BioSpectrum the business of Bio & Health Sciences

Sustainable agriculture proponent

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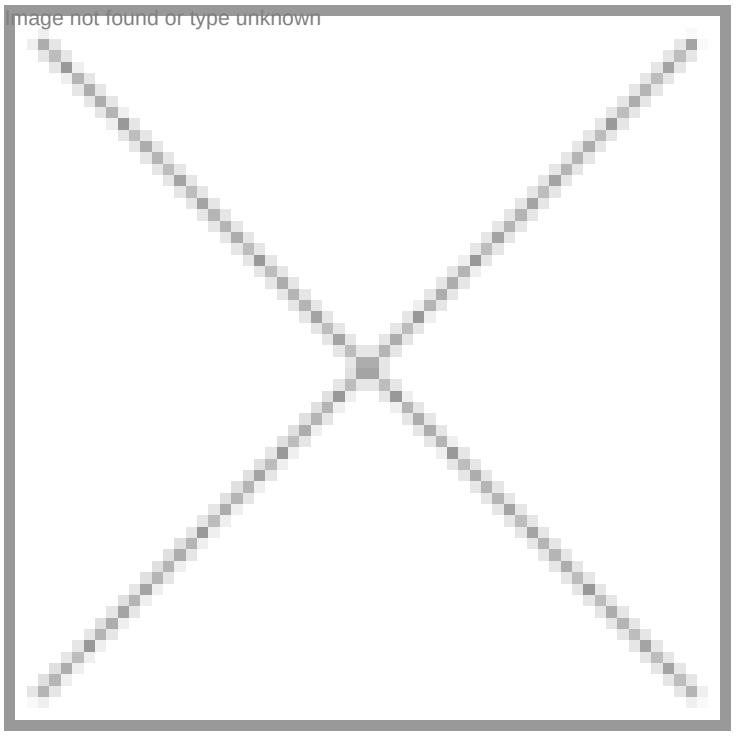
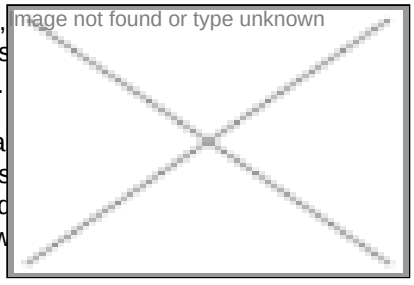


p>IARI has served the country as a premier national institute for agricultural research, education and extension. The green revolution stemmed from the fields of IARI and its scholars constitute the core human resource of Indian agricultural research and education.



Indian Agriculture Research Institute (IARI) provides national leadership in agricultural research. It conducts basic and strategic research to understand the process in all its complexity and undertakes need-based research, which will lead to crop improvement and sustained agriculture productivity in harmony with the environment. Developing new concepts and approaches is a priority at the institute.

Over the years, IARI has not only developed innumerable technologies but has also delivered quality technical workforce, which is driving the Indian agricultural sector.

Dr N Nagarajan, director IARI, said, "Whatever we have achieved is now a part of golden history. Presently, we are focused on achieving new goals through innovative ideas and techniques." "Apart from conducting research in crop management, we are trying to serve as a centre for academic excellence in the area of post-graduate education and human resources development in agricultural sciences," he added.

"Biotechnology provides the tools, which can help scientist in doing research in a reduced time frame. Way back in 1985, only IARI had taken the initiative in this field by establishing the Center for Plant Biotechnology," he said.

The National Research Centre for Plant Biotechnology was established with the objective of undertaking research, teaching and training personnel in the modern areas of molecular biology and biotechnology. Situated in the heart of Pusa Institute,

the center is headed by Dr K Koundal. Explaining the role of the center, Dr Koundal said, "Since its inception, the center has acquired a high degree of scientific competence and excellent research facilities. The centre is working towards the national priorities of increased agricultural productivity and sustainability."

He added, "we are working on basic plant molecular biology for understanding molecular mechanisms underlying essential biological processes. We also work towards advancement of agricultural development in India. Our ultimate aim is to serve as a national lead center for plant molecular biology and biotechnology research."

