Mango Horticulture: A Livelihood Opportunity for the Poor

A WORKSHOP REPORT EXTRACT

Highlighting the recent developments in the mango sub-sector, the workshop identified the opportunities for enhancing the potential of this promising source of livelihood for farmers with small holdings in eastern India.

INTRODUCTION

India is the largest producer of mangoes in the world, producing 40 to 55 per cent of the global supply in any given year. There are over 200 varieties of mango, and its cultivation covers over 30 per cent of the total area under plantation, and represents 20 per cent of the total national fruit production. The fruit has been cultivated on the Indian sub-continent for over 4,000 years and is favoured for its nutritive value, taste, attractive fragrance and health promoting qualities.

WORKSHOP OVERVIEW

A two-day workshop on 'Mango Horticulture: A Livelihood Opportunity for the Poor' was organized by the National Resource Centre on Rural Livelihoods, in collaboration with Oxfam India, in Ranchi on 24 and 25 March 2011. The objective of the workshop was to explore the recent developments in the mango sub-sector, and to identify the opportunities to enhance the potential of this promising source of livelihood for farmers with small holdings in eastern India. There were about 60 participants from various government departments, agricultural institutions, NGOs and market players.

The first day of the workshop was spent in the field, visiting the communities engaged in mango horticulture in Gumla district, Jharkhand. On the following day, there was an interactive session, to address the objectives of the conference and to assimilate the lessons from the field visit.

TECHNICAL BACKGROUND

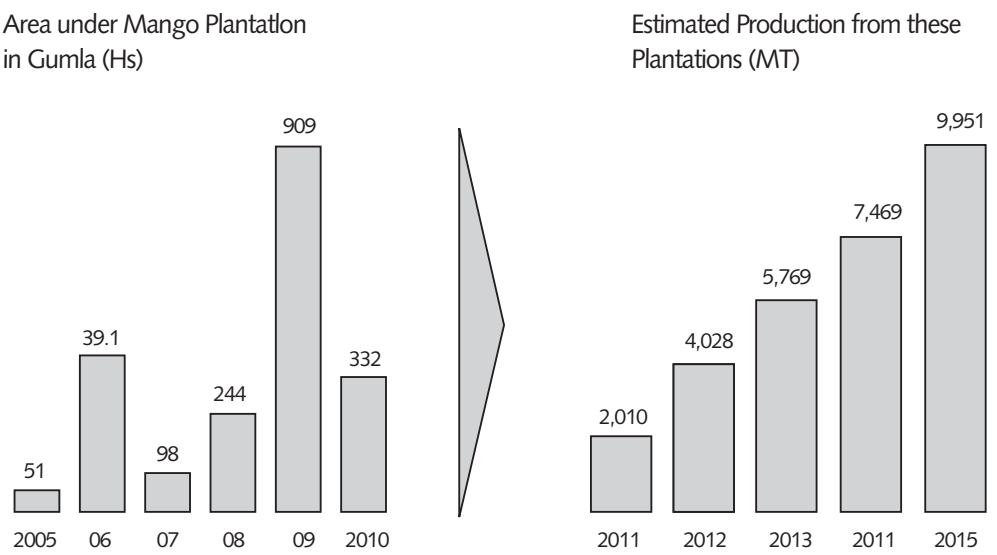
Leading government research agencies such as the Indian Council of Agricultural Research (ICAR) have been conducting research on mango horticulture in the Jharkhand region. Based on their work, Dr. Bikas Das, senior scientist from ICAR Ranchi, highlighted both the process to establish productive orchards

PRADAN's Intervention in Jharkhand

PRADAN works with over 2,00,000 small and marginal farmers in central and eastern India on community mobilization, empowerment, asset creation and livelihood development. Over the past five years, PRADAN has increasingly focused on promoting horticulture as one of the sources of livelihood. During this period PRADAN has planted mangoes in over 2,000 ha of land. This is estimated to lead to a production of 10,000 metric tonnes (MT) of mangoes by 2015 (see Figure 1). Of the total mango production in PRADAN geographies, 70 per cent is from Jharkhand. The key elements of PRADAN's implementation model include building community interest and understanding, ensuring the selection of suitable farmers/areas, careful consideration of suitable varieties based on smallholder suitability and market attractiveness, developing locally tailored prototypes (including inter-crop), building community level capabilities and resource persons, completing detailed planning and ensuring family level ownership, through weekly review meetings.

Mango plantation has had a great impact in the Gumla area of Jharkhand. Eighty per cent of the land utilized for mango cultivation is now covered with irrigation facilities, and a good vegetative and reproductive plant growth. Eighty-five per cent of these fields are under inter-cropping, generating an additional income of Rs 8,000 to 20,000 annually per family, which can then be reinvested in the fields. The projected production of mangoes for the 2011 season is 400 MT and is likely to increase to 4,000 MT by 2015.

