

**COMMERCIALIZATION OF LEMONGRASS
(*Cymbopogon citratus* Stapf.)
READY-TO-DRINK BEVERAGE PRODUCT
(Kalamansi-Ginger Flavor)**

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ABSTRACT

The lemongrass kalamansi-ginger ready-to-drink (LGKG RTD) beverage was previously developed to provide a healthy yet convenient alternative to beverage products sold in canteens. This study aims to determine the commercialization of the CPU LGKG RTD beverage in terms of consumer preference, acceptability, competitor analyses, and marketing strategy. The LGKG beverage product was most preferred in the Elementary Canteen and Dining Hall against two other competitor products. The product was acceptable to 472 of 500 respondents, 457 indicated a willingness to buy the product, and 435 preferred the price at P15-20. Test marketing of the product showed the lowest sales at P50 selling price, which was increased when the price was reduced. The RTD beverage product is not saleable.

INTRODUCTION

In 2013, CPU developed lemongrass ready-to-drink (RTD) beverages through CHED funding (Villalobos *et al.*, 2013). The RTD beverage products provide a solution to the concerns on health and wellness through their high citral content, high antioxidant activity, and great taste. These beverages serve as a healthy yet convenient alternative to soft drinks or those RTD products having artificial preservatives or sweeteners. The lemongrass kalamansi-ginger (LGKG) flavor, in particular, enables

the utilization of the local ingredients which are abundant and can be easily produced or acquired, such as lemongrass, kalamansi, and ginger. The next challenge for CPU is to produce these in large amounts to be served in school canteens and to commercialize the products so that more people are informed and can avail of the health benefits of antioxidants and citral (Figure 1).

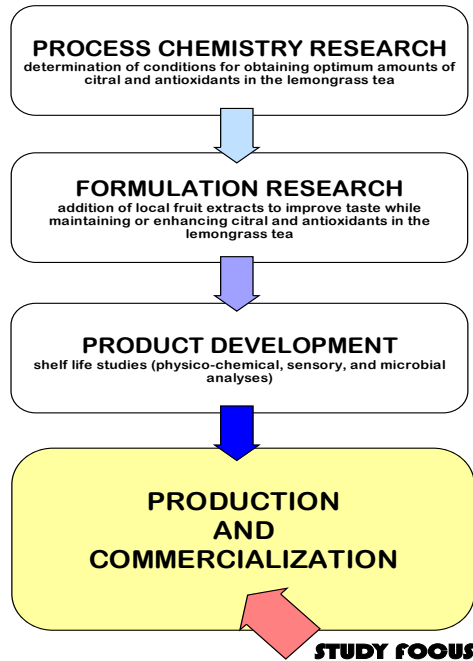


Figure 1. Product development process of CPU lemongrass beverage product

Commercialization is the last stage of new product development process. This is the stage at which the final decision is made to produce and introduce the new product to its target market (Udeagha, 2003).

New products are being introduced into the market everyday. Product development and innovation are full of risks since many new products fail upon being launched into the market. The company can introduce limited quantities of the product into the market. This is also known as “test marketing,” which aims to access consumer’s reactions in terms of demand and acceptability of the product. Small quantities of the product are test marketed in different geographical areas and age group to ascertain the reactions of consumers. During test marketing, reactions and complaints of consumers are taken. The speed of sales of the new product is noted for future projection of sales and profit. Market testing is essential to avoid major losses when large quantities of the product are produced and sent to the market. Once the results of test marketing are satisfactory, the company produces the goods in large quantities and fully market the product. This is also known as commercialization (Kotler & Keller, 2013).

Four factors were considered for the commercialization of the LGKG RTD beverage, namely:

- *When to introduce the product.* This is the best time to introduce CPU’s kalamansi-ginger lemongrass RTD beverage product in the market since most people are health-conscious, both young and old. There is also DepEd order no. 8 series of 2007 which prohibits all canteens in public elementary and secondary schools to sell carbonated drinks or any food products which are detrimental to the child’s health.

- *Where to market the product.* The product will be introduced first within the Central Philippine University campus, then later in the region, when facilities are capable of producing large quantities of the product.

- *Whom to sell the product.* The target market of the lemongrass RTD beverages are CPU constituents of all ages, as well as alumni.

- *How to introduce the product.* The product will be introduced initially by word of mouth. The University will eventually develop a good strategy to make the product very much acceptable in the target market.

Planning of commercialization follows after market testing. This involves analysis of both external and internal factors to generate information for the management to plan for commercialization. Three factors are analysed, namely, market, competitor, and company.

