



The Metahelix facility in Bommasandra on the outskirts of Bengaluru

It's grand, it's genomic

The Rallis-Metahelix combine is concentrating on where it all begins — the seed — to make the most of its biotechnology play

A small oasis of green that seems incongruous amid the dust, sprawl and functioning chaos of Bommasandra, an industrial hub on the edges of Bengaluru, is the setting for what could be a new chapter in the story of Rallis India. And the protagonist that looks set to define the decisive turn in this story is Metahelix Life Sciences, an ingenious and hungry biotechnology enterprise bidding fair to play a part in hauling Indian agriculture into the new millennium.

The coming together of Rallis, a 150-year-old company of Greek origin that leads the Indian agrochemicals industry, and Metahelix, established by five technology entrepreneurs in 2001, makes plenty of sense, complementing as it does the capabilities of the two entities. This explains why Rallis acquired a majority stake in Metahelix for close to ₹1 billion in late 2010, with plans to make it a wholly-owned subsidiary by 2015.

Rallis's strengths include a portfolio of insecticides,

fungicides, herbicides, and plant nutrients, a network of 1,500 distributors, and a connect with more than 500,000 Indian farmers through its Rallis Kisan Kutumba (family of farmers) programme. The company, now a subsidiary of Tata Chemicals, had been looking to make a big push into the seeds business — as spelled out in the 'Rallis Poised' growth blueprint it laid down in 2007 — and Metahelix was identified as a perfect fit to realise that objective.

Metahelix is an agricultural biotechnology enterprise focused on crop improvement and increased productivity, with a well-developed expertise in crop genetics and the creation of high-performance hybrid seeds for rice, maize, cotton, millets, tomato, hot pepper, okra, etc.

The potential in this partnership of equals is plain to see. The seeds business in India is growing at 12-15 per cent a year (compared with the global 6-7 per cent). The seeds industry was pegged at ₹5 billion a couple of

years back and is today worth more than ₹70 billion annually. Better still, the business could reach ₹120 billion in the coming five years.

Viveck Kapoor, head of the seeds business at Rallis, has no doubts about the logic of combining with Metahelix. “We have this substantial link with farmers, a widespread distribution network and a solid brand equity,” explains the 10-year veteran with the company. “What the Metahelix acquisition allows us to do is offer the end user, the farmer, a complete solution rather than bits and pieces of it.”

AGRICULTURAL GAINS

Making a meaningful contribution to the farmer community and, through it, the Indian economy is another goal. That should not be too difficult to realise given the abysmal numbers for agricultural productivity in India. Juxtapose those numbers with the gains from agricultural biotechnology and the difference becomes stark.

The growth in food-grain output in India drags along at 1.2 per cent a year. Contrast this with cotton, where biotechnology has enabled production to jump from 14 million bales — one bale is 170kg — in 2002 to 36 million bales in 2011. India used to produce about 275kg of cotton per hectare, among the lowest in the world; the country’s cotton harvest now is close to 600kg per hectare.

The high-yielding route that Bt cotton, as it is called, has taken fortifies the argument that biotechnology can deliver a significant boost to Indian agriculture. This is a case that Dr KK Narayanan, the managing

The Metahelix story

Metahelix was an idea whose time came, appropriately enough, when genetics and biotechnology were catching the public imagination in the wake of the path-breaking publication of the human genome sequence.

Set up in the summer of 2001 by a five-member group of entrepreneurs with more than a soft corner for biotechnology, Metahelix got off the ground thanks to an ‘angel’ investment of ₹65 million by NS Raghavan, former joint managing director of software giant Infosys.

Dr KK Narayanan, a cofounder and the managing director of Metahelix, says the motivation for setting up the company had much to do with the potential of technology to change Indian agriculture. “There was always this idea that so much could be done for Indian agriculture with technology,” he remembers. “We approached several people. Then we got in touch with a person who was on the Infosys board. But he said he was too busy and suggested that we meet a friend of his.” That friend was Mr Raghavan.

The company started operations from a small apartment owned by the mother-in-law of Gautham Nadig, one of its founders. The Metahelix of today is unrecognisable from the fledgling of then. It has a staff of 300, six research stations and 25 testing centres across India, 25,000 sq ft of greenhouses and, not the least, the potential to emerge as the best and the brightest in a field where cutting-edge science is the game.

