



New Crop Protection Herbicide: BASF To Launch New Kixor Herbicide

Source: BASF news release

A promising new herbicide was presented at the third annual "Science Behind" symposium. The symposium takes place as BASF prepares to introduce Kixor herbicide in 2009.

Kixor is a cutting-edge chemistry that will offer both rapid burndown and residual control of broadleaf weeds. Kixor controls more than 90 broadleaf weeds, including the toughest weeds that have become more tolerant of glyphosate, and has been shown to be safe on more than 30 crops, including corn, sorghum, soybeans, cereals, tree fruits and nuts. It ultimately will be available in four formulations to meet a wide range of weed control needs.

"BASF is strategically focused on discovering novel chemistry with innovative activity," said Rex Liebl, Ph.D., Global Herbicide Marketing for BASF. "Kixor is a great example of the effectiveness that new chemistry brings to the marketplace, and the potential they hold for helping growers get the most out of every acre."

The Science Behind Kixor's Discovery

BASF scientists began searching for a new herbicide that would deliver both soil and foliar control of key broadleaf weeds, while being safe on a wide range of crops to provide flexibility for growers. Dr. Liebl was one of those scientists.

"Our goal was to create a new breed of protoporphyrinogen IX oxidase (PPO) inhibitor possessing high levels of weed control and crop selectivity not found in existing PPOs," Dr. Liebl said. "We identified novel ways for a PPO to attack weeds and then set out to create a truly unique herbicide."

Liebl and his team started with a class of chemistry called the benzoisothiazoles, potent herbicides with no crop tolerance and mostly soil activity. Opening the isothiazole ring and optimizing the resulting side chain was key to achieving the goal.

"Kixor's innovation comes from its tailor-made side chain, which is the power behind its unique properties and the great results it delivers," Dr. Liebl said. "Its polarity provides soil activity, its acidic properties create systemic movement in plants for foliar activity, and it is rapidly metabolized by a wide variety of crops for excellent crop safety."

Kixor inhibits a key step in chlorophyll biosynthesis at protoporphyrinogen oxidase, leading to a toxic buildup of protoporphyrinogen and resulting in fast, complete control.

"The speed with which Kixor controls weeds is remarkable," Dr. Liebl said. "In addition to controlling weeds fast, our research shows it provides complete foliar burndown."

Challenges in Weed Control

Bryan Young, Ph.D., Professor of Weed Science and Agronomy at Southern Illinois University, used the BASF symposium to outline the challenges an increasing number of glyphosate-resistant weeds are presenting to growers and the importance of new herbicides like Kixor.

"It's critical to get new chemistry to growers for weed management," Young said. "I am very interested in Kixor and new chemistries to help manage weeds and decrease the risk of growing herbicide tolerance."

U.S. Field Trial Results

Dan Westberg, Ph.D., Technical Market Manager at BASF, oversaw more than 1,700 U.S. field trials for Kixor in 38 states.

"In addition to its rapid burndown and residual qualities, Kixor showed exceptional rotational crop flexibility," Dr. Westberg said. "That flexibility gives growers more options to adapt to changing situations and the opportunity to make the best decisions for their operations."

In field trials on corn, a Kixor-based premix demonstrated excellent crop safety, outperformed an atrazine-based premix in controlling large-seeded broadleaf weeds and delivered excellent small-seeded broadleaf weed and grass control. This Kixor-based premix also provided superior setup for a post-glyphosate application compared to the atrazine-based premix.

In field trials on soybeans, the tank mixture of Kixor-plus-glyphosate provided faster, more complete burndown than 2,4-D ester-plus-glyphosate when measured at one-to-two weeks after treatment and at four-to-eight weeks after treatment. The Kixor-based premix for soybean offered superior residual grass control compared to both 2,4-D ester-plus-glyphosate and glyphosate alone.

Young also shared his experiences with Kixor in corn and soybean field trials during the past four years as part of his presentation at the symposium.

"Kixor showed really good activity in our trials, including better burndown of marehail, which is our biggest challenge in Southern Illinois as it's become more resistant to glyphosate during the past several years," Young said. "Based on the results we've seen, Kixor will be a very important tool in weed management programs going forward."

Additional Results from the U.S. field trials showed that Kixor:

- Controls tough broadleaf weeds three-to-five times faster than the closest competitors
- Delivers burndown and preemergence control of major broadleaf weeds
- Controls atrazine, ALS, and/or glyphosate-resistant broadleaf weeds
- Provides superior broadleaf weed control and season-long residual control at full use rates
- Offers a residual setup at reduced rates for an in-crop glyphosate application

Based on research and field trial results, each Kixor formulation will be applied before crop emergence, except for tree crops, which will be treated post-directed, and sunflowers, for which Kixor will be used as a desiccant.

BASF Looks to Revitalize Herbicide Market

"We made the decision in 2003 to develop Kixor despite predictions that the herbicide market would decline and despite the fact that competitors were walking away from herbicides," said Nevin McDougall, Group Vice President, North America Crop Protection division at BASF. "New chemistries will always be needed to combat the ever-changing weed challenges our industry faces. Because of our foresight and innovation, BASF is able to provide an unmatched solution to growers."

Growers need solutions to the challenges they face in the field now more than ever. With population growth expected to continue rising while arable land continues declining, the

agricultural industry will have to evolve to meet the increasing needs for food, biofuels and clothing. Innovation across the board will be a necessity to get more yield from every acre regardless of the crop being grown.

"BASF is committed to innovation and new chemistries because that is the only way our industry will meet the global demand for food and fiber in the future," McDougall said. "Our company has a long track record of innovation and is a leader in crop protection research and development, which positions us well to help growers meet the needs of tomorrow."

Researched and Developed Globally, Produced Locally

After its discovery in the U.S., Kixor was tested and developed using the BASF global network of field development sites.

"Kixor showed promising results in our global trials across a wide variety of geographies, crops and weeds," Dr. Liebl said. "Personally, it's been an amazing adventure to have been part of the team that set out to discover the molecule, to have watched it's progression during the past 10 years of research and development and now to see it being introduced to the market."

BASF will produce Kixor exclusively at its Hannibal, MO, plant for worldwide distribution. The company has invested \$50 million dollars during the past two years to develop new infrastructure at the plant that will include production of this new herbicide. Registration in the U.S. is anticipated in the third quarter of 2009.