Agricultural Economics Curriculum

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Development Partners Include:

Lesson 1. Activity 1 – Revenue versus Expense

Introduction

If you want to own a business, the number one goal would be to make money. No business venture can survive unless you are able to make more money than you need to spend while operating the business. Expenses are part of any business. Good business managers work hard to keep expenses low and revenue high.

The first step in business is to identify what constitutes as revenue and expenses. Revenue is classified as either cash revenue or non-cash revenue. Expenses also can be cash or non-cash expenses. Cash revenue or expenses are easy to determine. Non-cash revenue or expenses are a little more complicated but simply put are increases or decreases in the value of current assets. Appreciation and depreciation are two examples.

If you can identify all potential sources of revenue and expenses, you are better able to prepare business plans to make profit.

Materials

Students will need to have the following materials to complete this exercise:

- Pencil
- Computer with access to Excel® or other spreadsheet program - or –
- Graph paper
- Calculator

Student Instructions

For the scenarios below, identify the value of the transaction as well as the type of revenue or type of expense. You will record the value of the transaction in the proper column and then complete a graph to illustrate the proportions of revenue versus expenses for the business.

Part 1: Identifying Cash and Non-cash Revenue and Expenses

Scenario – Jack's Plant Business

Jack is a sophomore in high school. He wants to grow plants and sell them for money. The FFA chapter owns a greenhouse and offers internships to students to grow the chapter's plants for the spring sale. Jack would not be paid directly for his labor, as the offer is to provide Jack a table to grow his own plants in the school

greenhouse. He can sell his plants as part of the chapter's plant sale and Jack will get the money. In exchange for the table, Jack will have to work a minimum of six hours per week. He will also have to pay for some of the growing expenses but not all. Jack has taken the job and keeps careful records in his FFA record book.

Review the following entries Jack made in his record book and record revenue and expenses as cash or non-cash in Table 1 below.

- **March 1** - Worked 6.5 hours preparing the greenhouse for growing season.
- **March 5** - Mr. Terry ordered pots for the greenhouse. He ordered 800 pots for me and said they cost $0.03 each. He said the Chapter would provide these as part of my labor payment.
- **March 8** - I worked only 4 hours this week due to holidays. Not much to do yet.
- **March 10** - Mr. Terry recommended that I go to the local feed store and buy seeds for the plants I wish to sell. I researched plants and decided to buy vegetable seeds and plant them in order to be ready to sell as seedlings for May garden planting. I bought 20 packets of seeds of different vegetable varieties. Each packet averaged $3.25 each. Luckily, I had birthday money saved to buy the seeds.
- **March 15** - Soil arrived for the greenhouse this week and I had to move it all to storage. Mr. Terry told me to move the bags of soil carefully as each bag cost $17.00, which was more expensive than last year. He said if I didn't break any bags that I could have nine bags of soil for my project and that would cover me for at least 1000 pots. I didn't break any bags!
- **March 22** - I transplanted plants all week for the Chapter. Put in 9.5 hours but got the planting done. Came in on Saturday and planted my own seeds. Worked another 9 hours just for my own project.
- **March 26** - I ran out of pots and Mr. Terry told me where he bought them. I ordered another 200 pots so I could use up the rest of my soil. My mom put the order on her credit card and I paid her cash to cover the cost. Man, they raised the price to $0.04 each!
- **March 29** - I rode my bike to the feed store and bought two more packets of seeds to finish out my 1000 pots.
- **April 5** - Worked another 12 hours over the past two weeks. Plants are growing good and my seeds are sprouted. Just a couple weeks away from the sale.
- **April 12** - Helped Mr. Terry fertilize the greenhouse today. He said fertilizer wasn't very expensive and since he was applying it through the watering system, there was no way to know how much I had to pay. He estimated that the value of the fertilizer to grow my crop for the season would only be about $8.00 and not to worry about it.

- **April 19** - We sprayed for bugs today. Mr. Terry just sprayed my crop as he sprayed the rest of the greenhouse. I got off easy as he charged me six tomato plants from my table to put in his own garden valued at $1.00 each.
- **April 26** - Plant sale starts next week and in order to keep track of my inventory I had to buy blue colored tags. Luckily, the tags come in boxes of 1000 for $14.00. I also had to buy a black permanent marker from the school store for $0.75.
- **May 3** - First week of the plant sale and I logged almost 20 hours this week. I am tired, but I sold 258 of my plants for an average of $.50 per plant.
- **May 6** - My plants aren't looking too good. Our greenhouse heater stopped working and night temperatures were below freezing. All of my plants along the edge of the greenhouse are dead. I lost 192 pots.
- **May 10** - I had to re-fertilize my plants this week to try to make them look better from the cold temperatures. Mr. Terry said since I worked hard the opening week of the sale, he would buy the fertilizer but it was going to take about $19.00 worth to revive my plants.
- **May 17** - Second week of the sale and my plants look terrible. I dropped the price to $0.50 each and if the customer buys two they get one free in order to entice sales. It worked, as I was able to get rid of 345 plants this week.
- **May 24** - I worked my final week at the greenhouse sale and another 18 hours of labor. My plant project was definitely a learning experience. I only had 140 plants left living to sell, as I had to throw out 65 pots because the plants were dead or dying. I sold 61 plants for $0.25 each and gave the rest to a local retirement home. Not sure if I want to grow plants again.

