

Unit A: Understanding Horticulture

Lesson 2: Determining the Importance of the Horticulture Industry

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

1. Describe the popularity of horticulture.
2. Explain the importance of the ornamental horticulture industry.
3. Explain the importance of the olericulture industry.
4. Explain the importance of the pomology industry.

Recommended Teaching Time: 2 hours

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

1. A PowerPoint has also been developed for use with this lesson plan
2. www.icarda.cgiar.org/afghanistan/Pdf/NA_Horticulture.pdf

List of Equipment, Tools, Supplies, and Facilities:

Writing surface

PowerPoint Projector

PowerPoint slides

Lab sheet

Index cards with a list of plants on them (see the bottom of Objective 1)

Tape

Terms: The following terms are presented in this lesson (shown in bold italics and on PowerPoint Slide 2):

- Floral production
- Floriculture
- Landscape horticulture
- Olericulture
- Pomology

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.

Begin the lesson by having each student take turns giving an example of a vegetable, fruit, and nut that would be grown in Afghanistan. List these on the

board. Point out the variety of products that can be found in the local marketplace. Use this to lead into the first objective.

Summary of Content and Teaching Strategies

Objective 1: Describe the popularity of horticulture.

(PowerPoint Slide 3)

I. Horticulture is popular and important in all societies, both rich and poor.

A. The popularity of horticulture has had many advantages. An increase in jobs, increase in food for humans and animals, and an increase in aesthetic pleasure are just some of the advantages.

(PowerPoint Slide 4)

B. Afghanistan's environmental conditions are highly favorable for many tree crops, vegetable species and seed production.

1. There are a large number of endemic horticultural species while the wide range of agro-ecological zones provides a long season of consistent supply.
2. Afghanistan is a unique center of genetic diversity and of great value to the international horticulture community.

(PowerPoint Slide 5)

3. Carrot, radish, cherry, plum, apricot, peach, pear, apple, walnut, pistachio, fig, grape, pomegranate, melon, almond, are among the species present across the country and likely provide a unique array of useful agro-botanical traits.
4. Horticultural crops are relatively water-efficient, contribute to significant production diversification and are a source of much needed nutrients for the population.
5. Horticulture is land and labor intensive which is an advantage for poor farmers and sharecroppers. Cottage industry processing of horticultural products generates income for women and families.

(PowerPoint Slide 6)

C. Horticulture crops are in a strong position to support food security and the rehabilitation of Afghan rural economy because:

1. Most Afghan farmers are already familiar with horticulture crops and are very receptive to innovative extension messages when their immediate interests are obvious.

(PowerPoint Slide 7)

2. Horticulture crops represent a wide range of species that can be grown in the diverse agro-ecological zones inside the country over an extended period during the year that can be extended further if crops are grown under protected cultivation, e.g. plastic tunnels
3. Horticulture crop production is land and labor intensive, which creates employment.

(PowerPoint Slide 8)

4. Horticulture crop cultivation is a high income generating activity; this is an advantage for poor farmers and sharecroppers looking to generate income.
5. Horticulture crops are relatively water-efficient (income per unit water consumed), which is an advantage in Afghanistan where water is a limited resource.

(PowerPoint Slide 9)

6. Horticulture crops include a wide range of short cycle crops (vegetables) and perennial crops (fruits and nuts), the combination of which (e.g. through intercropping and mixed farming systems) makes a horticulture-based farming systems economically diverse, nutritionally balanced, and environmentally sustainable.
7. Peri-urban horticulture crop production contributes to creating job opportunities for urban and peri-urban populations while contributing to alleviation of poverty and malnutrition in urban areas.

(PowerPoint Slide 10)

8. Cottage industries that provide packaging and processing of horticulture products diversifies income generation and is amenable to disadvantaged groups (i.e., women, disabled) and provides additional income security for families.
9. There is a high demand for a wide range of horticultural products on regional export markets.

(PowerPoint Slide 11)

- D. Considering the regional reputation for high-quality produce and the expanding global opportunities, horticulture can once again become a source for export earnings.

**** Before class write down on index cards the name of different plants that you can find in Afghanistan. Make sure you write down plants from each horticultural segment (ornamental, olericulture, and pomology). Tape the index cards around the room. On the board you will need to write the three segments down into separate columns. After you have completed objective one, tell the students the following directions:**

“When I say go, you will each quietly find an index card located around the room. You will need to read that index card to yourself and figure out what horticultural segment it belongs under. Once you think you have figured it out, tape it to the board. What are the questions?” (If there are none, say “GO”)

Once this activity is complete, review where the students put their index cards. Correct any of them that are wrong. Explain to them why they are wrong. Use this to lead into the rest of the objectives.

