

MusaCare[®] CP

The Natural Way to Higher Yield



MusaCare[®] CP increases banana yield and stimulates the natural resistance against Black Sigatoka.

Summary



MusaCare®CP is a unique and patented semi-organic mineral fertilizer designed to be used in banana production. The supplementary nutritional elements in MusaCare®CP increase banana yield and stimulate natural resistance against *Black Sigatoka* caused by *Mycosphaerella fijiensis*. The product is safe for user and the environment, has no residue restrictions and no pre-harvest or re-entry limitations.

The strengthening and systemic protection of the plant by MusaCare®CP reduces the use of conventional chemical fungicides, such as Mancozeb, by up to 50%. The product can be mixed with mineral spray oil, emulsifier and fungicides in a typical tank mix with a spray volume of 20 – 25 liters / ha, as used in aerial applications.

Main Benefits



Eco-friendly and safe for user and environment



Provides essential nutritional elements for banana



Reduces conventional chemical fungicide use by up to 50%



Suited for integrated pest management programs and organic farming



Stimulates natural plant defense against *Black Sigatoka*



Unique and patented formulation designed for banana application



Developed in partnership with Wageningen University (WUR)



MusaCare®CP

Eco-friendly and safe for user and environment

The nutritional effects of MusaCare®CP combined with the ability of the phosphite to stimulate the production of metabolites makes MusaCare®CP a versatile product.

Due to the mineral and organic nature of MusaCare®CP, the product is safe for user and environment, does not have residue restrictions and no pre-harvest or re-entry limitations.



Unique and patented formulation

MusaCare®CP has been specially formulated to assure an excellent compatibility with tank mixes used in *Black Sigatoka* disease control programs on banana plants.

At the recommended application rate of 1,5 kg per hectare, MusaCare®CP can be mixed with 3.0 liters mineral spray oil in a typical tank mix with a spray volume of 20 – 25 liters / ha as used in aerial applications.



Partnership with leading agricultural universities

MusaCare®CP has been developed by Ceradis B.V. in collaboration with Wageningen University and Research Centrum (WUR) – The Netherlands, global leader in agricultural research. The products of Ceradis B.V. are supported by the scientific knowledge of WUR and our formulation technology.



Mode of Action

Essential Nutritional Elements

MusaCare®CP has been specifically designed to provide banana plants with a more effective source of nutrients, therefore meeting with the high potassium requirements of this crop.

When looking for high yields, leaf tissue analysis is an excellent tool to control the nutritional status of plants throughout the growing season and checking the origin of abnormalities caused by nutritional deficiencies or excess fertilization or contamination. The degree to which a nutrient is below acceptable range may determine the disease severity caused by pathogens.

Results clearly show that MusaCare®CP specialty fertilizer naturally optimizes the nutrient levels of the banana plant, while common fungicides like Mancozeb demonstrate to have negative effects on the optimal nutritional state of the plant.

The increased level of available P (Figure 1) ensures ideal energy disponibility, while the increased levels of K (Figure 2) boost the banana plants metabolic efficiency, therewith avoiding the loss of valuable water that is now retained efficiently in the cell. As a result, banana plants become stronger and increase their yield.

MusaCare®CP is a copper deficiency corrector enriched with phosphorus in the form of phosphite ion. By targeting copper deficiency, MusaCare®CP strengthens plant development which increases crop yield and makes it more resistant to fungal attacks.

