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MARKET SURVEY FOR ASSESSING DEMAND OF ORGANIC FOOD

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"NO ONE SHALL BE LEFT BEHIND" INITIATIVE

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Introduction

Any food product which is produced without using any kind of conventional pesticides can be labelled as organic food. According to the Organic Foods Production Act, 1990, it states that "In terms of food that comes from living animals – meat, eggs and dairy products, the animal must not be fed antibiotics or growth hormones".

Organic foods are those that are environmentally safe, produced using environmentally sound methods that do not involve modern synthetic inputs such as pesticides and chemical fertilizers, do not contain genetically modified organisms, and are not processed using irradiation, industrial solvents, or chemical food additives. The choice of organic versus inorganic food is significantly influenced by the perception of the health effect of organic foods. Households, who perceive organic foods as healthier, are more likely to purchase organic food, and they have a higher willingness to pay than other households. Organic food is perceived as healthier and safer and organic practices are perceived to be more environmentally sound (Paul, 2012).

Farmers are the agents of natural resources in offering fruits and vegetables to many communities. They are the drivers of a country's economic growth. Due to the importance that has been given to them, they therefore lack quality lifestyle in terms of food, nutrition and overall health. Therefore, several platforms must be formed for alleviating the economic stability and quality of life of the drivers of change in the agro-ecology sector. In forms of research and quality studies, the rationale to market consumption habits can be discovered and accordingly employed for further implementation of quality change.

Lack of markets has been a barrier to many farmers that rely on them to receive ample value for their endeavours. Farmers that have organic certification also have difficulties in availing justified value for their produce. This could be due to rationalities like lack of awareness of the harmful effects of consumption of chemically grown produce, or simply the positives of consuming the chemical free produce. Consumption of certain varieties of produce can be very beneficial for the human body, provided they are chemical free. Likewise consumption of varieties of produce that can be beneficial to the body but loses its benefits and instead causes more harm to the body long-term than favouring it.

Objectives

- To find out the varieties and volume of vegetables sold in the market
- To understand the challenges faced by sellers selling organic vegetables
- To access consumer's demand for organic produce

Study area

The study was conducted in major market locations in the districts of East Khasi Hills, West Khasi Hills, and Ri-Bhoi of Meghalaya.

Meghalaya being a state that has a predominant agrarian economy with about 80% of its population depending on agriculture for their livelihood and nearly 10% of the state's landscape is under cultivation.

Farming in Meghalaya is organic by tradition and has been a traditional practice for many years as they practice a form of shifting cultivation or slash and burn cultivation which is commonly known as Jhum cultivation or *Rep Shyrti* (in Khasi) and *A.ba oa* (in Garo). This is one of the most ancient systems of farming which is believed to have originated in the Neolithic period around 7,000 BC. This practice has an in-built mechanism of sustenance, conservation and renewable system of resource management.

