

Going Global



Activity Time: 45 Minutes.

Lesson Plan Summary:

In this lesson, students will learn about the role of regulatory agencies and government responses in the global marketplace. They will research, review, and discuss materials from regulatory agencies such as the Washington State Department of Agriculture (WSDA) and the Food and Drug Administration (FDA). Students will discuss the business management aspects of expanding agricultural-oriented businesses to an ever-changing, worldwide marketplace.

STUDENT UNDERSTANDINGS

Big Ideas & Enduring Understandings:

- **Government Response:** Government agencies at the state and federal level play an important role in safeguarding the feed and food supply.
- **Business Management:** In today's ever-changing global marketplace, an agriculture-oriented business manager must keep track of a variety of considerations beyond the production of a feed or food product.

Essential Questions:

- How do regulatory agencies use logic, science, technology, and statistics to make timely decisions to ensure that agricultural business owners remain competitive in a global marketplace?
- What are some of the things an agricultural business owner should consider when preparing to take his or her products to the global marketplace?

Learning Objectives:

Students will know...

- Regulatory agencies implement a variety of strategies and decisions using available, and sometimes imperfect, information.
- Business owners have resources, including access to government agencies, that can improve their competitiveness in today's global markets.

Students will be able to...

- Identify regulatory agencies concerned with the agricultural marketplace world-wide.
- List preparations and steps that an agriculture-oriented business owner can take to grow her business and protect her customers.
- Learn what it takes for an agriculture-oriented business owner to participate in a global marketplace, in order to help his business expand.

Vocabulary:

- Gapminder
- Global marketplace
- Gross Domestic Product (GDP)
- Regulatory agency

Standards Alignment:

This lesson addresses the following Washington State Career and Technical Education (CTE) model frameworks for Agriculture, Food, and Natural Resources (AFNR):

- **ABS.02.01.02.a:** Identify and observe ethical standards in planning and operating AFNR businesses. Level I.
- **ABS.02.03.02.a:** Identify appropriate local, state, federal, international, and industry regulations for AFNR businesses. Level I.
- **FPP.01.01.01.b:** Evaluate changes and trends in the food products and processing industry. Level II.
- **FPP 01.02.01.a:** Explain the purposes of organizations that are part of or regulate the food products and processing industry. Level I.
- **FPP 01.02.01.b:** Evaluate the changes in the food products and processing industry brought about by industry organizations or regulatory agencies. Level II.

Common Student Preconceptions:

- Expanding into a global business takes little more than putting up a website.
- Regulatory agencies are unfamiliar with the day-to-day needs of farmers and their related industry.
- U.S. businesses conduct most of their trade and commerce with other U.S. businesses and have little interaction with the global marketplace.

TEACHER PREPARATION

Materials:

Item	Quantity
Classroom computer with projector, speakers, and internet access	1 per class
Computer lab with internet access	1
<i>Going Global Research Questions</i> Student Handout	1 per group
<i>Going Global Research Questions</i> Teacher Answer Key	1 per class

Preparation:

- Make four copies of the *Student Handout*.
- Divide students into four groups.
- Make sure that you can access the Gapminder (Trendalyzer software) from the internet in your classroom. Trendalyzer is software for animation of statistics that was initially developed by Hans Rosling's Gapminder Foundation in Sweden. Trendalyzer software is preloaded with statistical and historical data about the development of world nations. For a listing of data sources, visit <http://www.gapminder.org/data/>.

PROCEDURE

Hook:

1. Using the classroom computer and projector, show students the Gapminder website, available at:

Gapminder

<http://www.gapminder.org>

2. Once the website opens, click "Load Gapminder World" to launch the Trendalyzer software. While the site loads, which can be a lengthy process, explain that you are going to share some world data using unique, animated graphics.
3. Once the website has loaded, click on "Full Screen" at the upper right of the screen.
4. Click the "Play" button at the lower left of the screen. The bubbles on the graph will move. Let the students watch without guidance. The graph will portray wealth (x-axis) and life expectancy (y-axis) statistics for a variety of nations over the past 200 years.

