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'We are looking for long-term investments in India'

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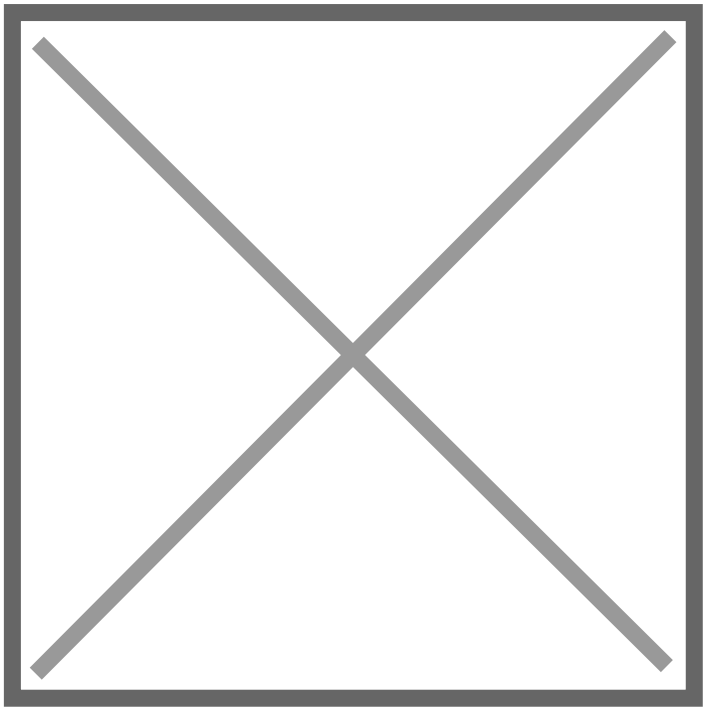
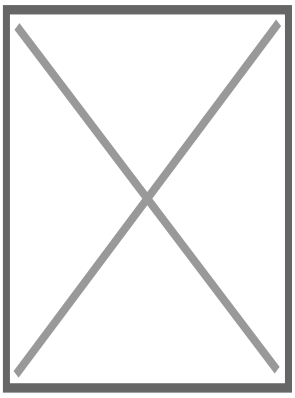


The conventional naked eye approach of phenotyping is now getting replaced with the arrival of phenomics. It combines different technologies to study the various physical traits.



— **Mr Dirk Vandenhirtz,** CEO
LemnaTec, Germany

A Germany-based company, LemnaTec, has a scanalyzer platform that generates digital images in a wide range of wavelengths far beyond human vision. The software auto-matically analyzes these images resulting in a considerable number of qualitative visual parameters. In an exclusive interview with BioSpectrum, Mr Dirk Vandenhirtz, CEO, LemnaTec, who was recently in India; shares his insights on the importance of phenomics, the company's future plans and the Indian market scenario.

Q Tell us more about phenomics and the solutions offered by LemnaTec?

Phenomics studies the physical and biochemical traits of organisms as they change in response to genetic mutation and environmental influences. It is used in functional genomics, pharmaceutical research and metabolic engineering. It helps us to visualize and analyze the biology beyond human vision. LemnaTec platform helps in identifying and numbering of traits that are important to researchers. Then accordingly, Marker Assisted Selection (MAS) can be used by the researchers.

Our team of scientists develop hardware and software solutions for high-throughput and high content screening of plants, seedlings, insects and other organisms and for the automated evaluation of biotests in ecotoxicology. The idea is to bring the technology to the researchers. Digital images are primarily taken by the scanalyzer systems, PL, HTS, 3D, all set up in a modular design. Using advanced LemnaTec image processing algorithms, every visible sample parameter (e.g. color, shape, size, architecture) is subsequently measured and correlated with experimental records (e.g. genetic data).

Besides, the small plant phenotyping, the high content and high throughput screening is used for basic research, pharmaceutical trials and plant protection. LemnaTec scanalyzer are able to automatically scan various plant sizes, ranging from trays with small Arabidopsis rosettes to crop plants of three meters.

Q How do you compare the market for phenomics in India with rest of the world?

Every country has its own peculiar markets with a specific focus. In the US, the research is focused on soybean and corn, while Europe and India have different research areas depen-ding on local needs. So far, we have been supplying mostly to the US and the European markets. The Indian market is different and due to anti-GM policies, there is a slight reluctance among few companies to invest. However, notwithstanding that fact we are entering Indian, Chinese and Brazilian markets. Depending on the local needs, we are working with researchers to modify the platforms.

Q What kind of investments would LemnaTec make in India and what are your expectations from the Indian market?

We have a long-term strategy for India as planning and implementation cannot be short-term. Primarily, we are building relationships with researchers. We selected Gurgaon-based Trishna Biotech as our partner to understand the local market and technology requirements. Trishna biotech offers consultancy and supplies the complete solution package to the Industry. In India, it will certainly take time, as these are high ticket instruments. Hopefully, we will have substantial investments in the next five years. In FY 2009-10, LemnaTec grossed $16.3 million (`73.78 crore) worldwide, and now in 2010-11, we expect it to grow upto $20.4 million (`92.34 crore). Our vision is to double the sales in phenomics business.

Q What kind of hiccups do you see in the implementation of your technology?

The main challenges are high custom duty and dearth of trained people to handle this technology. Cooperation with the government in all countries is important as it is vital for the smooth transition of technology. The GM restrictions do pose a challenge but eventually we expect these to resolve. There have been initial hiccups but slowly we are overcoming them.

What kind of association have you formed with the government agencies?

It is really a challenge to feed the country's huge population, especially in a country like India. Since weather conditions have colossal impact on the food production, we have identified projects with Indian Council for Agricultural Research on abiotic stress. Basically, we will be imparting training to the researchers working in the institutes about the technology. Having started with ICAR, the Department of Biotechnology and some CSIR institutes will also get involved.

As of now, the National Agri-Food Biotechnology Institute of the DBT has a mandate to do research in the phenomics area. In the coming years, we are looking forward to work closely with the Indian government for the establishment of national phenomics centers across the country.

Rahul Koul in New Delhi