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Adverse effects of agriculture on the environment

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Abstract: "Especially in the past two centuries man refused and failed to comply with the law. This is above all due to the advent of the Age of Enlightenment and modernity with the nature of human achievement overwhelming reason was reductive. In agriculture to the point where humans, ecosystems from a sparse set of components to reduce nature that aims to meet human needs, especially the needs of only short-term. The consequence of this neglect of other ecosystem functions, ignoring the negative effects of human activities on natural systems and agricultural and natural resources has been declining. Current and future technologies in response to the impact of agriculture on the environment increase. Now protect the environment and achieve sustainable development of the major issues with the implementation of comprehensive plans for economic, social and cultural rights at the top of the world's countries, including Iran is located. As competition for land has increased in recent years in developing this land for crops and trees, planting rotation, cropping and grazing land converted to forest occur the population and to increase the industrialization of. Despite major advances in the field of plant breeding, irrigation, pest and disease control and soil improvement and biotechnology has been achieved, yet the climate and soil in agriculture is the most important factor determining the importance of protecting these resources expressed a. The effects of soil erosion, nutrient mining, soil and water salinity, water pollution, desertification, deforestation, greenhouse gases and other environmental intensification of agriculture on the environment is of major damage. The formulation of policies to reduce the negative environmental impacts of agriculture and progress towards sustainable agriculture requires consideration of factors including how the deprived cortex of the developing countries and countries with natural resources, determine the gentry. Organic farming, the supply of products to the market somewhat less can reduce some of the problems. Evidence suggests that the role of organic agriculture in protecting the environment and improving the quality of food and also supply to the market. Design of future agricultural systems should be such that the available resources are used efficiently in the field. Increased nitrogen fixation, more organic material, integrated pest management, genetic resistance to pests and environmental stress and increased biological activity, all of the factors affecting the efficiency of resource use. Management to improve efficiency in the use of alternative sources of energy input and can be expensive.

Key words: *Environment; Sustainable agriculture; Soil erosion; Salinity; Pollution*

1. Introduction

Agricultural revolution in ten thousand years ago, the biggest change in the history of man's life and a turning point in the evolution of social It results in him. It seems contradictory interests of humans and the environment at the same time formed. At the beginning of the balance and alignment of human and nature, this conflict is not so obvious. But developments in the last two centuries, especially the industrial revolution, the chemical revolution and population explosion, serious confrontation with the nature of man to get (Damghani and Mahdavi, 1997). With the mechanization of agriculture and the rise of mass production system into the industry after World War II, the actual use of auxiliary developed rapidly, particularly fertilizers and pesticides later in the evening, action and chemistry foot institution in the field. The use of synthetic fertilizers from 1950 to 1984 increased from 14 million tones at around 9 times out of 94 million hectares of irrigated cultivation in 1950 to 206 million hectares in 1978 and reached 244 million hectares in 1981 According to current estimates, 50 per cent of the world during this century, thanks to the use of chemical fertilizers (Hashmy and Hosseini, 1985; Damghani and Mahdavi, 1997). Current and future technologies, the negative impacts of agriculture on the environment increases. Now protect the environment and achieve sustainable development is one of the major issues with the implementation of comprehensive plans for economic, social and cultural agenda in various countries around the world, including our country is (Office of Educational Technology,. 1991). Over the past few years, competition for land between different sectors and systems greatly increased. The development of this land for crops and trees, crop rotation, conversion of forests to agricultural land and grazing occur (Office of Educational Technology,. 1991). From the beginning of human history, environmental issues and human

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generations in this way to discover the nature and strategies to achieve the return. To regulate the use of human societies, prohibitions and rights of superstition and common understanding of the environment, the rules for the supervision of the national census was developed and environmental resources. Global environmental problems such as pollution, loss of biodiversity, soil degradation and uncontrolled urban development, environmental management has created a critical problem in the way (Khatami et al., 1381).

In sum, the current trend of popular culture in a way that seems able to resolve this crisis, there are not secure prosperity for all people has not been on the decline and loss of habitat. Still the most important challenges of today's world, food security and the provision of basic human needs (Essiet, 2001). The food security crisis exacerbated environmental and ecological problems, because on the one hand the developed and developing countries, population pressure and poverty reduction in per capita production and farming communities and the pressure the greater the sources other, in developed countries, due to the shrinkage of agricultural agriculture to produce enough food to and strategies have been based on the canvas are incompatible. The story of the transition from traditional agriculture to modern agriculture, the story of the transition from stability to instability (hashmy and Hosseini, 1985).

