Attitudes and Influences relevant to Golden Rice’s potential use in the Philippines

Sheila Abalajen, Khairy Alonto II, Karen Bitagun, Joana Capareda, Johan Diaz, Ryan Miranda, Cian Palami and Bing Tiongco-Quinto

A Report on Training in, and Conduct of Focussed Group Discussions and Results, from four different Agro-Economic Zones of the Philippines where rice cultivation is important, to understand attitudes and influences relevant to the adoption and use of Golden Rice as an additional intervention for alleviation of vitamin A deficiency.

Research conducted and report (and accompanying presentation) written in 2009

Notes:
‘Viand’ = any component of a meal which is not rice. (In the Philippines any food consumed without rice, is not considered a meal.)
‘NFA’ = (National Food Authority) Philippine government stockpiled rice, provided at subsidised price to assist food security (which, it is reputed, has often been improperly stored)
‘Patak Pinoy’ = literally ‘Philippine Drops’: Philippine government endorsed vitamin A distribution programme, designed to combat VAD.
‘Melamine’ is a plastic. Around the time of this research fraudsters in China had been found guilty of adulterating ground rice, used for example in baby food, with powdered melamine.

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Executive Summary

The aim of the study is to identify the main attitudes and perceptions on rice in general, diet, nutrition, and on Golden Rice. The focus group discussion technique was used in the study to generate insights. Four provinces were chosen throughout the whole country where rice farming plays a major part in their economy: Albay, Iloilo, Leyte–Samar, and Bukidnon. Nine local communities for the four different provinces were chosen to participate in the study. Among these, three communities were chosen to represent each of three different types of people: subsistence farmers (less than one hectare of tilled land, usually non-irrigated), commercial farmers (greater than 1 hectare of tilled land, usually irrigated), and members of non-farming households (no involvement with rice farming). Within these communities, 8 to 12 respondents, half being male and the other half being female were chosen by the local coordinator to participate in the focus group discussion. A general questionnaire was used for each focus group discussion across the different provinces. [See Footnote]. Rice farming is regarded as highly important in these areas, as this is the main source of livelihood. However, it is financials that dictate as to what type of rice to plant and eat. In these areas, there is high trust with local government agencies in terms of agricultural and health concerns. However, these rural participants are vaguely aware on proper diet and nutrition. In these areas, financials are the main constraint, and this serves as the main factor that influences the purchasing power of these people. In terms of information sources, any method that involves high interaction and involvement is highly acceptable and reliable to the respondents.

Generally, results showed high acceptability for Golden Rice, despite its difference in color and its nature of being a genetically modified organism. This, however, is contributed by low knowledge on several key issues such as those pertaining to genetically modified organisms, vitamin A deficiency, and proper nutrition. The knowledge of its vitamin A content, however, did help in its acceptance. The study suggests that certain measures should be taken before releasing Golden Rice to the public, so as to direct the proper perceptions and attitudes to this new type of rice.

Footnote [added 26.3.20 by Adrian Dubock]

The same 'Story Book' (appended to this report) was used during each Focussed Group Discussion as a visual guide to participants of the current focus of the discussion, as the MBA student conducting the discussion worked through the corresponding part of the questionnaire.
Objectives

The aim of the study is to identify the main attitudes, usage, and perceptions on rice in general, diet, nutrition, and specifically on Golden Rice. The focus group discussions aim to understand the participants’ views on rice farming, how important is rice in their households, and what crops and/or rice varieties they prefer to plant and consume. Insights from discussions on rice farming, rice/food choices, knowledge and attitudes on diet and nutrition, information sources, Vitamin A deficiency and Golden Rice will be used in as part of the Golden Rice market positioning and communication.

Milestones

The general events that transpired in the duration of the study were as follows:

- March 21–22, Social Marketing Workshop with JP Jeannet, Asian Institute of Management, Makati
- March 28–29, Questionnaire development and practice focus group discussions, IRRI, Los Baños
- April 28–May 1, Practice focus group discussions, PhilRice, Muñoz, Nueva Ecija
- May 11–17, Local Coordination with participating communities
- May 18–24, Actual FGD Period
- May 25–26, Result Compiling
- May 27, Validation of Results in with representative local communities
- May 28–31, Group Meetings and Initial Provincial Report Writing, Cebu
- June 1–4, Final Preparations, Asian Institute of Management, Makati

For the focus group discussions, the schedules for each province were as follows:

**Albay Province**

<table>
<thead>
<tr>
<th>Local Community</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lomacao, Guinobatan</td>
<td>May 14, 2009</td>
<td>9:00 AM (Trial FGD)</td>
</tr>
<tr>
<td>Dikeside, Guinobatan</td>
<td>May 14, 2009</td>
<td>5:00 PM</td>
</tr>
<tr>
<td>Location</td>
<td>Date</td>
<td>Time</td>
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<tr>
<td>--------------------------</td>
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<td>-------</td>
</tr>
<tr>
<td>Barayong, Ligao</td>
<td>May 15, 2009</td>
<td>9:00 AM</td>
</tr>
<tr>
<td>Ilawod, Camalig</td>
<td>May 15, 2009</td>
<td>1:00 PM</td>
</tr>
<tr>
<td>Herera, Ligao</td>
<td>May 16, 2009</td>
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</tr>
<tr>
<td>Alnai, Polangui</td>
<td>May 17, 2009</td>
<td>1:00 PM</td>
</tr>
<tr>
<td>Kinale, Polangui</td>
<td>May 18, 2009</td>
<td>8:00 AM</td>
</tr>
<tr>
<td>Minto, Guinobatan</td>
<td>May 18, 2009</td>
<td>1:00 PM</td>
</tr>
<tr>
<td>Saban, Oas</td>
<td>May 19, 2009</td>
<td>2:00 PM</td>
</tr>
<tr>
<td>Travesia, Guinobatan</td>
<td>May 20, 2009</td>
<td>9:00 AM</td>
</tr>
<tr>
<td>Libod, Camalig</td>
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<tr>
<td>Paulog, Ligao</td>
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**Iloilo Province**

<table>
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<tr>
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<th>Date</th>
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<tbody>
<tr>
<td>Banban Pequinio, Calinog</td>
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<td>9:00 AM</td>
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<tr>
<td>Banban Grande, Calinog</td>
<td>May 18, 2009</td>
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<tr>
<td>Jamin-ay, Calinog</td>
<td>May 20, 2009</td>
<td>9:00 AM</td>
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<tr>
<td>Dalid, Calinog</td>
<td>May 20, 2009</td>
<td>1:00 PM</td>
</tr>
<tr>
<td>Lonoy, Calinog</td>
<td>May 21, 2009</td>
<td>9:00 AM</td>
</tr>
<tr>
<td>Barangay Calinog, Calinog</td>
<td>May 21, 2009</td>
<td>1:00 PM</td>
</tr>
<tr>
<td>Cabagiao, Calinog</td>
<td>May 22, 2009</td>
<td>9:00 AM</td>
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<tr>
<td>Cabagiao, Calinog</td>
<td>May 22, 2009</td>
<td>1:00 PM</td>
</tr>
<tr>
<td>Lampaya, Calinog</td>
<td>May 23, 2009</td>
<td>9:00 AM</td>
</tr>
<tr>
<td>Local Community</td>
<td>Date</td>
<td>Time</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>--------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Guiso, Calinog</td>
<td>May 23, 2009</td>
<td>1:00 PM</td>
</tr>
<tr>
<td>Dalid, Calinog</td>
<td>May 25, 2009</td>
<td>9:00 AM</td>
</tr>
<tr>
<td>Poblacion (Municipal Hall), Calinog</td>
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**Leyte–Samar Province**

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<td>San Agustin, Babatngon, Leyte</td>
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<td>9:00 AM (Trial FGD)</td>
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<tr>
<td>Magsaysay, Alangalang, Leyte</td>
<td>May 18, 2009</td>
<td>9:00 AM</td>
</tr>
<tr>
<td>District III, Babatngon, Leyte</td>
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<tr>
<td>Pagsulhugon, Babatngon, Leyte</td>
<td>May 19, 2009</td>
<td>9:00 AM</td>
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<tr>
<td>Rizal II, Babatngon, Leyte</td>
<td>May 19, 2009</td>
<td>1:00 PM</td>
</tr>
<tr>
<td>Sawa, Basey, Samar</td>
<td>May 20, 2009</td>
<td>9:00 AM</td>
</tr>
<tr>
<td>Buenavista, Basey, Samar</td>
<td>May 20, 2009</td>
<td>1:00 PM</td>
</tr>
<tr>
<td>Libertad, Palo, Leyte</td>
<td>May 21, 2009</td>
<td>9:00 AM</td>
</tr>
<tr>
<td>Cangumbang, Palo, Leyte</td>
<td>May 21, 2009</td>
<td>1:00 PM</td>
</tr>
<tr>
<td>P. Barrantes, Alangalang, Leyte</td>
<td>May 22, 2009</td>
<td>9:00 AM</td>
</tr>
</tbody>
</table>

**Bukidnon Province**
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<tr>
<th>Local Community</th>
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<th>Time</th>
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</thead>
<tbody>
<tr>
<td>Managok, Malaybalay</td>
<td>May 14, 2009</td>
<td>9:00 AM</td>
</tr>
<tr>
<td>Apo Macote, Malaybalay</td>
<td>May 18, 2009</td>
<td>9:00 AM</td>
</tr>
<tr>
<td>Santo Niño, Malaybalay</td>
<td>May 18, 2009</td>
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</tr>
<tr>
<td>Sinanglananan, Malaybalay</td>
<td>May 19, 2009</td>
<td>9:00 AM</td>
</tr>
<tr>
<td>San Martin, Malaybalay</td>
<td>May 19, 2009</td>
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</tr>
<tr>
<td>Linabo, Malaybalay</td>
<td>May 20, 2009</td>
<td>9:00 AM</td>
</tr>
<tr>
<td>Violeta, Malaybalay</td>
<td>May 20, 2009</td>
<td>1:00 PM</td>
</tr>
<tr>
<td>Casisang, Malaybalay</td>
<td>May 21, 2009</td>
<td>9:00 AM</td>
</tr>
<tr>
<td>Barangay 9, Malaybalay</td>
<td>May 21, 2009</td>
<td>1:00 PM</td>
</tr>
<tr>
<td>Barangay 1, Malaybalay</td>
<td>May 22, 2009</td>
<td>9:00 AM</td>
</tr>
</tbody>
</table>

**General Methodology**

The focus group discussion technique was used in the study, and four provinces across the country were chosen as sites: Albay, Iloilo, Leyte–Samar, and Bukidnon. These provinces were chosen because rice farming plays a crucial role in the livelihood of its residents. A general questionnaire was developed by members of the Golden Rice Project of IRRI, with the assistance of the facilitators from the Asian Institute of Management. This questionnaire was then tested and revised, and local versions of the questionnaire were developed to suit the different provinces (the questionnaire was translated to the following local dialects: Tagalog, Bicolano, Hiligaynon, and Waray). A trial focus group discussion was done to test and validate the local translation of the questionnaire.

