

THE BUSINESS OF FARMING

INVEST OR PASS?



OBJECTIVE:

Build the most profitable farm by making smart investment decisions.

In agriculture, newer technology is not always the best choice. Successful producers evaluate costs, benefits, and return on investment before spending money.

Your job is to decide whether each investment will improve the farm's bottom line.

HOW TO PLAY:

1. Draw a Farm Investment Card.
2. Read the farm scenario.
3. Calculate:
 - Annual benefit or savings
 - Annual cost (if applicable)
 - Payback period
4. Decide whether to:
 -  Invest - Purchase the technology or improvement
 -  Pass - Keep the current system
5. Make your calculations and record your decision on the calculation sheet.

BEFORE MAKING A DECISION, CONSIDER:

- How much does the initial investment cost?
- How much additional income will it generate?
- How much money will it save?
- How long will it take to pay for itself?
- Does this farm produce enough to justify the investment?
- Is there a better use of the money?

REMEMBER:

- A good farm business manager does not buy every new piece of technology.
- A good farm manager invests when the expected return is greater than the cost and helps the farm remain profitable and sustainable.

WINNING THE GAME:

The goal is not to buy the most technology.
The goal is to make the most money.

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SCENARIO #1

FEED MIXING WAGON



Dairy cows need a balanced diet to stay healthy and produce milk. A feed wagon is a piece of equipment that mixes different feed ingredients, such as hay, corn silage, grain, protein supplements, vitamins, and minerals. When these ingredients are mixed together, they create a Total Mixed Ration (TMR), which gives cows a complete and consistent meal in every bite.

Older feed wagons may not mix the feed evenly. When this happens, cows can sort through the feed and eat only their favorite ingredients instead of the balanced ration they need. A newer mixer wagon creates a more uniform mix, helping cows eat the right amount of nutrients each day. Better nutrition can improve cow health, increase feed efficiency, and support higher milk production. Because milk production is closely connected to nutrition, dairy farmers often evaluate whether improved feeding equipment can generate enough extra milk income to justify the cost of the investment.

INVEST OR PASS?

INVEST: Purchase a new mixer wagon.

COST: \$45,000

OUTCOME:

- Milk production increases by 3 pounds per cow per day.

ESTIMATED ANNUAL BENEFITS:

- A more uniform feed mixture helps cows receive balanced nutrition, increasing milk production without increasing feed costs or herd size.

DO THE MATH:

- How many additional pounds of milk could be produced on a dairy farm with 120 cows?
- If milk sells for \$0.20 per pound, how much additional money could be earned per day and per year?
- How long would it take to pay for the \$45,000 investment if you only used your additional earnings?

PASS: Continue using existing equipment.



**WILL YOU
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SCENARIO #2

ROBOTIC MILKER



A robotic milking system is an automated machine that allows dairy cows to be milked without a worker attaching the milking equipment by hand. Cows enter the robotic milker on their own, and the machine uses sensors and cameras to clean the udder, attach the milking cups, and collect milk. The system also records information such as milk production, milking frequency, and cow health. Because cows can choose when they are milked, they may be more comfortable and experience less stress. In some herds, this can lead to increased milk production and improved animal monitoring. However, robotic milkers are expensive, so dairy farmers must determine whether the labor savings and potential production benefits are large enough to justify the cost of the investment.

INVEST OR PASS?

INVEST: Install robotic milking system for a small, 50 cow dairy.

COST: \$250,000

OUTCOME:

- Reduces labor by \$18,000/year
- Increases milk production by \$4,000/year

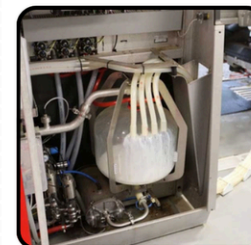
ESTIMATED ANNUAL BENEFITS:

- Annual profit increases by \$22,000 per year.

DO THE MATH:

- If it cost \$250,000 to install the system and your net gain in profit each year is \$22,000, how many years will it take to pay for the investment and begin earning an additional profit?

PASS: Maintain existing milk parlor & paid labor.



