CHAPTER 1

INTRODUCTION TO AGRICULTURAL ECONOMICS

A. Economics

Economics is the combination of given facts, beliefs, and relationships that aid in the prediction of outcomes for certain given situations. This combination of facts and theories combine in economics to predict the impacts of new policies, theorize the benefits or losses of situations, or to test a previous theory by creating some measurable objectives.

Models are developed in economies to create a simplified picture of reality that can produce and outcome that applies to an unknown situation. For example, if the government is to lower taxes the effective outcome is that consumers have more money to spend. How much money they have to spend is really the question that needs an answer. The answer, after all relationships of savings to spending are understood, estimates that a $1 saving of taxes is increasing consumer spending by $80. Another example of the use of economies is the estimation of the impact of changing interest rates. Impact studies are done to estimate the growth of an economy based on the rise or fall of interest rates. Economics also studies the use of scarce resources, and just how long these are available.

B. Agriculture Economics

Agriculture Economics is the use of scarce resources to produce products to be consumed by members of society. Scarce resources can be defined as land, labor, capital, and management. This specific application of economics was previously discussed, and the use of these resources is the focus of agriculture economics.

Land refers to the principal input that is improved or altered to meet production of crops and animals. Land may be thousands of acres or the square footage of a greenhouse. In either case this is a resource and one that s scare as the surface of the area of the earth competes for who owns it, controls it, and just what laws define its use.

Labor is the many power to achieve desired productions or optimal outcomes. In agriculture, the labor required for production has declined as the increase of technology provided ways to save labor hours. However, the need for technology came from the lack of labor when the industrial revolution began and factory jobs out paid agricultural ones. Today labor in agriculture is just as scarce because wages are usually lower, and alternatives to make a better wage are available.

Capital is the dollar value of investment that is required to produce food and fiber products. Capital dollars are scarce and have many alternatives to where they may be used. Economics involves finding the best use for invested dollars, and that is a management of a scarce resource.

Management is the knowledge that is needed to produce goods or services. This knowledge is necessary and also competes for many alternatives for the best use of knowledge. For example, if you go into farming or ranching after college you will have some management skills essential to run a farming operation. This skill may also be put to work in some other job. Economics is interested in why you are in agriculture and what keeps you there.

Understanding of the four essential resources for production of agricultural precuts will involve not only how much of the resources we should use, but also what alternatives to the resources are available. To better explore these economic alternatives we have to understand some economic principles.

C. Economic Principles

Scarcity exists when our wants and needs exceed the available resources. An example may be that a rancher needs more capital dollars to buy low priced cattle, but is limited because of his/her amount of equity.

Opportunity cost is an economic concept that identifies the true cost of a decision, which is the satisfaction or benefit that is given up to take an alternative option. Your decision to go to college may have been in lieu of working in a factory job paying $18,000 per year. You may then set the opportunity cost of coming to school at $18,000. Hopefully you take advantage of the benefits of college and increase your earning potential and happiness, but that is part of the true cost of your decision.

Accounting profit includes a business having greater income than expenses. However, the accounting profit does not adequately explain whether the business is truly profitable. Consider that a business has a building paid for, land paid for, and other large assets paid for. The business may only be profitable because they pay nothing for these high cost items. *Normal profit* deducts the cost of renting the paid-for asset items, and deducts unpaid opportunity cost of owner management to determine if the owner's management skills are also being paid for by the business profits. The last analysis of profit is called *economic profit*. This profit level, if still positive, will determine how much is being contributed towards the owner's risk of ownership. An example of these analyses of profit for a feeder operation is:

PoBoy's Feedyard
"We grow-em, You eat-em"

Revenues	$ 110,000
Expenses	$ 80,000
Accounting Profit	$ 30,000
Less Opportunity Cost	$ 25,000
Economic Profit	$ 5,000

Economic Profit is positive and contributes $5,000 dollars towards the risk of the feeder business.

Utility is the satisfaction derived from the consumption of some good or service. Utility is the economic value that measures this satisfaction.

Marginal in economics refers to "change." Most economic studies measure the resulting change in something because of some change in the economy.

The ***law of diminishing marginal utility*** states that as consumers consume goods, there is a point where additional consumption has a decrease in satisfaction or utility. This relationship is true for the consumption of pizza or the use of fertilizer on a crop. For both, when consumption reaches a certain point, a decrease in utility occurs if consumption increases.

Macro-economics is the study of the economy as a whole. ***Micro-economics*** is the study of some sector of the economy. Micro-economic principles are also used to study how individuals and firms make decisions to allocate scarce resources.

