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Bayer bets on next-generation fungicide innovation to tackle horticulture disease risks

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With downy mildew and late blight threatening crop quality and farm economics, Bayerâ??s Mohan Babu makes the case for combining new fungicide science with agronomy, digital tools and responsible use

Horticulture is confronting a more complex disease-management challenge as erratic weather, prolonged humidity and rainfall intensify the risks posed by downy mildew and late blight. For farmers, the stakes extend beyond crop protection to yield stability, marketable quality and the economics of cultivation. In this exclusive **AgroSpectrum interview, Mohan Babu, Chief Operating Officer â?? India, Crop Science Division, Bayer**, discusses how next-generation fungicide technology is evolving to address these pressures. He explains the significance of Xivana Smart, powered by fluoxapiprolin and fluopicolide, and its role in strengthening disease control under challenging weather conditions. The conversation also examines resistance management, responsible crop protection, digital advisory and the importance of combining product innovation with sound agronomy. As Indian horticulture moves towards higher-value, climate-resilient production, the central challenge will be ensuring that scientific advances translate into practical, sustainable value for farmers.

Horticulture crops are facing increasing disease pressure due to changing climate patterns, rising humidity and unpredictable weather. What are the biggest challenges farmers are currently encountering in managing diseases like downy mildew and late blight, and how is Bayer responding to these evolving risks?

Disease management is becoming more complex as farmers navigate changing weather patterns, periods of high humidity and rainfall, and increasingly unpredictable growing conditions. Diseases such as downy mildew and late blight can develop rapidly, affecting productivity, crop quality and ultimately farmer income. Our approach at Bayer is to help farmers manage this complexity through a combination of science, agronomy, innovation and stewardship. Xivana Smart is one example, bringing a new mode of action together with high rainfastness, the ability to protect the crop against exposure to rain or irrigation, protection of new growth and longer-lasting disease control.

But the larger objective goes beyond managing a single disease. As farming conditions become more variable, farmers need an integrated set of tools and knowledge that helps them anticipate risks, protect crop quality and safeguard the productive potential of the investments they make throughout the season.

Xivana Smart introduces a new active ingredient under FRAC Group 49. What makes this mode of action a significant advancement in fungicide technology, and how does it differentiate itself from existing disease management solutions available to farmers?

New modes of action are important because agriculture needs to continuously expand the tools available to farmers while protecting the effectiveness of existing technologies. Fluoxapiprolin introduces a new mode of action for managing important oomycete diseases and, in Xivana Smart, is combined with fluopicolide, providing two active ingredients with different modes of action. The formulation acts across important stages of the pathogen lifecycle, while providing protection of existing plant parts and new growth.

For us, however, the significance goes beyond the chemistry itself. Scientific innovation becomes meaningful when it translates into a practical advantage for farmers. That means effective disease control, reliability under challenging conditions and the ability to integrate the technology responsibly into a broader disease-management programme. This combination of new science, field performance and stewardship is what makes the technology an important addition to disease management.

Farmers are increasingly looking for solutions that deliver both productivity and sustainability. How does Xivana Smart balance high-performance disease control with responsible crop protection practices?

For farmers, productivity and sustainability are not separate objectives. Farming has to remain economically viable while natural resources and agricultural technologies are used responsibly. Crop protection contributes to this balance by helping protect the land, water, labour and other resources already invested in producing a crop. Longer-lasting disease control and high rainfastness can also provide greater flexibility within the recommended spray programme.

At Bayer, we look at sustainability more broadly than the characteristics of any individual product. Responsible crop protection combines effective science with correct application, agronomic knowledge, resistance management and stewardship. Our objective is to help farmers produce more effectively and resiliently, while protecting crop quality and productive potential. Ultimately, sustainable agriculture requires solutions that work economically for farmers while supporting responsible use of resources and technologies over the long term.

Downy mildew and late blight can severely impact crop quality, marketability and farmer income. What specific improvements can growers expect in terms of crop protection, yield stability and return on investment through the adoption of Xivana Smart?

For farmers, particularly in high-value crops, quality can be as important as quantity. Disease can affect marketability and reduce the value farmers realise from the investments they have made throughout the season. The value of advanced disease-management solutions is therefore not simply about controlling a pathogen; it is about helping protect the productive potential of the crop. Xivana Smart provides strong control of downy mildew and late blight, including protection of existing plant parts and new growth, together with high rainfastness and longer-lasting disease control.

We would not promise a fixed yield or financial return because farm outcomes depend on many factors, including weather, disease pressure, agronomy and market conditions.

