A MARKETING ANALYSIS OF SMALL MILLET PRODUCTS

KOLLI HILLS

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INTRODUCTION

The M.S. Swaminathan Research Foundation (MSSRF) has been working on millets since 1997 with the primary objective of conserving millet intra-species. Five species of millet are grown by the Malayali tribal community. The introduction of cash crops was the key driver for changes in types of consumption of local materials and grains as well. MSSRF started working with these indigenous tribes to help them preserve their traditional knowledge about the cultivation of millets.

The MSSRF project adopts a 4C approach that focusses on four key aspects – conservation, cultivation, consumption and commerce. Different types of experiments were conducted on participatory varietal selection, local culinary practices were assessed and traditional knowledge of local culinary practices documented. The objectives of the project are to prioritise income generation of the local tribal communities through participatory value addition, processing and marketing.

The aim of this study by Best Practices Foundation (BPF) was to enable small millet producers to enhance their livelihoods through better market understanding. In this context, the objectives were:

a. To understand the marketing problems faced by the small millet producers;
b. To address these issues by proposing short- and long-term marketing solutions.

The study took place in five sites in Tamil Nadu – Salem, Namakkal, Coimbatore, Erode and Kolli Hills in May 2013. This report presents the findings and makes recommendations for marketing in the short- and long term.

The report provides details of the methodology used for conducting the study, followed by a brief background on small millets. The analysis and findings are presented in three main sub-sections – consumers, retailers and producers. This provides multi-stakeholder perceptions of Kolli Hills products with regard to their attributes, consumption patterns, and consumer and retailer preferences. A detailed analysis of sales data in terms of cities, outlets and trends is followed by broad conclusions and strategies for better promotion and wider sales.

METHODOLOGY

A combination of qualitative and quantitative methods was employed for the study. BPF's marketing experts and researchers visited five sites over a period of a week. Interviews and focus group discussions were conducted with the producers, one distributor, retailers, consumers, potential retailers and MSSRF staff to arrive at a multi-stakeholder analysis (Table 1).

Table 1: Sample and Summary
Qualitative and Quantitative Interviews

	Qualitative	Quantitative		
	FGDs & interviews	Survey	Secondary trend data	Total interviews
Consumers	7	89		**96**
Retailers	9	24	25	**58**
Potential Retailers		66		**66**
Producers	23			**23**
MSSRF staff	2			**2**
Processors	5			**5**
Distributor	1			**1**
Total	47	179		**251**

*Total sample = 218

BPF designed survey instruments to elicit the feedback of customers and retailers on Kolli Hills products and their competitors. The quantitative survey instruments were field tested and handed over to MSSRF staff, who conducted a total of 180 quantitative surveys the following month. These included surveys with 25 retailers, 89 consumers and 66 potential retailers.

The total number of stakeholders covered by our researchers through qualitative interviews in May 2013, was 47. BPF conducted focus group discussions and in-depth interviews. Together, the qualitative and quantitative surveys covered a sample of 218 stakeholders.

Our team of analysts and researchers analysed the findings in conjunction with trend data of the past two years, primary data and secondary data, to ascertain the strengths and weaknesses of the products and identify the fastest and slowest moving ones. Consumer and retailer feedback for improvement has fed into our analysis and recommendations. The use of the machine provided by the International Development Research Council (IDRC) for value addition was also examined. Data of sales by 25 retailers marketing Kolli Hills products from 2009-13 provided the basis for a trend analysis of product sales.

BACKGROUND

Millets are small-seeded annual grasses that are cultivated as grain crops, primarily on marginal lands in dry areas in temperate, subtropical and tropical regions. Developing countries, mainly in Asia and Africa, account for about 94% of global output. Although millet occupies about 5% of the world's cereal area, it accounts for only 1.5% of world cereal production. Furthermore, yields are highly variable from one season to another[1] .

According to the Food and Agriculture Organisation (FAO) of the United Nations, India is the world's largest cultivator of millets. Here, they were originally found in the vast dryland belt spanning the Deccan plateau, northern Karnataka, Marathwada, the deserts of Rajasthan, the tribal areas of central India and the Himalayas[2]. In 1980, millets were cultivated on 35,00,000 acres of rainfed areas, mostly by tribal communities. By 2010, the area of cultivation had dropped to about 15,00,000 acres[3].

In the clash between rainfed and irrigated agriculture after Independence, millets were relegated to the background despite their substantial health and nutritional benefits (Figure 1). Subsidised rice and wheat, inconsistent grain supplies, mixed grain marketing, short shelf life of flour, and lack of procurement and food technology at the laboratory scale are the primary factors contributing to its declining cultivation[4].

According to MSSRF staff, the late 1980s began to see a change in cropping patterns[5]. Paddy formed the staple cereal until this time, followed by intra-species of millet, but this began to change as cash crops such as tapioca, horticultural crops and a variety of food crops became more widely cultivated. Spices and estate crops such as pepper, cardamom and coffee began to grow in popularity from the 1990s onwards. *"Cash crops are the key drivers for changes in consumption of local food and grains,"* said Oliver King, a Principal Scientist at MSSRF.

There are multiple issues related to the conservation, cultivation, consumption and commerce of millets, which are cause for both immediate and long-term concern. The immediate concern was the seed and the fact that people used to store seedpods but began abandoning the seed storage systems. MSSRF's efforts with women's groups have revealed that women's use of time has changed, as have their roles and responsibilities with the introduction of cash crops. As seed sharing and the establishment of a seed network are critical factors, these groups are involved in the conservation, selection, and maintenance of local seeds.

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1 Website of the Food and Agriculture Organisation of the United Nations: http://thinai.fao.org/docrep/w1808e/w1808e0c.htm (accessed 11 September 2013)

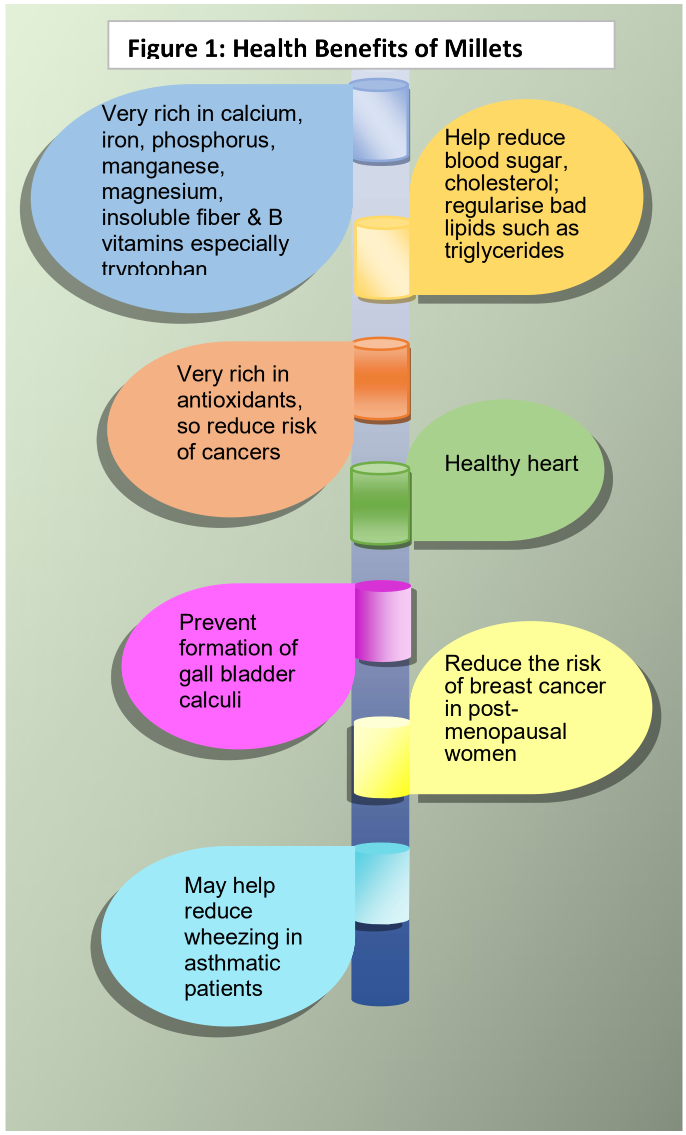
2 Millets the Miracle Grain: Film by Community Media Trust. Referred to in *God's Own Crops: National Consultation on Millets*, 5-6 June 2008.

3 Agriculture Department, Government of Tamil Nadu, quoted in The Hindu newspaper, 21 April 2013.

4 K.N. Rai, Principal Scientist, ICRISAT. Referred to in *God's Own Crops: National Consultation on Millets*, 5-6 June 2008.

5 Focus group discussions with MSSRF staff, Kolli Hills and Salem, 4-7 April 2013.

Another issue pertains to participatory varietal selection and the validation of quality grains. Farmers and breeders prefer 22 types of local species well adapted to local weather and soil conditions, their culinary preferences, fodder and other needs.



Machinery was introduced in an effort to save time, reduce drudgery and thereby encourage conservation efforts. This includes processing mills such as pulverisers for ragi and deshusking units for small millets. Although people from Africa have been sourcing machinery from India for over a decade, machinery for small-scale enterprises continues to be Local customisation is required as there is a significant variation in size difference between the grains of different varieties. Machinery has reduced drudgery to the extent that some local farming families that were moving from millet to rice cultivation were persuaded to return to millet farming with this intervention, which allows for processing locally.

Box 1: Ensuring Food Security with Millets

- Rainfed: Can grow with very little irrigation and external inputs
- Highly nutritious.
- Vibrant agro biodiversity can survive around it: Farmers can mix crops to minimise the risk of total crop failure during drought conditions
- Can be depended upon to make farmers self-reliant and escape the debt trap
- Present a solution to the fodder crisis
- Need less time to adapt effectively to climate change.
- Natural tolerance to storage pests and diseases: Grains can be stored for two years through simple, indigenous, non-chemical techniques and relied upon in case of drought.

The organisation's Impact project implemented from 2009-11 sought to explore the potential for value addition to millet products through women-centric market chain development, nutritional education, road shows, exhibitions and outlets in strategic locations. The first food *mela* was held in Namakkal in 2004. It involved multiple stakeholders, including the District Collector. Parallel efforts were also made to develop entrepreneurship and increase incomes through participatory value addition, processing and marketing[6].

At the time, the driving factor was the cereal's nutritional value. It was subsequently realised that making it available in an appealing form would potentially increase the market, as well as be a step towards national food security. Efforts were then made to build infrastructure, link with administrative officials and banks, create self-help groups (SHGs) and assist them to access credit mechanisms and jointly own land.

Supply chain of small millets in Kolli Hills

The supply chain of small millets from farm gate to market is illustrated in Figure 2.

Production: According to MSSRF representatives, the total production of millets per season (at the rate of one season per year) in Kolli Hills, is approximately 20 tonnes. Small millet farmers here practice mixed cropping, alternating millets with beans, toor dal and mustard[7].

Processing: Of the total produce, about five tonnes per season undergoes processing for value addition and two to three tonnes, especially of ragi[8], is put aside for personal

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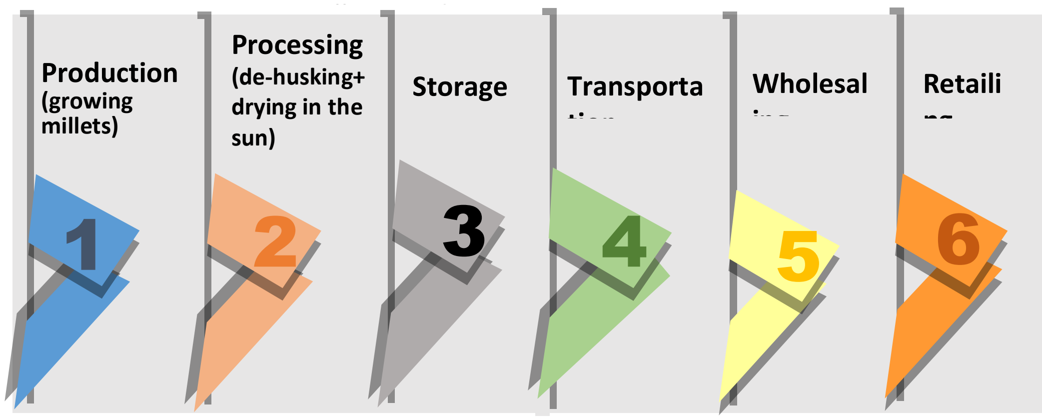
6 It was stated in a focus group discussion with MSSRF staff that value addition to millet occurs through technological intervention that protects its nutritional value, Salem and Kolli Hills, 4-7 April 2013.

7 Interview with Natesan Patesolai, small millet farmer, Kolli Hills, 5 April 2013.

8 Processing technologies for millets include milling, decortication, malting, blanching, heat treatment, acid treatment,

consumption. Interviews with farmers indicate that MSSRF's intervention to provide local machinery for processing and marketing has encouraged them to not just produce but also process the crop. What is not consumed is sold to other farmers, vendors and middlemen in raw form. They in turn sell it either raw or processed in the larger markets. The scale of production is expected to increase from about 200 participating farming families at present to at least 500 in the near future.

