

- **Pengendalian tidak langsung (Indirect control):**
- **Pengendalian hama dengan cara memodifikasi lingkungan sehingga populasi hama tidak berkembang sampai taraf outbreak**

B.1. Mechanical and chemical methods

Modification of food supply

- Barrier
- Reducing quantity of food
- Changing food composition

Modification of moisture

- Reduction of moisture
- Increasing moisture

- B2. Biotic methods: kompetisi, introduksi parasit dan predator

B.3. Silvicultural practices

-Regulation of forest composition

Mixed stand

Diversifying single-species

-Regulation of density

Thinning

Encouraging straight growth

Eliminating alternate host

-Improvement of planting stock

Breeding trees for resistance *)

Selection from desirable parents

***) Ketahanan : genetik dan ekologis**

Ketahanan genetik:

Mekanisme:

- Non-preference

Kimiawi dan morfologi

Empoasca sp

Heliothis sp

-Antibiosis (alkaloid, glukosid dll)

-Toleran

Ketahanan Ekologis

- Host evasion**
- Induced resistance**
- Escape**

- **Kekurangan**

- Waktu dan biaya pengembangan
- Timbulnya biotipe baru
- Ketahanan yang berlawanan.

Keuntungan:

- Penggunaan murah**
- Spesifik**
- Kumulatif**
- Kompatibel**
- Dampak negatif rendah**

Practices that favor pests

Disregarding site quality

Developing single species forest

Using injurious Logging Practices

- **B.4. Regulation**

- **-Legislative approach**
- **-Quarantines and Embargo**
- **-Inspection and certification**

TERIMA KASIH