2. Defined environment

Environmental huge collection of various factors that are interwoven through a process of evolution of organisms and components of the ground surface and thus affect human activities and is influenced by (Abbasspur, 1987).

2.1. Ecologically unsustainable agriculture common reasons

Sustainability requires not only the health and environmental resources, but also a dynamic balance between consumption and methods natural, social, human and physical capital depends. This range is defined in the lie. Natural resources include resources such as land, water, biodiversity and other environmental resources. Human to increase production, has made significant changes in land use practices. In this context, natural, applied to systems have become. The reason for this is that the goals of mankind to follow them. Build cities, and also change and skirt. A large part of the exploitation of mines, valleys, with the aim of providing the possibility of irrigation and pumping water through the flood situation in (Hashmy and Hosseini, 1985; Damghani and Mahdavi, 1997). Governments intervene and assign the macro to sources such as the severity of these changes has had a significant impact. In most countries where populations are under severe pressure, there is no possibility to increase the area under cultivation and the country not only increase the yield per unit area or whether it should be on the lap of substitute products Import 8. The problem here is that the percentage of changes that can be optimized and stable or in other words how much determine whether to maintain stability, and must maintain be very difficult. Although studies of biodiversity can help us determine the amount of land needed to manage and maintain the health of the land and help, but not enough information in this regard. And it is a real shame that many of our best that are currently under intensive agriculture (Hashmy and Hosseini, 1985; Damghani and Mahdavi, 1997).

2.2. The negative impacts of agriculture on the environment

Logging off, soil erosion, soil nutrient mining, soil salinity, water pollution, soil salinity, salinity, desertification, deforestation, loss of natural land potential negative effects of toxic chemicals used in agriculture and human health living organisms and ecosystems. These are described in the following.

3. Common agricultural impacts on soil

There is strong evidence that indicates compression and agricultural production systems cause significant changes in soil chemistry and physics, as well as the balance between the vegetation and diversity of living organisms' soil. What is certain is that the increase in production per unit area in many parts of the world due to the deterioration of the soil. Soil erosion is a major in this category that continues to lie studied in detail (Hashmy and Hosseini, 1985).

Intensive cultivation due to external and especially fertilizers, mostly offset by losses related to soil fertility fitted. For example, phosphorus is one of the elements that make up the soil to function effectively. The use of phosphate fertilizers is faster than the rate of population growth. Meanwhile, sources in the also able to provide this element. The increased use of fertilizers in areas such as Europe, United States and Japan that improved technologies have been halted and even declined in some areas (hashmy and Hosseini, 1985; Damghani and Mahdavi, 1997).

3.1. Common agricultural impacts on Iran

The situation is extremely alarming and is in danger of Iran. 130 thousand hectares of grassland degradation year, 480 thousand hectares of forest are destroyed and 5/1 billion tons of soil erosion It results that the country's gross fixed capital equal to 14% (hashmy and Hosseini, 1985). Extensive part of the country in terms of salinity, sodium, or the status of wetlands and drainage problems have already been released with no or low production. Permanent reduction in per capita agricultural resulting from population growth, especially in developed

countries, causing improper operation of heavy machinery in agriculture and natural resources, especially tillage machines that process has exacerbated (Weil, 2000).

4. Agriculture and soil erosion

Soil is one of the most important natural resources of the country. Soil erosion is a hazard to human well-being and even his life is. In areas where erosion is not controlled, gradually eroded soils and lose their fertility. Frays not only because of the farms is poor and in this way irreparable damage to the leaves, but the material sediment in streams, reservoirs, dams, Detriments ports, and the great loss of the capacity cause they impounding. Soil erosion is a major environmental problem and agriculture around the world. Although erosion has occurred throughout the history of agriculture, but in recent years has been intensified (Khatami et al., 1381).

Now the destruction of the soil is the newest threat to the lower value. Soil due to various processes such as chemical changes, such as saline soil, sediments into the red rocks, soil acidification and increased condensation. These factors soil physical and chemical changes that might reduce the ability of the soil leads to the maintenance of vegetation cover and hydrological characteristics of the Earth. These changes lead to accelerated erosion and sedimentation problems such as landslides and cause (Khatami et al., 1381).

In addition to the direct economic impacts of soil degradation due to reduced fertility, environmental consequences can be severe. Today, a question about environmental health and integrity of the agricultural production process is proposed. For example, fertilizers and pesticides are not recovered by leaching into the groundwater reserves and or through runoff into surface waters are transported. Adverse effects that have undesired off-farm soil erosion in the United States more than $ 6 billion annually, and this figure is much higher than its effect on the farm, such as loss of fertility is due to (Haghnia, 1986).