5. Once the bubbles stop moving, guide your students through the data represented on the animated graph:
 - Each of the bubbles represents a country.
 - The size of the bubbles is related to the size of the population of that country.
 - The health of a country’s people is suggested by the average life expectancy of its people. In this graph, students witnessed the changing life expectancy of the people who live in each country for each year since 1800 (as shown on the y-axis). Check to see if students understand this concept by asking, “Are people around the world living longer or shorter lives?”
 - The wealth of a country’s people is suggested by the income per person its population earns each year. In this graph, students witnessed the overall wealth of the people who live in each country for each year since 1800 (as shown on the x-axis). Check to see if students understand this concept by asking, “Are people around the world becoming wealthier or poorer?”
 - At the right of the Gapminder screen is a listing of countries. As long as no country is clicked, Gapminder shows the entire world’s metrics. When you click on specific countries in this window, you can emphasize the data (and the graph bubble) from that country. You can increase student engagement by choosing countries that represent the home nations of some of your students’ families.

6. Next, share some Gapminder statistics related to agriculture. This can be done by “changing” the y-axis of the graph. Move your cursor over the rectangle over the y-axis that is labeled “life expectancy” and click on the little upside down triangle. A pop-up of possible new categories will appear. Open these available data sets by gliding your cursor over the drop down menu, opening one of the data sets at a time:
 - Select **Economy**, then **Incomes & Growth**, then **Sugar per Person**. You will see the grams of sugar and sweeteners consumed per person per day in reporting countries.
 - Select **Economy**, then **Sectors**, then **Agriculture**. You will see the % Gross Domestic Product (relative national income) that comes from the agriculture industry sector for each country.
 - Select **Work**, then **Employment by Sector**, then **Agriculture Workers**. You will see the % of the total labor force that works in agriculture for each country.
 - Select **Environment**, then **Geography**, then **Agriculture Land**. You will see the % of arable land that is dedicated to raising crops or animal grazing.
 - Select **Environment**, then **Water**, then **Agricultural Water Withdrawal**. You will see the % of withdrawn/extracted water that is dedicated to agricultural practices.

7. As you move through the Gapminder scenarios, keep the x-axis constant and always press “Play” after you set up each Gapminder scenario. Ask students for ideas of countries they may want you to highlight in any of the scenarios.

8. After examining the five Gapminder scenarios, ask the students to conduct a Think-Pair-Share with a partner, answering the following prompt: “Based on what I saw using Gapminder, I think that the most significant change in global agriculture in the past ten years is _____.”

9. Share the following statistic: “On average, every hour, 24 hours a day, 365 days a year, around \$6 million in U.S. agricultural products—grains, oilseeds, cotton, meats, vegetables, snack foods, etc., will be consigned **for shipment for export to foreign markets**” (U.S. Dept of Commerce).
10. Ask students to conduct a quick Think-Pair-Share, reflecting on the reasons why an agriculture-oriented business would want to access the global marketplace. During the Share component, document students’ diverse ideas on the board.
11. Using the classroom computer and projector, show students a video from AllAboutFeed in which Jeff Murphy, the president of a global animal nutrition company, discusses current matters affecting the feed industry.

Kemin AgriFoods North America Video (4:58 minutes)

<http://www.allaboutfeed.net/videos/all-about-feed-meets-kemin-32.html>

12. Allow time for students to discuss the video briefly. What are some trends in the agrifood and ethanol industries? What are the areas of top growth? What impacts do regulations have on these industries?

Preconceptions:

13. Write the following questions/prompts on the board:
 - Name two connections between animal feed safety and human food safety.
 - Name one way that regulatory agencies promote or help U.S. feed production and feed safety.
 - Name one way that regulatory agencies hinder U.S. feed production and feed safety.
 - How important is it for American companies to be able to sell their feed products globally? Select one: a) not important; b) somewhat important; c) very important.
 - How does the WSDA support the agricultural community? Regarding feed safety? Strictly on a state level, or beyond?
14. Ask students to record their answers to these questions on a piece of paper so that you can capture students’ learning on today’s global marketplace.

