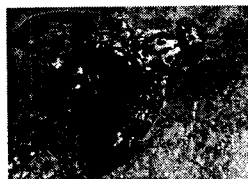


# The Economics of Sterile insect technique

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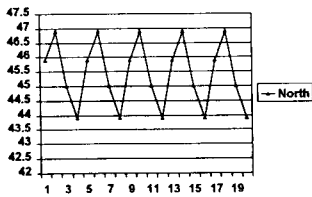
## Perceptions of medfly

- Public



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- Scientist



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- Grower

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## Why are we interested in economics?

- Grower
  - is it cheaper than current method?
- Donor (industry)
  - is this a good use of our money?

## Economic questions about SIT

- Should SIT be used for eradication or suppression?
- What scale of suppression will work efficiently?
- How to get more private capital for SIT?
- Could “MicroSIT” suppression compete with insecticide?

## Eradication and suppression

- Eradication is a political decision
- Requires state action
- Has long term consequences
- Suppression is an economic decision
- May require state action
- Can stop and start

## Economic analysis of SIT

- Market alternatives/objectives
- Technical feasibility
- Scale
  - space region/area
  - time
- Distribution of benefits
- Cost recovery?

## What goes in to the analysis?

- “Basics”
  - Production
  - Prices
  - Current losses
  - Current control costs
  - SIT control costs
  - Projected losses

## What else goes into the analysis?

- Discount rate
  - “reflection of risk”

## What does the analysis tell us?

- Does it make money ?
  - benefit-cost ratio
  - how quickly? - payback period
- How best to manage programme
  - Treatment using zones - optimise factory etc.

## What else could go into the analysis?

- Environmental costs
  - Bees (honey & pollination)
  - Water quality
  - Phytotoxicity
  - Public health (acute/sub-acute poisonings)
  - Non-target organisms
  - Organic production

## Economic issues: eradication

- Essential for market access, competition or vector control
- Sterile factory capital cost may be limited to short 'full operation' life of factory
- Initial population suppression cost
- High costs for non-commercial areas
- Impact (benefits) mainly for export sectors

## Economic issues: eradication

- Increased subsequent investment raises the risk stakes
- High sampling costs for pest-free certification
- Follow-up quarantine, standby control costs
  - Maghreb Medfly eradication - up to 1/3 of total estimated cost, \$100 million
  - Can not separate eradication and quarantine

## Quarantine risk

- Reinvasion and new invasion
  - more air movement, difficult inspection, new routes
- So short political/economic horizons
  - get your money back fast, spend on quarantine, expect to repeat the process

## Economic issues: suppression

- Sterile factory capital cost spread over long 'full operation' life of factory
- Initial population suppression is an annual cost
- Efficient focus on commercial areas
- Continued rearing and release costs
- Lower quarantine and monitoring costs
- Lower insecticide and environmental costs

## “MicroSIT” suppression

- Relatively small area continuous insect suppression
- Local pest management business
- organises grower subscribers
- buys or produces sterile insects
- delivers and releases sterile insects
- monitors and informs growers
- Increases range of markets for sterile insects

## More private investment in SIT

- Large scale eradication
- High entry cost
  - Factory
  - Organisation of large area
- Regulatory issues of access
- Perceived risk of reinvasions, new pests

## More private investment in SIT

- Large scale eradication
- Difficult to recover costs
  - Government or industry as client
  - Added value from private investment?
- Short project life for eradication

## More private investment in SIT

- Large scale eradication or suppression
- Contractor for factory, delivery and release
- Lower cost, more efficient management?
- Quality assurance?
- Guarantees for volume, duration?
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## More private investment in SIT

- Smaller scale suppression
- “MicroSIT” subscription services
- Entrepreneurs can **expand** the market
- Competes directly with insecticide on price and environmental quality
- End-user beneficiaries are involved
- Incentive for field level efficiency, quality

## Conclusions

- Economics should be used to justify project
- Economics should be used to manage project
- Economics should be used to analyse project
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