

Sustainable Agriculture Factsheet

It is estimated that, globally, one in seven people do not have sufficient food for a healthy and active life, and further progress to achieve food security is needed.

“One of our greatest challenges is increasing food production in a sustainable manner so that everyone can be adequately and nutritiously fed without over-exploiting the Earth’s ecosystems” – UNESCO

As a result of new farming technologies (industrial farming), fewer farmers now produce most of the world’s food. The environmental costs of modern farming systems include the loss of native vegetation and biodiversity, land degradation (e.g. soil erosion and declining soil fertility), and water pollution. The economic and social costs include increased production costs (for chemicals, seeds, fuel, transportation), declining farm incomes, and a loss of services in rural communities. Small farmers unable to survive on the land have moved to urban areas.

The sustainable agriculture movement is growing in an effort to address these environmental, economic and social problems. Sustainable practices are being introduced to farms to improve sustainability, and holistic systems of farming are becoming more acceptable.

Source http://www.unesco.org/education/tlsf/mods/theme_c/mod15.html

What is Sustainable Agriculture?

Sustainable agriculture aims to produce crops and livestock with minimal impact on the environment and attempts to balance the need for food production with the preservation of the environment.

The goals of sustainable agriculture include:

- producing food.
- conserving water.
- reducing the use of fertilisers and pesticides.
- promoting biodiversity.
- maintaining or improving soils health.
- providing stable farm incomes.
- food security.

Farming strategies that are used that help make agriculture more sustainable include:

- growing plants that add soil nutrients – to reduce use of chemicals and nutrients.
- mixing cropping and crop rotation.
- diversified production, e.g. crops and livestock.
- water conservation and management systems to reduce water use, e.g. drip irrigation.
- soil conservation techniques, e.g. no till farming, contour ploughing.

Holistic Approach to Agriculture

Holistic means taking all elements of the environment into account and valuing their interconnections. A holistic approach to agriculture would recognise the linkages between the soil, vegetation, air and water and also consider the farmer's beliefs, ambitions, skills and knowledge, and the economy and society in which the farm operates.

Regenerative Agriculture

Regenerative Agriculture refers to practices that rebuild soil organic matter, restore degraded soil, restore biodiversity, absorb carbon and restore the water cycle. As well as not harming the environment, regenerative farming improves the environment and farm productivity. This in turn benefits communities and economies. By taking a holistic approach, regenerative farming incorporates many of the same techniques as permaculture and organic farming to increase food production. Examples include soil conservation practices such as no tillage, crop rotation and composting to enhance soil fertility, using mobile animal shelters, and growing pasture crops. Healthy soils capture carbon and retain water, addressing two important challenges to food production – climate change and water shortages.

View one of following animations about the importance of good soil and links between healthy soil, the water cycle and climate change:

- The soil story (CO₂, agriculture and climate change – regenerative agriculture)
https://www.youtube.com/watch?v=08T11RKj54g&list=PL_OCfTZ7-XBAjq6lXO5ej6_JHRF1iQIM2
- Soils for food security and climate
https://www.youtube.com/watch?v=AY9YVwJZDvw&list=PL_OCfTZ7-XBAjq6lXO5ej6_JHRF1iQIM2&index=8

Organic Farming

Organic farming is considered less detrimental to the environment than conventional farming because chemical fertilisers, herbicides and pesticides or feed additives for livestock are not used. Manure replaces fertilisers, and in doing so recycles waste and improves the soil. Crop rotation is used because certain crops, such as the legume family (peas and beans) draw nitrogen from the air and increase the nitrates in the soil. This makes the soil much more fertile, and so farmers rotate legumes with their other crops. Labour intensive weeding replaces the use of herbicides.

Organic farming maintains biodiversity because fewer chemicals are used, resulting in more bees and insects on organic farms and healthier soils full of microorganisms. This system was used for one hundred thousand years before the industrial revolution. It is generally thought that organic farming is much better for biodiversity, and also produces a healthier product because less chemicals are used.

Permaculture

Permaculture uses organic farming practices such as using natural fertilisers and planting waste to improve soils and protect the environment. It has all of the benefits of organic farming but goes further to create a self-contained system that includes the family home and farm buildings in its design. Nutrients are transported from a farm when produce goes to market. In permaculture, food is produced where people live to avoid transporting nutrients from the system. Permaculture has become very popular in urban farming and on farms where communities try to be self sufficient. It is considered to be a 'closed system' that retains nutrients and water on the farmland and supports communities with all of their food needs.

Planting for Pollinators

Pollinators, such as bees, are essential to food production. Without pollinators plant and animal based food production systems would face serious decline. Farmers that plant for pollinators play a big part in protecting these highly important animals. Farmers can support pollinators by adding flowering plants to their farms as well as protecting habitats that pollinators could nest in.

Pesticides are also a big problem for pollinators. Farms that avoid using pesticides play a big part in protecting the pollinators that are crucial to the world's food supply.