Agroforestry and Its Role in Soil Conservation and Erosion Protection

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Introduction Agroforestry is a management approach that integrates familiar and new agriculture and forestry practices into land management systems which contribute to diversification and sustainability of production . This practice can be performance by combining annual cultivation with trees production or livestocks in a unit of land as frequent or in unique time , using management procedures which consider suitable cultural and social features of local people , economic and ecologic conditions of region . In this research , during the emphasized on agroforestry charactristics , the roles of soil conservation , are be Investigated . In this field soil conservation has been applied as concept which not only soil erosion control but the maintenance of biologic , chemical and physical soil properties are considered .

Material and methods Soil conservation benefits can be evaluated by the three stage analysis . Stage 1 quantifies the relationship between soil conservation , through agroforestry (A) , and soil quality , (S) . In Stage 2 the effects of changes in soil quality on individual household agricultural production (Y) are estimated . Finally , in Stage 3 these production changes are valued at net market prices .

Results Research confirmed that agroforestry systems can include the following benefits : they can control runoff and soil erosion , thereby reducing losses of water , soil material , organic matter and nutrients .
1 .They can maintain soil organic matter and biological activity at levels satisfactory for soil fertility . This depends on an adequate proportion of trees in the system—normally at least 20% crown cover of trees to maintain organic matter over systems as a whole .
2 .They can maintain more favorable soil physical properties than agriculture , through organic matter maintenance and the effects of tree roots .
3 .They can be employed to reclaim eroded and degraded land .
4 .They can create a healthy environment-interactions from agroforestry practices can enhance the soil , water , air , animal and human resources of the farm . Agroforestry practices may use only 5% of the farming land area yet account for over 50% of the biodiversity , improving wildlife habitat and harboring birds and beneficial insects which feed on crop pests . Tree biodiversity adds variety to the landscape and improves aesthetics .
5 .Agroforestry can augment soil water availability to land-use systems . In dry regions , though , competition between trees and crops is a major problem .
6 .Nitrogen-fixing trees & shrubs can substantially increase nitrogen inputs to agroforestry systems .

Conclusions Research over the past 20 years has confirmed that agroforestry can be more biologically productive , more profitable , and be more sustainable than forestry or agricultural monocultures . Temperate agroforestry systems are already widespread in many parts of the world and are central to production in some regions .

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