Green Alert

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Eco-Product

The focus of Environmental Information, Awareness, Capacity Building & Livelihood Programme (EIACP) scheme is to disseminate environmental information to decision makers, policy planners, scientists and researchers across the world.

CERC-EIACP, Programme Centre - Resource Partner to MoEF&CC works on the thematic mandate of 'Environment Literacy - Eco-labelling & Eco-friendly Products'. This bi-monthly e-bulletin features latest of Environment, developments and innovations.

Brahmastra and Neemastra

While the dangers of chemical pesticides are widely recognized, farmers in India are taking a greener and more affordable approach. Jayanti Bhai, a resourceful farmer from Tapi district in South Gujarat, has shared recipes for organic pesticides called ***Neemastra*** and ***Brahmastra***. These natural alternatives are gaining popularity among other farmers. Several other organic pesticides, like Bijamruta, Agneyastra, and Handikatha, are also being used. Brahmastra offers a triple benefit: boosting plant immunity, providing nutrients, and controlling insects. Neemastra specifically targets mealybugs and other plant parasites. This shift towards organic solutions demonstrates a promising trend in Indian agriculture, promoting both environmental well-being and cost-effectiveness for farmers.

Brahmastra	Neemastra
Ingredients • 20 liters of Gaumutra • 2 Kg Neem leaves • 500 Gm Green chilli • 500 Gm Garlic	Ingredients • 20 liters of Gaumutra • 2 Kg Neem leaves
Recipe • Boil the ingredients in a vessel till it becomes half • Cool it down and strain it • Add 5 liters of strained liquid in 10 liter water • Spray this solution as a pesticide	Recipe • Boil the ingredients in a vessel till it becomes half • Cool it down and strain it • Add 5 liters of strained liquid in 100 liter water • Spray this solution as a pesticide

Green Issue

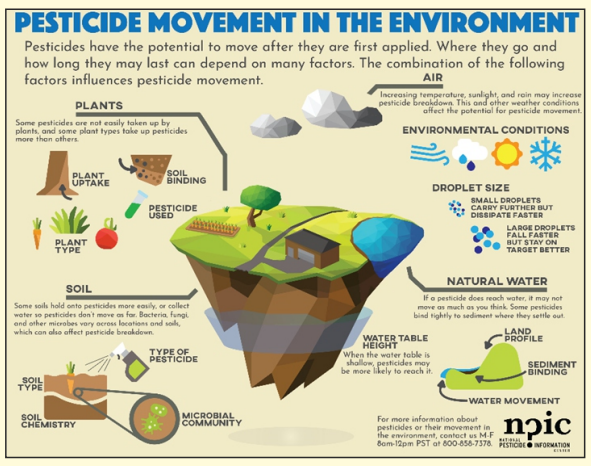
Chemical Pesticides

Pesticide may be defined as any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant. Pests include insects, plant pathogens, weeds, molluscs, birds, mammals, fish, nematodes (roundworms), and microbes that destroy property, spread disease or are a vector for disease or cause a nuisance. Although there are benefits to the use of pesticides, there are also drawbacks, such as potential toxicity to humans and other animals.

Chemical pest control has become a widespread practice in agriculture, with its roots tracing back to the Green Revolution in India initiated in the 1960s, largely led by esteemed agricultural scientist Monkombu Sambasivan Swaminathan and others. This revolution aimed to boost crop yields through the adoption of high-yielding grain varieties, alongside the application of chemical fertilizers, pesticides, and extensive irrigation.

However, over time, the Green Revolution has transitioned into what some may call the "greed revolution." The increased demand for agricultural output has led to a significant rise in the use of chemical fertilizers and pesticides, which has not come without consequences.

The excessive reliance on these chemicals has posed challenges at various levels. Firstly, there's a notable strain on production as farmers seek to meet escalating demands, resulting in the overproduction of these chemicals. Secondly, and perhaps more significantly, these chemicals have contributed to contamination and pollution of the environment, affecting air, soil, and water quality.



Source: http://npic.orst.edu/outreach/movement-infographic.png

Consumption of Chemical Pesticides in India

It is observed that approximately 5.6-billion-pound pesticide are used annually which causes poisoning in 25 million agricultural workers. India among the top 10 pesticide consuming countries in the world. First pesticide produced in India in 1948 as organochlorine insecticide DDT, since then, it developed as major agrochemical industry and in 2013-14 India consumed a total of 60282 metric ton of pesticides. Like the chemical fertilizers, the use of chemical pesticides in India starts growing after the green revolution. It grows continuously up to 1990-91, after that with little fluctuations, it is more or less constant.

Pesticide consumption is the highest in Maharashtra, followed by Uttar Pradesh, Punjab and Haryana. During the last decade, the total consumption increased in Maharashtra and Uttar Pradesh, while it slightly declined in Punjab and Haryana. States like West Bengal, Gujarat and Karnataka have seen a steep decline in the total consumption. On the other hand, Chhattisgarh and Kerala showed a steep increase in total pesticide consumption. Per hectare consumption of pesticides was the highest in Punjab (0.74 kg), followed by Haryana (0.62 kg) and Maharashtra (0.57 kg) during the year 2016-17.

During our recent survey in Dang and Tapi Districts, we observed that farmers were spraying excessive pesticides on the *okra* plant (common name – *Bhindi*). It helps them to get more productivity with larger and greener fruits as well as they could able to get multiple harvesting from the same plant in shorter time.

Environmental Hazards of Using Excessive Pesticides

The excessive use of pesticides can have significant environmental hazards. Here are some of the key environmental impacts associated with the excessive use of pesticides:

1. **Water Pollution:** Pesticides can easily leach into water bodies such as rivers, lakes, and groundwater, contaminating water sources. This contamination can harm aquatic ecosystems, affecting fish, plants, and other organisms. It can also impact human health if contaminated water is consumed.
2. **Soil Contamination:** Pesticides can persist in the soil for long periods, leading to soil contamination. This can disrupt soil ecosystems, affecting soil microorganisms, earthworms, and other important soil organisms. It can also reduce soil fertility and productivity over time.
3. **Non-Target Species:** Pesticides are designed to target specific pests, but they can also harm non-target species such as beneficial insects, birds, and mammals. This can disrupt ecological balance and lead to a decline in biodiversity.
4. **Residue Accumulation:** Pesticide residues can accumulate in the environment over time, leading to long-term impacts on ecosystems. These residues can bioaccumulate in food chains, posing risks to organisms at higher trophic levels, including humans.
5. **Development of Pesticide Resistance:** Excessive use of pesticides can lead to the development of pesticide-resistant pests. This can result in the need for higher doses or more potent pesticides, further exacerbating environmental impacts.
6. **Air Pollution:** Pesticides can volatilize into the air and contribute to air pollution. This can have adverse effects on air quality and human health, particularly for those living near agricultural areas where pesticides are heavily used.

These environmental hazards highlight the importance of using pesticides judiciously and adopting integrated pest management practices to minimize their adverse effects on the environment.

Source: https://kvk.icar.gov.in/API/Content/Uploads/3907c7d6-4610-42f8-894b-acc69468027d/3907c7d6-4610-42f8-894b-acc69468027dbrochure.pdf

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Eco-Tips

Pesticides: Handle with Care, Use with Control
Use organic and biopesticides whenever possible to reduce environmental impact.

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