“The initial thinking was to team up with seed companies who would use our technologies,” says Dr Narayanan of Metahelix’s early days. “But we soon understood that seed companies don’t have the patience required for this business. We realised that the real value of biotechnology is in creating real products.”

In 2005 Metahelix raised more money, this time from a venture capital fund, to fuel its expansion. By 2008 the company had reached a stage where it had to take a quantum leap to realise its potential and its ambitions. It would take a while longer, but the Tata group, and Rallis, was soon to come calling.

director of Metahelix and one of the cofounders of the company, never tires of championing.

“Biotechnology can create such change,” says Dr Narayanan, a plant molecular biologist who has done post-doctoral research at Stanford University. “Of course, it is not a silver bullet but the benefits are tangible. Today India is the second-largest producer of cotton in the world, and we were nowhere a decade back. India is the largest exporter of cotton in the world now, and we used to be a net importer.”

That’s with one technology and one crop. Replicate it with food crops and the outlook for Indian agriculture appears bountiful. “The seed business is being driven more and more by technology,” says Dr Narayanan, “and the Indian farmer is receptive to technology. This goes against the popular notion that our farmers are poor and ignorant, that they are laggards.”

The statistics on genetically

modified (GM) crops are impressive. The production of GM crops globally, from 1996, when it was introduced, has been growing at 10-13 per cent a year. Production of the only GM crop in India, Bt cotton, has been growing at 150-160 per cent a year. This explains why 95 per cent of all cotton grown in India today is Bt cotton.

CYCLE OF PROFIT

The notion that the cost involved in growing GM crops could dissuade farmers is a flawed one, contends Dr Narayanan. “It is not that Indian farmers don’t want to pay,” he says. “Some farmers may be unable to pay because of the initial capital cost, but that is where the government can come in, by way of a subsidy or some kind of support. Once the cycle starts and the farmer begins cultivating, profits will flow.”

That’s a better option than the subsistence farming that is so persistent in India. “We should

shift our farmers’ mindset away from subsistence farming. I believe it is high time we have industrial policies in agriculture, with a farming culture that is tailored to Indian needs. The Western model may not be suitable,” says Dr Narayanan.

Rallis expects to be part of a solution that lifts Indian agriculture out of the morass it seems to be stuck in, and it’s not just about enhancing yield. “These new seeds can do better in water-stress conditions or where drought is a constant threat,” says Mr Kapoor, who reckons farmers are ready to pay more if they see value. “In the case of cotton, they were spending five times more on GM seeds.”

The higher cost of GM seeds is to an extent a consequence of the



GM technology can be an extremely potent option in helping India address the agricultural crisis confronting it

Killing the baby before it is born

“If I wanted to scare you on an issue, I would start with something you are not too sure about,” says Dr KK Narayanan, the managing director of Metahelix, as he settles down to taking apart the irrational and pseudo-scientific arguments against GM technology in agriculture.

Evidence of the manifold benefits of GM technology for India is widespread, particularly with reference to cotton output rocketing in the country. Yet that has not curbed the protests of a vocal brigade of activists who seem to get apoplectic every time GM technology and Indian agriculture are mentioned in the same sentence.

“We have not been effective in communicating all we can about GM farming, and this has made it easy to build up anxieties,” says Dr Narayanan. “Nobody is worried about Bt cotton these days; the heavens haven’t fallen on us since its introduction, and yet people have been trying to kill the [GM] baby before it is born.”

Indian agriculture, in desperate search of a panacea that can lift it from the abyss of stagnation, is suffering due to this prejudice against all things GM. More than 20 crops in the country have had GM technology introduced into them and trials have taken place at different levels, but nobody knows when they will come into actual cultivation.

“Two years back the Bt gene was put in brinjal,” explains Dr Narayanan. “It was approved for commercial cultivation, but then for many reasons, including political, a moratorium was imposed. We don’t know when it is going to be lifted.”

That moratorium was clamped about 18 months back and nothing has happened on

the issue since. “I don’t think it was fair at all because the technical committee looking at the safety aspect has been testing it for more than nine years,” says Dr Narayanan. “And I know that [the GM brinjal] is as safe, if not safer, than any food we currently consume.”

This kind of waffling has injected uncertainty into the plans of companies such as Metahelix. For instance, field trials for a new combination technology for cotton ought to have started in May-June 2011, but these have been stalled. “We had applied for clearances well in advance but there was a last-minute denial due to pressure from activists,” says Dr Narayanan.