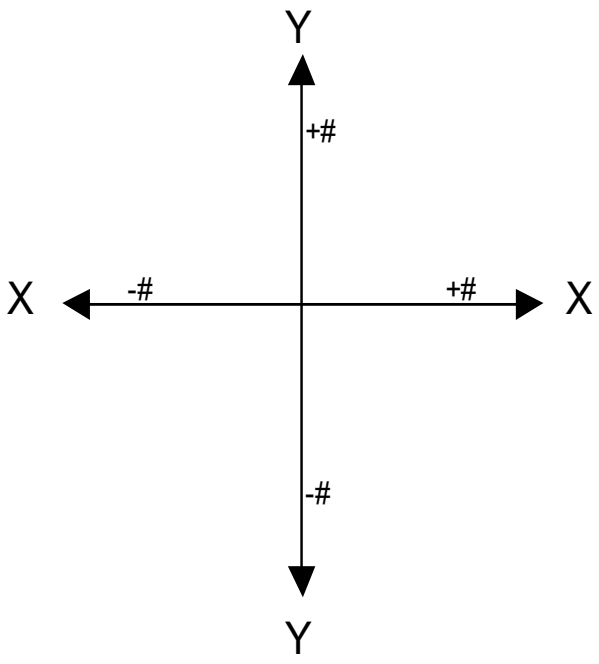
Integration is the combination of different stages of production or different producers of the same commodity. Producers integrate to lower cost of production, gain market share, or increase some area of competitiveness. There are two types of integration. The first is *vertical integration*, where producers combine several functions in the production and processing of food and fiber. An example is a wheat producer merging with a flour manufacturer. An example of *horizontal integration* is the merging of two wheat producers to grow wheat together. This is horizontal because both partners are at the same level in the production and marketing system. The goal for each method of integration is to have a more efficient operation.

Economies of scale are demonstrated when, the larger your production units, the more efficient use of resources you can achieve and therefore produce goods at lower cost. Some expenses are fixed and can be decreased on a per unit basis as production increases. This lowers cost and, if all other resources are managed well, can result in a more efficient operation.

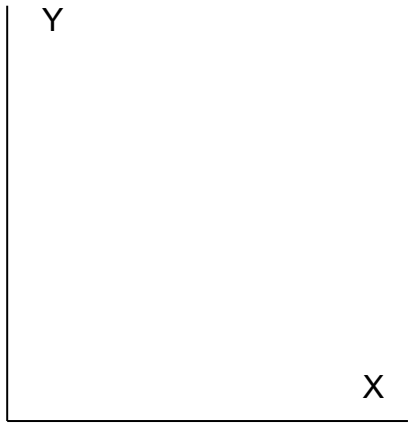
D. Illustration of economic effects

Economic outcomes or relationships are described graphically or mathematically. Graphical illustrations are easier to visualize and will be the main focus of our illustrations. However, mathematical illustrations yield a more accurate and precise outcome for some economic study and will be used in some situations.

Graphing in economics follows the graphing from basic mathematics.



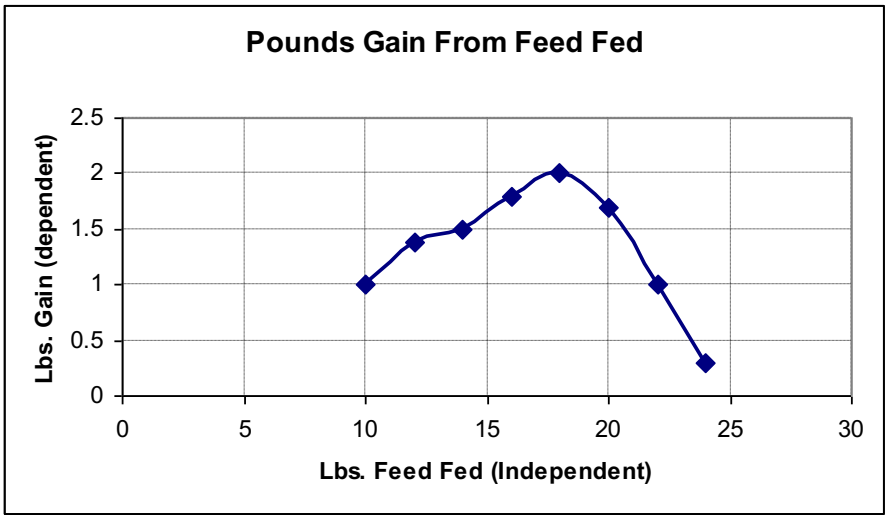
We will use the areas of the graph where X and Y are positive numbers. The following is an illustration of our graphing model.



Let's use a graph a to illustrate the relationship of using mixed feed fed to feeder calves. Consider the following information.

Feed lbs.
10
12
14
16
18
20
22
24
Daily Gain (lbs)
1.00
1.38
1.50
1.80
2.00
1.70
1.00
0.30

