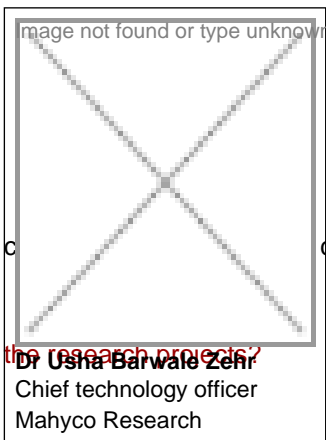


## 'Bt Brinjal has been thoroughly tested and found to be safe'

09 May 2011 | News



While progressive research and development has been the cornerstone of Maharashtra Hybrid Seeds Company's (Mahyco) thumping success in the Indian Bt crop market, Dr Usha Barwale Zehr, chief technology officer, Mahyco Research, has been one of the key driving forces behind this success. Today she is responsible for research on plant biotechnology, technology transfer to farmers, utilization of new technologies and tools, including biotechnology for improving the quality and productivity of seeds and agriculture. In a conversation with BioSpectrum, Dr Barwale Zehr, throws light on Mahyco's progress so far in Bt food crops, her optimism for crops in India in the near future, and safety issues around Bt brinjal.

**Q** In all, how many GM crops is Mahyco currently working on? What is the main focus of all

the research projects?  
**Dr Usha Barwale Zehr**  
Chief technology officer  
Mahyco Research

**Dr Barwale Zehr:** Currently, we are working on rice, wheat, cotton, okra, chilli, brinjal and cauliflower and our focus is on developing products which address the constraints faced by the farmers and these are insect tolerance, drought and salinity tolerance, fertilizer use efficiency,

herbicide tolerance and disease tolerance. The goal is to have the products which make farming easier and improves productivity.

**Q** What are the various traits and technologies the research team at Mahyco is working on as far as GM food crops are concerned? What are the demands for such traits/technologies amongst farmers?

**Dr Barwale Zehr:** Broadly, we are working on technologies which address production constraints such as water availability, fertilizer, diseases and insects. All of these constraints affect production and make farming more variable. With water availability reducing daily, having crops which can produce more with less water is much needed. Similarly, in case of Bt

brinjal, if the farmer can reduce 20+ pesticide sprays then the impact will be large on the farm, farmer and the environment.

**Q** When do you hope to see market commercialization of these GM crops?

**Dr Barwale Zehr:** For Bt brinjal which is the most advanced of our products, we are awaiting decision from the Government of India for commercial release. For the other traits in crops, product development and testing is ongoing, and we will begin the commercialization process in three years or so.

**Q** What are the investments Mahyco made in R&D infrastructure and what is the annual investment it makes in R&D for biotech?

**Dr Barwale Zehr:** We invest generally in the range of 10 percent of our revenue for research which includes biotech research. Since biotech and conventional research are so interlinked, we do not segregate the two.

**Q** What has been Mahyco's progress and investment in Bt rice so far? What are the opportunities for Bt rice in a market like India?

**Dr Barwale Zehr:** For Bt rice, we have been developing rice plants which control insects, primarily yellow stem borer and brown plant hopper. We have conducted trials with Bt rice which control stem borers as well as leaf folders. We have been investing in this research for the past seven years.

Rice crop is affected by a number of stem borers and Bt technology can provide control against this. Similar to what we have seen in the case of Bt cotton, we will see an impact on pesticide use, which will decline with Bt rice use. It will also increase productivity by controlling the damage caused by insects.

**Q** Besides Monsanto, what are the various collaboration and partnership agreements Mahyco has made for GM crops?

**Dr Barwale Zehr:** Mahyco is working extensively with a number of public and private entities, both in India and abroad, for sourcing technologies in priority areas and crops mentioned earlier. Some examples of such collaborations is the work we are doing with University of Delhi South Campus, Bose Institute, Assam Agricultural University.

**Q** What are the activities of Design diagnostics in the space of Mahyco's Bt research?

**Dr Barwale Zehr:** Design diagnostics is a unit of Mahyco which produces kits for detection of proteins including Bt proteins. The kits are available for various uses and are extensively used by companies engaged in Bt cotton as well as public and research facilities. Farmers also use products of Design to validate gene presence.

**Q** In the light of the vehement opposition towards Bt food crops in India, what guidelines has the government put in place to assure the safety of Bt food crop consumers?

**Dr Barwale Zehr:** The biosafety guidelines developed by the government of India are very stringent when it comes to safety and the products which are approved for commercialization must undergo all safety tests for release. GM crop was first commercialized in the US in the 1990s and in the food chain since then in large number of products. No biosafety concerns have come from the use of GM products.

**Q** Public resistance to Bt Brinjal in India (over safety concerns) could be a deciding factor for GM food crops in India. What apprehensions does Mahyco have on this point?

**Dr Barwale Zehr:** Bt brinjal has been thoroughly tested and found to be safe. Our system is more stringent than any other such system around the world and given the extensive studies conducted with the Bt protein (Cry1Ac), we see that this product will impact the farming community, consumers and the environment. We would like to see that the process followed for approval of any GM product is scientific, fact-based and as set out by the government.

**Q** With this in view, is Mahyco lobbying with any industry forums to push forward the case of Bt food crops?

**Dr Barwale Zehr:** Mahyco is engaged with creating awareness about biotechnology in general and what it can do for agriculture. We are members of the national associations which also undertake work of similar kind to create awareness and share information.

**Q** What are the kind of programs and initiatives Mahyco is currently undertaking to bring awareness about Bt food crops amongst farmers, consumer forums and the government?

**Dr Barwale Zehr:** We have been involved with universities, farmer groups and workshops of various kinds to discuss and share information about Bt crops and the need for the same. We also participate in the programs being organized by industry

associations as well as government agencies.

**Q** Can you please throw light on the other expansion and investment plans of Mahcyo in the coming six months?

**Dr Barwale Zehr:** Mahyco is committed to research-based product development for Indian agriculture. We continue to invest and work to understand the needs, and look at products suitable for that. Given the long product development cycle time for our products, the technologies that I mentioned above are areas that we will continue to progress on, in the coming six months.

**Nayantara Som** from Dhawalwadi, Aurangabad