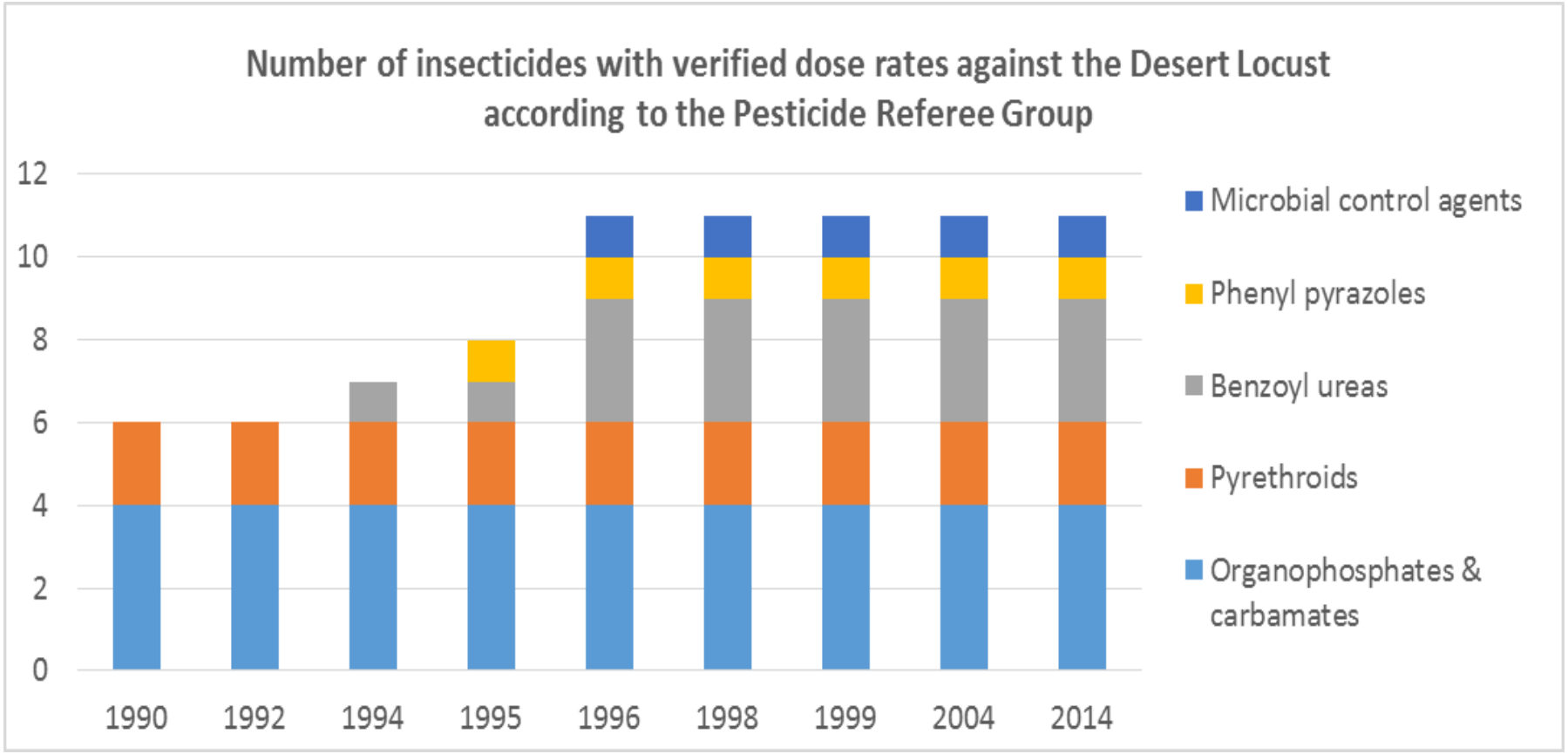
Food and Agriculture Organization
of the United Nations

Stakeholder workshop on the procurement and supply of pesticides for locust control

Insecticides for locust control

Introduction

No new insecticides for Desert Locust have been endorsed by the Pesticide Referee Group (PRG) over the last 20 years

