



Luna[®]
SENSATION

Technical Guide: *Subtropical & tropical fruit*

Key benefits

- » Better fruit quality and shelf life
- » Suits tight harvesting schedule
- » Aids resistance management
- » Flexibility to spray over flowering
- » Complements an IPM strategy



Luna[®] Sensation Fungicide, from Bayer, is a unique combination of fluopyram and trifloxystrobin. This creates a new industry standard for fungal disease management in avocados and a range of tropical fruit crops (Figures 2 & 3 respectively). The exceptional in-field disease control has been proven to result in healthier-looking fruit and superior shelf life after harvest. With a short, 3 day withholding period, it provides the clear advantage of strong disease management close to harvest.

This guide provides growers and agronomists with the information required to get the most out of Luna Sensation in a spray program, ensuring prolonged disease control effectiveness.

How it works

The highly systemic properties allow long-lasting protection even where direct spray contact is not possible (Figure 1). Luna Sensation is robust in an avocado and tropical fruit crop spray program. It can be sprayed without UV light breakdown, or within 4 hours of rainfall. Strong safety to beneficial species and pollinators provides the flexibility to spray over flowering whilst controlling early latent infections of diseases such as anthracnose.

The dual modes of action (Groups 11 + 7) aid resistance management when Luna Sensation is used strategically in rotation with other fungicides. It is best used to prevent fungal infection as a protectant fungicide as part of best-practice resistance management.

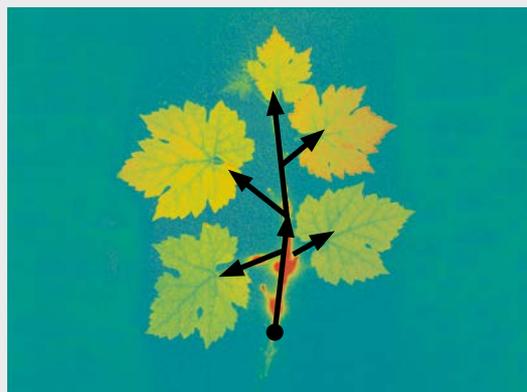


Figure 1. The above radiograph shows how Luna Sensation continues to penetrate through stems and leaves after application to improve disease control and offer protection to unsprayed tissues.

What it delivers

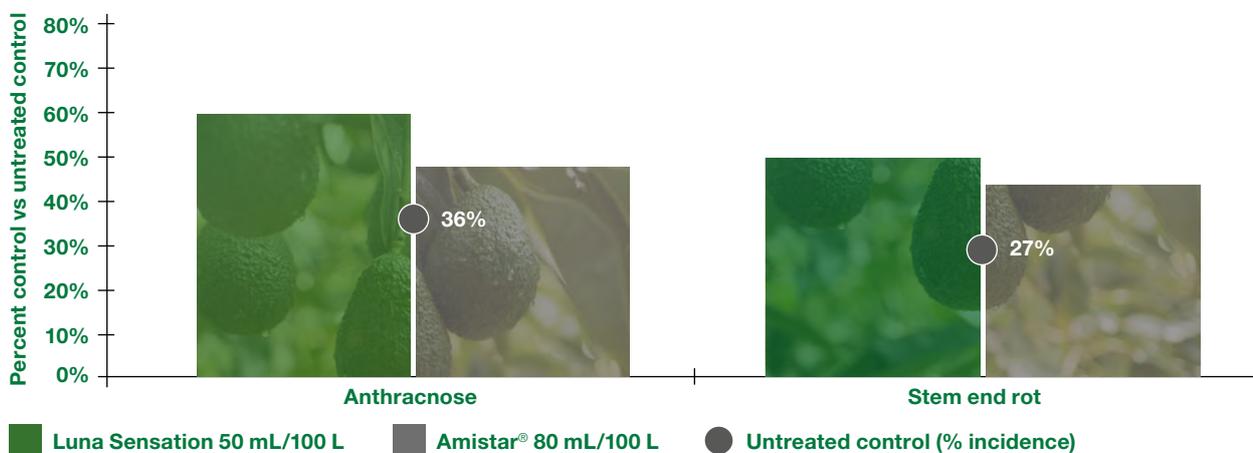


Figure 2. Anthracnose and stem end rot control assessed post-harvest in Shepard and Maluma avocado under high pressure.

