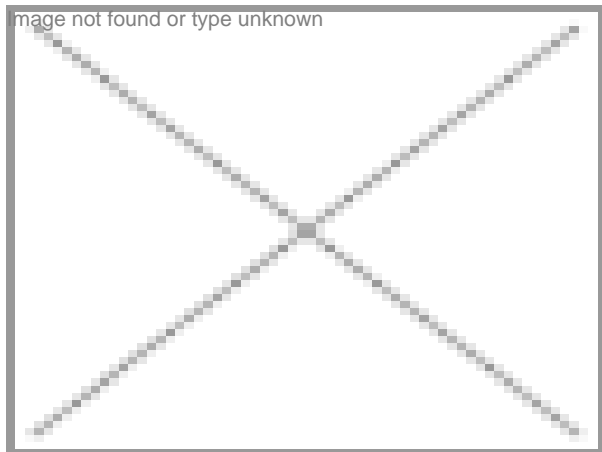


Mahyco strengthens R&D activities for Bt crops

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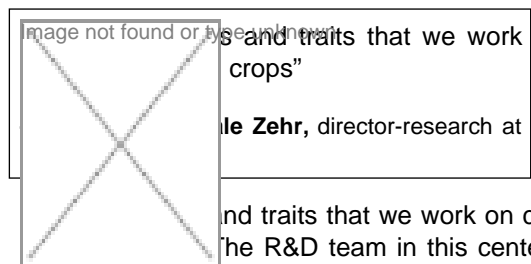
The vehement controversies surrounding the commercialization of Bt brinjal have not deterred scientists at the Mahyco Research Centre. They have actually accelerated their efforts by focusing on a host of highly specialized biotech research programmes



A visit to Maharashtra Hybrid Seeds Company's (commonly referred to as Mahyco) state-of-the-art R&D facility at Dawalwadi near Jalna, Aurangabad, will make any individual realize that the cornerstone of Mahyco's success till date has been its strong, diverse and progressive R&D programmes. Owing to its ongoing emphasis on research, Mahyco has several innovations to its credit. Worldwide, Mahyco was the first company to successfully commercialize F1 hybrid cotton based on genetic and cytoplasmic male sterility systems. Mahyco was also the first company in India to produce and market hybrid sorghum, pearl millet and sunflower. Most importantly, it brought in a revolution in the Indian-agri community by commercializing India's first Bt cotton (Bollgard I) and then

The facility, which is called Mahyco Research Centre, was established in 1998 with the purpose of conducting cutting-edge biotechnology research in a number of areas relevant to crop improvement and productivity. Major research areas of Mahyco include crop transformation, molecular virology, molecular microbiology, gene discovery, molecular markers, entomology and diagnostics. To monitor particular protein content in genetically modified (GM) crops, it established DesiGen Diagnostics, which provides

diagnostics solutions for GM crop testing for research scientists, seed producers and farmers. This division today manufactures two kinds of kits — Elisa Kits for Cry1AC and Cry1Ab gene and Bt gene detection strips.



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Dr Usha Barwale Zehr, director-research at

and traits that we work on cuts across all crops,” says Dr Usha Barwale Zehr, director-research at Mahyco. The R&D team in this center focuses on field crops like wheat, rice and cotton, vegetable crops like okra, brinjal, cauliflower, tomato, cabbage, radish and potential crops like soyabean, sugarcane and potato. The company is also working upon a number of traits to improve crop productivity. “Presently we are working on insect tolerance (sucking and chewing pest), herbicide tolerance, salinity tolerance, drought resistant seeds, nitrogen use efficiency and resistance against disease and virus,” says Dr Bharat Char, head of biotechnology research at the Mahyco Research Centre.

Research activities have become highly specialized due to which the company is in a continuous process of upgrading its labs with the latest high-end technology not just to increase yield but also to discover traits which can help a crop battle against insects and diseases. “The cycle is such that insects and pests develop a resistance to even Bt crops after a period of time. Hence, it is very important that we upgrade our technologies in discovering new traits and methodologies for crop productivity,” informs Dr Zehr. The company is in the process of making considerable investments into molecular makers for their molecular and biotechnology experiments. “High-end molecular makers help our scientists to diagnose genetic traits in a plant(s) in a short span of time and this in a way greatly reduces the time of bringing the product to the market,” adds Dr Zehr.

For DNA extraction, molecular breeding labs utilize robotic automation systems, which can take in a large number of plant samples at one time and at high throughput speed. While the molecular breeding labs diagnose gene traits in a plant, the molecular biology lab is even more specialized as it discovers particular traits in a plant against insects like chewing and sucking pest and even traits like salt and drought resistance. The plant transformation labs (wherein the gene is transformed to the plant) looks into both vegetable and field crops. The lab is developing a vast array of biotechnology approaches to develop insect and disease resistant crops. These biotechnology methods will be examined in rice, okra, tomato, brinjal, cauliflower and cabbage. Scientists at the Mahyco Research Centre are also looking at using GM technology to modify expression pattern of a plant’s own gene with the aim that the plant/crop uses and absorbs a large amount of nitrogen from the soil.

These highly specialized research programmes are the brainchild of a group of highly qualified pool of scientists and technicians working at this center. The management attributes that being a research driven company, they are extremely particular about bringing on board highly qualified scientists. “Most of our scientist have foreign PhDs with 3-5 years of post doctoral experience abroad. All our PhDs are mainly from the US,” adds Dr Zehr.

Going forward, the industry will see a host of exciting programmes coming out from this centre. Apart from expanding on its hybrid business, the centre is gearing up for bring out the RR (Roundup Ready) cotton, Bt brinjal and discovering new traits in crops. Looking at the vast spectrum of research programmes, which the company is currently engaged in, there will be an additional 30,000 square feet of laboratory space added in the coming months.

Nayantara Som in Dawalwadi, Maharashtra