



# TVET LEVEL II



## AGRICULTURE

### Rabbit Farming

## TRAINEE MANUAL



Approved by:  Workforce  
Development  
Authority



**USAID**  
FROM THE AMERICAN PEOPLE



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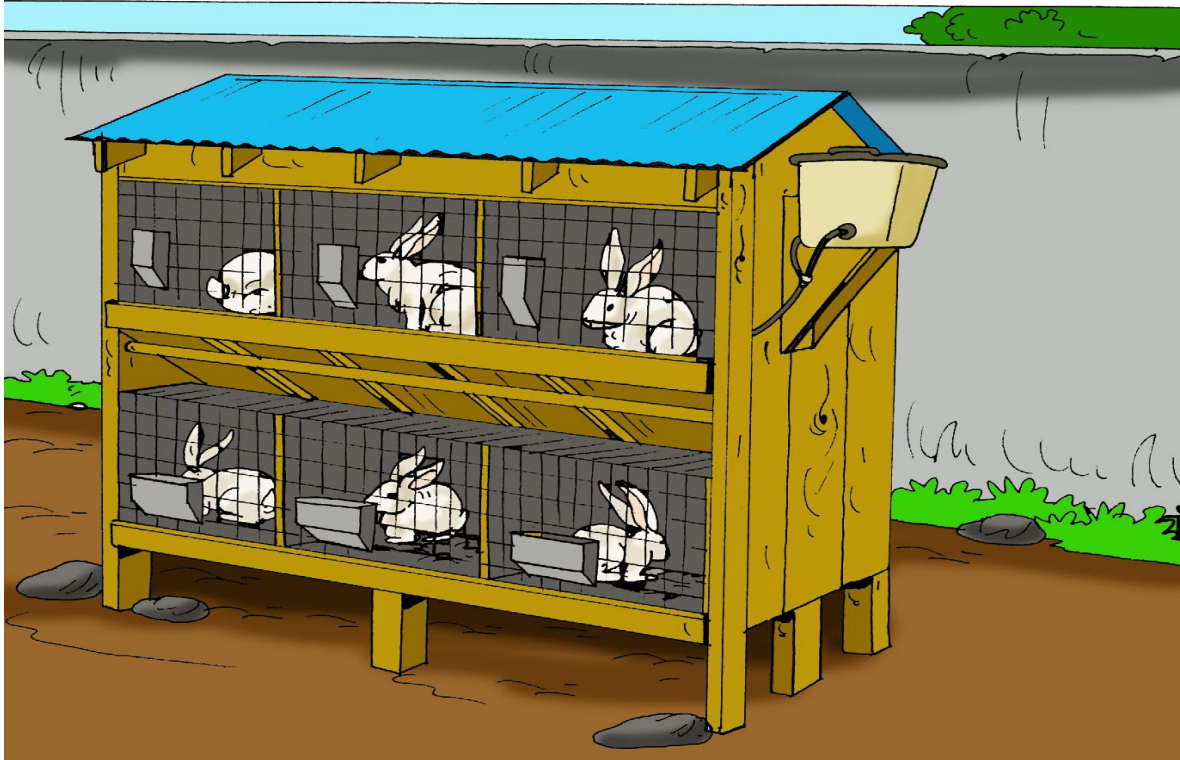
# **RABBIT FARMING**

**Unit 1: Manage rabbit farming**

**Unit 2: Manage rabbit reproduction**



# Unit 1: Manage rabbit farming



## **Topics**

**1.1** Identification of important characteristics of rabbit hutches

**1.2** Feeding and watering rabbits

**1.3** Application of best practices to rabbit farming

### **Unit Summary:**

This unit describes the knowledge, skills, and attitudes required to manage rabbit farming. At the end of this unit, trainees will be able to describe characteristics of good hutches, feed and water rabbits, and apply rabbit farming best practices.

## Self-Assessment: Unit 1

1. Look at the illustration. What do you observe? What do you think this unit will be about?
2. Fill in the self-assessment below.

There are no right or wrong ways to answer this assessment. It is for your own use during this unit. Think about yourself: Do you think you can do this? How well? Read the statements across the top. Put a check in column that best represents your situation. At the end of this unit, we'll take this assessment again.

<b>My experience</b>	<b>I don't have any experience doing this.</b>	<b>I know a little about this.</b>	<b>I have some experience doing this.</b>	<b>I have a lot of experience with this.</b>	<b>I am confident in my ability to do this.</b>
<b>Knowledge, skills, and attitudes</b>					
Identify characteristics of rabbit cages					
Identify material and equipment used to clean rabbit cages					
Clean rabbit hutches					
Use personal protective equipment as needed					
Avoid environmental pollution in rabbit farming					
Identify equipment to add to rabbit cages					
Install rabbits in cages					
Identify rabbit feed components					
Supply food and water to rabbits					
Handle rabbits					
Determine the sex of a rabbit					



## Topic 1.1: Identification of important characteristics of rabbit hutches

### Key Competencies:

Knowledge	Skills	Attitudes
1. Explain methods for cleaning rabbit hutches	1. Clean hutches	1. Detail oriented
2. Describe good placement of hutches	2. Apply environmental practices when cleaning rabbit cages	2. Responsible
3. Describe the installation of hutches and nesting boxes	3. Describe nesting boxes and their value	3. Patient



### Getting Started: What do we know and where are we going?



#### Topic 1.1 Task 1:

1. Review the picture at the beginning of this unit.
2. Share your experience raising and eating rabbit meat with a partner. To help you think about it, consider the following questions:
  - a. Have you ever raised (or seen a friend or neighbour) raise rabbits?
  - b. What is the benefit of raising rabbits?
  - c. Explain the process from your experience.
  - d. Have you ever eaten rabbit meat?
  - e. Did the meat taste good? Was it tender and juicy?
  - f. Why is the meat of rabbit is classified among white meats?
  - g. Explain any nutritional facts you may know about eating rabbit meat.
3. Share your thoughts with the whole class so you can all benefit from each other's experiences.
4. Listen closely as the trainer gives an overview of rabbit farming and its importance.

5. Review the Key Competencies table together.



## Problem Solving Activity



### Topic 1.1 Task 2:

1. You will work with a partner on this activity. Share your thoughts and experiences to try to get as many answers as you can for each illustration and each question.
  - a. Think about housing. Why do we live in houses?
  - b. Observe the following picture and describe all the elements of the rabbit cage that you see including if this cage is suitable for housing rabbits.



1

- c. If a rabbit were living in this cage, what would happen with the rabbit droppings and the rabbit urine? Would that be easy to clean up each day? What tools and materials would you need to clean the tray?
  - d. List three things that you need to add to this cage before a rabbit would feel comfortable living here.

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<sup>1</sup> A&A Logistik-Equipment GmbH & Co. KG. (n.d.). *Meshbox100.JPG* [Photograph]. Wikipedia. <https://de.wikipedia.org/wiki/Datei:Gitterbox100.JPG>

- e. The door is about 25 cm wide and about 60 cm tall. Use that information to estimate the length of each edge of the cage. Note: This cage is for one adult rabbit, or for a mother rabbit and her small babies. Each adult rabbit should be in a single cage.
2. After discussing with a partner, volunteer to share some of your answers with the rest of the class. Verify your responses with the trainer.
  3. Read **1.1 Key Facts** together as a class. Ask the trainer questions as needed.

