

**Course:** Foundations of Supply Chain Management

**Objective(s)**

* Students will engage in a virtual simulation to explore the importance of sustainable agriculture, best management practices and innovations on a local and global scale
* Students will experience how the supply chain functions work together to support the final product
* Students will explain the possible consequences to the supply chain from a disruption to raw materials

***PROJECT: AGRICULTURAL PRODUCTION AND SUSTAINABILITY IN THE SUPPLY CHAIN***

**TN State Standard:**

Supply Chain Functions #7: Research the following terms as related to supply chains: lean, green, and sustainable. Define and describe each term and give examples of ways they are implemented in a supply chain.

Supply Chain Functions #9: Gather and analyze information from multiple authoritative sources (i.e., industry magazines, academic journals) to explain how the following functions work together to support the final product/service being received by the customer at an optimal price-point: a. procurement of raw materials, b. selection of suppliers, c. transportation, d. warehousing/product storage, e. inventory control, f. material handling, g. information and communication systems, and h. employment/staffing processes

***Scenario – Sustainability Farming Game:***

You are about to embark on a “*Journey to 2050.”* You will experience the lives of three actual farm families in Kenya, India, and Canada. First, you’ll meet the Madges. They’re a three-generation farming family from Central Alberta, Canada. Then we’ll fly across the Atlantic to meet the Oloos. They own a small farm in Kenya, East Africa. Finally, we’ll visit the Singhs, who live in India where multiple generations farm together. These families and agricultural experts will be giving you advice on what we call best management practices, which will allow us to grow more with less, protect the environment, build stronger communities and feed the growing population of our planet.

As you interact with each family, pay attention to the farming practices they choose, the technology they use and the community investments they make. Agriculture is the foundation of life, and its success creates ripples locally and globally that will determine whether we meet the challenge of feeding the world.

Along the way you will learn about where our food, fiber (clothing and shelter) and fuel comes from and how farmers can sustainably produce these items for a growing population. You will have an opportunity to follow the supply chain from the raw materials to the end product and see how supply chain functions interact and are dependent on each other. You will also have the opportunity to engage in positive discussions about the importance of sustainable agriculture, best management practices, and innovations.

There are many challenges that lie ahead as feeding the world is the responsibility of all. We need to think about the ways we act now so that future generations and our natural environment may prosper.



**LESSON 1 – INTRODUCTION TO SUSTAINABLE AGRICULTURE**

*(Worth* ***50 points)***

* Review the *Introduction to Sustainable Agriculture* PowerPoint
* Complete Student Handout #1 – World Population Growth
* Play Sustainability Farming Game Level 1 Demo - The first level is a demonstration of the game designed to teach students how to play. Students will be in Kenya and will play one round, which will take about five minutes. The game stops after they have completed each teaching moment (such as how to plant, water and harvest).
  + Go to <http://www.journey2050.com/play-the-game/>
  + Click on Chrome
  + Enter Your Teacher Code **WHGP**
  + Enter Your First Name and Last Name
  + Start Game
* Answer the following questions:
  + After growing your first crop, did you invest some of your money to purchase additional land? Why or why not?
  + What was the limiting factor in your sustainability barrel? What did this mean?
  + What were some of the ripple effects of your farming choices?
  + Draw your supply chain for the farmer in Kenya
* Finish playing Level 1, Level 2, and Level 3 of the game

**LESSON 4 – ECONOMY**

*(Worth* ***50 points)***

* Review the *Economy* PowerPoint
* Watch the *Journey 2050 Economy Video* – answer the following questions:
  + What is the foundation for an economy?
  + What is a market?
  + How does the increased wealth that comes from a strong market impact a community as a whole?
  + How does a strong economy strengthen the supply chain for final products?
* Create a Ripple Effect Chart (you may use any software you wish) that begins at a “Good Crop” all the way to a “Global Market” – email your completed chart to [kavasschs@gmail.com](mailto:kavasschs@gmail.com)
* Play Sustainability Farming Game Level 4 - in this level of the game you will be farming in all three countries (Kenya, India and Canada).
  + You will have investment opportunities to further the ripple effect in the community. These are examples of real-life investments that exist in each country.
  + You will have an opportunity to sell your crops in the marketplace. Prices fluctuate and the number of crops sold depends on your growing practices. *(The more ‘best’ practices used the higher the crop yields, the more money you will make, and the more final product will be available. Students will be exposed to examples of both edible and non-edible items that agriculture produces.)*
  + **NOTE:** In India, if students plant sugarcane a disease, known as Redrot, will hit their crop causing significant damage.
  + This is the last round for the game - Total game time is 18 minutes (6 minutes per country)
* Answer the following questions:
  + What was the highest crop yield % you received? How did you achieve high results? What choices did you make in the market when you sold your crop?
  + What investments were made by the students with the higher income farms? What investments were made by the students with the lower income farms? (Work with other students in the class on this question)
  + What happens to your harvest when a random event such as hail or a crop disease hits your farm? What is the impact on the local and global market?
  + Did anyone plant sugarcane in India? What happened to your crop yield?
  + How does a sustainable farm impact the farm family, their community and their country?
  + How does a sustainable farm impact the supply chain of the farm’s raw materials?
* Finish playing Level 5 and Level 6 of the game

**SUMMARY**

**(*Worth 50 points)***

1. What role does a supply chain manager play in the production of crops by the farmers?
2. Why would “best management practices” and “sustainability” on farms be of interest to supply chain managers?
3. How do all the supply chain functions work together to support the final product? How do they affect the price point of the final product?
4. *“A North American farmer in the 1900’s produced enough food for 10 people. Today’s farmer feeds over 120 people and tomorrow’s farmer will have to feed even more. By 2050, our growing population will require the equivalent of all the food grown in the last 500 years put together. As more food is grown it is vital that we protect our environment. Sustainable agriculture helps protect natural landscapes (such as rainforests) from being converted into farmlands by growing more on existing lands using technology and best management practices.”*

How will sustainable agriculture help ensure that future supply chains are available and cost effective?

1. Disruptions in the Supply Chain:

* Read the article “*U.S. farmers face devastation following Midwest Floods*”
* Draw the supply chain for Frito-Lay Corn Chips
* Describe how the Midwest floods have disrupted the supply chain for Frito-Lay Corn Chips.