UNIT 9: THE GREEN REVOLUTION
Objectives

- Upon completion of this unit students should be able to:
  - Define Green revolution
  - Explain the importance of the green revolution
  - Examine the impact of the green revolution
Agriculture today, and its link to the green revolution

- We have converted 38% of Earth’s surface for agriculture, the practice of cultivating soil, producing crops, and raising livestock for human use and consumption.

- Croplands (for growing plant crops) and rangelands (for grazing animal livestock) depend on healthy soil.
What is a Revolution and how can you have a farming revolution?

But what has that got to do with farming?

A revolution is any fundamental change or reversal of conditions, a great and sometimes violent change or innovation.
Green revolution
What is the green revolution

- Aim at increasing yields by using new crop cultivars, irrigation, fertilizer, pesticides and mechanization!
- Transformation of agriculture in many developing nations that led to a significant increase in agricultural production during the 1960’s.
- Transformation resulted from programmes of agricultural research, extension and infrastructural development.
- Spread from Mexico (improvements on Maize and wheat production and India replicated).
- The term was introduced by William Gaud in March 1968.
All right, so there was going to be a great change...

What exactly was this great change?

Great changes, you mean?=
innovations

All right CHANGES..

First of all, there was enclosure, then there was the new machinery such as the seed drill and horse plough, not to mention marling and selective breeding.....
Enclosures?

- This meant enclosing the land.
- The open fields were divided up and everyone who could prove they owned some land would get a share. Dividing the open land into small fields and putting hedges and fences around them. Everyone had their own fields and could use them how they wished.
- Open land and common land would also be enclosed and divided up.
Nothing - if you could prove you owned the land, if you had the money for fences and hedges and if you could afford to pay the commissioners to come and map the land, not to mention the cost of an Act of Parliament.
So did people want to enclose their land?

Well, some did and some didn’t. If they did not agree it was hard luck. If the owners of four fifths of the land agreed they could force an Act of Parliament- there was a great increase in the number of these in the eighteenth century, from 30 a year to 60, then from 1801 to 1810 there were 906, nearly 3 million hectares were enclosed.
Were there winners and losers?

Yes, the better off farmers and landowners gained the most - the rich got richer and the poor got poorer. People who had no written proof of ownership lost their land altogether. Some couldn’t afford to pay for fences and had to sell their land. These people either became labourers on other peoples land or headed for the towns to try and get a job.

One farm labourer said: ‘All I know is that I had a cow and an Act of Parliament has taken it from me.’ There were riots in some villages.
What other new ideas were there?

- Crop rotation
- Marling
- Seed drill
- Publicity
- New ploughs and hoes
Yeah, books were written on farming, there were model farms set up - George III set up one at Windsor.

The Board of Agriculture was set up and Arthur Young, the new secretary, went round the country recording the progress of the revolution and others could read his report to find out more.

Agricultural shows with competitions were held and people could exchange ideas and see the latest things.
But it wasn’t all good news

New machines meant less people were needed to work the land - so there was unemployment, enclosure meant people lost land - this meant losing their homes as they had nowhere to grow food and there was little work - so they moved to towns.

In addition there were change in the way the land looked from open fields to a sort of patchwork quilt. Changes in the shape of a village as people could build on their own land.
Disadvantages of the old system

- People have to walk over your strips to reach theirs.
- Field left fallow.
- No proper drainage.
- No hedges or fences.
- Because land in different fields takes time to get to each field.
- Difficult to take advantage of new farming techniques.
- Animals can trample crops and spread disease.
So what?

So this is an inefficient system and only produces enough food to feed you and your family, there is very little extra.

Towns are growing, the people in towns need feeding so extra food is needed.
What does the Green Revolution have to do with Namibia

Think about the following agriculture issue we face

- Think about poverty
- Think about food security
- Think about the percentage imports from SA

Should we then vigorously pursue green revolution?
What are the areas for green revolution

- Soil erosion
- Irrigation
- Fertilizers
- Overgrazing
Irrigation

- The artificial provision of water to support agriculture
- 70% of all freshwater used by humans is used for irrigation.
- Irrigated land globally covers more area than all of Mexico and Central America combined.
- Irrigation has boosted productivity in many places ... but too much can cause problems.
In **conventional irrigation**, only 40% of the water reaches plants.

Efficient **drip irrigation** targeted to plants conserves water, saves money, and reduces problems like salinization.
Fertilizers

- Supply nutrients to crops

- **Inorganic fertilizers** = mined or synthetically manufactured mineral supplements

- **Organic fertilizers** = animal manure, crop residues, compost, etc.
- When livestock eat too much plant cover on rangelands, impeding plant regrowth

- The contrast between ungrazed and overgrazed land on either side of a fenceline can be striking.
Impact

- What is impact of green revolution on food production and food security
Global food production

World agricultural production has risen faster than human population.
Global food security

- However, the world still has 800 million hungry people, largely due to inadequate distribution.

- And considering soil degradation, can we count on food production continuing to rise?

- Global food security is a goal of scientists and policymakers worldwide.
Nutrition

- **Undernourishment** =
  - too few calories
  - (especially developing world)

- **Overnutrition** =
  - too many calories
  - (especially developed world)

- **Malnutrition** = lack of nutritional requirements
  - (causes numerous diseases, esp. in developing world)
Social changes associated with Green Revolution

- **Political impact**
  - Had effect of weakening socialist movements in many nations.

- **Socio-economic impact**
  - Led to establishment of rural credit institutions.
  - Small emerging farmers went into debt, which resulted in a loss of rights to their farm land.
  - Mechanisation led to a lost of jobs for rural communities.
  - Led to increased class disparities.
  - Rural urban migration – overpopulated cities.
  - New markets for seeds, chemical and fertilizer corporations.

- **Ecological impact**
  - Used of pesticides, chemical and irrigation effect on the enviroment.
Green revolution: Environmental impacts/Ecological impact

- Intensification of agriculture causes environmental harm:
  - Pollution from synthetic fertilizers
  - Pollution from synthetic pesticides
  - Water depleted for irrigation
  - Fossil fuels used for heavy equipment
  - Reduce agricultural biodiversity

- **However**, without the green revolution, much more land would have been converted for agriculture, destroying forests, wetlands, and other ecosystems.
Basic Principles on the Concerns of the Planet

The international Federation of Organic Agriculture Movement (IFOAM, 2005) has developed the Principals of Organic Agriculture through a globally representative participatory process, demonstrating the overarching ideas behind organic production regardless of place, scale. Or standard in use. Theses are as follows:

- The principle of health: Organic Agriculture should sustain and enhance the health of the soil, plants, animals humans and planet.
- The principle of Ecology: Organic agriculture should be based on living ecological and help to sustain them.
- The principle of fairness: Organic Agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities.
- The principle of Care: Organic Agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment.
Benefits of Green revolution in agricultural development

- Increased agricultural production because farmers use improved seed varieties.
- Reduced cost of production because farmers become more efficient.
- Improved food security in developing countries.
THE END!!