Figure 2: The Kolli Hills Supply Chain for



Processing technology for small millets is still a challenge. One farmer reported that after dehusking, he is left with 70 of the 200 kg he buys for processing every month. The recovery rate after processing is 45%. *"I put 10 kg at one time into the mill but get between four to six kilos after it has been dehusked,"* Oliver states, adding that *"recovery depends on the moisture content of the grain"*. For this reason, and also because the fuel consumption of a dehusker is lower than that of a pulveriser used to process ragi and wheat, samai (little millet) and thinai (Italian millet) can be processed at Rs 2-3 per kg whereas ragi and wheat cost Rs 8 per kg to process.

Chellamma from Thuvarapullam reported that two women's SHGs jointly bought a pulveriser that can be used for ragi, rice, and wheat[9]. They consume the grain that they pulverise themselves as well as process it into *murukku* and malt. Processing for such products includes cleaning, germinating, drying, roasting and grinding.

Storage: The farmers currently store millets in their homes as they lack proper storage facilities. As Nateshan, a Kolli Hills farmer put it, "*At the moment, we store at home because there is no common storage facility*. *We would be interested in increasing production if we had better storage*"[10].

Transportation: Since "*distance is a factor between the retailer and production point,*"[11] Kolli Hills producers incur high transportation costs as their produce must be moved to the plains and beyond. This results in their products being priced relatively higher.

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fermentation and popping. These improve both consumer acceptability as well as nutritional quality of pearl millet/ sorghum. Source: *God's Own Crops: National Consultation on Millets, 5-6 June 2008.*

9 Interview with farmers, Kolli Hills, 5 April 2013.

10 Focus group discussion with farmers, Kolli Hills, 7 April 2013.

11 Interview with Oliver King, Principal Scientist, MSSRF, 4 April 2013.

Wholesale and distribution: Kolli Hills producers currently rely on a single distributor for the promotion of their products to retail chains and outlets. The distributor operates out of Salem and obtains orders from retail outlets. Order information is then passed on to the producers, who prepare the requisite amount of produce. The distributor pays the producers up front and is paid in turn by the retailers. This is an unusual set of terms since most retail outlets pay only after the products have been sold. In this case, the producers are paid up front as they are poor and cannot afford to provide the produce to either the distributor or other retailers on credit.

Retailing: Kolli Hills products currently retail at 25 outlets across Tamil Nadu (Annexure Table A1). Across the state, these products sell at locations in small towns (under 100,000 people), Class 1 cities and million plus cities. The names of Kolli Hills products referred to in this report are detailed in both English and Tamil in Annexure Table A2.

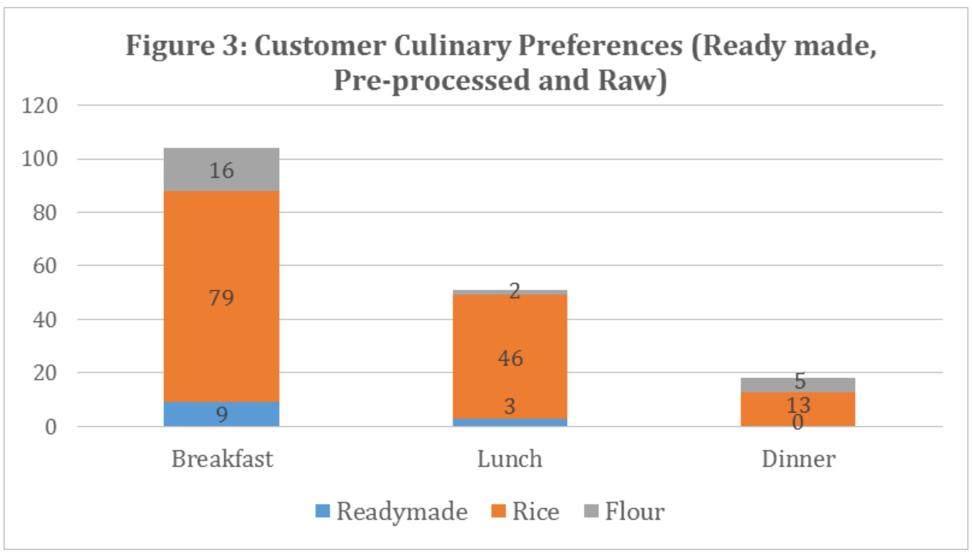
Given that small millets face increasing competition from industrially produced cash crops despite offering considerable opportunities for poverty reduction and food security, the production of small millets is on a very small scale. Consequently, the costs associated with millet cultivation are higher. In the face of a dying tradition of small millet consumption and its exit from the diet of the general public, reviving its production and consumption is a key concern. This must begin with an increased awareness of the benefits of small millets. The analysis that follows looks at the small millet cropping patterns, markets, and at how best to re-integrate small millets into consumer diets.

CONSUMER ANALYSIS

A sample of 89 customers provided information on their breakfast, lunch, dinner and mid-meal snacking preferences. They also provided information on the Kolli Hills products they purchase, how they rate these and competitor products, and their recommendations for improvement.

Customer culinary preferences

The majority of consumers (52 %) stated a preference for food prepared from scratch as opposed to ready mixes (Figure 3) [12]. As customers prefer to buy wholegrain and process it at home for dishes such as idli and dosa rather than buy flour or instant mixes, recipes on the packaging would spread awareness on preparation techniques[13]. Anita, a homemaker from Namakkal in Tamil Nadu, said, "*I like to grind fresh flour everyday*"[14]. Nateshan said, "*I don't buy value added products; they cost more and I have no need for them. I buy grain and grind and powder it for a healthy shake in the morning and for dosa at night*"[15]. Salai Abarnum, a stay-at-home mother of two teenagers also buys wholegrain to grind herself. Describing the procedure she uses to process and cook small millets she said, "*I clean and mix thinai rice with rice flour and make dosa*"[16].



Consumption patterns

In addition to demonstrating a preference for food prepared from scratch, consumer responses also reveal a fondness for specific dishes. Figures 4-7 illustrate consumer

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12 138 of 267 responses (52%) reveal that consumers enjoy meals prepared from unprocessed grains, while 23 of 267 responses (9%) cited a preference for foods made from flour, 12 of 267 (4%) of responses reveal a preference for readymade meals and 94 of 267 of the responses (35%) were blank.

13 With the exception of chapattis, for which respondents said they used store-bought millet flour.

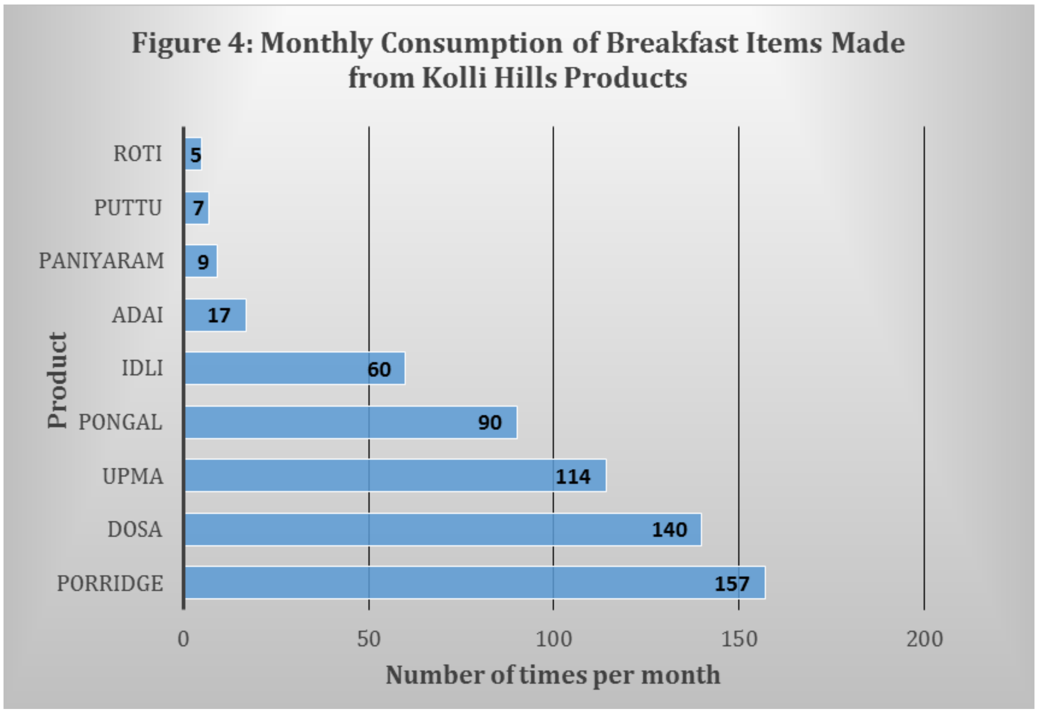
14 Interview with Anita, Namakkal, 4 April 2013.

15 Interview with Nateshan, Namakkal, 6 April 2013.

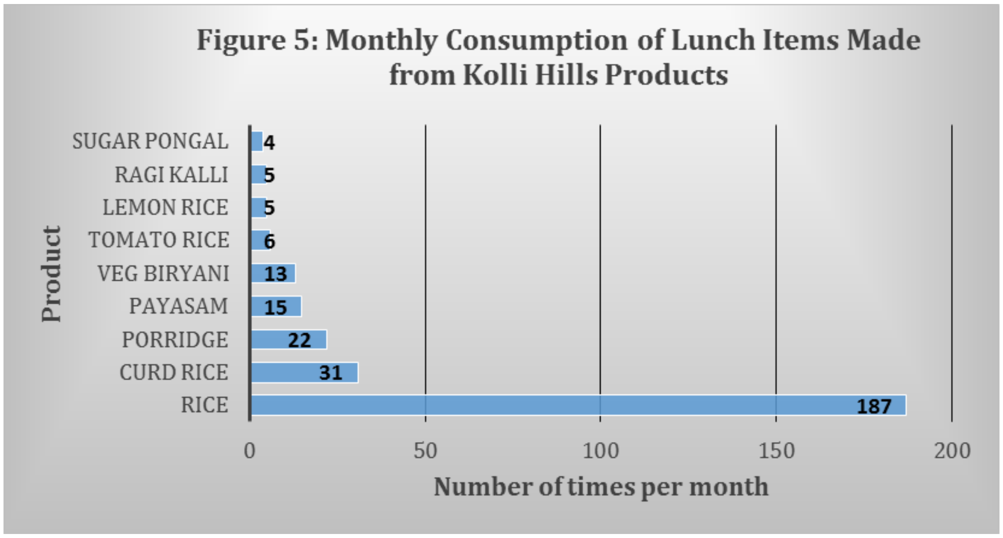
16 Interview with Salai Abarnum, Namakkal, 4 April 2013.

consumption patterns with regard to Kolli Hills products for breakfast, lunch, dinner and snacks.

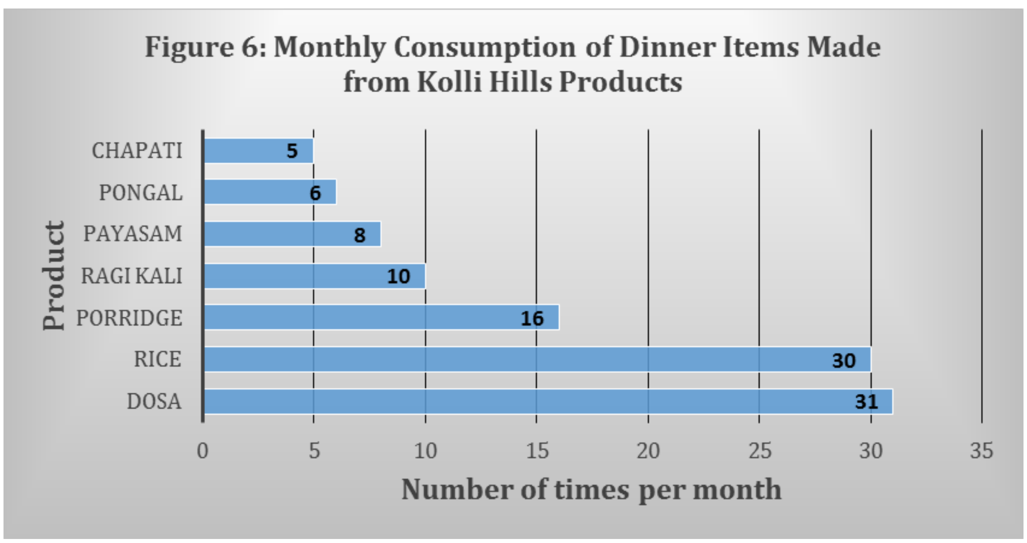
The findings reveal that the two products consumed most often for breakfast are porridge (157 times a month) and dosa (140 times in a month). Upma, pongal and idli have a monthly consumption of 114, 90 and 60, respectively (Figure 4). This would imply that Kolli Hills producers should focus more closely on promotion and value addition for these particular items.



