



CROP GUIDE FOR BANANAS

Routine

Routine® 200 SC Fungicide is a unique fungicide offering control of yellow Sigatoka and common leaf speckle in bananas.

Its mode of action differs from most fungicides and works by activating the plant's natural defence system, helping the plant to protect itself. The Systemic Acquired Resistance is not washed away by rainfall and is boosted with each application. With no known risk of resistance development, re-entry possible once spray has dried and a withholding period not required when used as directed; Routine offers growers several benefits for banana disease management.

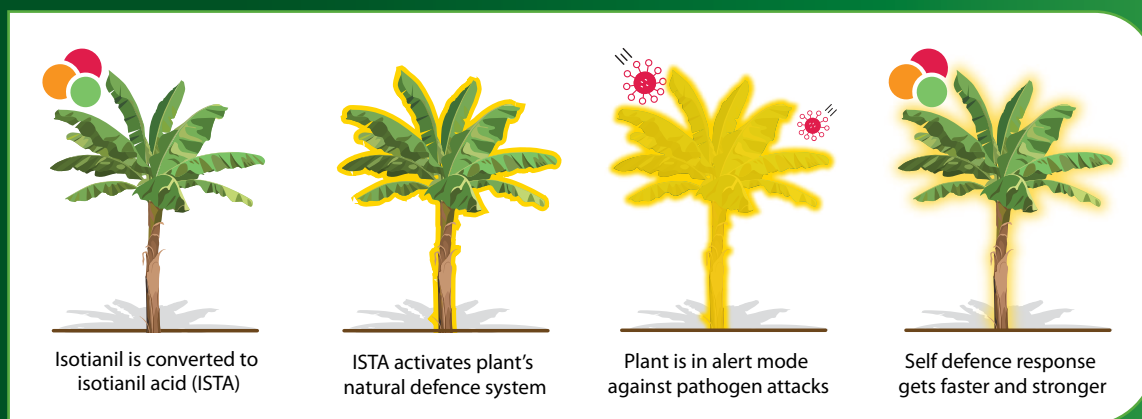
ROUTINE IN BANANAS AT A GLANCE

TARGET DISEASES	Yellow Sigatoka and common leaf speckle through Systemic Acquired Resistance
USE RATE	250 mL/ha (plus a high-quality water miscible mineral crop oil applied at 3.5 L/ha)
WATER VOLUME	Dilute with sufficient water to ensure thorough coverage of all leaf surfaces (minimum 20 L/ha spray volume when applied by aircraft)
CROP OIL	For optimal disease control, add a high-quality water miscible mineral crop oil applied at 3.5 L/ha. Without the addition of a high-quality water miscible mineral crop oil, suppression only of the disease may result
MAXIMUM SPRAYS	Do not apply more than 4 applications per hectare per year
SPRAY INTERVAL	Each spray of Routine should be separated by a minimum of 8 weeks with applications of fungicides from alternative fungicide activity groups
COMPATIBILITY	For information on the compatibility of Routine with other products, contact your local Bayer Crop Science representative
WITHHOLDING PERIOD	Not required when used as directed



MODE OF ACTION

Routine contains the active ingredient isotianil, a Group P03 fungicide. When a plant is sprayed with isotianil it is converted to isotianil acid (ISTA) which is a mimic of the plant's natural salicylic acid (SA). This means it acts just like SA and activates the natural defence system across the whole plant. Systemic Acquired Resistance (SAR) is now established and protects the plant against future pathogen attacks. At the same time, it makes defence genes more readily accessible to utilise during a future attack. The plant is now in alert mode and if a pathogen attacks, SAR is established much faster. The activation of these genes also gets stronger with every stimulation. Therefore, with repeated Routine treatments, the self defence response gets faster and stronger. Unlike SA, isotianil activates a plant's self defence without pathogen attack.