Treatment applications made during early fruit set and seven days pre-harvest with copper cover sprays at other timings.
Trial ID: QB1319 & QB0620.



Luna Sensation performance

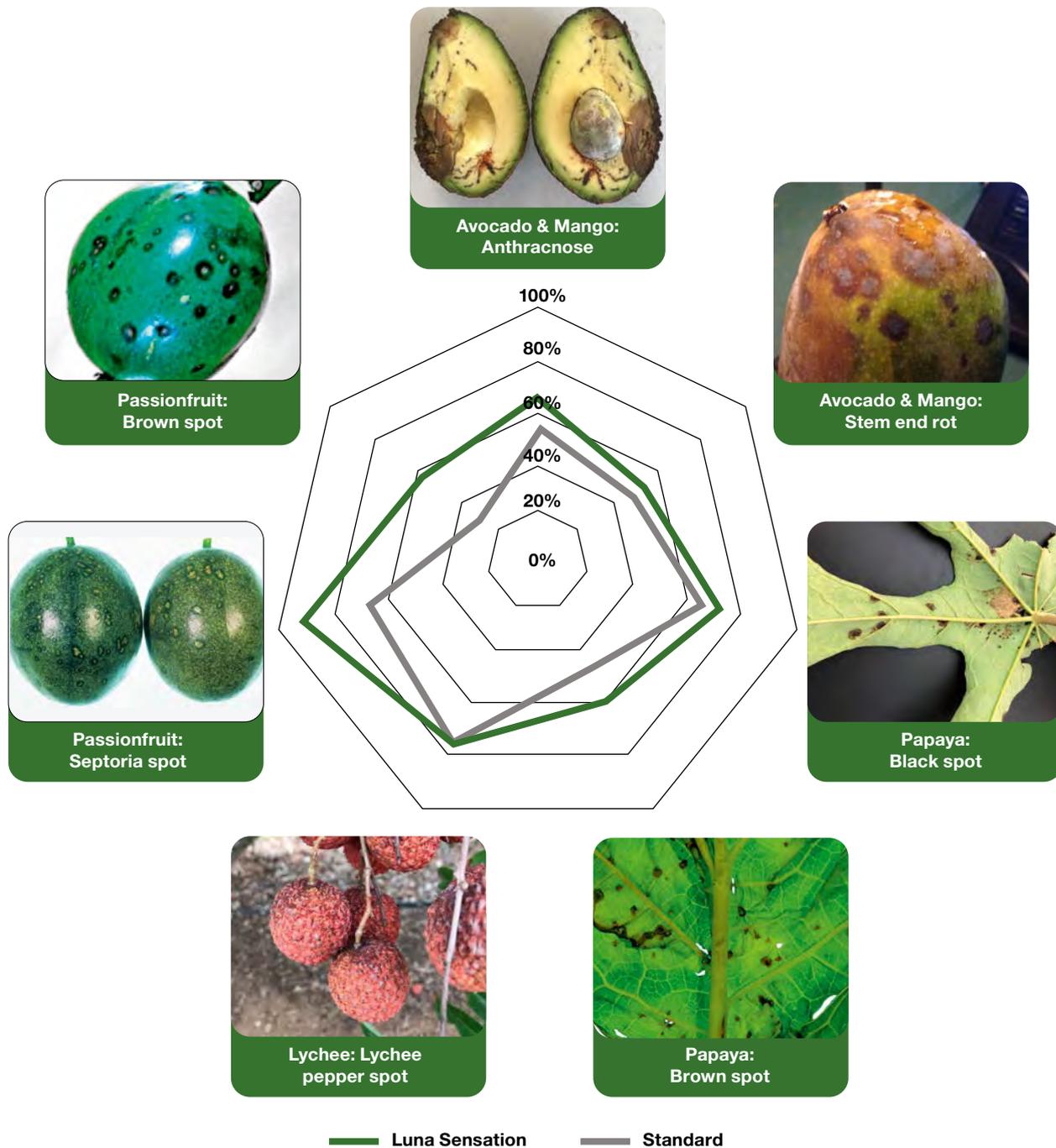


Figure 3. Percent disease control for Luna Sensation compared to the registered industry standard, relative to the untreated control by crop and disease.

