Pest Management - Holistic Pest Control?

1. Origins and early methods of control

Roy Bateman (BCCM)

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Prof. Michael Way

- Started Silwood MSc course (1960)
- Important research on IPM, *Aphis fabae*, and other insects

Fact or Fiction?

- Pests and diseases are a direct result of the intensification of agriculture
- The intensification of agriculture has led to the intensification of pest and disease problems
- Pest and disease problems are a direct result of the use of synthetic pesticides
- Large monocultures are un-natural and lead to pest and disease problems
- Small diverse cropping systems are pest and disease free

Pest Control Time Line

- Small is beautiful
- Agricultural revolution
- Use what you can
- Biological Control
- Blast those pests
- Integrated Pest Management
- Integrated Crop Management

1. Small is Beautiful

- Diversity rules
  - Cottage/home gardens
  - Strip farming
  - Rotations
  - Manpower
  - Cultural control

Cottage/home gardens

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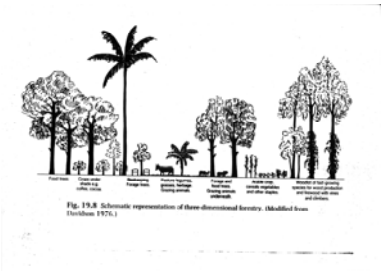

Example: cocoa production

Cocoa production

Extensive

- Often “organic by default”
- Low / no inputs
- “Machete technology”
- Sometimes land ownership issues
- Typical yield 200-500 kg/ha

Intensive

- Fertiliser & pesticides
- Much greater rewards for technical improvement
- **Control of crop architecture**
- Potential yield may be >2000 kg/ha

Cultural / Mechanical control methods

- Still the basis of disease & insect control in many crops?

Which is really more sustainable?

Small is Beautiful

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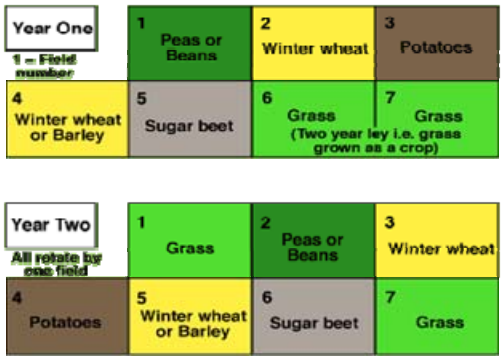

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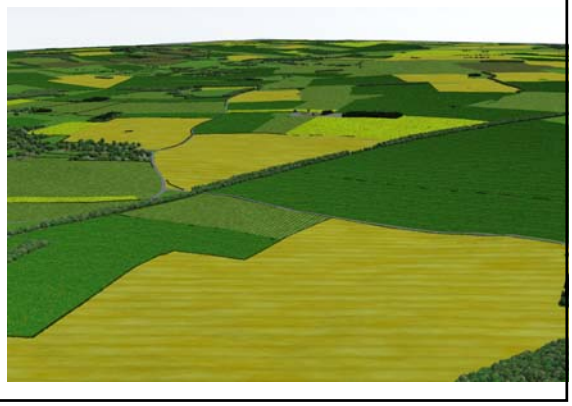
Agricultural Revolution

- Machinery
- Scientific method
- Rotations explained
- Bigger farms
- Bigger fields



Use What You Can

- Plenty of labour
  - Static scarecrows
  - Boys with sticks
- First Pesticides
  - Sulphur
  - Tar oil
  - Arsenic compounds

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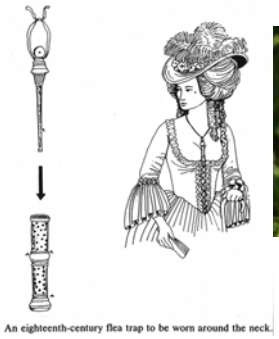
- First Pesticides
  - Sulphur (8-9th century BC ?)
  - Arsenic compounds (15th century - perhaps 10th century in China)
  - Nicotine (17th century)
  - Tar oils (18th century)
  - Bordeaux mixture (1882)

Homer (approx. 850 BC ?) - "pest-averting sulphur"

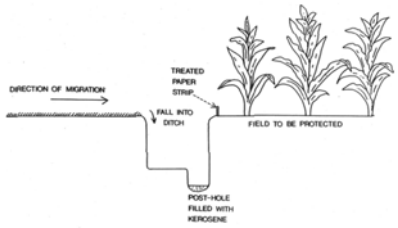
Ingenious attempts at "lure and kill"?



An eighteenth-century flea trap to be worn around the neck.

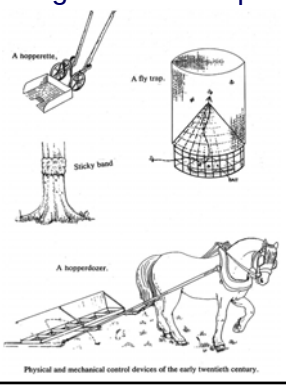
Fleabane
Pulicaria dysenterica

Ingenious attempts … physical barriers



Paper strip barrier and post hole trap for protection of crops from migrating insects (e.g., chinch bug nymphs, migrating larvae of army worms). Migrating insects fall into ditch and are killed in kerosene. Tarred paper, saturated with creosote, repellent to chinch, is an additional deterrent preventing these insects from being blown across the barrier.

Ingenious attempts?



Physical and mechanical control devices of the early twentieth century.

… and then came chemical pesticides

Time for a break …