

UNIT VII - FENCING

Lesson 1: Fencing Basics

Competency/Objective: Discuss the terminology, dangers, and safety practices associated with building fences.

Study Questions

1. What is a legal fence?
2. What are the common tools used in building fences and safety measures for their uses?
3. What are the safety measures used in putting up a fence?

References

1. *Agricultural Structures (Student Reference)*. University of Missouri-Columbia: Instructional Materials Laboratory, 1999, Unit VII.
2. Activity Sheet
 - a) AS 1.1: Building Legal Fences

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TEACHING PROCEDURES

B. *Introduction*

Suitable fencing is necessary for many types of agricultural enterprises. In this unit, a discussion of some of the fencing options available and how they may be erected will be presented. This lesson describes some fencing basics. Before constructing a fence, an understanding of what constitutes a legal fence is required to avoid being liable for damages if livestock do get out. Also, because working with fences can be dangerous, taking precautions is important for safety's sake.

C. *Motivation*

Discuss the fence types and their uses in your area. If possible, show some pictures of well-built fences and fences that would not meet the definition of a legal fence.

D. *Assignment*

E. *Supervised Study*

F. *Discussion*

1. Ask students to provide examples of what kind of damage can occur if livestock get out of a pasture or lot. Discuss the legal definitions of a fence. Have students complete AS 1.1.

NOTE: Because fencing laws vary, check the local regulations to find out the definition of a legal fence in a particular area. Reviewing the laws concerning fencing each time this lesson is taught may also be helpful to make sure that the regulations have not changed.

What is a legal fence?

- a) General law
 - 1) Hedges are at least 4 feet high.
 - 2) Fences composed of posts and rails, post and palings, posts and wire, posts and boards, or palisades are at least 4½ feet high with posts firmly in the ground not more than 8 feet apart.
 - 3) Fences consisting of woven wire, wire netting, or wire mesh are at least 4½ feet high with posts not more than 16 feet apart.
 - 4) Other fence structures satisfying the definition of a lawful fence are described, including worm (rail) fences, turf fences, and stone or brick fences.
 - 5) All fences should be constructed to resist horses, cattle, swine, and similar stock.
 - b) Fence and Enclosure Act of 1963
 - 1) A fence with not fewer than four boards per 4 feet of height, each board to be spaced no farther apart than twice their width and to be fastened to posts not more than 12 feet apart with one stay.
 - 2) A fence of four barbed wires supported by posts not more than 15 feet apart with one stay or 12 feet apart with no stays.
 - 3) Any fence that is at least equivalent to the types of fences in the other categories.
2. Ask students to list some tools that might be used for fencing. Describe the safety practices associated with their use.

What are the common tools used in building fences and safety measures for their use?

- a) Basic tools
 - 1) Hand-operated post hole digger
 - 2) Power-driven post hole digger (sometimes called an auger)
 - 3) Metal rod for packing earth around posts
 - 4) Hammer
 - 5) Tape measure
 - 6) Fencing pliers
 - 7) Fence stretchers
 - 8) Hand ax
 - 9) Chain saw
 - 10) Metal post driver
 - 11) Post maul for driving wooden posts
 - 12) Roll of nylon string to help lay out straight lines
 - 13) Level to help assure that posts are set straight
- b) Protective clothing
 - 1) Steel-toed boots
 - 2) Heavy pants
 - 3) Gloves
 - 4) Eye protection
- c) Safety measures
 - 1) Hand-operated post hole diggers
 - (a) The target area for digging should be clear and free of large rocks.
 - (b) Maintaining good posture while operating this tool will help reduce back strain or injury.
 - 2) Power-driven post hole diggers
 - (a) Follow the manufacturer's recommendations.
 - (b) Keeping any loose clothing away from the auger can help prevent serious injury, because it can easily mangle a person's arms or legs if clothing gets caught in the auger as it twists.
 - (c) Hearing and eye protection should be used.
 - 3) Metal rods
 - (a) Protective glasses can prevent injury to the eyes.
 - (b) Gloves and steel-toed boots can help avoid injury to the hands and feet.
 - 4) Metal post drivers
 - (a) Good posture and control while lifting the post driver can help avoid back injury.
 - (b) Gloves will help prevent blisters.
 - 5) Post maul
 - (a) Make sure that everyone working in the same area is out of striking distance.
 - (b) Gloves should be worn to protect the hands.
 - (c) Eye protection should be worn to prevent injuries from stray flying material.
 - 6) Hand ax - Safety glasses, gloves, and steel-toed boots are needed for safety.
 - 7) Chain saw - Hearing protection, eye protection, gloves, and steel-toed boots will increase safety.
 - 8) Fence stretchers - The tool should be used with caution, because wire that has been stretched too tightly may break.