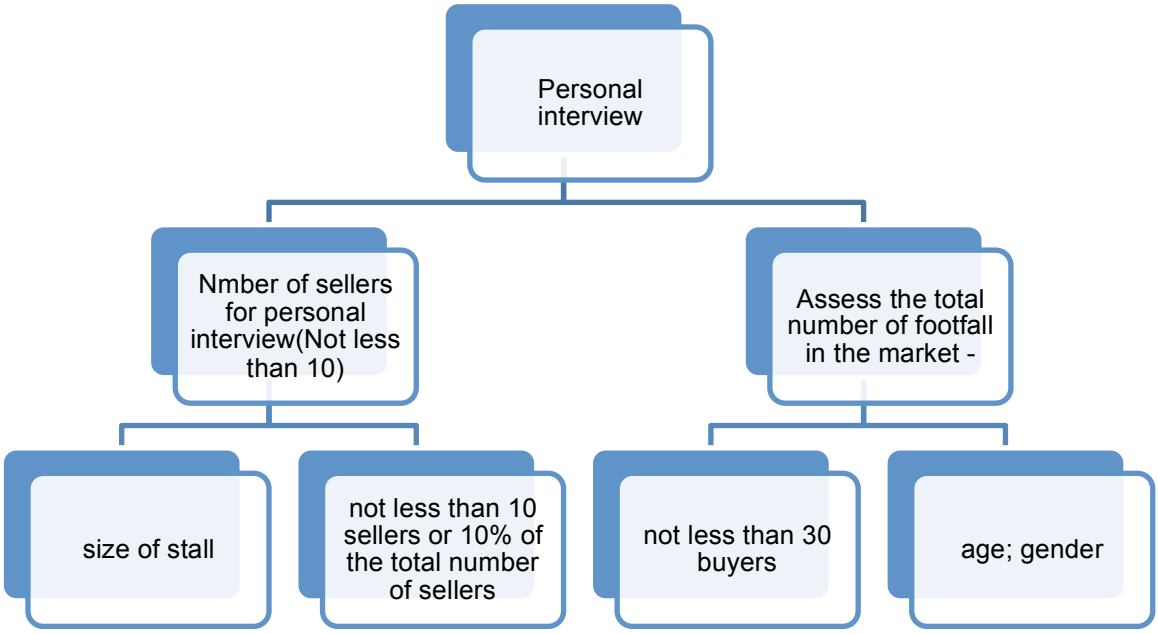
Despite the engagement of the vast majority of the population in agriculture, the contribution of agricultural production to the state's Gross Domestic Product (GDP) is low. Due to this rationality, the demand for agricultural produce is therefore met by production of vegetables with the use of pesticides and imports of chemically produced vegetables from Assam and other neighbouring states, therefore, there is a mix of organic and in-organic produce sold in the market.

Database, sampling design and methodology

A qualitative and quantitative survey will be conducted with a randomly selected sampling comprising or not less than 10 sellers and 30 consumers in the markets under study. Sampling for this study will be done through random stratified purposive sampling.

To determine the results for the objectives, structured schedules will be the primary source of data. Secondary data, if available will be reviewed.

Structured schedules will be formulated according to the requirements of the study.



Results and discussions

The study was conducted at eight local markets, viz., Bhoirymbong, Laitryngew, Nongpoh, Riangdo, Shallang, Tyrsad, Darichikgre and Rongram.

Sellers

A total of 62 sellers were interviewed with the highest number of sellers interviewed from Bhoirymbong, 11 sellers and the lowest from Darichikgre, only two sellers. Bhoirymbong is a big market and derives its name from the village which lies to the left of the Shillong-Jowai bypass. It is a very big market catering to the needs of the surrounding villages that are now under the newly created Bhoirymbong C&RD Block. Darichikgre, on the other hand, is a village in Rongram Block of West Garo Hills. This market is smaller in size compared to Bhoirymbong. From the other markets, a total of seven to ten sellers were interviewed.

Table 1: The markets covered under the study and the number of sellers from each market

Villages	Number of sellers	Percent
Bhoirymbong	11	17.7
Laitryngew	7	11.3
Nongpoh	10	16.1
Riangdo	7	11.3
Shallang	7	11.3
Tyrsad	8	12.9
Darichikgre	2	3.2
Rongram	10	16.1
Total	**62**	**100.0**

More than 80% of the sellers were females. In the Khasi and Garo society, women have significant economic powers and have a high work participation. Therefore, one can find many female entrepreneurs selling their wares at the markets. In this survey, the pattern is repeated. The average age of the sellers is around 40 years, both for males and females. The task of selling vegetables, thus, seems to be with individuals who are already married and is presumably an important livelihood option. What is interesting to note is that 80% of the sellers are either exclusively traders or combine it with farming. The number of those who

are exclusively farmers is less than 20%. These sellers are thus seasoned traders who have been doing this for a long time.