Activity Procedure:

15. Divide the students into four groups.
16. Pass out copies of the *Student Handout*, one per group.
17. Assign two questions from the *Going Global Research Questions Handout* to each group, ensuring that all questions are assigned. Alternatively, allow each group to select the two questions that they want to research and answer.
18. Allow time for students to research and prepare their responses. Students will need access to a computer lab to conduct their research.

Wrap-up:

19. Bring the class back together. Ask each group to share their answers to their selected questions.
20. At the end of the lesson, ask students to revisit the questions from the *Preconceptions* section. To assess student learning, direct the students to update their responses, keeping in mind what they learned as a result of participating in this lesson. They should turn in their papers at the end of the class period as Exit Tickets.

Assessment Opportunities:

- The Exit Tickets will show changes in student learning as a result of participating in the lesson.
- Assess student learning using the provided *Teacher Answer Key* and the suggested scoring guide.

Student Metacognition:

- The *Preconceptions* questions and Exit Ticket activity challenge students to consider how their thinking has changed as a result of participating in the lesson.

Extension Activities:

- Precede this lesson with the *BSE Outbreak Lab* lesson from this curriculum. Have students consider the questions on the *Going Global Research Questions Student Handout* based on their experiences from that lesson.

Adaptations:

- Direct students to research the impact of the 2010 Icelandic volcanic eruption (Eyjafjallajökull) on global trade, using the internet resource provided below. Direct the students to document the timeline between the eruptions and the resulting impact on global agricultural trade. What was the economic impact?

“With Flights Grounded, Kenya’s Produce Wilts”

<http://www.nytimes.com/2010/04/20/world/africa/20kenya.html>

TEACHER BACKGROUND & RESOURCES

Career Links:

- Agricultural attaché
- Agricultural corporate executive
- Global account manager
- Sales/business development manager

Background Information:

Background information on the global agriculture marketplace can be found at the websites listed in the *Resources* section.

Resources:

Gapminder

<http://www.gapminder.org/>

Kemin AgriFoods North America Video (4:58 minutes)

<http://www.allaboutfeed.net/videos/all-about-feed-meets-kemin-32.html>

“With Flights Grounded, Kenya’s Produce Wilts” (*New York Times*, April 19, 2010)

<http://www.nytimes.com/2010/04/20/world/africa/20kenya.html>

About WSDA

<http://agr.wa.gov/AboutWSDA/>

Food Safety Milestones

<http://www.fda.gov/downloads/Food/FoodSafety/FSMA/UCM263778.pdf>

International Marketing

<http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateA&navID=InternationalMarketing&leftNav=InternationalMarketing&page=InternationalMarketing&acct=AMSPW>

Good Manufacturing Practices Feed Safety Inspection Checklist

<http://agr.wa.gov/foodanimal/animalfeed/forms/form4289.pdf>

American Feed Industry Association

<http://safefeedsafefood.org/images/pdf/6VI.SF-SFauditformrevised10-09.pdf.pdf>

Animal Feed Impact on Food Safety

http://www.who.int/foodborne_disease/resistance/Report_AnimalFeed_Oct07.pdf

Food and Agriculture Organization of the United Nations

<http://www.fao.org/>

Global Food Safety Initiative

<http://www.mygfsi.com>

Rapid Alert System for Food and Feed (RASFF)

http://ec.europa.eu/food/food/rapidalert/index_en.htm

Early Warning and Response System (EWRS)

<https://ewrs.ecdc.europa.eu/>

Building Capacity in Global Markets

http://www.mygfsi.com/gfsifiles/_com/GFSI_Newsletter_Sept2010.pdf

Global Markets Capacity Building Program

http://www.mygfsi.com/gfsifiles/GFSI_Newsletter_July_2011.pdf

FSIS Food Defense & Emergency Response

http://www.fsis.usda.gov/Food_Defense_&_Emergency_Response/index.asp

Credit:

Lesson plan written by Nona Clifton of the Washington Global Health Alliance.