3. Discuss other safety measures that can be taken when constructing a fence.

What are the safety measures used in putting up a fence?

- a) Protective clothing and safety accessories should be used; a hat and a shirt with long sleeves may provide additional protection.
- b) If possible, fence construction should not involve working alone in an isolated area, since help may be necessary if an injury occurs.
- c) The tools used for construction of the fence should only be used as designed and recommended by the manufacturer.

- d) Fence construction may involve heavy lifting, so proper lifting techniques should be used.
 - 1) Keep the back straight and use the leg muscles to help move the weight.
 - 2) Hold heavy loads close to the body to help reduce strain.
- e) Unexpected hazards such as wasps, bees, snakes, and plants such as poison ivy are also to be considered and avoided if possible.
- f) Caution should be used when working with wire, which commonly causes cuts.
- g) Overstretching may occur, causing the wire to break and whip back against or around the person stretching it or someone else; wearing gloves and eye protection is a must.

G. ***Other Activities***

Have students collect pictures of good and bad fences to add to the collection displayed in the motivation.

H. ***Conclusion***

A good fence is required for livestock, to ensure their safety and to prevent property damage. Fences should meet the definition of a legal fence to avoid liability if livestock do cause damage. Using basic fencing tools safely, wearing protective clothing, and taking precautions can help make building a fence safer.

I. ***Answers to Activity Sheet***

Barbed wire:

Number of posts - 220

Length of barbed wire - 10,560 feet

Woven wire:

Number of posts - 168

Length of woven wire - 2,640 feet

Boards:

Number of posts - 332

Number of 2" × 6" boards - 1,328 boards

- 1. Posts and boards
- 2. Posts and boards
- 3. Barbed wire, because it is cheaper and easier to construct

J. ***Answers to Evaluation***

- 1. b
- 2. c
- 3. a
- 4. d
- 5. b
- 6. Answers may include any two of the following: steel-toed boots, heavy pants, gloves, and eye protection.
- 7. Because the auger can mangle a person's arms or legs if clothing gets caught in it as it twists.

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which of the following is a provision of the general statute defining a legal fence?
 - a. A fence has four boards per 4 feet of height.
 - b. Fences consisting of woven wire are 4½ feet high.
 - c. Barbed wire fences are 3 feet high.
 - d. A wire mesh fence has posts 18 feet apart.
2. An important safety consideration when using a post maul is:
 - a. The number of swings needed.
 - b. The weight of the tool.
 - c. The position of anyone else in the area.
 - d. The material of the handle.
3. Overstretching fence wire can cause the wire to:
 - a. Break.
 - b. Weaken.
 - c. Knot.
 - d. Tighten.
4. Under the Fence and Enclosure Act of 1963, a barbed wire fence should have:
 - a. 1 wire.
 - b. 2 wires.
 - c. 3 wires.
 - d. 4 wires.
5. Caution should be used when working with wire, because it commonly produces what type of injury?
 - a. Bruises
 - b. Cuts
 - c. Scrapes
 - d. Wire burns

Complete the following short answer questions.

6. What are two items of protective clothing that should be worn when building fences?
 - a.
 - b.

7. Why is keeping loose clothing away from an auger important?

Lesson 1: Fencing Basics

Name _____

Building Legal Fences**Objective:** Understand fencing laws that affect agricultural enterprises.

For this activity, imagine that you are a local fencing contractor. A customer has contacted you, asking for a list of the materials needed to build a fence around a small square field. The total length of the fence will be $\frac{1}{2}$ mile. The fence must comply with the state laws for legal fences, which in your county consists of the Fence and Enclosure Act. The customer has not decided whether to use barbed wire, woven wire, or posts and 2" \times 6" boards. Develop a list of the materials needed to build each type of fence. The posts will be the same diameter and length for each type of fence. Then answer the questions below.

Barbed wire:

Number of posts, 12 feet apart _____

Total length of the barbed wire _____

Woven wire:

Number of posts, 16 feet apart _____

Total length of the woven wire _____

Boards:

Number of posts, 8 feet apart _____

Number of 2" \times 6" boards, 8 feet in length _____

1. Which type of fence will require the largest number of posts?
2. Which fence would probably be the most expensive?
3. Considering the three types of fences discussed, which type of fence do you think is most commonly used on agricultural operations? Why?