4.1. Factors affecting erosion

Increasingly crop erosion in sloping areas increases. The forests on steep slopes permanently agricultural land to meet the needs of the increasing human population and the converter are due to land degradation. These lands were planted on steep slopes have suffered high rates of erosion (Khatami et al., 1381).

4.2. Nutrient losses due to erosion

While the loss of nutrients from fertilizers subtle and difficult to detect, but runoff and sediment can be removed from the field during a rain and strong wind or dust due to the transferred see and see how nutrients are simply wasted. The amount of the loss is influenced by factors such as cropping systems; slope and Safety Precautions are taken (hashmy and Hosseini, 1985).

4.3. The effects of soil erosion on crop production

1 of soil nutrients, organic matter and water holding capacity and thus reduces crop yield.

2 more shallow soil erosion is caused as a result of growing crops with shallow root crops such as cereals Restricted such as potatoes and deep roots in this kind of soils can be planted SUGARBEET (Office of Educational Technology, 1991).

4.4. Erosion control technologies

Reliable and proven techniques of soil conservation include: Non-crop planting furrow cultivation Tnavbhay harvesting season of banding strip of grass cover (mulch) living mulches combination of forest and agricultural terraces with lines spaced planting cover crops and the use of barriers (Khatami et al., 1381).

Selection of conservation tillage to control erosion and protect water under the influence of soil, drainage, cropping systems and resources are available. The effect of reduced tillage systems on soil erosion control depends on the following factors:

1. Surface covered by mulch
2. Seth plowed
3. Compaction
4. Crust Close
5. Degrees of porosity caused by worms and conditions (hashmy and Hosseini, 1985).

4.5. Damage caused by erosion

Soil erosion in agricultural fields, pastures, forest areas, and the great rivers, the impact of national agricultural economy. Erosion, large amounts of sand, silt, and sand or gravel in the field of transport and deposition in the lower elevations of the land and reduce their fertility (Dehghanian and Ahari, 1984).

In addition to substantial economic losses due to water erosion and nutrient losses ecologically important as well. Soil displacement may affect the composition of the vegetation and the soil, destroy biodiversity. Soil erosion due to reduced fertility, environmental consequences can be severe. For example, fertilizers and pesticides are not recovered by leaching into the groundwater reserves and surface water runoff or transmitted through (Office of Educational Technology, 1991).

5. Water pollution

With the booming agricultural utilization of water resources, begins. Reliable and regular supply

of irrigation water derived from surface water and groundwater resources, the major issue is that it depends on the programming of these systems (Dehghanian and Ahari, 1984).

Earth's water is used for many purposes. As for drinking, agricultural production, stimulate circulation industry, and power generation (Abbasspur, 1987). Progress depends on the availability of fresh water in many countries and it is common in many countries and also prevent developments in their relative prosperity is achieved. According to estimates from 80 countries in 40% of the world's population at risk of water shortages are. In Africa alone, 300 million people live in conditions of water shortage (Damghani and Mahdavi, 1997).

5.1. Water pollution from agriculture:

At least 25 years in developed countries due to agricultural practices on water quality have been considered. River erosion and nutrient depletion, nutrient and pesticide leaching into the groundwater and surface water and groundwater contamination by bacteria, some aspects of the effects of modern agriculture on the environment. Some modern agricultural methods have been developed to deal with these problems, many of which, such as conservation tillage in relation to erosion control (hashmy and Hosseini, 1985).

The factors that could affect water quality, including plowing, fertilizing, pesticide use, livestock waste management and irrigation. The main effect of conservation tillage systems, maintaining maximum residue on the soil surface. Conventional tillage system at the time of sowing the crop residue is zero and the system Chisel plow Ta70 50 percent, strip tillage Ta60 30% in the no-till system Ta90 50 percent.

Environmental problems related to irrigated arable land has existed since ancient times. Salinity of the irrigation water quality problems associated with about a third of irrigated land is affected (hashmy and Hosseini, 1985).

5.2. Classification of sources of water pollution

1. Pollution from sewage
2 pollution from industrial waste
3 pollution from agricultural waste
4 Other pollutants (Abbasspur, 1987)

Important factors of water pollution caused by agricultural activities include:

1. Water pollution by fertilizers
2. Water pollution by agrochemicals
3. Water pollution from livestock and fisheries activities (Office of Educational Technology, 1991).

Although irrigated agriculture led to a significant increase in yields, but also inappropriate and inefficient irrigation leads to wasting water, surface water and groundwater pollution, damage to soil fertility and changes in the ecology of large areas (Office of Educational Technology, 1991).

