**Session 9: INTERCROPPING**

**Objectives**

1. To know how to improve soil fertility and to control insects, diseases and weeds through intercropping.
2. To know suitable combinations of crops for intercropping.

**What is intercropping?**

Intercropping is not new to the African farmer. It is simply the practice of growing two or more crops in the same field at the same time. Intercropping generally appears to have positive effects in terms of reducing the occurrence of insect pests, diseases and weeds. By combining crops that have different growth patterns, the available air, water and nutrients can be better utilised.

**What is the difference between crop rotation and intercropping?**

Are you intercropping in your field?

**Legumes improve soil fertility**

If your soil is showing signs of poor fertility you should consider intercropping with a legume. Planted as a green manure crop, the legume is grown in combination with the main crop. Intercropping of legumes and non-legumes is known to be beneficial as the legume releases nutrients to the non-legume.
To prevent competition for nutrients the legume crop should be sown later than the main crop. One such example is to plant sunnhemp after the second weeding of maize and then allow both to grow in the same field. This is possible even in a short season because the green manure plant does not have to mature fully.

**A common combination is a grain crop grown together with a bean crop. Why do you think this combination is so common? Think of the advantages of growing tall row crops with low, ground covering plants. Discuss the need for sharing sun, rain, and nutrients.**

**Repellents to keep away pests**

Repellents are strong-smelling plants containing chemicals that keep away many pests. Plant rosemary, lavender and lemon grass on the edges of gardens or around the base of fruit trees. Prune the leaves for strong-smelling mulch. Sunnhemp repels nematodes. Vetiver and lemon grass repel soil insects and moles. Other strong-smelling plants are marigolds, khaki weed, nasturtiums, marjoram, basil, onions and garlic.

**Crops to trap pests**

Trap crops are grown to attract pests to them and away from your main crop. Aphids will collect on milkweed, marigolds and cowpeas rather than on crops. Always leave some of these plants in vegetable beds. Sunnhemp is a trap crop for armyworm.

**Attract good predators**

Not all insects attack crops. Many animals and insects help improve
soil tilth and some of them, called predators, eat pests which destroy our plants. Such insects include ladybird, praying mantis, assassin bugs, parasitic and predatory wasps. Useful insects can be attracted by growing flowers such as marigolds, calendula, daisies, dandelions, dill, fennel, carrots and elderflower within a crop.

**Save on labour**

Intercropping also promotes efficient utilisation of manure and labour. The time spent weeding is often the main factor that limits the size of the farm. Most intercrop combinations help suppress weed growth by providing an early ground cover. If you plant maize with a crop like melon you will find that the melon grows quickly and that most of the spaces between rows are covered by crops. Another advantage is that in many intercropping systems you will plant the second crop as you are weeding the first one. By so doing, you will reduce the time spent on weeding alone.

**Types of intercrops and their benefits**

**Mixed intercropping**

Mixed intercropping is the growing of two or more plants at the same time without row arrangement. Pumpkins, okra, cowpeas and cucumbers may be grown in one field.

*Mixed intercropping with maize, cowpeas and pumpkin*
Mixed intercropping makes it difficult for pests to locate the particular crop they want. A pest looking for flowers of cowpeas may find difficulties to locate them by sight or by smelling. Also, the intercrop ensures that the ground is covered, and therefore weeds are suppressed.

**Row intercropping**

This is the growing of two or more crops at the same time where one or more crops are planted in rows. This type of intercrop is ideal for shade loving plants like groundnuts and cowpeas.

A sole crop of cowpeas is normally attacked by a variety of insect pests. If intercropped with maize this problem is greatly reduced as insect pests find it difficult to locate their food. Two rows of maize followed by two rows of cowpeas is a good arrangement.

*Maize and plants that like shade*
Strip intercropping

This is the growing of two or more crops of different families at the same time in small portions arranged side by side. Strip intercropping is ideal for vegetables. It is easier to control pest outbreaks in one strip as this method ensures that crops of the same family are not too near to each other. It is also a good idea to include strong-scented plants in intercrops to deter pests from coming close to your vegetables. Onion, garlic, leek and marigold flowers are good examples of strong-scented plants. You can also include plants to attract beneficial insects and natural enemies. To do so you may plant dill and most flowers in hedges.

Relay intercropping

This is the growing of two or more crops at the same time during part of the life cycle. A second crop is planted after the first one has reached its reproductive stage of growth but before it is ready for harvest. For instance, cowpeas may be planted twice during the lifetime of cassava. The first interplant of cowpea is when the cassava has just been planted. If you plant an improved early-maturing variety of cowpeas it will find a stake where it can support itself. When the cowpea is harvested it will leave nitrogen in the ground for the cassava. The second interplant is done when the cassava is almost mature and shedding its leaves. Note that the cowpeas should not stay for more than three months in the cassava field as it may disturb the growth and development of the cassava. Another example of relay intercropping already discussed is that of maize and sunnhemp.
Multi-storey intercropping

This is the intercropping of tall perennials with shorter bi-annual or annual crops. Maize can be interplanted with trees like Sesbania sesban or Gliricidia sepium. The sesban, which is deep rooted, would be able to draw nutrients from the lower levels in the soil and bring them to upper levels where they can be utilised by maize, which is a shallow-rooted crop. You can also use the basins around trees and spaces between trees in an orchard to grow other crops. This way of planting would ensure that the orchard is kept clean.

1. **What are the advantages and disadvantages of intercropping?**

2. **Give some intercropping examples from your experience.**

3. **Can you think of other examples that might work?**