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INNOVATIONS IN SOIL AND WATER CONSERVATION

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Abstract
Recent discoveries and technological innovations in the field of soil and water conservation can be traced to the works of our predecessors. In this paper, conservation is defined broadly, to include the quality of water lower in watersheds, and is discussed according to contaminants. Within-field source prevention and reduction practices as well as off-site mitigation practices are described. field, and watershed scale assessments of the status and trends of conservation practices are given. In conservation as in production, researchers are increasingly aware of within-field spatial variation. soil and water conservation holds a place of high importance in research priority and potential to help improve the state of our world.

Key words:
Soil conservation, erosion, water conservation, runoff, water quality, nutrients, pesticides, precision conservation

Introduction
water and soil is very important and precious resource for survival of mankind. water conservation encompasses policies Strategies and activities to manage fresh water as a sustainable resource to protect the water environment and to meet current and future human demands population growth household size and affluence affect the quantity of water that is the consumed. factors such as climate change will increased pressures on natural water resources, especially in manufacturing and agricultural irrigation. water is a fast becoming scarce due to increase in population, industries and agricultural activities and due to poor rainfall. Both water and agriculture are very important for human life. So agriculture and its conservation needs to be done, as the population grows, the proportion of agriculture does not increase so people have to make a living. In that agriculture you need to increase productivity. At the same time, agriculture needs to be nurtured. For this, water and agriculture need to be conserved. This paper tries to discuss about soil conservation and water conservation. One of the major problems facing us today is the increasing salinity of the soil due to over-consumption of water in some parts of the country. As people take up high yielding crops, water is used in excess, so proper use of water is essential. Due to this, some research has been done in this research paper for proper conservation of agricultural land.

Objectives:

- To Study soil management.
- To Study water conservation.

Research Methodology:
This paper is based on the new recent trends in innovation soil and water conservation. with the help of secondary data collection. The secondary data is gathered from various published, Internet (websites) and other research papers.

Need for water conservation.
No other natural resources has had such as such an for overwhrlming response on the history of mankind as much as. water. as human population increase the desire for a better standard of living will increase the demands on freshwater resources. much of the world's freshwater is consumed by the agriculture industrial and domestic sectors. the failure in efficiently managing this resources to meet the increasing water demand of these sector has resulted in a situation of crisis in many parts of the world. in many parts of the India fresh water crisis already exist.
with only one percent of water available for human consumption, we must treat our water supply with more respect. water conservation should not be considered an option any longer but is an inescapable necessity. current circumstance require our full attention, if we hope to thrive as a civilization. much of the world is currently suffering due to a lack of clean water. therefore, it is extremely important to seek out, find and the start using all the innovative water conservation solution and methods that are available today.

Water Conservation Practices for Water Utilitie.
common practices used by water supply utilities include Metering, leak detection, repairing water lines, well copping, retrofitting programs, pricing, waste-water reuse and developing public education programs and drought management plan.

Agricultural Water Conservation Practices.

water saving irrigation practices fall into three categories, field practices management strategies and system modifications. practices such as a drip irrigation can save large quantities of water. careful and judicious use of water for irrigation can lead to irrigating much more land

Industrial and Commercial Water Conservation Practices.

industrial could save copious amounts of water by installing water cycling system. cooling water recirculation and wash water recycling are the most widely used the water cycling practices.

Rainwater Harvesting

rainwater harvesting means capturing the runoff of the rainwater in our own house, village, town or city. it basically means accumulation and storage of rainwater for reuse, before it reaches the aquifer. utilisation includes water for Garden, livestock, irrigation, etc. in many places, the water collected is just redirected to a deep pit with percolation. the harvesting water can be used for drinking water also, if the storages is a tank that can be accessed and clean when needed.

TYPES OF RAINWATER HARVESTING SYSTEMS

1. ground catchment system
2. Roof catchment system
3. subsurface dyke
4. groundwater recharge
5. advantages in urban area.

Soil Erosion

Reducing erosion is one of the most-studied conservation goals and various means to achieve it are widely practiced. Many of these conservation practices have been shown to consistently reduce soil erosion. In the US, they are practiced on substantial areas, with some 40% of planted area in some form of conservation tillage retaining more than 30% of the residue, and another 20% retaining something less than 30% For many years, erosion control has achieved significant, but not complete success. Some technologies have recently provided improvements in either practices or assessments of erosion control. Two examples include means to reduce erosion caused by flowing irrigation water, and research to document how much erosion has occurred since cultivation started. Irrigation-induced erosion has been studied fairly extensively for furrow irrigation and one management option to reduce it involves injection of polyacrylamide (Pam) in the irrigation water Pam has also been shown to improve infiltration rates for soils. Therefore, Pam Injections to reduce soil loss can, by increasing infiltration, also reduce nutrient or other soluble chemical loss. Pam has also been applied to bare soil in construction projects to reduce off-site transport of soil Quantifying erosion that has occurred before awareness of its magnitude is an elusive, but still desirable, goal. One approach compared a field cultivated for 150-200 years to topographically similar landscape areas that have been preserved in native grasses. In the latter, they examined soil horizons in landscape positions to estimate the antecedent (pre-cultivation) topsoil depth, then assessed the difference using geographic information system (GIS) tools to estimate the effect of agriculture. Averaged over the whole field, they estimated 13 cm of soil moved off the field, which would be about years of intensive agricultural practices.