Objective 2: Explain the importance of the ornamental horticulture industry.
(PowerPoint Slide 12)

- II. The ornamental horticulture industry is made up of two important segments.
- A. One is **floriculture**, the culture of flowers. Floriculture is an international, multibillion dollar industry. Floriculture includes the production, distribution, and processing of flowering and foliage plants.

(PowerPoint Slide 13)

1. **Floral production** is the growing of flowering or foliage crops to maturity. Once mature they are sold. Mature plants can be sold as cut flowers or foliage, potted flowering plants, foliage plants, or bedding plants

(PowerPoint Slide 14)

- B. The other segment is **landscape horticulture**, producing and using plants to beautify the environment.
- C Some common ornamental plants that are sold in Afghanistan include Petunias, Hoary stock, Mexican asters, Roses, Iris, and Daffodil.

(PowerPoint Slide 15)

- D. There is money that can be made selling ornamental crops. The following examples are of people in Kabul managing their own horticultural operation.

(PowerPoint Slide 16 and 17)

1. Owner is living in Kabul and selling plants from his own greenhouse (20 x 8m). Besides the potted flowers, he provides seeds, ornamental bushes, tree samples and vegetables. If the demand increases, he purchases the extra products from other farmers. The potted flowers are sold for 50 – 3,000 AFA per piece. His annual net profit was about 120,000 AFA.

(PowerPoint Slide 18 and 19)

2. Owner is living in Kabul and selling plants from his own 3 greenhouses (10 x 6m; 6 x 3m and 5 x 2m). Besides the potted flowers, he provides seeds and ornamental bushes. If the demand increases, he purchases the extra products from other farmers. The potted flowers are sold for 20 – 3,000 AFA per piece. His annual net profit was about 150,000 AFA

(PowerPoint Slide 20 and 21)

3. Owner is living in Kabul and selling just the cut flowers in his shop. He is purchasing them from the greenhouses in Kabul and in the surrounding area. He is importing the cut flowers from Pakistan during winter. They also sell the artificial flowers. The cut flowers are sold 3 – 30 AFA per piece. His annual net profit varied from 100,000 AFA to 200,000 AFA.

(PowerPoint Slide 22 and 23)

4. Owner is living in Kabul and selling plants from his own 2 greenhouses (20 x 10m). Besides the potted flowers, he is producing ornamental bushes and coniferous trees. His annual net profit varied from 200,000 to 300,000 AFA.

*****Have examples of cut flowers and foliage, potted flowering plants, foliage plants and bedding plants for the students to see. Or, have several horticultural magazines or catalogs available for students to view pictures of these items. Magazines and books can also be helpful in showing examples of landscape designs***

Objective 3: Explain the importance of the olericulture industry.

(PowerPoint Slide 24)

III. **Olericulture** is the area of horticulture that involves the production of vegetable food crops. Vegetables are not only important to our daily nutrition, they are also important to the economy.

(PowerPoint Slide 25)

A. Vegetables are important protective food and highly beneficial for the maintenance of health and prevention of disease. They contain valuable food ingredients which can be successfully utilized to build up and repair the body.

1. Vegetables play a significant role in human nutrition, especially as sources of vitamins (C, A, B6, thiamine, niacin, E), minerals, and dietary fiber.

(PowerPoint Slide 26)

B. Vegetables - potatoes, tomatoes, okra, eggplants, onions and carrots - are usually grown for domestic consumption inside rural and peri-urban compounds. There is some commercial production in Farah, Ghazni, Kabul and Nangarhar provinces, and farmers usually maintain seed stocks for the following season.

(PowerPoint Slide 27)

C. The major vegetable crops in Afghanistan include melon, watermelon, onion, potato and tomato, with these five species representing 87.4 % of the total area under vegetable cultivation: (There is a graph representing this on the PowerPoint)

*****PowerPoint Slide 28 shows the most common vegetables grown in each province. Show this to your class, and talk about how this might affect each area economically. Ask the students if they grow any vegetable crops and have them explain their operation.***

*****Review the original list of vegetable examples compiled at the beginning of the lesson. Ask students to think about how many of these vegetables they've sampled or have eaten today. Ask how many of these vegetables had they not heard of before today.***

Objective 4: Explain the importance of the pomology industry.