### **1.1 Key Facts**

#### **Rabbit Hutches**

##### **Why rabbit hutches?**

- Rabbit hutches provide shelter and comfort, protect the rabbits from weather or predators, enable easy access to rabbits but prevent escape, and must be easy to clean.
- Many hutches are made from wood and wire screening and are affordable to build and maintain.
- Each adult rabbit should have an individual cage. Baby rabbits (kits) live in a cage with their mother while nursing and up to 6 growing kits can live together until they grow big.
- When babies (kits) are with their mother, put a nesting box in the cage for the babies.

##### **Sick or new rabbits:**

- A rabbit showing signs of disease or parasites should be isolated immediately by moving the cage away from others to reduce spread of infection or disease.
- Isolate newly acquired rabbits for at least 2 weeks to be sure they do not have a disease.

##### **Cage details:**

- A cage should have a 60 cm x 60 cm floor and be 75 cm high for a medium-sized rabbit.
- For pregnant and lactating does, nesting boxes must be added to their cages.
- The cage should not have a ground floor because the rabbits will dig a way out and because it is hard to clean.
- Wire mesh should be placed on the inside of the wooden frame to prevent rabbits from gnawing through wood.

**Sanitation Tips: Cages must be cleaned frequently to prevent diseases and odours**

- Remove soiled bedding and keep hutches dry. An all-wire hutch makes this simple because waste and liquid falls through the wire mesh floor, still bedding must be changed frequently. Bedding should be changed daily when cleaning the floor pan.
- Clean and disinfect all cages and nest boxes before using with new animals.
- Clean and disinfect watering crocks and food dishes daily.

**Care during rabbit production:**

- Lactating (nursing) rabbits must be in quiet environment, normally kits teat (nurse with their mother) in the early morning and in the late evening.
- In the process of production, select does (female rabbits) and bucks (male rabbits) to stay on the farm and reproduce. The other baby kits will be fattened and then sold.
- The nest box is added in the doe cages before the doe is to give birth. The doe will build a soft nest to be ready when the doe kindles (gives birth).

**Guided Practice Activity****Topic 1.1 Task 3:**

1. You will be visiting the rabbit-raising area on a nearby farm. While there observe as much as you can. If you have questions, feel free to ask the farm manager so you can learn as much as possible.
2. Use the following questions to guide your visit:
  - a. Identify as many different equipment for rabbit raising as you can and state the reason for each tool or other item you see.
  - b. What material and tools are needed for cleaning? How often is each hutch cleaned? Where does the waste and dirty water from cleaning the rabbit cages (old hay as well as urine/faeces) go?
  - c. Do you see different types of cages for different rabbits? Why do you think there are such differences?
3. Upon returning to the classroom, share your observations with your peers and ask the trainer any remaining questions you have.



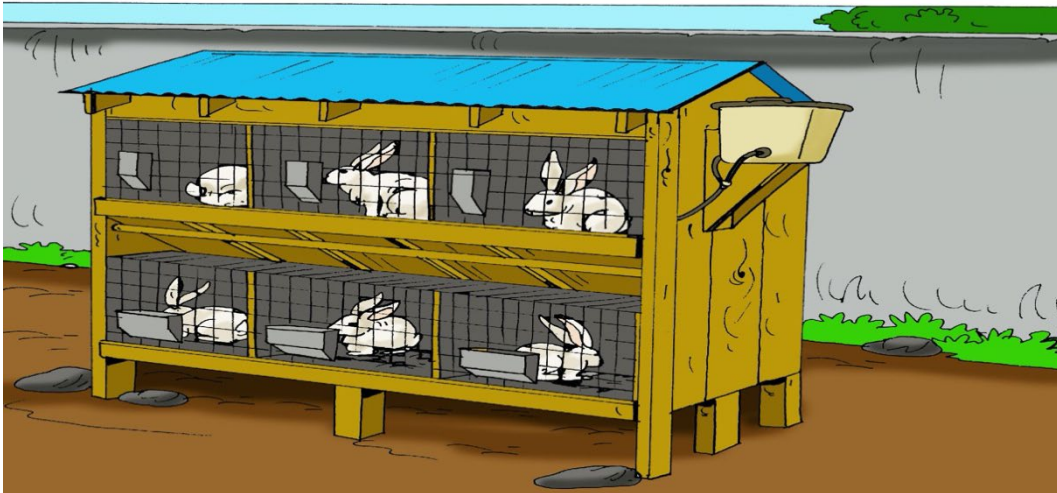
## Application Activity



### Topic 1.1 Task 4:

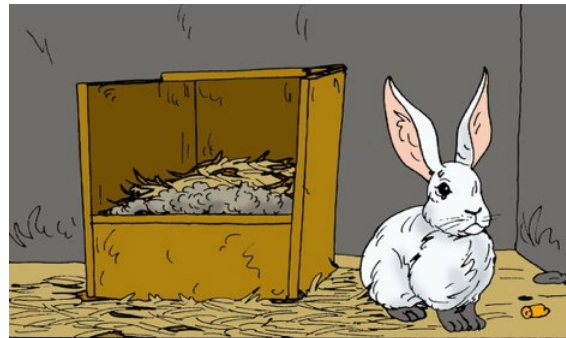
1. Review the illustrations below and respond to the questions that follow each picture.

2. **Illustration 1:** Family rabbit hutch



- a. In the hutch shown above the cages have floors made of wire grid and under that are pans are slipped out from the back side of the cage. Why must we be able to remove the floor pans?
- b. Each of the rabbits shown are adult rabbits, so the floor of each cage must be approximately 60 cm x 60 cm. Give an estimate for how big the entire hutch is.

3. **Illustration 2:** Three different ways that nesting boxes could look





- a. Explain why you should put a nesting box in with a pregnant mother rabbit.
  - b. List some advantages of each of the different nesting box styles shown.
4. Discuss the answers as a class and re-read **1.1 Key Facts** for clarification. Ask the trainer any questions you have about rabbit hutches.



### Points to Remember

- Hutches (or rabbit cages) must have good ventilation but also keep rabbits secure and away from rodents and predators. Hutches also protect the rabbits from sun, wind, and rain. A good hutch makes the rabbit feel comfortable, clean, and calm.
- To maintain good health and hygiene in rabbit hutches, remove uneaten food from the cage daily, wash out the food bowls, wash and refill the water bottle. Then add clean and dry roughage (hay, straw or grasses) into the cage.
- Clean the floor pan daily: remove urine and faeces, wash with soap, water, and brush.
- During the cleaning process, put all waste (including dirty water) where it will not get near household food, and far from all water sources to keep a safe environment.
- When rabbits give birth and care for babies (kits) and are lactating, the rabbit cage must be in quiet environment or the mother may stop caring for the kits.





## Formative Assessment

Read and answer the following questions.

1. Give at least three characteristics of a good rabbit shelter.
  - 1.
  - 2.
  - 3.
2. List at least four items needed in cleaning a rabbit cage.
  - 1.
  - 2.
  - 3.
  - 4.
3. Explain where rabbit hutches should be placed and why.
4. What personnel protective equipment might be helpful on a rabbit farm?

## Topic 1.2: Feeding and watering rabbits

### Key Competencies:

Knowledge	Skills	Attitudes
1. Explain the different types of feed rabbits need	1. Identify different feeds and amounts needed	1. Proactive
2. Describe watering techniques	2. Determine quantity of water rabbits need	2. Dependable
3. Explain teeth cutting techniques	3. Control overgrown teeth	3. Detail oriented



### Getting Started: What do we know and where are we going?



#### Topic 1.2 Task 1:

1. In groups of 5, discuss the following questions. There is not just one correct answer, rather you should think of as many possible answers as you can.
  - a. Discuss on the role of feeding in animal production.
  - b. Discuss how feeding impacts the profitability of the farm.
2. Share your group's responses with the rest of the class. The trainer will verify your answers.
3. Review the Key Competencies table together.