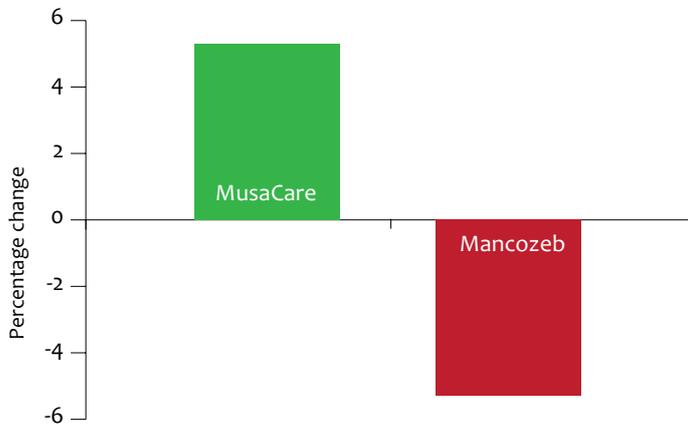


Fig 1. Percentage change in available P compared to control

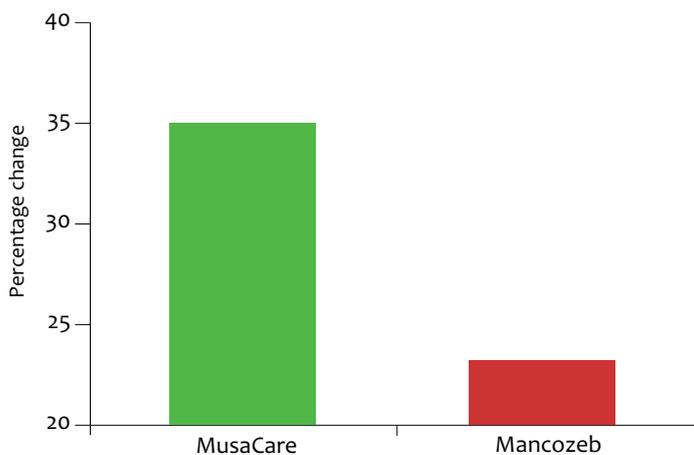


Fig 2. Percentage change in available K compared to control



Stimulates Natural Plant Defense

MusaCare®CP is a granular semi-organic fertilizer developed for foliar application, providing high concentrations of phosphorous (P) and potassium (K), derived from potassium phosphite. In our field trials, MusaCare®CP has confirmed that its principal function is to stimulate the natural plant defenses and responses to stress by enhancing the production of phytoalexins and thus defending the plants against a large number of pathogenic fungal and oomycetal diseases.

Results demonstrated that MusaCare®CP specialty fertilizer is able to control *Black Sigatoka* as efficient as Mancozeb during the first 8 weeks (Figures 3 and 4). Results show that MusaCare®CP is well suited for use in an Integrated Pest Management programs and organic farming. The plant strengthening and systemic protection of the plant by MusaCare®CP can reduce the use of conventional chemical fungicides, such as Mancozeb, by up to 50%. Hence, you will be able to manage *Black Sigatoka* economically, and with the least possible risk to your people and the environment.

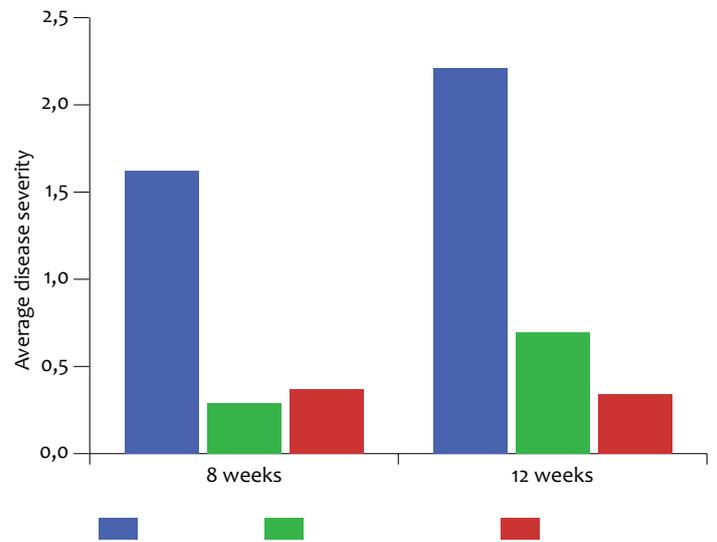


Fig 3. Effect of MusaCare®CP on strengthening the banana against *Black Sigatoka*