The general process involved the selection of at least 9 local communities per province. Among these, three communities were chosen to represent 3 different types of people: subsistence farmers (less than one hectare of tilled land, usually non-irrigated), commercial farmers (greater than 1 hectare of tilled land, usually irrigated), and members of non-farming households (no involvement with rice farming). Within these communities, 8 to 12 respondents, half being male and the other half being female were
chosen by the local coordinator to participate in the focus group discussion. A series of guide questions were asked based on the type of participants and answers were discussed as based on the topic at hand. After conducting the 9 focus group discussions, teams returned to at least 2 groups to validate the common findings.

The entry to each province was through the Department of Agriculture, which was assisted by the local coordinators. Courtesy calls to governing officials in the municipalities were done. The Department of Agriculture, with the help of the local coordinator, identified and chose the different communities that would participate in the discussion, based on its general profile. Participants were also identified and contacted by the Department.

During the actual discussions, a recorder is assigned to take down key answers, insights, and reactions of the participants after each question. The discussions were recorded and translated to English by local translators. After each focus group discussion, the profiles of the participants were recorded.

**Modifications to the General Methodology**

Facilitators for each province modified the planned methodology of the study in order to adapt to the situations experienced by the local communities.

For the Albay province, there were local communities that did not have a list of their residents. Local contacts in the communities were asked to choose the participants with the requirement of the team. Another problem was the schedule; the team adjusted the schedule of several focus group discussions due to different town fiestas which were scheduled to take place on the required dates. They had their first discussion on the 14th of May, instead of the required 17th of May. In terms of the number of participants, they identified more than 12 people (6 males and 6 females) in each community causing them to have more than 12 participants in several focus group discussions. This shows how difficult it is to inform certain participants not to join in the said discussion, as they may be interested. Also, No courtesy calls with the local government was done.

For the Iloilo province, several modifications were made. Only one town in the province was selected due to lack of time in coordinating with other towns (courtesy calls were scheduled and most did not fit within the allotted time table); however, the town selected was located at the border of three provinces, namely Iloilo, Antique, and Capiz. Some local communities chosen were located at the border. No trial focus group discussion was done to validate the questionnaire because of the lack of time (Tuesday was considered as market day, which made the local participants unavailable for discussion). Because one major problem in the area is irrigation (with most towns not possessing any: from Calinog to Cabatuuan), most of the fields required rainfall. This made it difficult to differentiate the subsistence and commercial farming participants, as
majority did not have any irrigation. Because of this problem, both groups were merged, and 9 out of 12 focus group discussions were solely devoted to these two groups, to make up for the distinction. Because of the additional 3 focus group discussions, the last was conducted later, on the 25th of May. Also, certificates were distributed to all the participants of the focus group discussions to entice them to join and participate actively in the discussion.

In the Leyte–Samar province, the recorder duty was temporarily assigned to the local coordinator, as the recording facilitator did not understand the local dialect. Also, no courtesy calls were done on the municipal level; facilitators contacted directly to the local communities, bypassing the local government.

In the Bukidnon province, only one city was chosen, mainly due to security reasons. The profile of subsistence farming households was reclassified into labor-based farming, or farmers that work in fields not owned by them. The payment of these farmer-labourers is usually paid in sacks of rice. The surrounding area is known for rebel group residents, and therefore security measures were taken in the province by selecting communities within 1 to 1.5 hour proximity from the city. In addition, the local dialect was not used in the discussions by the team because they were not familiar with it. The local coordinator assumed the translator’s role since approximately 50% of the respondents answered in the local dialect (Bisaya).

**Provincial Profiles**

**Albay Province**

Albay province is naturally endowed with resources including mineral deposits, volcanoes, geothermal sites, mountain ranges, coastal terrain, marble deposits and aggregates. Natural ecological destination abound, although it does not have a virgin forest or sufficient ecological cover as buffer for climate change aberrations. It sits on the typhoon belt and on the ring of fire making it prone to natural disasters and resource exploration.

The provincial geographical commodity map is primarily agricultural at 87% (2,212.8 km²) and 13% remain protected lands. The 87% agricultural area is in 1:1:1 ratio of suitably used: under used agricultural land utilization. Palay is the major temporary crop and coconut the major crop of Bicol region, hence also of Albay province. The former is vulnerable to strong typhoons. Twelve of the 18 LGUs of the province are coastal communities with significant fisheries dependent families. Thus, majority of the Albayanos depend on agriculture-fisheries livelihood. Food security for the province is regularly threatened and affected by erratic climate change.
Based on the August 2007 census, Albay has a total population of 1,190,823, which makes it the 22nd most populous province in the country. There are 208,640 households in the province with an average size of 5.22 persons, significantly higher than the national average of 4.99.

There are 478 barangays are coastal or mountainous and some are remote from the municipal seat of government. This terrain profile has direct implications on access by beneficiaries to health and nutrition services and implications on the scope of coverage, frequency of visits/health and nutrition status monitoring of beneficiaries by volunteer health and nutrition workers.

Dependency index for the province is approximately high with average family size of 5. Poverty threshold income is pegged at P14,969 in 2006 and P15,407 in 2007 yearly.

The province of Albay has high prevalence of malnutrition (20%) or with nutritional deficiency among the children of 0–71 months old compared with the national average of 24% in 2006 it is still considered a nutritionally at risk province.

The most important forms of malnutrition in the province are protein-energy malnutrition, nutritional anemia, Vitamin A deficiency and Iodine Deficiency Disorders. Protein-energy malnutrition is the most prevalent and is manifested as growth failure associated with recurrent infection in the low-income preschool children. Vitamin A is also prevalent because rice is the staple food of the Albayanos and is almost always found in association with high-energy malnutrition. Nutritional anemia is likewise a problem to some extent pregnant women and toddlers are the main groups affected. While surveys tend to reveal that lactating women are less affected than pregnant women, the ill-effects of anemia on both the mother and the child are among the pressing problem to be discussed.

The following are the towns Covered in the focus group discussions:

- **Oas, Albay**

  The town's economy is generally agriculture-based. Its major products include rice, root crops such as sweet potato and *gabi* (taro), coconuts, and other fruits and vegetables.

  Fish and other shell foods are also harvested in its coastal areas but do not contribute much to the municipality's income. Underutilization of the town's marine products is due to limited access and transportation to its coastal areas. Farm-to-market roads are currently being constructed to alleviate this situation.

- **Polangui, Albay**
Polangui is a 1st class municipality in the province of Albay, Philippines. According to the 2007 census, it has a population of 77,122 people in 13,773 households.

The town then consisted of five hundred people. Its location was a low lying area that was prone to floods. The people later moved to the town's current location, an elevated area less exposed to flood. The town derived its current name from oyangi, a type of tree that was abundant in the area.

- **Camalig, Albay**

Camalig is a 3rd class municipality in the province of Albay, Philippines. According to the 2000 census, it has a population of 58,141 people in 11,275 households. Pinangat is one of Bicol’s trademark food other than the pili nut and its various incarnations and Bicol express, to name a few. Made from gabi leaves mixed with gata (coconut extract). Camalig in Albay is known for this delectable dish. It comes in hot and not so hot versions.

- **Guinobatan, Albay**

Guinobatan is a 1st class municipality in the province of Albay, Philippines. It is the birthplace of Gen. Simeón Ola, the last Filipino general to surrender to the Americans after the Philippine-American War.

Parts of Guinobatan were hit hard by the mudslides from Mayon Volcano caused by Typhoon Reming, particularly Barangay Maipon.

According to the 2007 census, it has a population of 74,386 people in 14,154 households.

- **Ligao City, Albay**

Ligao is one of the fourth class cities in Albay. According to 2007 census, it has population of 101,179 people in 17,031 households. Last March 24, 2001, by Republic Act 9008 it was declared as a city.

The following are the profiles of the respondents of the focus group discussions:

- **Subsistence Farmers**

Among the FGD respondents in Albay, farming showed up as the number one source of income. Since farming does not consume much time after land preparation, planting and harvesting, most farmers find other sources of income. For subsistence farmers, several are involved in agri-business. They either have small piggeries, poultry or small farm lots where they can have an alternative source of income. For females, they try to help their husbands earn extra income by being involved in handicap making. Some
other females want to make use of their idle time and open up small mom-and-pop stores (sari-sari stores) in their neighborhood.

Our respondents have an average age of 53 for males and 56 for females, and their households usually consist of 6 members in the family. Children below 12 averaged around 1 for each household and 2.5 for those who have children above 12.

The average farm size was around 0.8 hectares for the 5 areas covered. Most of the land is irrigated because of the several rivers Mayon volcano has created, except for one community that had a budget problem for quite some time. Water is not a problem in most areas because of its continuous flow even during the summer months. For an irrigated water source area, it is unusual to see Albay as having only 2 cropping seasons a year. Normally, irrigated land have an average of 3 cropping seasons, but Albay is one of the rainiest areas in the Philippines and this is the reason cropping seasons has been reduced to 2. Aside from rice, farmers also plant other vegetables like squash, petchay, string beans, bitter gourd and chilli. These are some of the vegetables that are not meticulous with water content of the soil. Root crops like cassava, sweet potato and yam are planted because of the soil’s consistency. The soil is sandy, and these are the crops that mostly grow in sandy soil. Coconut is also a source of income because not much is needed to maintain these plants and they just grow around their farms.

