Mango diversity box for Indian market

Results of the consumer questionnaire conducted during the Mango Mela in Delhi June 2013
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Summary of conclusions:
In total 32 visitors of the Mango Mela in Pitampura were interviewed on Sunday 30 June 2013 regarding their interest in a mango diversity box and willingness to pay for conservation efforts of mango farmers. Visitors were shown and asked to evaluate 4 empty sample cartons with different designs, slogans and explanation texts. Subsequently, visitors were explained about the conservation activities of farmers by showing photos, flyers and a hardcopy fruit catalogue before asking about their willingness to pay the farmers for those activities.

Consumer opinions regarding diversity box:
- Average size of the diversity box should be in the range of 5 kg (mean = 5.43) although opinions differ and range from 2 kg up to 17.5 kg.
- Majority of people prefer 4 or more varieties per box (44%), some prefer a combination of three (24%) or two varieties (22%) in one box/carton.
- Dasheri and alphonso are most popular; also chausa, langra and safeda are popular varieties.
- Majority of people prefer a combination of common and rare varieties (44%) or prefer a combination of common varieties only (25%).
- Majority preferred design B for its layout (38%), but also for its slogan (‘India is the center of diversity for mango and home to over 1.000 varieties!’ – 65%) and the explanation text which focuses on explaining about the diversity in varieties that is available (55%).
- Besides people preferred explanation text C which focuses on organic and quality aspects in post-harvest handling (39%). Several people also liked the pink layout of design C (25%) and the IIHR design D (22%). People seemed less interested in area of origin explanation text or slogan.
- Interest in a diversity box seems quite high. About two-third of the people (63%) say they would be interested to buy a diversity box next year although many didn’t answer this question (31%).
- Name of the varieties (4.6) and no use of chemicals in ripening (4.52) seem the most important information and issue for consumers. Besides people like to be informed about ripeness status (4.23), description of the taste (4.23) and if fruits are grown organic (4.03).
- Nutritional content (3.71), if grown in heritage orchards (3.48), the name of district or state (3.39) and more detailed info about the region (3.29) are considered slightly important. To know the farmer name or farmers’ group name was considered not very important (2.41).
- It was suggested that the mango diversity box should be a kind of gift box which can be purchased for family or friends. Other issues mentioned is that taste quality and ripeness are essential just as transparency and compliance regarding claims that are made (such as being organic or using the premium paid for conservation) as trust level is generally low.

Consumer opinions regarding payment for conservation services of farmers:
- Majority of the consumers said they are willing to pay a premium fee to farmers if they protect and conserve mango diversity (65%). In total 26% said they are not willing to pay.
- Visitors were told a box of high quality mangoes costs INR 320 rupees and asked how much more they want to pay above this disclosed base value. Those that wanted to support farmers are willing to pay a premium of INR 55.75 extra when purchasing a box of high quality mangoes. The total price they are willing to pay for the box of high quality mangoes is INR 375.75.
Introduction

India is the origin area of mango and hosts over 1,000 distinctly named farmer varieties. Of this diversity only 20 to 30 varieties are traded to major cities across states and only 5-7 varieties are exported. The majority of this diversity, including several with good characteristics, is only found in rural village markets or used for home consumption. As part of the TFT project we are exploring the launch of a ‘mango diversity box’ in which 2 or more varieties are combined. The novel product will promote the sales of fresh mangoes of a wide range of traditional Indian varieties to high-end consumers in the major cities of India like Delhi, Mumbai, Bangalore, Kolkata, Hyderabad and Chennai.

Objective of the study:

- To assess the potential and interest of consumers in the concept of a mango diversity box
- To learn which type of information is most important for buyers and consumers in India
- To gauge if consumers are interested to pay for conservation efforts of mango farmers

Activities

The following two activities were conducted:

- Visitors were asked to evaluate 4 different carton designs regarding layout, slogan and information
- Visitors were asked if they are willing to pay for conservation activities of mango farmers

In total 31 visitors of the Mango Mela in Pitampura were interviewed on Sunday 30 June 2013 as potential target consumers. We made use of the stand of the Society for Conservation of Mango Diversity (SCMD) from Malihabad in Uttar Pradesh who displayed over 200 varieties from their village. Visitors were shown and asked to evaluate 4 empty sample cartons with a different focus:

**Sample A**: area of origin explaining region and district including map (yellow);
**Sample B**: varietal diversity, heritage orchards, farmers’ photo and name (black);
**Sample C**: quality, post-harvest handling, organic practices and ‘ready to eat’ (pink);
**Sample D**: current design developed by IIHR as control (green)

Subsequently, visitors were explained about the conservation activities of farmers by showing photos, flyers and a hardcopy fruit catalogue before asking about their willingness to pay the farmers for those activities. The conservation contract and activities of farmers included:
• plant at least 2 trees of each variety in their orchard or farm;
• promised not to cut down the valuable old trees in their village and farms;
• documented all different varieties found in their village in a booklet and;
• established a nursery within their village to raise saplings of those varieties for other farmers.
Analysis of results

Visitors of the Mango Mela were asked for their preferences regarding layout, the slogan, the information text, the type of information and willingness to pay in a short evaluation sheet. In total 32 visitors were interviewed. For firm and robust conclusions the number of respondents should be higher, however preliminary conclusions are drawn using number of respondents and percentages in the tables below.

