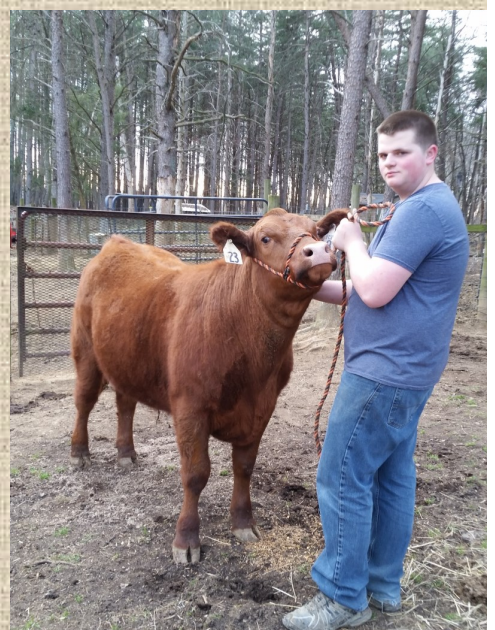


# 4-H ANIMAL SCIENCE

## Financial Record Keeping Book



**Virginia Cooperative Extension**  
Virginia Tech • Virginia State University

Publication 4H-540P





# 4-H Animal Science Financial Record Keeping

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# 4-H Animal Science Financial Record Keeping Book

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## **4-H Animal Science Financial Record Keeping**

# **Lesson 1. Matching Your Livestock Project Animal With Your Farm's Facilities**

Location: \_\_\_\_\_

Learning environment: \_\_\_\_\_

Instructor(s): \_\_\_\_\_

Time of lesson: 35-45 minutes

### **Lesson Connection**

This is the first in a series of six lessons that focus on 4-H livestock financial record keeping. It discusses the importance of matching your livestock project animal with your farm's facilities. This activity will help members learn to set and achieve goals in their animal projects. The discussion about the factors to consider and the questions to ask themselves will help members answer the questions in the project planning section of the record book.

### **Learning Targets/Objectives**

Members will be able to

- Learn shelter and space requirements for livestock projects.
- Understand the importance of the role bedding plays in keeping animals healthy and comfortable.
- Determine and record personal goals for their animal project.
- Make appropriate decisions about the selection of their project animal based on the following factors:
  - Adequate housing that is well-ventilated and comfortable.
  - Access to clean water supplies.
  - Funds available for bedding, feed, and equipment that will maximize rates of gain.

### **4-H Life Skills Reached**

Life skills come from the 4-H Life Skills Model created by Iowa State University (Hendricks 1998).

- Head: Managing – Keeping records, wise use of resources, planning/organizing, goal-setting.
- Head: Thinking – Problem-solving, decision-making.

## Assessment Plan

Formative assessment (ongoing assessment of student learning throughout the lesson):

- Ask questions frequently to attain understanding from members.

Summative assessment (final assessment of student learning after the completion of the lesson):

- Number of members who are able to successfully match the type of livestock project by meeting basic animal needs to maximize rate of gain.
- Number of members who achieve their project goal.

## Instructional Activities

### Instructional Materials and Resources

- Drawing paper
- Pencils – at least one per member
- Pens – one per member
- Erasers – one per member
- Rulers – one per member

**Time**  
(minutes)

### Instructional Sequence

**Opening set (the hook that gets the students ready and eager to learn!)** \_\_\_\_\_ **2**

Ask students what type of livestock animal they want to raise and why.

**Activate prior knowledge (what do they already know?)** \_\_\_\_\_ **2**

Ask members questions like,

- When it is raining outside, what do you do to stay dry?
- If it is cold outside, what do you do to stay warm?

Make sure the members connect what they do in inclement weather with their own comfort level.

**Communicate learning targets** \_\_\_\_\_ **1**

Either write learning targets on the board/easel or share the learning targets verbally.

**Learning experiences (activities to enhance the lesson)** \_\_\_\_\_ **10**

**Activity 1: What is your comfort level?**

- Ask members to remove their jackets and walk outside for five minutes.
- While members are standing outside, ask them to briefly put one of their knees on the ground. Once they have all done this, go back to the original meeting space.

- In a group setting, ask the following questions:
  - “Was it too hot outside?” If they answer “yes,” ask what they could have done to make it more comfortable (for example, provide shade, adequate drinking water, better ventilation, etc.).
  - “Was it too cold outside?” If they answer “yes,” ask what they could have done to make it more comfortable (provide shelter in a barn or shed).
- If the members think the temperature is good outside, ask what they would do if it were too cold or too hot.
- Ask, “Was your knee wet or muddy when you placed it on the ground?”
  - If they answer “yes,” ask, “How could you have made the area dry?” (Possible answers are: provide a roof over the area that the member kneeled on, provide bedding [straw, wood shavings, old hay, sawdust] to soak up moisture.)
  - If the members say that their knee was not wet or muddy, ask them what they would do if it were wet or muddy.
- Once the discussion on bedding and roofing has been established, ask the members, “How will you know when there is sufficient bedding for the animal?” (The rule of thumb for determining the amount of bedding: Members put sufficient bedding in the animal’s resting area so that if the member had to spend the night sleeping in the resting area, the member would be warm and dry.)