Table 2: Demographic characteristics of the sellers

Gender	Number	Age (in years)
Female	50	41.50
Male	12	38.08

In fact, the average length of time these sellers have been selling in their respective markets was reported to be around 10 years. The longest is recorded from Trysad (East Khasi Hills), 16 years, followed very closely by Nongpoh (Ri-Bhoi), 15 years, and the shortest is reported from Darechikgre (West Garo Hills) and Riangdo (West Khasi Hills), only 5 years. Tyrsad is an important market on the way to Mawsynram (one of the many important communities) and an important destination for not just the local residents but also the passersby. The same is for Nongpoh which lies along the Shillong-Guwahati National Highway. Because of their importance, getting entry into these markets is said to be slightly difficult and therefore, those who are selling were found to be doing so for more than a decade. On the other hand, Riangdo and Darichikgre seem to have a higher turnover with new sellers joining in from time to time. This could be because of the size of the markets itself or presence of other bigger markets.

Table 3: Number of year's sellers having been selling in the markets

Market Name	Number of years
Bhoirymbong	7.57
Darichikgre	5.00
Laitryngew	6.28
Nongpoh	15.30
Riangdo	5.00
Rongram	12.50
Shallang	10.18
Tyrsad	16.37
Total	**10.52**

Almost 60% of the sellers bring their vegetables in taxis from the respective villages. On an average, the sellers interviewed came from around five different locations to sell in the markets. In total, 49 different locations were recorded from the eight markets. They would bring their vegetables early in the morning and either spread them on the ground or keep them in their permanent stalls. Sellers were found to be almost equally represented in both the shop-type categories. This was also the aim of the survey to capture the responses from those that have their own permanent stall as well as those who are selling in the open.

Table 4: Name of the villages from where sellers came to sell in the market

Name of villages
Allagre, Rongram, Bhoirymbong, jowai, Boko, Chagay, Dewlieh, Diwon, Iawkata, Iew mawlong, Janapih, Jawkata, Jengjal, Jengjal, Tapalda, Laitkroh, Laitmawsiang, Laitryngew, Laitsohpliah, Langrumshing, Lumdiengngan, Lumdiengsong, Lumpyngngad, Lumshyiap, Madan Nonglakhia, Mankachar, Mawliehpoh, Mawroh, Mawsynram, Nonglakhiat, Nongprut, Nongwah, Pashang, Porshih, Rongjeng, Rongram, Allagre, Rongram, Chibol gittim, Sadew, Selbal Nokat, Tumtum, Umdang, Umden, Umken, Umklai, Umpathaw, Umsawnoldhi and Umta.

The rent paid by the sellers is also found to vary from one seller to another. It ranges from just over ₹ 70 per month in Tyrsad and Laitryngew to more than ₹ 1500 per month in Bhoirymbong. The rates in Bhoirymbong are an anomaly which gives an average rent of ₹159 per month rather than the ₹ 411 per month. Bhoirymbong is an upcoming market which is going to grow a lot more now that the area has got its own C&RD Block. This is presumably believed to be one reason that led to the increase in rent in the area and this is reflected in the comparatively higher rate than others. Laitryngrew and Trysad are smaller markets which don't seem to be growing because of the presence of other bigger markets like Sohra, Swer (for Laityrngew) and Mawngap, Sohiong, Mairang (for Tyrsad). This may explain the low rates. Among the rest, Nongpoh has the highest rate ₹ 307 which is said to be the cheapest. This makes sense since it is a bigger market. At the same time, the rent not being as high as Bhoirymbong could be because of the long duration of the sellers.

Almost equal numbers of sellers sell exclusively in the markets surveyed while an equal number sell in different markets along the present one. More than 2/3rd of the sellers from Bhoirymbong, Riangdo, Rongram and Shallang sell exclusively at these markets. On the other hand, sellers in Darichikgre, Laityrngew, Nongpoh are selling in different markets apart from the present one. Half of the sellers sell in Trysad exclusively and half elsewhere.

