



Basic Vegetable Gardening

Lesson 15: Storage and Preservation

Lesson Summary: Members will learn about several different ways storing and preserving vegetables and fruit. They will discuss a plan for preserving their garden produce (if they are not selling or eating it right away).

Intended Learning Outcomes:

Members will understand why it may be good to preserve and store produce.
Members will know several different ways of preserving and storing produce.

Length: 40 minutes

Materials:

Chalkboard
Member notebooks and pens/pencils

Hint: Home Economics teachers from the extension service or other organizations might be good resources for this lesson topic. They might come to a meeting to demonstrate food storage and preservation methods best for the culture and climate.

Background: Many people eat or sell their garden produce right after it is harvested. However, post-harvest loss can be lowered with proper food storage and preservation.

Lesson Steps

1. (5 minutes) – Introduction

Today the group will learn how to store and preserve garden produce. It is important to store produce the right way so that it can be eaten many months after it has been harvested. Good storage can help keep the quality of food so it can bring a higher price if sold in the market.

2. (15 minutes) – Learning how to store and preserve produce

2.1 Introduce the need to store food well.

Ask members if they have ever eaten produce after the growing season has finished. Have the members share stories about what kind of produce they have eaten and if they remember how it was stored.

Tell members that produce can be stored for a long time after it is picked, if it is stored the right way. Sweet potatoes or cassava are examples of foods stored for a long time. Discuss the steps for this.

Preserving and storing garden crops helps to improve food security for everyone. By setting foods aside there is more to eat during the “hunger season” when the climate does not allow for good gardening. The price of food is also higher when supply is low in the off-season. This is good for people who have food to sell, but bad for those who need to buy food.



2.2 (10 minutes) Discuss ways to store food.

A variety of processes are good for garden crops. Besides keeping foods edible for longer periods of time, foods that are properly preserved keep much of their nutritional quality and remain disease-free longer.

The most effective way to keep vegetables longer is to store them in a cool place with high humidity. This climate or condition may be a challenge in Africa.

Preservation Methods for Some Common Fruits and Vegetables		
Method	How to	Examples
Curing	Lay out vegetables in an airy, shady place for a few days after harvesting. This thickens the skins and protects the soft vegetable inside.	onion, sweet potato, pumpkin, yam
Simple drying and storing	Dry oil seeds or legumes/beans on the plant or on racks. Store seeds in a protected place that is cool and dry.	beans, peas, pumpkin seeds, sunflower seeds, grains
Shade or solar drying	a) Dry fruits and vegetables in strips or slices in the shade or in a solar drier (a frame with a sheet plastic cover). Some fruits are blanched first in steam or boiling water to improve keeping, flavor and appearance. b) Some fruits are cooked and pulped, then dried to make fruit "leather."	a) banana, green leafy vegetables, guava, mango, okra, tomato b) mango, pumpkin pulp
Flour	Dry food well, pound into flour, and sieve.	banana, breadfruit, cowpea, pumpkin, sweet potato
Pickling	Many vegetables can be fermented, with or without salt, and then stored in salt water, vinegar or oil.	cabbage, cucumber
Earth storage	Root vegetables in particular can be stored for several months below ground, where they remain cool.	beetroot, cabbage, carrot, potato, sweet potato
Bottling, canning and freezing are common methods of preserving fruits and vegetables but because they require considerable resources these methods may not be practical for many households or schools.		

Look at the chart below with the members and discuss each type of preservation. If possible, have copies for the members to look at. Or, write the main types of preservation on the board and have boys and girls take notes.



2.3 Discuss the science of respiration.

Once picked, vegetables will respire, meaning they use their stored sugars to produce carbon dioxide and heat. The more rapid the rate of respiration, the faster a vegetable will use up the stored food supply, the greater the heat produced, and the shorter the post-harvest life of a food. Foods with lower respiration rates can be stored longer. The chart below shows how respiration rates vary among foods.

Respiration Rates for Some Common Fruits and Vegetables	
Very low	dried fruits, nuts
Low	apples, garlic, grapes, onions, potatoes (mature Irish potatoes), sweet potatoes
Moderate	cabbages, carrots, lettuce, peppers (green and red), potatoes (immature Irish potatoes), tomatoes
High	beans (French beans, green beans), green onions
Extremely high	corn, mushrooms, peas

3. (10 minutes) – Discuss a plan with the members.

Thinking about your garden, discuss any plans your group may have to preserve some of the produce. If you harvested or plan to harvest a large crop of a certain fruit or vegetable, you may think about storing it by using one of the preservation methods in the chart above.

Have the group make their own chart, matching the vegetables and fruits they grow with a possible preservation method.

Discuss how you might make more money from garden sales by preserving or storing food to sell when prices might be higher.

4. (5 minutes) – Summary and Debrief

Ask the members these questions:

- Why is it important to preserve the produce?
Answer: to preserve nutrition and quality and to have food for the dry or hunger season.
- Why does produce become bad and we cannot eat it after time?
Answer: Foods respire, which changes sugars to carbon dioxide and heat.
- What types of produce are easily stored, and therefore are good to plant a lot of in the garden?
Answer: Dried fruits and tree nuts, garlic, onion, (Irish) potatoes and sweet potatoes have low respiration rates.
- Is it practical to store food in your household? At the school? Why or why not?

5. (1 minute) - Close Tell members when the next lesson will be.

