

I. molecular. harmful effects of agricultural chemicals: i.



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i. Recycling farm wastes and residue to the native soil itself.

ii. Replenishing the nutrients depleted from the soil during crop growth. iii.

Encouraging the growth of soil microorganisms which could regulate phased release of stored nutrients in the soil to the crop growth in right proportion.

iv. Maintaining soil health by balancing the soil moisture and soil aeration. v.

Ensuring soil fertility by firmly binding the nutrient elements in the complex organic molecular.

Harmful effects of agricultural chemicals:

i. Residual toxicity is the major problem of agricultural chemicals. Many of the chemicals that are toxic to pests, are toxic to humans also and their admixture in the food may cause nerve and bone malformation in addition to blood clotting. ii. Unlike the slow release of nitrogen from organic source, the chemical fertilizers like urea release nitrogen to the crops, abundantly within a short span of time and the excess ammonia can cause infant disease-methemoglobinemia. Even animals feeding on fodder supplied with excess urea can experience hair fall and skin disease.

iii. Amines produced due to high intake of chemical nitrogen may cause carcinogenic effects on human beings. iv. Most of the pesticides and herbicides are nerve and respiratory poisons apart from upsetting Gastro-intestinal system of human beings. If these chemicals are not denatured before the food is being used for consumption, they are prone to affect human beings. v. The chemicals can also pollute the drinking water supply and cause bone abnormalities.

vi. The fumes emanated from the applied chemicals and fertilizers will cause bronchial asthma to the persons living nearby. vii. Cotton garments produced from the cotton obtained from chemicals used fields cause skin lesions and irritations. viii. Industries producing these chemicals and fertilizers pollute the atmosphere by releasing toxic fumes which are bound to affect the ozone cover.

How Organic farming is done?

Composting of farm wastes and industrial wastes raising green manures as inter crops and insitu incorporation in the soil, biodegrading organic wastes such as coirpith, as a source of organic manure are some of the practical approaches for organic farming. i.

Micro-organisms such as Rhizobium, Azotobacter, Azospirillum, Blue Green Algae, Azolla mycorhiza have ability to mobilize non- usable nutrients such as atmospheric nitrogen into usable form. Such biofertilizers will enrich the soil fertility. ii.

Vermicompost has gained popularity recently which refers to the compost prepared by earth worms. The symbiotic relationship between the plant and the soil born organisms, is an ecofriendly approach. iii.

The pests and diseases, affecting a crop must be checked by using biocontrol agents instead of chemical pesticides and fungicides. The wonder tree of Indian origin, neem has drawn the global attention for its pesticidal properties. iv. The pests and diseases, affecting a crop must be checked by using biocontrol agents instead of chemical pesticides and fungicides. The

wonder tree of Indian origin, neem has drawn the global attention for its pesticidal properties. v. Use of nuclear polyhedrosis virus (NPV), Bacteria, *Bacillus thuringiensis* in biocontrol have gained popularity recently. Release of egg parasites trichogramma species to control certain types of pests is another biocontrol method.

vi. Sex pheromones are used to attract major pests and they are trapped in light traps.

Advantage of organic farming:

i. Organic manure produce optimal conditions in the soil for high yields and good quality crops. ii. They supply all the nutrients required by the plant (NPK, secondary) and micronutrients). iii. They improve plant growth and physiological activities of plants.

iv. They improve the soil physical properties such as granulation and good tilth, giving good aeration, easy root penetration and improve's water holding capacity. The fibrous portion of the organic matter with its high carbon content promotes soil aggregation to improve the permeability and aeration of clay soils while its ability to absorb moisture helps in the granulation of sandy soils and improves their water holding capacity. The carbon in the organic matter is the source of energy for microbes, which help in aggregation.

v. They improve the soil chemical properties such as supply and retention of soil nutrients and promote favourable chemical reactions. vi.

They reduce the need for purchased inputs. vii. Most of the organic manures are wastes or by products which on accumulation may lead to pollution. By way of utilizing them for organic farming, pollution is minimized.

viii. Organic fertilizers are considered as complete plant food. Organic matter restores the pH of the soil which may become acid due to continuous application of chemical fertilizers. ix. Organically grown crops are believed to provide more healthy and nutritionally superior food for man than those growth with commercial fertilizers. x. Organically grown plants are more resistant to disease and insects and hence only a few chemical sprays or other protective treatments are required.

xi. There is an increasing consumer demand for agricultural products, which are free of toxic chemical residues. In developed countries consumers are willing to pay more for organic foods. xii. Organic farming helps to avoid chain reaction in the environment from chemical sprays and dusts. xiii. Organic farming helps to prevent environmental degradation and can be used to regenerate degraded areas.

xiv. Since the basic aim is diversification of crops, much more secure income can be obtained than when they rely on only one crop or enterprise.