

Unit E: Other Poultry

Lesson 2: Exploring the Duck Industry

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

1. Describe the types of ducks raised in Afghanistan.
2. Explain how to feed ducks.
3. Manage the breeding duck flock.

Recommended Teaching Time: 2 hours

Recommended Resources: The following resources may be useful in teaching this lesson:

- A PowerPoint has also been developed for use with this lesson plan
- <http://animalscience.ucdavis.edu/avian/ducks.pdf>
- <ftp://ftp.fao.org/docrep/fao/010/t0314e/t0314e.pdf>
- <ftp://ftp.fao.org/docrep/fao/010/w1833e/w1833e00.pdf>
- http://en.wikipedia.org/wiki/Muscovy_Duck
- http://en.wikipedia.org/wiki/Pekin_duck

List of Equipment, Tools, Supplies, and Facilities

Writing surface
PowerPoint Projector
PowerPoint Slides
Live ducks (optional)
Copies of Student Worksheets

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. A possible approach is included here.

Show a picture of a duck (PowerPoint slide #2) or bring a duck into the classroom. Ask the class to brainstorm ideas about how ducks are different and similar to other poultry. Discuss items such as feed, housing and growth. Use this discussion to lead into Objective 1.

Summary of Content and Teaching Strategies

Objective 1: Describe the types of ducks raised in Afghanistan.

(PowerPoint Slide #3)

- I. There are many types of ducks throughout the world and in Afghanistan.
 - A. Both domesticated and wild ducks exist throughout the world.
 - 1. Ducks are a part of the *Anatidae* family.
 - 2. They are smaller than geese and are usually aquatic.
 - B. The most common ducks in Afghanistan are as follows:

(PowerPoint Slide #4)

- 1. The Pekin duck (*Anas peking*)
 - a. The Pekin duck is bred from a wild mallard found in China.
 - i. Pekins are used for meat and egg production.
 - ii. This duck serves as an important food source in many Chinese dishes.
 - b. Mature adults weight between 3.6 and 5 kgs.
 - c. They are predominantly white with orange beaks and feet.
- d. They will live for about 9 to 12 years.
- e. Pekins produce about 200 eggs a year and will usually only lay one egg a day if they are not otherwise hatching.
 - i. Pekin ducks are generally less broody than other birds and will leave their nest more frequently.

(PowerPoint Slide #6) This slide shows pictures of Pekin ducks. Ask the students to identify the physical characteristics of the duck they see in the pictures.

(PowerPoint Slide #7)

- 2. Muscovy duck (*Cairina moschata*)
 - a. Despite their name, Muscovy ducks originated in Mexico and Central and South America
 - b. All Muscovy Ducks have long claws on their feet and a wide flat tail.
 - i. The drake (male) is about 86 cm long and weighs 4.6-6.8 kg, while the hen (female) is much smaller, at 64 cm in length and 2.7-3.6 kg in weight; domesticated males often weigh up to 8 kg (17 lb), and domesticated females up to 5 kg.

(PowerPoint Slide #8)

- c. The wild Muscovy Duck is blackish, with large white wing patches.
 - i. Domesticated birds may look similar; most are dark brown or black mixed with white, particularly on the head.
 - ii. Other colors such as lavender or all-white are also seen.
- d. Both sexes have a nude black-and-red or all-red face; the drake also has pronounced caruncles at the base of the bill and a low erectile crest of feathers.

(PowerPoint Slide #9)

- e. *C. moschata* ducklings are mostly yellow with buff-brown markings on the tail and wings.
 - i. Some domesticated ducklings have a dark head and blue eyes, others a light brown crown and dark markings on their nape.
- f. They are agile and speedy.

(PowerPoint Slide #10) This slide shows two Muscovy ducks. Ask the students to identify physical characteristics of the ducks they notice in the pictures.

(PowerPoint Slide #11) This slide shows a Muscovy duckling.

(PowerPoint Slide #12)

3. Other common duck breeds of Afghanistan include:
 - a. Laghmani duck
 - b. Noorstani duck
 - c. Pakistani duck
 - d. Watani duck

(PowerPoint Slide #13)

- C. Choosing ducks right for your operation depends upon the reason they are being raised.
 1. Ducks used for meat only are short and fat while ducks for eggs only are tall and lean.
 2. Ducks used for both meat and eggs have a body shape in between these two.

(PowerPoint Slide #14) This slide shows a comparison of duck body shapes and sizes based on what they are grown to produce.