RESISTANCE MANAGEMENT

Routine should be used as part of a regular preventative program of fungicide sprays, alternating fungicides from different chemical mode of action groups. All banana fungicides should be treated as protectants, applied at the full label rate and used according to resistance management guidelines.



REMOVAL OF DISEASED LEAVES

De-leafing on a regular basis ahead of fungicide applications is the basis of good banana disease management, and it is critical to fungicide resistance management to reduce inoculum levels regularly. It also ensures that fungicides are not applied to heavily diseased leaves.



ROUTINE TRIAL RESULTS

Twenty-two trials were conducted over 7 seasons, commencing in 2013, for the development of Routine. Three quarters of those were conducted in Far North Queensland. The trials evaluated the performance of Routine compared with industry standard products including Luna® Privilege (considered the best registered single site chemistry at the time of development), mancozeb and chlorothalonil. Results showed that Routine was equal to Luna Privilege (Figure 1) and at least comparable to the other industry standards evaluated (Figure 2).

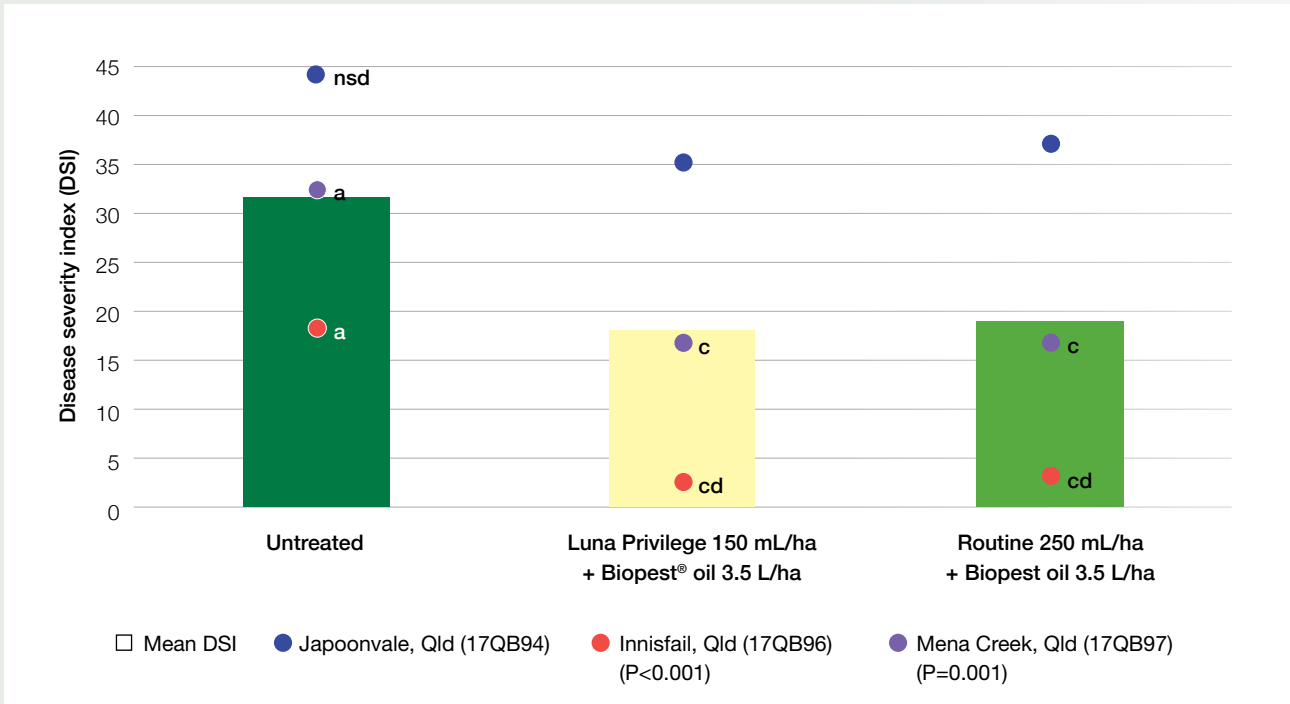


Figure 1. Mean disease severity index (DSI) for yellow Sigatoka treated with Routine or Luna Privilege both applied with oil in Far North Queensland (3 trials).

