Factors Affecting Mosquito Landing/Biting activity in Field Environment

COL Raj K. Gupta, Ph.D
Science Director
Walter Reed Army Institute of Research
Silver Spring, MD

An Insect Repellent

- Dethier defines a repellent as a chemical that causes the insect to make oriented

  movement away from its source

  - » Vapor repellents – Deet, Icaridin, KBR3023, etc
  - » Contact repellents – Indalone, Permethrin

First/Second Landing or Bite

- Variable Factors
  - » Skin
  - » Temperature
  - » Age
  - » Hairs on skin surface
  - » Density of mosquito population

Factors Affecting Landing/Biting Activity

- Mosquito Population
  - » Lack of coordination or agreement
  - » Varies with density
  - » Susceptibility
  - » Age
- Test Sites
  - » Weather – temperature, wind, humidity, light
  - » Terrain
  - » Fauna/flora

Factors Affecting Landing/Biting Activity

- Test Subjects
  - » Attractancy
  - » Skin type
  - » Skin chemistry
  - » Skin temperature
  - » Skin Permeability
  - » Blood content and circulation

Factors Affecting Landing/Biting Activity

- Test Methods
  - » Experimental design
    - – Exposure skin surface
    - – Selection of treatment/control subjects
  - » Continuous and time sampling
  - » Realistic comparison
- Cannot predict initial or confirming event