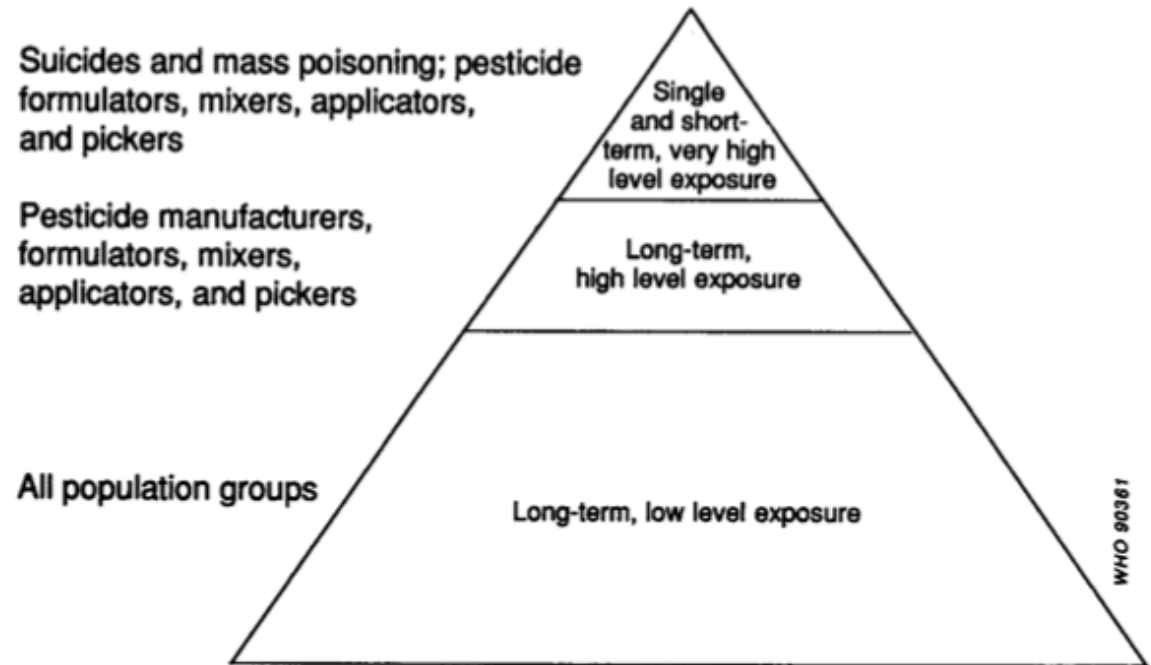


# Types of Exposure

- **Davies et al (1980) and Davies (1984)** described categories of pesticide exposure and approximate size of the population at risk in each case.
- They used a **triangle** to represent the large population with low-level exposure and smaller group with extreme exposure



The width of the triangle indicates the approximate size of the exposed groups

\* Adapted from Davies et al. (1980) and Davies (1984).

# Toxicity

- The **degree** to which an organism can be **harmed** by a substance is known as **toxicity**.
- Toxicity can affect the health of the organism as it has the ability to alter the **normal physiological, biochemical, and pathological** conditions.
- The scope of these effects varies from **headache, coma, convulsions,** to **even death**
- Animals, such as dogs, rabbits, and mice are typically employed for carrying out the process of **pesticide testing**.

# Toxicity

- The **primary aim of testing** is to find out the **toxicity type** and dosage required for determining a toxic reaction.
- Some of the effects caused are not necessarily harmful in the long run and are **reversible**. This can also be ensured with a prompt medical assistance.
- However, there are **toxicants** whose effects are **irreversible**. Various international bodies are involved in the development of guidelines for testing of pesticides.

# Toxicity

- **Organization for Economic Cooperation and Development (OECD)** has developed guidelines for chemical testing. The OECD's guidelines contain internationally accepted methods for **pesticide testing**.
- These methods are employed by the **industry, government, and independent laboratories** and are used to figure out safety of chemicals and their preparations.
- These guidelines also cover industrial chemicals and pesticides

# Categories of Toxicity

- Toxicity can be categorized as **acute and chronic** on the basis of the **number of exposures** to poison and **time taken** for developing toxic symptoms.

## **Acute Toxicity**

- Exposure is of the short duration in the case of acute toxicity and results can be observed within a short period of time.

## **Chronic toxicity**

- is the result of **repeated or long-term exposure** to a poison. In the chronic toxicity, adverse results are observed after a considerably long time

# Type of Toxicity

**Table 1** Type of toxicity

<i>Type of toxicity</i>	<i>Time for symptoms to develop</i>
Acute	Immediate (minutes to hours)
Chronic	One week to years

**Source** Nesheim, Fishel, and Mossler (2012)

# Toxicity

- Test animals are subjected to **numerous dosages of the active ingredient** and its formulated products for determining the pesticide's toxicity.
- The pest is controlled by the chemical component of the pesticide called the active ingredient .
- For making pesticide users aware of the acute toxicity of a pesticide, different marking labels are used.
- There are four types of marking labels: **highly toxic, moderately toxic, slightly toxic, and relatively non-toxic**