



## METAHELIX LIFE SCIENCES COMPANY

### MC13 – A REVOLUTIONARY GAME-CHANGER IN RICE CULTIVATION

Metahelix Life Sciences Company developed and commercialised a first-of-its-kind hybrid bold rice variant.

#### OVERVIEW

With decades of industry innovation and a benchmark of consumer satisfaction, the Tata Group has done it again. By turning its focus to the agricultural sector, the Metahelix Life Sciences Company has developed, designed and commercialised MC13, a first-of-its-kind hybrid bold rice variety seed. Fraught with the challenge of meeting the demand of an ever-growing population, Metahelix sought to make a change. Currently, the cultivated rice area in the country is about 8 million hectares, which is consumed as boiled rice, poha, puffed rice etc. MC13's superior yield of crop empowers farmers to earn up to 30% more than they earlier could, while also providing millers up to a 5% higher recovery rate over traditional varieties.

In 2014, close to 40,000 farmers had adopted the ground-breaking MC13 variant of rice and by 2025, Metahelix looks to reach out to over 8 lakh farmers.

#### INNOVATION

The Metahelix Life Sciences Company noticed that farmers were receiving diminishing returns from the Open Pollinated Varieties of rice and there was a huge gap in the market that needed a more enhanced variety of seed to fill. Addressing this gap in the market, the Rice Research Team at Metahelix – adept at developing hybrid variants– took it upon itself to develop a hybrid for the bold rice segment of the market.

MC13 benefits the farming sector, the end consumer as well as the nation's economy. The superior hybrid developed yielded a 15% targeted improvement and allowed farmers to harvest an additional 3-4 quintals of paddy per acre. Taking this added harvest into account, a farmer's incremental income would rise by up to ₹5,600 per acre. Looking at this from a national level, by using MC13, India could produce an outstanding 3 million additional tonnes worth of paddy every year, leading to an economic value of ₹4,200 crores. MC13's high tolerance to water stress, pests and diseases lead the seeds to produce a more enhanced output of poha and puffed rice.



From 2008-2010, the Research Team worked on identifying potential parental lines within medium early maturity to initiate the breeding program while screening for the variant's tolerance to major rice pests and diseases. Eventually from a large number of initial hybrids, 17 potential variants were narrowed in on to be tested for multi-location centres across the country, evaluating it on the basis of higher grain yield, fodder quality, tolerance to

## CASE STUDY

YEAR OF IMPLEMENTATION: 2014

#### INNOVATION IN A NUTSHELL

Metahelix Life Sciences Company developed and commercialised MC13, a first-of-its-kind hybrid bold rice variety that delivered a superior yield, had a high tolerance for water stress, pests and diseases, provided farmers with extra income and also contributed significantly to national economic income.

#### CHALLENGES FACED

- Battling the farmers' predisposed, rigid farmer mind-set since they were sceptical of the new hybrid
- Meeting initial product requirements of seed production because of the development efforts that went into producing both the parent and the hybrid seed
- Metahelix needed a value chain in place to create demand for it, so the Team had to connect with the value chain individuals such as the farmers, dealers, traders and millers

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pests/diseases, nutrition response and agronomy practices. The top 3 performers from this test group were then sent to 30 locations nationwide to be further tested and evaluated. From this final evaluation, MC13 was chosen to be the Crop Management Team for pre-commercial testing. In 2013, MC13 began to be marketed in states across India, with over 10,000 farmers already growing this hybrid seed in nearly 50 acres of farmland.

In terms of financials, MC13 did exceptionally. In 2012-2013, it generated revenue of ₹15.84 lakhs, followed by a revenue of ₹1.26 crores in 2014 and going up to ₹5.23 crores in 2015. This hybrid seed offers rice farmers a profit of ₹4,000 - ₹5,000 per acre through its superior yield crop and offers poha millers a benefit of ₹6,000 - ₹7,000 per acre. MC13 increases poha millers' income by almost ₹2,500 per tonne of processed paddy because of its higher level of poha recovery.

## THE CHALLENGE

Meeting the initial product requirements in terms of seed production posed a major challenge for the MC13 team because of the development efforts that went into producing both, the parent and the hybrid seed – since their genetics were so different. Research took place in multiple locations across varied seasons so as to optimise the staggering of days between parent seed, sowing window, agronomic practices and developing effective measures to control the pests and diseases. The team also found new production locations, apart from the existing ones, in an attempt to overcome production challenges while successfully producing seeds in an off-season to meet growing requirements of the market.

Another challenge the team faced was changing the predisposed, rigid farmer mind-set, who were sceptical to trust a new variant and were wary of its outcomes. Also, MC13 seeds



were almost 12-15 times the price (per kg) as compared to their traditional OPVs.

The team decided to tackle this problem through specifically targeted projects in predetermined markets. To create awareness amongst farmers about MC13's benefit over other seeds traditionally used by them, Metahelix conducted field activities such as Crop Shows, Field Visits and Harvest Days and distributed large samples. Soon word-of-mouth began to grow and MC13 was seen as the accepted, superior product.

Since MC13 is a pioneer in its market segment, Metahelix needed a value chain in place to create demand for it. In order to do this, it was essential for the Team to connect with the value chain individuals namely, farmers, dealers, traders and millers. Through a project called 'Millers Training', the Metahelix Marketing Team, demonstrated the higher recovery rate and quality of poha and puffed rice in front of other value chain individuals across Gujarat, Jharkhand and Bihar. After two years of dedicated efforts on the part of Metahelix, the demand for MC13 grew in these states and others as well.