Table 5: rent paid by sellers for selling in the markets

Market Name	Average Rent
Bhoirymbong	1538.18
Darichikgre	120.00
Laitryngew	75.71
Nongpoh	307.50
Riangdo	139.28
Rongram	120.00
Shallang	280.00
Tyrsad	77.50
Total	**411.61**

A pattern emerges which correlates this trait of the sellers with the length of years selling in the market. Sellers in the first group (selling exclusively in one market) have been selling in the market for more than eight years while among the second group (selling in more than one market) it is just over five years (excluding Nongpoh which seems to have its own dynamics). Older sellers seem to have established themselves in these markets and don't need to look for other options. The newer ones though are still trying to establish themselves and therefore are selling in more than one place. In the future sellers in the second group will enter the first group. However, this is not completely certain as seen from the case of Tyrsad where sellers have been selling in this particular market the longest but half are selling exclusively while the other half is selling elsewhere as well. The size of the market could be a factor.

A variety of vegetables are sold in these markets. These range from common vegetables like potato, cucumber, brinjal, tomato, pumpkin, turmeric, rice to less common ones like Jamahek, Jatira, Jyllang, local varieties of taro and beans like rice bean, luffa etc. On an average, a seller brings around 11 types of vegetables for sale in the market. The highest number of vegetables was recorded from Bhoirymbong, more than 15 vegetables while the lowest was from Rongram, around six vegetables only. As Bhoirymbong is a big market attracting many customers, sellers keeping a high number of vegetables is understandable. The case of Rongram though is a little surprising as it is also an important market in its area. The low number of vegetables brought for sale could be the space

constraints; more than 2/3rd of the sellers in Rongram are selling in the open. As for quantity, Shallang brought the most with Tyrsad the least. The rate of the vegetables though was the highest from Nongpoh - ₹ 103, and the lowest is from Shallang - ₹ 52. This could very well be because of the size of the market, Nongpoh caters to a high number of customers and it's close to the Highway. This accessibility allows the sellers to charge a higher rate. The rates in Tyrsad are very close to Nongpoh, ₹ 99, which is a surprise since there are bigger markets nearby and higher rates could serve as a deterrent to customers. There could be other factors for explaining the high rates in Trysad, e.g., nature of vegetables being sold, less supply at the particular day of the survey, etc. unless a more thorough study has been done, it's not clear as to what might cause this particular market to charge a high rate compared to others well established ones, like Bhoirymbong. This is so because the data was incomplete for Rongram and Darichikgre the data was not used for the table below.

Table 6: Sellers selling exclusively in a single market and selling in multiple markets

Name of the market	Single Market	Multiple Markets	Total
Bhoirymbong	81.8%	18.2%	100.0%
Darichikgre	0.00%	100.0%	100.0%
Laitryngew	14.3%	85.7%	100.0%
Nongpoh	10.0%	90.0%	100.0%
Riangdo	71.4%	28.6%	100.0%
Rongram	80.0%	20.0%	100.0%
Shallang	100.0%	0.00%	100.0%
Tyrsad	50.0%	50.0%	100.0%
Total	**56.5%**	**43.5%**	**100.0%**

Because most of the vegetables are coming from far places like Assam and Iewduh, more than half of the sellers either did not know whether the vegetables have been grown with chemicals or were not sure. Just over 20% were certain that the vegetables were grown without chemicals. This means that most of the vegetables in the markets are those that have been grown through the application of chemicals. Because a lot of vegetables sold were common ones, the demand was medium as supply was not a constraint. Being highly

perishable items, sellers would also sell what is available seasonally at the time highlighting the lack of storage facilities for the vegetables.

