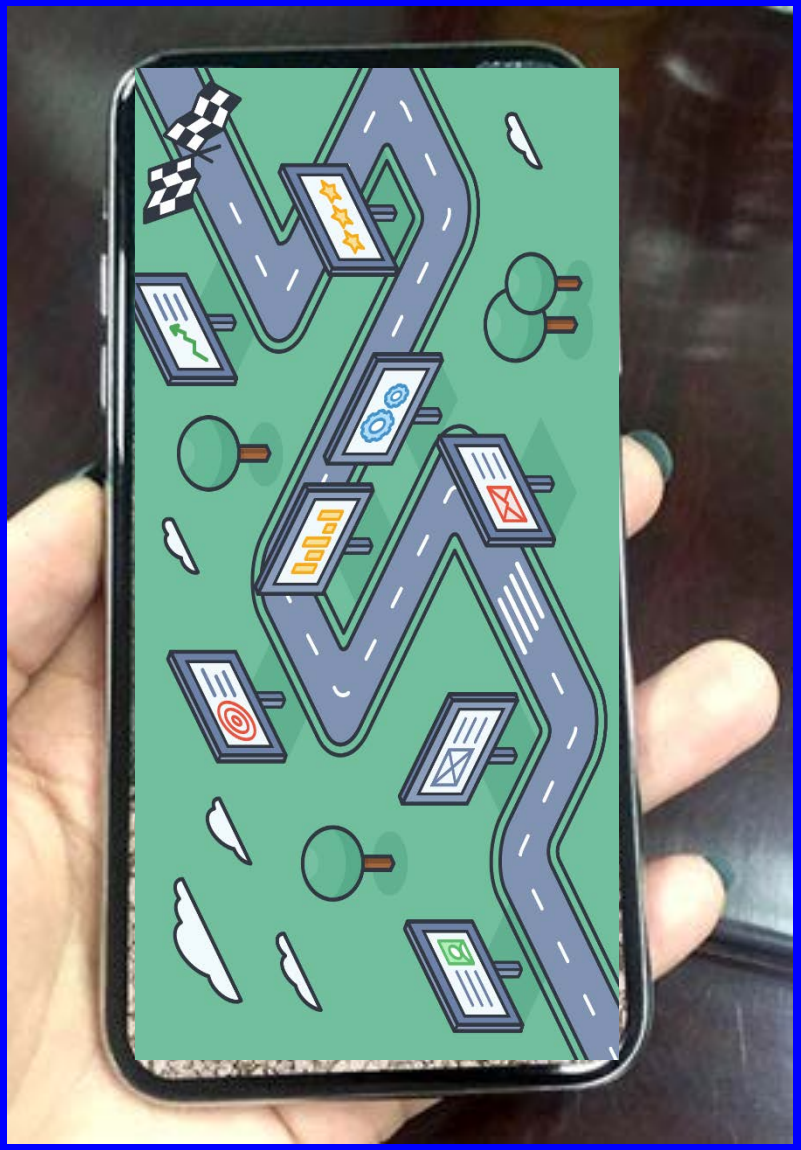


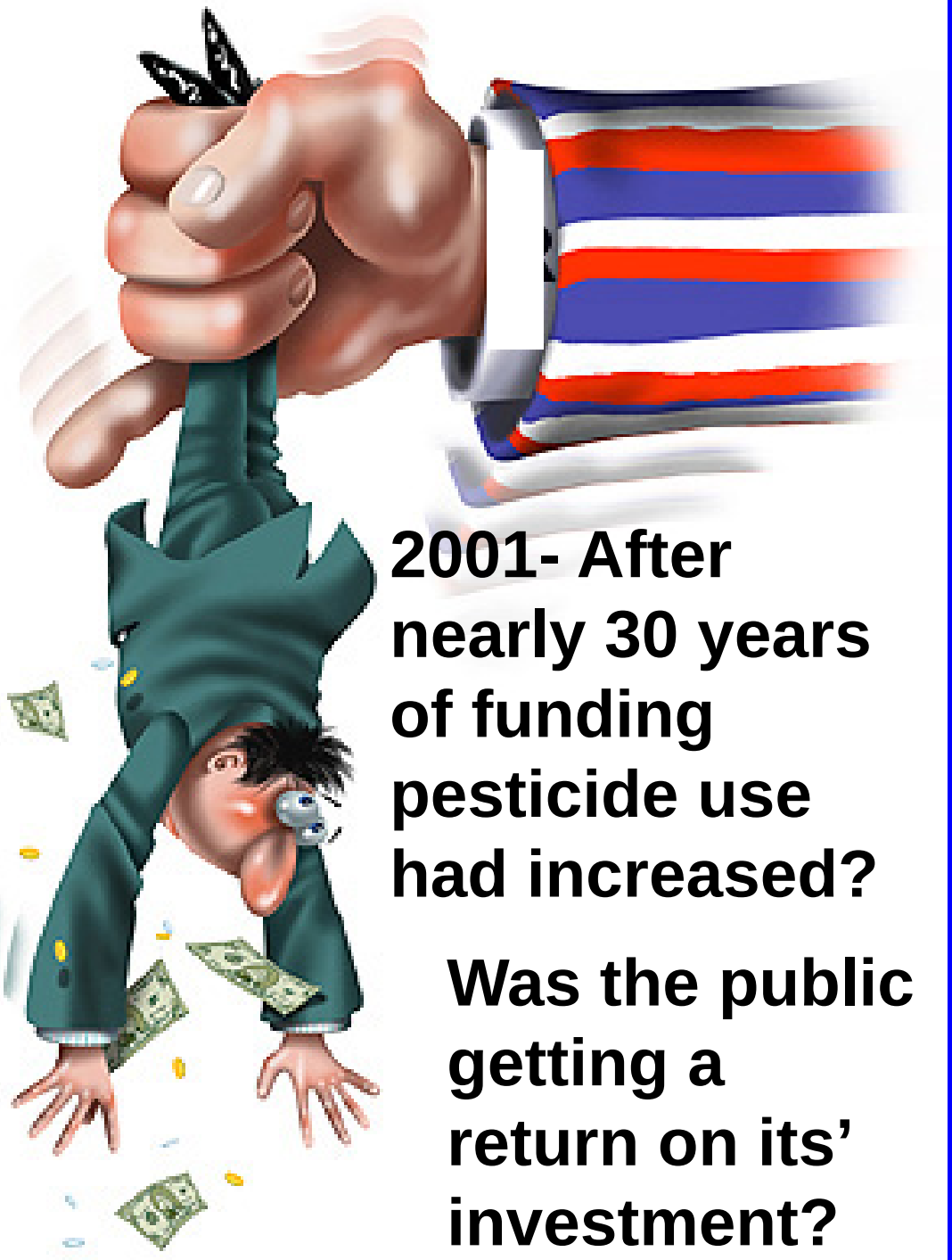
National IPM Road AP?

NATIONAL ROAD MAP FOR INTEGRATED PEST MANAGEMENT

NATIONAL PRIORITIES SETTING WORKSHOP

Government Accountability Office, August 2001

AGRICULTURAL PESTICIDES Management Improvements Needed to Further Promote Integrated Pest Management Report ***concluded that the federal commitment to IPM had waned over the years.***



IPM ?

2001- After nearly 30 years of funding pesticide use had increased?

Was the public getting a return on its' investment?

Although obvious benefits could be measured for IPM, where was the program headed?

Government Accountability Office, August 2001

2001 AGRICULTURAL PESTICIDES
Management Improvements Needed to Further Promote Integrated Pest Management Report

- No one was effectively in charge of federal IPM efforts
- Coordination was lacking among federal agencies and private sector
- Methods for measuring IPM's environmental and economic results had not been developed

2001 AGRICULTURAL PESTICIDES Management Improvements Needed to Further Promote Integrated Pest Management Report

- Determined until these shortcomings were addressed, the full range of potential benefits that IPM can provide is unlikely to be realized
- In response, USDA pledged to develop a comprehensive, authoritative, and focused roadmap for IPM