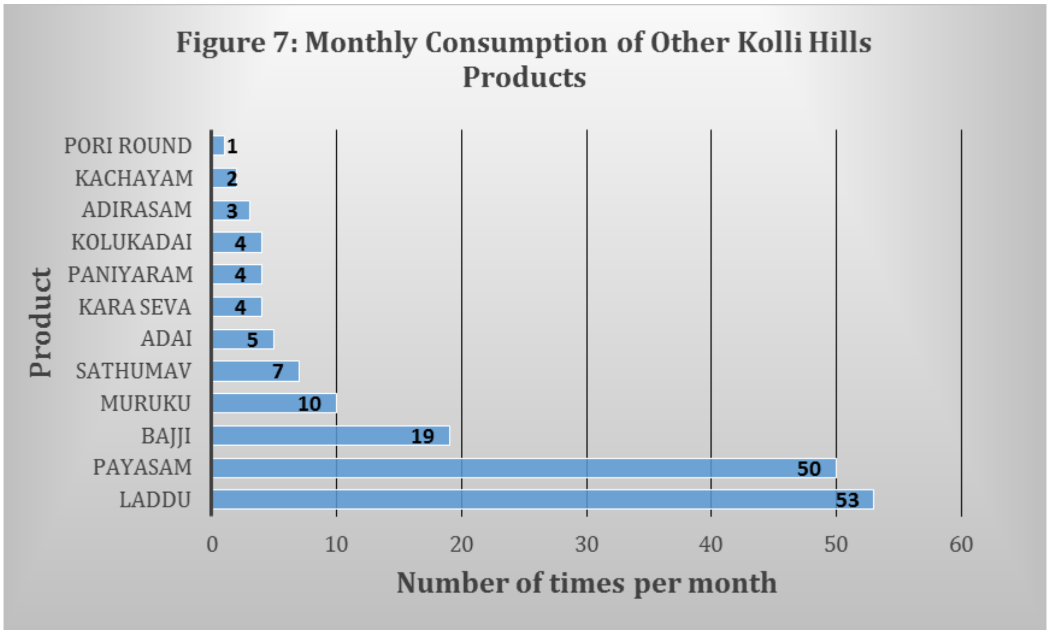
In terms of lunch, the product topping the list by far is rice in various preparations (curd rice, lemon rice, tomato rice, sugar pongal). This is consumed 246 times a month (Figure 5), and is followed in popularity by porridge and payasam, consumed 22 and 15 times a month, respectively. This implies that recipes for various rice preparations should accompany the packaging of samai and thinai rice.



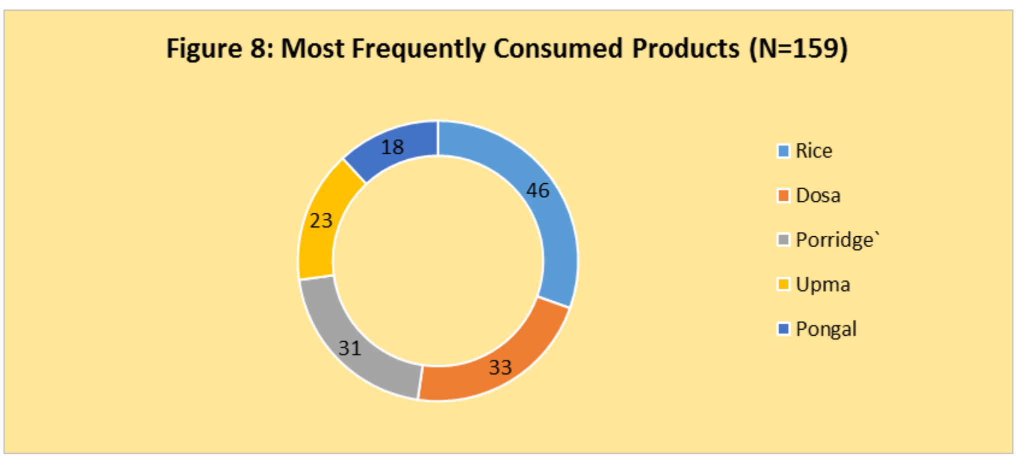
For dinner, the popularity of dosa, consumed 31 times a month, outweighs that of rice, eaten 30 times per month. Porridge and ragi balls, although consumed less often, remain popular dinner dishes (Figure 6), consumed 16 and 10 times a month, respectively. Printing recipes for dosa, porridge and ragi balls on the packaging, therefore, would promote awareness and popularity of these products as dinner items.



In addition to breakfast, lunch and dinner, some of the products are consumed as snacks (Figure 7). Laddus and payasam are the most favoured snacks, consumed more often than products consumed for dinner, at a rate of 53 and 50 times per month, respectively. The pattern indicates high potential for increased sales of thinai laddus and payasam mix. Consumer preferences must be closely monitored to ensure that complaints relating to the appearance and taste of the laddus, as well as their tendency to disintegrate in their packets are successfully addressed.



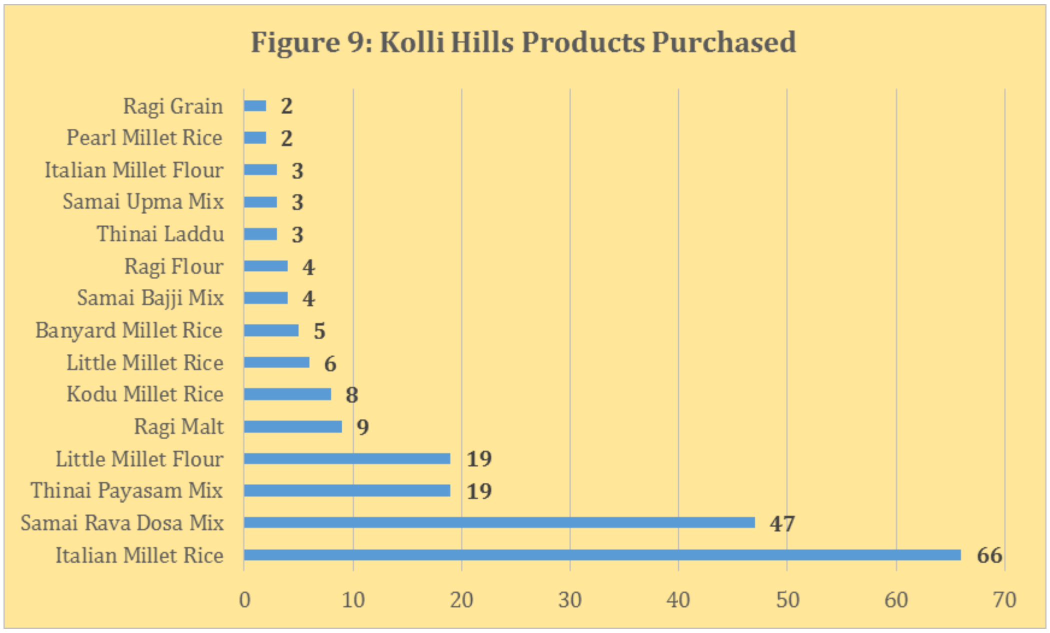
From the above, it may be deduced that Kolli Hills products are preferred for breakfast and lunch, and that the top five foods prepared and eaten most often on a daily basis are rice (24%; lunch and dinner), dosa (20%; breakfast and lunch), porridge (19%; breakfast and lunch), upma (15%; breakfast) and pongal (11%; breakfast and dinner)[17] (Figure 8).



Kolli Hills products purchased

[17] 37 of a total of 159 (24%) consumer responses show that rice is the most widely and frequently eaten food; 33 of a total of 159 (20%) consumer responses show that dosa is the second most widely and frequently eaten food; 31 of a total of 159 (19%) consumer responses show that porridge is the third most widely and frequently eaten food; 23 of a total of 159 (15%) consumer responses show that upma is the fourth most widely and frequently eaten food; 18 of a total of 159 responses (11%) reveal that pongal is the fifth most widely and frequently eaten food.

The top four Kolli Hills products purchased are thinai rice (33%), followed by samai rava dosa mix (24%), samai flour (10%), and thinai payasam mix (10%) (Figure 9).



Customer purchases are a barometer of their preference for specific products. In order to evaluate the reasons behind their interest in certain products, customers were asked to compare and rate Kolli Hills products (both value-added and non-value added) against each other and with other brands, on the basis of eight features: quantity, taste, nutrition, availability, time to cook, popularity, price and variety. The results were then disaggregated into three categories of ratings: excellent, good, and average (Table 2). The retailers were also asked to rate Kolli Hills products along similar lines (Table 3).

Customer ratings

An overview of the cumulative scores shows that customers generally have a favourable impression of Kolli Hills products, with 52%[18] of responses rating the product range as good. Samai rice, followed by thinai rice, have the highest individual and aggregate ratings across attributes, particularly in terms of popularity among family members (56% for both), short cooking time (30% and 25%, respectively)[19] and nutritional value (35% and 24%, respectively)[20]. Other brands scored lower than Kolli Hills products in all categories[21].

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18 651 of a total of 1,243 responses (52%) rated Kolli Hills products as 'good'.

19 50 of 89 respondents (56%) indicated that customers rated Italian millet rice as the most popular product, while 51 out of 89 respondents (56%) indicated the same popularity ratings for small millet rice.

20 21 out of 89 respondents (24%) gave Italian millet rice the second highest rating for most nutritious product, while 31 out of 89 respondents (35%) gave small millet rice the highest rating for most nutritious product.

21 Ragi malt and ragi grain were not included because of very few customer ratings for these products.

Table 2: Consumer Preferences N=89																								
	Quantity			**Taste**			**Nutrition**			**Availability**			**Time to Cook**			**Price**			**Popularity**			**Totals**		
	E	**G**	**A**	**E**	**G**	**A**	**E**	**G**	**A**	**E**	**G**	**A**	**E**	**G**	**A**	**E**	**G**	**A**	**E**	**G**	**A**	**E**	**G**	**A**
Little Millet Rice	7	55	2	26	37	2	31	30	4	4	36	19	28	34	1	0	24	39	31	20	9	127	236	76
Italian Millet Rice	7	38	2	21	25	0	21	24	1	7	28	13	22	25	0	0	15	32	27	13	4	105	168	52
Kodo Millet Rice	1	15	0	2	12	1	8	8	0	2	11	1	5	11	0	8	5	1	8	5	1	34	67	4
Thinai Laddu	1	13	3	4	7	8	13	5	1	3	6	10	2	1	0	0	0	12	8	6	2	31	38	36
Thinai Payasam Mix	1	7	0	3	5	1	3	5	1	2	3	4	1	3	1	0	0	3	5	1	0	16	24	10
Samai Upma Mix	1	2	1	3	1	0	4	0	0	2	1	1	0	0	0	0	2	1	4	0	0	15	6	3
Italian Millet Flour	1	5	0	2	4	0	3	3	0	1	4	1	1	5	0	0	4	1	3	2	1	11	27	3
Banyard Millet Rice	0	6	0	2	3	0	3	3	1	2	5	2	1	4	1	0	3	3	2	3	1	10	29	8
Little Millet Flour	1	2	0	4	4	1	0	0	0	0	2	1	0	3	0	0	1	0	1	1	0	6	13	2
Pearl Millet Rice	0	0	1	3	1	1	0	1	0	0	0	2	1	0	0	0	2	0	2	0	0	6	4	4
Samai Baji Mix	0	2	0	2	1	0	2	1	0	1	0	1	0	1	0	0	0	1	1	0	0	6	5	2
Samai Rava Dosa Mix	0	2	1	1	1	1	0	3	0	0	1	2	2	1	0	0	1	2	1	0	2	4	9	8
Ragi Flour	**0**	4	0	0	4	0	1	3	0	0	4	2	0	2	2	0	2	2	2	2	0	3	21	6
Ragi Malt	0	1	0	1	0	0	1	0	0	0	1	0	1	0	0	0	0	1	0	1	0	3	4	1
Ragi Grain	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**20**	**152**	**10**	**74**	**105**	**15**	**90**	**86**	**8**	**24**	**102**	**59**	**64**	**90**	**5**	**8**	**59**	**98**	**95**	**54**	**20**	**377**	**651**	**215**

E = Excellent

G = Good

A = Average

*The totals exceed the sample size as respondents answered more than one question.

The interviews and surveys reveal that customers consider price and product availability, as the attributes in which Kolli Hills products are most lacking. Of all the attributes, these two were rated as average. Fifty nine per cent of responses indicate that customers perceive product prices to be average at best and poor at worst, while 32% of customer responses rate product availability as average, revealing a marked lack of satisfaction[22].

