Course	Agricultural Science I
Unit	Introduction to Agricultural Business
Lesson	Economic Principles of Agricultural Business
Estimated Time	50 minutes

Student Outcome

Illustrate economic principles of successful agricultural business.

Learning Objectives

1. Determine the relationship between supply and demand.
2. Define opportunity costs.
3. Explain the difference between fixed and variable costs.
4. Explain the difference between gross and net income.

Grade Level Expectations

Resources, Supplies & Equipment, and Supplemental Information

Resources

1. PowerPoint Slide
   - PPt 1 – Supply and Demand
2. Activity Sheets
   - AS 1 – Opportunity Costs
   - AS 2 – Fixed and Variable Costs
   - AS 3 – Individual Gross and Net Income
   - AS 4 – Gross and Net Income for a Small Agricultural Business
3. *Introduction to Agricultural Business* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 2001.
4. *Introduction to Agricultural Business Curriculum Enhancement*. University of Missouri-Columbia: Instructional Materials Laboratory, 2003.

Supplies & Equipment

- ❑ Soda pop or candy bars (either one or one for each student)
- ❑ "Money" (either play money or any items which can be counted, such as kernels of corn or game chips)

Supplemental Information

1. Internet Sites
   - ❑ Resources for teachers. Economics Wisconsin. Accessed June 19, 2007, from http://www.economicswisconsin.org/teachers.htm.
2. Print
   - ❑ *Agribusiness Sales, Marketing, and Management* (Instructor Guide). University of Missouri-Columbia, Instructional Materials Laboratory, 1997.

Interest Approach

Bring to class closed containers of soda, candy bars, or anything that may interest your class. Explain that you are going to conduct an auction. Distribute "money" to every student. The currency can be game chips, corn kernels, Monopoly money, etc. Place the item for sale in a closed container so no one will know the quantity you have. Display the item and auction it off to the highest bidder. Auction off another and then another. As you conduct the auction, record how many items were sold ("demand") and the number of items ("supply") on PPt 1. Finally, pull out the remaining items so the class will know how many are left. Auction off each remaining item, trying to get the highest amount for each. Explain that if this had been a real auction, the demand for these items would go up if only a few items are left. After the auction, hand out a treat to any students who were outbid. (Note: Be sure to check with the principal and school policy concerning appropriate items to auction and to give as treats.)

Communicate the Learning Objectives

1. Determine the relationship between supply and demand.
2. Define opportunity costs.
3. Explain the difference between fixed and variable costs.
4. Explain the difference between gross and net income.

Instructor Directions	Content Outline
Objective 1	**Determine the relationship between supply and demand.**
Refer to PPt 1 that graphed the supply and demand of the items used in the interest approach. Discuss how much money was paid for each item and how the demand increased as the supply of items decreased. Point out that supply and demand are two economic factors that influence production and the number of services that agricultural businesses offer in their everyday operations. PPt 1 – Supply and Demand	Supply is the amount of goods or services available for purchase at a given price at a specific time and place. 1. Supply is affected by price. a. If the price of a product decreases, then less of the product is supplied. This is because the producer may not realize as much of a profit on that product. b. If the price increases, more of the product is supplied. The producer may be able to realize more profit. 2. Supply is affected by demand. a. If consumers want more of a product at a given price (demand), the supply is increased. b. If consumers do not want a product at a given price, the supply is decreased. Demand is the amount of goods or services that consumers are willing and able to buy at a given price at a specific time and place. 1. Demand is affected by price. a. If the price of a product decreases, more of the