**Activity 2: Where will your animal live? \_\_\_\_\_ 10-15**

- Give each member a sheet of drawing paper and a pencil, eraser, and ruler.
- Ask each member to draw a map of their farm, including the house, barns, pastures, and water supplies that can be used for animal purposes.
- Review the map with the members and their parents to help them decide on the type of livestock projects that will be suitable for the farm’s facilities.

**Activity 3: What are the time and labor requirements to care for your animal in the farm’s facilities? \_\_\_\_\_ 5-10**

Discuss whether the members have sufficient time each day to care for the animal.

**Closing \_\_\_\_\_ 5**

Ask the members the following questions:

- What do you remember from this activity?
- What more would you like to know about with this topic?
- Do you have more confidence now in picking your project animal?

## Management Issues

Physical constraints of the learning environment, depending on the number of members, could cause some classroom management issues. Make sure there is enough adult supervision if there are a lot of members present for this activity.



## Accommodations and Modifications for Diverse Learners

Modifications will be made for diverse learners. Making modifications should help to avoid some management issues that could come up. Accommodations can be made for individuals, depending on who is in your club.

## Suggested Resources

Iowa State University. MidWest Plan Service. “Free Plans and Materials.” Website. <https://www-mwps.sws.iastate.edu/free-plans-and-materials>.

Seavey, D. C., and J. C. Porter. 2009. *Housing and Space Guidelines for Livestock*. University of New Hampshire Cooperative Extension fact sheet. [http://extension.unh.resources/files/Resource000471\\_Rep493.pdf](http://extension.unh.resources/files/Resource000471_Rep493.pdf).

## References

Hendricks, P. 1998. *Developing Youth Curriculum Using the Targeting Life Skills Model: Incorporating Developmentally Appropriate Learning Opportunities to Assess Impact of Life Skill Development*. Iowa State University Extension. <http://tinyurl.com/hodx8pc>.

## 4-H Animal Science Financial Record Keeping

# Lesson 2. Identifying Your Animal

Location: \_\_\_\_\_

Learning environment: \_\_\_\_\_

Instructor(s): \_\_\_\_\_

Time of lesson: 45 minutes

## Lesson Connection

This is the second in a set of six lessons that focus on 4-H livestock financial record keeping. It discusses the importance of animal identification for individual operations and the livestock industry. This activity will help members learn that identification is necessary in order to tell one animal from another. Pictures, ear tags, tattoos, and ear notches are means of animal identification. Members will learn how to record information in regards to identifying their project in the record books. Members will learn the names and how to visually identify the major breeds of beef cattle, swine, goats, and sheep. Breed identification is a basic skill that members can use in livestock judging contests and stockman's contests.

## Learning Targets/Objectives

Members will be able to,

- Properly identify their project animal and record this information at the beginning of their record book.
- Describe changes in their animals through entries and pictures in their record book.
- Learn to identify different breeds of beef cattle, swine, goats, and sheep.
- Increase their knowledge of livestock breeds to enhance their preparation for the stockman's contest.

## 4-H Life Skills Reached

Life skills come from the 4-H Life Skills Model created by Iowa State University (Hendricks 1988).

- Head: Managing – Keeping records, planning/organizing, goal-setting.
- Head: Thinking – Critical thinking, decision-making, learning to learn.

## Assessment Plan

Formative assessment (ongoing assessment of student learning throughout the lesson):

- Ask questions frequently to attain understanding from members.

Summative assessment (final assessment of student learning after the completion of lesson):

- Increased number of members who participate in stockman's contests.
- Improved scores in the stockman's contest.
- More detailed and organized project animal record keeping.

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# Instructional Activities

## Instructional Materials and Resources

- Pictures of various livestock breeds
- Pictures of various livestock identification
- Ear tags – plastic and metal
- Blue ribbon project books
- Ear notcher

**Time**  
(minutes)

## Instructional Sequence

**Opening set (the hook that gets the members ready and eager to learn)** \_\_\_\_\_ **2**

Ask students, “What are the physical characteristics of your project animal?”

**Activate prior knowledge (what do they already know?)** \_\_\_\_\_ **2**

Ask members questions like,

- What are some breeds of beef cattle?
- What are some breeds of sheep?
- What are some breeds of swine?
- What are some breeds of goats?

**Communicate learning targets** \_\_\_\_\_ **1**

Either write learning targets on the board/easel or share learning targets verbally.

## Learning experiences (activities to enhance lesson)

**Activity 1: Name that breed** \_\_\_\_\_ **10**

- Divide members into teams.
- Club leader holds up pictures of various breeds of beef cattle, swine, goats, and sheep.
- Teams receive one point for each picture correctly identified.
- After each answer, discuss features of the particular breed.

**Activity 2: Why is animal identification important?** \_\_\_\_\_ **15**

- Identify animals for breeding.
- Identify animals that have production records.
- Traceability – What farm was the animal purchased from? Who are the mother and father of the animal?

