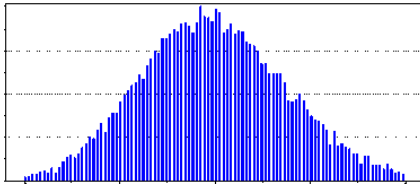


Calculating the Costs of Rearing

From Laboratory to Mass Rearing for Mosquito Control



Jon Knight, Megan Quinlan & Jack Rhodes
Centre for Environmental Policy

Mosquito Production

Increased interest in mass production:

- Advances in genetic, SIT and other methods
- Range expansions
- Resistance to insecticides

Need to estimate the costs of production:

- Commercial planning
- Grant applications - justification

Medfly Financial Spreadsheet

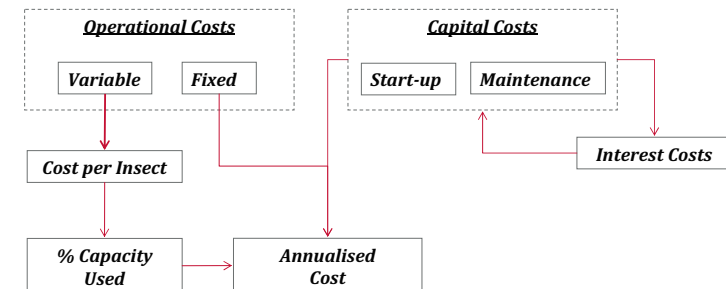
Tool to estimate the cost of insect production

- Range of capital and operational costs
- Estimates based on existing facilities

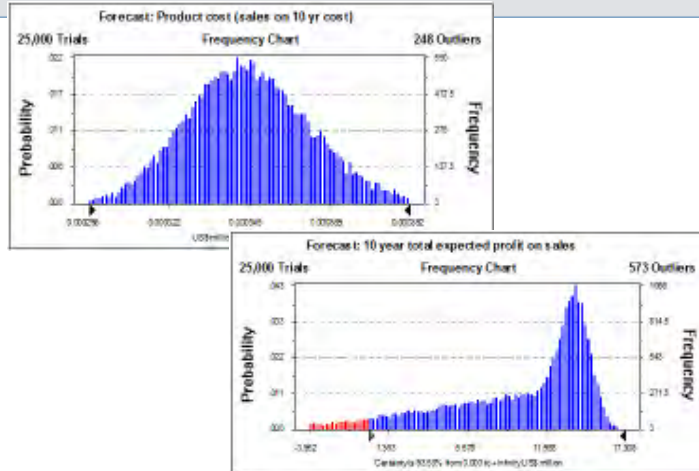
Designed for medfly, later adapted to codling moth

Quinlan et al 2002

Medfly Financial Spreadsheet



Medfly Financial Spreadsheet



Modifications for Mosquitoes

Key differences between facilities

Size:

pilot, programme-linked or mass scale

Funding sources:

commercial or grant

Sexing technology:

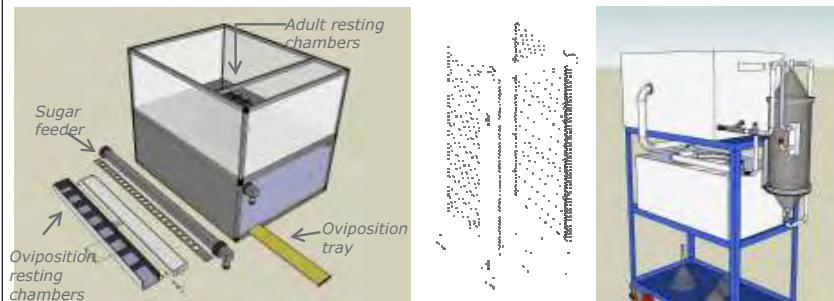
growth stage at which sexing is possible

