

HOW TO GET THE BEST OUT OF MOVENTO IN MANGOES

- 1 Get the timing right
- 2 Get the adjuvant right
- 3 Get the coverage right

KEY FACTS:

- **Movento** is a very powerful insecticide yet it is soft on beneficial species.
- **Movento** is '2-way systemic'; it can move through a growing leaf canopy to reach scale insect pests which might not otherwise be controlled.
- **Movento** shows a very long-term residual control effect.
- **Movento** is slow to start to work – at least 14 days are required before full activity is evident in mango trees.
- For maximum activity, **Movento** needs an adjuvant to increase penetration into leaf tissue.
- For extreme scale problems, or when pink wax scale is also present, 'back-to-back' sprays of **Movento** + Hasten about 21 days apart will be required to get the best result.
- Use the higher rate when scale pressure is high, or when intervals will be extended, or where nil adjuvant is being used.



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Disclaimer

Always consult the product label for detailed information.

The information and recommendations set out in this brochure are based on tests and data believed to be reliable at the time of publication. Results may vary, as the use and application of the products is beyond our control and may be subject to climatic, geographical or biological variables, and/or developed resistance. Any product referred to in this brochure must be used strictly as directed, and in accordance with all instructions appearing on the label for that product and in other applicable reference material. So far as it is lawfully able to do so, Bayer CropScience Pty Ltd accepts no liability or responsibility for loss or damage arising from failure to follow such directions and instructions.

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Users' guide for mangoes



MOVENTO®

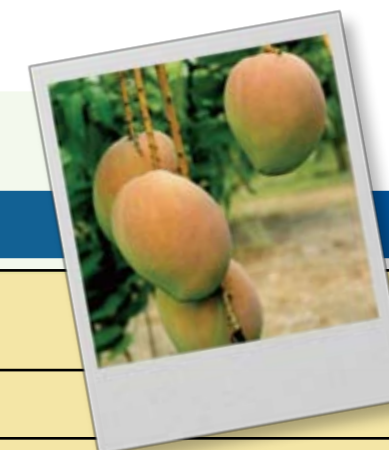
Innovative softer IPM chemistry for the control of scale pests

Movento® 240 SC Insecticide is a powerful new IPM-friendly insecticide for scale pest management in mangoes.

The first Group 23 insecticide registered in Australia, **Movento** is highly effective on pest populations which may have begun to develop resistance to existing registered products.

Movento has unique '2-way systemicity'. After penetrating into leaf tissue, it becomes highly mobile in sap flows both upwards and back down through the tree canopy. This means it can reach those parts of the tree canopy where pests have previously been able to 'hide' and may not have been controlled adequately.

2XSYS



MOVENTO IN MANGO ORCHARDS AT A GLANCE

Pests	White mango scale (<i>Aulacaspis tubercularis</i>) Pink wax scale (<i>Ceroplastes rubens</i>) Citrus mealybug (<i>Planococcus citri</i>) (suppression only)
Rate	30–40 mL/100 L. Consult label for specific rate and use information by target pest.
Adjuvant(s)	Hasten® Spray Adjuvant at 50 mL/100 L of spray mixture. See label. Contact your local Bayer CropScience representative for advice on other approved adjuvants. Do NOT add any adjuvant if any fruit exceed 50 mm diameter (width). Do NOT use wetting agent type adjuvants with Movento on fruiting trees. For the Honey Gold variety, do NOT add any adjuvant when fruit are present on the tree.
Speed of effect	Movento takes some time before full activity becomes evident on tree crops (often 2 weeks or more). Insects must be feeding to be affected by Movento . Scale which are highly mobile and dispersing are not affected by Movento until they settle and begin to feed on sap flows.
Duration of effect	Up to 60–90 days if a suitable adjuvant is used and timing is right. This period of control is much reduced if an adjuvant is not used.
Concentrate sprays	Post-harvest (no fruit) sprays only. Do not exceed 2X concentration if using concentrate sprays. Do not concentrate adjuvants (i.e. adjuvant rate remains as for dilute sprays).
Target stage	Movento is more active on juvenile stages than mature adults.
Spray timing	There are many timing options for the application of Movento . It can be applied post-harvest (no fruit), right up until two weeks before the start of flowering. It can be applied from first fruit set right up until (but not later than) 14 days prior to harvest.
Spray interval	21–35 days between applications if using 'back-to-back' sprays of Movento .
Maximum sprays	Not more than 3 sprays per crop in any 12-month period. Not more than 2 sprays total between fruit set and harvest.
Coverage	Thorough coverage is necessary, though spraying to excessive run-off is wasteful. Minimise over-spraying to avoid drip-point marking on fruit.
WHP	Domestic market: 14 days. Export market: consult Bayer CropScience
Compatibility	See inside for details of compatible products.
Crop safety (fruit)	Movento can cause damage (drip point injury) to mango fruit under some circumstances. To reduce the risk of such damage when fruit are present on trees: do not spray to excessive run-off, do not use wetting agent type adjuvants, do not mix Movento with any other product, except the specified adjuvant when recommended, and do not mix Movento with any other product, including any adjuvant, if any fruit exceeds 50 mm diameter. See inside for additional precautions for the Honey Gold variety.