With regard to affordability and availability, samai rice and thinai rice were rated as both the most expensive and the least available Kolli Hills products. Speaking of the high price of the former, Rajesh Khanna, a customer, asserted that, "*the high price was a concern the first time but I continue to buy the products even when the price is*

22 98 of 165 responses (59%) gave Kolli Hills products an average rating, while 59 of a total of 185 responses (32%) gave Kolli Hills products an average rating. Other product attribute ratings in the average category: 5 of a total of 159 responses (3%) rated time taken to cook the product as average; 8 of 184 responses (4%) rated product nutrition as average; 10 of a total of 182 responses (6%) rated product quantity as average; 15 of a total of 194 responses (8%) rated product taste as average; 20 of a total of 169 responses (12%) rated product popularity as average.

not low, like now"[23]. Although dissatisfied with the prices, some customers are nevertheless willing to spend money on Kolli Hills products as an investment in their families' long-term health. As Salai Abarnum put it, "*instead of buying and popping a tablet, here you're buying something that hasn't been processed, that's natural, that you can eat without fear*"[24]. High cost alone, therefore, especially of an otherwise highly rated product such as samai rice, has not been a particularly significant deterrent to customer willingness to purchase Kolli Hills products. The problem of availability remains the main deterrent to better sales.

In terms of other high volume products such as thinai laddu, ratings were low for taste, availability and price, indicating room for improvement and experimentation, particularly with regard to improving taste.

Customer recommendations

Customers felt there was room for improvement in three areas: quality of packaging (36%), awareness of the product (25%) and product availability (21%)[25] (Figure 10).

Figure 10: Suggested Improvements for KH

Type of Improvement	Number of Responses
Improve packaging	10
Create Awareness	7
Increase Availability	6
Reduce Price	3
Improve Quality	1
Improve Variety	1

Packaging: Some consumers expressed the desire for smaller packs of millet products. Anita said, *"As payasam is not something we eat frequently, I would prefer to be able to buy a four cup pack of payasam mix for Rs 10. A smaller pack would allow me to use it fresh".*

Awareness and availability: Discussing the lack of public awareness of the products and ways to address it, Salai Abarnum said, "*People aren't used to eating millets. Sometimes, when I have guests and I tell them we're having millets for lunch, they say, 'oh I've never eaten that before'. It's only after having cooked it for years that you learn how to consume it. So display it in the shops, and have someone there to explain it to people. Get them into the habit of eating it*"[26]. Some customers believe that this lack of awareness has led to and compounded the problem of limited availability. As Anita insisted, "*you don't find*

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23 Interview with Rajesh Khanna, a Kolli Hills customer, Salem, 5 April 2013.

24 Interview with Salai Abarnum, a Kolli Hills customer, 4 April 2013.

25 10 out of 24 responses (42%) pertained to the quality of the packaging, while 7 out of 24 responses (29%) pertained to product awareness, and 6 out of 24 responses (25%) pertained to product availability.

26 Interview with Salai Abarnum, a Kolli Hills customer, Namakkal, April 4, 2013

millets easily. It is because we live in Namakkal that we can find it. Further south – I'm a native Madras person – you don't find them. No one knows about samai and thinai there. They use ragi"[27].

Senthil recommended a variety of measures to raise the public profile of Kolli Hills products, including that MSSRF "*start a canteen, a healthy canteen like Lakshmi Sagar canteen in Coimbatore, to increase production and availability and raise visibility*". Another suggestion he offered was, "*once a week, MSSRF should have exhibitions at food courts and malls, show people how to prepare millet idlis and dosa, and distribute samples for people to taste*".

Another customer, Gommati, feels that inconsistent availability is a problem that plagues all organic products. "*I don't always get what I want. If I go to an ordinary shop, their products are always available. This is not the case in organic shops – products are not always available and it's not just Kolli Hills products,*" she said[28]. She encouraged MSSRF to set up product stalls and kiosks within food courts at IT companies, saying, "*My brother works for Infosys in Chennai, and because it is a sedentary job, he is not very healthy. He wants to start eating organic products but has no access to Kolli Hills products or any other products from the mountains. I just bought 5 kg of Kolli Hills products to take to him next week*"[29]. Gommati recommends increasing the availability of Kolli Hills' readymade products in large metropolises such as Chennai, saying, "*IT companies have food courts. Ready mixes would sell very well at a place like Infosys. Have a stall there and tell people how to prepare them because they are healthy and easy to make. Maybe you could introduce Kolli Hills ready mix products there but remember, it would have to be a ready mix*"[30].

27 Interview with Anita, a Kolli Hills customer, Namakkal, April 4, 2013

28 Interview with Mrs. Gommati, a Kolli Hills customer, Namakkal, April 6, 2013

29 *Ibid.*

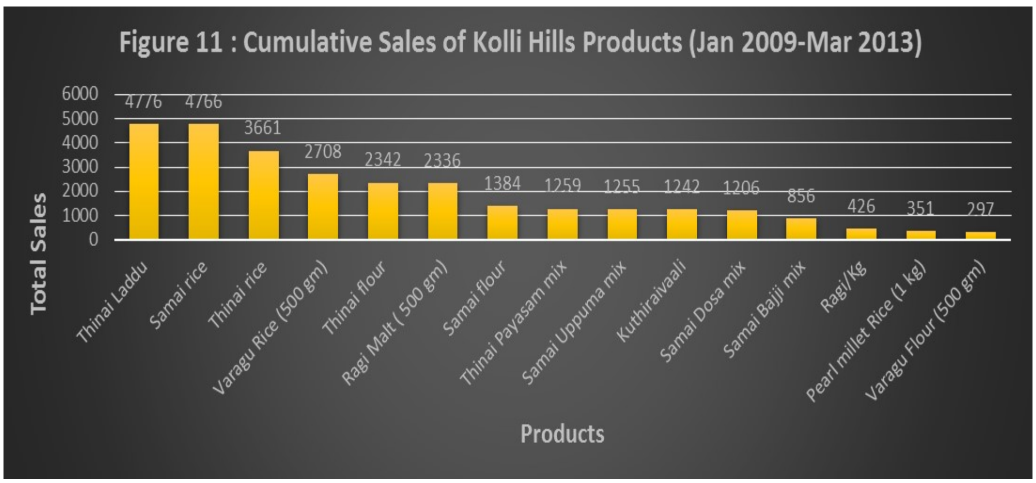
30 *Ibid.*

RETAILER ANALYSIS

The retailer analysis presented below discusses trends in product sales over the past four years and their variation by shop and location.

Product sales

The fastest moving products are thinai laddus, samai rice, thinai rice and varagu rice (Figure 11). Thinai rice is slower moving than samai rice. This may be attributed to the popular belief that it heats the body and that its oil emits an unpleasant odour. Both these concerns must be researched in greater depth and disproved if found to be untrue. *"Literature and videos on the medicinal value of samai, thinai and varagu would help change customer perceptions. We are planning to introduce (awareness raising promotional materials) for millets. It is like buying a washing machine – without a manual we wouldn't know how to use it, would we?"* said Senthil[31].

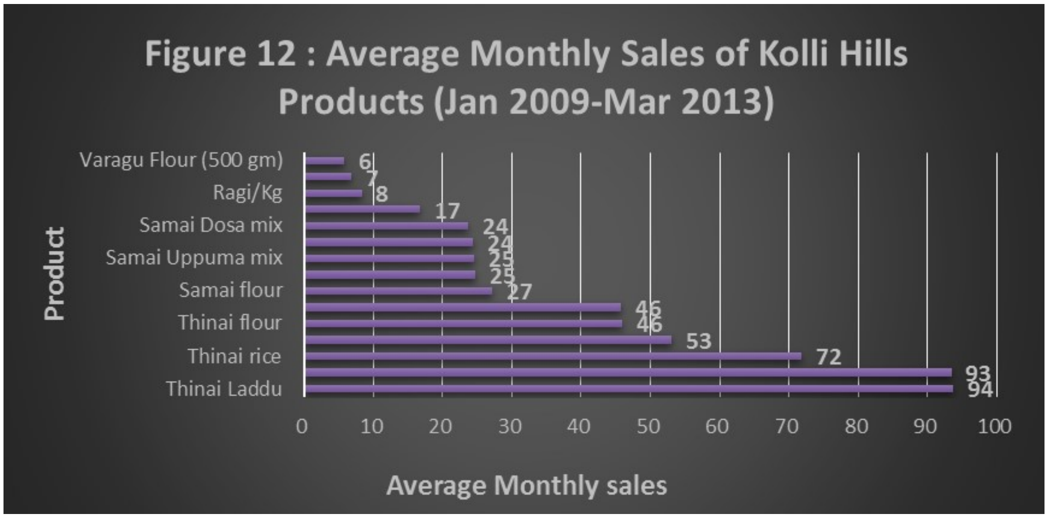


Average monthly sales over four years

Kolli Hills millet-based products fall into two categories: raw (rice and flour) and value-added (thinai laddu, thinai payasam mix, ragi malt, samai bajji mix, samai dosa mix, samai upma mix).

Between January 2009 and March 2013, thinai laddus outsold all Kolli Hills products, both raw and value-added, at 94 kg per month (Figure 12).

31 Interview with Senthil, retailer, organic store. Salem, April 2013.



Among the raw products, two Kolli Hills items experienced the highest average monthly sales by volume: Samai rice sold at an average of 93 kg per month and thinai rice at 72 kg per month.

Registering medium volume sales, thinai flour sold at an average of 46 kg per month and ragi malt at 46 kg per month.

Trends in product sales

The years 2012, followed by 2011, and 2009 saw the highest average sales by month of millet products (Table 3). Sales were lower than average in 2010. A closer examination of sales trends by month/ season and product reveals that:

a. Overall, most of the products show seasonal variations in sales, with higher sales in January and February than any other time of year.

b. The lowest sales are registered in June; sales begin to pick up again during the monsoon, when the weather cools down, and peak in January and to a lesser extent in February. During the monsoon and winter, therefore, steady availability of the products should be assured, as these are periods of highest demand.

c. Thinai laddus showed a steady increase in sales between 2009-12. They also demonstrate the highest standard deviation[32] (38%) or a combination of extremely high and low volume sales across shops over the years. This implies that thinai laddus have the most erratic seasonal sales over time and across retail outlets. This decline in demand could result from the perception that

32 According to the Royal School of Statistics, London (http://www.getstats.org.uk/getstats-stats-glossary/standard-deviation/), the "standard deviation (SD) is a measure of how spread ot a dataset is. It tells us how far items in the dataset are, on average from the mean. So the larger the SD, the more spreadout the data are."

millet consumption should be limited or avoided during the summer months as it heats the body.

Table 3 Trends in Kolli Hills Product Sales (2009-13)

YEAR	2009-11*	2010-12	2011-13
Samai rice	70.8	73.4	108
Thinai rice	55.8	62.8	85.6
Samai flour	27.1	17.4	21
Thinai flour	39.7	44	55.7
Samai Uppuma mix	20.5	20.2	26.1
Samai Dosa mix	19.1	21.5	29
Samai Bajji mix	15.6	12.7	15.4
Thinai Payasam mix	20.9	21.4	30.2
Thinai Laddu	75.6	91	122.1
Ragi Malt	27.9	20.9	23.2
Pepper	1.5	2.7	2.6
Varagu Rice	9.3	27.8	49
Varagu Flour	1.6	1.7	5.5
Kuthiraivaali	2	19.7	46
Tamarind	13.8	20.5	24.6
Moottu vali Thailam	0	0	0
Honey (1 bottle)	1.1	1.5	2
Motchai	0.3	0.3	0
Cardomum	0.1	0.1	0
Pearl millet Rice	2.8	9.6	11.1
Mudavattu Kilangu	0	0	0
Banana (Namaran)	22.3	13.8	18.4
Ragi	0.1	5.9	15.8
Ghee	0	0.3	1.3
Recipe Book	4	0.6	0

d. Supporting the above analysis are the standard deviations for samai flour (16%), samai bajji mix (14%) and samai upma mix (9%), which also experienced the biggest fluctuations in sales in April.

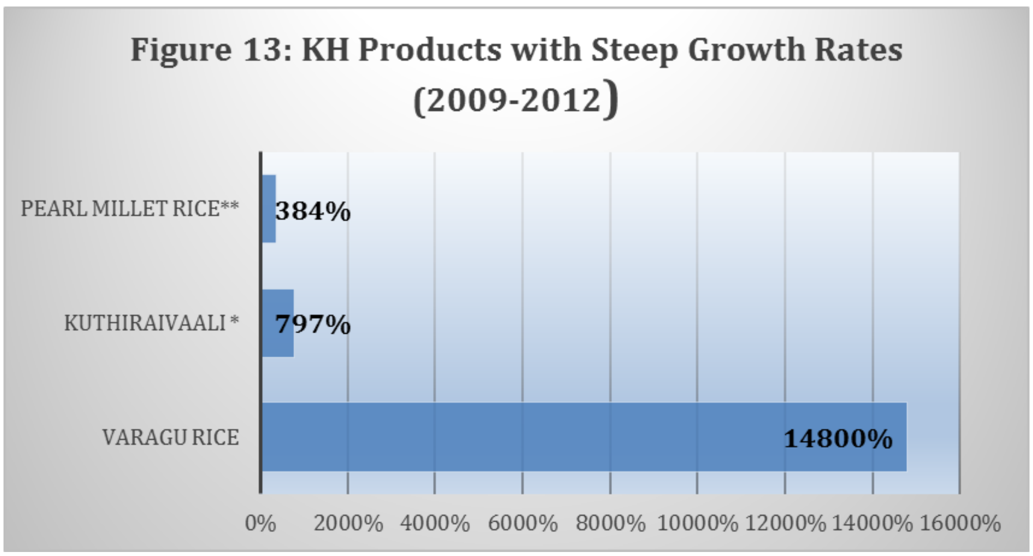
e. Samai rice demonstrated its highest standard deviation (34%) in January, while thinai flour experienced its highest standard deviation (13%) in February. Farmers, in particular, consume a lot of samai and thinai in the cold months. Kolli Hills producers should capitalise on sales by ensuring availability and marketing the products more aggressively during these months.

f. Thinai rice demonstrated the highest standard deviation (13%) in October and November. This could be attributed to the fact that this is the wedding season and thinai-based snacks are prepared for wedding feasts.