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**Activity 3: How do livestock animals change over time?** \_\_\_\_\_ **10**

- Ask club members to identify characteristics that can change over time with each of them (height, weight, and circumference).
- Ask members to identify characteristics that can change over time with their project animals (height, weight, increased muscle, and circumference).
- Ask members to identify characteristics that will not change over time with each of them (skin color, gender).
- Finish the activity by asking the members to identify any differences between themselves and their project animals. Try to get them to come to the conclusion that most characteristics that change are the same for both people and animals (for example, height and weight), and characteristics that stay the same (such as gender and skin/hair color) stay the same with both people and animals.

**Closing** \_\_\_\_\_ **5**

Ask members the following questions:

**Q. Why is it important to have individual animals identified?**

- A. Tell one animal from another.
- A. People who purchase your animal will have a way to identify the animal if it becomes sick and/or has a disease.
- A. Record offspring from the parent animal.

**Q. Why is it important to record all the items associated with identifying your animal in the project book?**

- A. Members forget things as time passes.
- A. Provides a permanent record.

**Q. Why is it important to take several pictures of your project animal during the year?**

- A. See and document changes in the growth of the animal, such as increased weight and muscle.

**Q. What do you remember from this activity?**

## **Management Issues**

Physical constraints of the learning environment, depending on the number of members, could cause some classroom management issues. Make sure there is adequate adult supervision if there are a lot of members present for this activity.

## **Accommodations and Modifications for Diverse Learners**

Modifications will be made for diverse learners. Making modifications should help to avoid some management issues that could come up. Accommodations can be made for individuals, depending on who is in your club.

## **References**

Hendricks, P. 1998. *Developing Youth Curriculum Using the Targeting Life Skills Model: Incorporating Developmentally Appropriate Learning Opportunities to Assess Impact of Life Skill Development*. Iowa State University Extension. <http://tinyurl.com/hodx8pc>.

## Breeds of Beef Cattle



**Angus**

Angus bull reprinted with permission American Angus Association December 2015.



**Brahman**

Brahman cow reprinted with permission American Brahman Breeders Association December 2015.



**Brangus**

Brangus bull reprinted with permission International Brangus Breeders Association December 2015.



**Charolais**

Charolais cow-calf pair reprinted with permission American-International Charolais Association December 2015.



**Gelbvieh**

Gelbvieh cow reprinted with permission American Gelbvieh Association December 2015.



**Hereford**

Polled Hereford bull reprinted with permission American Hereford Association January 2015.



**Limousin**

Limousin bull reprinted with permission North American Limousin Foundation January 2016.



**Red Angus**

Red Angus bull, cow and calf reprinted with permission American Red Angus Magazine December 2015.



**Shorthorn**

Shorthorn bull reprinted with permission American Shorthorn Association December 2015.



**Simmental**

Simmental bull reprinted with permission American Simmental Association December 2015.



## Breeds of Goat



**Alpine**

Alpine doe reprinted with permission Sunrise Farm NC. March 2016.



**Boer**

Boer buck reprinted with permission Catherine Crawford March 2016.



**Kiko**

Kiko buck reprinted with permission of the American Kiko Goat Association March 2016.



**LaMancha**

LaMancha doe reprinted with permission of American LaMancha Club February 2016.



**Nigerian Dwarf**

Nigerian Dwarf buck reprinted with permission  
BuckhornRun Farm March 2016.



**Nubian**

Nubian doe reprinted with permission Caroline Lawson May 2016.



**Oberhasli**

Oberhasli buck reprinted permission Oberhasli Breeders of America January 2016.



**Saanen**

Saanen doe reprinted with permission  
National Saanen Breeders Association December 2015.



## Breeds of Sheep



**Columbia**

Columbia ewe reprinted with permission  
Columbia Sheep Breeder Association of America December 2015.



**Dorset**

Dorset ewe reprinted with permission Continental Dorset Club May 2016.



**Finnsheep**

Finnsheep ewe and lambs reprinted with permission  
E H Kinne Gossner December 2015.



**Hampshire**

Hampshire ewe reprinted with permission Associated Registry Staff December 2015.



**Rambouillet**

Rambouillet ewe reprinted with permission American Rambouillet  
Sheep Breeders Association January 2016.



**Shropshire**

Shropshire ewe reprinted with permission  
American Shropshire Registry Association May 2016.



**Southdown**

Southdown ewe reprinted with permission  
American Southdown Breeders' Association May 2016.



**Suffolk**

Suffolk ewe reprinted with permission United Suffolk Sheep Association January 2016.

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## Breeds of Swine



**Berkshire** Berkshire boar reprinted with permission ABA and Mapes Photography January 2016.



**Duroc**

Duroc boar reprinted permission National Swine Registry December 2015.



**Hampshire** Hampshire boar reprinted permission National Swine Registry December 2015.



**Landrace**

Landrace sow reprinted permission National Swine Registry December 2015.



**Poland China**

Poland China boar reprinted with permission  
Certified Pedigreed Swine January 2016.