### Problem Solving Activity



#### Topic 1.2 Task 2:

1. Work with a partner to research one or more of the following topics. You will be assigned one of the topics.

2. Topics:
  - a. Which grasses that are good for rabbits to eat?
  - b. Are there tubers and roots which are healthy food for rabbits?
  - c. What foods should a rabbit NOT eat?
  - d. What are the ingredients in rabbit feed concentrate?
  - e. How often does an adult rabbit eat during one day's time? How much?
  - f. Other research questions about rabbit farming provided by the trainer.
3. Prepare a short presentation for the rest of the class. After presenting, the trainer will verify your information.
4. Read **1.2 Key Facts** silently. After reading, ask the trainer questions to clarify the information.

### 1.2 Key Facts

#### Feeding and Watering Rabbits<sup>2</sup>

##### Feeding rabbits:

- Feed rabbits twice daily: in the morning and in the early evening.
- Each time you feed your rabbits, put fresh or dry plant material in the forage feeder (or on the floor of the hutch) and put concentrated food (grains or pellets) in the grain feeder. Rabbits need rich, concentrated food to grow well!
- **Forage:** Half the rabbit's food should be dry or fresh hay or grasses
- **Plant materials:** Dry or green plants such as bean plant leaves, tops of vegetables, lettuce, tender banana, cane, or bamboo leaves. Also give your rabbit bits of roots: cassava, yams, and carrots.
- **Grains:** Barley, maize, wheat, oats, field beans, millet, sorghum, cottonseed, groundnut, coconut, or pre-mixed agro-rabbit industrial food which should contain cereals, legumes and some sources of minerals and vitamins which will help your rabbits grow well.

<sup>2</sup> Coudert, P., Rouvier, R., & De Rochambeau, H. (1986). *The rabbit: Husbandry, health and production: Nutritional needs*. Food and Agriculture Organization of the United Nations. <https://www.fao.org/3/x5082e/X5082E06.htm>

**Note the following:**

- Some plants contain poisonous chemicals.
- Do not feed rabbits tomato or potato leaves, avocado, or rhubarb.
- Rabbits should not eat food that is mouldy or spoiled.
- If you are feeding your rabbits larger foods such as banana stalk, or whole carrots, it is best to chop them into smaller pieces.
- Rabbits need different amounts of food at different times in their lives. Pregnant and lactating mother rabbits need more food than other rabbits. Babies need less.
- Water must be available all the time and the water dish should be washed daily.



## **Guided Practice Activity**



### **Topic 1.2 Task 3:**

1. The trainer will demonstrate how to trim (cut) rabbit teeth. Remember the following points:

**Important points:**

- Teeth trimming is very stressful for the rabbit, so it should only be done when necessary.
- Care must be taken to avoid cracking or breaking the entire tooth.
- Do not cut the tooth too short and avoid cutting the rabbit's lips, tongue, or gums.

**Process:**

- Wrap the rabbit in a towel to secure the feet and keep the animal steady and immobile.
- Force the mouth open by pushing a finger into the mouth behind the teeth area.
- Cut only a small portion of the tooth at a time and ensure all teeth are even and smooth.<sup>3</sup>

2. Observe the trainer closely and ask questions. If there are enough rabbits, practice trimming teeth with support from the trainer.

3. Share your observations and discuss as a class.

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<sup>3</sup> RabbitPedia. (2016, June 16). *How to trim a rabbits teeth*. <https://rabbitpedia.com/rabbit-care/trim-rabbits-teeth/>



## Application Activity



### Topic 1.2 Task 4:

1. You will visit a nearby rabbit farming operation. It is your task to make detailed observations and to take notes on everything you see.
2. The following guiding questions will be the basis for your observations, but you may see other things of interest too. Be sure to write about everything you see, not only responses to the following questions:
  - a. Describe all the different food containers that you see at the rabbit farm. Are the containers different based on the kind of food that is inside each? What foods are the rabbits eating?
  - b. Is the farmer using concentrated food pellets or grains? If so, describe.
  - c. Explain how the rabbits are given water. Is there a bowl with water? A drip drinker? How can rabbits take drinks? How often does the rabbit drink?
  - d. Ask the farmer to describe how often the food and drink dispensers are cleaned.
  - e. How often is the whole hutch cleaned? Where does the farmer dispose of the wastewater?
  - f. Did the farmer give a demonstration of the teeth cutting? What was your impression?
  - g. What else do you observe?
3. Upon returning to class, share your observations and responses to the questions.
4. Read the **Points to Remember** together.



## Points to Remember

- Rabbits are herbivores—they eat plants. Rabbits eat lots of forage (fresh and dried hay and grasses), cereals, legumes, roots/tubers, and vegetables. They can also eat agri-industry products, pellets or food concentrate, with vitamins and minerals.
- Rabbits must not eat avocado, tomato/potato plants, rhubarb, meat, or dairy.
- Always provide plenty of fresh, clean water for your rabbits.



## Formative Assessment

Select or write the correct answers to the following questions.

1. Which processes should be completed before feeding rabbits in the evening?
  - a. Clean drinkers and feeders
  - b. Remove old fodder and add fresh new forage to the hutch
  - c. Clean the hutch to remove all urine and faeces
  - d. Weigh food if using pellets or commercial produced concentrated foods.
  - e. All of the above
2. What criteria should be considering for determining amounts of rabbit feed needed?
  - a. If the rabbit is young and still nursing or has been weaned
  - b. If the doe is pregnant, she will need more food
  - c. If the doe is lactating, she will need more food
  - d. If you are trying to fatten the animal for sale
  - e. All of the above
3. What is the main food for a rabbit?
4. What foods should a rabbit NOT eat?
5. Explain the process of overgrown teeth cutting.



## Topic 1.3: Application of best practices to rabbit farming

### Key Competencies:

Knowledge	Skills	Attitudes
1. Explain standards and norms to be considered in rabbit rearing	1. Determine the sex of a given rabbit	1. Attentive
2. Describe rabbit handling methods and rabbit identification techniques	2. Handle rabbits correctly	2. Patient
3. Explain the how to differentiate male and female rabbits	3. Apply identification techniques on rabbits	3. Persistent



### Getting Started: What do we know and where are we going?



#### Topic 1.3 Task 1:

1. With your group of three people, brainstorm the important features of a rabbit hutch and explain why that feature will ensure the wellbeing of the rabbits inside the hutch.
2. When your group has added as much as possible to your list, share with the class as the trainer writes ideas on the board.
3. Refer to **1.1 Key Facts** to review necessary details.
4. Note that many of the hutch features are designed to keep the rabbits calm and free from stress because the rabbits will grow better and reproduce more if they are calm, clean, protected, and cared for with proper food and a lot of water.
5. Review the Key Competencies table together.



## Problem Solving Activity



### Topic 1.3 Task 2:

1. Review the following pictures individually and decide which are examples of good or bad rabbit rearing practices. Explain the reasons for your choice.

a.



b.



c.



d.



2. Compare your answers with a partner and update them based on your discussion.
3. Share your answers with the class and come to an agreement.
4. Read **1.3 Key Facts** together. Watch closely as the trainer demonstrates how to hold and determine the gender of the classroom rabbits.
5. After reading **1.3 Key Facts**, practice holding the rabbits correctly.

### 1.3 Key Facts

#### Best Practices for Healthy Rabbits

**Remember:** Rabbits are vulnerable. Careful handling improves their health and welfare.

##### 1. Good rabbit hutches:

- Hutches must be clean, comfortable, and calm for the rabbits. Hutches need daily cleaning. Monitor the weather including temperature, precipitation, and wind. Hutches should be in a quiet place with good ventilation.
- If a rabbit begins to chew the wood on the walls or the floor of the cage or pen, give the rabbit pieces of wood to chew instead of chewing on the cage.

