

# A Short History of Pest Management

The field of Integrated Pest Management development. (Outline from M. Frazier; IPM in the Classroom 1997)

The ecological approach to pest management (rather than simple and repeated attempts at eradication using chemical pesticides) had been championed by scientists for years (see quote below). However, during this century, it took many years and the development of public agencies with oversight of pesticide issues and public monies to fund such research.

Some of the key events in pest management over the years are outlined below.

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"The agriculture journals have from year to year, presented through their columns, various recipes, as preventive of the attacks, or destructive to the life, of the "curculio," the "apple-moth," the "squash-bug," etc. The proposed decoctions and washes we are well satisfied, in the majority of instances, are as useless in application as they are ridiculous in composition, and if the work of destroying insects is to be accomplished satisfactorily, we feel confident that it will have to be the result of no chemical preparations, but of simple means, directed by a knowledge of the history and habits of the depredators."

The Practical Entomologist (October 30 1856)

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## First farmers

Did not so much "control" as allow for pests  
(plant enough for themselves and the pests, such as deer, rabbits, insects, etc.)

2500 B.C.

Ancient Sumerians used sulfur compounds to kill insects  
- earliest record of insect pest control

? B.C.

Egyptians and Chinese use herbs & oils to control insect pests

300 B.C.

Chinese recognize phenology (connection between climate and periodic biological phenomena) as a science- led to timing the planting of a crop to avoid pest attacks

Chinese use natural enemies to control pests

- ants on citrus to reduce pest infestations

1101 A.D.

The Chinese discover soap as a pesticide

1600's

Tobacco infusions (nicotine), herbs and arsenic become the major materials used for insect pest control

1700's

Reaumur publishes on the importance of temperature summation in determining insect phenology

plant resistance to insects discovered

1800's

imperial expansion --- introduced pests

San Jose scale

Colorado potato beetle

-major losses - leads to inspections, quarantine procedures, increased interest in pest control

1860's

Paris green (mixture of arsenic and copper sulfate )used for the control of Colorado potato beetle

late 1800's - early 1900's

boom in development of insecticide application equipment

1920-30's

pesticides were largely ineffective, expensive, hazardous and somewhat phytotoxic

Synthetic Pesticide Era--1939 to ?????

Prior to this time, insecticides were formulated from petroleum, coal tar distillates, plants or inorganic compounds

1930's

trend toward synthesizing new compounds

-moth-proofing agents

DDT

- synthesized by a German graduate student 1873

- Paul Muller, (Swiss) discovers insecticidal activity

- saves many soldiers' lives during WWII (body lice - typhus)

- such an impact on human health -- Muller wins 1948 Nobel prize in medicine

During WWII both the Germans and the Allies working on the development of organophosphates as nerve gases. They discover the insecticidal properties of these chemicals

After WWII development of other chlorinated hydrocarbons and organophosphates as pesticides

1950's early 60's

"The Green Revolution"

- synthetic pesticides and fertilizers the answer to world hunger!?? (Was that the question?)
- trend away from understanding pest phenology, density or damage potential and toward pure chemical approach

1962

Silent Spring

Rachel Carson publishes the book "Silent Spring"

Brings the issue of pesticide safety to the attention of the public:

- Adverse effects on wildlife, water quality, human health?
- DDT found in milk and foods (biomagnification)
- Resistance of pests to pesticides ("super bugs" & weeds)

Response to book leads eventually to public policy changes in 1970's

1970's

Serious beginning of research on IPM approaches to pest control

USDA creates nationwide IPM Program in Land Grant Universities

EPA created & given jurisdiction over pesticide registration & regulation

institutes Pesticide Education Programs in Land Grant Universities

1980's

Increase in IPM research

Beginning of genetic engineering applications in agriculture

1990's

New genetically engineered Bt crops (corn, potatoes) come into use

How will these fit into IPM programs?

Food Quality Protection Act (FQPA) brings changes to pesticide laws in US

New emphasis on softer, and/or more specifically targeted, low-volume chemicals

Issues of children's health emphasized

2000 and beyond

Pest management is always changing and we cannot predict the future. In fact, even in the same time period, people have different ideas about how pest management should be carried out.

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