

Methods of Resistance Measurement (the "Resistance" techniques manual)

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Applications of Resistance Detection and Monitoring

- To document geographical and temporal variability in population responses to insecticides selection pressures**
- Resistance detection bioassays also determine the relative efficacy of insecticides**
- Serves an early warning of the field control failures**
- Bioassays diagnose and confirm the causes of pest control of pest control failure**
- Helps to evaluate the impact of implementing resistance management strategies**



Resistance Detection Methods

1. Conventional bioassays

2. Biochemical assays

3. Molecular assays



Field dose assay

Log dose probit assay

**Discriminating dose assay / diagnostic dose
assay**



Protocols for Resistance Monitoring

Sampling and rearing techniques

Setting up laboratory cultures

Diet preparation



Bioassays

- Stage of the insect
- Choice of insecticides
- Bioassay response
- Method of application
- Bioassay environment
- Diet
- Health of the organism
- Sampling
- Sample size
- Operator skills



Commonly used Boassay Methods

- ◆ Topical application
- ◆ Immersion method
- ◆ Insecticide surface coating assay
(Glass vial residue tests)
- ◆ Diet incorporation
- ◆ Spray tower
- ◆ Synergism studies



◆ **Bioassay with transgenic plants)**

◆ **Synergism studies**

◆ **IRAC Methods 1-10**

◆ **Neuro physiological assay**

◆ **Chemical assay**

