

German multinational Bayer CropScience has its portfolio of crop solutions on show at the International Banana Congress in Miami this week, emphasizing innovation and root health management are key to keeping the sector sustainable.

In a release, the group's global fruit crop manager Kai Wirtz said fungal diseases and nematodes were giving banana growers a hard time around the globe.

"We are committed to supporting them in addressing their daily challenges as they strive to get the very best out of their plantations," Wirtz said, adding that apart from its crop protection products Bayer also offered complementary services, expertise and on-farm advice from dedicated crop specialists

"These experts have a deep understanding of the grower's needs and develop tailored solutions according to the local conditions."

Bayer highlighted stressed and damaged root systems could reduce the vigor of plants, negatively impact the quality of harvested produce and lead to significant yield losses. In response, Bayer has been developing holistic solutions, researching the complex processes and soil to develop new solutions for pest control.

"In Velum™/Verango™ and BioAct™, Bayer already offers two powerful products for targeted nematode management that perfectly complement each other," Wirtz said.

"The chemical product Velum™/Verango™ effectively controls living nematodes in the soil. This product is combined with BioAct™, which is based on a natural organism - the soil fungus *Purpureocillium lilacinum* strain 251. BioAct™ colonizes nematode eggs so that hatching of larvae is inhibited.

"Consequently, if the chemical treatment has already been applied to remove adult nematodes from the soil, using the biological substance prevents a new generation of nematodes from growing and damaging the plant at a later stage."

He said this combination offered growers an effective means of nematode management by applying both products just once per year.

Tackling Black Sigatoka, Panama Disease TR4

In the release, Bayer described Black Sigatoka as "the most devastating disease in bananas", which without proper treatment can lead to reduced productivity of 50% and increase the risk of fungicide resistance.

As a result, the number of fungicide applications have increased in recent years leading to "strong" economic, environmental and social impacts which threaten the sustainability of production.

With its 'Bunch of Solutions' concept Bayer has developed an approach to ensure high-level disease control and at the same time reduce the number of applications and crop protection input costs for growers.

"Due to the combination of chemical and biological products and several different modes of action in rotational programs, we have created a powerful tool for resistance management," said Alvaro Segura, a technical expert for bananas at Bayer CropScience's Central American business.

"This innovative concept can help reverse the current trend of increasing fungicide applications and has already proven to be a valuable tool to make banana production more sustainable in Central America," he said.

The disease however that tends to attract the most attention in the banana industry, and particularly the mainstream press, is Panama Disease or namely its more virulent strain Tropical Race 4 (TR4).

The disease is not yet present in Latin America but is a big problem in Asia and has extended to northern Australia and the Middle East.

The original Panama Disease first occurred in the 1950s, causing severe damage and destroying whole banana plantations that for the export industry wiped out the Gros Michel banana, which still grows at altitude and is sold in domestic Latin American markets to this day.

The new fungal strain Tropical Race 4 now threatens the production of today's most popular banana cultivar as it cannot be controlled with common disease management practices. Since its occurrence, it has destroyed tens of thousands of hectares of Cavendish bananas plantations and put Asian banana production at high risk.

Bayer said that due to globalization and the fact that the disease could be easily transmitted by soil, water and, probably, air, dissemination of the fungal pathogen to other important banana production regions, especially Latin America, seemed to be just a matter of time.

"Bayer is committed to supporting growers in their fight against this devastating disease," said Bayer's R&D portfolio manager for horticulture, Rolf Christian Becker.

"We have joined forces with other private and public partners in the Panama Disease Consortium."

An interdisciplinary research and education fund (INREF) under the lead of the University of Wageningen addresses the management and containment of Panama Disease in global banana production under different production settings.

It aims at the development and implementation of innovative tools and methods to manage the Panama Disease and to contain the vicious new strain.

"In addition, our scientists work on the development of new anti-fungal substances that can complement the fight against the disease and prevent further spreading," Becker added.

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