- Clean hutches frequently and watch rabbits carefully to ensure they do not get sick.

## 2. Know each rabbit's details:

- To determine the gender of a rabbit, look at the sex organs under the tail near the anus. For the male the shape is of a small pointed stick with a centre hole (picture on right), For the female the shape is a longer hole shaped like a line (see picture on the left).



- You can label the hutch to remember the age and specific details of the rabbit living in that specific hutch, or you can put a tag through a small hole in the ear of your rabbit with details (birthdate, gender, illnesses, and any other specific details of that rabbit).

## 3. Handle rabbits carefully:

- Appreciate different types of handling depending of the physiological status of the rabbit and the weight.
- Always approach your rabbit slowly and get down to his/her level so they remain calm. Scoop up by your rabbit by placing a hand under the torso then pull the rabbit near to your body while supporting the rabbit's hindquarters with your other hand.
- Ensure that your rabbit is correctly fed and always has clean water for drinking.<sup>4</sup>

<sup>4</sup> RSPCA. (n.d.). *Handling your rabbit correctly*. <https://myhouserabbit.com/rabbit-care/handling-your-rabbit-correctly/>



## Guided Practice Activity



### Topic 1.3 Task 3:

1. Read the following scenario together:

On Paul's rabbit farm, he keeps 12 rabbits all year long, 6 does and 6 bucks. The rabbits have a gestation period of about 1 month and then the mothers nurse the kits for about 2 months so most of the does have two litters each year. When the babies are weaned Paul gives them more food to fatten them so he can sell them. His goal is to sell 4 rabbits from each litter. His family eats the rest of the rabbits—if there are extras.

The hutches on Paul's farm are beside a small flowing river. The river is a good source of water both for cleaning the cages (which Paul does each week) and for providing drinking water to the rabbits. The hutches are under a tree which provides a bit of protection from the sun and from rain, but it is also near the road where big noisy trucks drive by frequently.

Every day Paul gives the rabbits hay from the river edge as well as the vegetable cuttings that remain from his wife's cooking (which is usually carrots and cabbage as well as cassava and potato). Approximately once each week Paul gives his rabbits a cup full of grain which may be maize or millet.

While Paul is satisfied with the situation, he wonders if he could be making more money – as well as making more meat for his family to eat. Occasionally he finds that the does seem nervous and do not get pregnant or do not care for the young so the young then die. He has also found that the males do not always eat well, again, they seem nervous. And he wonders if he should keep more females than males so he could have more offspring.

2. Individually reflect on the situation and give Paul some suggestions that might make the business more successful.
3. Share your ideas with the trainer, who will write the correct ones on the board.
4. Re-read **1.3 Key Facts** to verify your suggestions.

5. As a class, discuss the diagram in **1.3 Key Facts** which shows how to tell the gender of a rabbit. How are the two the same? How are they different?
6. Observe closely as the trainer demonstrates how to determine the gender of a rabbit.
7. One at a time, practise handling and determining the gender of the rabbits in the classroom. Ask the trainer for support as needed.



### **Application Activity**



#### **Topic 1.3 Task 4:**

1. You will visit a nearby rabbit farm with your class. Work in pairs to complete detailed notes in each of the following areas to determine if the farm is using best practices or if there are ways that the farmer could improve the care for the rabbits.

Physical characteristics of the hutches:

- a. Temperature
  - b. Ventilation
  - c. Light
  - d. Noises
  - e. Protection from wind and rain
  - f. Protection from predators
  - g. Food and water containers are clean and filled correctly
  - h. Cage/hutch is clean and comfortable
  - i. If a doe is pregnant or with kits, is there an adequate nesting box?
  - j. How has the farmer labelled the rabbits or the hutches? Is it adequate?
2. At the farm, determine the sex of five young rabbits with support from the trainer.



### **Points to Remember**

- Determining the gender of your rabbits will help in deciding which rabbits to keep for breeding and which to fatten and sell.
- Identification of rabbit by tagging ears or cages helps in animal monitoring.
- Monitor your rabbits carefully to see that they are not stressed or sick.



## Formative Assessment

Read and answer the following questions. Use complete sentences.

1. Explain how the following factors impact negatively or positively on the rabbit life and rabbit production?
  - a. Low or high temperature
  - b. Bad ventilation
  - c. Noise
  - d. High and low Light
  - e. Wind and rain
2. Explain how to determine the sex of a rabbit? Why is this important in rabbit farming?
3. What is the importance of animal tagging? What details should be included on a tag?
4. Describe what foods are good for a rabbit and list two that are bad for rabbits.





## Self-Reflection

1. You have come to the end of the unit. You will repeat the survey you did at the beginning of the unit to help you self-assess your knowledge, skills and attitudes.

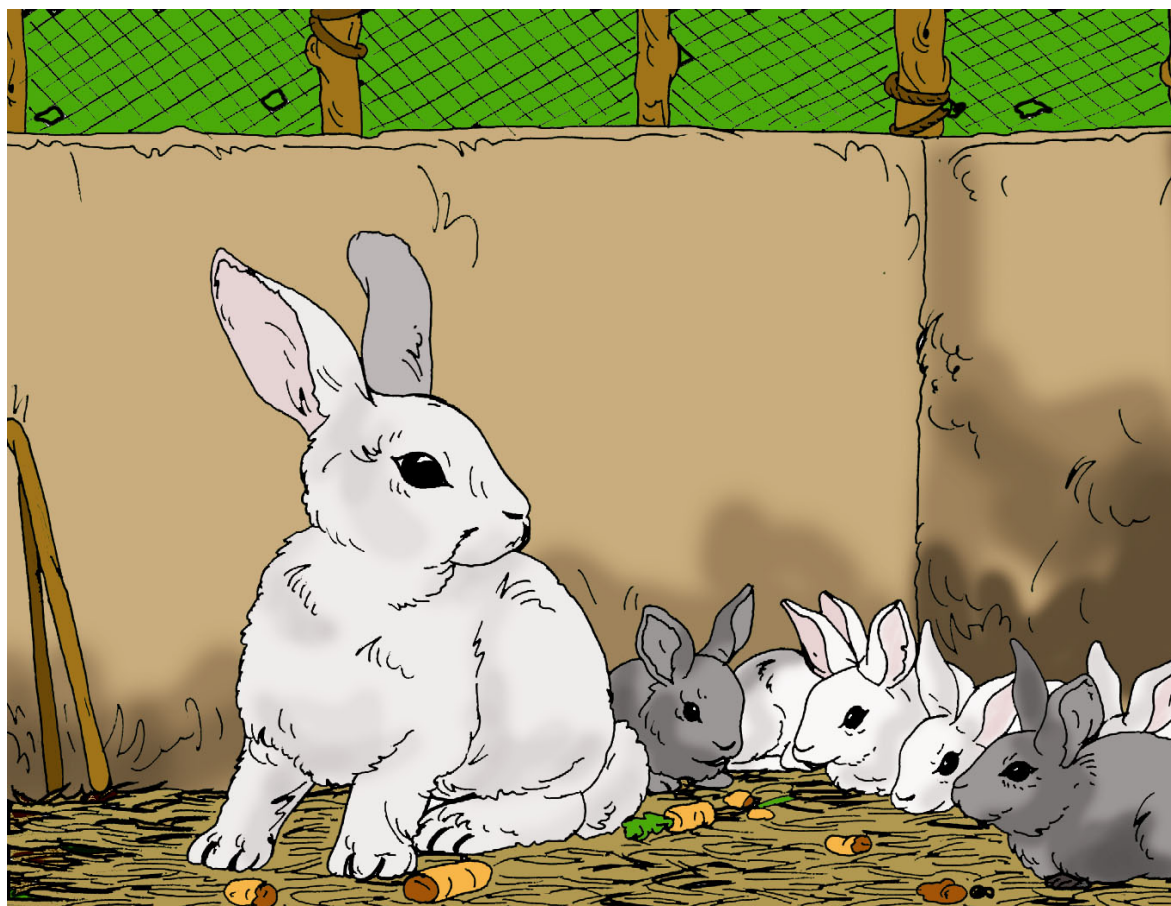
Again, there are no right or wrong answers to this survey. It is for your own use to gauge your knowledge, skills and attitudes after the unit. Read the Knowledge, Skill or Attitude in the left column. Think about yourself: do you think you can do this? How well? Read the statements across the top. Put a check in column that best represents your situation.