Table 7: vegetables being sold in the markets

Villages	Average number of vegetables	Average quantity (in kg)	Average rate (in ₹)
Bhoirymbong	16.64	14.58	63.60
Darichikgre	12	NA	NA
Laitryngew	15.71	7.9	59.63
Nongpoh	8.1	6.73	103.25
Riangdo	8.71	12.45	61.4151
Rongram	6.8	NA	NA
Shallang	9.86	22.8	52.13
Tyrsad	15.63	6.67	99.40
Total	**11.68**	**11.47**	**73.58**
Name of vegetables			
Allot (Phlogacanthus), Ambare (Aonla), Ankil (Ber), Apple, Areca nut, Bamboo shoot, Banana, Banana flower, Banana stem, Bay leaf, Bean, Beet root, Bell pepper, Betel leaf, Big yam, Bitter gourd, Brinjal, Broad bean, Broad bean (small), Broccoli, Cabbage, Capsicum, Carrot, Cauliflower, Cauliflower leave, Celery, Chameleon plant, Chigi (Wild Colocasia leaf), Chilli, Chilli pepper, Chinatong, Coconut, Coriander, Cucumber, Fermented bean, Flat bean, Flat broad bean, French bean, Gachili (Monochoria), Garlic, Ginger, Grapes, Green chilli, Gulmoris (black pepper), Imli, Jaha mi (jaha rice), Jalik (chilli), Jamahek, Jatira, Jyllang, Kagzi (lemon), Kanem (small colocasia), Knol-khol, Koksep (bamboo baskets), Lemon, Lettuce, Lime, Long beans, Majai bean, Me'bitchi (Rhynchotechum), Minil (sticky rice), Mint, Mustard, Neilieh, Nut, Onion, Orange, Pomelo, Pea, Pepper, Perilla seed, Potato, Pumpkin, Raddish, Raddish leave, Rasin chisik gran (Dried leek), Red bean, Red chilli, Ri, Rice bean, Sal'wa (Broom), Salt potato, Sawil (Dried Luffa), Sea pane, Sesame seed, Small potato, Smalla chilli, So'bok (Banana bract), Soh broi, Soh Nairiang, Soh phlang, Sohpadung, Sohriew (job tears), Spinach, Spring onion, Squash, Star fruit, Sweet potato, Ta'gong (Colocasia stem), Ta'jong (Elephant foot yam), Tamarillo, Tapioca, Taro, Taro stem, Tomato, Turmeric, Turnip, Wild Ginger, Yam, Yam saiden			

The vegetables came from a variety of sources but the most important ones were Assam, Iewduh and their own homegardens. Like already mentioned above most of the farmers are seasoned traders. This allows them to source vegetables from locations other than the local villages. Because of higher production and being a gateway to North East India, Assam supplies a lot of vegetables and other items to different parts of the North East including Meghalaya. It's not a surprise that it is a very important source of vegetables for these markets as well. Being experienced traders the sellers have used this source to get their

vegetables as well. The other important source is Iewduh, the biggest wholesale market in the Khasi-Jaintia Hills. Tracing its antecedents since pre-colonial, it's a very important market for the region sourcing its products from the state and elsewhere making it a very important source for the sellers as well. Lastly, when those sellers who are exclusively farmers (less than 20%) are combined with those who are both (farmers+traders) their number goes to beyond 60% of the sellers. Own home gardens, thus, become an equally important source of vegetables to be bought and sold in these markets. Apart from these three main sources the sellers also bring vegetables from the nearby villages to be sold in the markets. For example, Dewlieh and Laitsohpliah are close to Laitynrgew and it's not a surprise that some of the vegetables are sourced from these villages.

Table 8: Sources of vegetables sold in the markets

Name of sources of vegetables
Assam, Bhoi, Bhoirymbong, Byrnihat, Dewlieh, , Iewduh, Laitsohpliah, Mankachar, Marngar, Mawsynram, Nongpoh, own Garden, Pashang, , Rongjeng, Rongram, Sadew, Shallang, Shillong, Smit, Sohra, Umdang, Umden, Umklai, War.

When asked what the customers look for when they come to buy vegetables from a certain seller, many people had similar responses. Most of the customers look for vegetables that look fresh, big in size, clean, and show no insect bites. Physical appearance of the vegetables is thus a very important criterion for the customers in choosing to buy. There were some sellers who claimed that it depends on the interpersonal skills of the sellers as well. If the sellers show politeness and patience with the buyers, eventually the buyers would buy from them. A few sellers did report that some customers enquired about whether the vegetables were chemical free and are preferably sourced from the local areas. However, the customers who wanted this information were very less, less than 10% of the sellers reported of coming across such customers. Majority went for physical appearance.