Genus and species

Separate financial structures and different costs

Example of mass rearing technology

Int. Atomic Energy Agency mass rearing setup



Adult cage
~50,000 adults/cage

Larva culture Larva - pupa
~150,000 separation
larvae/rack 1 million pupae/2 hrs

M. Benedict, pers. co

IAEA mass rearing technology



M. Benedict, pers. co

Example of cost estimates

Brazil – *Aedes aegypti*

- 100m² made up of 6 separate insectaries for experimental production/maintenance of different transgenic lines
- Cost estimate 300,000 reais (US\$180,000)
- Potential to produce 200,000 to 1,000,000 per week

Panama

3.66m x 15m

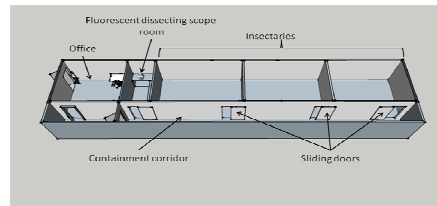
Construction US\$110,000

US\$ 1200 -1400 m²

Equipment US\$ 34,000

Fluorescent microscope

US\$ 20,000



Other Factors

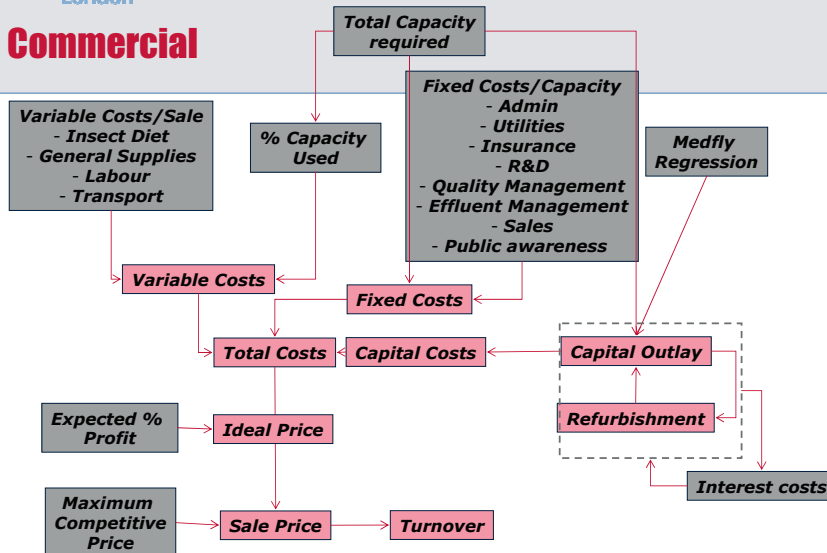
Monitoring/Release Trade-offs:

- Monitoring to determine release rate is expensive
- May be cost-effective to over-release, and save on monitoring

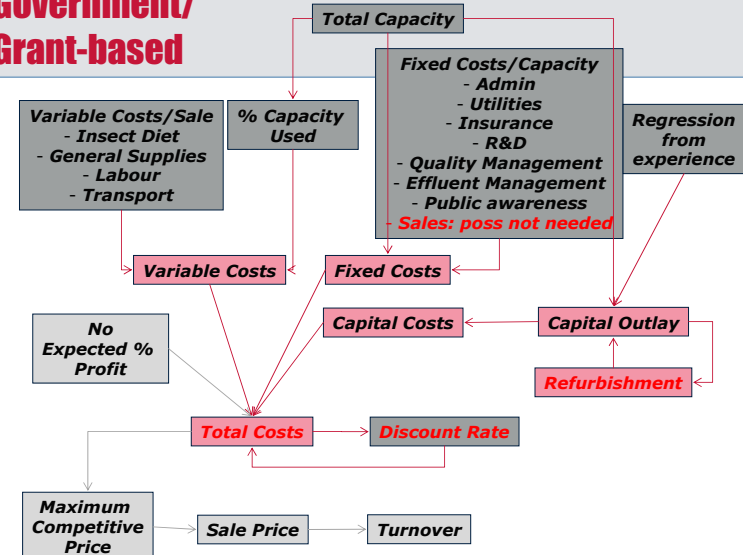
Logistical Concerns:

- Shelf-life of insects during transport
- Customs limits on insects and equipment
- Both determine facility location and size

Commercial



Government/ Grant-based



Thank You