- **Commercial Farmers**

For commercial farmers, aside from rice farming as their primary source of income, these farmers are also involved in agribusiness. Some of which mentioned include piggeries, fish ponds and poultry. These are alternative sources for them because these do not consume much time, just like rice farming. The wives on the other hand try to involve themselves in mom and pop stores in their areas.

The male respondents had an average age of 53.5 years while female respondents had an average of 51.3 years. Their household size was around 5.3 persons per household. Children below 12 numbered around 1.17 per household while children 12 and above was averaged at 2.1.

The usual size of their farms is 1.82 hectares and all of which are irrigated. Same as subsistence farmers, they also have an average of 2 cropping seasons a year. Again, the reason for this is due to the weather conditions in the area, unlike most irrigated land where the usual cropping seasons is 3. Aside from rice, most of the farmers are also involved in vegetable farming. The common vegetable crops they plant include root crops, green leafy vegetables and squash. Some are also involved in coconut, which is a popular product in this region.
• Non-Farming Households

Most of the non-farming households are involved in construction or work as laborers in different fields. A few work as drivers, either for commercial passenger vehicles or work as a private drivers. These are their only major source of income. Majority of the females do not work and provided their occupation as homemakers.

Out of the 3 focus group discussions specific for non-farming households, we got the same number of men and women. The average age of men was 47 and for females, 40. Their family size or the size of each household is 5.33 for all three areas. There were more children below 12 than those above 12, but the difference is very minimal. The number of children below 12 was around 1.73 and those 12 and above was 1.2.

Iloilo Province

Iloilo is the largest province on Panay, measuring 4,767 km², and occupies the fertile alluvial plains of the southeast. High mountains bound this province from the provinces of Antique to the west and Capiz to the north. There are many small islands that lie along its irregular coast along the Guimaras Strait. There are two pronounced seasons, wet from July to November and dry from December to June. The province is divided into two distinct geographic regions: the highlands of the Madia-as on the western border and the lowland plains which account for a larger portion of the province. Iloilo is subdivided into 42 municipalities, 1 component city, and 1 highly urbanized city. There are 1,901 barangays in the province. The population is about 1.9 million people, with 813,000 being part of the labor force.

Rice is the main crop in the province. There are about 282,000 hectares of irrigated and 116,000 hectares of rain-fed fields that produce about 1.25 million metric tons of rice annually. More than 220,000 farmers in the province make a living out of this industry. Other agricultural crops of the province include legumes, root crops, and fruits like mangoes, pineapple, and citrus fruits. Aside from agriculture, another strong industry of the province is in fisheries and aquatic farming.

In Iloilo, a town in the border of Iloilo, Capiz, and Antique was chosen, as this has very little influence from large organizations such as the International Rice Research Institute, which is also present in the province.

• Calinog

The town of Calinog nestles in the central part of Panay Island. It is the last municipality in the central part of Iloilo Province which adjoins the provinces of Antique and Capiz. It is bound on the north by the Municipality of Tapaz, Capiz; on the northeast by the Municipality of San Remigio, Antique; on the south by the Municipality of Lambunao; on
the southeast by the Municipality of Dueñas and on the southwest by the Municipality of Valderrama, Antique. It is located at geographical coordinates 11°15’ latitude and 122°30’ longitude.

Calinog falls under the third type consisting of seasons, which are not very pronounced relatively dry from November to April and wet during the rest of the year. The maximum rain periods are not very pronounced with a short dry season lasting only from one to three months. It is influenced by the southeast monsoons, which is one of the principal air streams affecting the local topography.

Around 75% of the municipality’s slope is above 8% or category C, the municipality, however, is mainly agricultural. There are four (4) types of soil in Calinog: 1) Umingan fine sandy loam; 2) Alimodian clay loam; 3) Bantog clay loam and 4) Alimodian soil (undifferentiated).

Jaluar River is the main source of water supply most especially for irrigation purposes considering the fact that this river is one of the biggest in terms of source volume in the whole Panay Island. For Potable Water, there is one pumping station at Barangay Barrio Calinog as its main source and one back-up pumping station at Barangay Simsiman along the Jalaur River.

Administratively, Calinog was re-classified as a second-class municipality and is fast growing in terms of population. There are 59 barangays with a total of 48,454 as of May 1, 2000. There are 8,559 family households with an average size of 6 persons in a family. Twenty four thousand six hundred and fourteen (24,614) of the total population belongs to the male group while 23,840 are female.

About 10.81% of the population are 4 years and below (pre-school). The school population (5–9) composes 37%. The effective working population group (15–64 years) totals 25,130 (55.30%) while the senior citizens (64) years and above totals 2,184 or 4.80%.

The 1990 population of 41,113 increased to 48,454 in a period of only 10 years. This could be attributed to a very high fertility rate and rapid immigration.

Agricultural programs include promotion of organic farming, launching of Vermicomposting, natural farming system, municipal seed farm, and distribution of assorted vegetable seeds. Also, Department of Agriculture has facilitated the distribution of certified seeds, fertilizer under typhoon Frank rehab, vegetable seeds, and fertilizer of discount coupon.

At present, there is no irrigation facility that is functional/operational within the municipality and throughout neighboring towns.
The following are the profiles of the respondents of the focus group discussions:

- **Subsistence and Commercial Farmers**

Because of the lack of proper irrigation, both subsistence and commercial farmers were classified together, as they experience the similar conditions. The farmer respondents are composed of 53 females and 45 males, with an average age of 53 and 51, respectively. The educational attainments of the respondents are as follows: 30 have college education, 37 high school education, and 30 elementary. The average members per household is 5, with the average number of children below 12 years old is 1, while the average number of children above 12 years old is 3. The farmers have an average of 2 croppings per year, mainly because of the absence of a stable source of water or irrigation. The average size of the rice farm is about 1.6 hectares, 4 of which have shared land tenure, 52 leased, and 32 owned. Other non-rice crops planted in the area are vegetables, corn, banana, *monggo* and string beans, and bamboo, which is mostly being planted for consumption in the household. The top 3 other sources of income are livestock raising (20), *barangay* official work (11), and labourer work (8). However, the major source of income is still rice farming.

- **Non-farming Households**

The average age of the female respondents is 44, while the average age for the male respondents is 43. Most of the participants have had college education (16), while the rest have had high school (10) and elementary (6) education. The average number of members per household is 6, with the average number of 1 child below 12 years old and 2 above 12 years old. The top 3 sources of income are carpentry, transportation work, and vegetables gardening. Aside from this, the top 3 other sources of income are local government work, local transportation work (pedicab driver), and laundry services.

**Leyte–Samar Province**

Leyte and Samar (formerly Western Samar) are two of the provinces in Region 8 or Eastern Visayas. The San Juanico Bridge connects the two provinces. Almost all of the towns in the area plant rice – whether for commercial purposes or subsistence (small farming). The level of operation depends on the presence of irrigation systems and the type of land (hilly or flat).

Flat lands near the coast and mountains in the interior characterize the topography of Eastern Visayas. The ten communities selected for the study were located along and near the coastlines.

The terrain of Leyte, with its flat lands and river systems, is conducive for paddies and coconut plantations. The river systems that crisscross some of the towns serve as
valuable irrigation sources. According to the National Irrigation Administration (NIA), 65% of the area has been given sufficient irrigation as of 2002. On the other hand, 84% of Samar’s arable lands lacks irrigation systems. The province also has a much more diverse environment. With lots of undeveloped mountains, forests, rivers, lakes, and plains compared to Leyte. The road system is likewise not developed in some areas.

Statistics from National Economic and Development Authority in Region 8 reveals Eastern Visayas has only about 800 barangay health stations but 4,390 barangays. Health workers in the community level totals to 16,806. The ratio of government doctor to population is at 1:647,155 and hospital bed to population at 1:1,345. All the figures are for year 2002.

A total of four towns were chosen for the study: Alangalang, Palo, Babatngon, and Basey. The first three is in Leyte while the last one is in Samar.

- **Alangalang**

Alagalang is a landlocked town. It is primarily a land-based agricultural economy, with lots of rice paddies and coconut plantations. Alangalang is blessed with vast areas of flat lands and is one of the major producers of rice in the region. Two communities, barangays Magsayasay and P. Barrantes, were identified as commercial rice farming groups.

- **Palo**

Palo is nearest to the capital city of Tacloban. This proximity affects the development of its agricultural lands with some sections being transformed to residential and industrial areas. However, Palo still produces palay, aided by numerous rivers for its irrigation. Small farmers were taken from barangay Libertad and a group of non-farmers came from barangay Cangumbang.

- **Babatngon**

Babatngon is located along the north coast of Leyte island. A big part of its economy is centered on fishing and related industries. The flat lands though are still used for rice farming. Three different groups were chosen from three different communities; from barangay Pagsulhugon came the commercial rice farmers, barangay District III were the small farmers, and barangay Rizal II were the non-farmers.

- **Basey**

Basey is located in Samar. With its hilly topography and undeveloped irrigation, the area is not entirely suitable for rice farming. The flat lands are few and separated by natural barriers such as hills and swamps. However, communities still cultivate rice including
some upland varieties. Most of these are for the farmers’ own consumption. Two groups were chosen, small farming group from barangay Sawa and non-farmers in barangay Buenavista.

There were three focus group discussions conducted for each category; commercial rice farmers, subsistence rice farmers, and non-farmers. A conscious attempt was made to balance the number of men and women respondents in every focus group discussion.

- **Subsistence Farmers**

There were twenty-six (26) respondents identified as subsistence farmers, consisting of eighteen (12) males and twenty (14) females. Average age of the men is forty-six (46) years and the women forty-nine (49). The mean size of the households is seven, the children numbering at five on average, and mostly only one remains below the age of twelve years old.