What good crop protection can do is help farmers manage risk more effectively, protect crop health and quality, and safeguard more of the economic value they have invested in creating.

Rainfastness and longer protection windows are key claims of Xivana Smart. How does the product help farmers manage disease outbreaks during challenging weather conditions, especially during prolonged rainy and humid periods?

One of the challenges farmers face is that conditions favourable for disease can also make crop protection more difficult. Extended rainfall and humidity can increase disease pressure while narrowing opportunities for timely intervention. This is where reliability becomes particularly important. Xivana Smart has high rainfastness and provides longer-lasting efficacy of 10â??15 days, including under rainy conditions, compared with current market standards. It also protects existing plant parts and new growth as the crop develops.

For farmers, this can provide more consistent protection and greater flexibility within the recommended disease-management programme. More broadly, this is where agricultural innovation must continue to evolve. As weather becomes less predictable, farmers need technologies and agronomic strategies that help them manage variability with greater confidence and resilience.

Indiaâ??s horticulture sector includes diverse cropping systems across regions. How has Bayer designed Xivana Smart to address the specific needs of farmers growing grapes, cucurbits, potatoes and tomatoes across different agro-climatic zones?

India's agricultural diversity is one of its greatest strengths, but it also means that there is no one-size-fits-all approach to innovation. Crops, weather, disease pressure and agronomic practices can vary significantly across regions. At Bayer, we combine global R&D capabilities with local testing, agronomic knowledge and farmer insights. This allows us to develop and introduce technologies that are relevant to Indian growing conditions rather than simply transferring global solutions into the market.

Xivana Smart is part of that approach, bringing new science for the management of important oomycete diseases. Its use must, of course, always follow the crops, diseases, application rates and directions specified on the approved Indian label. As India's horticulture sector develops, locally relevant innovation that helps farmers protect quality, productivity and marketability will become increasingly important to strengthening both farmer livelihoods and agricultural competitiveness.

Beyond product innovation, what role do digital tools, farmer education and advisory services play in ensuring that growers use advanced crop protection technologies effectively and sustainably?

Increasingly, farmers need the right technology, the right agronomic knowledge and the right intervention at the right time. Bayer is building an increasingly integrated approach to farmer engagement. FarmRise, for example, has crossed five million registered farmers in India and brings together agronomic advisory, weather information, mandi prices, government schemes and crop-specific information. We are also using AI-enabled tools to make advisory more accessible and responsive.

At the same time, technology does not replace trusted relationships. We see the future as phygital; a true combination of field expertise with digital capabilities at scale. Whether it is disease management, seeds or sustainable farming practices, innovation creates greater value when farmers understand how to use technology effectively and responsibly within their overall farming system.

As resistance management becomes a growing concern in agriculture, how does Xivana Smart contribute to integrated disease management strategies and help preserve the long-term effectiveness of fungicide solutions?

Resistance management is fundamentally about protecting the effectiveness of agricultural technologies for the future. New modes of action are important, but equally important is how those technologies are used. Fluoxapiprolin adds a new mode of action for oomycete disease management and is combined with fluopicolide, giving farmers two active ingredients with different modes of action.

However, no fungicide should be viewed as a standalone resistance-management solution. Long-term effectiveness depends on appropriate rotation of modes of action, correct application timing and rates, adherence to label recommendations and integration with good agronomic practices. Stewardship is an integral part of innovation. Our responsibility is not only to develop new technologies, but also to help farmers use them effectively and responsibly so that agriculture can continue to benefit from these tools over the long term.

Looking ahead, how does Bayer envision the future of horticulture in India, and what role will next-generation crop protection innovations play in building climate-resilient, profitable and sustainable farming systems?

We see strong potential for Indian horticulture as demand grows for nutritious, diverse and high-quality food and as domestic and export value chains continue to develop. The next phase of growth, however, will increasingly be about quality, value and resilience - not volume alone. Farmers will need access to better seeds, modern crop protection, agronomic knowledge, digital advisory, responsible stewardship and stronger market linkages.

Innovations such as Xivana Smart are one part of that journey, helping farmers manage increasingly complex disease pressures. But no single technology will define the future of farming. The larger opportunity is to combine science, data, agronomy and partnerships around farmer outcomes. If we can help farmers protect productivity and quality, use resources more effectively and access higher-value markets, Indian horticulture can make an even greater contribution to farmer prosperity, food and nutritional security, and India's agricultural competitiveness.

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