



The Environmental Benefits of Agroforestry

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The combination of performing annual agricultural activities and delayed long-term production of trees on the same plot of land is described as agro forestry. Achieved by cropping on forested land or planting trees on agricultural land, research has confirmed that agro forestry can be profitable, biologically productive and sustainable.

Types of Agro Forestry

There are various types of agro forestry that are categorized:

- Silvopasture agro forestry
- Silvoarable agro forestry
- Forest forming
- Forest gardening
- Riparian forest buffers
- Windbreaks

Silvopasture Agro Forestry

Silvopasture is a combination of trees with farage and livestock production. Trees provide shelter for livestock and farage which can increase farage production.

Silvoarable Agro Forestry

This combines crop cultivation and forest land. Using this type of agro forestry, farmers can benefit from consistent revenue as well as the aesthetic and environmental benefits.

Forest Farming

Capitalizing on the rainfall amount in the forest and the soil being highly fertile, forest farming is using the natural environment of the forest for the cultivation of crops.

Forest Gardening

Forest gardening is the replacement of wild plants with vegetables, herbs, shrubs and fruit plants.

Riparian Forest Buffers

Vegetation is established along waterways to ensure there is a structurally sound bank. Nutrients and sediments runoff from adjacent fields and can be filtered, protecting the quality of water.

Windbreaks

Windbreaks are another way to make use of agro forestry. Forests are established in the modification of wind flow and microclimate to the surrounding land and harvest fields. These look like borders along land plots and can act as snow fences, pesticide barriers and even odor-drift barriers.

Environmental Benefits of Agro forestry

The environmental benefits of agro forestry are:

- Improving natural resource development: The total crop and wood production from an agroforestry plot is more than the separate production on the same piece of land.
- The greenhouse effect is countered by the constitution of an efficient system for carbon sequestration, by integrating the stock maintenance of organic material in the soil and superimposing a net fixing wooded layer.
- Enables the protection of soil and water especially in sensitive areas
- Enhance biodiversity in the sense that crops are protected by their association with trees stimulating the hyper parasite (parasite of parasites) population of crops
- Off-site benefits from water-table control - An agro forestry system helps decrease the water table and helps reduce the off-site impacts from dry land salinity and water logging
- Flood mitigation - The risk of flooding in large areas is increased by rising water tables. By lowering water tables, this can be reduced and downstream towns can benefit.
- Soil erosion and runoff can be controlled by reducing water loss, soil material, nutrients and organic matter
- Biological activity and soil organic matter can be maintained at satisfactory levels for soil fertility.
- Through organic matter maintenance and the impact of tree roots, physical properties of soil can be maintained.

Other Advantages of Agro forestry

- When compared to conventional forestry systems, agro forestry offers a different land use option.
- Agro forestry has environmental benefits and also has a landscape benefit. Modern versions of agro forestry have adapted to the restrictions imposed from mechanization.
- The agro forestry plot constantly generates revenue for the farmer, enabling the diversification of farm activity and a better use of environmental resources. The benefits of agro forestry can be seen from three different perspectives:

From the Arable Perspective

The benefits from the arable perspective are:

- The activities of arable farmers are diversified by building an inheritance of valuable trees and at the same time, continuing to generate revenue from the plants that have been planted.
- The deep tree roots recover the drained or leached nutrients; the soil is enriched by tree litter and the dead roots of the trees.
- This is an alternative to full reforestation as the continuance of arable activity is permitted.

From the Forestry Perspective

The benefits of agro forestry from the forestry perspective are:

- Wide spacing results in the acceleration of the diameter growth of the trees
- The numbers of trees that have no commercial future are considerably less therefore the capital cost of the plantation is reduced.
- Guaranteed tree care and follow-up - The arable intercropping activity protects against the risk of fire in susceptible areas.
- Agro forestry plantations on arable land enable the development of quality wood resources that compliment products from conventionally exploited forests.

Conclusion

Agro forestry is a combination of forest trees, row crops and livestock and it is surprising that it was not implemented since the agricultural revolution began. In order to adopt agro forestry on a large scale, it needs to overcome the drawbacks.