A large number of them are tenants (eighteen out of twenty-six) with farmlands having an average area of almost 2 hectares. Majority of the lots remain non-irrigated. All of the farmers plant rice two times annually. Other crops grown by the respondents are banana, taro, sweet potato, and coconut.

The respondents engage in copra selling and animal husbandry to complement their earnings from rice farms. Other sources of income for the family also include mat weaving and sari-sari or neighborhood stores.

- **Commercial Farmers**

Twenty-eight (28) respondents attended the discussions with an equal number of men and women. Forty-nine (49) is the mean age of the men, while forty-seven (47) for the women. On average, the households are composed of six members, with four children in total. Most of the families have only one child below the age of twelve.

Only six of the respondents own their farmlands while the rest either lease the farms or act as tenants. Most of these lots are less than 1.5 hectares in size and are non-irrigated. Except for one who plants rice three times a year, all of them follow the “norm” of two rice-cropping in a year.

Non-rice crops in their communities include sweet potato, banana, cassava, water melon, and eggplant. Aside from farming, respondents also engage in pasuhol or act as farm-hands and animal husbandry as a source of additional income for the family. Some have pedicabs (bicycles with side-cars) to supplement earnings during non-planting and harvesting time.
• Non-farming Households

The non-farming group consists of twenty-seven (27) respondents, with fourteen (14) men with a mean age of 34 years and thirteen (13) women with a mean age of 53. Six is the average size of the households. It is usually composed of six members, with one child below twelve years old, from a total of four children.

The father usually works in driving, carpentry, and copra selling; while some are technicians, laborers in construction sites and barangay officials. Most of the mothers do not have jobs, although some are engaged in mat weaving and embroidery still others are barangay officials and receive honorariums. Other sources of income for the family include selling tuba (coconut wine), fishing, and dress making.

Bukidnon Province

Bukidnon province in Mindanao Island is a landlocked area surrounded by Misamis Oriental province in the North, Agusan del Sur and Davao provinces in the East, Cotobato province in the South and Lanao del Norte and Sur in the West. It is part of the Northern Mindanao Region, and it has an estimated population of 1,081,902, of which 556,000 are in the labor force. Based on age distribution, Bukidnon has a fairly young population, with ages 14 and below accounting 42.15% or 446,952. The 15–34 age bracket account for 33.68% of the province’s population or 357,112. Ages 55 and above barely accounts 6.5% of the total. The average population growth rate of the province is 2.41% from 1995–2000. Male-to-female ratio in the province stood at 1.06.

There are 464 barangays throughout the province. The major agricultural product of the province is pineapple, followed by rice, sugarcane, corn, and banana.

The province's total land area is 8,293.78 km². Bukidnon is generally characterized as an extensive plateau but the southern and eastern boundaries are mountainous area. The province's average elevation is 915 m above sea level. The whole eastern and southern border adjoining the provinces of Agusan, Davao, and Cotabato are covered by lofty and densely forested mountains of the Pantaron Mountain Range (Central Cordillera).

About 49% of the land resource of the province is of rugged hills and mountains and 33% of undulating to rolling terrain. The rest of the province is composed of nearly level terraces, alluvial lowland, canyons and gorges.

Two types of climate prevail between the northern and southern sections of Bukidnon. The northern part has no pronounced rain period but is relatively dry during the months of November to May. In the southern portion of the province, the climate is classified to have no dry season. The climate is relatively cool and humid throughout the year. The average annual rainfall is 2,800 mm. Just like in other parts of the country, rainfall is
more pronounced from June to October compared to other months of the year. The drier season is from February to April.

In the province, Malaybalay was chosen as the location of the study.

- Malaybalay

Malaybalay City, the capital city of Bukidnon is located in the central part of the province and contains 46 barangays. The whole eastern and southeastern border adjoining Agusan del Sur and Davao del Norte is elevated and densely forested mountains, which is one of the few remaining forest blocks of Mindanao. The city is landlocked, and the nearest sea and air ports are in Cagayan de Oro City, which is 91 kilometers away. The total land area of the city is approximately 984.38 km². An estimated of 65% of this is classified as forestland/timberland and the remaining 35% are lands which could be used for various purposes such as for agriculture or for industry. The average elevation of the city is 622 m above sea level. The city is predominantly rural, with only 16% of the population in urban areas, 40% in urbanizing barangays, and 46% in rural areas.

The following are the profiles of the respondents of the focus group discussions:

**Subsistence Farmers**

The average age of male participants is 51.7 years, while for female, the average age is 49.1. There are about 5.2 members per household, with an average number of 2.3 children. Of these, there are, on average, 1.1 children below the age of 12. The main source of income for these people is from their work as farm laborers. They work in farmland with an average size of 1.26 hectares. Eighty percent of these farmlands are irrigated, causing an average cropping cycle of 2.2 a year. Aside from rice farming, they earn through livestock farming, and in other service-oriented jobs such as dressmaking and haircuttering. Some also work as barangay workers. Other crops in the area include fruits, vegetables, and corn.

**Commercial Farmers**

The average ages for both male and female participants are 43.6 and 45.1 years, respectively. The average number of members in a household is 5.1, which contains on average 2.2 children. However, there is only 1 child that is less than 12 years old. These farmers farm on average 2.64 hectares, of which 95% is irrigated. This causes an average cropping cycle of 2.5 per year. Most of the farmers in this classification are land owners. Aside from farming, other services such as carpentry, dressmaking, tricycle driving, and teaching serve as other sources of income. Also, they earn through self-owned mom and pop (sari-sari) stores. Other crops in the area include fruits, vegetables, corn, and trees.
Non-farming Households

The average ages for both male and female participants are 44 and 41 years, respectively. In the groups, there were 4 participants that were pregnant. The average number of members in a household is 5.4, which contains on average 1.5 children. However, there is less than 1 child in each household that is less than 12 years old. Most work as barangay workers and vendors, while most are without jobs. Others engage in other businesses such as rentals, mom and pop (sari-sari) stores, fish vending, vulcanizing, and children support.

Major Findings

On Farming

Concerning the reasons for planting rice, all four provinces that have been sampled showed several commonalities under different criteria, but differences featured in each local community were also discussed, which proved to be helpful for this research. One common thing for the provinces regarding the profession of farming is that they plant rice as a source of income. Farming is where they get money to pay for their basic needs. This includes utility bills, food (other than rice), and housing. One of the most important reasons why they farm is to fund the education of their children. They are hoping their children will have a brighter future and not end up as farmers, and education is one of the most important items they spend on. Partly, they plant rice for their own consumption. They are able to save on rice and redirect some of their earnings to other needs. Farming has been a profession in their family and most of the farmers do not know any other job other than farming. They say this is their only choice and they have to make use of what they know. Aside from these reasons, most of the respondents also use the revenues from farming to pay for debt. This debt was incurred and used up as capital for their farming needs.

For Albay and Leyte, some of the respondents mentioned that they are involved in rice farming so as to provide cheaper rice to their neighbors and to help the community in this manner. Due to the recent rice shortage, this is their way of providing public service to those that are in need.

Most of the farmers prefer to keep their good seeds or exchange good seeds from their neighbors. They reasoned that these good seeds are already proven, and the testimonials from others and their own experience count the most. This has proven to be effective in their type of soil and climate, which gives them a greater probability that this variety will produce a good yield for them.

In general, farmers are not particular with what variety to use in each season. This is due to the fact that they use the same plant 2 to 3 times before they change it to a new
variety or use the same variety. They prefer varieties that can work well during the summer and rainy seasons.

The seeds used by the farmers presently are those seeds that were subsidized by the government and distributed by the Department of Agriculture. The Department of Agriculture bases its rice rationing to the farmers on several factors that will enable the farmers to achieve higher yield, one of which is the type of soil in the area.

Seed preference is mainly based on the type of soil and weather conditions of the area and on the availability of the seeds. Other common answers are those that harvest earlier, have good yield, have high resistance, and weigh heavier when sold. However, if they seeds would be distributed to them for free, they would be willing to try them. The following is a list of seeds commonly used in these areas:

- RC 82: Non irrigated (Albay, Bukidnon and Iloilo)
- RC10: Non irrigated (Albay, Bukidnon and Iloilo)
- RC18: Non irrigated (Leyte, Bukidnon and Albay)
- 128: (Albay and Bukidnon)
- 122 (Albay and Bukidnon)

On the other hand, the below provides is a list of varieties different from each province:

- Albay: 138, 72, 56, 134, 14, 144, 80, 128, 146, 144, 75 (both for wet and dry seasons)
- Iloilo: 134, 188, 110, 148, Red 36, RI64
- Bukidnon: 120, 140, M11 (dry), 7-tonner, 122, M69, Masipag (Rainy)
- Leyte: 42 and N3

When it comes to deciding what type of variety is to be used, a large majority mentioned that the male farmers make the decision. There are a few instances where the farm owner is a female or is a widow, which makes her responsible for the decision making.

There are instances where there is not enough supply of rice seeds subsidized to the farmers. What the Department of Agriculture does is they raffle off the seeds. Obviously, there are farmers who are not given seeds and they either have to buy commercially, use their own good seeds, or ask from others. This problem is common in Leyte and Albay. In Iloilo and Leyte, there is a common occurrence of late arrival of seeds to
farmers. This also leads to delays in harvest especially during the rainy season, wherein they try to harvest as quickly as possible to avoid the rice from getting wet.

In Leyte, there is an issue that came out that Department of Agriculture employees hoard the stock of rice that should have been distributed. In Iloilo, there is almost the same problem but what happens is that the Department of Agriculture employees have preferences or prioritize those people they know rather than giving it randomly.

In Bukidnon, one local community mentioned they prefer IR-64 and 36 because these are varieties which performed well in the past. With the recent problems and new diseases in rice farming, these varieties are more prone to Tungro and other diseases. There were also a few cases where inbred seeds were preferred, but this only happened in areas where SEARICE was predominant.

