Organic Agriculture & Pesticides

ORGANIC AGRICULTURE is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved.

PESTICIDES are the only toxic substances released intentionally into our environment to kill living things. This includes substances that kill weeds (herbicides), insects (insecticides), fungus (fungicides), rodents (rodenticides), and others.

The use of toxic pesticides to manage pest problems has become a common practice around the world. Pesticides are used almost everywhere - not only in agricultural fields, but also in homes, parks, schools, buildings, forests, and roads, although they have a severe impact on our health as well as on our environment.

Most pesticide formulations sold on the market are not tested adequately for safety. Regulatory authorities are ignoring a large body of peer-reviewed science showing the harm caused by pesticides and making decisions on data free assumptions.

PESTICIDES AND HUMAN HEALTH

Pesticides are linked to a wide range of human health hazards, ranging from short-term impacts such as headaches and nausea to chronic impacts such as cancer, reproductive harm, birth defects, autism, Parkinson's disease, obesity, diabetes and endocrine disruption. The World Health Organization estimates that there are 3 million cases of pesticide poisoning each year and up to 220,000 deaths, primarily in developing countries.

Children as well as young and developing organisms are particularly vulnerable to the harmful effects of pesticides. Chemicals typically are administered when laboratory animals are in their adolescence, a methodology that fails to assess the impact of in utero, childhood, and lifelong exposures. Children who live on conventionally managed farms come in contact with pesticides routinely. Increased childhood cancer risk is reported to be associated with occupational exposure of the parents to pesticides.

PESTICIDES AND THE ENVIRONMENT

Pesticides have been used on fields across the world for almost 100 years, creating a buildup of adverse pollution in our environment. Now nearly all pesticides can be detected in rain, air, fog, or snow at different times of the year. Their application is often not very precise: over 98% of sprayed insecticides and 95% of herbicides reach a destination other than their target species. Pesticides can be toxic to a host of organisms including birds, fish, beneficial insects, and non-target plants. Animals at the top of the food chain are the most badly affected as they obtain the most concentrated toxins (bioamplification) leading to a decline in the population of top carnivores. Some herbicides can reduce seed quality and it can increase the susceptibility of certain plants to disease, which poses a special threat to endangered plant species. Others are causing fish kill in waterways near treated fields or buildings. Certain insecticides have been shown in animal studies to impair the immune system and reproductive organ development.

Pest control in Organic Agriculture.

Runoff can carry pesticides into aquatic environments while wind can carry them to other fields, grazing areas, human settlements and undeveloped areas, potentially affecting other species. Problems for the supply of drinking water to the population arise due to runoff and leaching from soil. Groundwater pollution due to pesticides is a worldwide problem. Once ground water is polluted with toxic chemicals, it may take many years for the contamination to dissipate or be cleaned up. Cleanup may also be very costly and complex, if not impossible.

Poor production, transport and storage practices also often lead to contamination. Over time, repeated application increases pest resistance, while its effects on other species can facilitate the pest's resurgence.

Pesticide use can also damage agricultural land by harming beneficial insect species, soil microorganisms and worms which naturally limit pest populations and maintain soil health, weakening plant root systems and immune systems and reducing concentrations of essential plant nutrients in the soil such as nitrogen and phosphorous.

Commercial beekeepers in the US have lost about half their bee colonies over the last decade due to pesticides. Neonicotinoids and coumaphos make bees slow learners and make them forget floral scents. What's more the effect of these two pesticides combined is far greater than their individual use.

ORGANIC AGRICULTURE AND ITS APPROACH TOWARDS PEST CONTROL

In Organic Agriculture no harmful synthetic pesticides are used. In organic systems, farms are managed to maintain and build soil fertility and prevent pest problems. Although many individual techniques used in Organic Agriculture are also used in a wide range of agricultural management systems, the difference is in how they are managed. Under the organic system, the focus is on maintaining and improving the overall health of the individual farm's soil-microbe-plant-animal system (a holistic approach), which affects present and future yields. The emphasis in organic agriculture is on using inputs (including knowledge) in a way that encourages the biological processes of available nutrients and defense against pests. Most pesticides are prohibited in organic farming as they can hinder these processes. In organic agriculture, management is directed towards preventing problems, while stimulating processes that assist in nutrition and pest management. The real solution to our pest and weed problems lies in non-toxic and cultural methods of agriculture, not in pulling the pesticide trigger. Organically grown foods and sustainable methods of pest control are key to our families' health and the health of the environment.

RECOMMENDATIONS

Policy makers should make sure that pesticide regulation is based on stricter independent testing, including testing of synergistic effects of pesticides. Pesticides known or suspected of causing human health problems should be phased out. Policies should apply the polluter-pays-principle for agricultural producers. Where still needed, full protection should be legally required for workers and farmers to prevent acute and chronic pesticide poisoning. Organic agriculture should be promoted as a tool for food security, protection of the environment and biodiversity conservation.

Local governments should develop and apply strict non-toxic pest management programs in places where our children live and play. These include providing free and universal notification to residents about pesticide use, including who is using chemicals, where, when, how, what pesticides are being used, and why. The use of pesticides for purely aesthetic reasons should be prohibited.

Scientists should develop programs to research the possibilities of emerging high-yielding organic systems. More and deeper research is needed on the impacts of organic farming on biodiversity.

Extension services should provide technical assistance to farmers, local governments, businesses, and homeowners on non-toxic alternatives to pesticide use. Exchanges of successful organic farming cases should be promoted among farmers and technicians.