Table 1. Revenue and Expense Log for Jack					
		Revenue		Expense	
Date	Item	Cash	Non-Cash	Cash	Non-Cash
Category Totals		$	$	$	$

Part 2: Graphing Revenue and Expenses

Graphs are important tools to illustrate data in the form of pictures rather than just numbers. This helps communicate the relationship among different data as people try to interpret the meaning of the numbers. Graphing methods include line graphs, bar graphs, and pie charts to name the most common. You can select any type of graphing method that you feel best displays the category totals for Table 1. You may use Excel® or another suitable spreadsheet program on the computer, or your teacher will provide you graph paper if computers are unavailable.

Good graphs are clear and easy to read. They represent the correct proportions of the data that they are trying to illustrate. The following are criteria your teacher will use to score your graph. Use this rubric to help you finalize your graph.

CATEGORY	4	3	2	1
Data Table	Data in the table is well organized, accurate, and easy to read.	Data in the table is organized, accurate, and easy to read.	Data in the table is accurate and easy to read.	Data in the table is not accurate and/or cannot be read.
Title	Title is creative and clearly relates to the problem being graphed (includes dependent and independent variable). It is printed at the top of the graph.	Title clearly relates to the problem being graphed (includes dependent and independent variable) and is printed at the top of the graph.	A title is present at the top of the graph.	A title is not present.
Labeling of X axis	The X-axis has a clear, neat label that describes the units used for the independent variable (e.g., days, months, participants' names).	The X-axis has a clear label that describes the units used for the independent variable.	The X-axis has a label.	The X-axis is not labeled.
Labeling of Y axis	The Y-axis has a clear, neat label that describes the units and the dependent variable (e.g., parts per million of pollutant).	The Y-axis has a clear label that describes the units and the dependent variable (e.g., pollutants).	The Y-axis has a label.	The Y-axis is not labeled.
Units	All units are described (in a key or with labels) and are appropriately sized for the data set.	Most units are described (in a key or with labels) and are appropriately sized for the data set.	All units are described (in a key or with labels) but are not appropriately sized for the data set.	Units are neither described NOR appropriately sized for the data set.
Type of Graph Chosen	Graph fits the data well and makes it easy to interpret.	Graph is adequate and does not distort the data, but interpretation of the data is somewhat difficult.	Graph distorts the data somewhat and interpretation of the data is somewhat difficult.	Graph seriously distorts the data making interpretation almost impossible.
Attractiveness of the Graph	The color compliments the background of the graph	75% of the color compliments the background of the graph	50% of the color compliments the background of the graph	25% of the color compliments the background of the graph

Part 3: Sammy's Sheep Enterprise

Now that you have done an example of separating raw records into revenue and expense totals and you have created a graph to illustrate the relationship, try one more practice exercise. Record the cash and non-cash revenue and expenses for Sammy's business in Table 2. Once you are finished separating the data into the correct categories, create a graph to illustrate the totals. **This time use a different type of graph than you used in Part 2 of this activity**.

Sammy's Records:

- **January 4** – Bought Dorset ewe at auction for $185.00
- **January 5** – Bought one ton of grass mix hay for $85.00
- **January 6** – Bought 12 bags of sheep grain at $6.75 per bag
- **January 18** – Purchased eight weaned lambs for $65 each
- **January 19** – Purchased wormer and vaccines for $23.00
- **January 21** – Purchased supplies to build feeder for $68.83
- **February 17** – Vet bill for sick lamb was $65.00
- **March 28** – Bought 12 more bags of sheep grain for $7.45 per bag
- **April 19** – Traded one lamb for pasture rent with neighbor. Lamb weighed 88 pounds and market price is $0.71 per pound.
- **May 1** – Paid $16 bill for last round of wormer for market lambs
- **May 4** – Lambs broke fence – supplies to fix were $39.00
- **May 12** – Bought 6 more bales of hay at feed store to get me through finish. Bales were $8.50 each.
- **June 2** – Sold five lambs at auction. Total weight for all was 620 pounds. Market was up today as I got $0.98 per pound.
- **June 7** – Bought show equipment for fair – another $42 out of pocket. Sadly, the equipment will only be worth $25 if I want to resell it.
- **June 14** – I sold market lamb at fair auction for $1.25 per pound. He made final weight at 133 pounds.
- **June 20** – Gave last lamb to parents for rent of barn to keep my ewe. Figured it was a fair trade since the value of the lamb was about $123.00.
- **June 30** – Dad found out that purebred Dorset ewes are worth $260. I made a good buy on mine.

Table 2. Revenue and Expense Log for Sammy					
		Revenue		Expense	
Date	Item	Cash	Non-Cash	Cash	Non-Cash
Category Totals		$	$	$	$

Student Reflection

Respond to each question below discussing what you learned in this activity.

1. Explain the difference between revenue and expense.

2. What is the difference between non-cash revenue and cash revenue?

3. Why is it important to determine a value of non-cash expenses for a project?