**Yorkshire**

Yorkshire sow reprinted permission National Swine Registry December 2015.

## 4-H Animal Science Financial Record Keeping

# Lesson 3. Categorizing and Recording Income and Expenses

Location: \_\_\_\_\_

Learning environment: \_\_\_\_\_

Instructor(s): \_\_\_\_\_

Time of lesson: 20-25 minutes

### Lesson Connection

This is the third in a series of six lessons that focus on 4-H livestock financial record keeping. It discusses the importance of categorizing and recording income and expenses for a livestock project animal. The following activity will help members learn the types of income and expenses associated with livestock projects. Members will understand categories of expenses and learn how to record this information in their record books.

Livestock projects span several months. It is very difficult to accurately remember all income and expenses associated with the project over the project year or for previous years' projects. By understanding what items are considered income and expenses, the member will be able to correctly record income and expenses in their record books. Then, the member can summarize all the income earned and expenses paid at the end of the project year in order to determine if a profit or loss was generated by the project animal. This will provide members with an accurate financial picture of their project.

### Learning Targets/Objectives

Members will be able to

- Identify the different types of income and expenses associated with a livestock project animal.
- Record income and expense data appropriately in their record books.

### 4-H Life Skills Reached

Life skills come from the 4-H Life Skills Model created by Iowa State University (Hendricks 1998).

- Head: Managing – Keeping records, planning/organizing, goal-setting.
- Head: Thinking – Critical thinking, decision-making, learning to learn.

### Assessment Plan

Formative assessment (ongoing assessment of student learning throughout the lesson):

- Ask questions frequently to attain understanding from members.

Summative assessment (final assessment of student learning after the completion of lesson):

- The increased number of members who record income and expense data in the appropriate categories in their record books.

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## Instructional Activities

### Instructional Materials and Resources

- Copies of blue ribbon record books – a few for each animal: beef, lamb, swine, goat
- Project record books – have youths bring their record books
- Index cards with the following categories of expenses written on them:
  - Health care
  - Equipment and supplies
  - Feed
  - Inventory record
  - Miscellaneous expenses
  - Miscellaneous income
  - Show-ring premiums
- Activity kit, including:
  - Sample animal purchase invoice - should include weight, date, price per pound
  - Sample prize money receipts
  - One-gallon plastic bags filled with hay, silage, fresh pasture grass, purchased livestock feed, salts, and minerals
  - Empty animal medicine containers with prices listed - vaccines, scour pills, etc.
  - Rope/show halters (farm supply catalog with current prices)
  - Combs and brushes
  - Soap
  - Feed pan/bucket
  - Sample receipts from veterinary services
  - Sample receipts for transporting the animal (include picture of truck and trailer)

**Time**  
(minutes)

### Instructional Sequence

**Opening set (the hook that gets the students ready and eager to learn!)** \_\_\_\_\_ **2**

Ask members, “How expensive do you think it is to raise a livestock animal?”

**Activate prior knowledge (what do they already know?)** \_\_\_\_\_ **2**

Ask members questions like, “What do you spend money on in your everyday life?”

**Communicate learning targets** \_\_\_\_\_ **1**

Either write learning targets on the board/easel or share learning targets verbally.

**Learning experiences (activities to enhance the lesson)** \_\_\_\_\_ **0-15**

**Activity: Expenses? What expenses?**

- Show index cards and talk about each expense category. After a quick discussion of each category, place each card on a table in the room.

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- Place items from the activity kit in a large pile in the center of the room or table.
- Have members take turns selecting an item, describing it, and placing it in an income/expense category.
- Leader works through examples of blue ribbon record books to show how income and expenses are recorded.
- Put members in groups of three to record income and expenses in their record books. If members do not have exact numbers to record, they can use pencils and make notes in the category and complete it later at home.
- Have members write down on note cards what each of them remember the most about this lesson. Collect them at the end.

## Closing

5

Ask the club the following questions:

- Should you record income and expenses?
- Expenses are cash payments made to cover the cost of feed, supplies, veterinary bills, etc., that are part of a livestock project. Income is cash received from owning a project animal, for example, cash prizes won at the county fair, money received from the sale of your project animal. How can income and expense records help you?
- Income and expense records help you calculate if you made a profit or loss on your project animal. Where and when in your record book should these be recorded? (Open a copy of the record book and ask the members demonstrate in the record book where the income and expense entries should be recorded.)

## Management Issues

Physical constraints of the learning environment, depending on the number of students, could cause some classroom management issues. Make sure there is enough adult supervision if there are a lot of members present for this activity.

## Accommodations and Modifications for Diverse Learners

Modifications will be made for diverse learners. Making modifications should help to avoid some management issues that could come up. Accommodations can be made for individuals, depending on who is in your club.