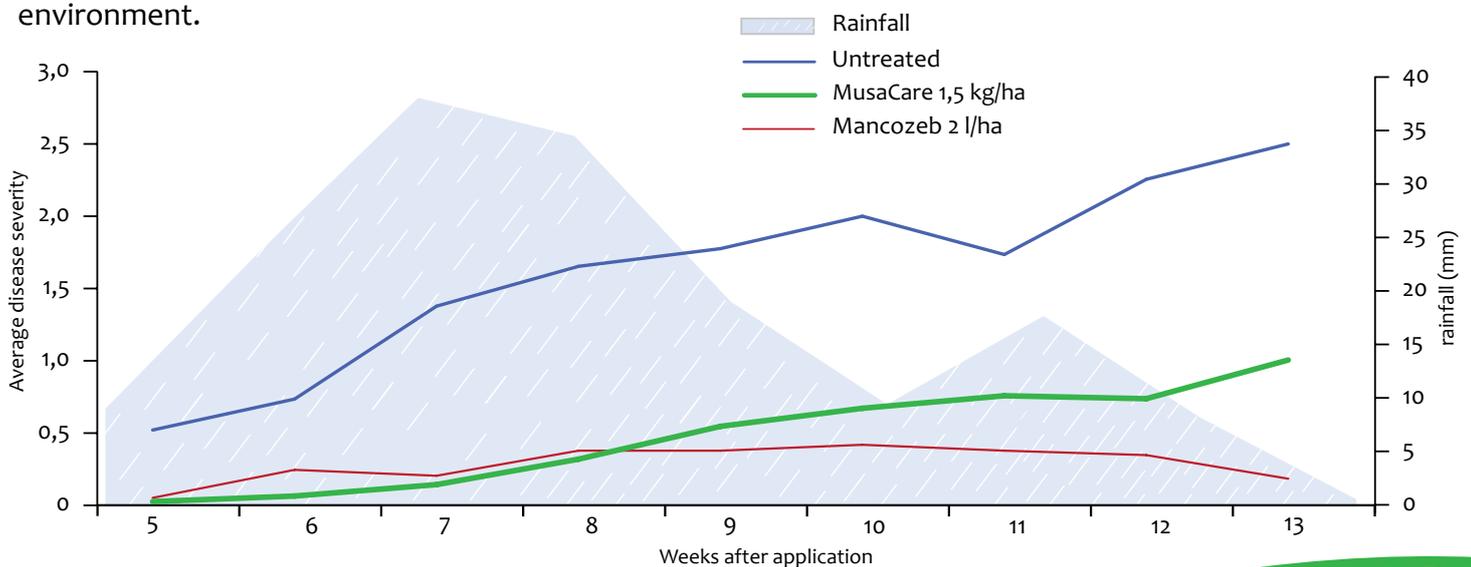


Fig 4. Effect of MusaCare®CP on strengthening the banana against *Black Sigatoka*



Application & Composition

Application Rate

1,5 kg/ha MusaCare®CP + 3,0 liter/ha mineral oil

MusaCare®CP has been developed to reduce the application of conventional fungicides, therefore can be rapidly integrated in existing pesticide programs and decrease the pesticide load on the crop.

Although MusaCare®CP is compatible with most fungicides commonly used, MusaCare®CP superior formulation technology has demonstrated to give maximum results when applied unaccompanied, therefore we advise not to mix Musacare®CP with other pesticide / fertilizer products.

MusaCare®CP application is recommended for a typical tank mix with a spray volume of 20 - 25 liters / ha as used in aerial applications.

Mixing directions for application

- Determine the amount of MusaCare®CP required for the application.
- Fill the tank with clean water to about 50% full and then add the recommended amount of MusaCare®CP .
- Add the recommended amount of mineral oil.
- Operate by continuously stirring and then fill the tank to the desired volume with clean water.
- For best results, the mixture should be prepared shortly prior to application.

Toxicity tests

All toxicological tests have been performed by a contract research organization under full accreditation and GLP standard. The toxicity of MusaCare®CP is low.