DIAGRAM 1: PRADAN Mango Plantation In Gumla



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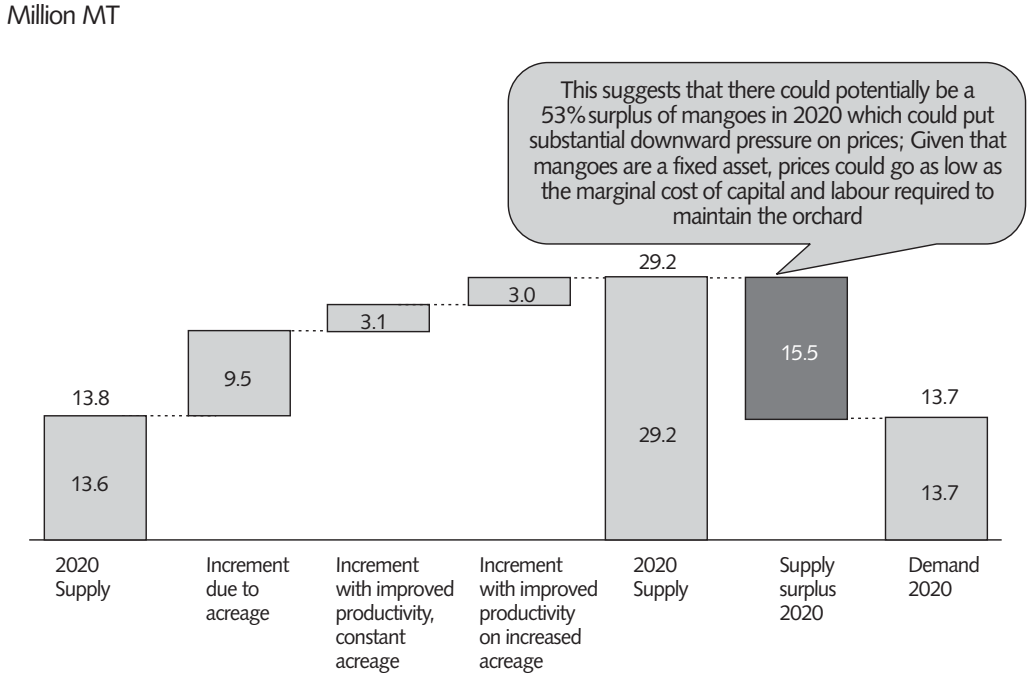
as well as technical opportunities to improve productivity and profitability for small-holders. A selection of insights is shared here:

- **High density cropping:** A higher density of plantation of trees has been identified as a suitable and attractive proposition for the region. This method has reduced the spacing between plants from 10 to 2.5, which has increased the number of plants per hectare from 100 to as many as 1,600.
- **Variety selection:** Dr Das highlighted that the amrapalli variety is a feasible option for small-holders in Jharkhand, given its low gestation period, suitability for Jharkhand's acidic soils (49 per cent of the area's soil is highly acidic (pH>5.5)) and its market attractiveness (size of 200 gm, which is highly compatible with consumer demand). However, he also suggested that it would be important to explore the potential for new varieties such as Himsagar, Banglora II, Langra as well as other horticulture crops, which could be introduced over time.
- **Best practice POP elements:** Dr. Das reviewed a range of best practices for the amrapalli that can help small-holders maximize yield. This included guidelines for fencing, pit preparation, planting, maintenance and canopy management. The details of these best practices can be found in the HARP presentation.

DIAGRAM 2: Projected Mango Production Profile in India



SOURCE: APEDA, India Stat, PRADAN projections

MANGO MARKET OVERVIEW

The mango sector appears to be poised for growth. Domestic demand is expected to grow at six per cent, bolstered by rising incomes and increasing urbanization. The processing industry has also witnessed a dramatic growth, which is expected to continue in the coming years. Given the attractiveness of this market, a growing number of small-holders have ventured into mango plantation with support from the government, through programmes related to the National Horticulture Mission, Swarnajayanti Gram Swarozgar Yojana (SGSY), TWC and others, as well as through civil society initiatives. This has contributed to a doubling of nationwide acreage under mango plantation over the past decade.There is also substantial scope to increase productivity by at least 20 per cent.

Mango production in the eastern region is expected to grow dramatically at eight per cent per annum in the coming 10 years

The acreage and productivity improvement are projected to increase the annual production by more than 100 per cent by 2020, which could contribute to a surplus of 50 per cent in mango supply by 2020 (see Figure 2). In this scenario, there could be a substantial downward pressure on prices; given that mango plantations are a fixed asset, prices could go as low as the marginal cost of capital and labour required to maintain the orchard.