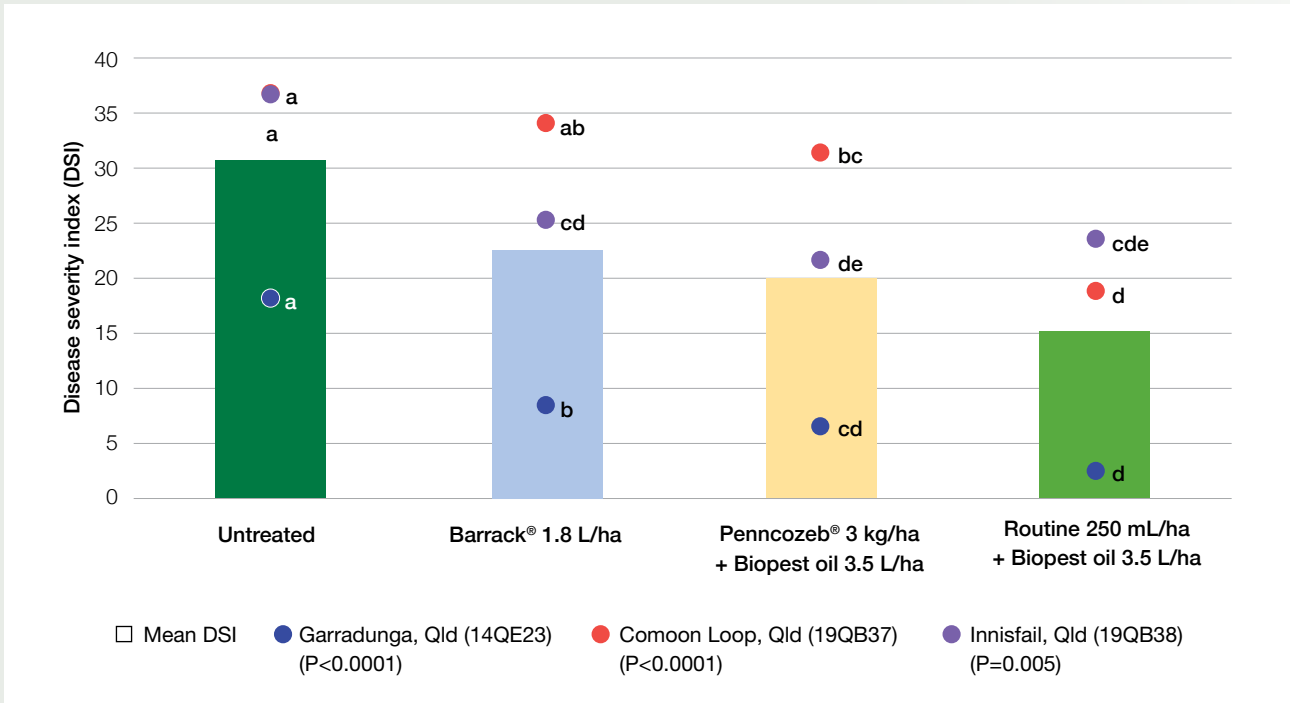


Figure 2. Mean disease severity index (DSI) for yellow Sigatoka treated with Routine + oil, chlorothalonil or mancozeb + oil in Far North Queensland (3 trials).



Routine



FOR MORE INFORMATION

visit crop.bayer.com.au or talk to your local Bayer Crop Science representative.

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.

Bayer CropScience Pty Ltd ABN 87 000 226 022 Level 1, 8 Redfern Road, Hawthorn East, Victoria 3123.

Technical enquiries: 1800 804 479 enquiries.australia@bayer.com

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