Several farmers have shown interest in trying new variety of rice. They have accepted that there is new technology which can help them increase their earnings. They were even more inclined to try new varieties if the rice was given for free. Before they start to try a new variety, they would want to know if the yield of this new variety is better than what they previously had. They are also asking for demonstrations or actual results on how well this rice did. Pests have been a long-time problem for most farmers and are definitely a concern. They need to know if this new variety is more resistant to pests. Harvesting time for each variety may vary. There are some who want to know if it takes a shorter time to harvest compared to what they currently have. Lastly, before they start planting, they would like to know if this new variety has a better price compared to what they plant now. Another question posted to the groups is if the rice variety is heavier and more sellable to the public. As long as they earn more than what they currently are making, they are willing to try these new varieties.

The common crops that four of the provinces mentioned include root crops like cassava, yam, and sweet potatoes. Several also planted vegetables. These are crops that are not particular with the type and condition of soil because rice fields are usually muddy and not all crops can withstand these conditions. Some of the farmers also plant corn, but only a few farmers in these areas do this regularly because corn needs a different condition compared to rice.

There were several other crops planted distinct for each area. Sugarcane in the Iloilo area is distinct to this part of the country. For Leyte and Albay, coconut is also widely planted because these are plants that just grow in their land or have been in their land for a long time. Coconut is a crop which requires less maintenance. For Albay and Iloilo, farmers also plant squash and banana. These are associated with their daily diet. A person in Albay also mentioned planting watermelon because it earns him more money than rice.
In all four towns, only people in Bukidnon have some knowledge of Bt Corn. The three other provinces do not have any idea as to what Bt Corn is. The people who have some knowledge of Bt Corn are associated with or were informed by agencies that have information regarding Bt Corn and genetically modified organisms. These organizations include Syngenta, SEARICE, IPAR, and Kaanib. They were informed that this type of corn is packed with chemicals, that this has built-in bacteria that protect it from corn borers and falling grains, that Bt corn causes long-term damage if eaten by humans, and it causes diarrhea. Some even mentioned that Bt Corn is used to ward-off thieves because when they know or see that this corn is planted, they get discouraged in stealing because of the information they know on Bt Corn. Farmers also mentioned that planting this variety is less expensive because it does not need chemicals for maintenance. The church is also against the use of Bt corn, as mentioned in Bukidnon.

For the information they get regarding farming, farmers get their information mostly from technicians from the Department of Agriculture. These are people that have provided them good and reliable information. This is the reason why they continue to rely on the technicians in their areas. Some also rely on the other farmers’ experience for their information due to the actual results gathered.

For Albay and Iloilo, some farmers also get information from fertilizer and pesticide distributors like JARDIN and ALDIS because they teach them new techniques and provide new information to them. There are also other sources of information in Bukidnon, such as SEARICE and PDAP, which both are non-government organizations that provide farmers necessary information in organic farming. In Iloilo, Philrice has a text messaging program where they send farmers information through SMS.

Most of the farmers in Albay, Iloilo, and Bukidnon keep 20% to 50% of their harvest and sell the rest. This figure includes the good seeds saved for the next season. For Bukidnon, 10% to 30% is saved while the rest are sold.

**On Rice and Food Choices**

Generally, the respondents consider in their choices of food those with nutritional value (vegetables), those that complete a balanced diet, and those that are available. For adults, they also prefer nutritious food to prevent them from illnesses (such as rheumatism, hypertension and diabetes) and to make their bodies strong and healthy. However, due to financial constraints, most of their preferred diet cannot be religiously followed. Also, generally, there is no differentiation with the food of elders and the food of the young, as all family members eat the same food prepared in a household. In Iloilo, when they run out of money, they only eat rice for their meals, as long as it is hot and it fills their stomachs. In some of the groups, the preferences of their children in
terms of food choices are followed for as long as it is within their financial budget. In this case, parents give priority to their children in the intake of foods.

The amount of rice they cook for one day depends on the size of their household. For Albay and Leyte, a typical household of 5 consumes 1–2 kilograms per day. Usually, adults will eat what is left by their children. Men eat more than women, but children eat more than elderly. For Albay, men and teenagers consume more rice, with the reason that it is their source of energy in working in the farm every day. Most of the respondents also include their pets like dogs in their rice budget. Across the provinces, people usually cooks rice three times a day (breakfast, lunch, and dinner) because for them, rice is best served when it is hot and it hardens when it is cold, especially the NFA rice. They also prefer to eat rice that is newly cooked since it is hot, supple, and aromatic, and it induces appetite even if the viand is not so delicious (like dried fish). In Albay, mothers cook rice twice a day during summer (no school classes) to save on their money while in Iloilo they cook twice especially when there are classes (because their children prefer to eat outside during lunch). Meanwhile, some families eat leftover rice from dinner for breakfast the next day through reheating or frying (sinangag).

When it comes in choosing rice, they consider taste, aroma, texture (soft), and the quality of rice (well-dried and milled). However, financial constraints play important roles in their decision making. Most of the participants do not want to eat NFA, which they view as old stock that hardens when cold, is not as filling as other varieties of rice (mentioning that they get hungry after 2 hours), and tastes and smells bad. However, they still purchase this rice because it is the cheapest in the market. Some farmers still prefer to eat their own harvested rice rather than commercial or NFA rice because they view their rice as safe and “authentic” rice (unlike NFA rice which is mixed with poor quality rice). In Iloilo, one participant said that his family does not like NFA rice because of its smell, which they claim is not advisable for people with asthma. They perceive that this type of rice is laced with pesticides, which can cause indigestion and illness. Their claims are based on experience and gossip from those that have experienced it. Some respondents are even willing to loan just to be able to buy good quality rice.

In terms of food and rice choices, most respondents agreed that women decide because they manage the family budget and usually go to the market. However, for Iloilo, men from non-farming households decide on what rice to eat because they are always out of the house during the day, so it is more practical for them. In Leyte, respondents differ on who should decide which rice and food to eat. Some believe that the farming husband should decide because he knows more about different kinds of rice. On the other hand, some say that the wife should decide because she manages the family budget. Some prefer to discuss rice-buying decisions together. Meanwhile, children can also be key influencers in their decision making because mothers are worried if the children will not eat them.
They are open to try new food as long as it is safe to eat, palatable (delicious), nutritious, affordable, available, and it does not come from China (associated with melamine). In Albay, they will try new food if it will be endorsed by the Department of Health and Bureau of Food and Drugs and if they see the results to other people (testimonials). In Bukidnon, they have strong opposition towards genetically modified crops and food like Bt Corn, as most local communities were associated with anti-GM organizations such as SEARICE.

Colored rice is not an issue. Most of the respondents asked associated colored rice with a variety with better quality. People perceive colored rice to contain more nutrients, to be organically farmed, and to have a good taste. In terms of price, colored rice was known to be expensive and first class quality. Most of the respondents are more familiar with red, brown, yellow and black rice. Red rice is known for its aroma, nutritious, good taste and soft texture; however, they only find it on uplands and do not usually buy them because it is expensive. Black rice (believed as rice for supernatural beings or engkanto) is described as sticky and usually used in cooking rice cakes (suman) in Albay. Brown Rice is viewed as organic (with no chemicals) and nutritious rice, but some complained that it tastes bland, requires more water and takes more time to cook.

In Iloilo, colored rice has a psychological effect on the children. For instance, they do not like brown colored rice. Also, they are shy when they have it as their packed lunch (baon), with a mother mentioning that classmates would tease their children if their rice was not white. Majority finds it difficult to convince their children to try colored rice. They suggested that if a colored variety of rice will be promoted, it is advisable to introduce it through fast food chains such as Jollibee or McDonald’s or through TV advertisements. This would make them curious and eager to try it.

There were several groups that mentioned yellow rice is associated with reject rice or rice that was not dried sufficiently. In Iloilo, one consumer expressed his concern with the rampant manipulation of “bad quality” rice like NFA. He shared to us, that “over the stock” NFA rice were being re-milled to make it whiter. In Albay, some also associated yellow rice with the rice NFA provided which was yellow and rich in iron. Some did not like this NFA rice because of the odd taste and smell. In Leyte, locals only know of samulawon, the term for discolored (yellowish) rice grains brought about by damp conditions and prolonged storage. Traders usually reject samulawon because it is tagged as low class. In some instances, traders still buy samulawon but price it lower than its regular counterparts. Meanwhile, for consumers, samulawon tastes not as delicious as pure white rice, with some mentioning its bitter taste.

Overall, households prefer to eat white rice compared to colored rice due to the following reasons: 1) because they have been used to eating white rice, 2) because white rice smells good; 3) because white rice tastes good; 4) because white looks clean and presentable to visitors; and 5) because it is common and available.
On Knowledge and Attitudes on Diet and Nutrition

All respondents are aware of a healthy diet. However, top of mind for healthy foods include vegetables since these are readily available and inexpensive. In the case of farming communities, vegetables are more accessible than consumers. These are alternative crops grown either in the farm lands or in their backyards. Similarly, the farming household intake of meat is less compared to consumers.

Unhealthy diet is associated with junk foods, canned food, and processed foods. In the case of Iloilo and Bukidnon, dried fish is considered unhealthy. Its salty nature is said to cause urinary tract infection. Respondents are wary of the food they consume since hospitalization is expensive to maintain.

Concerns over health for both children and adults are similar. Since the communities have budget constraints, there are no distinct differences in the food consumed by adults and children. The overall topmost concerns are nutrition and proper diet, resistance to sicknesses, and proper hygiene. Exercise and avoiding bad vices such as smoking and drinking are encouraged for adults.

All respondents are aware of the unique requirements for pregnant women such as consumption of food that is good for mother and child and regular pre-natal checkups. However, to further support their limited budget, managing intake of food such as rice is advised by doctors to prevent caesarean delivery, as these are costly compared to natural delivery.

Across all provinces covered during the focus group discussions, the common factor that drives food and nutrition is the respondents’ capability to buy. Their budget determines the kind of food prepared on a daily basis.