6. Soil salinity

A large and growing part of the world's irrigated lands subject to the adverse effects of water logging and salinity are excessive. It is not clear the extent of the affected areas, but it is estimated that approximately 25% of the world's irrigated lands have been damaged by salt. Some people believe that probably 50% of the world's irrigated lands are affected by salinity. Certainly no free continental soils. At least 75 countries border the salt serious problems occur (Hasheminia et al., 1986). If infiltrated into the ground than the required crop, the roots of the past and its salts dissolve and accumulate the downstream water causes water logging of the land. When this phenomenon occurs soluble salts in the soil moves and is moved into the lower depths where they accumulate over time and saline groundwater is near the surface (Hasheminia et al., 1986).

6.1. Salinity of the water

The salinity of irrigated agricultural lands, known for hundreds of years, but in recent years have found that the salinity of the water resources in the agricultural activities of the major events on their own to the water salinity, it is important lasting more than. While maintaining the sustainability of irrigated agriculture requires a comprehensive policy on the use of land and water (Hasheminia et al., 1986).

7. Desertification

Today, more than 3200 million hectares of land worldwide phenomenon of the desert threatening. While the 700 million people who live in this land of residence are linked to the soil. Desertification realm of human life heaped range is omitted if it can be hard to find a place to live. Now desertification through loss of land, about 42 billion dollars annually, due to the drop in agricultural production, the damage is.

Desertification punishment is excessive pressure on land and the ability to apply the pressure, in turn, to Thanks to modern science and technology has been obtained. Over half of the world's forest destruction Ta1980 1950 AD, reaching more than 66 million tons of fertile soil out of the daily continuously decreasing production fields and pastures in the world, are the effects of desertification. It seems to be general agreement on the term desertification should be degraded ecosystems in arid and semi-arid regions, leading to reduced productivity and destruction of plant species diversity can be used (Office of Educational Technology, 1991). In fact, desertification, impact factors of geology, water and air, which leads to the erosion of human biology and physical, chemical and biological potential of land in arid and semi-arid, and

the life of human communities and to endanger species (Office of Educational Technology, 1991).

Despite the relative importance of desertification as a direct cause of global warming, the fact that the light sources and reservoirs of greenhouse gases associated with desertification. Same is true of all greenhouse gases (Khatami et al., 1381).

8. Deforestation

There of many important issues. Required in addition to providing a significant part of human life, as the preservation of soil and water, shelter and fuel supply balance of weather patterns and moved role. It should not be a significant and valuable role in the cycles of carbon in the world to deal with the phenomenon of climate change and its effects were neglected. The fact is that to achieve the development of our communities, coupled with the elimination. Deforestation causes and factors affecting the occurrence resonator and multiple and complex and, in general, in order to achieve the goals of self-interested people to develop a place (Damghani and Mahdavi, 1997).

In temperate and tropical deforestation has occurred throughout history data. Tropical deforestation in the region made a huge impact on the carbon cycle and profound effects on biological diversity. Deforestation, carbon dioxide and other greenhouse gases in the atmosphere has increased and probably also affects the climate. Conversion of forests to cropland and pasture, resulting in a net flow of carbon into the atmosphere, because the concentration of carbon in forests than in agricultural areas that can replace it. Quantitative data on tropical deforestation, understanding the carbon cycle and climate change may be limited. Moreover, while tropical forests cover less than 7% of the land, the forests are home to more than half of the world's plant and animal species. The harmful effects of deforestation in the tropics, severely endangered species, so that for the first time a large number of species of vascular plants were removed.

8.1. The effects of deforestation on biodiversity:

Habitat destruction, isolated parts of the adjacent previously were and marginalized works in the border region between forest and deforested areas (Khatami et al., 1381).

The effect of chemical pesticides and fertilizers on the environment: Other common agricultural current problems, improper use of in the form of fertilizers and pesticides, industrial chemicals, chemical the serious consequences of economic, agricultural and environmental issues have been followed (Damghani and Mahdavi, 1997)

Thus, surface water and groundwater contamination by fertilizers and pesticides in water, is a great danger that threatens human health and environment (Haghnia, 1986). In addition to the environmental effects of pesticides on wildlife, human health through food consumption direct contact with infected or pesticides are influenced. Pesticide residues accumulate in some parts of the non-organic products and the use of all these organs (such as baked potato with skin and perfect), increases the risk of infection (Office of Educational Technology, 1991).