Trial ID: Anthracnose QB1319, QB0620 (avocado) & QA1618 (mango) vs Amistar; Stem end rot QB1319 & QB0620 (avocado) vs Amistar; Black spot (papaya) QB9018 & QB9118 vs tebuconazole; Brown spot (papaya) QB8818 vs chlorothalonil; Lychee pepper spot (lychee) QB1219 vs Cabrio®; Septoria spot (passionfruit) QB3018 & QB3218 vs Cabrio; Brown spot (passionfruit) QB3118 vs Amistar.

Crop specific recommendations*



Avocados: Stem end rot, Anthracnose

Apply Luna Sensation at 50 mL/100 L when fruitlets reach pea size. Rotate with other fungicides, including Serenade® Opti and copper, during fruit development. Apply the second application of Luna Sensation as the final fungicide spray 3-7 days before harvest.



Mangoes: Stem end rot, Anthracnose

Apply Luna Sensation at 50 mL/100 L during flowering and repeat application on young fruitlets (e.g. 10-30 mm in size). Maintain a regular protectant fungicide program and apply a systemic fungicide as the final fungicide application prior to harvest.



Papaya: Black spot

Apply Luna Sensation at 600 mL/ha at the start of the infection period (e.g. March). Rotate to alternative fungicides for approximately eight weeks, before reapplication of Luna Sensation. A third application is recommended towards the end of the infection period (e.g. August). Use a maximum of three Luna Sensation applications per 12 months irrespective of whether targeting black spot or brown spot.



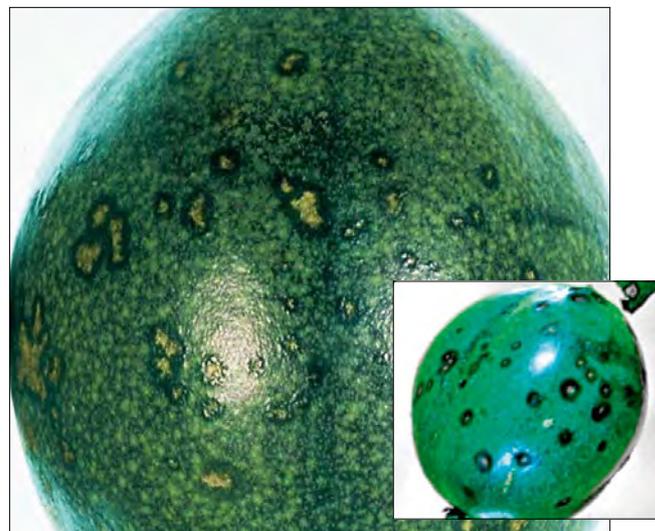
Papaya: Brown spot

Apply Luna Sensation at 600 mL/ha at the start of the wet season infection period (e.g. January/February). Under heavy disease pressure, a second application is recommended 14 days later. Rotate with alternative fungicide sprays before the third Luna Sensation application. Use a maximum of three Luna Sensation applications per 12 months irrespective of whether targeting brown spot or black spot.



Lychees: Lychee pepper spot

Apply Luna Sensation at 50 mL/100 L soon after fruit set (e.g. fruit <10 mm in size). Maintain a regular protectant fungicide program and apply a second application under higher disease pressure. The third application of Luna Sensation should be applied 3-7 days before harvest.



Passionfruit: Septoria spot, Brown spot (inset)

Apply Luna Sensation at 60 mL/100 L as soon as conditions are conducive to disease development. Under heavy disease pressure, repeat application 14 days later. The third application should be made 3-7 days before harvest. Use a maximum of three Luna Sensation applications per 12 month period, despite several crop cycles per year.

*Bayer recommendation for getting the best from Luna Sensation.