(PowerPoint Slide 29)

IV. **Pomology** is the area of horticulture that involves the production of fruit and nut crops.

A. Fruit and nuts play an important role in our lives. Not only do they improve our nutrition and food security status, but they are also ideal products for industrialization, processing and marketing. The high value that fruits and nuts represent gives opportunity for the afghan farmer to generate income if given access to local and export markets.

(PowerPoint Slide 30)

B. Despite the enormous potential of Afghanistan for tree fruit production, under the current circumstances not very many of the orchards are currently of significant economic importance for farmers. The few surviving commercial orchards are poorly managed, productivity in general is low and—with a few exceptions—they generate little income (e.g. US\$200/jerib/year).

(PowerPoint Slide 31)

C. However if managed properly income could increase significantly. An example of this would be a orchard that is located in Khas Kunar. The farmer there had been trained to prune, fertilize, and attack fungal diseases and pests. It was reported that the owner had sold the production from his 3-jerib farm in bulk with a gross revenue of AFA 225,000 depicting the potential for the establishment of fruit orchards.

(PowerPoint Slide 32)

D. The major fruit crops and vines include: grapes, almond, apricots, pomegranate and apples trees, covering a total of 95.9% of all orchards/vineyards: (There is a graph representing this on the PowerPoint)

*****PowerPoint Slide 33 shows the most common vegetables grown in each province. Show this to your class, and talk about how this might affect each area economically. Ask the students if they grow any fruit or nut crops and have them explain their operation.***

*****Copy the crop names that are listed on the graph on to the board. Have the students get with a partner, and rank the crops. They are going to rank the crops which they think generate the least income to the most income. Once all groups have finished their list, have the groups share. Have them tell you why they placed them the way they did. Then show them the graph on PowerPoint 34. Explain to them that the graph shows the average gross income of horticultural and other agricultural crops as compared to wheat.***

Review/Summary: Summarize the lesson by reviewing the student learning objectives. The objectives can be used as student review questions.

If students had a problem with the note card activity, you may chose to do this again now that you have reviewed it again.

Application: The following student activities can be used to apply the student learning objectives: LS: A2–1—Determining the Importance of the Horticulture Industry.

Evaluation: Evaluation should be based on student comprehension of the student learning objectives. This can be determined using the attached sample written test.

Answers to Sample Test:

Part One: Matching

- | | |
|------|------|
| 1. b | 4. a |
| 2. d | 5. f |
| 3. e | 6. c |

Part Two: Completion

1. floriculture, landscape horticulture
2. fruit
3. nutrition, economy

Part Three: Short Answer

1. increase in jobs, food for people and animals, increase in aesthetic pleasure are just a few. Look up other answers in Objective 1.

Test

Unit A: Lesson 2: Determining the Importance of the Horticulture Industry

Part One: Matching

Instructions. Match the term with the correct response. Write the letter of the term by the definition.

- | | |
|----------------------|---------------------------|
| a. floral production | d. vegetables |
| b. olericulture | e. floriculture |
| c. pomology | f. landscape horticulture |

- _____ 1. Area of horticulture that involves the production of vegetable crops
- _____ 2. Usually grown for domestic consumption inside rural and peri-urban compounds; potato is an example
- _____ 3. The culture of flowers
- _____ 4. Growing of flowers or foliage plants
- _____ 5. Producing and using plants to beautify the environment
- _____ 6. Area of horticulture that involves fruit and nut production

Part Two: Completion

Instructions. Provide the word or words to complete the following statements.

1. The ornamental horticulture industry is made up of two important segments. One is _____, the other is _____.
2. _____ production utilizes land unusable by other crops.
3. Vegetables are important to both our _____ and our _____.

Part Three: Short Answer

Instructions. Provide information to answer the following question.
What are the advantages to the popularity of horticulture?

Lab Sheet

Unit A Lesson 2: Determining the Importance of the Horticulture Industry

Instructions: Select several examples of vegetable, fruit, and nut products from three grocery advertisements. If grocery advertisements are not available, another alternative is to go to local markets and ask for prices. Fill in the following chart with the information you find. Answer the questions that follow.

Product	Price at			Price Difference
	Location A	Location B	Location C	
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

1. Which product had the greatest price difference? What do you think caused this difference to be greater than the other products?

2. How can the differences in prices between all of the food products be explained?