Market analysis. Market analysis defines the potential market for the new product, and the important aspect of market analysis is the examination of customer base. The company has to clarify numerous details that affect the buying behaviour of the potential customers. The customers are typically grouped with the use of geographic (countries, regions, cities), demographic (sex, age, income, education), psychographic (social classes, lifestyles) and behavioural (purchase occasions, usage rates) factors. These factors give basic knowledge for the management to analyze the differences between target customer groups (Kotler & Keller, 2013).

Competitor analysis. The planning of effective marketing strategies requires an understanding of the current competition situation in the target market. The competition can vary in intensity: it may be strong or mild. Any form of competition can be harmful to the company, but the lack of competition, in the long run, could lead to the same kind of results as if the company was facing intense competition. There are many examples of past companies which based their competitive advantage solely onto the proprietary base of technology and found out that after the expiration of patent protection, the seemingly sudden appearance of competition made them extinct. After the identification of the primary competitors, the company needs to assess the competitors' strengths and weaknesses and collect information about their general strategies and objectives (Kotler & Keller, 2013). SWOT (strengths, weaknesses, opportunities, and threats) analysis is helpful for this purpose.

Company analysis. Commercialization of a new product always affects a company's long and short-term cost-effectiveness. There will be a drain of resources until the new product achieves a

break-even point and begins generating cash-flow. In the company analysis the key points to be clarified are: 1) resources of company (finance, personnel, production capacity, etc.), 2) current products (if any) and their position on the market after the launch and 3) the company and the product image (Kotler & Keller, 2013).

Product

The lemongrass kalamansi-ginger ready-to-drink beverage product is the result of a two-year research and development process and consists of documentation and test results that show the product is more healthy and nutritious. Furthermore, the commercialization of Lemongrass product is different than any other product launches in the market. The lemongrass product even differs from the other beverage products because of its high antioxidants, high citral and great taste supported by the research study.

Product Information

Lemongrass beverage product (kalamansi-ginger flavor) is a non-carbonated, ready-to-drink (RTD) beverage using a blend of the decoction of lemongrass (*Cymbopogon citratus* Stapf.) sheaths with added kalamansi (*Citrofortunella microcarpa* Bunge.) and ginger (*Zingiber officinale* Rosc.) flavor. It is a product of research with high antioxidant activity, high citral content and great taste under the brand name LONGLIV.

Product Description

The beverage product is derived from the processing of mature, healthy and disease-free lemongrass sheaths which are decocted, strained and blended with the juice extracted from mature, healthy and fresh kalamansi, ginger tea and refined white sugar. The product is then strained, pasteurized and hot-filled into pre-sterilized containers.

Table 1.
Analytical Data of LGKG RTD and Selected Competitor Products

	LGKG RTD	Competitor 1	Competitor 2	Competitor 3
^o Brix (Refractometer)	10.0	8	11.6	10
% Titrable Acidity (as citric acid)	0.23			
pH	3.1	3.09	3.34	2.56
Flavor	Typically acidic with characteristic blend of lemongrass, kalamansi and ginger flavor			
Color	Greenish yellow			
Standard Plate Count	----- cfu/g			
Viable Yeast and Mold	-----			
Net Weight	-----			
Shelf Life	17 days			

Objectives of the Study

This study aims to determine the commercialization of CPU’s lemongrass ready-to-drink beverage kalamansi-ginger flavor in terms of

- consumer preference
- acceptability
- competitor analyses
- marketing strategy

Operational Definition of Terms

Commercialization – This is defined as the process of introducing the LGKG RTD into the market.

Introductory price – This refers to the initial price of LGKG RTD product sold to the CPU community.

Professional – This is used in the study in reference to those who are working regardless of age.

Pupil – This is used in the study in reference to those studying in elementary school.

Student – This is used in the study in reference to those studying in high school and college.

Unit cost – This is defined as the cost of LGKG RTD product per 330 mL bottle.

METHODOLOGY*Production of the LGKG RTD Beverage*

Lemongrass beverage production was done every Monday at the Food Laboratory (Room A104) of the *Dr. Lucio C. Tan* College of Hospitality Management at Central Philippine University, Jaro, Iloilo City. Production was done once a week for a period of four weeks, from February – March 2015. The unit cost for every 330 mL bottled product is P 35.95.