Provide students with copies of WS: E2-1 and colored pencils or crayons. Have the students color a sheet for the drake and hen of Pekin and Muscovy breeds. On another sheet allow them to pick between the common breeds of Afghanistan. The coloring does not have to be exact, as long as they get the main body color, eye color and any colors significant to the breed. They should color for both drake and hen of the breeds. Show the pictures in the PowerPoint to the students as they need in order to refresh their memory.

Objective 2: Explain how to feed ducks.

(PowerPoint Slide #15)

- II. High quality pelleted feed is important to maximize the growth rate and feed efficiency of ducks.
 - A. Performance will decrease as the amount of fines in a pelleted feed increases.
 1. Commercial pellet binders are often used to limit fines and improve pellet integrity.
 2. Although ducks can be fed mash feed, growth performance will be reduced by about 10% in comparison to that of ducks fed pelleted feed and feed wastage will be increased.

(PowerPoint Slide #16)

- B. Ducklings should be fed a starter diet from hatch to 2 weeks of age.
 1. The starter diet should be fed as 3.18 mm diameter pellets or as crumbles.
 2. After 2 weeks of age, feed a grower diet as 4.76 mm diameter pellets.

(PowerPoint Slide #17)

- C. Because young ducklings grow rapidly, they should have adequate floor, feeder, and waterer space.
 1. For the first three weeks, allow 0.6 square meters of space per duckling on wire and .09 square meters per duckling on litter.
 2. If confinement rearing is practiced, increase the floor space to 0.23 square meters per duckling through 7 weeks of age.

(PowerPoint Slide #18)

3. Ducks should be given at least 3.8 linear centimeters of feeder space and 1.27 linear centimeters of waterer space per duckling at all times.
 4. Larger ducks such as the Muscovy may require some additional space.

(PowerPoint Slide #19)

- D. Growing ducks should be allowed free access to feed and water at all times.
 1. Proper feeder and waterer height, maintenance and sanitation are essential for achieving uniform flock growth and health.
 2. Small feeders should be used until the ducklings are 2 weeks of age.
 3. Larger feed hoppers should be used for older ducks.

(PowerPoint Slide #20)

4. The feeder pan height should be at a level even with the back of the average duck.
5. Waterer pan height should be even with the lower neck area of the average duck.
 - a. Feeders and waterers that are too low result in excessive wastage.
 - b. Those that are too high restrict feed and water access to the smallest ducks and thus increase size variation in the flock.

(PowerPoint Slide #21) This slide shows a duckling drinking at a waterer. Notice that the waterer is even with the lower neck of the duckling. As the ducks mature, the waterers can be raised.

Refer back to the students' answers from the interest approach. Ask them if their ideas about how to raise ducks were correct. Discuss again the differences between ducks and other species of poultry.

Objective 3: Manage the breeding duck flock.

(PowerPoint Slide #22)

- III. Managing the ducks used to improve your flock will benefit both your production and your birds.
- A. Select stock from flocks hatched in April and May.
 1. Using males from early flocks will help insure their readiness for mating for the start of the following year.
 2. Choose vigorous birds with good weight, conformation, and feathering before marketing the young flock.
 3. Keep one male for each 5 to 6 females.

(PowerPoint Slide #23)

- B. Young birds should be selected only from families with good egg production, hatchability, and fertility records.
 1. Identification of males and females is necessary when selecting birds for breeder flocks and for exhibition.
 2. Even in breeds that have a sex-differentiated color pattern, both sexes may resemble each other in their summer plumage.

(PowerPoint Slide #24)

- C. Ducks and geese can be sexed by evertting the vent and examining the reproductive organs.
 1. This practice requires some experience and may be more easily done with day-old birds or during the breeding season.
 2. In some breeds mature males develop characteristic curled feathers at the base of the tail.
 3. After about 6 weeks of age, the sounds ducks make can be a clue to their sex.
 - a. Females have a more definite sharp quack, while males have a sound which is not nearly so loud or harsh but more of a muffled sound.

(PowerPoint Slide #25)

- D. Birds held for breeders must be kept from becoming too fat.
 1. The breeder-developer ration fed during the holding period should contain less energy than starter and grower rations.
 2. If the grower ration is continued during the holding period, gradually restrict feed to about 70 percent of the amount fed at the start.

(PowerPoint Slide #26)

- E. Change to a breeder-laying ration about 1 month before egg production starts.
 - 1. Don't bring birds into production before 7 months of age.
 - 2. Feeding oystershell is optional to improve eggshell quality.
 - 3. Increasing day length with lighting stimulates egg production.
 - a. Provide a 14-hour day 3 weeks before the desired egg production date.
 - b. The flock should be laying at a high rate of production within 5 to 6 weeks.
 - c. Meat-type breeds should remain above 50 percent production for about 5 months.