My experience	I don't have any experience doing this.	I know a little about this.	I have some experience doing this.	I have a lot of experience with this.	I am confident in my ability to do this.
Knowledge, skills, and attitudes					
Identify characteristics of rabbit cages					
Identify material and equipment used to clean rabbit cages					
Clean rabbit hutches					
Use personal protective equipment as needed					
Avoid environmental pollution in rabbit farming					
Identify equipment to add to rabbit cages					
Install rabbits in cages					
Identify rabbit feed components					
Supply food and water to rabbits					
Handle rabbits					
Determine the sex of a rabbit					

2. Complete the table below by identifying areas from the unit where you have improved and where you need improvement with the actions/strategies you will use to help you improve when receiving and interpreting information at the workplace.

Areas of strength	Areas for improvement	Actions to be taken to improve
1.	1.	1.
2.	2.	2.

## Unit 2: Manage rabbit reproduction



## **Topics**

**2.1** Selection of rabbit breeds

**2.2** Breeding rabbits

**2.3** Monitoring rabbits from pregnancy through weaning

### **Unit Summary:**

This unit describes the knowledge, skills, and attitudes required to manage rabbit reproduction. At the end of this unit, trainees will be able to select breeds, breed rabbits, and monitor rabbits from pregnancy through weaning.

## Self-Assessment: Unit 2

1. Look at the illustration. What is happening? What do you think this unit will be about? What topics might be covered?
2. Fill in the self-assessment below.

There are no right or wrong ways to answer this assessment. It is for your own use during this unit. The trainer will read a skill that is listed in the left column. Think about yourself: do you think you can do this? How well? Read the statements across the top. Put a check in column that best represents your situation. At the end of this unit, we'll take this assessment again.

My experience	I don't have any experience doing this.	I know a little about this.	I have some experience doing this.	I have a lot of experience with this.	I am confident in my ability to do this.
Knowledge, skills, and attitudes					
Identify rabbit breeds based on their characteristics					
Identify rabbit selection criteria					
Characterize rabbit breeds according to their end use					
Select buck and doe rabbits					
Manage bucks in line with farming requirements					
Detect when doe is in heat					
Conduct mating process					
Manage pregnant rabbit					
Manage the kindling (birth)					

My experience	I don't have any experience doing this.	I know a little about this.	I have some experience doing this.	I have a lot of experience with this.	I am confident in my ability to do this.
Knowledge, skills, and attitudes					
Prepare the nest					
Take care of the mother after kindling					
Take care of the kits until weaning					

## Topic 2.1: Selection of rabbit breeds

### Key Competencies:

Knowledge	Skills	Attitudes
1. Describe rabbit breeds and the main characteristics	1. Identify rabbit breeds using breed characteristics	1. Determined
2. Explain breed selection criteria	2. Apply rabbit selection criteria	2. Precise



### Getting Started: What do we know and where are we going?



#### Topic 2.1 Task 1:

1. With a partner, brainstorm a list of reasons to raise rabbits.
2. Share your answers with the class while the trainer writes them on the board.
3. Review the objectives and the Key Competencies table together.





## Problem Solving Activity



### Topic 2.1 Task 2:

1. You will work with your group to respond to the following questions regarding the breed of rabbit that your teacher has assigned to your group. Be prepared to share information on your breed with the entire class.
2. When you and your group consider the qualities of your breed, consider why this particular breed would be good for one of the following: meat production, fur production, or other reasons. Discuss why you think your breed is the best, or at least better than the breeds.
3. Use the following questions to help your group discussion:
  - a. What are the average characteristics of your breed of rabbit?
    - Average weight
    - Skin/fur colour
    - Place of origin
    - Eyes colour
    - Adaptability to different climate conditions
    - Litter size, on average
    - Prolificacy (number of live births in each litter)
    - Other important characteristics for your assigned breed
  - b. Given the qualities of your breed, suggest the main purpose in raising this breed.
  - c. Complete the following statement for the breed that your group has been assigned:  
  
\_\_\_\_\_ breed of rabbit is the best choice for a rabbit farmer if the purpose of that rabbit farmer is to \_\_\_\_\_ because this breed has the qualities of \_\_\_\_\_ which will be helpful in attaining the farmer's goal.
4. Present your group's findings and conclusion and listen closely while other groups present.




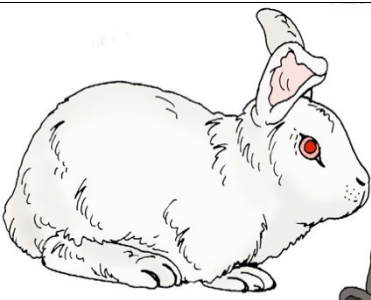




## Guided Practice Activity



### Topic 2.1 Task 3:

1. With a partner, review the drawings of the rabbits and accompanying information. Determine which information accompanies which breed of rabbit.

		
French Giant	Flemish Giant	Californian Rabbit
		
New Zealand	Small Chinchilla	Himalayan

2. Consider the rabbits listed above according to size and final products.
  - a. Heavy breeds: Adult weight exceeds 5 kg. Includes: Flemish Giant and French Giant
  - b. Medium breeds: Adult weight ranges from 3 to 4.5 kg. The Californian is 3.6 to 4 kg. The New Zealand is 3.5 to 4.5 kg.
  - c. Lightweight breeds: Adult weight ranges from 2.5 to 3 kg. Himalayan, the Small Chinchilla, the Dutch, and the French Havana. Note that not all these breeds are pictured.
  - d. Small breeds: These rabbit breeds weigh about 1 kg at maturity.
  - e. Soft white fur: Usually found in the albino offspring of coloured rabbits. New Zealand and California are representative of this group.
  - f. Fancy Breeds: Rabbits for showing, exhibits, and pets but not too strong and cannot survive climate extremes! French and Flemish Giants.
  - g. Fur Breeds: Originally bred for their fur. Chinchilla and Himalayan are bred for fur.

- h. Meat breeds: Considered good for eating. Californian and New Zealand.<sup>5</sup>
3. Classify the rabbits (best, medium, low) in the pictures above in terms of prolificacy (live births per litter) using the following information table.

**Mean doe prolificacy by adult sizes of New Zealand, Californian and Chinchilla:<sup>6</sup>**

Strains	Litter size	Live births per litter	Rabbits weaned per litter	Age at first mating (days)
New Zealand	8.5	8.0	6.5	144
Californian	8.0	7.2	5.8	140
Chinchilla	8.7	8.1	6.0	132

4. Take note that we consider how many kits are born live, but also how many are alive at weaning time. We should also consider how soon a doe can give birth because the earlier she can give birth the more babies we can expect at the farm.
5. Consider main selection criteria used in rabbit farming:
- Fertility
  - Viability
  - Growth
6. Rate each of the above rabbit breeds in terms of all three of these criteria and decide which breed would be your best choice if you were opening a rabbit farm.
7. Present your results and discuss them as a class. The trainer will clarify any misunderstandings or confusion.