Student Handout photograph courtesy of Robert Britschgi.

Team Member Names: _____

Date: _____ Period: _____

Going Global Research Questions

Student Handout



Directions: As a group, please research and answer two assigned questions from the list below. Use the websites listed at the end of the handout, plus your own web research. Be prepared to share your responses with the class.

1. Identify two reasons why U.S. farmers need to understand how to participate in the global feed and food market.
2. What role do regulatory agencies such as the FDA and WSDA play in ensuring feed safety in the U.S.?
3. The EWRS and the RASFF are two European organizations that help ensure the safety and reliability of European goods. Briefly define the goals of the two organizations. Which organization is larger?
4. Familiarize yourself with the key issues in food defense by visiting the FSIS Response website and learning about the Food Safety Plan. Not all measures in a good Food Safety Plan are required at all sites; list the four recommended measures.



Credit: Robert Britschgi.

Web Resources:

About WSDA

<http://agr.wa.gov/AboutWSDA/>

About FDA

<http://www.fda.gov/AboutFDA/WhatWeDo/default.htm>

Early Warning and Response System (EWRS)

<https://ewrs.ecdc.europa.eu/>

Rapid Alert System for Food and Feed (RASFF)

http://ec.europa.eu/food/food/rapidalert/index_en.htm

FSIS Food Defense & Emergency Response

http://www.fsis.usda.gov/Food_Defense_&_Emergency_Response/index.asp

The Animal and Veterinary Arm of the FDA

<http://www.fda.gov/AnimalVeterinary/default.htm>

WSDA Good Manufacturing Practices Feed Safety Inspection Checklist

<http://agr.wa.gov/foodanimal/animalfeed/forms/form4289.pdf>

Food Safety and Inspection Service, General Food Defense Plan

http://www.fsis.usda.gov/PDF/General-Food-Defense-Plan-9-3-09%20_2_.pdf

Going Global Research Questions

Teacher Answer Key



1. Identify two reasons why U.S. farmers need to understand how to participate in the global feed and food market.

Answers may vary, but must include: a) the importance of U.S. farmers selling their crops to foreign customers; and b) how U.S. farmers can sell their products while being cognizant of the demands and pricing of competing international farmers.

2. What role do regulatory agencies such as the FDA and WSDA play in ensuring feed safety in the U.S.?

The FDA is a federal entity responsible for protecting public health by assuring the safety, efficacy, and security of our nation's food supply. The FDA is also responsible for advancing public health by helping the public access the accurate, science-based information they need to safely use foods to maintain and improve their health. Finally, the FDA plays a significant role in the nation's counterterrorism capability. The FDA fulfills this responsibility by ensuring the security of the food supply to respond to deliberate and naturally emerging public health threats.

<http://www.fda.gov/AboutFDA/WhatWeDo/default.htm>

The WSDA serves the people of Washington by supporting the agricultural community and promoting consumer and environmental protection. The WSDA staff carries out a broad spectrum of activities that support the producers, distributors, and consumers of Washington's food and agricultural products. Their goals include:

- Protect and reduce the risk to public health by assuring the safety of the state's food supply.
- Ensure the safe and legal distribution, use, and disposal of pesticides and fertilizers in Washington State.
- Protect Washington State's natural resources, agriculture industry, and the public from selected plant and animal pests and diseases.
- Facilitate the movement of Washington's agricultural products in domestic and international markets.

<http://agr.wa.gov/AboutWSDA/>

3. The EWRS and the RASFF are two European organizations that help ensure the safety and reliability of European goods. Briefly define the goals of the two organizations. Which organization is larger?

The Network for the Surveillance and Control of Communicable Diseases has been established to promote cooperation and coordination between the Member States, with the assistance of the European Commission, with a view to improving the prevention and control, in the Community, of communicable diseases. The Network includes an Early Warning and Response System (EWRS), which is formed by bringing into permanent communication with one another, through appropriate means, the Commission and the competent public health authorities in each Member State responsible for determining the measures that may be required to protect public health.

