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Approaches to Sustainable Soil Management in Modern and Future Agriculture

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Due to the increasing deterioration and degradation of the natural resources, among them the soil, serious modifications must be made to the management of this resource for its conservation and environmental and economic sustainability in the agricultural development projects.

In former times, sufficient areas for agriculture were available practically without restriction, at that times, gradually developed and widened the agricultural frontier, simultaneously they were polluting and degrading soils due to inadequate practices to the point of drastically reducing the productive capacity of soils.

The previous impacts continue to be enhanced by increasing world demographics, the exodus of rural populations to large urban centres and industrial and agro-industrial development. This is complex situations have forced farmers to produce a greater amount of food by intensifying land use.

Within this global problem, many researchers and scientific centers have suggested changes in the use and management of soils seeking to incorporate practices with approaches of conservation and recovery of this precious resource.

In this sense there have appeared many new concepts such as organic agriculture, agro-ecological, sustainable, agroforestry among others; All with sustainability approaches, conservation of rational exploitation of natural resources.

In order to have a clearer approach to these new trends in agricultural development, ideally, the technological advances in all fields should be leveraged among them the aspects related to soil uprisings, regional and national planning, These allow the implementation of farms with knowledge about soil properties, their potential and their susceptibility to degradation and their productive potential.

With the availability of floor lifts, we obtain the fundamental information about how to develop the most suitable agricultural practices. A Continuation is generally mentioned some of the best practices for the management of soils in a sustainable way: For soil preparation practices, minimum or reduced tillage is suggested and deeper preparations should be made only in sectors where greater soil breakdowns are required, such as compaction sectors, drainage deficiencies, Presence of very heavy clays among others, this applies for the agriculture of flat or mechanizable area.

In the case of hillside agriculture, the ideal is to perform minimum preparation practices, maintain soil cover with noble plants (weeds), applications of organic matter in large quantities, implement crops in Level curves or contour lines, or terracetas, to make ditches of hillside, not to develop clean crops in steep slopes, crop rotation, multiple and associated crops, planting of leguminous plants to be used as green fertilizers, Living Barriers, and wind-breaking barriers, avoid steep cattle ranching, Application differential of fertilizers from the results of the soil analysis for fertility purposes and according to the different fertility levels indicated in the soil maps.

In summary, sustainable soil management in modern and future agriculture should be based on the deep knowledge of the properties of the soils and their spatial distribution, in order to achieve these objectives, To implement conservationist agricultural practices with the support and support of new technologies [1,2].

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