#### **Topic 2.1 Task 4:**

- Now, you and your classmates will discuss some tools to keep good records on a rabbit farm.
- As a class, brainstorm what data is needed to have an organised rabbit farm.

<sup>5</sup> Lebas, F., Coudert, P., Rouvier, R., & De Rochambeau, H. (1986). *The rabbit: Husbandry, health and production: Genetics and selection*. Food and Agriculture Organization of the United Nations. <https://www.fao.org/3/x5082e/X5082E08.htm>

<sup>6</sup> Lebas, F., Coudert, P., Rouvier, R., & De Rochambeau, H. (1986). *The rabbit: Husbandry, health and production: Genetics and selection*. Food and Agriculture Organization of the United Nations. <https://www.fao.org/3/x5082e/X5082E08.htm>

3. Look at the following templates for keeping records of the different rabbits on a farm.

#### RECORD A: Doe Breeding Record

The following record should be kept for each breeding doe.

Doe number.....	Breed.....
Date of birth.....	Sire (Father).....
Litter number of the Doe.....	Dame (Mother).....

Date mated	Buck number	Date kindled	Litter	Number Born		Weaning			Remarks
			Number	Alive	Dead	Date	Age	Weight	

#### RECORD B: Litter Record

Completed at weaning as every young rabbit is given its own number.

Litter number	Date of birth	Individual number	Dame	Sire	Weaning			Remarks
					Date	Age	Weight	

#### RECORD C: Buck Breeding Record

Similar to a doe breeding record, it is important to keep details on breeding bucks, too.

Buck number.....	Breed.....
Date of birth.....	Sire (Father).....
Litter number of Buck.....	Dame (Mother).....

Date mated	Doe number	Date kindled	Number born alive	Number born dead	Remarks

## RECORD D: Financial Recording Documents

On a rabbit farm, it is also important to keep track of expenses and costs as well as the income from selling rabbits. This will be done using financial recording documents that are detailed in other classes.

4. Now that you have seen and reviewed the detailed documents that should be kept on a rabbit farm, think about any other information that may be helpful if you are farming rabbits. List the additional information that you may need.

5. Finally, read **2.1 Key Facts** together as a class.

### 2.1 Key Facts

A rabbit breed is a specific group with similar appearance, similar behaviour, and/or other characteristics that distinguish it from other breeds of rabbits. At the same time, all breeds of rabbits are the same species.

#### Breed Selection:

- Selection of does and buck must be based on tangible criteria which usually includes:
  - Fertility: How many babies they can produce
  - Viability: Do they withstand sickness and weather
  - Growth: Will they grow quickly
- Selection must be guided by the propose of the farm, but in general, a rabbit must be strong in all three of the criteria listed above (fertility, viability, and growth) to be a good breed for rabbit farming.
- Medium and lightweight breeds are recommended for developing countries because they require less food to grow well.

#### Record Keeping:

- Record keeping is the foundation of good farm management and accounting.
- A rabbit farmer must keep good records to select rabbits for breeding, to avoid inbreeding to document the productivity of does and bucks, and for strong financial management on the farm.
- Review the sample documents found in **Topic 2.1 Task 4** above for details.



## Application Activity



### Topic 2.1 Task 5:

1. You may choose to do this activity individually or with a partner from the class.
2. Find a rabbit farmer in your community and set up a date and time for a visit. During that visit you will observe the rabbit farming operation, review the documents available, and ask the farmer the following guiding questions to help understand the operation better. Remember to take detailed notes.
3. Questions for the visit:
  - a. Explain your opinion about the breeds present. Why did you choose this type of rabbit?
  - b. Explain the data that is kept for a farming record, and why each data point is important.
  - c. Explain how bucks and does are selected for breeding. Where can good breeding bucks and does be bought in the local area? What is the cost of a good breeding doe? Buck?
  - d. Enumerate the factors, which affect the reproductive characteristics of rabbits on this farm?
  - e. What else is important to have a profitable rabbit farm?
4. After the farm visit, write your notes into a report about the farm you visited. Submit your report to your trainer at the beginning of the next session.



### Points to Remember

- Breed selection should be based on fertility, viability, and growth.
- Good record keeping is a must on a rabbit farm.

## **Formative Assessment**

Respond to the following questions.

1. Define the following terms:
  - a. Fertility
  - b. Prolificacy
  - c. Viability
2. Explain the use of the following records:
  - a. Doe breeding record
  - b. Litter record
  - c. Buck breeding record

## Topic 2.2: Mating rabbits

### Key Competencies:

Knowledge	Skills	Attitudes
1. Explain criteria for mating bucks and does	1. Select a buck and does for reproduction	1. Practical
2. Explain how to determine if a doe is in heat	2. Manage a buck and a doe to facilitate mating process	2. Patient
3. Describe the process of facilitation or rabbit breeding	3. Detect if a doe is in heat	3. Persistent



### Getting Started: What do we know and where are we going?



#### Topic 2.2 Task 1:

1. Separate into groups of four people and assign one of the following tasks to each team member:
  - a. **Writer:** Writes down all the answers that the group can find to their prompt.
  - b. **Questioner:** Ensures that the group stays on task and responds well to the prompt.
  - c. **Timer:** Keeps the group moving forward quickly and in correct timing for the task.
  - d. **Presenter:** Reports the group ideas to the class when trainer requests summaries.
2. You have 5 minutes to brainstorm ideas for one of the following. The trainer will assign your group a topic/question.
  - a. What makes a doe rabbit a good choice for breeding?
  - b. What makes a buck rabbit a good choice for breeding?
  - c. How can a farmer prepare a cage for breeding?
  - d. What records must be kept if a farmer is planning to breed rabbits?
  - e. How can a farmer manage the process of breeding two rabbits?
3. The presenter from each group will now present their group's ideas to everyone else in the class. Listen closely while other groups present.
4. Review the objectives and Key Competencies together.





## Problem Solving Activity



### Topic 2.2 Task 2:

1. Read the **2.2 Key Facts** together as class.

### 2.2 Key Facts Breeding Rabbits<sup>7</sup>

Bucks and does are considered good breeders if their litters have higher numbers of live births and the number of weaned kits is close to the number of live births. Farmers should consider fertility, maternal instinct, growth rate, and viability. This means that they should look for big litters, most live kits weaned, adaptable to climate and resistance to sickness.

**Culling** is the process of choosing the rabbits that will reproduce and removing the other rabbits from the rabbit farm. This usually means either selling or eating the removed rabbits, rather than breeding them again.

#### **Bucks:**

- A buck develops its breeding capabilities at the age of 4 or 8 months.
- A young buck (less than a year old) must rest 4 days between mating with does.
- After 1 year, a buck must rest only 2 days between mating with does.
- One buck can serve approximately 5-10 does but beware of cross breeding.
- A healthy buck should eat additional protein, vitamin and minerals supplements.
- A buck can maintain its reproductive ability for 2 to 3 years for best results.