The EWRS allows the members to communicate on larger, shared public health issues. The Members use the Rapid Alert System for Food and Feed (RASFF) tools to communicate a serious risk in relation to food or feed threat.

Established as a network in 1983, the RASFF allows the European Commission, the EU member states' food and feed control authorities, and the European Food Safety Authority (EFSA) to share information and take immediate action when dangerous food or feed is detected on the market or at the border.

The EWRS assists in the reporting of any communicable disease within the EU member states, including those associated with food or feed, and is therefore the larger organization.

4. Familiarize yourself with the key issues in food defense by visiting the FSIS Response website and learning about the Food Safety Plan. Not all measures in a good Food Safety Plan are required at all sites; list the four recommended measures.

- Outside Security Measures
- Inside Security Measures
- Personnel Security Measures
- Incident Response Security Measures

5. A variety of regulatory agencies have developed helpful checklists with regard to good manufacturing practices. Review the WSDA checklist and list the seven categories/resources/staff that a regulatory officer might inspect during a visit to a manufacturing site.

Answers can be found at this website: <http://agr.wa.gov/foodanimal/animalfeed/forms/form4289.pdf>.

- Buildings and grounds
- Equipment
- Work and storage areas
- Components
- Assays
- Equipment clean out procedures
- Labeling and records

6. If you suspect a health issue related to your pet's food, what information does the FDA need from you to track down the source of the issue?

Answers can be found at this website: <http://www.fda.gov/AnimalVeterinary/SafetyHealth/ReportaProblem/ucm182403.htm>.

- Exact name of the product and product description (as stated on the product label).
- Type of container (e.g., box, bag, can, pouch, etc.).
- Whether product is intended to be refrigerated, frozen, or stored at room temperature.
- Lot number—This number is often hard to find and difficult to read. It is stamped onto the product packaging and typically includes a combination of letters and numbers, and is always in close proximity to the “best by/before” or expiration date (if the product has a “best by/before” or expiration date). The lot number is very important as it helps determine the manufacturing plant as well as the production date.
- “Best by,” “best before” or expiration date.
- UPC code (also known as the bar code).
- Net weight.
- Purchase date and exact location where purchased.
- Results of any laboratory testing performed on the pet food product.
- How the food was stored, prepared, and handled.

7. Describe the FDA alert system (<http://www.fda.gov/Food/FoodDefense/Training/ALERT/default.htm>). Explain why agricultural businesses need to familiarize themselves with the initiative and its five points.

The ALERT initiative is intended to raise the awareness of state and local government agency and industry representatives regarding food defense issues and preparedness. It is generic enough to apply to all aspects of the farm-to-table supply chain and is designed to spark thought and discussion with a variety of stakeholders. ALERT identifies five key points that industry and businesses can use to decrease the risk of intentional food contamination at their facility. These points include: Assure, Look, Employees, Reports, and Threat.

Agricultural businesses can be more prepared for and effective at addressing issues if they know and understand the key points of the initiative. ALERT identifies five key points that industry and businesses can use to decrease the risk of intentional food contamination at their facility.

8. In traditional times, U.S. farmers could sell most of their goods to local consumers and neighbors. As today's farmers sell their agricultural products on a global scale, can you envision a scenario wherein they might have to conduct business with an organization with different ethics and morals than their own (e.g., doing business with an entity with a history of human rights abuse)? What types of breach of conduct might they encounter?

Answers may vary, but should include slavery, poor work conditions, poor wages, and product tampering (e.g., melamine).

Student Handout Scoring Rubric:

Fails to Meet Expectations	Approaching Expectations	Meets Expectations	Exceeds Expectations
Does not complete <i>Handout</i> . Or, fails to proficiently complete at least 50% of answers.	Attempts to complete <i>Handout</i> , with >50% proficiency.	Completes most of <i>Handout</i> , with >70% proficiency.	Completes all of <i>Handout</i> , with >90% proficiency.