“There is confusion in the system,” says Dr Narayanan. “Every time you have to approach the authorities, a new question is asked. The regulatory system for biotechnology is required; it is like the brakes that you need in a vehicle. But it can’t be that the brakes prevent the vehicle from moving.”

Tamal K Dattaroy, a senior member of the Metahelix team, puts some of the blame for the demonisation of GM technology on the media. “There are two issues which get confused in this whole debate,” he says. “One is about multinationals having a monopoly in third world markets and all that. This should not be confused with whether or not a GM crop ought to be introduced.”

Viveck Kapoor, who heads the seeds business at Rallis, insists that the issue has to be viewed from an unbiased perspective. “This is not about one or two companies pushing for GM technology,” he says. “India has the toughest regimen in the world when it comes to releasing GM seeds. I really don’t see any valid reason for this controversy.”



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Dr KK Narayanan, managing director, Metahelix

long gestation periods required to produce them. “It takes six-seven years to get the right kind of seed,” says Mr Kapoor. “Beyond your commercial offerings, what really matters in this business is the kind of pipeline you have to bring in new products. The lifecycle of a seed is short; every three-five years you have to come out with a new version.”

Adding to the cost factor is the capital-intensive nature of the business. That’s one reason why companies have started sharing the expenses involved in research, with different players concentrating on different aspects of the development process. “Besides the time factor there are all these trials done for regulatory purposes,” says Mr Kapoor. Simply put, biotechnology demands a lot of money.

The advantage India has with developing GM technologies for farming is the huge biodiversity in the country, but collaborative research has to get better for the most to be made of this bounty.

Rallis, for its part, will have to stay on top of multiple challenges to make a success of its seeds venture. Currently the company secures about 80 per cent of its turnover from its core business of crop protection solutions and merely 5 per cent from seeds. “We want to bring the seeds figure up to 25-30 per cent in next three years,”

says Mr Kapoor, “We expect to be, by then, one of the serious players in India in this business.”

The comfort Rallis seeks is the cushioning effect the growth of the seeds side of the business can offer. “We will not, then, have to depend so much on one part of our business,” says Mr Kapoor, who is quick to dispel the idea, though, that Rallis is giving up on its bread and butter income. “We have a 10-12 per cent share of the crop protection products and solutions market and we would like to expand that, but we want to reduce our dependency on it.”

FARMING PLUNGE

Metahelix can make just that happen for Rallis and, in the process, do its bit for Indian agriculture. “In the 1970s and the ’80s India actually saw 3-4 per cent growth in food-grain production,” says Dr Narayanan. “Then we hit a plateau, with growth at about 1.2 per cent. Agriculture used to contribute about 30 per cent to India’s GDP two decades ago; now it makes up 15 per cent.”

Those are numbers that dismay economists and common folk alike. “We are in a crisis,” says Dr Narayanan. “We no longer talk as much about starvation as we do about rotting stock. But those stocks are rotting because so many millions are going hungry. We have to double, at the very

least, our food-grain production by 2020-25 to meet the needs of our population. This 1.2-per cent growth will not get us there.”

Dr Narayanan is certain India has the wherewithal to overcome this agrarian crisis. “We have a multiplicity of crops; the second largest spread of arable land in the world; sunshine throughout the year, which enables so many regions to grow multiple crops; we have one of the most extensive publicly funded crop-research systems globally; and we have the intellectual capital.”

As for the disadvantages, it starts with vested interests. “We have to change our thinking about agriculture,” says Dr Narayanan. “Some people have this romantic notion that we should be protectors of all our farmers; what we are doing, in actual terms, is exactly the opposite. A farmer does not grow crops to only feed himself and his family. He needs to make extra cash to be able to buy that television set, to send his children to good schools, to eat healthy and nutritious food.”

Dr Narayanan sees biotechnology as a potent option in the circumstances. Undermine that option, he contends, and India is left a whole lot weaker in addressing the agricultural quandary confronting it. “Let us not be under the illusion that we don’t have problems because millions of tonnes of food grain are rotting in our godowns,” he says. “The rotting grains do not represent a surplus of food; it reveals the surplus of hunger and poverty that we have in this country.” □

— Philip Chacko