

# Sustaining yields with Zero Residue farming

Camson Biotechnologies Ltd. is the leading agricultural biotechnology company that has been delivering innovative products to maximize agricultural productivity and sustainability while reducing environmental impact. Derived entirely from organic and natural plant-to-plant transfers, Camson has created a unique range of bio-pesticides called Biocides. Camson's Bio-fertilizers are also unique combinations of bio-agents that enhance the concentration of plant nutrients in the soil. Through biotechnology innovation, Camson's Hybrid Seed varieties offer maximum compatibility with organic and natural conditions and better yields. Mr. Dharendra Kumar, Founder & Managing Director, Camson Biotechnologies Ltd., in a communication with Agriculture Today expresses his vision and takes us through the different activities of the company.



## Please share details of your company for our readers.

We are a research driven biotechnology company focused on agricultural innovation. Our R&D efforts are aimed at creating food resources for India and the world through higher yields, safer produce and zero-residue agriculture. Established in 1993, Camson Biotechnologies combines the latest knowledge in breeding, molecular genetics and metagenomics in agriculture with the latest practices in environmental safety and protection, to market a wide range of products. We are the only company that uses advanced techniques in microbial science to produce a unique range of biocides, bio-fertilizers. These products are non-poisonous, eco-friendly and residue-free. The company has a 53 acre R&D centre and production facility in Bangalore and Himachal Pradesh. Camson research centres are based in Karnataka, Uttar Pradesh and Hyderabad. The company has 13 branches all over India which cater to a wide distribution network comprising of around 2500-3000 dealers. Besides, Camson has recently tied up with the globally reputed Wageningen University from Netherlands to develop a range of disease tolerant fruits and vegetables using Cisgenic technology.

## Is the atmosphere in India conducive for the development of Agri Biotechnology? Being the Managing Director of a leading agricultural biotechnology company how has been your experience so far?

India is a vibrant country with young and energetic workforce that wants to prove themselves and bring about a change. We have taken the challenge to put India and Camson on the global map of biosciences. Equally compelling is the urge from Indian farmers for a sustainable way to boost agri-yields to global levels and environment friendly crop-care solutions.

The journey so far had its share of highs and lows. We were full of enthusiasm when we embarked on this journey in 1992. However, the initial euphoria was short lived when we realised that ground realities were quite detrimental to growth instead of encouraging it. We went through a rough patch early on and emerged much stronger from it. We hit a high with the successful launch of our first biocide "Cal-phomil" around 2000-01. Since then, there has been no looking back. Today we have over 27 biocides and 47 varieties of hybrid seeds in our product list. Overall, the experience has been quite challenging and rewarding. The journey seems worthwhile when we hear our customers (farmers) tell us about the change we have brought about in their crops and in some cases revived infertile fields and restored pest infested crops. This also encourages us to work harder on the job to meet the high expectations and continue to deliver revolutionary products that help the farmer reap a better harvest.

## What is Zero residue farming? How can it be integrated into Indian system of farming?

Camson believes the key to safer produce and sustainable yields lies in the concept of zero-residue farming. Zero-residue farming uses organically derived biocides and biofertilizers to protect crops and enhance growth.

Microbial biopesticides are formulated of secondary metabolites. These metabolites are bioagents beneficial to plant physiology and produce.

Unlike broad-spectrum synthetic chemicals, these products work specifically against certain pests, without harming other organisms. Since they are living strains, they assimilate into the ecosystem without leaving any toxic residue.

Zero Residue farming is being practised by several farmers who have shunned chemical pesticides and switched over to Camson's environment friendly products. Farmers have realised the benefits of working in harmony with nature which in turn has rewarded them with superior soil quality and bountiful crop yields which fetch high prices in the markets on account of better quality. The biocides also result in lower pest attacks and hence fewer sprays. This

is very much in harmony with the Indian mentality where agriculture is done in balance with nature.

## Some consider biotechnology as the answer to the rising food prices and increasing food production. What is your take on this?

Yes. Biotechnology is the only solution to meet the growing food requirements of this planet. At one end of the problem is a growing population with a higher disposable income which requires more and higher quality of food. On the other hand, agriculture is having a tough time meeting these requirements for a varied set of reasons like a dip in agricultural yields due to abuse of soil by fertilisers and chemical pesticides. Un-profitable farming results in lower acreage under agriculture as farmers shift to alternate professions. Higher urbanisation also reduces the acreage under agriculture. Soil erosion alone is estimated to take away 24 billion tonnes of soil each year.

Unfortunately none of these seem to be reversing in the short term and the world stands at the brink of a massive food security crisis.

Food items are a necessity and human beings can and will pay any price for them. The global rise in prices of agri-commodities is testimony to the fact that this crisis has begun to manifest.

The solution lies with biotechnology which has the capability to generate a higher and a better quality yield with the existing resources.