## Suggested Resources

Animal Health International - [www.animalhealthinternational.com](http://www.animalhealthinternational.com)

Nasco Farm and Ranch online supply catalog - [www.enasco.com/farmandranch/](http://www.enasco.com/farmandranch/)

Tractor Supply Co. online catalog - [www.tractorsupply.com](http://www.tractorsupply.com)

## References

Hendricks, P. 1998. *Developing Youth Curriculum Using the Targeting Life Skills Model: Incorporating Developmentally Appropriate Learning Opportunities to Assess Impact of Life Skill Development*. Iowa State University Extension. <http://tinyurl.com/hodx8pc>.

## 4-H Animal Science Financial Record Keeping

# Lesson 4. Analyzing Production Data to Determine if a Project Achieved a Member's Goals

Location: \_\_\_\_\_

Learning environment: \_\_\_\_\_

Instructor(s): \_\_\_\_\_

Time of lesson: 30-35 minutes

### Lesson Connection

This is the fourth in a set of six lessons that focus on 4-H livestock financial record keeping. It discusses the importance of analyzing production data associated with a livestock project. This activity will help members calculate average daily gain and feed efficiency. If a member did not achieve the goal for his or her project (for example, if a beef heifer did not make sufficient weight gain at the end of the project that would allow it to be bred or an animal did not reach desired sale weight), the member can analyze production data. Then the member can develop a plan that will enable him or her to achieve these goals for a future project. Likewise, if the project was successful, the member can replicate the project in future years.

Members will have the option of making previously mentioned calculations using worksheets and/or computers. The use of spreadsheets will show how changes in sales weight can impact rates of gain. Spreadsheets will enable members to quickly run a number of “what-if” scenarios on their projects. At the conclusion of the meeting, members will take home completed worksheets and/or copies of spreadsheets that can be used as examples of how to make these calculations for their projects.

### Learning Targets/Objectives

Members will be able to

- Calculate average daily rates of gain and feed efficiency.
- Analyze production data to determine if the animal's rate of gain achieved the members' goals for the project. (Did the project animal reach a desired sale weight at the end of the project?)
- Understand the necessary steps needed for the project animal to achieve desired weight. (Change feeding rate and types of feed.)

### 4-H Life Skills Reached

Life skills come from the 4-H Life Skills Model created by Iowa State University (Hendricks 1998).

- Head: Managing – Keeping records, planning/organizing, goal-setting.
- Head: Thinking – Critical thinking, decision-making, learning to learn.
- Health: Living – Healthy lifestyle choices, disease prevention.

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## Assessment Plan

Formative assessment (ongoing assessment of student learning throughout the lesson):

- Ask questions frequently to attain understanding from members.

Summative assessment (final assessment of student learning after the completion of lesson):

- The leader will collect data on the increased number of members who now calculate daily rate of gain and feed efficiency in record books.

## Instructional Activities

### Instructional Materials and Resources

- Pencils - at least one per member
- Hand-held calculators - one per member
- Blank worksheets (calculating average daily rate of gain)
- Excel spreadsheets (calculating average daily rate of gain)
- Computers - one computer per four to six members with printer access and spreadsheets installed

**Time**  
(minutes)

### Instructional Sequence

**Opening set (the hook that gets the students ready and eager to learn)** \_\_\_\_\_ **2**

Ask members, “What do we do to stay healthy?”

When members bring up the topic of eating healthy, have them discuss briefly what the benefits of eating healthy are.

**Activate prior knowledge (what do they already know?)** \_\_\_\_\_ **2**

Ask members questions like

- How do animals gain weight?
- Are there foods that animals eat that make them gain more weight than other foods? Why?
- Is there a difference in gaining fat versus gaining muscle?

**Communication of learning targets** \_\_\_\_\_ **1**

Either write learning targets on the board/easel or share the learning targets verbally.

**Learning experiences (activities to enhance lesson)** \_\_\_\_\_ **20-25**

**Activity: Calculating rate of gain**

- Leader uses a previous year record book and works through examples of calculating daily rate of gain and feed efficiency. The leader might also have some example figures on hand to use if they do not have past records. This could also be used to provide the opportunity to use an example that is too low or very high to show differences in rate of gain.



- Members work in groups to complete handouts and/or use Excel spreadsheets to complete transactions.
- Leader and several senior members will assist and check completed work of the members in completing worksheets and spreadsheets.
- Leader will assemble the results of members' calculations of rate of gain for different animals.
- Leader will have members compare the calculated rate of gain for the different animals.
- Members will take home completed worksheet and/or spreadsheet that can be used as an example for calculating daily rate of gain and feed efficiency.

**Closing** \_\_\_\_\_ **5**

Ask members the following questions:

**Q. Why is it important to calculate daily rate of gain for your project?**

- A. This enables the member to determine if the animal grew at a rate that resulted in the project reaching the desired ending weight at the conclusion of the project.

**Q. Did the animal with the lowest rate of gain grow too slowly?**

- A. The desired rate of gain depends on the weight of the animal at the beginning and end of the project. The member is trying to feed the animal at a level that will enable the project to reach the desired ending weight.

Review the 4-H Market Beef Project Guide with the members to discuss the calculation of desired rate of gain for projects. The 4-H Market Hog Project Guide, 4-H Market Goat Project Guide, and 4-H Market Lamb Project Guide can be used to help members calculate the desired rates of gain for market hogs, market goats, and market lambs.