(PowerPoint Slide #27)

- 4. Provide breeders with a clean, dry, well-ventilated shed or house.
 - a. Allow 1.5 to 1.8 meters of floor space per bird.
 - b. Birds are often confined at night to get a maximum number of eggs and then allowed daytime access to the yard.
 - c. Provide floor level nest boxes.
- 5. Most eggs are laid in early morning.
 - a. Gather eggs about 7 a.m. and let the birds out of the house.
- 6. If some birds stay on the nests, a second collection can be made later in the day.

(PowerPoint Slide #28)

- F. Clean, dry litter and nesting material will help produce clean eggs.
 - 1. Soiled eggs should be cleaned soon after gathering.
 - 2. They should be washed in warm water (at least 6 degrees C warmer than the eggs) containing an egg cleaning and sanitizing compound used according to the manufacturer's instructions.

(PowerPoint Slide #29)

- G. Store eggs for hatching at 12.7 degrees C and a relative humidity of 75 percent.
 - 1. Eggs stored longer than 2 weeks may decline in hatchability.
 - 2. If stored more than a week, turn eggs daily to prevent yolks from sticking to shells.

(PowerPoint Slide #30) This slide shows a comparison between a duck egg (on the left) and a chicken egg (on the right).

Find duck eggs to hatch in the classroom. Alternately, invite somebody who raises ducks into the classroom to discuss their duck production methods.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used to determine which objectives need to be reviewed or re-taught with a different approach. Questions on **PowerPoint Slide #31** can also be used.

Application: Have the students pick a breed of duck. The duck can be common to Afghanistan or grown anywhere in the world. Provide them with books and internet access and have them write a report about their duck breed. The two resources from the FAO listed in the resources will be very helpful. A rubric is attached to this lesson (WS: E2-2) for grading purposes.

Evaluation: Evaluation should focus on student achievement of this lesson's objectives. A sample written test is attached.

Answers to Sample Test:

Part One: Short Answer

1. Ducks used for meat only are short and fat while ducks for eggs only are tall and lean. Ducks used for both meat and eggs have a body shape in between these two.
2. Ducklings should be fed a starter ration from hatch until two weeks of age.
3. Using males from early flocks will help insure their readiness for mating for the start of the following year.
4. One male should be kept for every 5 to 6 females.
5. Females have a more definite sharp quack, while males have a sound which is not nearly so loud or harsh but more of a muffled sound.
6. Egg layer rations should be fed one month before egg production begins.

Part Two: True or False

7. False
8. False
9. True
10. False

Test

Unit E Lesson 2: Exploring the Duck Industry**Part One: Short Answer**

Instructions: Provide a short statement to correctly answer the question.

1. What are the differences between ducks grown for meat, grown for eggs and grown for both?

2. How long should ducklings be fed a starter diet?

3. When choosing mating males, why should stock from early flocks be chosen?

4. How many males should be kept for every 5 to 6 females?

5. What are the differences in quacking sounds between male and female ducks?

6. How soon before egg production should an egg layer ration be fed?

Part Two: True or False

Instructions: If the statement is true, write a T in the blank, if it is false, write an F in the blank.

- _____ 7. Muscovy ducks originated in Russia.
- _____ 8. Birds held for breeders should be fattened.
- _____ 9. Ducks are considered aquatic and need a source of water in which to swim.
- _____ 10. Ducks do not respond to day length when producing eggs.

Duck Breeds



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Duck Report Rubric

Item	3	2	1	Total
Breed Identified: -Latin and Common name -Origination	All information is included and detailed.	Information is included but is missing some detail	Missing important information or data	
Physical Characteristics -Color -Size -Weight	Discusses physical characteristics in depth for both drake and hen	Information is covered but some is missing	Missing most of the important information	
Breeding and Hatching -Differences between drake and hen -Requirements for egg hatching	Breeding and hatching is thoroughly discussed	Missing some pertinent information	Not covered extensively or missing information	
Feeding -Feed ratios discussed -Feeds identified for different stages of development	All aspects of feeding are covered	Missing some pertinent information	Not covered extensively or missing information	
Report Mechanics -Sentence structure -Spelling -Grammar -Punctuation	Punctuation and capitalization are correct .	There is one error in punctuation and/or capitalization.	There are two or three errors in punctuation and/or capitalization.	
Picture	Pictures of drake, hen and duckling are shown.	Missing one of the three	Missing 2 of the three	