



INDIA

INNOVATIONS IN AGROECOLOGY

GRAPE MUNDO: AN ECOSYSTEM FOR GRAPEFARMING

“Grape Mundo” is a technology ecosystem that guides grape farmers to do precision and sustainable grape farming to produce high-quality grapes using minimum chemicals, thus lowering the cost. This ecosystem also helps grape farmers sell export quality and residue-free grapes across a huge PAN India market, without any involvement of intermediaries, via India’s first unique selling platform called BestGrapes™. Our innovation is developed to guide and empower marginal farmers with low-cost grape farming techniques, and create a market to sell their produce.

DESCRIPTION OF THE INNOVATION

Our innovation is an ecosystem for grape farmers to adopt precision and sustainable farming practices, along with a channel for them to sell their quality and residue-free grapes directly to end consumers without using traditional selling chains and intermediaries. It has

been developed to help farmers identify problems, such as crop residue precaution, prevent pre-harvest and post-harvest losses, estimate yields, and calculate and enhance grape farm productivity. It illustrates the basic and main key points in the local

language (Marathi), and is easy to understand for grape farmers (scientific language is only used when necessary). It covers the many aspects of grape farming to achieve the individual farmer’s desired target of high-quality, residue-free grapes.

IT FOR FARMERS

A mobile app that ensures grapes are neither sour nor unsafe

How this has made it easier for growers in India’s Grape Capital to produce export-quality fruit

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NASHIK (MAHARASHTRA), APRIL 12

2016-17 TURNED out exceptionally good for Dinkar Kamble. During the financial year just gone by, this grape farmer from Kone village in Nashik district’s Trimbak taluka sent out 180 tonnes out of the 300-odd tonnes produce from his 26-acre vineyard to European markets, mainly the United Kingdom. In the past, the maximum he could clock in any year was 80 tonnes.

While favourable weather helped – there were no untimely pre- or post-harvest rains/hail during February-March both this time and in 2016, unlike the previous two years – Kamble credits his good run no less to Grape Mundo, an Android mobile application developed by Rta Technologies Pvt Ltd, a Nashik-based software consultancy firm. “It enabled me to maintain the right schedule for applying pesticides, fertilisers and micronutrients. The precise timing and quantum of input application ensure that the chemical residues in my produce were well within the prescribed maximum limits to

qualify for exports,” says Kamble. Farmers realise an average Rs 160 per kg on export consignments to Europe, as against Rs 70 or so on domestic sales. “Our first preference is obviously for export. An acre of grapes shipped to Europe fetches Rs 8 lakh, more than twice what we get by selling in the domestic market”, Kamble points out. However, the strict rules governing agricultural product exports – especially meeting the maximum residual limits (MRL) for pesticides – often results in failed consignments. Before the start of the harvesting season from early-February, Kamble, like many other growers in this ‘Grape Capital of India’, sends samples of his produce to one of the three plant quarantine facilities at Mumbai for testing of MRL levels. Failure to meet European country limits forces diversion to either non-European or domestic markets, both comparatively less remunerative.

Grape Mundo, an open source app freely downloadable on Google Play Store, helps farmers chalk out a schedule for application of inputs, based on best practices followed by progressive growers in the Nashik belt. The schedule prescribes the quantum and



Grape grower Dinkar Kamble (centre) with Rta Technologies Director Samir Pandit (right).

application date of each input, specified in terms of ‘pre-harvest interval or PHI days’.

“Every chemical or pesticide has a PHI, which is the period after an application when the residues still remain on the crop or fruit. The app tracks these intervals so that each

spray is done at the right time, after the PHI for the previous chemical has lapsed,” explains Samir Pandit, director of Rta Technologies. GrapeMundo is an interactive app, which also ensures that farmers adhere to the prescribed schedule. “Alerts have been

set up at the start date of each application and an inbuilt alarm keeps on ringing until the farmer attends to it. The only way to silence the alarm is to tick one of the three options: Completed, Cancelled or Postponed,” he adds.

“My experience with the app confirms that if the prescribed schedule is followed, the final produce will actually be residue-free,” claims Kamble. In the pre-app days, he would have to jot down the application schedules on a physical diary and carry it to the field. There would invariably be misses, more so in large vineyard holdings such as his. Even a day’s wrong timing increased the probability of export samples failing the MRL test by 25 per cent. The usual practice, therefore, was to divide the vineyard into smaller plots and select just a few of them to produce exportable grapes. “In 2016-17, thanks to the app and the regular application alerts on my mobile phone, I could grow export-quality fruits on almost 50 per cent of my vineyard. This year, I plan to reserve more than 70 per cent of my holding for exports,” notes Kamble.

The grape cycle in the Nashik region begins with the pruning of trees in April, after harvest of the fruits from the previous crop. In this first pruning, everything is axed, barring the main stem and roots. Farmers then, apply fertilisers, micronutrients and fungi-

cides on the roots to allow the trees to regenerate and produce fresh healthy shoots and foliage with the monsoon rains. This is followed by a second round of pruning in September-October, to prevent excessive growth that leads to poor air circulation and promotes fungal diseases. Flowering starts just after the second pruning, which sets the stage for subsequent fruit development and harvesting from end-January to early-April. All through, the vines have to be administered insecticides (lambda-cyhalothrin) and fungicides (kresoxim-methyl, mancozeb, mandipropamid, etc.) based on a rigorous application schedule that ensures both crop protection as well as acceptable MRLs.

Last year, the Grape Mundo app was used by around 40 grape growers in and around Nashik for tracking and managing input applications in their vineyards. The app has already recorded more than 4,000 downloads. “Our next aim is to use data analysis to help growers similarly plan their harvesting cycle better. Right now, they mostly harvest their grapes in March, resulting in market glut and price collapse. The app could have a feature allowing the farmer to log in his individual grape plots and estimate the tentative yields and dates of harvest. Our users can factor in these data points to schedule their pruning and harvesting cycles, with a view to escape gluts,” observes Pandit.



DESIGN AND SHARING OF THE INNOVATION

“Together” is the key to our innovation. We adopt the “Identify, Develop, Test and Train” approach. We have travelled more than 40 000 km across various regions in India to identify farmer’s challenges. During our journey, we visited and observed family farmers, and attended weekly meetings and seminars. This groundwork resulted in gathering valuable and important information for us, while developing the application. Our innovation is used by grape farmers through a mobile application for precision farming, and an e-commerce platform for selling grapes.

Communication with Farmers training, weekly seminars, broadcasting, group meetings

SOCIAL, ECONOMIC AND ENVIRONMENTAL IMPACTS

- » Increased income and decreased farming expenses.
- » Easier market access resulting in better rates for yields.
- » Minimized pre-post harvest losses.
- » Efficient and controlled use of natural resources.
- » Reduced agrochemical pollution.
- » Improved farming practices through co-learning.



BENEFIT FOR FAMILY FARMERS AND FOOD AND NUTRITION SECURITY

Grape family farmers have been using traditional methods for farming. Our innovation has connected them to efficient, low-cost techniques, resulting in high-quality produce which get better rates. This quality product is directly sold to end consumers so that farmers get full value for their efforts. Family farmers are the people who hold the tools to practice agroecology. They are the real keepers of knowledge and wisdom.

LESSONS LEARNED AND RECOMMENDATIONS

The percentage of educated youths is increasing in grape farming. If their knowledge is properly guided with the help of digital technology, then it will increase chances of optimizing and stabilizing yields. Educated youths are the real keepers of knowledge and wisdom, and local contexts need to be taken into consideration: region, language, environment, and so on.