The unchecked use of chemical pesticides in many environmental and health problems has created. We have no control on the assessment of pesticide residues in food products and an ingredient many, many times over pesticide residue is not authorized. This is the prevalence of acute and chronic diseases of the liver and Neoplasms and Iran (hashmy and Hosseini, 1985; Damghani and Mahdavi, 1997). The effect of agriculture on climate change, because of climate change is well known. Compression and compression to increase gas production systems, land use change and since then, this trend will continue. What is certain is that we will face many challenges of climate change, sea level rise, increased prevalence of pests and diseases, climate change rainfall patterns, and increased abnormal events and Among these are expected. (Damghani and Mahdavi, 1997) agricultural practices resulting from human activity is the main cause of greenhouse gases, to turn the energy of sunlight and therefore affect climate (global warming). Apart from the release of carbon dioxide from fuel, mainly caused by deforestation and burning of fossil fuels occurs in about 30% of the carbon dioxide released into fully formed, the share of agriculture in the radiation energy release methane (about 70% of the released methane) and nitrous oxide (90% of the total) is. It seems that the greatest source of human activities in rice and methane is a greenhouse gas. This is influenced by a number of complex factors that affect the bacteria producing methane and assimilation, is placed. For example, the release of methane in rice cultivation in deeper waters, the higher up in the rice planted in shallow water. The number of ruminant animals (except camel) by 2010 will increase by about 30 percent compared to the rice will be releasing more methane (Office of Educational Technology, 1991). Although there is nothing Hdvd50 million species on Earth, but during human evolution, only 20 thousand species of plants in the human food supply interference. Currently, only 3,500 species of mammals, birds, reptiles and fish remains needs of the human race. Increased performance and reduced compression systems produce considerable genetic diversity; demolition and conversion of many small plants have been forgotten. Except for the effects of toxic chemicals (pesticides and industrial pollutants) activity of soil organisms can be attributed to changes in the factors regulating their activity. When the natural plant communities are converted to monoculture farming systems, the quantity and quality of soil organic

matter decreases. Likewise, it seems that the main effect of most herbicides on soil fauna indirectly by reducing organic matter (Office of Educational Technology, 1991). Since different species have different reactions to climate change, and increase the number of some decreases. Thus, the structure and composition of the ecosystem will change. Some species migrate to higher latitudes and higher elevations and endangered species may be local or global. Some species may benefit from better growth (Khatami et al., 1381). A little need to increase biodiversity and even accurately predict which species or will be needed more, it is. Although many of the biotechnology revolution will know the way out to face the challenges of the future, but not in conformity with the principles of bioethics of genetic, the uncertainty of possible environmental feedback in response to the in the distant future and risks in the production and release of genetically engineered organisms living there, the success of the revolution and in this subset are used, they with uncertainty is (Hashmy and Hosseini, 1985; Damghani and Mahdavi, 1997). Organic farming, the lower supply of products to the market to some extent some problems can be will be reduced. Increased nitrogen fixation, more organic material, integrated pest management, genetic resistance to pests and environmental stress and increased biological activity, all of the factors affecting the efficiency of resource use. Management to improve efficiency in the use of alternative energy sources is effective and can be expensive inputs.

References

Abbasspur, M. 1987.Environmental Engineering (Jldavl). Press center of Islamic Azad University. 550 p.

Dehghanian, S.kvchky, .klahy Ahari, AS. 1984.Agricultural geography. Ferdowsi University of Mashhad. Page 288.

Essiet, the 2,001th EU. Agricultural sustainability under small-holder farming in Kano, northern Nigeria. Journal of Arid Environments. 48: 1-7.

Haghnia, Gh.kvchky, AS. 1986. Sustainable management of soil. Mashhad University Jihad. Page 204.

Hasheminia, M.kvchky, .qhrman, n. 1986. Utilization of saline water in sustainable agriculture. Mashhad University Jihad. 236 pages.

Islam, KR and RR Weil. 2000.Land use effects on soil quality in a tropical forest ecosystem of Bangladesh. Agriculture, Ecosystem & Environment. 79: 9-16.

Jenkins, M. the 2003rd. Prospects for biodiversity.Science, 302: 1175 to 1,187.

Khatami, e. Khosravi, M.ryazy, B.bady, T.khsrvy, S.mhrm race, n. 1381. Environmental management. Environmental Protection Agency.

Love, B. and D. Spaner. 2006. A Review of Agrobiodiversity: its value, measurement and conservation in the context of sustainable agriculture. Journal of Envion.

Office of Educational Technology. 1991. Journal of Crop Science. No. 4 - Pyvst6. Dissemination of agricultural education. Page 10 787.

prosper, b. Damghani Mahdavi, .m. 1997. Principles of sustainable agriculture. Press Mashhad SID. Page 315.

small, AS. Hosseini, M.hashmy D, A. 1985. Sustainable agriculture. Mashhad University Jihad.Page 164.