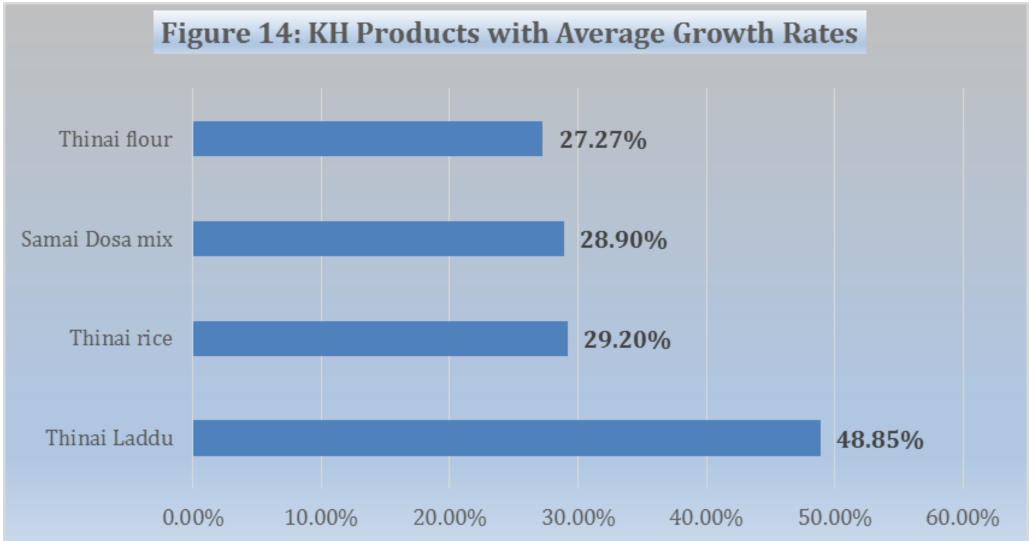
As products experience variable sales during certain months, marketing strategies must be tailored to seasonal variations. It is also important to ensure that products are easily available and priced competitively during these months.

Product growth rates

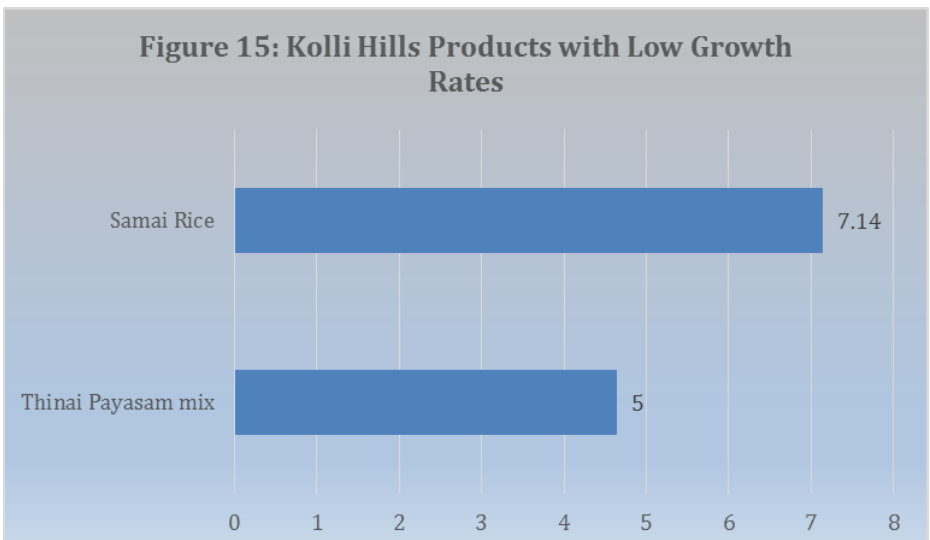
An examination of product growth rates from 2009-12 reveals that the highest growth rates are witnessed in items such as varagu rice and Kuthiraivali which have registered medium volume sales (Figure 13). These are followed by pearl millet rice, which is low volume but showed a promising trend of growth in 2012.



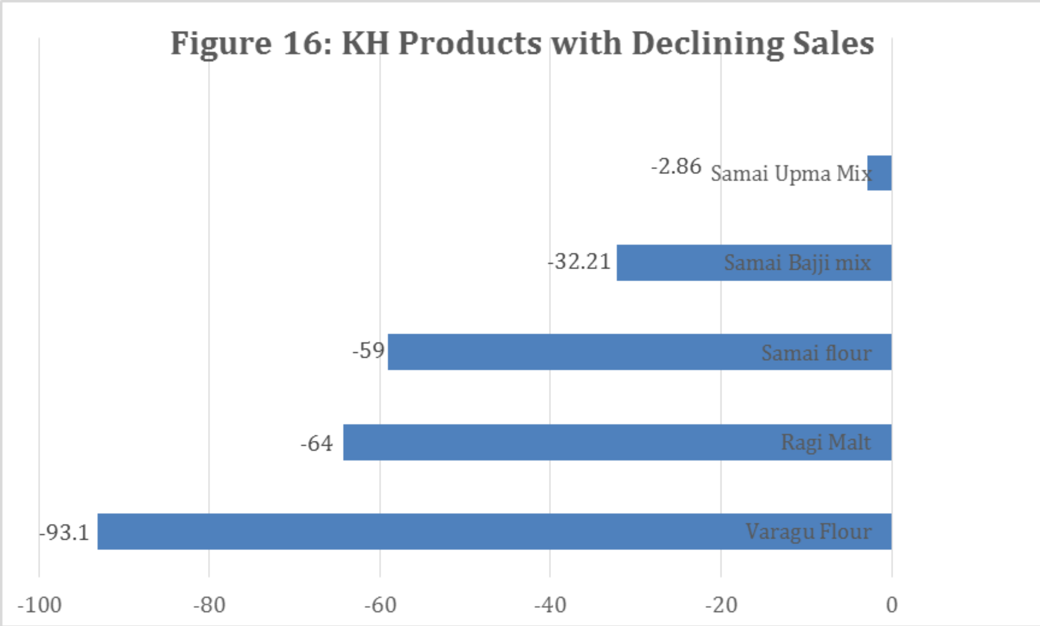
Three high selling items, namely, thinai laddu, thinai rice and thinai flour have demonstrated average growth rates of less than 50% over the last three years (Figure 14). Samai dosa mix also shows an average growth rate despite the fact that its volume of sales is not very high.



Thinai payasam mix and samai rice registered low growth rates of less than 10% from 2009-12 (Figure 15).



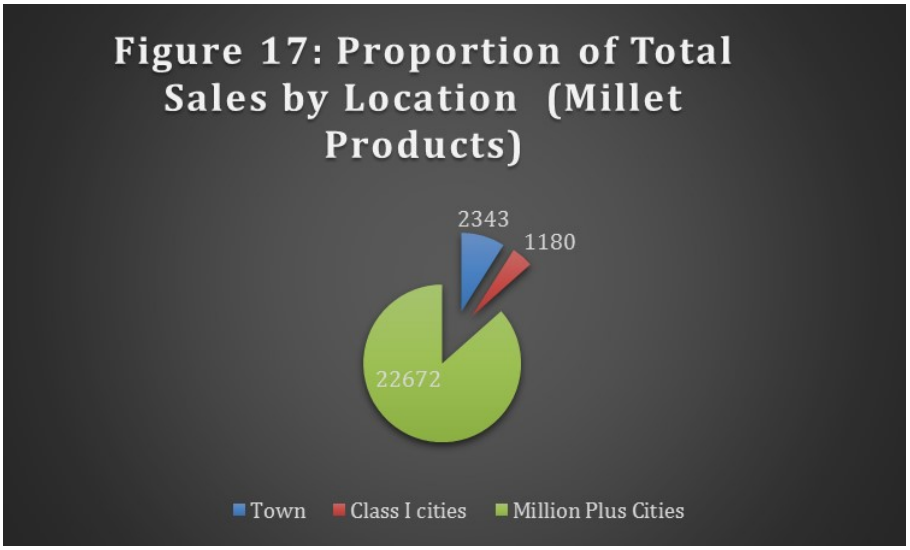
Declining growth rates are seen in several value-added products including samai upma mix, samai bajji mix, samai flour, varagu flour and ragi malt (Figure 16).



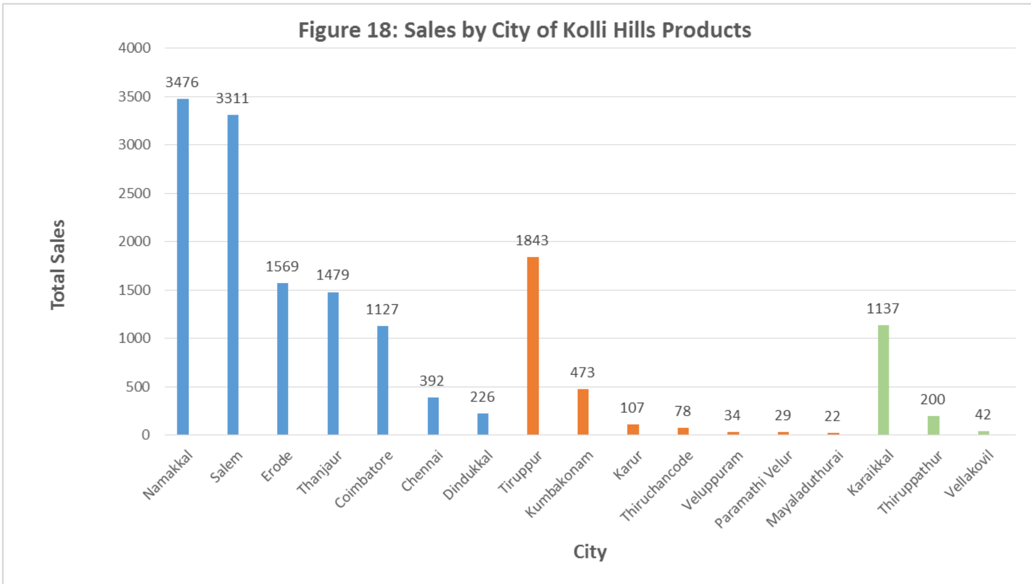
The data clearly demonstrates that customer preferences over time have leaned towards wholegrain rather than value-added items. This would imply that in new retail outlets, items that have steadily shown average to steep growth rates should be introduced early on.

Sales trends by location

Looking at the proportion of total sales across types of cities, the bulk of sales (86.5%) have taken place in million plus cities followed by small towns (8.9%) (Figure 17). The lowest sales have taken place in Class 1 cities (4.5%). Therefore, for future expansion, promotion strategies should target million plus cities. The analysis below looks at specific products to examine the potential for growth in smaller cities and towns.



The million plus cities, despite showing high potential, have two exceptions – Chennai and Dindukkal – where sales have not reached their full potential (Figure 18). Among the Class 1 cities, Tiruppur is the only city where one organic shop has high volumes of sales. Most of the other Class I cities have low volume sales. Among the small towns, only Karaikkal has high volume sales. On the basis of the type of shop, cities where non-organic shops have been targeted register low volume sales.