In Jharkhand currently, 15,000 ha of land is covered with mango plantations, which produce 2,54,000 tonnes of mangoes. This is very low in relation to the current demand, which is primarily met by imports from other states. Its neighbouring states—Bihar, Orissa and West Bengal—have a much larger combined area of 4,11,000 ha under mango cultivation and account for 2.5 million tonnes of production. In the present scenario, the preference for mango horticulture among small-holders in the eastern region (Jharkhand, Orissa, West Bengal and Bihar) is growing. The promise of higher returns from mangoes, as compared to traditional food crops, is attractive in spite of the time lag in receiving these returns.

Mango production in the eastern region is expected to grow dramatically at eight per cent per annum in the coming 10 years compared to the relatively modest growth of demand at three per cent per annum. Depending on the mortality of the new acres, there will likely be a displacement of imports from other regions, and a potential supply surplus of 35 per cent by 2020. However, unlike in the national market, in Jharkhand, there is very limited understanding of the true micro-market dynamics, given the nascent stage of the market. So, a further study of the sector is required.

OPPORTUNITIES

After discussing multiple technical and commercial aspects of mango production in Jharkhand, the participants worked in groups to identify concrete opportunities to make mango production beneficial for the small-holders in the state. Stakeholders across various sectors worked to concretize both the opportunities and the collaborations required to realize the full potential of this sector.

Four concrete initiatives were discussed:

1. Disseminating PRADAN's mango prototype: PRADAN, as well as other NGOs, have demonstrated that with

limited stakeholder support, mango horticulture can be a remunerative and attractive livelihood for small-holders. The terrain and climatic conditions of the region are also suited to mango plantation. The group identified a few steps that could be taken to enable a further scale-up of this livelihood:

- Increasing awareness about mango as a source of livelihood
- Providing small-holders access to financial and technical support, as well as guidance, based on previous experience through collaboration with various stakeholders
- Financial support from NABARD, TWC, NHM, Watershed programme, NREGS.
- Technical support for research and development.
- Guidance from other implementing agencies.
- Increasing irrigation support in the region and also trying to use wasteland These interventions, however, should only be pursued if the value chain in the region is properly developed, and proper market linkages can be established to ensure that these orchards will be profitable. Given the potential oversupply scenario, over the near term, greater focus should be placed on improving the quality of existing programmes, rather than establishing new ones. However, over time, a large number of small-holders could benefit from the opportunity.

2. Increasing availability of quality saplings: Large-scale implementation of mango horticulture programmes in the eastern states has resulted in a scarcity of quality sapling availability. As a result, unsuitable saplings are being used, which is contributing to higher mortality and lower returns for both donors and small-holders. A few steps were identified to solve this problem:
   - Identifying pockets—farmer groups, implementing agencies, etc., willing to invest in sapling/nursery development
   - Providing these pockets with managerial, financial and technical support to establish the nurseries
   - Training or facilitating the training of grafters
   - Ensuring availability of certified mother plants for sapling nurseries
3. Positioning the amrapalli and mallika varieties favourably in the market: Seventy-five per cent of increased production in the eastern region over the next 10 years is likely to come from these two varieties. Whereas they have been promoted on the basis of their small-holder suitability, these varieties at preseat have a very limited market in Jharkhand and its neighbouring states. Conscious branding and sales promotion exercises are the first and obvious step towards building the market for the upcoming production to avoid a scenario with excessive supply surplus or inferior positioning, in relation to the traditional and more popular varieties. The group identified two initiatives that could be considered:
   - Brand promotion.
   - Organizing/participating in *melas* to promote the variety in national/ international markets.
   - Establishing outlets/moving stalls for tasting and selling fruit in the local markets.
   - Advertising in newspapers/local

media, focusing on the speciality of these brands and the recipes they can be used for, to increase awareness and demand.
- Sales promotion.
- Developing a thoughtful pricing strategy based on the desired market positioning.
- Creating mechanisms to facilitate easy transactions between buyers and farmers (for example, packaged/customized services).

4. Establishing forward market linkages and facilitating aggregation: Because customers are relatively unfamiliar with these two varieties, it is critical to establish forward market linkages to provide security in the near term and stability going forward. However, most such exercises come with scale, making aggregation at different levels critical. The steps identified by the group to take this intervention forward are:
   - Generating tradable volumes
   - Collaboration with different stakeholders—producers, implementation agencies, etc.
   - Developing infrastructure for post-harvest handling—integrated packaging houses, laboratories, refrigerated vans, cold storages—to ensure minimum wastage and standard quality norms.
   - Exploring new markets while working with different stakeholders.
   - Working with APEDA to explore the processing export opportunities.
   - Identifying and tapping buyers such as hotel chains and corporate companies.
   - Organizing/participating in forums where buyers and sellers can meet nationally and internationally.

CONCLUSION

There is little question that mango horticulture represents a great opportunity for small-holders in Jharkhand and its neighbouring states. Whereas the discussion highlighted many of the noteworthy successes to date, it also flagged the emerging challenges that require action by the full spectrum of industry stakeholders, to ensure that this livelihood continues to achieve its full potential.