More than half said they don't inform the customers whether the vegetables have been grown with chemicals or not. The reasons for not informing ranged from themselves being unaware regarding the chemical-free status of their vegetables and the fact that they already know the vegetation has been grown with chemicals. As for the other half who informs the customers they do so only when asked or when they bring vegetables from their own home gardens. Since they don't use chemicals for growing vegetables in their own home garden because they consume the same, they are confident in informing the customers. This reveals

that a lot of vegetables that are found in these markets are those that have been grown with chemicals and the sellers are not very confident in revealing the information to the buyers. This is despite the fact that 41% of the sellers reported that the customers do ask whether the vegetables have been grown using chemicals. Majority though don't ask which according to them is because the buyers already know that the vegetables have been grown using chemicals, especially for the winter crops that cannot be grown without chemicals. There is a tacit acceptance on part of both the sellers and the buyers about the chemical-induced nature of the vegetables sold in the markets.

At the same time, more than sellers also revealed that when they tell the customers that the vegetables have been grown without chemicals, invariably the customers are willing to pay a higher price. This they justify by citing that it's more expensive to grow chemical-free vegetables and it's good for health. At the same time, more than 40% of the sellers admitted that the customers don't want to pay a higher price. Even if the vegetables are chemical-free they still want to buy vegetables at the same price as the ones that are grown with chemicals. In fact they would like to be cheaper if it was possible. Affordability seems to be the main stumbling block for the customers in buying chemical free vegetables and for the sellers to get a fair price for the same.

When asked about the challenges of selling chemical free vegetables from sellers who are already selling without chemicals, they mentioned a limited number of varieties, diseases infestation, low shelf life and small size. The opportunities however are also quite a few: customers are eager to buy chemical-free vegetables, they are tastier, the demand is high and there are good profits to be made through the sale. They especially mentioned vegetables like pumpkin, coriander, mustard, squash, and lettuce as some of those grown without chemicals and sold at a good price. As for those farmers who are selling both chemical-free and chemical applied vegetables, similar challenges were cited by them if they want to switch to completely chemical free vegetables: a low shelf life which leads to wastage, non availability of vegetables in winter, smaller size and high price. At the same time, they also admitted that the high demand and low supply could help in raising the price which could bring more profit. At the same time, it is less expensive to grow chemical free vegetables so the profit margins may go up. And finally when farmers who are selling exclusively chemical applied vegetables about the challenges in switching to complete chemical free vegetables small size, high price, limited supply, low shelf life, high incidence of pests and low yield were cited as

important constraints. At the same time there is recognition of the fact that there are opportunities available because of the high demand of chemical free vegetables and profits are there to be made. Whether the sellers decide to forgo selling chemical applied vegetables for chemical-free vegetables will very much depend on the intensity of the opportunities and the challenges. As of now the challenges are more dominant which explains the sale of vegetables grown with chemicals in the market with very few vegetables without chemicals. There is a growing appreciation and demand for chemical free vegetables which the sellers have acknowledged. That there is more profit to be had is also understood by some. There are still quite a few though who feel the demand is not very high and customers only want cheap and fresh looking vegetables which may not necessarily be chemical free. A trend is however there which could make selling chemical free vegetables more attractive in the future.

Buyers

A total of 170 buyers were interviewed from the different markets, giving an average of 21 buyers from a single market. The actual number though varies from 30 buyers from Rongram and Shallang to just eight in Tyrsad. Among the buyers, as it was the sellers, majority of them (more than 2/3rd) are women. As part of the gendered division of domestic work, women have the responsibility to look after the kitchen. In continuation of this division of work, women have the responsibility to buy the vegetables from the markets. Men are also found to be doing it but they are slightly older to women. The average age of female buyers is 38 years while that of male buyers is 42. It is therefore not very surprising to note that a lot of these buyers are housewives who have come to buy vegetables for their kitchen. The majority of them though are farmers who have come from surrounding villages to buy food for their family. Other important occupations of the buyers are teacher, business person, shopkeeper, daily wage labourer, and students among others.