APPLICATION

Movento benefits from a suitable adjuvant to help it move through the plant's epidermal layers into the leaf tissue, and penetrant-type adjuvants such as Hasten are the most effective.

Once within the plant, **Movento** takes some time (probably at least 14 days or more in mangoes) to reach peak activity, but it has demonstrated a very long residual effect in Australian trials.

It is important to know that when mango trees are stressed, the uptake and translocation of **Movento** after spraying is reduced. Spraying should occur when trees are in good vigour.

MODE OF ACTION

Movento is mainly effective in controlling mango scale pests as they feed. The active ingredient is ingested by the scale as it sucks up sap. Once taken into the insect's gut, it then moves through the insect's body where it acts as a lipid biosynthesis inhibitor. Lipids are particularly important to the growth of immature stages of insects, and this is why **Movento** is more effective on early stages rather than mature adults.

As a result, the early life-cycle stages are the main target of spray applications with **Movento**. If immature female scale insects ingest **Movento** before they develop to a stage where crawler release is possible, then the overall scale populations in plantations can be reduced dramatically.

CROP SAFETY

Movento has been safely applied to many mango varieties including Kensington Pride, R2E2, Keitt, Palmer, Kent, Nam Doc Mai and Honey Gold. However under some circumstances fruit damage has occurred in the form of drip point injury.

To reduce the risk of such damage when fruit are present on trees;

- Do not spray to excessive run-off*
- Do not use wetting agent type adjuvants
- Do not mix **Movento** with any other product except the specified adjuvant, when recommended, on fruiting trees
- Do not mix **Movento** with any other product, including any adjuvant, if any fruit exceeds 50 mm diameter (width).

Fruit of the variety Honey Gold has been found to be particularly sensitive to **Movento**, hence for application to fruiting trees the following additional precaution applies:

- Do not mix **Movento** with any other product, including any adjuvant, on the Honey Gold variety or other varieties where fruit safety of **Movento** plus adjuvants is unknown.

Even when these precautions are followed, some fruit damage has occasionally been noted in the Honey Gold variety.

* Excessive run-off can result in accumulation of deposits at drip points on the bottom of fruit, which can create a blemish if drying conditions are slow. However good spray coverage is necessary, so application volumes should ensure thorough coverage without being excessive.

IPM IN MANGO PLANTATIONS

Movento is 'soft' on most beneficial species. Australian studies have shown that **Movento** has little effect on most parasitic wasps and predatory ladybirds. **Movento** is harmless to hoverflies and lacewings; only slightly harmful to earwigs, spiders and predatory bugs; and only moderately harmful to predatory mites, with no long-term population effects.

Movento is highly compatible with IPM production systems. **Movento** makes possible a new IPM system for scale control in mangoes. Replacing harsh broad-spectrum insecticide options with spray schedules including the 'soft' IPM-friendly **Movento** and/or straight oil sprays allows beneficial species in the trees to survive and prosper, and helps establish a better balance between scale pests and those beneficial predators and parasites of the scale.