#### **Does:**

- A doe can be breed at the age of 4-8 months. She is ready when she goes into heat.
- When in heat, the doe may be nervous and rub head on cage or other objects, her vulva may also become swollen and purple in colour. This shows she is ready to breed.
- A pregnant (or nursing) doe should eat additional protein, vitamin and minerals supplements, so the mother can feed her young with good nutritional milk.
- A pregnancy lasts 1 month, and then the doe will nurse her kits for about 2 months.
- When does stop nursing she can breed again, so a doe can give 4 litters per year.
- A doe can maintain her reproductive ability for about 3 or 4 years for best results.

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<sup>7</sup> TNAU Agritech. (n.d.). *Animal husbandry: Breeding of rabbit*. [https://agritech.tnau.ac.in/animal\\_husbandry/animhus\\_breeding%20of%20rabbit.html](https://agritech.tnau.ac.in/animal_husbandry/animhus_breeding%20of%20rabbit.html)

**Breeding:**

- The best time for breeding is early in the morning or in the evening.
- Put the female into the cage of the male—not the other way around because female rabbits can be territorial and will not like other rabbits in her cage.
- A receptive doe will raise her tail, after mating a male may fall on his side and cry.
- If breeding does not happen within 15 minutes, return the doe to her cage and try again the next day.

Clear and detailed records about the doe, buck, and the litter are vital for a good and profitable rabbit farm.

2. Use the **2.2 Key Facts** to help you answer the following questions with a partner:
  - a. List characteristics of a doe that is good for breeding.
  - b. List characteristics of a buck that is good for breeding.
  - c. Which records should a rabbit farmer keep to ensure that breeding was done well?
  - d. Explain why you should bring the doe to the cage of the buck – not the other way?
  - e. Describe what culling means—and explain why you do that on a rabbit farm.
3. After discussing with your partner, share and discuss your responses as a class.

**Guided Practice Activity****Topic 2.2 Task 3:**

1. Observe the trainer as he/she demonstrates several tasks. Take notes.
  - a. Review how to handle a rabbit correctly
  - b. Review how to determine the gender of a rabbit
  - c. Learn how to identify if the doe is in heat
  - d. Learn the indications that a doe is pregnant
  - e. Learn how a doe appears when lactating
2. Practice handling the rabbits with care and try to identify a lactating doe, a doe in heat, and a pregnant doe.



## Application Activity



### Topic 2.2 Task 4:

1. This task is a field visit activity. You will visit an active rabbit farm in your area. This visit has been prepared by your trainer to ensure that the farmer is currently engaging in the process of breeding rabbits. While at the farm, make careful observations and take notes so you can provide an oral report to the class upon your return to the classroom.
2. The following questions will help you:
  - a. How is the farmer keeping records of the breeding process?
  - b. What is the number of does at the farm? Of bucks at the farm? Why are there more does than bucks?
  - c. Where is the breeding process happening? Explain why.
  - d. What other questions do you have for the farmer?
3. Share your observations with the rest of the class.



### Points to Remember

- Rabbits reproduce when they reach maturity at 4-8 months old, depending on the breed.
- Choose rabbits that produce many live births, wean healthy rabbits, and resist sickness.
- The best time for mating is early in the morning or in the evening.
- When you mate rabbits always put the female into the pen of the male.



### Formative Assessment

Respond to the following in complete sentences.

1. Explain how to choose a good doe for breeding.
2. Explain how to choose a good buck for breeding.
3. When and where should the breeding occur?

## Topic 2.3: Monitoring rabbits from pregnancy through weaning

### Key Competencies:

Knowledge	Skills	Attitudes
1. Explain the management of pregnant rabbits	1. Manage a pregnant rabbit	1. Persistent
2. List materials used for nest preparation	2. Prepare and install the nest	2. Kind
3. Explain the process of kindling and how to care for mother and kits	3. Perform kindling and care for the mother and the kits	3. Patient



### Getting Started: What do we know and where are we going?



#### Topic 2.3 Task 1:

1. In pairs, brainstorm what you know about pregnancy and caring for babies by finding as many answers as possible to the following questions:
  - a. What signs indicate that an animal is pregnant?
  - b. What special care does any mother need while pregnant?
  - c. How does a mother animal care for her new-born young?
  - d. What can you do to help a mother animal (and her children) through a successful pregnancy, birth, and lactating period?
2. Share your responses with the rest of the class while the trainer writes them on the board.
3. Do you think these details relate to caring for rabbits as they reproduce as well?
4. Review the objectives and Key Competencies together.



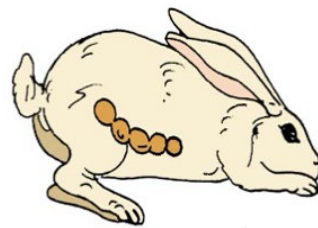
## Problem Solving Activity



### Topic 2.3 Task 2:

1. In small groups, read the following scenario and answer the accompanying questions.

**Scenario:** A farmer is doing palpation of the abdomen of a doe. He feels with his hands the presence of embryos inside her belly as shown in the second picture.



- a. Give three good reasons that it is important for a farmer to know if his rabbits are pregnant.
2. Remember the first topic of rabbit farming when cages and nesting boxes were discussed.
    - a. Look at the pictures below and discuss what the pregnant doe is doing and why this is important.





3. Review the answers together. Then, read **2.3 Key Facts** and ask any questions you have.

### 2.3 Key Facts

A **pregnancy diagnosis** allows a farmer to:

- a. prepare for kindling, including adding nest box and provide more healthy food.
- b. mate the female again.

A rabbit pregnancy lasts approximately 30 days (depending on the breed, number of kits, total weight of the kits, and other environmental and physiological factors). During this time the cage must be kept clean and quiet, and the mother fed and watered well.

Does normally kindle (give birth) at night. A farmer must quickly check the number of kits, remove any dead kits, and consider fostering some if there are too many for the mother to care for herself. The cage must be kept quiet and protected from extreme weather.

#### **Kindling (giving birth):**

- Pregnant does will prepare their own nests in the nest boxes provided so let them have clean and fresh bedding in their cages as this happens.
- Feed the doe extra nutritious foods to give her strength for kindling and nursing the kits.
- Do not disturb or upset a pregnant doe.
- Rabbits usually kindle at night—and they nurse in the morning or evenings, when they feel calm and they have quiet. Each doe may have between 6 and 12 kits per litter.

**Fostering:** When kits are placed with a lactating doe (not their mother) who has recently kindled her own young. The fostered kits are cared for by the new doe.

Fostering best practices include the following:

- No more than 3 young rabbits should be given to a foster mother;

- The age difference between the doe's own litter and the fostered young should be not more than 48 hours;
- Fostering should take place within 5 days of kindling.

**Weaning:** Happens at four to eight weeks of age. Weaning means the baby rabbits are eating and drinking on their own and get most (or all) their sustenance by themselves. At this time, it is safe for a doe to become pregnant again.

Weaning best practice includes the following:

- Young rabbits begin to eat solid food after about 18 days, when kits are 30 days old, the doe's milk provides no more than 20 percent of the nutritional intake.
- The kits are taken from the doe and placed in a cage for fattening in groups of 6 or 8.
- During the transfer, the farmer checks the health of the young rabbits and culls kits that are undersized or sick.

#### **Stock reduction and renewal:**

Stock reduction and renewal is a practice used to avoid having empty cages. To ensure a constant reserve of does available that are ready for mating a farmer should select the best young from the best does and raise them to become future breeders.