Disease guide

Crop	Disease controlled
Avocados, mangoes, and other tropical and sub-tropical fruits, inedible peel (excluding bananas, papaya, passionfruit, pineapples)	Anthrachnose (<i>Colletotrichum</i> spp.) Stem end rot
Lychees	Lychee pepper spot (<i>Colletotrichum gloeosporioides</i>)
Papaya	Black spot (<i>Asperisporium caricae</i>) Brown spot (<i>Corynespora cassicola</i>)
Passionfruit	Septoria spot (<i>Septoria passiflorae</i>) Brown spot (<i>Alternaria passiflorae</i>)

IPM and pollinator safety

Trial work locally and overseas has been completed to determine the effect of Luna Sensation on beneficial species and the trials indicate that the product has a favourable beneficial safety profile when used as directed. Studies have also demonstrated that Luna Sensation has a low impact on bees when used as directed.

Beneficial group	Beneficial species	Beneficial safety	
		International data ¹	Australian data ²
Parasitoid wasps	 <i>Encarsia formosa</i>		*
	 <i>Eretmocerus warrae</i>		
	 <i>Trichogramma pretiosum</i>		
	 <i>Trichogramma</i> sp.		
Lacewings	 <i>Chrysoperla carnea</i>		
	 <i>Mallada signata</i>		
Ladybird beetles	 <i>Coccinella transversalis</i>		
	 <i>Hippodamia convergens</i>		

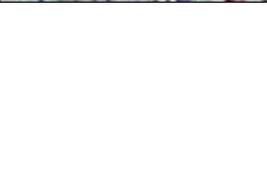
International Organisation of Biological Control (IOBC) Scale
 Classification: **1** = Harmless, **2** = Slightly harmful, **3** = Moderately harmful, **4** = Harmful





Local IPM study

Luna Sensation was tested by laboratory bioassays to determine its impact on seven beneficial insect and mite species. Two types of bioassays for each species (except *Phytoseiulus persimilis*) measured the effects of direct spray application and by contact with dried treatment residue. Overall Luna Sensation treatments were harmless by direct spray contact to all species, and the treatments were mostly harmless through contact with dried residues. *Two exceptions were that dried residues caused moderate mortality to *Nabis kinbergii* and moderate-high mortality to *Encarsia formosa*.

Beneficial group	Beneficial species	Beneficial safety	
		International data ¹	Australian data ²
Predatory bugs	 <i>Macrolophus caliginosus</i>	Green to Yellow	
	 <i>Nabis kinbergii</i>		Dark Green *
	 <i>Nesidiocoris tenuis</i>	Dark Green	
	 <i>Orius laevigatus</i>	Dark Green	
	 <i>Orius</i> sp.	Dark Green	
Predatory mites	 <i>Amblyseius californicus</i>	Dark Green	
	 <i>Amblyseius swirskii</i>	Dark Green	
	 <i>Phytoseiulus persimilis</i>		Dark Green
	 <i>Phytoseiulus</i> sp.	Dark Green	
	 <i>Typhlodromus pyri</i>	Green to Yellow	

Trial ID: ¹IOBC - Preliminary data (unpublished), ²VB1709

Application

The Luna Sensation label has been carefully developed to ensure the most effective control of disease. Ineffective applications can result in the development of resistance. Ensure that all label directions are adhered to at all times.

- The recommended rate for the targeted disease must be used to ensure best disease control results.
- Luna Sensation must be applied prior to the development of the disease.
- Thorough coverage is essential to ensure that the best results can be achieved in preventing disease over an extended period.
- Appropriate timing and targeting of a specific disease is critical to ensure best control.
- Apply as a high volume spray at a water volume appropriate to the crop stage to ensure good coverage of all foliage, flowers and fruit.

Early disease control is vital to ensure good quality produce at harvest. Luna Sensation will target fungi at all growth stages. To ensure best results, applications need to occur prior to a disease event and Luna Sensation should be used in rotation with alternative fungicide products with different modes of action.