Common medical services available in the Barangay Health Center are immunization, circumcision, deworming, pre-natal checkups, dental, feeding programs, and house-to-house distribution of vitamins including vitamin A through the Patak Pinoy Program. Dental programs are not available in Bicol and Leyte. In addition, feeding programs are not offered in Leyte.

The abovementioned health programs are offered subject to budget availability of the barangay or municipality to which the respondents belong. Except for pre-natal checkups, the remaining programs cater specifically for children. These programs are carried out by the Barangay Health Workers and/or Barangay Nutrition Scholar. However, in the case of Leyte and Bukidnon, there are distinct responsibilities of the barangay health workers and barangay nutrition scholar. The barangay health worker is responsible for general health programs while the barangay nutrition scholar is responsible for nutrition programs. In Bukidnon, the barangay nutrition scholar is
responsible for ensuring proper execution of the feeding programs. Only Iloilo reflects expansive health programs such as anti-rabies, anti-polio and anti-filariasis. Uniquely, in Bukidnon, farmers are provided schistosomiasis treatments, a common ailment of farmers.

Missionary non-government organizations (non-Catholic) are common across all provinces covered. They provide similar dental, feeding, and vitamin distribution services; however, frequency is irregular compared to the local government. Only Leyte does not have any non-government organization presence for medical or health programs.

Overall, all farming and non-farming communities are familiar with good health; however, budget remains a constraint. Respondents are active in availing of medical services as these are free; however, knowledge and education on the programs are more expansive in the farming communities as compared to non-farming barangays.

**On Information Sources**

The usual sources of information on health and nutrition are from doctors, health centers, barangay health workers (barangay nutrition scholars), television, radio (AM), newspapers, posters and schools. For most respondents across all regions, doctors are the best and most reliable source of information because they can be convincing and are known to be experts and professional, and thus can be trusted because they have studied in this field and can give accurate information. This is also the reason why they are more familiar with *Salamat Dok* (a television program on health and medicine) which airs on Saturday and Sunday mornings. They mention that they get tips on using herbal medicines as cheaper alternatives for pharmaceutical drugs and ways to avoid certain diseases through preventive measures from this program. Despite this, they still prefer the information to be disseminated personally (by doctors, nutritionist, agriculturists, Regional Health Unit), in the form of seminars or meetings, so that they could get an immediate response on their queries.

In Iloilo, they want the endorsement or introduction of products to be conducted in their own native language. For Albay and Leyte, they also trust the barangay health workers as information disseminators on health programs of the government because the respondents regularly attend seminars and trainings sponsored by the municipal/regional branch of the Department of Health, and they would usually share this gathered information and experience with their fellow locals. They also have the capacity to cover all the households in the local community because they go house-to-house just to conduct programs such as the *Patak Pinoy* or to give information on upcoming health programs in the local community. For Bukidnon, people also prefer
actual campaigns like real demonstrations like the mothers’ class (a week long seminar on food preparation), also spearheaded by barangay health workers.

Almost all participants do not believe on the celebrity endorsements or television commercials because they feel that these people were just paid to endorse the product. They even said “To see is to believe,” which means that they want to try the product first. Testimonials from their neighbors or other trusted people are also a factor to encourage them to try because they can see the actual results from these people.

The most popular television advertisements for most respondents are Lactum (Panatag Campaign) and Knorr (Sinabawang Gulay jingle) across all regions. They even imitated the food pyramid sign and sang the Knorr jingle while answering the question, showing high retention for these advertisements. The reasons why they are more familiar with these advertisements are because of the frequency of them being aired on television, the comical nature of the advertisements, influence on children, and logical relay of information (such as eating vegetables and food pyramid in diet). However, in Leyte, they were not encouraged to buy Lactum for their children because it is expensive for them. For Albay, some have bought Lactum even before the television advertisement was launched because it was recommended by doctors for their children. On the other hand, the Knorr jingle educates the children on proper nutrition like eating vegetables. Hence, for respondents, they think that the “Makulay and Buhay” advertisement is more effective for children because they become used to eating unfamiliar vegetables like bitter gourd.

**On Vitamin A Deficiency**

In Bukidnon and Iloilo, generally all were familiar with Vitamin A deficiency, while in Albay and Leyte, most participants were not familiar with the said deficiency. Many respondents resorted to guessing when asked about the symptoms of VAD. While some have identified blindness, poor eyesight and loss of vision, some have guessed weakening body, malnourishment, paler skin, and inability to perspire. Iloilo respondents acknowledge that they got their information from school.

Related to their guessing, few participants in Iloilo, Leyte and Albay thought of iodine deficiency as VAD thus mentioned goiter as a symptom. In Iloilo, a farmer cited yellowish eyes and pale skin, referring to Hepatitis. In Leyte, one respondent also mistook VAD as intestinal worming therefore mentioned enlarged stomach. Meanwhile in Albay, a few participants thought that VAD is also related to kidney disease and hyperactivity. Across all provinces, respondents also mentioned other eye-related defects as symptoms for VAD such as near-sightedness, tired eyes and cataract.

Based on the focus group discussions conducted, people are not conscious on the vitamins or nutrients present in the food they eat, especially when it comes to
vegetables. For them, it is enough information that they know that fruits and vegetables are good for their health. In Leyte, some people just care about feeling full after every meal regardless of how nutritious their food is.

When asked to mention food that are rich in Vitamin A, some respondents again guessed and thought that all vegetables and fruits contain vitamin A. Some examples of the more common answers are the following: yellow vegetables (squash and carrots), yellow fruits (papaya, banana, and mango), and green leafy vegetables (horseradish, bitter gourd, water spinach, sweet potato tops, yam leaves, and alugbati). Other answers are seafood, milk, fish, lady finger, eggplant, chayote, kulitis, string beans, star apple, guava, and tomatoes.

Participants admit that they eat almost all of those mentioned because some households maintain a vegetable garden in their backyard. Some eat vitamin A-enriched food in every meal, everyday, at least thrice a week, or at least once a week. In Iloilo, a respondent mentioned that adults in their households eat vegetables 3 times a week, while children eat only 2 times a month because the latter do not like eating vegetables that much.

Reasons mentioned why the respondents do not eat vitamin A-rich food and not as often are the following: 1) food are not in season or not available; 2) expensive if not found in the garden such as squash, petchay, cabbage, and some fruits; 3) easily fed up (nakakasawa) when eaten daily; 4) no time to prepare the food; and 5) children do not like eating vegetables. In Bukidnon, one participant shared that children do not like eating squash because it looks like feces when cooked.

The respective local government units of the areas under study conduct the Patak Pinoy program, also known as Garantisadong Pambata. For Albay, Iloilo and Leyte, Patak Pinoy is given out twice a year while in Bukidnon, it is held only once every year. Meanwhile, farming respondents in Iloilo say that they do not participate in Patak Pinoy because it is not available in their respective health centers.

Overall, the respondents find the program good and effective. Most Barangay Health Workers even go house-to-house to distribute vitamin A drops to children. People from Bukidnon hope that Vitamin A supplements should also be given to adults. Meanwhile, people from Iloilo say that Patak Pinoy supplies are not enough for their barangay, so probably not every child gets the supplement. On the other hand in Albay, children receive Vitamin A drops but are misinformed. Many parents think that Vitamin A drops would make their children active and resistant to disease, while in fact, Vitamin A prevents night blindness.
There are no other VAD programs in the areas covered aside from the government-sponsored *Patak Pinoy* or *Garantisadong Pambata* except for a barangay in Bukidnon which also received free vitamins and medicines from missionaries 3 years ago.

**On Golden Rice**

Majority are not familiar with yellow rice. Many associated yellow rice with old rice or rice that was not dried properly and artificially yellow-colored white rice. Everyone is interested to know more about rice with yellow grains.

There were distinct observations for several of the areas. For Iloilo, they compared yellow rice with rice served in restaurants. In Albay and Iloilo, some thought of rice with Star margarine, a local practice where children put this margarine to make food look attractive and healthier. Some also mentioned about Arroz Valenciana, artificially colored rice famous in some provinces in the Philippines. In Albay and Bukidnon, they were asking if this yellow rice is the same as the NFA rice that is packed with iron. Some also mentioned that iron made the rice taste different from the normal rice they eat. In Bukidnon, there were several comments on yellow rice. Some associated it with yellow corn, rice porridge, spoiled rice, *food for engkantos*, and Muslim rice. Some also mentioned about rice called Golden Rice which was provided by SEARICE, wherein the husks are gold but the grain is still colored white.

Majority are willing to try yellow-colored rice. Their topmost consideration is food safety. Many prefer the government to endorse the rice as safe to eat, specifically the Bureau of Food and Drug and teh Department of Health. They want to know if it is not poisonous, if it will not lead to indigestion, if it is not deadly, and if it will not result to headache.

The second topmost consideration is taste. Respondents want to know how the yellow-colored rice tastes compared to white rice and if it is delicious.

In the provinces of Albay and Iloilo, they were more inclined to try this type of rice if it was given for free. Both provinces also mentioned that for hard times like this, people do not usually care what the color of the rice is, as long as they can eat it. They also mentioned that Filipinos are really fond of trying new products and color is new and encouraging. Some of the respondents mentioned that they want first the approval of Bureau of Food and Drugs to make sure that it is good for the health.

In Iloilo, there were people who mentioned that they wanted to try the rice after others have tried it and the result is positive. In line with this, they have mentioned that color is not an issue as long as it is safe to eat. Some also mentioned that it is better if it can be a cure for hypertension. A cheaper price compared to white rice also encouraged respondents to try the product.
One respondent in Bukidnon said that he tried eating yellow rice in Cuba and Miami which he found delicious, but he is not ready to eat it regularly. Others will just eat yellow-colored rice alternately with white rice since it might make the skin colored yellow. There was a respondent who also mentioned that it is still rice and he is willing to eat it. Budget also came out as an issue in Bukidnon; as long as the rice is within their budget, they were willing to try it.

For those who are not willing and apprehensive to try yellow-colored rice, their main reasons were that they are not accustomed to yellow rice and it is not available in their markets. With Bukidnon’s knowledge of Bt Corn, some associated yellow rice with Bt Corn and there might be problems when they eat it such as headaches, perceiving it is poisonous.