Chemical composition

Phosphorus (P ₂ O ₅)	30,0 %
Potassium (K ₂ O)	22,0 %
Calcium (CaO)	2,0 %
Sulfur (S)	2,0 %
Copper (Cu)	2,0 %
Total Organic Carbon (TOC)	11,0 %



Physical properties

Formulation	WG
Colour	Brown
pH in solution 10%	4 - 5
Density at 20°C	1.0
Humidity	5.0%



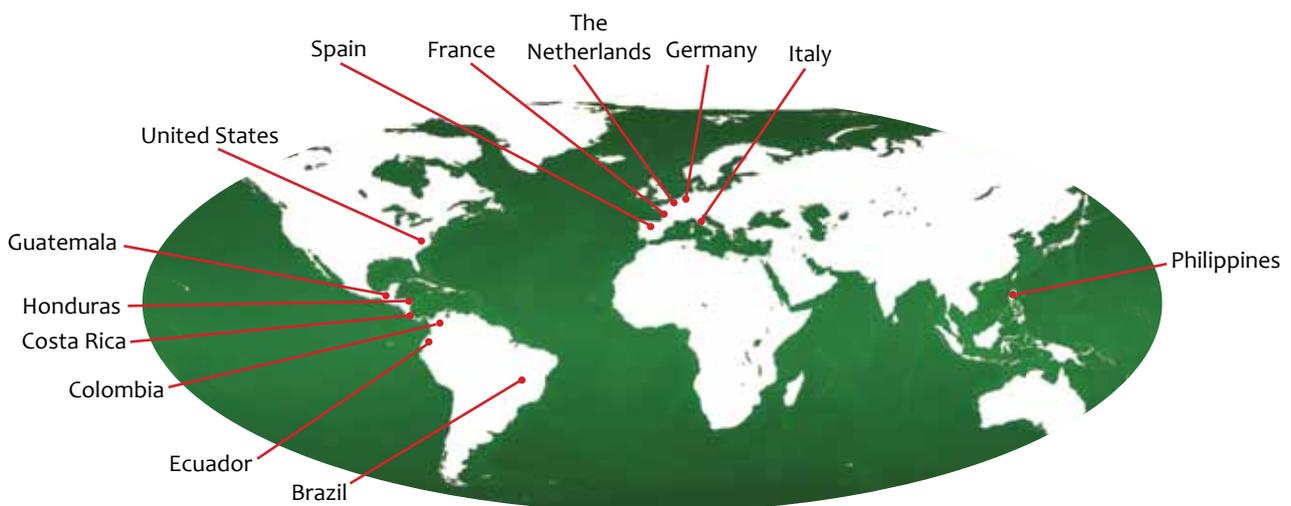
MusaCare®CP



Ceradis B.V. develops and markets innovative environmental friendly solutions for plant nutrition, crop protection and post-harvest. The company Ceradis B.V. was founded in the Netherlands as a spin-off of Wageningen University and currently maintains a close relationship with its research departments. Ceradis B.V. products have a patented formulation that guarantees optimal activity of the active ingredients and excellent handling characteristics for the end-users.

Ceradis B.V. worldwide products are recognized by:

- Cleaner and safer for user and environment
- Sustainable and organic farming
- Unique and patented formulation
- Excellent handling characteristics for farmers
- Competitive price / performance



In 2007, Ceradis Colombia Ltda. was founded to develop innovative and environmental products for the Latin American markets. MusaCare®CP is the first product developed by Ceradis B.V., based on the partnership between fundamental research in Wageningen and applied research in Latin America.

Ceradis Colombia Ltda.
Address: Calle 21 A No. 69 B-38 Bodega UD 24-3
Bogotá – Colombia
Tel: (+571) 4117298
Ceradis.colombia@ceradis.com



Main Benefits

- Stimulates growth for higher yield
- Strengthens against *Black Sigatoka*
- Saves fungicide costs of your budget
- Reduces your pesticide use by 50%

Design: Harry Wilcken - Design & Photography, Wageningen

Mail address Ceradis B.V
Postbus 376
6700 AJ Wageningen
The Netherlands

Visiting address AgroBusiness Park 10
6708 PW Wageningen
The Netherlands

Telephone (+31 317) 424250
E-mail info@ceradis.com
Website www.ceradis.com

www.musacare.com