Instructor Directions	Content Outline
	product will be bought. Consumers will benefit from the lower price. b. If the price of a product increases, less of that product will be in demand. c. As demand increases, supply may decrease because the quantity of available goods may decrease.
Objective 2 *Ask students what they had for breakfast or lunch. Then ask them what their other options were. Explain that the item that they did not select to eat was their opportunity cost. Give other examples that relate to the students. Ask if they went to the basketball game or played soccer, etc. When they made a choice, the activity they did not select contains opportunity cost. They lost the "opportunity" to participate in that activity. Have students complete AS 1, which addresses opportunity costs, and discuss their responses.* AS 1 – Opportunity Costs	**Define opportunity costs.** 1. Opportunity cost is the value of the best alternative not selected. 2. In decision making, the opportunity cost is what you decided not to do, or the cost of your choice. 3. Every agricultural business, in balancing its limited sources of finances, land, and labor, must consider opportunity costs.
Objective 3 *Have students identify expenses they encounter in their lives and then ask them to describe expenses that affect agricultural business. Are these expenses ongoing or are they temporary and unpredictable? Ask students to differentiate between fixed and variable costs by completing AS 2 and then discuss the answers with the class.* AS 2 – Fixed and Variable	**Explain the difference between fixed and variable costs.** Fixed costs 1. Costs that remain constant regardless of the level of production 2. Expenses that have to be paid on a regular basis 3. Examples - depreciation, interest, repairs and shelter, taxes, and insurance 4. Also referred to as ownership costs Variable costs 1. Costs that change along with the level of production or the amount of use 2. Examples - fertilizer, chemicals, seed, gasoline and oil, inventory, salaries, payroll, supplies, advertising,

Instructor Directions	Content Outline
Costs	utilities, telephone, principal payment, feed 3. Also referred to as operating costs
Objective 4 *Ask students what their gross income is if they receive $20 for mowing a lawn. Then ask them what their net income is. Remind them that the lawn mower used gas, had an oil change, and was recently repaired.* *Have students complete AS 3 to differentiate between an individual's gross and net income. Also have them work through AS 4 to learn how to calculate the net income of an agricultural business.* 🗎 AS 3 – Individual Gross and Net Income 🗎 AS 4 – Gross and Net Income for a Small Agricultural Business	**Explain the difference between gross and net income.** Gross income is the total amount of money received without considering any deductions or operating expenses. Net income is the actual amount gained from a service or product after all production and operating expenses are subtracted. 1. Personal net income is calculated by subtracting all deductions from the gross income. 2. Examples of standard payroll deductions include Social Security, state and local taxes, and health insurance.
Application: 🗎 AS 1 – Opportunity Costs 🗎 AS 2 – Fixed and Variable Costs	Answers to AS 1 1. Used tractor at the auction 2. $345 3. $600 Answers to AS 2 1. Variable 2. Variable 3. Fixed 4. Fixed 5. Fixed 6. Variable 7. Variable 8. Variable 9. Variable

Instructor Directions	Content Outline
	10. Fixed
AS 3 – Individual Gross and Net Income	Answers to AS 3 1. \$664.50 2. \$611.16
AS 4 – Gross and Net Income for a Small Agricultural Business	Answers to AS 4 1. \$467.19 2. \$421.62
	Other activities 1. Divide the class into small groups and allow each group to create a fictional agricultural business and apply the economic principles they have learned to establishing a product. 2. Have students identify fixed and opportunity costs and create their own supply and demand curves. 3. Have students create survey instruments to determine what types of products fellow students would enjoy and the price they are willing to pay for these products.
Closure/Summary	Many economic principles influence the decisions that agricultural businesses make. The principles reviewed in this lesson were supply and demand, opportunity cost, fixed and variable cost, and the difference between gross and net incomes.
Evaluation: Quiz	Answers: 1. If consumers want more of a product at a given price (demand), the supply is increased. If consumers do not want a product at a given price, the supply is decreased. 2. Glen's opportunity cost would be taking over his grandfather's farm. 3. Fixed costs are expenses that remain constant regardless of the level of production. 4. Variable costs are expenses that change with the level of production or the amount of use. 5. Students may list any two of the following: a. Depreciation b. Interest, c. Repairs and shelter, d. Taxes

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	e. Insurance 6. Students may list any two of the following: a. Fertilizer b. Chemicals c. Seed d. Gasoline oil e. Inventory f. Salaries g. Payroll h. Supplies i. Advertising j. Utilities k. Telephone l. Principal payment m. Feed 7. Gross income is the total amount received when selling a product or service. Net income is the amount left over after expenses have been subtracted. 8. The net income for the flower shop is $36,000.