Nutrient Use

Given the direct relationship between fertility and crop yield, much of the emphasis on reducing use of fertilizer has been to precisely match the amount applied to the crop needs. Often, the nutrient being managed has been N. In conventional whole-field practice, this emphasis was on matching seasonal totals, matching timing of application to the timing of crop need, assaying the soil with a late-spring or pre-sidedress nitrate test or assaying the crop with some indicator of chlorophyll and thus N Content This last practice, when applied in precision agriculture, allows real-time detection of crop need and variable-rate application to match it Many of these are reviewed by Kitchen and Goulding.

Pesticide Use

Growing public awareness of the unintended, lasting effects of many agricultural pesticides has caused much effort to be directed toward reducing the amounts applied, seeking safer chemicals, and integrating biological and other control methods. Within precision agriculture, limiting the area treated to the area affected appears to have the most potential to realize significant reductions. For pests that stay in the same place from year to year, such as some weeds, pre-season applications of soil residual herbicides can be applied according to the map obtained the prior year. For other pests, including mobile insects and many diseases, this approach is not useful. For these, some near-real-time method to detect presence of a pest and apply a control measure appears to have potential for significant savings. This is an outgrowth of historical scouting methods, but automation allows for a much finer resolution in both the detection and control. Selective spraying systems activated by a weed detection device have been reported to save up to 80% of pesticide showed that timing of

rainfall after application of surface residual herbicides often dominates the magnitude of pesticide lost, making decisions about long-term trends difficult unless truly representative weather is included during the trend. They also showed that the incorporation of herbicides cuts pesticide loss by about 50%, which poses a paradox for sites with both erosion and pesticide issues. Extensive research and monitoring in the northeast Missouri region demonstrated two findings. First, voluntary adoption appeared to have the desired effect in reducing atrazine in surface supplies of drinking water. On the other hand, even careful, label-compliant application can result in appreciable off-site transport of atrazine, with the worst-case scenario having rain immediately after application. The widespread cultivation of genetically modified crops has allowed weed control to change from soil residual herbicides to broadspectrum contact herbicides, such as glyphosate, for which resistance has been inserted into food crops. These herbicides typically have shorter lifetimes in the environment than do most soil residual types The full environmental effect of this conversion between approaches is not yet clear, nor is how long the specific chemicals will remain effective before weeds develop widespread resistance to them.

CONCLUSIONS:

There is a need to create awareness among the people for proper conservation and conservation of water and land. That is why it is important to convince people about the importance of water and fertile land in the future. People need to be informed about the use of water as the excess water damages the soil and the use of chemical fertilizers destroys the essential elements in the soil. So that the loss of land in the country is minimized and people need to be told how to save water. We also need to tell people about the problem of drinking water for farmland even when it rains heavily in the rainy season. This paper discusses this to some extent.

REFERENCES:

1. *Aase, J.K., D.L. Bjorneberg, and R.E. Sojka. 1998. Sprinkler irrigation runoff and erosion control with polyacrylamide–Laboratory tests. Soil Science Society of America Journal 62:1681-1687*
2. *Bjorneberg, D.L. and J.K. Aase. 2000. Multiple polyacrylamide applications for controlling sprinkler irrigation runoff and erosion. Applied Engineering in Agriculture 16:501- 504.*
3. *Evans, R. G., G. W. Buchleiter, E. J. Sadler, B. A. King, and G. B. Harting. 2000. Controls for precision irrigation with self-propelled systems. In: R. G. Evans, B. L. Benham and T. P. Trooien (eds.), pp. 322-331, Proceedings of the 4th Decennial National Irrigation Symposium; American Society of Agricultural Engineers; St. Joseph, MI.*
4. *Jordan, D., R.J. Kremer, W.A. Bergfield, K.Y. Kim, and V.N. Cacnio. 1995. Evaluation of microbial methods as potential indicators of soil quality in historical agricultural fields. Biology and Fertility of Soils 19:297-302*
5. *Sadler, E.J., R.G. Evans, K.C. Stone, and C.R. Camp. 2005. Opportunities for conservation with precision irrigation. Journal of Soil and Water Conservation 60(6):371-379.*
6. *Branson, Margaret. "The Education of Citizens in a Market Economy and Its Relationship to a Free Society." Paper presented to the International Conference on Western Democracy and Eastern Europe: Political, Economic, and Social Changes, Berlin, Germany, 1991. ED 345 995.*
7. *Internet*