#### **Remember:**

- A doe can become pregnant again within a few days of giving birth. (Not good practice!)
- To maximize breeding, a farm should have a reserve of mature does ready for mating rather than mating a recently kindled (having given birth) doe.
- Note: To avoid inbreeding, new bucks and does should be traded or bought from another rabbit farmer.<sup>8</sup>



### **Guided Practice Activity**



#### **Topic 2.3 Task 3:**

1. Observe and take notes as the trainer demonstrates how to diagnose pregnancy and explains what a pseudopregnancy is.

<sup>8</sup> Lebas, F., Coudert, P., Rouvier, R., & De Rochambeau, H. (1986). *The rabbit: Husbandry, health and production: Rabbitry management*. Food and Agriculture Organization of the United Nations. <https://www.fao.org/3/x5082e/X5082E0g.htm>

2. Practise doing an examination of a doe to determine if she is pregnant under trainer supervision.



### **Application Activity**



#### **Topic 2.3 Task 4:**

1. Your class will visit a rabbit farm so you can complete the tasks outlined below. Please take extra care to be careful and gentle with the rabbits and to ensure that they do not get shocked, upset, or harmed.
2. You and your peers will provide support to one another as you do the following:
  - a. Take a sample of does and do a pregnancy diagnosis, have another trainee confirm.
  - b. Explain the process of kindling to the farmer and ask if you have it correct.
  - c. Watch does with their litters and notice how they behave and care for the young.
  - d. Discuss and to apply the fostering process with the farmer. How often is it done?
  - e. Ask the farmer to discuss the criteria of culling process and the criteria used to decide which rabbits are culled and which remain on the farm to reproduce.
3. Upon returning to the classroom, share your experiences with the class.



### **Points to Remember**

- A rabbit pregnancy lasts approximately 30 days during which the doe needs quiet.
- If a doe stops feeding her young, they can be fostered with another lactating doe.
- A doe can become pregnant again within a few days of giving birth. This is not good practice!
- To maximize breeding, a farm should have a reserve of mature does ready for mating rather than mating a recently kindled (having given birth) doe.





## **Formative Assessment**

Read and respond to the following questions.

1. How long, on average, is a rabbit pregnancy?
2. How do you know a doe is pregnant?
3. How many rabbits can a doe rear successfully?
4. What should you do with any extra baby rabbits that the mother does not feed?
5. Which criteria can be used to identify a good breeding does?
6. How can you avoid in-breeding?



## Self-Reflection

1. You have come to the end of the unit. You will repeat the survey you did at the beginning of the unit to help you self-assess your knowledge, skills and attitudes.

Again, there are no right or wrong answers to this survey. It is for your own use to gauge your knowledge, skills and attitudes after the unit. Read the Knowledge, Skill or Attitude in the left column. Think about yourself: do you think you can do this? How well? Read the statements across the top. Put a check in column that best represents your situation.

My experience	I don't have any experience doing this.	I know a little about this.	I have some experience doing this.	I have a lot of experience with this.	I am confident in my ability to do this.
Knowledge, skills, and attitudes					
Identify rabbit breeds based on their characteristics					
Identify rabbit selection criteria					
Characterize rabbit breeds according to their end use					
Select buck and doe rabbits					
Manage bucks in line with farming requirements					
Detect when doe is in heat					
Conduct mating process					
Manage pregnant rabbit					
Manage the kindling (birth)					
Prepare the nest					
Take care of the mother after kindling					

<b>My experience</b>	<b>I don't have any experience doing this.</b>	<b>I know a little about this.</b>	<b>I have some experience doing this.</b>	<b>I have a lot of experience with this.</b>	<b>I am confident in my ability to do this.</b>
<b>Knowledge, skills, and attitudes</b>					
Take care of the kits until weaning					

2. Complete the table below by identifying areas from the unit where you have improved and where you need improvement with the actions/strategies you will use to help you improve when receiving and interpreting information at the workplace.

<b>Areas of strength</b>	<b>Areas for improvement</b>	<b>Actions to be taken to improve</b>
<b>1.</b>	<b>1.</b>	<b>1.</b>
<b>2.</b>	<b>2.</b>	<b>2.</b>

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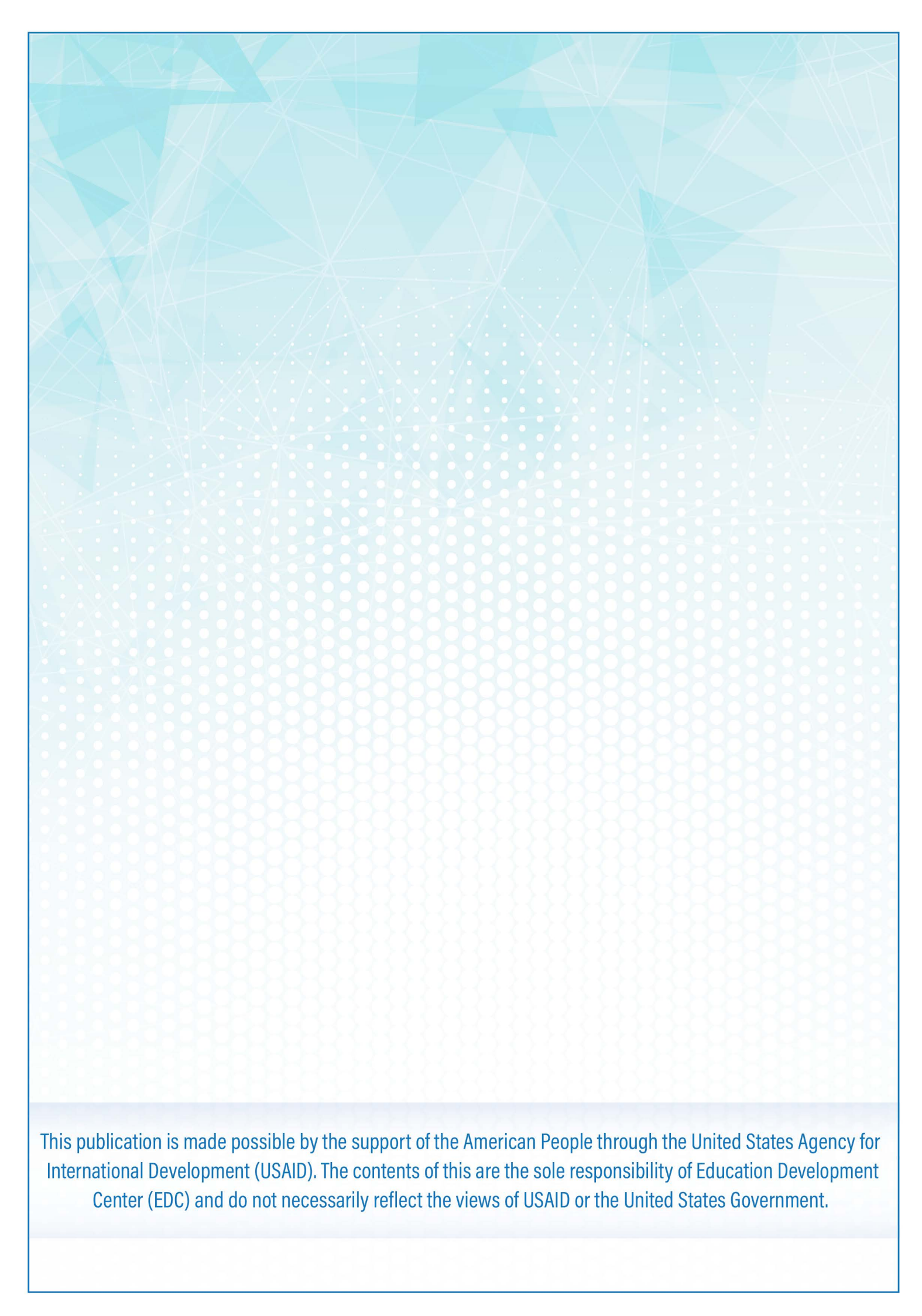
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