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SCENARIO #3

PRECISION GPS (2,500 ACRES)



A grain farm grows crops such as corn, wheat, or barley over large areas of land. This farm has 2,500 acres, which means the farmer must drive equipment across many fields to plant seeds, apply fertilizer, and spray for weeds.

GPS guidance systems use satellites to help tractors drive in exact rows with very little overlap or missed areas. This helps the farmer avoid wasting seed, fertilizer, fuel, and time. On a farm this large, even small savings on each acre can add up to thousands of dollars over a year.

Before buying the technology, the farmer must decide whether the money saved by working more efficiently will be enough to pay for the cost of the GPS system.

INVEST OR PASS?

INVEST: Purchase GPS Guidance System for tractor.

COST: \$20,000

OUTCOME:

- Reduces overlap when spraying fields.
- Reduces fuel use.
- Reduces seed waste.

ESTIMATED ANNUAL BENEFITS:

- Annual savings of \$8,500 per year when used on 2,500 acres.

DO THE MATH:

- If it cost \$20,000 to install the GPS system and you save \$8,500 per year, how many years will it take to pay for the technology and begin profiting from the investment?

PASS: Continue managing fields without GPS navigation.



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SCENARIO #4

PRECISION GPS (100 ACRES)



A grain farm grows crops such as corn, wheat, or barley. This farm has only 100 acres, which is considered a small farm in the United States.

Throughout the growing season, the farmer uses tractors and equipment to plant seeds, apply fertilizer, and spray for weeds. A GPS guidance system uses satellites and onboard computers to help equipment travel in precise, straight paths across the field. GPS technology can help reduce overlaps and missed areas during field operations.

Because this farm has 100 acres, the use of the equipment can be used on 100 acres. The farm may only need one GPS guidance system to complete its fieldwork. Determining whether the investment is worthwhile requires careful analysis of both the costs and the potential benefits for this specific operation.

INVEST OR PASS?

INVEST: Purchase GPS Guidance System for tractor.

COST: \$20,000

OUTCOME:

- Reduces overlap when spraying fields.
- Reduces fuel use.
- Reduces seed waste.

ESTIMATED ANNUAL BENEFITS:

- Annual savings of \$900 per year when used on 100 acres.

DO THE MATH:

- If it cost \$20,000 to install the GPS system and you save \$900 per year, how many years will it take to pay for the technology and begin profiting from the investment?

PASS: Continue managing fields without GPS navigation.



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SCENARIO #5

EXPANDING BEEF HERD



A cow-calf ranch earns money by raising calves and selling them each year. This ranch currently owns 200 mother cows. Each spring, the cows give birth to calves, which are raised until they are sold. The ranch has access to additional grazing land and is trying to decide whether to expand the herd by purchasing more cows.

Every cow on a ranch has costs, including feed, veterinary care, minerals, fencing, equipment, and labor. However, each cow also has the potential to generate income through the sale of a calf.

Many ranch expenses, such as equipment, buildings, and management, are already in place, adding more cows can sometimes increase profits without increasing costs at the same rate. Before expanding, the rancher must determine whether the additional income from a larger herd will be enough to cover the cost of purchasing more cows and managing them over time.

INVEST OR PASS?

INVEST: Increase beef herd by 50 cows
COST: \$100,000

OUTCOME:

- Produce 1 calf per year
- Generate \$1,100 in calf sales
- Require \$740 in annual feed, health, and operating costs

ESTIMATED ANNUAL BENEFITS:

- $\$1,100 - \$740 = \$360/\text{year profit per cow}$

DO THE MATH:

- It would cost \$100,000 to increase herd by 50 cows. Each cow is estimated to profit the ranch \$360. How many years would it take to pay for the cost of expanding the herd?

PASS: Continue managing the current herd of 200 cows without expanding.



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SCENARIO #6

PURCHASE A COMBINE



A grain farm grows crops such as wheat, barley, or corn over large areas of land. This farm plants and harvests 1,200 acres of wheat each year. Harvest is one of the most important times of the season because the crop must be collected before weather, wildlife, or disease can reduce yields or quality.

