

SUMMARIES OF ALTERNATIVES IN USE – Flowers and Ornamentals

Alternative in use	Target or key pests	Examples
Steam	<i>Fusarium oxysporum</i> , <i>Meloidogyne</i> spp. <i>Agrobacterium</i> spp, <i>Verticillium</i> , arthropod pests, weeds (<i>Cyperus</i> , <i>Oxalis</i>)	Colombia, Uganda. Holland, USA
Substrates	All of the above	Holland, Colombia, Israel, Kenya, Costa Rica, Brazil, Australia, France, Ecuador
Metham sodium	All of the above	Holland
1,3 dichloropropene/ Pic	All of the above	Colombia, USA, Spain

*Within an IPM approach which includes organic amendments (e.g. compost) and resistant varieties

- **The two largest cut flower exporters in the world – Colombia and Holland – do not use MB.**
- **Approx. 65% of MB presently used in floriculture in developing countries will be phased out by 2008 through investment projects**

World Cut Flower Trade

- Cut flower production has shifted significantly to developing countries that export to the industrialised world.
- Over 90% of production is normally exported (no domestic consumption) so these countries must comply with international standards (e.g. eco-labels)

MB alternatives for floriculture – examples of commercial adoption

- **Steam is used on about 900 ha (approx 400 farms) for chrysanthemum production in the Netherlands.**
- **Substrates are used on about 600 ha of roses in Holland, 100% of roses in Israel, 40% of flowers grown in Colombia.**
- **Metam sodium efficiency increased with new application methods (spading).**

Commercial adoption of alternatives to MB in developed countries

- **Technically feasible alternatives have been identified for all cases (MBTOC 2002)**
- **Constraints to adoption mostly relate to regulatory issues (e.g. township caps in USA, restrictions on use of certain chemicals in greenhouses) and product registration or re-registration (e.g. iodomethane)**
- **Some economic feasibility constraints (e.g. steam)**

Lessons learned from MB projects in developing countries

- Efficient alternatives to MB have been found in the vast majority of cases. These work best when used within an IPM framework.
- The capability to adapt to local conditions is essential to the success of any alternative.
- Alternatives evaluated can be introduced to developing countries within periods of 2-3 years. In fact, demonstration projects have led larger or more technically prepared growers to adopt alternatives on their own initiative (e.g. Kenya, Costa Rica, Ecuador)