COMPATIBILITY

Movento + Hasten is physically compatible with:

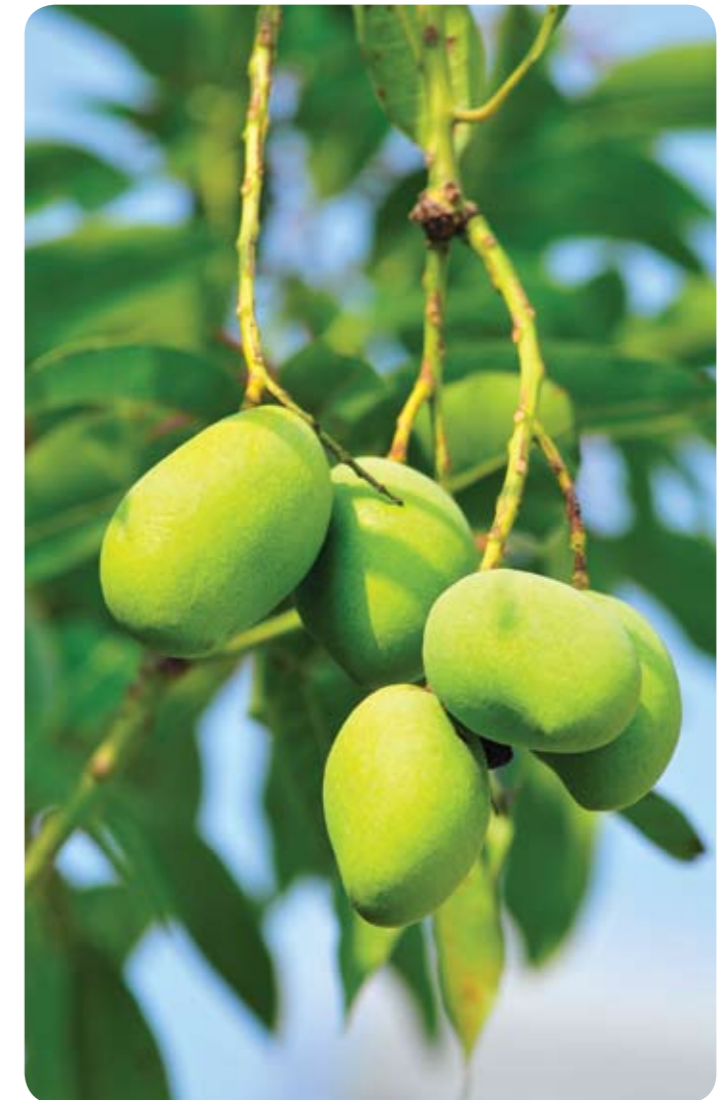
Dithane™ Rainshield	Oxydul® DF	Bugmaster®
Kocide® Blue Xtra	Dimethoate	Thiodan® EC
Sacoa BioPest® Oil	Lorsban® 500 EC	

'Physically compatible' means that it has been shown the products indicated mix readily together and the mixture is stable.

Not all mixtures have been evaluated for safety to the mango crop. Check labels carefully before mixing. Crop safety of mixtures should be checked on a small scale before applying to larger areas.

Do NOT apply **Movento** with any other product (except adjuvant, where recommended) on fruiting crops.

Do NOT apply **Movento** with Amistar® or Supracide®.



WHEN TO APPLY MOVENTO

Example spray programs	SUMMER			AUTUMN					WINTER				SPRING					SUMMER		
	Post-harvest pruning	Reshooting	Dormant leaf bud	Leaf bud break	Expanding coloured leaves	Full sized coloured leaves	Hard dark green leaves	Dormant phase	Flower bud swell	Flower bud burst	Panicle expansion	Early flowering	Full flowering	Fruit set	Fruit stage <10 mm width	Fruit stage 10-30 mm width	Fruit stage 30-50 mm width	Fruit stage >50 mm width	Full sized green fruit	Harvest
Program A Conventional				Non-selective insecticides					Flowering				Movento + adjuvant		Movento + adjuvant			IGR insecticide (e.g. Applaud®, Admiral®)		
Program B Partial IPM				Non-selective insecticides			Movento + adjuvant	Non-selective insecticides				Flowering		IGR insecticide (e.g. Applaud, Admiral)		Movento + adjuvant			Movento + NIL adjuvant	IGR insecticide (e.g. Applaud, Admiral) (Monitor closely, spray if needed) or Non-selective insecticide. (Monitor closely, spray if needed)
Program C Full IPM				OIL	Movento + adjuvant			OIL	Movento + adjuvant	Do not apply Movento within two (2) weeks of the start of flowering		Flowering			Movento + adjuvant				IGR insecticide (e.g. Applaud, Admiral)	

These programs are guides only based on knowledge and understanding at time of preparation. **Movento** has been successfully field tested under all programs shown above. Users are reminded to check all current labels before use of any of the products referred to within this guide.