Ask members:

**Q. What was different about the animal that gained the slowest and the animal that gained the fastest?**

- A. The animal with the highest rate of gain increased its body weight on a daily basis at a faster rate than the animal with a slower rate of gain.

**Q. Did the project animal reach a desired sale weight at the end of the project?**

- A. If the answer is "no," discuss the reasons it did not (feeding, housing, animal health, genetics). If the desired rate of gain was achieved, members will replicate the feeding program in future years.

## Management Issues

Physical constraints of the learning environment, depending on the number of members, could cause some classroom management issues. Make sure there is enough adult supervision if there are a lot of members present for this activity.

## Suggested Resources

Lesson 4. Analyzing Production Data to Determine if a Project Achieve a Member's Goals worksheet: Daily Rate of Gain/Feed Efficiency (.xlsx), <https://pubs.ext.vt.edu/4-H/4H-540/4H-540-Lesson4.xlsx>.

## Accommodations/Modifications for Diverse Learners

Modifications will be made for diverse learners. Making modifications should help to avoid some management issues that could come up. Accommodations can be made for individuals, depending on who is in your club.

## References

Hendricks, P. 1998. *Developing Youth Curriculum Using the Targeting Life Skills Model: Incorporating Developmentally Appropriate Learning Opportunities to Assess Impact of Life Skill Development*. Iowa State University Extension. <http://tinyurl.com/hodx8pc>.

## Worksheet: Daily Rate of Gain/Feed Efficiency

	A	B	C
Animal ID#	Ending weight	Beginning weight	Total pounds gained (A-B=C)
D		E	
Total days on feed	Avg. daily gain (C/D)	Total pounds of feed eaten	Feed efficiency (E/C)

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## 4-H Animal Science Financial Record Keeping

# Lesson 5. Analyzing Financial Data to Determine a Project's Profitability

Location: \_\_\_\_\_

Learning environment: \_\_\_\_\_

Instructor(s): \_\_\_\_\_

Time of lesson: 30-35 minutes

### Lesson Connection

This is the fifth in a series of six lessons that focus on 4-H livestock financial record keeping. It discusses the importance of analyzing financial data associated with a livestock project. This activity will help members calculate monthly feed costs, end-of-year project income, and profitability using project records. The use of spreadsheets will show how changes in variables (increased or decreased feed and veterinary costs, sales prices, and sales weight) can impact profitability of the project. Spreadsheets will enable members to quickly run a number of “what-if” scenarios on their projects. At the conclusion of the meeting, members will take home completed worksheets and/or copies of spreadsheets that can be used as examples of how to make these calculations for their projects.

### Learning Targets/Objectives

Members will be able to

- Summarize income and expenses for a project.
- Identify the differences between profit, income, and expense.
- Understand the differences in profitability using “real world” and annual county fair livestock sale prices.
- Develop a budget for their livestock project.
- Analyze budgets and financial records to determine the profitability of their project.

### 4-H Life Skills Reached

Life skills come from the 4-H Life Skills Model created by Iowa State University (Hendricks 1998).

- Head: Managing – Keeping records, planning/organizing, goal-setting.
- Head: Thinking – Critical thinking, decision-making, learning to learn.

## Assessment Plan

Formative assessment (ongoing assessment of student learning throughout the lesson):

- Ask questions frequently to attain understanding from members.

Summative assessment (final assessment of student learning after the completion of lesson):

- The leader will collect data on the increase in the number of members who now calculate monthly feed costs and determine project profitability in record books.

## Instructional Activities

### Instructional Materials and Resources

- Pencils – at least one per member
- Computers - one computer per four to six members with printer access and spreadsheets installed
- Hand-held calculators
- Blank worksheets for calculating monthly feed costs and project financial summary
- Excel spreadsheets calculating monthly feed costs and project financial summary

### Instructional Sequence

**Time**  
(minutes)

**Opening set (the hook that gets the students ready and eager to learn)** \_\_\_\_\_ **2**

Ask members, “What do you save money for?”

**Activate prior knowledge (what do they already know?)** \_\_\_\_\_ **2**

Ask students questions like, “In an average week, what does your family spend money on to function?”

**Communication of learning targets** \_\_\_\_\_ **1**

Either write learning targets on the board/easel or share the learning targets verbally.

**Learning experiences (activities to enhance lesson)** \_\_\_\_\_ **20-25**

**Activity: Livestock project spending and profit**

- Leader uses a previous year’s record book and works through examples of calculating monthly feed costs and profitability of the project using “real world prices” compared to prices received at county fair livestock sales.
- Members can check the Virginia Department of Agriculture and Consumer Services website ([www.vdacs.virginia.gov/livestock/index.shtml](http://www.vdacs.virginia.gov/livestock/index.shtml)) to find the latest auction prices for cattle, goats, hogs, and sheep.
- Members work in groups to complete worksheets and/or use Excel spreadsheets to complete calculations.
- Members compare “real world prices” to sale prices generated at county fair livestock sales to determine “real world income” generated by the project.