## THE IMPACT

Metahelix managed to touch all points of their value chain while created collaborating with its internal teams to develop ways in which to increase productivity to meet targeted growth and gross margins. The use of MC13 by farmers even creates a national economic benefit of ₹65 million. Already a forerunner in the field of rice hybrid seed companies, Metahelix's position of "DhaanBole to Dhaanya" was further strengthened through the success of MC13. In addition to the benefit that farmers received, MC13 also had great cross-company collaborative benefits within the Tata Group. Take Tata Chemicals Limited's (TCL) "Farm Essentials" business, for instance, that has a large direct retail network of different agri-inputs including seeds through Tata Kisaan Sansaar (TKS) Kendras under one umbrella. TCL also has an extensive distribution reach across the country that can

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## THE SOLUTION

- From 2008-2010, the Research Team worked on identifying potential parental lines while screening for the variant's tolerance to major rice pests and diseases
- The top 3 performers were then sent to be tested, evaluated and MC13 came out on top
- From 2011-2012, MC13 was further tested and demonstrated a 25-30% yield advantage over OPVs
- In 2013, MC13 began to be marketed nationwide

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## RESULTS ACHIEVED

- In 2014, almost 40,000 farmers had adopted MC13 variant
- The superior crop enables farmers to earn up to 30% more than their tradition crop would yield
- It provided millers 5% higher recovery rate
- The turnover has grown from INR 470 lakhs and projected for INR 998 lakhs in 2017

make MC13 available to a large number of farmers. TCL's "Living Essentials" business yields products like salt and pulses under its "i-Shakti" brand that could potentially market MC13's high quality poha.

Another cross-company benefit comes to Rallis India Limited, one of the leading players in the Indian crop protection business that has a large rice crop

customer base, a large distribution channel and sales team. Metahelix is collaborating with Rallis to promote and market MC13 seeds through their channels to offer it to the rice farmers – thereby enhancing opportunities for both companies, Rallis and Metahelix.

Another company collaborating with Metahelix is Star Bazar that has a strong channel in urban market under the Tata Group, to sell high quality MC13 poha and puffed rice to consumers.



## THEIR JOURNEY POST-INNOVISTA

In the past 2 years, MC13 has been introduced to other rice-growing states in India like Uttar Pradesh and Bihar. The farmers in these states have been immensely appreciative of MC13's stability, tolerance levels, and its high yield potential. In the past 3 years, the growth in terms of sales has been incredible. The turnover has grown from ₹470 lakhs in 2015 to ₹998 lakhs projected for 2017. Metahelix has made further plans for the future to create sales of ₹1,260 lakhs in 2018.

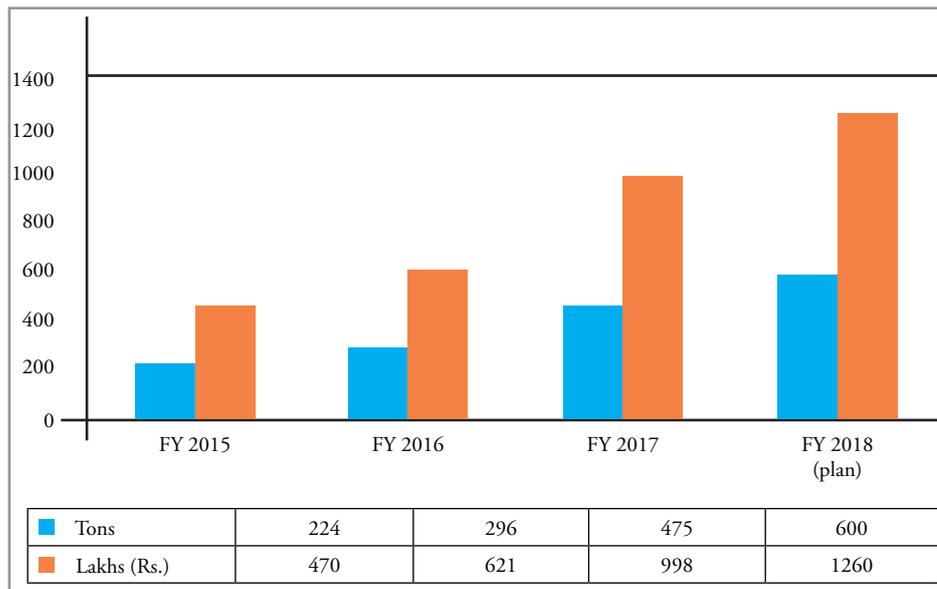


Figure 1: MC13 Sales Figures

India could produce an outstanding 3 million additional tonnes worth of paddy every year, leading to an economic value of Rs.4,200 crores.

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This hybrid seed offers rice farmers a profit of Rs.4,000 - Rs.5,000 per acre through its superior yield crop and offers poha millers a benefit of Rs.6,000 - Rs.7,000 per acre. MC13 increases poha millers' income by almost Rs.2,500 per tonne of processed paddy because of its higher level of poha recovery.

## ABOUT METAHELIX LIFE SCIENCES COMPANY

Metahelix is an Agricultural Biotechnology Company that focuses on developing traits and technologies for crop protection and improved productivity. Hybrid seeds and traits are also commercialised here. Metahelix uses its proprietary technologies in crop transformation and functional genomics.