All these buyers have come from different villages to these markets to buy vegetables for their families. A total of 79 villages were recorded from where the buyers had come to buy their vegetables giving an average of nine villagers per market. This is, however, a low number as these markets cater to a lot more villages than the ones mentioned. Nevertheless combined with the sellers' villages this means that the markets surveyed conservatively caters to more than 100 more villages both in terms of buying and selling. This serves to only highlight the importance of these markets.

Table 9: The markets covered under the study and the number of buyers from each market

Market	Frequency	Percent
Bhoirymbong	28	16.5
Darichikgre	5	2.9
Laitryngew	24	14.1
Nongpoh	26	15.3
Riangdo	19	11.2
Rongram	30	17.6
Shallang	30	17.6
Tyrsad	8	4.7
Total	**170**	**100.0**

The markets surveyed are weekly markets where once every week sellers and buyers from the surrounding area come to buy and sell their vegetables. Therefore, it is not surprising that most of the buyers come to buy vegetables once a week. They would then come back next week. In case of the markets in the Khasi region, except Darichikgre and Rongram, they follow an eight day cycle where the big market is held every 8th day (Khasis follow an eight day week cycle). On other days, markets are still functioning but at a reduced capacity. Therefore, the second most common response that the survey got was from buyers who reported coming daily to buy vegetables. These most probably are those who are staying in villages close to the market and can afford to make the daily trip to buy vegetables. Most of them though, come once every week to do their weekly shopping and return only after a week.

Table 10: Demographic characteristics of the buyers

Frequency		Gender	
male	**female**	**male**	**female**
55	115	42.60	38.09

According to the buyers the most important considerations they have when buying vegetables are need, low price, cleanliness, long shelf life, varieties and should look attractive, fresh and bigger sizes. The responses confirm what the sellers also had reported and among these the most important which was repeated by many buyers is affordability.

Price seems to be the main criterion with buyers looking to buy the cheapest possible option. Of course this is combined with other factors described above, like freshness, attractiveness, etc. This seems to be the most important combination of factors that buyers have in their mind when they buy vegetables. Apart from the state of the vegetables per se, some buyers were also concerned about the cleanliness of the shop from where they are buying the vegetables. Some buyers revealed that they look for local produce when they go to markets. This is because they know that local vegetables have been produced without chemicals. Only one buyer though reported of looking exclusively for buying vegetables without chemicals.

Table 11: villages from where buyers come to buy vegetables in the markets

Name of villages
Rongram, Shallang, Laitryngew, Riangdo, Bhoirymbong, Goeragre, Nongpoh, Rongjeng, Darechikgre, Nongtraw, Selbalgre, Laitmawsiang, Langshonthiang, Lumpyngngad, Mawbeh, Mawlai, Mawmihthied, Nongkyn A, Pahamwai, Pyrda, Umdang, Umden, Umroi, Umsning, Asanang, Boranangre, Dewlieh, Diwan, Jaroit, Khweng, Laitjem, Laitsohpliah, Liarbong, Lumdiengsong, Lumshyiap, Madanrtiang, Mairung Heh, Mankachar, Marngar, Mawbsein, Mawdhong, Mawkdup, Mawliehpoh, Mawlong, Mawlyndia, Mawphru, Mawshud, Mawthylliang, Mawtnum, Mawtynrong, Mawtynrong Riangkhon, Mynri Umsning, Nongdaju, Nongmisu, Nongrongdur, Nongstoin, Nongtaring, Nongwah, Pashang, Pyndengmawlieh, Rangsangphan, Rangshonghan, Ronghilek, Rongkhon, Rongsahep, Ryndhi, Sohliya, Tetsohpaiur, Tura, Umblai, Umkra, Umlangma, Umpathaw, Umroi Umktieh, Umsarang, Umskhen, Wah Umnongbah, Wahsyntiew Mawbah