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- Leader and several senior members will assist and check completed work of the members in completing worksheets and spreadsheets.
- Leader will assemble the results of members' calculations of monthly feed costs and profitability for different animals.
- Leader will have members compare the calculated monthly feed costs and profitability for the different animals.
- Members will take home completed worksheet and/or spreadsheet, which can be used as an example for calculating monthly feed costs and profitability of current year's project.

**Closing** \_\_\_\_\_ **5**

Ask the club the following questions:

**Q. Why is it important to calculate feed costs for your project?**

- A. By calculating the feed costs monthly, members will be able to summarize and determine the total feed cost at the end of the project.

**Q. Why should the profit of a project be calculated using “real world” prices from the sale barn instead of prices received at the county fair livestock sale?**

- A. Buyers at the annual county livestock sale are intentionally paying significantly higher prices than prices at the sale barn because the buyers are supporting livestock club members.

## Management Issues

Physical constraints of the learning environment, depending on the number of members, could cause some classroom management issues. Make sure there is enough adult supervision if there are a lot of members present for this activity.

## Accommodations and Modifications for Diverse Learners

Modifications will be made for diverse learners. Hopefully, this may avoid some management issues that may come up. Accommodations can be made for individuals, depending on who is in your club.

## Suggested Resources

Lesson 5. Analyzing Financial Data to Determine a Project's Profitability Worksheet 1: Determining Monthly Feed Costs (.xlsx), <https://pubs.ext.vt.edu/4-H/4H-540/4H-540-Lesson5.xlsx>.

Lesson 5. Analyzing Financial Data to Determine a Project's Profitability Worksheet 2: Project Financial Summary Report (.xlsx), <https://pubs.ext.vt.edu/4-H/4H-540/4H-540-Lesson5.xlsx>.

## References

Hendricks, P. 1998. *Developing Youth Curriculum Using the Targeting Life Skills Model: Incorporating Developmentally Appropriate Learning Opportunities to Assess Impact of Life Skill Development*. Iowa State University Extension. <http://tinyurl.com/hodx8pc>.

## Lesson 5. Analyzing Financial Data To Determine a Project's Profitability

### Worksheet 1: Determining Monthly Feed Costs

(<https://pubs.ext.vt.edu/4-H/4H-540/4H-540-Lesson5-1.xlsx>)

#### A. Grain

Cost of bag of grain: \$ \_\_\_\_\_ / \_\_\_\_\_ pounds in the bag = \$ \_\_\_\_\_ per pound

Pounds per bag: \_\_\_\_\_ / \_\_\_\_\_ number of days bag lasts = \_\_\_\_\_ pounds fed per day

Amount fed: \_\_\_\_\_ pounds per day X \_\_\_\_\_ days in month = \_\_\_\_\_ pounds fed in month

Monthly cost of grain: \$ \_\_\_\_\_  
(cost per pound of grain) X \_\_\_\_\_  
(pounds fed per month) pounds = \$ \_\_\_\_\_ monthly cost of grain

#### B. Hay

Cost of bale of hay: \$ \_\_\_\_\_ / \_\_\_\_\_ pounds in the bale = \$ \_\_\_\_\_ per pound

Pounds per bale: \_\_\_\_\_ / number of days bale lasts \_\_\_\_\_ = \_\_\_\_\_ pounds fed per day

Amount fed: \_\_\_\_\_ pounds per day X days in month \_\_\_\_\_ = \_\_\_\_\_ pounds fed in month

Monthly cost of hay: \$ \_\_\_\_\_  
(cost per pound of hay) X \_\_\_\_\_  
(pounds fed per month) pounds = \$ \_\_\_\_\_ monthly cost of hay

#### C. Pasture

Cost of pasture per month: \$ \_\_\_\_\_ / \_\_\_\_\_ animals on pasture = \$ \_\_\_\_\_ per day

Daily cost of pasture: \$ \_\_\_\_\_  
(cost per day of pasture) X \_\_\_\_\_  
(days in month) days = \$ \_\_\_\_\_ monthly cost of pasture

To find the total monthly feed cost for your livestock project animal, you need to add the monthly cost for **grain**, **hay**, and **pasture**.

**Total expenses = A + B + C = total monthly feed cost**

Why is it important to calculate the total monthly feed cost for your project animal?