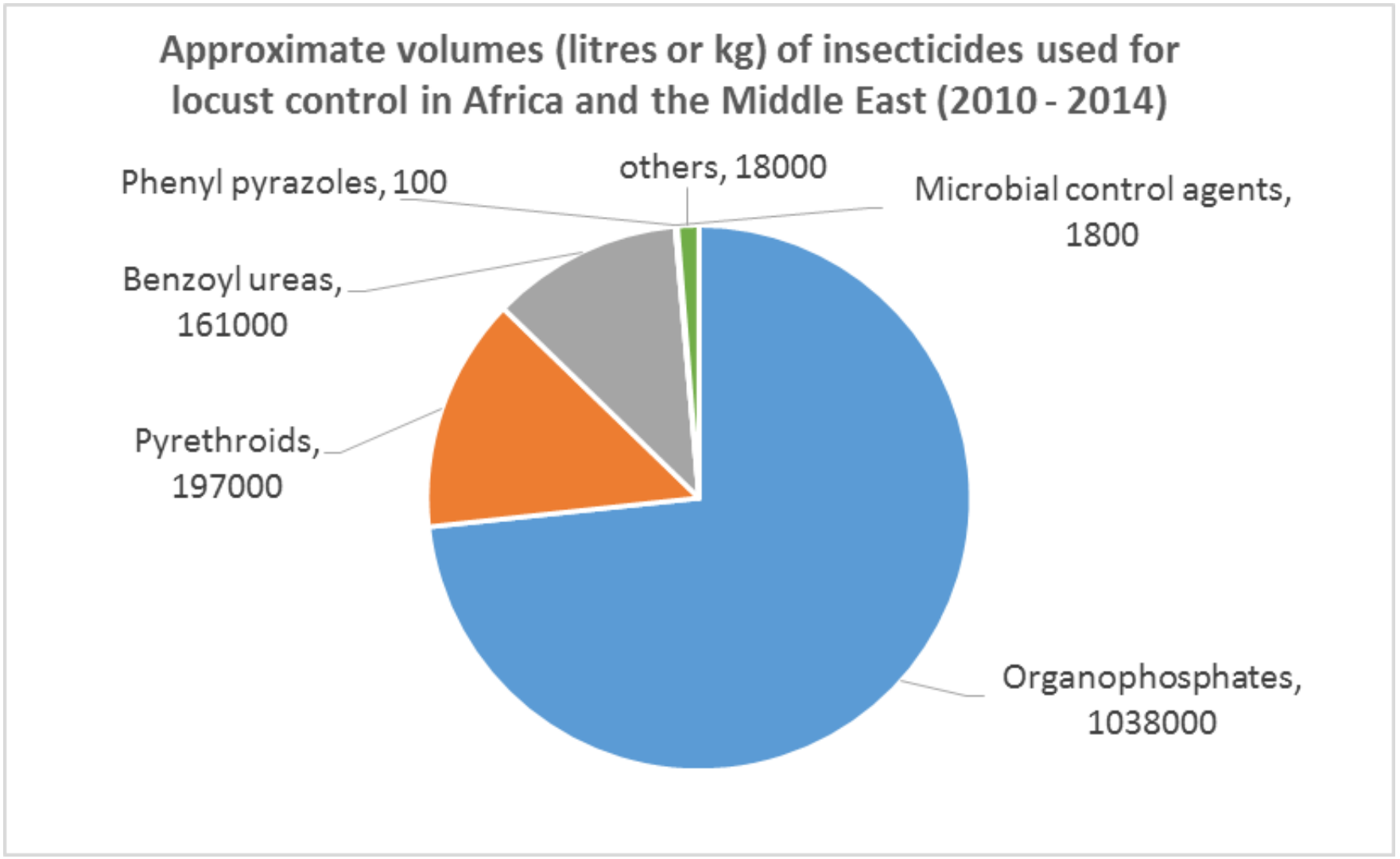


PRG verified insecticides (Desert Locust)

- Bendiocarb
- Chlorpyrifos, Fenitrothion, Malathion
- Deltamethrin, Lambda-cyhalothrin
- Fipronil (barrier)
- Diflubenzuron, Teflubenzuron, Triflumuron
- *Metarhizium acridum*

Some additional insecticides used in the Caucasus and Central Asia

Present use of insecticides



Need for new insecticides

Each of the groups of insecticides has certain constraints, e.g.:

- Organophosphate pesticides have come under increased scrutiny because of human health concerns
- Pyrethroids may result in recovery after knockdown
- Benzoyl-urea IGRs limited to hopper band (larval) control
- Fipronil not available for locust control in Africa
- *Metarhizium* is slow acting and its use is more technically demanding

➔ Need for low risk insecticides having rapid mode of action.

"Ideal" locust control insecticide

➔ Depends on locust target to be controlled

- *Control of recession/outbreak populations, genrally away from cultivated areas*
  - High oral and/or contact toxicity to locusts (to allow low volume application rates of approximately 1.0 L/ha)
  - Moderate persistence on vegetation
  - Low human health risk
  - Low environmental risk (particularly, but not limited to, birds, bees and aquatic organisms)

"Ideal" locust control insecticide

- *Control of swarms and hopper bands, close to or in cultivated areas*
  - High contact toxicity to locusts (to allow low volume application rates of approximately 1.0 L/ha)
  - Low human health risk
  - Low environmental risk (particularly, but not limited to, birds, bees and aquatic organisms)
  - Rapid toxic action, to avoid damage to crops (i.e. knockdown of the insects within 1-2 hours after treatment, without recovery) or swarm movements
  - Low to moderate persistence on vegetation

"Ideal" locust control insecticide

- *Control of hopper bands by barrier treatments, close to or away from cultivated areas*
  - High oral toxicity to locusts (to allow low volume application rates of approximately 1.0 L/ha)
  - Moderate to high persistence on vegetation, but low persistence in soil and water
  - Moderate to high persistence in the insect body, but low bioaccumulation potential in vertebrates
  - Low human health risk
  - Low environmental risk (particularly, but not limited to, birds, bees and aquatic organisms)

Need for new insecticides

Discussion points

- Are insecticides available, or in advanced stages of development, which respond to (part of) the characteristics listed above?
- Have entirely new insecticidal mechanisms been tested on locusts and shown promising results?
- What are constraints for pesticide industry to test the efficacy of new insecticides for locust control?
- What could be the role of FAO in testing new insecticides for locust control?
- What could be done to facilitate and increase the use of biological control agents such as *Metarhizium*?
- Could mixed formulation types (UL/EC ⇨ UF) be appropriate for locust control?