Respondents became more curious when they heard that yellow-rice contains Vitamin A.

Majority are willing to eat yellow-colored rice. Almost all agreed that technicians from Department of Agriculture and healthcare/medical workers from Department of Health are reliable endorsers. The respondents want the seeds to be certified and approved by the Department of Agriculture before it is released. Initially, they want the Department of Agriculture to give the seeds for free. Also, they like Department of Health to certify that the rice is good for their children.

Other than Department of Agriculture and Department of Health, they also prefer any reliable and popular healthcare and medical professional to promote it. At the local level, they favor the barangay health workers to educate them. On top of these, they would like to hear testimonials from those who have tried the yellow-colored rice. Others would even want proof of its Vitamin A content and its side effects. A good example of proof according to them is a laboratory test. Also, it is important for the respondents that the endorsers and promoters themselves have tried eating the yellow colored rice.

It is important to note that the respondents do not consider celebrities as reliable endorsers since they are not objective in promoting the product because they were paid to do it.

Other than what were mentioned, they also found the following persons and organizations reliable:

- Barangay captain
- Regional Health Unit
- Any person with authority
• Any reliable person that is popular other than celebrities

Some farmers in Iloilo mentioned that this rice should first undergo trial testing for at least three months before releasing it to the market, to determine if there are effects on the body. In Albay, most respondents will try first before allowing the rest of their families to consume it. Some even gave comments like “to taste is to believe” and “to see is to believe,” which makes them want to try it as long as they see the product. Some respondents said that they hope it is not like NFA rice with Iron because it is bland or tasteless, it needs more water, and children do not like it. However, they still have no other choice but to buy NFA rice due to budget constraints. It also came out that a lot of people are not satisfied with NFA rice because it tastes bad. Commercial farmers in Albay were not picky with the color as long as it did not taste bad. In Bukidnon, respondents’ distrusts imported rice and they prefer local rice. Despite the Vitamin A content, only a few respondents are still hesitant to try because they are not familiar with the yellow-colored rice.

Majority of the farmers are willing to replace white rice with nutrition as the topmost consideration. On other hand, majority of the consumers are willing to replace white rice with price as the topmost consideration. Another major consideration is the preference of children. If the children will like yellow rice, then parents are more willing to replace white rice with yellow rice.

In Iloilo, a lot mentioned they were willing to replace the rice because they also want to try yellow rice, it is good for the eyesight, and that yellow might be more exciting for children. Some also mentioned that they want the rice to taste the same and should have more nutritional content before they try it. They also realized that they will be saving on their budget by not buying Vitamin A supplement. If the price per kilo of this rice is higher by P1, majority find it expensive already. They are only willing to pay up to P0.50 premium for the Vitamin A content. There are also cases mentioned, however, when doctors would advise patients to avoid colored foods, because they affect the some physiological functions (e.g. color of urine).

In Bukidnon, some farmers gave comments that they only trust farmers from this place, meaning they want rice that is locally grown. Others also said they were willing to try but not replace the regular rice they eat. Some were concerned with the price, mentioning that as long as it is affordable, they will eat yellow rice regularly. The color is also not important; it is the vitamins that matter.

For Albay and Bukidnon, there were a few who said that it was ok to replace white rice with yellow rice but it would be better if it subsidized just like NFA rice, because NFA rice is cheap, although NFA rice is only available twice a week. NFA is the only one with
authority when it comes to rice, but majority do not like the rice being distributed by this agency.

In Albay, there were people who mentioned that yellow rice is still food and when people starve, they will eat it. There have also been associated of Golden Rice with Golden snail.

For those who are not willing to replace white rice with more nutritious yellow rice, their main reason is they are already used with white rice and they feel that they will not get used to eating yellow rice. Few people said that they can alternate the yellow with white rice until they become used to it and later on they can replace the white with yellow rice.

Majority never heard of Golden Rice. When the picture of Golden Rice was shown, all were looking at the picture intently. All appeared to be really interested. Others would even lean forward to look at the picture more closely. Almost all also asked for a sample of Golden Rice.

In Leyte, we heard several comments like it has the same color as honey, the grains look bigger and that egg yolk was added for color. Some realized that it contains Vitamin A due to it is yellow. There were also a few who mentioned it looks oily. Golden rice was also distinguished from NFA rice because NFA rice with iron is white with yellow spots and not the same as the picture they have seen.

In Iloilo, one participant has tried yellow rice in Hongkong (Korean’s restaurant). The rice was cooked with coconut milk and it was not artificially colored. She said that the rice came from Thailand and it tasted like it was mixed with star margarine. She found the taste good/pleasant. There was another person in Iloilo who said that they were given yellow colored grain rice as a gift from a friend in Germany. When asked if they tried to plant it in here in Philippines, he answered that they only ate it.

For Bukidnon, there were a handful of people who claimed they know about Golden Rice. One respondent said that she saw farmers having small amount of rice seeds. Another respondent claimed he read about it being grown in Nueva Ecija and Bulacan and that it is commonly being mixed with kidney beans in Cuba. Some also mentioned Golden Rice by SEARICE which is a different variety with the same name. Someone also mentioned vitamin A-fortified Rice in Ozamis. Others commented that he has heard it from a farmer who planted black rice which came from Luzon. One respondent whose child works at the Department of Labor and Employment cooperative brought home rice called “Golden Rice”; however, the colour of the rice is white. The respondent mentioned that the rice is expensive at Php1,800 per sack. One also mentioned that he heard over television that the President introduced Golden Rice being studied in Los Baños.
One respondent in Albay said that they have tasted it, like the rice in Saudi Arabia and India (pertaining to Beryani rice). Someone also heard about it in their National Training Service Program subject in a local school last 2006. She remembered that their teacher told them that it is being developed in another country that contain more minerals and showed a picture of Golden Rice to them. The teacher mentioned that as of that time, it was still an on-going experiment. Another person said that she saw it on a television program, Travel and Living, but no details were given on that segment.

Majority are not familiar with genetically modified organisms or genetically modified crops. All are interested to learn more about genetically modified organisms and genetically modified crops. All look more interested and they listen more intently when the definition of Golden Rice was read. Some of them even nodded as if they were agreeing and understanding with what was being said. Others were even taking down notes.

In Iloilo, only 1 respondent has heard that Bt corn contains harmful chemicals from the radio, Church, and other credible people (not just politicians). Also, since Bt corn is a major raw material in feeds production, they claim that its harmful chemicals will be transmitted to animals then humans. In Leyte, some mentioned that it is of high technology, which is handled by scientists and negatively promoted by civil society. In Bukidnon, genetically modified crops are said to be studied in University of the Philippines in Los Baños but cannot give any additional information about it; he claims that genetically modified crops are being planted in the southern part of Bukidnon in Kadilingan, but that is all he knows. According to the nongovernment organization KAANIB, genetically modified crops are harmful, expensive, and poisonous. Children also suffer stomach ache after eating it. Respondents have heard years ago that the Church has banned genetically modified organisms. The Church has mentioned that genetically modified organisms are bad for the body; the more frequent you eat it the worse your body becomes. In Albay, one person said genetically modified crops are controversial, mentioning that they do not grow normally and that the genes were modified. Genetically modified crops or organisms can cause cancer, and genetically modified crops are not accepted in organic farming. They said that they got the information about genetically modified organisms from the television, internet, and print media. Someone also read about genetically modified organisms in the newspaper, but it was not fully explained in detail. He just heard that it is like Bt corn. Someone also said he heard about Golden Rice and the genetically modified organism issue in Batangas, but they did not disclose any details of what they heard; they confirmed that information sources were not that reliable and the information they received was just part of rumors.

Majority are still willing to eat Golden Rice after knowing that it is a genetically modified crop. However, among the three household types, the subsistence farmers are
somewhat hesitant not unless it was approved by the government or endorsed by the Departments of Agriculture or Health. Again, the topmost reason why they would still eat Golden Rice is the Vitamin A content.

For Leyte, Bukidnon, and Iloilo, they think that eating Golden Rice will help them save money in buying health supplements or expensive vitamin-enriched foods because it has already vitamins in it. They became comfortable when they heard that it has the same price than any other rice varieties. For Leyte, they even assured that they will try the product because it is already a complete meal even there is no viand with it; they even asked for a sample of Golden Rice so they can try it as soon as possible. They also suggested alternating the yellow rice with white rice to get used to it. For Bukidnon, they want to try the product because it is new and it helps to solve vitamin A deficiency. They also want to be assured that it must have a Bureau of Food and Drug seal and must be subsidized by PhilRice. The respondents looked interested when they heard the explanation about Golden Rice; however, they would like to know why the Church banned genetically modified organisms, and they were curious if it has side effects. Meanwhile, a respondent from Albay said that there is a lack of information about Bt corn, but a lot of farmers are against it and suggested that complete information about genetically modified organisms must be disseminated properly to get the farmers’ buy-in.

Some concerns about Golden Rice were also raised by other respondents regarding its suitability to children's tastes, side effects, associated with Bt corn, its color if will be seen on the dark, and impact on the marketability of white rice as a source of their family’s income. For Iloilo and Bukidnon, some groups are a bit hesitant about Golden Rice because it was associated with Bt Corn, which received negative feedbacks from other people. One respondent from Albay was really convinced that there is no incidence of vitamin A deficiency in their local community because most of the people have vegetables in their backyard hence see no need to eat Golden Rice.

The topmost common consideration by both farmers and consumers is safety followed by taste. On the other hand, major considerations prevailing for each household type is price for consumers and softness for farmers.

Some questions about safety were also raised like side effects to children, pregnant women, and those that have diseases (hypertension, diabetes, etc.), chemicals used on seeds, place of origin (must not from China), will not cause indigestion, poison content, impact of color on health, advantage and disadvantage to health, and how it will be rich in vitamins if pesticides and insecticides will be used. Some respondents even suggested that upon release of this Golden Rice, a cooking demonstration must be conducted in their area, and the facilitator should be the first one to taste in front of them so they will see if the food is safe.
They also want to address the question on price such as affordability (cheaper than commercial or NFA rice), farm-gate price (equal or higher than white rice), and colored rice price expectation (likely to be expensive: red rice is P105 per kg). They suggested that it must be cheaper than other colored rice but should be positioned as premium rice.