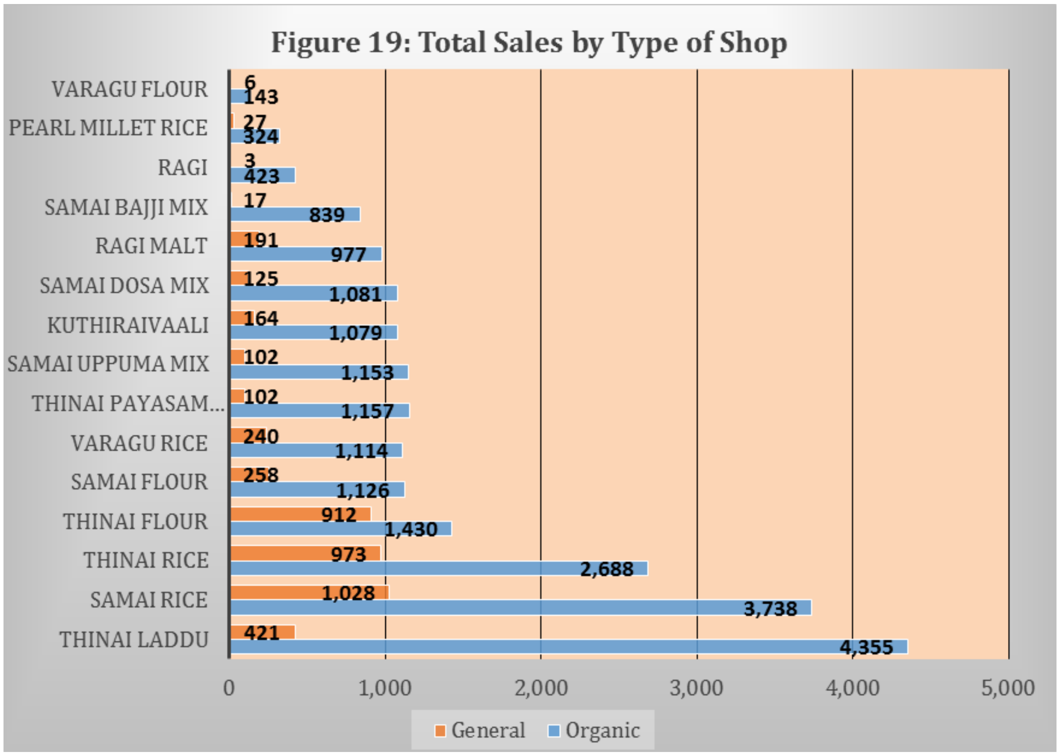


An analysis by product shows that in the high volume sales category, thinai laddus sell most (92.38%) in million plus cities. Other products in this category follow similar sales patterns.

Samai rice and thinai flour, both high volume products, have registered relatively high sales in towns, with a share of 11.39% and 12.34%, respectively. Kuthiraivali, varagu rice and ragi malt also show high potential in small towns, where their sales accounted for 17.67%, 15.84% and 11.75%, respectively. This shows that for certain products, small towns have potential for high growth.

Sales by type of shop

An analysis of the data collected by type of shop shows that the sales of most products are higher in organic shops (a share of 85% and more) than in general shops. At the same time, products such as samai rice (21.5%), thinai rice (26.6%), varagu rice (17.7%), and samai and thinai flour (18.6% and 38.9%, respectively) have relatively high shares in general stores as well (Figure 19).



Retailer rankings of products by attributes

The retailers rated Kolli Hills products on the basis of the same attributes as consumers (Table 4). Overall, retailer ratings match customer ratings in that the lowest ratings are attributed to price and availability. The attributes rated highly across all products are nutrition and taste. Nutrition has an overall percentage of 47%[33] excellent ratings and 50%[34] good ratings, while the corresponding percentages for taste are 44%[35] and 51%[36].

	Table 4: Retailer Ratings for Products by Different Attributes																						
Ratings factor	**Quality**			**Taste**			**Nutrition**			**Availability**			**Time to cook**			**Popularity**			**Price**			**TOTALS**		
Ratings	**E**	**G**	**A**	**E**	**G**	**A**	**E**	**G**	**A**	**E**	**G**	**A**	**E**	**G**	**A**	**E**	**G**	**A**	**E**	**G**	**A**	**E**	**G**	**A**
Ragi Malt		6	1	3	4	1	1	4	3	1	3	4	2	2		2	3	2	1	2	5	10	24	16
Thinai Payasam Mix	1	13	1	7	7	1	8	7		0	7	8	6	7		2	7	2		6	8	24	54	20
Thinai Laddus	5	9	1	10	4	1	8	7		0	8	7		6		7	7		3	3	9	33	44	18
Samai Bajji	2	13		5	8		5	10		0	8	7	5	9		5	8	1	1	7	7	23	63	15
Samai Upma	3	10		5	8		4	8	1	0	8	5	4	8		5	8		1	5	6	22	55	12

33 67 of 142 responses rated excellent.

34 71 out of 142 responses rated good.

35 61 out of 140 responses rated excellent.

36 72 out of 140 responses rated good.

Samai Rava Dosa	4	11		4	9	2	6	9		0	8	7	4	9		5	8	2	1	4	10	24	58	21
Italian Millet Rice	10	13		11	11	1	13	10		1	10	12	8	15		10	12	1	2	10	10	55	81	24
Little Millet Rice	11	12		12	10	1	13	10		1	10	12	8	15		10	11	2	2	10	10	57	78	25
Finger Millet Flour	1	6		1	6		2	5		0	5	2		5	1	1	5	1		3	5	5	35	9
Kodo Millet	3	3		2	4		5	1		0	3	3	1	5		5	1			2	4	16	19	7
Barnyard Millet	2			1	1		2			0	0	2		2		2				1		7	4	2
	42	**96**	**3**	**61**	**72**	**7**	**67**	**71**	**4**	**3**	**70**	**69**	**38**	**83**	**1**	**54**	**70**	**11**	**11**	**53**	**74**	**276**	**515**	**169**

This differs to some extent from consumer ratings, according to which popularity has the highest excellent ratings (56%), followed by nutrition (49%). Taste received relatively lower customer ratings (38%), possibly because thinai laddus, being a high volume sales item, received the lowest ratings.

Ratings analysis for Kolli Hills products

Samai rice sells highest due to its nutritive value (57% of ratings were excellent) and taste (52% of ratings were excellent); thinai rice sells highest, also due to nutritive value (57% of ratings were excellent) and taste (48% of ratings were excellent). Thinnai laddu was highly rated for taste (67% of ratings were excellent). In fact, in the high volume category, thinnai laddu has the highest ratings for taste. Surprisingly, this differs significantly from the ratings provided by consumers, wherein only four of 19 responses received rated thinai laddu as excellent (21%) in terms of taste while eight of the ratings were average (42%, see Consumer Analysis, above). This indicates a need for further investigation.

Saleability of products according to potential retailers

Interestingly, when asked which Kolli Hills products sold the fastest, potential retailers rated unprocessed and minimally processed millet products as likely to sell the fastest. Potential retailers ranked thinai and samai rice and flour as the fastest and second fastest moving Kolli Hills products (Figure 20). This was attributed by retailers to popular recognition of the Kolli Hills brand and their perceived health benefits (Figure 21).

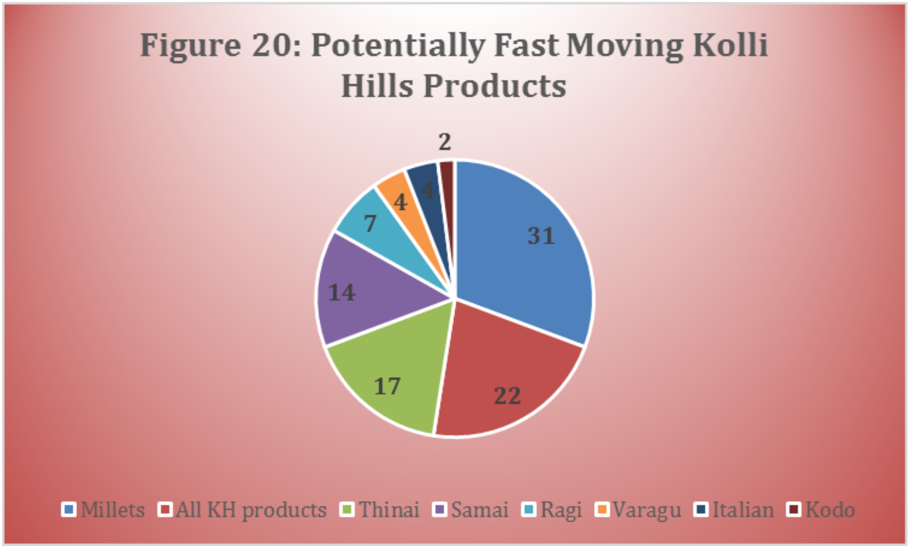


Figure 20: Potentially Fast Moving Kolli Hills Products

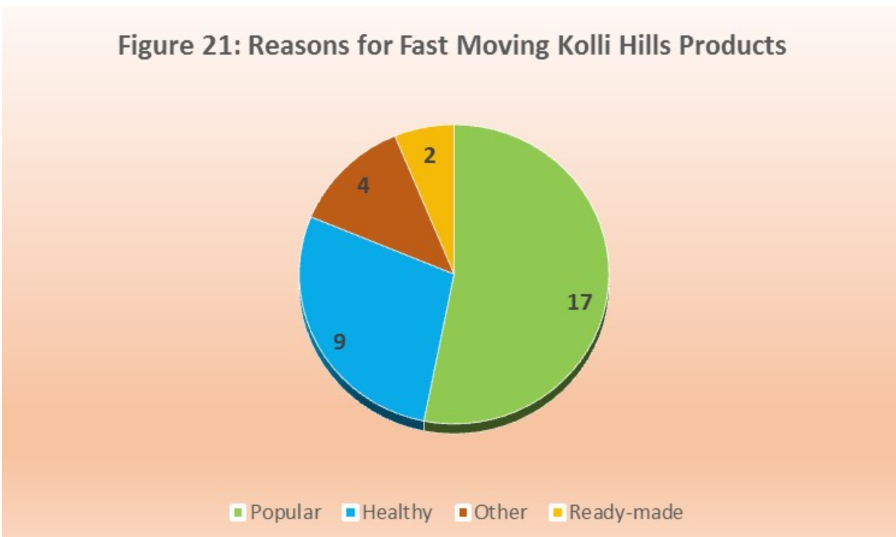
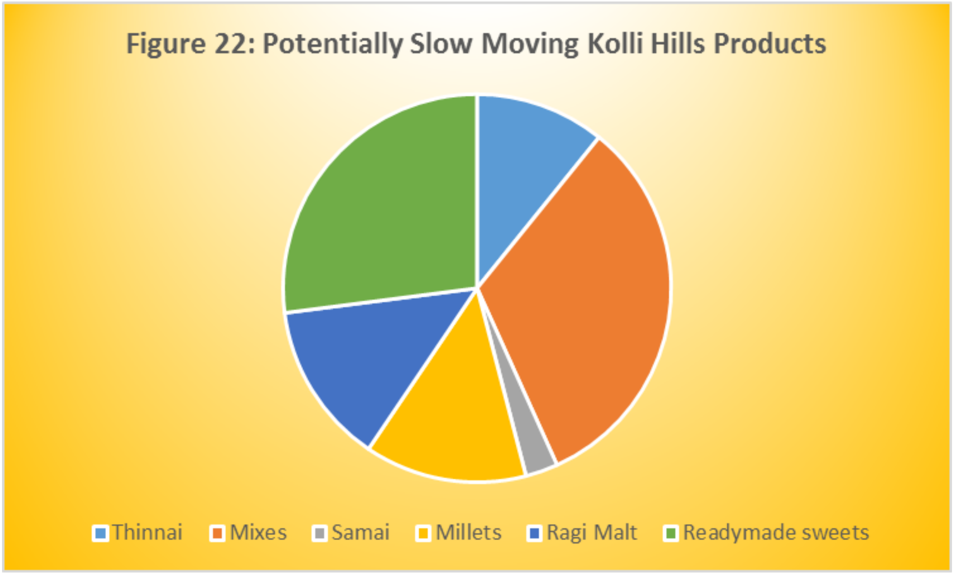


Figure 21: Reasons for Fast Moving Kolli Hills Products

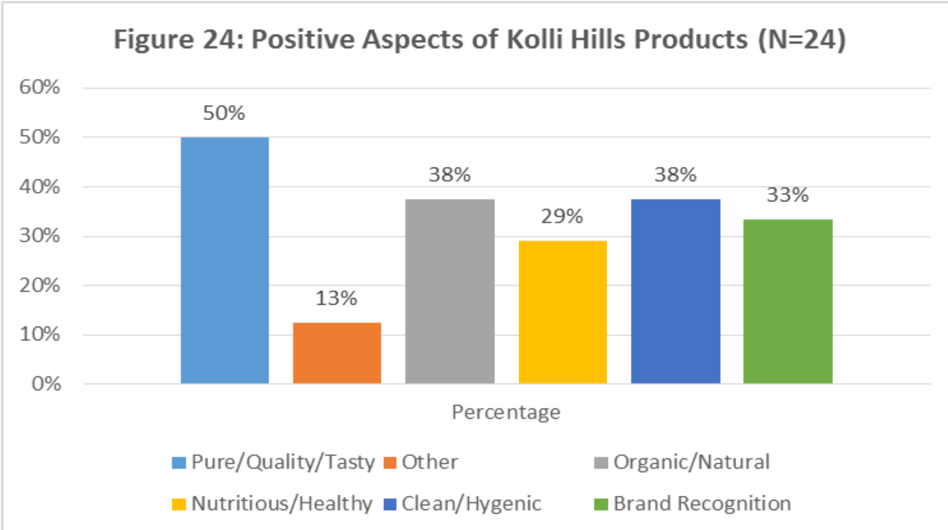
The slow moving items include ready mixes and sweets (Figure 22) for reasons including lack of familiarity with the product or method of preparation, and price (Figure 23).



a. **Positive aspects of Kolli Hills products**

The retailers enumerated key features, both positive and negative, of the Kolli Hills brand. The brand's positive features have helped secure a small but loyal consumer base while its negative characteristics have inhibited its entry into new markets. The top three positive features cited by retailers were quality (50%), product hygiene and natural, organic methods of cultivation (38%), and strong brand recognition/ established reputation (33%)[37] (Figure 24).