When asked about whether the buyers know which sellers are selling vegetables without chemicals more than 60% admitted that they don't know whether the vegetables they are buying are grown with chemicals or not. Most are thus unaware and at the same time don't know how to distinguish chemical and non-chemical vegetables. Those who claim to know which of the vegetables are chemical free based their judgment not the vegetables per se but the villages from where the vegetables are being brought. If the vegetables are from the local villages, the buyers are confident that the vegetables are without chemicals. However, if the vegetables are from outside the region it raises their suspicion. Such a method of judgment reveals that trust plays a very important role in buying vegetables in these markets with more trust on local produce than those brought from outside. The other methods to judge whether a vegetable is chemical free is by observation: if the vegetables show signs of pest attack, and are comparatively smaller in size, it is a sign of the vegetables being chemical free. Chemical-induced vegetables are bigger in size, look fresher and have a long shelf-life, those buyers added. The sellers themselves don't inform the buyers whether the vegetables are grown without chemicals. Around 3/4th of the buyers informed that the sellers don't give any such information. This is not surprising considering the fact that most of the vegetables

come from outside and most probably are grown with chemicals. The buyers themselves also do not enquire with more than 60% admitting of the same. It's an unspoken truth that buyers and sellers know about the nature of the vegetables that are being sold and bought in the markets.

But although the vegetables sold and bought in the markets were grown with chemicals, almost 90% of the buyers agree that chemical-free vegetables are good for health because they have essential vitamins and minerals which are required by the body. The source of information on these benefits was gathered from friends, family, school, doctor, and media including newspapers. Only a few were not able to list the benefits of chemical free vegetables.

Table 12: Average price (₹) above market rate buyers are willing to pay for chemical free vegetables

Market	Average Cost (₹)
Bhoirymbong	11.50
Laitryngew	9.79
Darichikgre	9.00
Rongram	7.50
Shallang	6.83
Nongpoh	4.54
Riangdo	4.32
Tyrsad	3.63
Total	**7.42**

At the moment, it is not possible to differentiate between those selling vegetables without chemicals from those who don't. Majority of the buyers, more than 70%, are of the opinion that those selling vegetables without chemicals can inform the buyers on their own about the chemical-free nature of the vegetables. By talking cordially and patiently, the sellers can inform and convince the buyers to buy their vegetables. Another means to inform the buyers is by having a signboard, showing certificates of their vegetables being chemical free and in some cases asking the buyers to taste the vegetables. Vegetables, with and without chemicals, taste differently. The difference can be discerned by the buyers upon tasting it.

The buyers were also willing to pay a little higher for vegetables if they are sure of its chemical free nature. Buyers are willing to pay ₹ 7 above the market rate for chemical free vegetables. The highest was from Bhoirymbong where the buyers are willing to pay ₹ 11 above market rate for the vegetables while the lowest was from Tyrsad where the buyers are willing to pay just around ₹ 3. This fits very well with the pattern noticed from the discussion on sellers where it was noticed that Bhoirymbong seems to be a much bigger market and Tyrsad was among the smallest. At the same time, less than 20% did not want to pay extra for chemical free vegetables. Likewise except around 15% of the buyers, the rest agreed that there is a growing demand for chemical free vegetables. For those who want to sell chemical free vegetables this is a very good trend which they can take advantage of.

Calculation for most profitable market

Market	Average Cost (₹)	rank (descending order)	Market Name	Average Rent	rank (descending order)
Bhoirymbong	11.5	1	Bhoirymbong	1538.18	1
Laitryngew	9.79	2	Laitryngew	75.71	8
Darichikgre	9	3	Darichikgre	120	5
Rongram	7.5	4	Rongram	120	6
Shallang	6.83	5	Shallang	280	3
Nongpoh	4.54	6	Nongpoh	307.5	2
Riangdo	4.32	7	Riangdo	139.28	4
Tyrsad	3.63	8	Tyrsad	77.5	7

Markets	rank (R1)	rank (R2)	composite score (R1 + R2)
Bhoirymbong	1	1	2
Darichikgre	3	5	8
Shallang	5	3	8
Nongpoh	6	2	8
Laitryngew	2	8	10
Rongram	4	6	10
Riangdo	7	4	11
Tyrsad	8	7	15

#Bhoirymbong is the most profitable market and Tyrsad is the least profitable market;

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