

- Pesticides Regulation
 - Standard Organisation of Nigeria.
 - Agricultural Plant Quarantine Service of Nigeria
 - NAFDAC
 - NDLEA
 - Options: register for use, testing, label requirement, regulation on use.

- Alternatives to Chemical Pesticides
 - Use of economic threshold principle
 - Adjusting cultivation practices
 - Use genetically-resistant plants
 - Biological pest control
 - Insect birth control
 - Hormones and pheromones
 - Ionizing radiation.

- Integrated Pest Management
 - Ecological system approach
 - Reduce pest population to economic threshold
 - Field monitoring of pest populations
 - Use of biological agents.
 - Chemical pesticides should be the last resort.

Pesticide Application and its associated problems

- Labeling Requirements

Labeling requirements control when and under what conditions pesticides can be applied, mixed, stored, loaded, or used, fields can be reentered after application, and crops can be harvested. Requirements also are imposed on container specifications and disposal.

- Personal Protective Equipment

Personal protective equipment (PPE) is the clothing and devices that are worn to protect the human body from contact with pesticides or pesticide residues. Personal protective equipment includes such items as coveralls or protective suits, footwear, gloves, aprons, respirators, eyewear, and headgear. Ordinary shirts, pants, shoes, and other regular work clothing usually are not considered personal protective equipment, although pesticide labeling may require pesticide handlers to wear specific items of work clothing during some activities. Users of pesticides must make sure that all personal protective equipment instructions that appear on the pesticide label or labeling are followed.

- **Spray Drift of Pesticides**

- The drift of spray from pesticide applications can expose people, wildlife, and the environment to pesticide residues that can cause health and environmental effects and property damage. For these reasons, and because EPA's Office of Pesticide Programs (OPP) is responsible for regulating the use of pesticides in the United States, OPP has been actively engaged in a number of initiatives to help prevent such problems. These initiatives include broadening EPA's understanding of the science and predictability of spray drift based on many new studies, helping pesticide applicators to reduce spray drift by improving product label use directions, and promoting education and training programs on spray drift for applicators.

- **Surface and Groundwater Contamination**

- When pesticide contamination of surface or groundwater occurs, it is the result of either point-source or non-point-source pollution. Point-source pollution comes from a specific, identifiable place (point), such as the movement of pesticides into water from a spill at a mixing and loading site. Non-point-source pollution comes from a wide area, such as the movement of pesticides into streams after broadcast applications to crop areas. Most pesticide movement into water is across the treated surface (runoff) or downward from the surface (leaching). Runoff water may travel into drainage ditches, streams, ponds, or other surface water where the pesticides can be carried great distances offsite. Pesticides that leach downward through the soil sometimes reach the groundwater.

- **Tolerances**

- Any pesticide that remains in or on food or feed is called a residue. Residues that remain in food or feed at harvest or slaughter are monitored to avoid hazards to the humans and domestic animals that will eat them. EPA establishes maximum residue levels (tolerances) when registering a pesticide. A tolerance is the maximum amount of pesticide residue that may legally remain on or in treated crops and animals (and animal products such as milk or eggs) that are to be sold for food or feed. Food or feed with residues that lack tolerances or with residues exceeding tolerances are subject to seizure and the applicators or producers are subject to prosecution, if misuse is found.
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- **Pest Resistance**

Pesticides are important pest management tools. Many pesticides have gradually lost their effectiveness due to the development of resistance by pests they once controlled. Pest resistance is an heritable and significant decrease in the sensitivity of a pest population to a pesticide that is shown to reduce the field performance of pesticides. Pests may include insects, mites, weeds, and fungi and bacteria which cause plant disease. The management of pesticide resistance development is an important part of sustainable pest management and this, in conjunction with alternative pest management strategies and Integrated Pest Management (IPM) programs, can make significant contributions to reducing risks to humans and the environment.

- An important pesticide resistance management strategy is to avoid the repeated use of a particular pesticide, or pesticides that have a similar target site of action as the pest control mechanism in the same field. One pest control strategy is rotating pesticides and/or using tank mixtures or premixes with different mode/target sites of action. This will delay the onset of resistance, as well as slow the development and subsequent buildup of resistance, without resorting to increased rates and frequency of application, and ultimately, will prolong the useful life of many pesticides.
- A resistance management strategy should also consider cross-resistance between pesticides with different modes/target sites of action. Pests may develop cross-resistance to pesticides based on mode/target site of action.