[37] 12 of 24 responses (50%) cited quality as the most positive feature of Kolli Hill products, while an equal number of responses – 9 of a total of 24 (38%) – cited hygiene as well as organic cultivation practices as the next most positive aspect of the product range. Finally, 8 of a total of 24 responses (33%) rated brand recognition as the third most positive attribute of Kolli Hills products.



The hygienic, flavourful, and non-chemical nature of Kolli Hills products is reflected in the manner in which they are cultivated. In partnership with MSSRF, farmers employ environmentally sound, community-friendly farming techniques and tools to grow and process millets. These techniques preserve soil quality, and in so doing so, enhance the quality of the millets grown in it[38].

In the light of these findings, MSSRF should capitalise on these product features by advertising the health benefits and environment friendly practices of small millet cultivation. This can be accomplished by prominently displaying relevant information on packaging and other promotional material such as banners and recipe booklets.

b. Negative aspects of Kolli Hills products

A number of factors figured in the top three most frequently cited retailer complaints (Figure 25) about the brand. The relatively high prices (21%)[39] and the presence of stones in some of the products (21%)[40] come in as the most frequently cited drawbacks of the brand. While one or two retailers said that Kolli Hills products were reasonably priced, the majority of them insisted that prices had to be brought down to make products more appealing to customers.

Discussing the price of Kolli Hills products, shop owner Jagadeesan said, "*The price is okay. However, why sell seven laddus in one packet? Kolli Hills shouldn't sell such large quantities at such high prices, they should sell at half the size. I sell smaller packets of thinai laddus, at half the size of the original, at a lower price. I sell them individually, too. These are common selling practices that Kolli Hills should consider*"[41].

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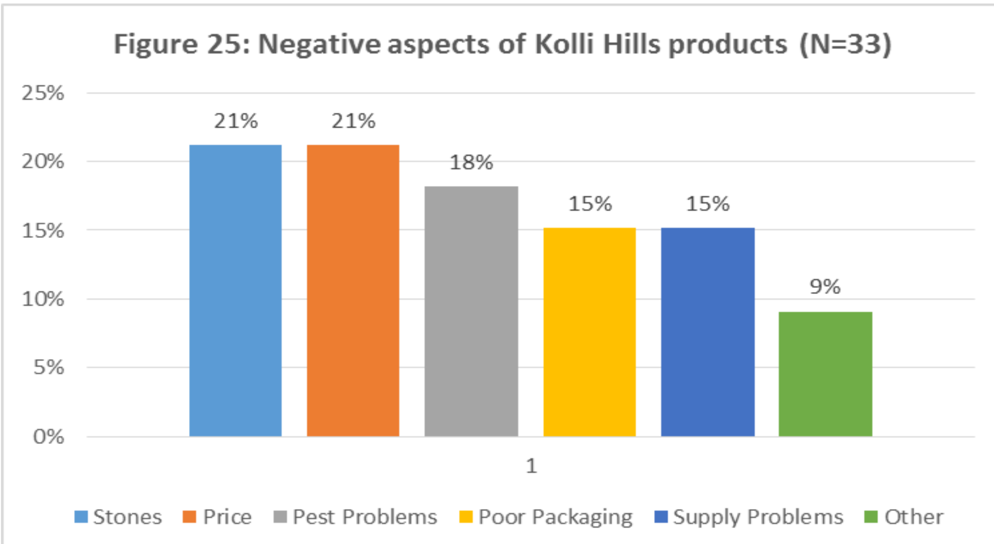
[38] Traditional farming techniques allow the soil to retain more moisture, which benefits the crops grown in this soil -- "Rediscovering indigenous fare of Nilgiri Hills", *The Hindu*, 22 March 2013.

[39] 7 of 33 responses stated price as a disadvantage of Kolli Hills products.

[40] 7 of 33 responses stated stones as being as a drawback of Kolli Hills products.

[41] Interview with. Jagadeesan, Green Shop, Erode, 6 April 2013.

Referring to the occasional appearance of debris in the products, Dhanashekar, a retailer, noted, "*There have been complaints about stone particles in the product. That's something that must be rectified*."[42] Pest problems came in a close second (18%)[43], attributed by some retailers to poor packaging. Unsurprisingly, flimsy packaging (15%)[44] and inconsistent and inadequate supply (15%)[45] were the third most frequently cited problems.



Shanta Ramaswamy, owner of Sreevatsa stores, an organic grocery chain, bemoaned the poor quality of the packaging, saying, "*The packaging is not attractive; the products don't retain their shape. The thinai laddus disintegrate easily. When I order 50 packs of laddus, I get 25-30 packs with laddus that have maintained their shape*."[46]. Jagadeesan recommended creating packages with "*thick plastic covers and a broad base*"[47] that would allow the packets to stand upright, thus improving the display without compromising the contents. He urged MSSRF to "*standardise the packaging instead of packing each product differently, as they do now, and include a printed label and logo*".

Praveen Kumar, a retailer, emphasised the need for more colourful packaging. He felt that the "*label of the product is dull, the cover is dull. Customers prefer something catchy. The colour of the packaging should be changed*"[48].

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42 Interview with Dhanashekar, Organic Shop, Salem, 6 April 2013.

43 6 of 33 responses complained about pest problems in Kolli Hills products.

44 5 of the 33 complaints received were about packaging of Kolli Hills products.

45 5 of the 33 complaints received were about supply problems.

46 Interview with Shanta Ramaswamy, owner, Sreevasta Stores, Coimbatore, 6 April 2013.

47 Interview with Jagadeesan, owner, Green Shop, Erode, 6 April 2013.

48 Interview with Praveen Kumar, manager, Sreenivas Stores, Coimbatore, 6 April 2013.

PRODUCER ANALYSIS

The farmers who cultivate and process Kolli Hills products are members of a homogenous tribal community called the Malayali Gounders. This 13,000 strong community is spread across 14 panchayats. The staple grain in their diets is paddy, followed by millets. Most of the small millets they cultivate are consumed by the farmers and their families. As one farmer explained, "*We have been consuming it ourselves all along. It is only recently that we have begun marketing and selling it"*[49].

As a result of MSSRF's intervention, some of the millets are now sold both raw and in the form of value-added products such as thinai laddus and samai upma mix. Farmers are being encouraged to view millet cultivation as a way to generate income through participatory value addition, processing, and marketing. Of the millets they produce, 25% is channelled into value addition, 30% is consumed, and the remaining 45% is sold on the market. The aim is to increase income by diverting the 45% that is sold into the value-addition process[50].

The bulk of earnings continue to come from cash crops such as rice, wheat, pepper, cardamom, bananas, and cashew nuts, which farmers grow in addition to millets. Farmers such as Shiv Kumar argue that this is because cash crops offer a quick turnover; unlike millets, they grow rapidly and can be produced in bulk since they enjoy constant demand. Speaking of his current preference for cultivating cash crops, Shiv Kumar said, "*We earn more from cash crops than from millets. I make more money from coffee, which is a cash crop, because it has a market"*[51]. Millets do not enjoy the same popularity or consumer demand as the more mainstream cereals even though, as rainfed crops, they do not require irrigation and are thus less capital intensive than rice or wheat. Shiv Kumar went on to add, "*Millets face competition from cash crops. We grow cash crops because people buy them. I may like millets but consumers don't know enough about them, they aren't as interested in millets"*[52].

Apart from the lure of cash crops and the general lack of awareness about small millets, there is a range of issues that need to be addressed so that Kolli Hills can both retain and expand their existing retailer base. From a production standpoint, farmers need to strengthen aspects of the product range that retailers and consumers find appealing, while tackling those aspects that compromise the integrity of the brand and inhibit its expansion into new markets.

The image below is an illustration of the constraints at each stage of the supply chain. It is the producers who bear the brunt of these constraints, and who stand to gain the most by tackling them head-on.

The high price of Kolli Hills products is due to the disadvantages and inefficiencies peculiar to the location of the cultivation and processing centres. Furthermore, Kolli Hills producer groups live and work in the foothills of the Kolli mountains, at a

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49 Focus group discussions with farmers, Kolli Hills, 5 April 2013.
50 Focus group discussions with MSSRF staff, 4 April 2013.
51 Focus group discussions with farmers, Namakkal, 7 April 2013.
52 *Ibid*.

significant distance from the markets. This lack of proximity to the markets results in high transportation costs that must be factored into the cost price.

A surefire way to drive product prices down is to upscale production and increase sales by reaching out to more retailers. An alternate or parallel means of offsetting the high prices of the products would be for farmers to participate in the carbon credit initiative, by becoming members of organisations involved in such activities, such as the Fair Climate Network

Figure 26: Bottlenecks in the Supply Chain: Implication for farmers

Another disadvantage is a lack of credit. Yet, expansion has proved difficult since most retailers expect wholesalers to offer credit. The inability to extend credit has restricted the ambit of the brand's business relationships to include only those retailers who are willing to pay for the products upfront. Neither the distributor nor the retailers in the supply chain can absorb these costs. There must, therefore, be a credit mechanism built into the process for sustainability and expansion of the retail chain in the long run. Producers could establish a farmers' association or form a consortium of

SHGs and collectively access credit.

CONCLUSIONS

Kolli Hills small millets products were rated high by consumers and retailers on nutrition, taste, cooking time and brand popularity. In terms of availability and price, however, the findings of the study reveal scope for improvement. These and other constraints, with recommendations for addressing them are stated below.

a. *Low availability → Improve storage, consider income from carbon credits*

With regard to availability of products, inconsistent supply could be an outcome of low scale – with cash crops being more commercially viable than millets, farmers favour the former over the latter. It could also occur due to the absence of adequate and effective storage facilities. Establishing or improving storage facilities would help regularise supply by enabling producers to store their grain safely, hygienically and without resorting to chemical pest control, for longer periods of time.

Improve Availability!

Scale up production by making millet cultivation more viable

Develop efficient storage facilities

The move to cultivating more lucrative cash crops has impacted millet cultivation and lowered availability of the once plentiful crop. However, the move is replete with threats to long-term sustainability. Two significant long-term hidden costs are the loss of fertility and the loss of the opportunity to cash in on carbon credits. As small millets are grown using organic, chemical free and environment friendly methods, their cultivation, unlike that of crops that require high chemical inputs, does not threaten the fertility of the soil. The impending danger of losing viability of the soil altogether must be communicated to the farmers in combination with the fact that millet cultivation need not be commercially unviable if it is combined with efforts to earn carbon credits. As carbon credits accrue to initiatives that are environment friendly, as millet cultivation is, it would be worthwhile to network with organisations such as the Fair Climate Network[53], which currently works with 25 NGOs across the country to help organic farmers earn an income from carbon credits.

b. *High price → Increase scale*

Pricing, influenced partly by the fact that production is in the mountains, may be addressed by increasing scale. The data shows that the maximum consumption of Kolli Hills products is in cities with populations exceeding one million. Expansion must, therefore, be targeted at million plus and Class 1 cities such as Chennai, Erode, Salem and Coimbatore. The findings also show that maximum sales occur in stores that retail organic products. It follows,

Improve Price and Distribution!

Expand distribution in Class I cities

Focus on organic stores

Consider online organic groceries

Build the capacities of the community to distribute

53 As carbon credits can only be reaped on scale, single NGOs undertaking the initiative would benefit from networking with each other. Fair Climate Network (FCN) works with multiple organisations across the country. The process is highly technical and involves a vast amount of capacity building. As a partner of FCN on capacity building measures of this nature, BPF is in a position to facilitate links that would enable MSSRF to benefit from the measures that FCN is putting into place to impart marketing, IT, climate change and communications related skills to capacitate farmers to earn carbon credits.

therefore, that organic stores in these cities must be specifically targeted.

c. Limited distribution → Involve community

The existing distribution network, which currently relies on a single distributor, must be expanded. In addition to contacting new distributors, training a cadre of local people from Kolli Hills to perform this role would double or even triple the existing number of retail outlets. To this end, BPF's MOVE livelihood model could be tailored to train local men, women and youth to understand markets, source and supply to new retailers and orders on a variety of products. Given that the bulk of Kolli Hills products are currently sold through organic shops in the target cities, this new cadre of distributors should target such outlets in new cities in Tamil Nadu and the neighbouring states.

d. Lack of market knowledge → Maintain records, compete effectively

The data reveals that the periods between October-November and February-April are months of high variations in sales. This is possibly a function of retailers sourcing products from other millet suppliers as market prices may be more competitive or production may not meet demand. While both MSSRF and the distributor have been diligent in keeping records of sales, this has not been the case with records of market prices. Record keeping of market prices must begin immediately, especially because standard government institutions do not follow this practice for small millets. Initiating such a process would demonstrate the correlation between price and demand that is almost always present in a product cycle, particularly for agro-products. Further research would be required to identify seasonal demand coinciding with festivals, for instance, and to prepare producers accordingly. Alternatively, there may be periods of glut during which it would be more viable to store the produce or focus on value addition of raw produce.