Many grain farmers hire a custom harvesting crew, a business that owns harvesting equipment and travels from farm to farm harvesting crops for a fee. Other farmers choose to purchase their own combine and harvest equipment. Owning equipment gives the farmer more control over timing, but it also requires a large investment and ongoing costs for fuel, maintenance, insurance, and repairs. Before making a purchase, the farmer must determine whether owning a combine will be more profitable than hiring a custom harvesting service.

INVEST OR PASS?

INVEST: Purchase a combine to harvest grain.
COST: \$280,000

ANNUAL OWNERSHIP COSTS:

- Repairs: \$8,000
- Insurance: \$2,000
- Fuel & Maintenance: \$10,000
- Labor: \$12,000

COST OF HIRING A CUSTOM HARVESTER:

- $1,200 \text{ acres} \times \$35 \text{ per acre} =$

ESTIMATED ANNUAL BENEFITS:

- Annual Savings of \$10,000 per year

DO THE MATH:

- If the combine machine costs \$280,000 and you save \$10,000 per year when you own your own equipment, how many years will it take to pay for the cost of the combine?

PASS: Continue paying the custom harvest company to harvest your grain.



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SCENARIO #7

MECHANICAL TRANSPLANTER



Many vegetable farmers start crops such as lettuce, broccoli, cabbage, onions, and peppers in greenhouses before moving the young plants to the field. This process is called transplanting. Traditionally, workers walk through the field and place each seedling into the soil by hand. While hand transplanting can be very accurate, it requires many workers and can take a long time to complete.

A mechanical transplanter is a machine pulled behind a tractor that helps place seedlings into the soil at the correct depth and spacing. The machine can plant thousands of seedlings in a day and may reduce the number of workers needed during planting season. However, the transplanter still requires workers to operate the equipment and load seedlings into the machine. Farmers who are considering this technology must compare the cost of purchasing and maintaining the equipment with the amount of labor it can save. The goal is to determine whether the investment will increase the farm's profitability while still allowing crops to be planted accurately and on time.

INVEST OR PASS?

INVEST: Purchase a mechanical transplanter:
COST: \$40,000

ANNUAL COSTS WITH MECHANICAL TRANSPLANTER:

- Repairs & Maintenance: \$1,500
- Labor: \$3,000

COST OF HIRING WORKERS TO TRANSPLANT
SEEDLINGS BY HAND:

- \$14,000

ESTIMATED ANNUAL BENEFITS:

- Annual Savings of \$10,000 per year

DO THE MATH:

- Compare a current annual cost of \$14,000 in worker wages to a new annual cost (Yearly maintenance, tractor operator wages) to calculate annual savings with a mechanical transplanter. Then calculate the payback period to cover the expense of purchasing the machine.

PASS: Continue hand transplanting.



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SCENARIO #8

AUTOMATIC EGG COLLECTION



Egg farms house hundreds or thousands of laying hens that produce eggs every day. The eggs must be collected, sorted, and prepared for sale. On smaller farms, workers may collect eggs by hand several times each day. As the number of hens increases, collecting eggs becomes more time-consuming and labor-intensive.

An automatic egg collection system uses conveyor belts to transport eggs from nesting areas directly to a central collection point. This technology can reduce labor requirements, save time, and improve efficiency. However, the equipment is expensive to install and maintain. Before purchasing the system, the farm owner must determine whether the labor savings will be enough to justify the investment.

INVEST OR PASS?

INVEST: Purchase and install an automatic
egg collection system
COST: \$65,000

ANNUAL COSTS:

- Repairs & Maintenance: \$2,000
- Additional electricity: \$1,000

COST OF HIRING WORKERS TO GATHER EGGS BY HAND:

- \$18,000

ESTIMATED ANNUAL BENEFITS:

- Current operating cost \$18,000-\$3,000 = \$15,000 per year

DO THE MATH:

- Compare a current annual cost of \$18,000 in worker wages to a new annual cost (yearly maintenance) to calculate annual savings with an egg collection system. Then calculate the payback period to cover the expense of purchasing the machine.

PASS: Continue hiring workers to gather eggs.



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