They also want to know the effects of Golden Rice on health of adults if it prolongs their life since it has vitamins, other vitamins present, why Vitamin A was used or induced, nutritional content, and if it gives resistance to sickness.

They also need information about usage like the amount of Golden Rice intake to fill the stomach, deterioration of Vitamin A if Golden Rice is stored for long periods, storability, and process of cooking (such as water requirement). They also want a detailed but simpler explanation on how Golden Rice was developed. Out of their curiosity, they also asked questions such as why there is shift from white to yellow rice, is it readily available, how does it smell, why did the Church ban genetically modified organisms, if the parent seed originated from another country, and is it suitable in the type of soils of the Philippines. Some important comments gathered are as follows: respondents do not want Golden Rice to be sold through NFA because they perceive NFA rice to be of lower quality (smell, taste, texture) and they want testimonials from reliable and prominent people (not necessarily celebrities) that have tried. One respondent even told that color yellow might cause hepatitis and will make their teeth yellow.

Majority of the farmers across provinces are interested to grow Golden Rice since they are accustomed in trying new varieties. There only major concern is the marketability of the rice. Some farmers in Albay have experienced planting premium rice; however, since it was more expensive, traders did not buy them and hence they went back to the traditional white rice which is easier to sell. They also asked questions regarding Golden Rice seeds such as the color of its immature grains, usage for second cropping, height, fragility of Golden Rice when threshed (because some seeds easily break when they feed them to mechanical thresher), availability in PhilRice, compatibility to different types of soils (sandy, loamy, clayey soils), growth to upland or lowland, and applicability to irrigated or non-irrigated lands. Questions on market introduction and distribution were also asked such as its market price, presence of established market, price compared to other varieties, availability in the area, appeal to consumers (color might scare them, taste and smell not good), impact on its market value when perceive as genetically modified crop, and if it is given for free from the Department of Agriculture. They even suggested that PhilRice should coordinate with the municipal branch of the Department of Agriculture and the local government unit to easily implement the project. They also want the Department of Agriculture technicians to conduct demonstrations on sample farms so that farmers would see the yield results.
The following are questions regarding Golden Rice that the participants are interested in knowing:

Comments and questions regarding Golden Rice seeds:

- If the grain is not yet mature, will the coat be green just like any other grains?
- Can it be used for the second cropping?
- Will it grow tall?
- Are there chemicals placed in the seeds?
- Does PhilRice already have the seeds?
- Sometimes after being processed in the thresher, the seeds are damaged. Is Golden Rice seeds fragile when threshed? Because if it is, then it will not be able to be used for the next cropping.

Comments and questions regarding production and, length and yield of harvest:

- How long will it take to harvest?
- Is the harvest yield the same or better?
- Will it affect the neighboring farms which have a different variety of rice? Will it lead to cross breeding?
- Is it prone to pests?
- Will it grow well?
- Is it the same with other rice?
- Can it be planted directly?
- Will it require more fertilizers?
- How it is planted?
- Does it germinate easily?
- Is the color of the stalk yellow? (because if it is, the color might help drive away birds)
- Is it resistance to wind and pest?
- How many is the cropping period before the seed will be replaced?
- Is it open to cross pollination?
- Is it seasonal?
- How about method of planting? Is it direct seeding or broadcast?
- Can the second generation seeds be planted back in the field?
- Can it be cross bred with black rice?
- Is it safe if placed together with other rice varieties?
- Does it have any chances of mutating in the future? Will it darken?
- Will it have the same color and Vitamin A content after being replanted?

**Questions regarding resistance to climate/weather:**
- Is it resistant to rain or can it withstand the wet season?
- Can it withstand the heat during dry season?
- Is it applicable with our climate/weather?
- Is it resistant to sudden changes in weather?
- Is it resistant to flood?

**Other questions:**
- Is it for consumption, commercial, or both?
- Who developed it?
- Where did the yellow color come from?
- Any specific storage requirements?
- One respondent was hoping it will have better feedback than BT Corn.
- Where did it originate?
- We want to see the results first from the laboratory before we will be convinced.
- Is being a genetically modified organism the reason why the Golden Rice is colored yellow?
Recommendations given by the Respondents

- **Develop Golden Rice in RC10, RC18, and IR82 varieties**

These are the varieties that are well accepted by both farmers and consumers. The first two varieties are considered as good varieties which have good yields and are most likely to be planted by the local farmers. For IR82, consumers are accustomed to the characteristics of this variety of rice, making it very acceptable in the market.

- **Modify, if not change, the Golden Rice name**

Although most provinces are attracted to this, there have been many instances wherein Golden Rice was confused with other varieties or brands. Many have claimed that they have tasted this even if it has not been developed yet. In addition to this confusion, there were many instances that Golden Rice was associated with golden snails, a known pest of rice. Further research should be made as to what acceptable name the rice could be given that can disassociate itself with other negative impressions.

- **Tie up with local government units and local branches of the Department of Agriculture**

Locals have high trust with the local government, especially with the Municipal Office of Agriculture. They have high interaction with those in this office, and this can easily be tied up with local programs, making the introduction of Golden Rice easier. They are willing to try anything the Department of Agriculture gives to them, even without sufficient information. With this, their main source of seeds should come from this Department. They do not believe that the government would issue seeds that are not good; therefore, they rely fully on the government’s judgement as to what seeds are right to plant in the area. Because of such high levels of trust, they would prefer that information be delivered through this department, as it is more reliable. With this, they would prefer that a representative would come and lecture them on new varieties of rice, as they consider interaction a very important factor in receiving information. They would trust the local rather than the national government. The national government might even politicize this event, degrading its reputation. However, it is unadvisable to tie up with the National Food Authority, as most have negative perceptions regarding rice coming from this agency. However, for distribution, it is best to assist these agencies to make sure that most of the population is allotted with seeds.

- **Orient locals on genetically modified organisms and vitamin A deficiency**

Currently, there is limited knowledge on genetic modification and vitamin A. This also highlights the fact that there has been no influence from anti-GMO organizations or the
Church regarding the manner. However, the respondents made it clear that they were interested in learning about the topic. Locals tend to believe in whoever informs them first on a certain topic. Therefore, it is advised that these locals should be oriented properly on genetically modified organisms and on vitamin A deficiency, as knowledge in these areas are still limited. If other parties go ahead and provide information to them, they may tend to believe this even if the information is not validated. Proper orientation would eliminate misconceptions on these topics. This can be done by orienting staff from the local government (such as the agricultural technicians, barangay health workers, barangay nutrition scholars) who will then be in charge of orienting the locals in their respective areas.

- **Prioritize conducting seminars and workshops to adults**

Interaction is held as very important to the locals. This is because when in doubt, they could easily ask directly to the facilitators of the event. This way, they could understand the topic more clearly and there is that psychological effect that they are involved in the project. They feel that they are important to the project, therefore would give full cooperation to it. The acceptance would be greater than if it was just advertised in the television. Workshops and demonstrations can be done on Golden Rice during planting and in consumption (such as cooking demonstrations). Also, proper information should be given, such as how to determine if the rice was artificially colored yellow.

- **Use health officials as endorsers for adults and fast food chains for children**

Most adults would trust anyone from the medical profession in delivering information regarding health and nutrition. This would also be effective if seals were incorporated, such as those from the Department of Health and Bureau of Food and Drugs. However, to entice children, tie-ups with fast food chain commercials would be better. Children are attracted by food advertised by these, and would tend to accept anything shown in these advertisements. In addition, there should be a catchy tagline, jingle, or sign that could easily be associated with Golden Rice to make it remembered.

- **Position Golden Rice as better than NFA Rice but at a similar price**

Price is a very crucial factor in deciding the type of rice to purchase. If possible, Golden Rice should be positioned as more nutritious rice but at the price level of rice distributed by the National Food Authority. However, tags such as “fortified” should not associated with Golden Rice, as this may produce negative perceptions due to the association with fortified rice distributed by NFA before, which was perceived as bad quality. They should highlight that it is rich in Vitamin A, which is needed by the body.
• Distribute to local farmers to be planted (through the local branch of the Department of Agriculture) before releasing it to the consumers

Consumers as well as farmers would trust locally produced rice rather than those planted from other places. They assume that the rice produced locally is not oversprayed with pesticides and fertilizers, which is safe for them and their children. Because of this, they would have positive perceptions with locally produced rice, and they would associate food safety with it. This shows that locals have trust highly their local farmers and their produce. Because of this, it is ideal that local farmers should be handed the seeds first and this should be planted locally before distributing the consumers. For testing purposes, Golden Rice can be distributed for free at small amounts, for example 2 kilograms per farmer per hectare. For consumers, Golden Rice should not be distributed through NFA; instead, this can be distributed through schools, health centers, and local market vendors.

**Recommended Course of Action**

Based on the findings of this study, it is clear that the acceptability of Golden Rice is high in the rural areas. However, this may have been brought about by the lack of knowledge on certain topics such as genetically modified organisms and vitamin A deficiency. In order to derive different results, focus group discussions should be redone after introducing these topics to them.

In addition, focus group discussions should also be conducted for urban households, as these are also targeted consumers of the said product. Farmers mention that planting Golden Rice is highly dependent on the size of the market. If consumers from major cities do not purchase the product, farmers may be reluctant to plant it. Also, because of the unexpected results gathered from the focus group discussions, urban dwellers may also have different point of views regarding the topic. It is therefore imperative that insights be extracted from this type of participants.

The results gathered in this study lack quantitative analysis, as the method used focuses more on insights. Therefore, it is suggested that a survey form or questionnaire be developed based on the results of this study to give a quantitative view on the different issues. This way, insights may be more conclusive because of different analyses that may be used to treat the data.
The ‘story board’ used by each of 4 AIM MBA student groups to conduct the structured interview ‘Focus Groups’
information