields.**

11. Explain two main purposes of precision irrigation within the agricultural industry, highlighted in this video?

**Answer:**

1. **Allows remote monitoring and control of crop needs (during volatile weather)**
2. **Only applies the necessary amount of water.**

12. Improving livestock nutrition and genetics has increased productivity in the U.S. livestock industry, a good diet and overall good health enables livestock to reach their full \_\_\_\_\_ potential.

**Answer: genetic**