Product volume guide

Luna Sensation is limited to a maximum of three applications per 12 months depending on water volume. Refer to this table:

1. Find the water volume being applied per hectare
2. Find the crop and rate being used
3. Note the amount of Luna Sensation applied per application
4. Add each Luna Sensation amount together for all applications
5. Ensure no more than 2 L/ha of Luna Sensation is applied in any 12 month period

Water volume	Amount per application		Number of applications permitted		
	Avocado, mango, etc.	Passionfruit	Avocado, mango, etc.	Passionfruit	Papaya
	50 mL/100 L	60 mL/100 L	50 mL/100 L	60 mL/100 L	600 mL/ha
800	400	480	3	3	Minimum recommended water volume 250 L/ha. Maximum 3 applications
900	450	540	3	3	
1000	500	600	3	3	
1100	550	660	3	3	
1200	600	720	3	2	
1300	650	780	3	2	
1400	700	840	2	2	
1500	750	900	2	2	
1600	800	960	2	2	
1700	850	1020	2	1	
1800	900	1080	2	1	
1900	950	1140	2	1	
2000	1000	1200	2	1	
Do not exceed 2000 L/ha	Maximum of 2 L/ha per 12 months				

Luna Sensation label

Crop	Disease	Rate	WHP	Critical comments
Avocados, mangoes and other tropical and sub-tropical fruits, inedible peel (excluding bananas, papaya, passionfruit, pineapples)	Anthraxnose (<i>Colletotrichum</i> spp.), stem end rot	50 mL/100 L	3 days	<p>Begin applications as soon as crop development has reached susceptible stages for disease infections to occur.</p> <p>Apply Luna Sensation in a preventative fungicide program, incorporating fungicides from different mode of action groups. Intervals between fungicide applications generally should be 14-21 days, but should be modified for locality, disease conditions and weather conditions.</p> <p>Apply a maximum of 3 applications of Luna Sensation (depending on the water volume required to spray to run-off) that would not exceed a total of 2 litres of Luna Sensation per hectare in a 12-month period.</p> <p>Apply as a high volume spray at a water volume appropriate to the crop stage to ensure good coverage of all foliage, flowers and fruit.</p> <p>Resistance Management Observe industry resistance management guidelines relevant to this use. These guidelines may recommend limits to the number of sprays, constraints regarding consecutive sprays, minimum spray intervals and no-spray periods for all fungicide activity groups.</p>
Lychees	Lychee pepper spot (<i>Colletotrichum gloeosporioides</i>)			
Papaya	Black spot (<i>Asperisporium caricae</i>), brown spot (<i>Corynespora cassiicola</i>)	600 mL/ha		
Passionfruit	Septoria spot (<i>Septoria passiflorae</i>), brown spot (<i>Alternaria passiflorae</i>)	60 mL/100 L	1 day	



Rainfastness

Luna Sensation should be applied at least four hours prior to rainfall or overhead irrigation as this allows the product to bind for the best efficacy.

Crop safety

Luna Sensation has been tested under widely different conditions in annual and perennial crop species, varieties, spray volumes and various modes of application. Luna Sensation is very selective on a wide range of crops.

Preliminary tests on a small number of representative plants are always recommended when using tank mixtures with other plant protection products, adjuvants and fertilisers for the first time to confirm the selectivity for a particular crop variety, before any large applications are carried out.

Luna Sensation in avocados may cause some discolouration to a young leaf flush when applied following periods of prolonged overcast weather conditions.

Residues

For all registered uses, applications up until the stated withholding period will result in some chemical residues in produce. Maximum Residue Limits (MRLs) have been established to reflect these residues. When Luna Sensation is used according to label directions and good agricultural practice, residues in produce should not exceed these MRLs. The latest MRL position for fluopyram and trifloxystrobin can be found at the APVMA website (apvma.gov.au), by contacting the appropriate industry body or calling the Bayer Technical Enquiries line: 1800 804 479

MRLs in export destinations

MRLs for fluopyram and trifloxystrobin may not have been set in some export destinations or the values established for them may be lower than those in Australia. This may present a barrier to the export of crops treated with Luna Sensation to such countries. In some cases the export requirements may still be met by limiting the number of Luna Sensation applications and/or imposing a longer withholding period than specified above.

If you are growing produce for export, please check with Bayer Crop Science or your industry body for the latest information on any potential trade issues and their management before using Luna Sensation.





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