Roadmap Objectives

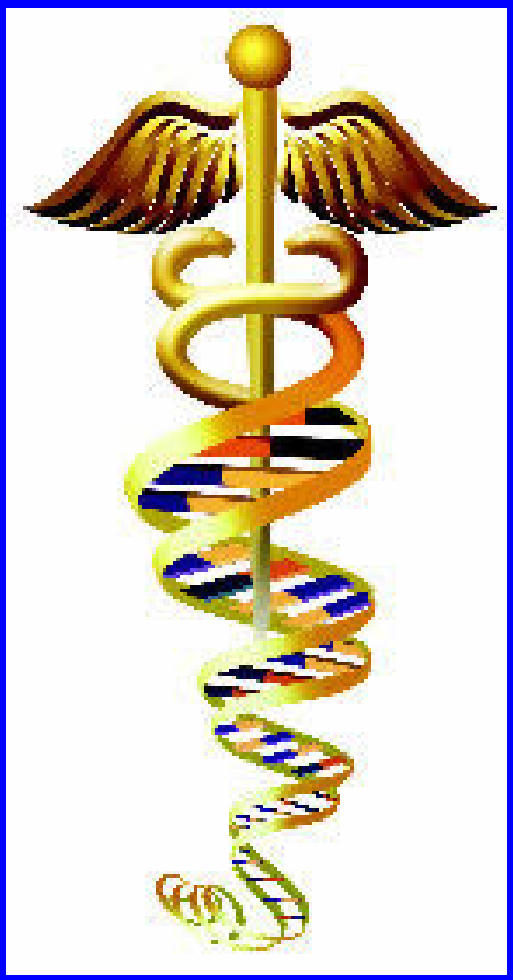
- Two versions- 2003 and 2013
- Scheduled for revision in 2018
- 2013 overarching goals:
- Increase nationwide communication and efficiency through information exchanges among federal and non-federal IPM practitioners
- Service providers including land managers, growers, structural pest managers, and public and wildlife health officials with IPM Tactics and strategies

THE IPM ROAD MAP

- **Program identifies strategic directions for IPM research, implementation, and measurement for all pests, in all settings, throughout the nation.**
- **This includes pest management for all areas including agricultural, structural, ornamental, turf, museums, public and wildlife health pests, and encompasses terrestrial and aquatic invasive species.**

Program Goals

- Improve the economic benefits of adopting IPM practices and to reduce potential risks to human health



IPM Focus Areas
Production Agriculture

- **Development and implementation of economical and effective IPM systems for crops and commodities consumed by humans.**

IPM Focus Areas
Natural resources and recreational environments

- **Protect public health and ecosystem function and minimize adverse environmental effects on natural areas, while maintaining functional and aesthetic standards.**

IPM Focus Areas
Residential and public areas

- **Exposure to pests and the tactics used to control them occurs where people live, work, and play**

Future direction

Improve cost benefit analysis when adopting IPM practices

Conduct an analysis based on 4 main parameters:

monetary,

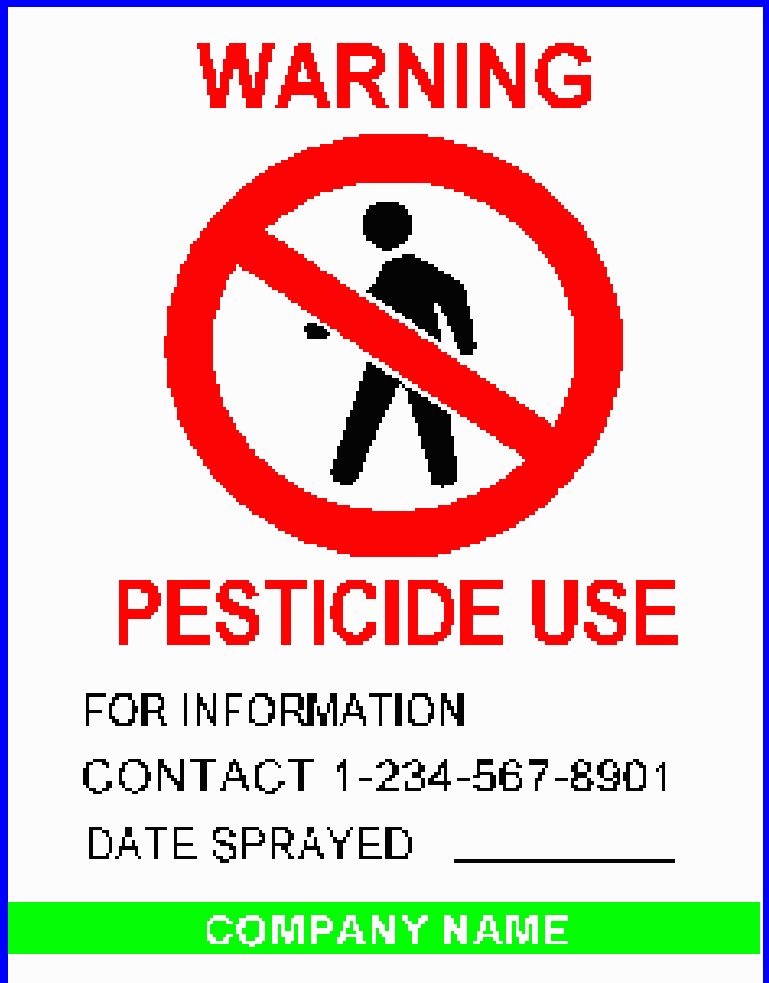
environmental/ecological health and function,

aesthetic benefits

human health.

Future direction

Reduce potential human health risks from pests and related management strategies



- **Success in reducing the health risks from pest management practices themselves were measured in the past by tracking changes in the annual amount of pesticides used in the United States.**

Future direction

Minimize adverse environmental effects from pests and related management strategies

- **IPM practices promote a healthy environment, and conserves organisms that are beneficial to ecological systems, including pollinators and natural enemies.**

RESEARCH, TECHNICAL DEVELOPMENT, EDUCATION, IMPLEMENTATION

- 1) Develop new strategies and tactics for pest management.
- 2) Enhance public and private education infrastructure, and
- 3) Increase adoption and implementation of IPM.

Research Needs

- Pest biology and host/pest/climate interactions
- Advanced management tactics for specific settings
- Economical high-resolution environmental and biological monitoring systems
- New diagnostic tools
- New generation low-risk suppression tactics

Research Needs

- Action thresholds for vector borne diseases
- Improve efficiency of suppression tactics
- Understanding of non-target impacts of pest management tactics
- Diagnostic tools for identifying pests

Research Needs

- Web-based information resources of major crop-pest systems
- Integrate postharvest pest management approaches to food grains and food products both in field and in storage
- Assess success in resistance management

Technical Development

- Devise new options that provide effective, economical and environmentally sound management of pest populations.
- Provide science-based information concerning the risks and benefits of IPM to the public.

Education

- **The Federal Agency Core IPM Certification Training Program should be installed**

Implementation and Adoption of IPM

User Equilibrium Necessary Conditions

$$L_{t_1}^{i,j} = \ldots = L_{t_k}^{i,j} \leq \ldots L_{t_{k+1}}^{i,j} \leq \ldots \leq L_{t_{m^{i,j}}}^{i,j}$$

$$\lambda_r^{i,j} > 0 \qquad \text{for } r = 1, \ldots, k$$

$$\lambda_r^{i,j} = 0 \qquad \text{for } r = k+1, \ldots, m^{i,j}$$

$$\lambda_r^{i,j} = \alpha_r^{i,j} \lambda^{i,j} \qquad \text{for } r = 1, \ldots, m^{i,j}$$

- **Develop user incentives for IPM adoption reflecting the value of IPM to society and reduced risks to users**

Implementation and Adoption of IPM

- **Provide educational opportunities for IPM specialists**

Implementation and Adoption of IPM

- **Create public awareness and understanding of IPM programs and their economic, health and environmental impacts**

Implementation and Adoption of IPM

- **Leverage federal and state resources to enable on-site research, extension, education and training for end users**

Implementation and Adoption of IPM

- **Ensure a multi-directional flow of pest management information by expanding existing and developing new collaborative relationships**

Implementation and Adoption of IPM