## How can hybrid seeds be integrated into an organic system?

The organic system is designed to meet the needs of a particular class of consumers who are conscious about the ill effects of consuming chemical pesticide residue laden food and are willing to pay a steep price but have a zero tolerance policy on the same. However, the fact remains that the bulk of the consumers do not consume organic food as it is available at a significant premium. These foods have to be sold on a premium to recover the high costs which are a result of low yields derived by using organic seeds. This is not a sustainable model to feed the growing needs of an economically advancing population.

A hybrid seed is a high performance seed as it delivers a high yield which makes agriculture a profitable business. It is an economically sustainable and safe way to address the food requirements for the present and future generations. It is the need of the hour.

Nature evolves and creates hybrids in most forms of life. The same is being replicated by the bio-tech companies in laboratories. A more sensitive approach would be to segregate hybrids based on the technology in use. We at Camson are strong advocates of boosting agri-yields by using safe bio-sciences like intragenics and cisgenics, which essentially involve transfer of genes between related species of the plant

kingdom. This is a safe version of a GMO (genetically modified organism) as it is closer to the natural process of creating hybrids. These hybrids are potential high yielders and tolerant to pest attacks inspite of adverse climatic conditions. We are one of few Companies in the world to be working on intragenics.

### **Are there many takers for biopesticides in India? Can you share with us some success stories?**

Farmers can be split up into a few categories.

Category A : Export Oriented farmer

Category B : Who have been unsuccessful at finding a remedial solution in chemical pesticides

Category C : Who understand the harmful effects of chemical pesticides.

Category D : Farmers who continue to use chemical pesticides inspite of the adverse effects.

The category A and B are the easiest of the lot. The category A (export oriented farmers) have little choice but to use our products since chemical pesticides available in India leave behind a highly toxic residue on the food, which is unacceptable by the most of the international community. Nashik farmers are very well aware of this and know that if their product has even small amount of hazardous chemical pesticides in their produce even at 0.002 ppm, then their entire consignment is rejected. The category B type farmer is also easy to win over as he is desperate for a solution which chemical pesticides have been unable to provide. This is because the pests evolve and develop resistance to the age-old poisons being used.

Category C type farmer is a knowledgeable one and understands the long term damage that chemical pesticides can cause. He requires some amount of visual confirmation before he switches over to using our products, but once he switches over he is hooked for life.

The category D type farmer is unwilling to be accountable for the environmental damage that he causes. These farmers are won over simply by pitching the performance of our biocides against the other options available to him. We have observed that our products have outperformed their market competitors.

However, the true reward is the goodwill that we have generated amongst the farming community. There are plenty of success stories that have bolstered the immense faith that farmers place in our products some of which have been documented on our website. Most recently, Camson rescued a farmer Puneet Kumar (who resides in Aligarh – U.P) from the vicious debt trap that he had fallen into. It is a classic case of a farmer unable to recover even the capital invested after his potato crop failed. He was contemplating about ending his life to save himself the embarrassment attached with selling his land.

Camson stepped in and provided the right guidance and agri-inputs which helped him to reap a successful crop. Today, he has pre-paid his loan and is a relieved man who swears by Camson. It is one of the many such heart warming stories which rejuvenates our scientists after a hard day of work.

### **What are the R&D activities taken up by your company?**

Camson has been at the forefront of advanced technologies in agri bio-science space. It is one of the few Indian companies to work on metagenomics, Intragenics and many other advanced sciences. Camson is the only company to launch microbial based biocides (bio-pesticides) and have a range of 27 such products in its portfolio. We are the first Indian company to develop the freezer watermelon, yellow skin watermelon, yellow flesh watermelon, multi-colour flesh watermelon, black chillies, and many more such unique products. Our pipeline of products is equally exciting.

Camson has a research centre & laboratory housed over 57 acres on the outskirts of Bangalore. We have another research centre for geo-climatic testing at Aligarh – Uttar Pradesh. In May-June 2011, research has begun at another centre on the outskirts of Hyderabad. A new modern building is being constructed at Dodballapur. This will house a state-of-the-art laboratory, temperature controlled storage area for seeds and advanced machinery required for developing and testing biocides as well as seeds. Our R&D is recognised by the Dept. of Science and Technology, Government of India.

### **Where do you see your company ten years down the line?**

Camson offers a cost effective bio-solution which is a perfect and a natural replacement for the USD 45 billion dollar agri-chemical market. Consumers have realised the importance of eliminating harmful residue and have begun to demand zero-residue foods. This will nudge the farmers to switch over to biocides. Farmers themselves have also begun to understand the benefits of switching over to eco-friendly solutions to preserve the soil quality.

The future is bright as Camson is the only company with bio-solutions which can be scaled to replace chemical pesticides and hence eliminate the harmful residual effects. The food grown will be safe and have all of nature's goodness.

Camson visualises a healthy and disease free society. We are on a mission to be a world-class manufacturer of biotechnology products which are effective, non-poisonous, eco-friendly, zero-residue and cost effective through state-of-the-art technology, backed by on-going research and development activities thereby providing good health to all.