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## Lesson 5. Analyzing Financial Data To Determine a Project's Profitability

### Worksheet 2: Project Financial Summary Report

(<https://pubs.ext.vt.edu/4-H/4H-540/4H-540-Lesson5-2.xlsx>)

Income of project animal	Total money
A. Value of animal: \$ _____ per pound X _____ total pounds =	\$ _____
B. Miscellaneous income	\$ _____
C. Show premiums	\$ _____
<b>Total Income for Project Animal = A + B + C</b>	<b>\$ _____</b>

Expenses of project animal	Total money
D. Monthly feed expense _____ X _____ months on feed =	\$ _____
E. Purchase price of animal	\$ _____
F. County fair entry fees	\$ _____
G. Equipment	\$ _____
H. Supplies	\$ _____
I. Transporting animal to fair	\$ _____
J. Veterinary	\$ _____
K. Miscellaneous	\$ _____
<b>Total Expenses for Project Animal = D + E + F + G + H + I + J + K</b>	<b>\$ _____</b>
<b>Total income _____ – total expenses _____ =</b>	<b>\$ _____</b>
Did your project animal at the end have a.....PROFIT or LOSS	

Financial summary of project animal	Total money
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## 4-H Animal Science Financial Record Keeping

# Lesson 6. Saving to Achieve Your Financial Goals and Using Credit Wisely

Location: \_\_\_\_\_

Learning environment: \_\_\_\_\_

Instructor(s): \_\_\_\_\_

Time of lesson: 25-30 minutes

### Lesson Connection

This is the sixth in a series of six lessons that focus on 4-H livestock financial record keeping. It discusses the importance of setting financial goals, developing a plan to reach those goals, paying off project loans and credit and understanding interest on those loans. This activity will help members calculate the amount of savings and interest rate savings that must be generated to achieve savings goals. The Credit Card Smarts-Booster calculators show the number of years it takes to pay off a credit card balance when only the monthly minimum payment is made.

What are the members' plans for the future? College? Travel? Buy a car? How will the members pay for these things?

### Learning Targets/Objectives

Members will be able to

- Save funds according to a financial plan they have developed in order to achieve savings goals.
- Pay off credit card balances each month.
- Learn that paying off credit regularly results in fewer payments and less total money spent.

### 4-H Life Skills Reached

Life skills come from the 4-H Life Skills Model created by Iowa State University (Hendricks 1998).

- Head: Managing – Keeping records, planning/organizing, goal-setting.
- Head: Thinking – Critical thinking, decision-making, learning to learn.
- Health: Being – Self-responsibility, self-discipline.



## Assessment Plan

Formative assessment (ongoing assessment of member learning throughout the lesson):

- Ask questions frequently to attain understanding from members.

Summative assessment (final assessment of member learning after the completion of lesson):

- The increased number of members who set up or add to savings accounts or place money in certificates of deposit using proceeds from the sale of their project animal.

## Instructional Activities

### Instructional Materials and Resources

- Pencils – at least one per member
- Hand-held calculators
- Credit Card Smarts-Booster calculator – one per member
- Computers - one per four to six members
- Spreadsheet (Savings to Achieve Goals) installed on computers
- Spreadsheet

**Time**  
(minutes)

### Instructional Sequence

**Opening set (the hook that gets the members ready and eager to learn)** \_\_\_\_\_ **2**

- Tell members, “Think of five things that you wish you had right now.”
- Have them focus on material possessions like a car, television, etc.
- Ask, “How many of those five things can you afford to buy right now?”

**Activate prior knowledge (what do they already know?)** \_\_\_\_\_ **2**

Ask students questions like,

- What things have you had to save for in order to buy?
- What did you have to do to save the money?

**Communication of learning targets** \_\_\_\_\_ **1**

Either write learning targets on the board/easel or share the learning targets verbally.

**Learning experiences (activities to enhance lesson)** \_\_\_\_\_ **15-20**

**Activity: Bank loans – Good or bad?**

- Put members in groups of two to three.

- Tell members to work as a group to determine the following:
  - Annual interest paid on a loan for their project animal.
  - The amount of savings and interest rates needed to reach financial goals.
  - Interest charges paid when only the minimum payment is made on credit card balances (use Credit Card Smarts-Booster calculator).

## **Closing** \_\_\_\_\_ **5**

Ask members the following questions:

- Why is it important to set financial goals and to develop a plan to achieve those goals?
- Why is it important to pay off project loans at the end of the project year?
- Why is it important to pay off credit card bills each month?
- What was the interest rate charged on your project loan?
- What interest rates are charged by the credit card companies?
- What happens when only the minimum monthly payment is paid toward a credit card bill?

## **Management Issues**

Physical constraints of the learning environment, depending on the number of members, could cause some classroom management issues. Make sure there is enough adult supervision if there are a lot of members present for this activity.

## **Accommodations/Modifications for Diverse Learners**

Modifications will be made for diverse learners. Making modifications should help to avoid some management issues that could come up. Accommodations can be made for individuals, depending on who is in your club.

## **Suggested Resources**

Credit Smarts Calculator. [www.ussfcu.org/cardcalculator/](http://www.ussfcu.org/cardcalculator/).

Schumacher, Joel. "Saving to Achieve Your Goals." Teaching guide and software, Montana State University. <http://www.montana.edu/extensionecon/savingtoachieveyourgoals.html>.

## **References**

Hendricks, P. 1998. *Developing Youth Curriculum Using the Targeting Life Skills Model: Incorporating Developmentally Appropriate Learning Opportunities to Assess Impact of Life Skill Development*. Iowa State University Extension. <http://tinyurl.com/hodx8pc>.

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**Produced by Communications and Marketing, College of Agriculture and Life Sciences, Virginia Tech, 2016**

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