The seed of Indian green revolution was sown and nurtured at IARI. Commenting on this Dr NN Singh, joint director research, IARI, said, "Its always motivating that our Institute is the flagship of Indian green revolution. There was a time when more than 70 percent of the total wheat grown on Indian soil was from IARI developed varieties. Even as of today, almost 50 percent of varieties of vegetables and flowers are developed at IARI. This percentage in cereals is somewhere around 30 to 35 percent." "Since there is no specific data available on this, so it is difficult to mention a figure for other crops with an authority," he added.

Speaking on the status of transgenics at IARI, he said, "We are working on transgenics at a fast pace. Soon we will be bringing out transgenic tomato, rice, brinjal and cotton. These crops are on their way to be transferred to the industry."

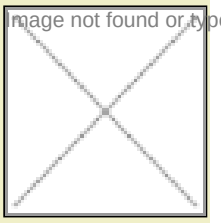
IARI has an "Advance Center for Plant Virology", which was established in 1988. Heading the center is Dr Anupam Varma, national professor, who is known for his energy, charm and dedication. "At the center we are developing strategies to fight with viruses. Since plants do not have an immune system so the effect of viruses on plants is more. We are identifying the viruses and developing resistance in plants," he said.

"We have developed transgenic tomato, which is about to come in the market. We are also working on transgenic papaya, watermelon and cucumber," Dr Varma added.

"In addition, we are working on a diagnostic kit for plants. Soon we are coming out with transgenic plant diagnostic kit for plant viruses. This would be a great breakthrough in diagnostics plant tissue culture. The 'National Facility for Quality and Virus Testing for Tissue Culture Raised Plants' is also a unique program at our centre. It is a DBT funded project."

Though there are many departments and divisions at IARI, but there is a common bond amongst all of them, which is to make the Indian agriculture scenario better and better. And every researcher, doctor and their respective departments are working to achieve this goal.

"Develop region-based transgenics"



There can be no better person than the IARI director, Dr N Nagarajan to update us on the present Indian agricultural scenario. Dr Nagarajan started his professional career in 1974 as a wheat pathologist at IARI. He became the head, IARI regional station, Flowerdale, Shimla in 1980. Worked as ADG (plant protection), ICAR in 1988, DDG (crop science) in 1993. Now with a bigger responsibility he looks confident of meeting future challenges. In a talk with BioSpectrum, Dr N Nagarajan highlighted some issues facing Indian agriculture

What is the most challenging aspect in today's agriculture scenario?

Knowledge has become a patentable item these days. Among all the challenges facing the scientific community, Intellectual Property Rights (IPR) is the most demanding one. Every research institute is working towards a strong IPR cell. And IPR negotiations have became an important part of any technology transfer.

How can transgenics become a success story in the Indian industry?

For making transgenics successful in India, we need to focus on a regional basis. Infact whatever we have observed from past experience suggests that we have to develop region-based transgenics. The Government is also showing interest in bringing transgenics to the market, which is a good sign. But no country in the world is offering easy passage for transgenics. So here in India also we need to clear some regulations.

What is the role that tie-ups or collaborations play in improving any research?

It is always better to have collaboration in any research activity. Tie-ups with institutes like JNU, etc. are always in favor of the industry. Apart from this, we also need strong and long lasting collaborations with leading seed companies. At IARI we are always open for any possible collaboration. For example, we are having a successful tie-up with TERI, which is using IARI's Phytotron facility. At our institute we always want to create and maintain a synergy between the public and private sector.

What is the status of plant biotechnology in India?

As far as research work is concerned we have equal capabilities and strengths as that of any other developing nation. But in terms of plant biotech companies, we have not seen any big revolution in that segment. Here, in India this segment is yet to see a revolution, unlike pharma, where biotech word has now became a matter of survival. We need to improve the Indian plant biotech industry.

Why is it that the private sector hesitates in joining hands with the public sector?

There are always hindrances in finalizing any agreement between the public and private sector. But any such issue can be solved by negotiations. Unfortunately, the scientific community is not known as a good negotiator. We need to consider this aspect, develop some expertise and then it might be easier to deal with the private sector. Actually, a strong public-private relation is needed to boost the agri-biotech market. As of now, we have certain names from the corporate sector that are working with us, such as Syngenta and Apeda. But we need some strong long-term relations.

What are IARI's future plans?

We always tend to cater to the needs of the Indian agricultural industry. We first understand the requirement of the industry, convert it to reality and then again gave it back to the industry. We hope to continue doing the same.