Acquire Market Knowledge!

Maintain records of market prices over the year

Respond to demand by adjusting prices, storing or adding value

e. Low awareness → Promote benefits

While millets were widely consumed by generations past, awareness of their numerous benefits is now low among the general public. Even among those who are aware of the health, nutritional, environmental and economic impacts of consuming millets, few know how to prepare them at home. This may be addressed by raising awareness through promotional material both at the point of sale (PoS) as well as through good quality product packaging that does not rip easily. Product packaging must carry nutritional information, which must also be conveyed through posters and pamphlets at the outlets. The information should appear both on ready-to-eat as well as unprocessed grain and flours, bearing in mind the growing numbers of consumers, particularly among the upper middle class, who are moving towards gluten and sugar free staples. The fact

Promote Product and Brand Awareness!

Develop point-of-sale promotional videos, pamphlets

Add nutritional information and recipes on product packaging

Participate in organic fairs and bazaars

Maintain strict quality control

that the millets are being produced without pesticides and chemicals must also be highlighted very strongly.

Multiple strategies may be employed towards this end, including, for instance, recipe booklets provided at the PoS or to a wider audience through Amazon, which has recently begun offering users the opportunity to self publish books. A social media campaign targeted at Net savvy consumers in the larger cities would be very effective in raising awareness both about the benefits of millets in general as well as the Kolli Hills brand in particular. BPF would be happy to partner with MSSRF on such a campaign.

Awareness could also be raised at local organic food fairs that are growing in popularity in the larger cities. Stalls at malls, at the food courts of large corporate organisations as well as school canteens would help raise awareness among a diverse group of potential customers.

It would also be useful in the long-term to establish a Kolli Hills brand. This can be approached in two ways: First, by attempting to ensure to the extent possible that retailers retain it on packaging, and second, by maintaining strict quality control so that the association with the brand in the customer's mind is always with high quality and good nutrition. The latter would involve initiating processes to separate the stones from the grain and protect products from pests before and after sale.

f. Access to credit → Form collectives

Access to credit constitutes a major difficulty at the retail end. Retail outlets typically pay suppliers after stock is sold. In this case, waiting until the products are sold is not an option for the producers as they are poor. On the other hand, most retailers are not in a position to pay them either. This poses a real constraint to expansion by limiting the number of retail sellers to those who can accept these terms.

Access credit!

Collectivise into a producer company or cooperative

Offset price increase with scale

Collectivising as a producer company or cooperative would enable access to credit that can absorb the cost and could be included in the pricing. This would imply about a 1% increase in the selling price of products initially but would eventually be offset by economies of scale.

RECOMMENDATIONS AND STRATEGIES

Strategies to address bottlenecks in the supply chain as well as to expand scale and build sustainability are recommended below.

Figure 27: Strategies to promote the consumption of millets

Cultivation

1. Create farmer awareness of benefits of millet production
2. Use incentives such as carbon credits
3. Link to online retailers for organic certification
4. Link to organic outlets for organic certification

De-husking

1. Implement technologies to minimise waste
2. Find alternative uses for the waste

Storage

1. Set-up a central storage facility
2. Utilise technology to ensure safe storage
3. Link storage cycle to market prices for higher profits
4. Link to government schemes for infrastructure

Value-addition

1. Ensure quality control during value-addition
2. Add value to popular products
3. Create new value-added products
4. Visits other millet production units

Packaging

1. Use vacuum packing
2. Use stronger packing material
3. Use eco-friendly packing material, e.g., recycled plastic
4. Include cooking instructions with visuals
5. Devise product-specific packaging
6. Standardise packaging (use KH logo)
7. Make packaging eye-catching and colourful

Distribution

1. Increase number of distributors
2. Establish a credit line to expand the retailer base
3. Push value-added products in metros
4. Link to the mid-day meal scheme
5. Link to NREGS

Marketing

Create promotional material:

1. Highlighting positive features of KH products
2. In regional languages
3. Dispelling myths about millets.
4. Include health and nutrition information
5. Include recipes in English and/or local language
6. Standardise packaging (use KH logo)
7. Make packaging eye-catching and colourful

Conduct an awareness campaigns by:

1. Creating a web presence for KH products
2. Employing social media
3. Setting up stalls at corporate canteens
4. Setting up stalls at food courts
5. Doing cooking demos
6. Handing out product samples
7. Pushing value-added products

1. **Cultivation**

Promoting small millets demands first and foremost, that farmers be made aware of the financial and environmental benefits of small-millet cultivation.

a. ***Create awareness*** among farmers about the long-term benefits of millet production – as millets are a hardy, rainfed crop, they can thrive in nutrient poor soil, saving cultivators both irrigation as well as fertiliser costs.

b. ***Incentivise farmers*** by enrolling them in carbon credit programmes. As millets have a longer cultivation period relative to cash crops, a financial incentive of this nature would help compensate losses incurred due to longer crop cycles. BPF is conducting training for a network of NGOs involved on low carbon farming. This network, which comprises about 25 organisations around the country, helps farmers reap carbon credit benefits. BPF would be able to facilitate linkages with Kolli Hills producers if these are not yet in place.

c. ***Capitalise on the growing consumer interest in organic food***[54] by linking Kolli Hills producers with major online retail corporates such as Natural Mantra, Mumbai, or Sreevatsa stores, Coimbatore. This would help the farmers acquire organic certification and the latter to meet the supply gap in their organic produce.

d. ***Creatively utilise government programmes*** such as the midday meal scheme by substituting other grains with small millets through the public distribution system. Another link suggested by staff includes lobbying with government to include millet cultivation in the ambit of the Mahatma Gandhi National Rural Employment Guarantee Scheme.

2. **Processing**

Processing agricultural produce requires linkages with technical support institutions such as agricultural universities, research institutions, and competitors or other producers situated at different ends of the value chain. Contact with consumers is also necessary to inform the type of value addition that different customer segments want and would be willing to pay for.

a. ***Utilise new technologies*** to minimise waste in dehusking and process existing waste to create value-added products. Examples of high-end value-added products using millet husk include pillows and other organic home products that require stuffing. Waste recycling through bio-fuel production reveals similar potential. Linkages to agricultural universities can help propel experimentation on waste utilisation. Simultaneous linkages to corporates that use the waste for any purpose would help in productive utilization as well as

54 "With more and more people preferring to consume chemical- and fertiliser-free produce, India has seen the launch of at least half a dozen online retail ventures that sell organic products in the past couple of years." Economic Times, 26 September 2013, http://articles.economictimes.indiatimes.com/2013-09-26/news/42427055_1_crore-organic-products-ascent-capital

processing of waste.

b. ***Experiment with recipes and conduct taste tests*** with customers to help improve the taste of value-added products such as thinai laddus.

3. **Value addition**

Adding value to products requires a clear understanding of the value chain and which parts of it one will operate in. Such an understanding helps producers cater to different players at higher ends of the value chain.

a. Establish quality control mechanisms as these are essential for the long-term success of large-scale production units. Kolli Hills producers would have to research methods to reduce contamination of produce in the form of stones or other unhygienic elements.

b. Build consumer trust by clearly enumerating product ingredients, lack of preservatives and their processing methods. This is vital to counter the notion that value-added products often contain harmful additives and chemicals. Having the process and ingredients independently verified and publicising the findings to the public would help expand sales among working populations, especially among working women, who lack the time to prepare food from scratch.

c. ***Teach consumers to use millets*** by offering simple recipe books and playing demonstration videos at the point of sale. Findings relating to the most commonly consumed products such as porridge, dosa mix, upma mix, and pongal mix indicate a strong need for raising customer awareness about how to use the products. Exposure visits to other value addition units for millet products would help producers to improve taste and create new recipes for high consumption products.

4. **Packaging**

Packaging is an important aspect of branding. Building brand identity helps consumers easily identify products and helps build customer loyalty.

a. Explore innovative packaging options such as vacuum packing to reduce the risk of pest contamination, increase shelf life without using chemicals and address retailers' concerns over flimsy, easily torn packaging. Other alternatives recommended for packaging include plastic and cardboard boxes, both recycled. This would not only enhance Kolli Hills' image as an eco-friendly brand but also protect products such as thinai laddus from crumbing or becoming damaged during transportation.

b. Provide cooking instructions using simple visuals or including a recipe pamphlet, as brands such as Maggi and Quaker Oats do with their product packs. This would help educate potential consumers on how to prepare millet-based products.

c. ***Build brand awareness*** through packaging by creating and using attractive corporate identity elements such as a logo and tagline. Drab packaging was a concern voiced by the retailers as a drawback. It must be ensured that the redesigned product packaging incorporates eye-catching colours and images that are standardised to promote a signature look and feel and draw customers to pick Kolli Hills products off the shelf.

5. **Distribution**

An efficient distribution network facilitates the timely and uninterrupted supply of products to retailers and consumers. Such networks must be cost effective, meeting the needs of consumers while protecting a brand's profit margins. As supply chains expand, so must the scope and reach of the distribution network, including the number of distributors.

a. ***Increase distributorship*** by increasing the number of people playing this function. Relying on a single distributor is a highly risky proposition. Distributorship can be expanded by linking to other distributors and by training members of the local community in distribution.

b. ***Acquire a credit line as a collective*** either in the form of a cooperative or a farmer's association. Lack of credit constitutes a major impediment to expanding the retailer base. Collectivising to access credit would allow Kolli Hills producers to do business with retailers who are unwilling or unable to make payments upfront.

6. **Storage**

Storage is an important component of any production process that has reached a critical scale. Factoring and planning for storage, therefore, requires strategic thinking on scale with regard to business cycles and seasonal variations in demand. Storage also needs to be designed keeping in mind the various product features (shelf life, hygiene, temperature, quantity among other factors).

a. ***Create a central storage facility*** to encourage farmers to consider increasing millet cultivation. As of now, they store their harvest in their homes for lack of an alternative. Proper facilities for storage would address their concerns about storing larger volumes. The technologies adopted in these facilities must be safe and pest free. They may be based on exposure to units used for the same purpose elsewhere, or on traditional storage methods or even created using corporate linkages.

b. ***Reap higher margins*** in the value chain by strategically warehousing to capitalise on seasonal market price variations. Sensitivity to market prices can help prevent loss of business to competitors and thereby main steady year-round sales. Proper storage systems can help producers calibrate the supply to prevent market gluts and capitalise on market shortages.

c. ***Leverage government support*** for economic growth just as large-scale industries leverage public investment. Accessing infrastructure on scale through local government programmes such as the rural hub can facilitate cost efficient storage and processing.

7. **Marketing**

The marketing strategies presented below are both short-term and long-term in nature. The immediate strategies focus on expanding the local customer base and increasing the scale of supply, whereas the long-term strategies seek to build awareness of millets and establish the Kolli Hills brand name.

The following activities would reap concrete benefits in the short term:

a. ***Research the different customer segments*** so that marketing strategies can be tailored to address specific customer needs and wants, even in their own language. Value-added products, for instance, would find favour with young working women in the metropolises, who would be willing to pay more for an enclosed recipe book for millets. Raw millets could be marketed to segments with a better understanding of the traditional methods of preparing these products. MOVE training for members of the Kolli Hills community would be a first step towards developing marketing strategies for different customer segments. It would help build a cadre of marketing professionals who can expand the retail base and remain in direct touch with consumers to help adapt products to changes in consumer tastes and markets.

b. ***Develop promotional material*** to penetrate consumer consciousness. Branding collateral such as posters, banners, flyers and websites can help position Kolli Hills products as flavourful, hygienic, nutritious, and chemical-free products and thereby increase demand. Colourful and descriptive visuals could be used to communicate that the products' positive attributes are based on actual consumer feedback. Ingredients and nutritional information could also be advertised with online brands such as 24 Letter Mantra[55].

c. ***Run health awareness campaigns in the metros,*** emphasising the health and nutritional benefits of small millets. The producers may be assisted by MSSRF to draw on a range of strategies, including Web marketing and social media networking.

d. ***Hold cooking demonstrations at food courts*** in malls and corporate offices. Stalls selling tasty, healthy millet-based dishes at corporate office canteens would suit an urban, white-collar audience.

e. ***Establish linkages to different entities in the supply chain*** such as hotel chains selling food made of organic produce, eateries, schools or educational institutions with eco-friendly philosophies, corporates selling natural foods which require steady supply of raw or processed millets.

Mid-term to long-term strategies presented below focus on spreading awareness of millets and building the Kolli Hill brand identity through web based or other mechanisms.

55 See link for example of product nutritional profile on 24 Letter Mantra website: http://www.24mantra.com/products-page/cereals/basmati-rice-premium-brown/

f. ***Establish an online shopping portal*** to sell natural or organic products catering to the South of India like Mumbai based Natural Mantra.

g. ***Dispel myths about specific millets*** to better promote the brand. For example, the health and medicinal benefits of thinai millet oil must be researched and publicised to counter the belief that it is heating and therefore detrimental to health.

h. ***Catch them young!*** Since young minds are particularly responsive to advertising, information about the benefits and appeal of millet-based products must be disseminated in schools.