- Most visitors (14 people) preferred a box of 5 kg although opinions differed and ranged from 2 kg up to 17.5 kg (standev = 2.9 kg more or less than the mean of 5.43 kg).
- Dasheri (44% of 31 respondents) and alphonso (27%) are most popular among the visitors; also chausa (10%), langra (10%) and safeda (5%) are popular varieties.
- Majority of people prefer 4 or more varieties per box (44% of 31 respondents), some prefer a combination of three (24%) or two varieties (22%) in one box/carton.
- Majority of people prefer a combination of common and rare varieties (44% of respondents) or prefer a combination of common varieties only (25%). Only few people preferred a carton with only lesser known varieties (14%) or a combination of varieties from one specific region (17%).

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1 See Annex B.
Respondents were asked to choose and select which design they like most of the 4 options.

Majority of the respondents preferred design B for its layout (38% of 32 respondents). Several people also liked the pink layout of design C (25%) and the IIHR design D (22%).

A large majority preferred Sample B for its slogan ‘India is the center of diversity for mango and home to over 1.000 varieties!’ (65% of 31 respondents). Few respondents liked the slogan of Sample A ‘unique indigenous mangoes from Chittoor – taste the best selected fruits from their area of origin’ and the slogan of sample C ‘fresh organic mangoes from Chittoor – ripe & ready to eat – the best quality mangoes selected for you’ (both 16% of 31 respondents)

Most respondents preferred the text which focuses on explaining about the diversity in varieties that is available in India (55% of 31 respondents). Besides people preferred explanation text C which focuses on organic and quality aspects in post-harvest handling (39%). People seemed less interested in an area of origin explanation text or slogan.

Interest in a diversity box seems quite high as about two-third of the people (63% of 32 respondents) say they would be interested to buy a diversity box next year although many didn’t answer this question (31%).
A likert scale of 5 options was used to evaluated the preference of visitors for certain type of information independently using a scale from 1 (dislike) 2 (neither like nor dislike) 3 (like slightly) 4 (like) and 5 (like very much). To be able to compare results, the mean score values were calculated and ranked for all type of information and/or issues.

- Name of the varieties (mean score of 4.6 out of 31 respondents) and no use of chemicals in ripening (mean score of 4.52 out of 31 respondents) seem the most important information and issue for visitors. Besides people like to be informed about ripeness status (mean = 4.23), description of the taste (mean = 4.23) and if fruits are grown organic (mean = 4.03).
- Nutritional content (mean = 3.71), if grown in heritage orchards (mean = 3.48), the name of district or state (mean = 3.39) and more detailed info about the region (mean = 3.29) are considered slightly important. To know the farmer name or farmers’ group name was considered not very important (mean = 2.41).
- We seem to get conflicting messages about the importance of the farmer’s name as respondents preferred the box with a clear photo and name of a farmer in the former questions while expressing here that the farmers’ or farmer group name is not much important for them.

**Consumer opinions regarding payment for conservation services of farmers:**

A closed question about interest (yes, no) was followed by an open ended question regarding the price premium. Research has shown that this type of questioning often over-estimates the willingness to pay\(^2\),

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\(^2\) Full WTP surveys should (1) rely on personal interviews; (2) use close-ended questions that elicit the respondents’ WTP to a specified increment for a service that is familiar to them; (3) remind respondents that the price increment reduces other consumption; (4) remind respondents that substitutes exist for the service in question; and (5) question respondents about factors that might influence their preferences (Fleischman-Foreit 2004)
but can be useful as a first indicator or estimate. The base value of INR 320 was set based on current market price levels for a 4-5 kg box of high quality mangoes as sold already in Delhi higher-end markets.

- Majority of the consumers said they are willing to pay a premium fee to farmers if they protect and conserve mango diversity (65% out of 31 respondents). In total 26% out of 31 respondents said they are not willing to pay.
- Only those 65% (equals 20 respondents) that replied positive were asked to give a real price.
- Visitors were told a box of high quality mangoes costs INR 320 rupees and asked how much more they want to pay above this disclosed base value. Those that wanted to support farmers are willing to pay an average premium of INR 55.75 extra when purchasing a box of high quality mangoes. The total price they are willing to pay for the box of high quality mangoes is INR 375.75 on average.

### Willingness to pay for conservation activities?

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<th></th>
<th>No</th>
<th>Yes</th>
<th>Don't know</th>
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<tbody>
<tr>
<td>Percentage</td>
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<td>65%</td>
<td>10%</td>
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### Premium price for conservation activities?

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<td>Mean</td>
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<td>Standev</td>
<td>57.95</td>
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<td>N</td>
<td>20</td>
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### Additional remarks provided by visitors

If you don't know the farmers, how can I pay to them? There is a lot of cheating which I do not trust, only if I have seen the farmers I would be convinced.

First requirement is quality, ripening control is key; fruits should be ready to eat. I suggest making a gift box which you can give to family and friends.

Make it like a gift box, should mention 'king of fruits', I like that slogan.

We would like to visit the farmers, same we do in USA where we can go picking cherries from the farm.

Success depends on quality of the fruits

How many kg of each variety would you put in the box?

320 Rupees for a box is too much.

It’s better to have single variety box as it is difficult to combine varieties that fruit in different seasons and timings.