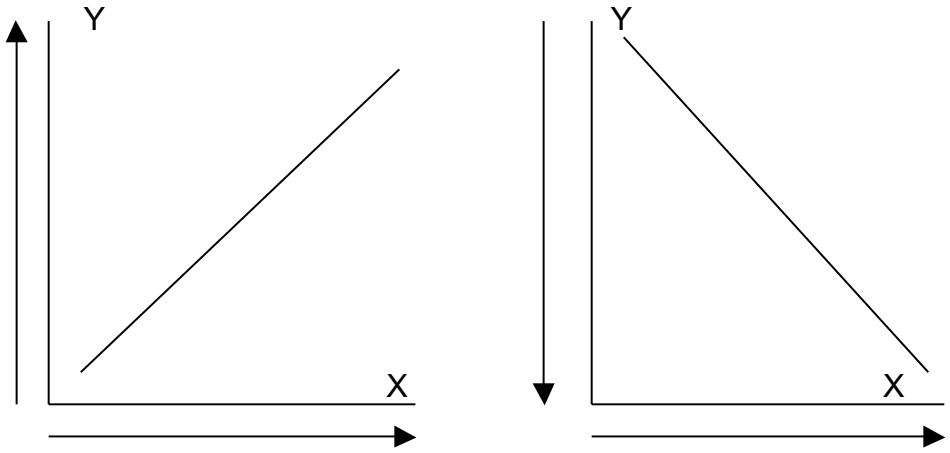
Graphing the previous information involves identifying the independent and dependent variables. The independent variable is the feed in pounds because that is the input used to create weight gain. The dependent variable is the daily gain. The independent variable is assigned to the x-axis, with the dependent variable on the y-axis. The graph would be as follows:



Each point of feed fed is plotted with the corresponding amount of daily gain. This creates a relationship that is visual, and can lead to an estimation of what the daily gain would be if fed 15 lbs or even 11 lbs, which were not in the table, but can be estimated using the graph.

There are certain characteristics of a graphed line that give insight to the relationship of the variables. The first two relationships are that a dependent variable can have either a positive or a negative response to the impact of a related independent variable. When more of the independent

variable increases the amount of the dependent variable, it is a positive relationship. The previous feed example shows an increase in gain from 10-18 lbs. of feed. A negative relationship is illustrated from 18-24 lbs.



Positive effect of X on Y Negative effect of X on Y

The above relationships are constant relationships, where the change in Y from X stays constant, and so are depicted by straight lines. However, as the feed example illustrates, the relationships are usually not constant, and as a result the lines are not straight. Look back at the feed example and you can see that from 10 to 18 pounds, there is an increase in pounds of gain, but not always the same amount, and so the line is not straight.

E. Supply and Demand

The concept of supply and demand is used in everyday activities and follows a balance that is reached by price and quantity. The price of a product affects how much we buy and how much we will sell.

Demand is the amount of goods that consumers will purchase or desire at a certain price. If goods are priced high, how many do you buy? The answer is less than I would buy of a good that is lower priced. So the price and quantity demanded of a good have a negative relationship (price up, quantity demanded down). In addition, if the price drops lower, you would most likely increase your purchase quantity. The price is not the only factor that effects demand. Others include income, taste and preferences, or new information. So what relationship exist between the price and quantity demanded of goods or services, positive or negative? *This is a good question to ask at this point!*

Supply is the amount of goods a producer is willing to supply at given prices. Relating price and quantity supplied, the higher the price the more producers are willing to supply. This illustrates a positive relationship, but of course there are other things for producers to consider.

When the amount that consumers are willing to buy equals the amount that producers are willing to sell, the market is said to be in equilibrium. In this case, all the supply of the good is bought by all of the demand. If there is more supply than demand we have surplus, and less supply than

demand creates a shortage. Surpluses create low prices because of high supply. Shortages create high prices because of low or lack of supply. These are very common sense principles that apply to everyday life.

F. Government Involvement

The government works to maintain safety and a fair working environment. Policies are invoked to balance the imbalanced and prevent wild fluctuations in the economy. Many policies try to balance a lack of supply, or dissolve excessive supply.

Monetary policy involves the control of the money supply. Just like any other good, money has both supply and demand. It is the capital need for every business. Businesses get money by borrowing, and change their borrowing based upon the amount of interest charged by banks. Banks must follow Federal Reserve Guidelines, and one requirement is the reserve requirement. Reserve requirement is the amount of funds the Federal Reserve requires banks to hold to illustrate their solvency, or ability to meet depositor needs. Monetary policy affects interest rates by the Federal Reserve changing the amount of money held in reserves. For example, if the Fed (Federal Reserve) increases the Reserve Requirement (RR), then the amount of money (supply) that can be loaned decreases, so interest rates increase. Why? Because the price of borrowed money is interest, so the lack of money (shortage) causes prices to rise. The Fed can also loan this reserve requirement to banks, which is usually done, and this is also a tool of the Fed. The rate of interest at which the Fed will loan is called the Discount Rate. If the Discount Rate rises, so do the interest rates to borrowers. The increase in interest by the Fed causes borrowing by banks to lessen, which decreases the money supply in the economy. The following chart summarizes the effect of Monetary Policy.

Growth of Economy	Slow	Increase
Money Supply	Decrease	Increase
Reserve Requirement	Raise	Lower
Discount Rate	Raise	Lower

A second form of government policy is fiscal policy. This involves government spending to encourage an area of economy to grow, or taxation to slow an area. A combination of the two may be used. An example could be the participation in some government farm programs requiring payments (form of a tax), then giving added benefits through payment by the government (spending).

A third form of government policy is Administrative Regulations. This includes trade negotiations that may be defensive for our work competition, or expansive to our purchasers. The world trade for agriculture is one of the most important price improving tools available. The US has one of the lowest population densities in the world, but we are the largest agricultural producing nation. This places our biggest demand across our borders, and when reached through trade we can look for positive price increases for producers.