Determination of Consumer Preference

Testing for consumer preference was done in four sampling areas – Dining Hall, Uy Building, Elementary and High School Canteens in different time periods. Testing was done during peak hours: during lunchtime at the Dining Hall and Uy Building, and during recess time at the Elementary and High School canteens. Respondents were chosen using accidental sampling. The mechanics in conducting the survey in all areas were as follows: the lemongrass RTD beverage was placed side by side with two other related non-alcoholic, non-carbonated RTD beverage

products sold at the canteens. The three products were placed on a table corner in separate dispensers without brand names but coded with random numbers. All three products were given to every respondent to taste; then the respondent was asked to rate each according to his/her preference. The elementary students/pupils were guided in tasting the three coded products, and in answering the questionnaires. One hundred questionnaires were prepared per area for data collection. A separate preference survey questionnaire for children was prepared for elementary pupils/students. The questionnaires are valid and available in food science textbooks.

Determination of Acceptability of RTD Product and Price Preference

An open food evaluation survey of the RTD product was conducted at the same sampling areas at the Dining Hall, Uy Building, Elementary, and High School Canteens to determine the product acceptability and price preference of the lemongrass RTD according to age, gender, lifestyle, and income/allowance. The lifestyle was based on the type of drink the respondents drink almost everyday, and whether they are health-conscious or not. This time, the bottled product with the label was described as the lemongrass kalamansi-ginger RTD beverage, a product of CPU research and high in antioxidants and citral. The bottled products were displayed at one corner of the canteens during peak hours: lunchtime at the Dining Hall and Uy Building, while during recess time at the Elementary and High School canteens. The respondents were chosen using accidental sampling. A small amount of the product was given to every respondent to taste, then the respondent rated the product (package and content) acceptability and price according to his/her preference according to his/her age, gender, lifestyle, income/allowance. Elementary students/pupils were guided in answering the questionnaires. One hundred twenty-five questionnaires were prepared per area for data collection. A separate preference survey questionnaire for children was prepared for elementary pupils/students. The questionnaires were validated and approved by the Research Evaluation panel.

Market, Competitor, and Company analyses

Market analysis. The LGKG RTD product acceptability and preference of the respondents were determined.

Competitor analysis. Primary competitors were identified, and their strengths, weaknesses, opportunities, and threats (SWOT) were determined.

Company analysis. This was conducted to determine the company's long and short-term cost-effectiveness in terms of financial, manpower, and production capacity.

Development of Marketing Strategy

Strategies to attract more customers to buy the product was determined based on the market, competitor, and company analyses.

Determination of the Saleability of the RTD Product

After the conduct of preference and market testing, the LGKG RTD beverage was sold at an introductory price at La Azotea, Dining Hall, Uy Building, and the Elementary and High School canteen for four days. The sales were then determined.

Data Processing and Analysis

Data was processed using SPSS 16. The relationship between taste preference of different products in relation to age and gender was processed using cross-tabs. The relationship between product acceptability and price acceptability of the LGKG RTD beverage product with complete packaging in relation to age, gender, allowance/income, and lifestyle was analyzed using cross tab/chi-square test. Post-hoc analysis for results with a significant chi-square value was carried out using Microsoft Excel 16.

RESULTS AND DISCUSSION

Preference on Taste: Blind Testing

The consumer preference on the taste of the LGKG RTD in comparison with two other similar products was tested in four different canteens within CPU during their specific peak hours. Table 2 summarizes the characteristics of the respondents in the different dining areas according to age and gender.

The different canteens or food areas cater to different groups of people within the University. The High School Canteen caters to the high schoolers of ages 13 to 17 years, while the Elementary Canteen caters to pupils and students of 6 to 13 years of age. Both the Dining Hall and Uy Building have wider range of respondents from ages 12 years and below until 51 years and above since these cater to more consumers within the University. However, 84% of the respondents from the Uy Building Food Court were in the 13 to 20 years range, while only 2 to 4 % of the other age groups were present. Around one-third of the respondents are male while two-thirds are female. This shows that the Uy Building caters mostly to the high school and college students since it is nearer the High School Building and other Colleges, namely, Arts and Sciences, Business and Accountancy, Education, Computer Science, and CARES.

On the other hand, only 56% of respondents from the Dining Hall belong to the 13 to 20 years range, and 10 to 13 % are of the 12 years and below, 21 to 30, 31 to 40, or 41 to 50 years. Almost three-fourths of the respondents are females. This implies that the Dining Hall caters more to elementary pupils and their mothers or guardians, who are mostly females since its location is near the Elementary Building. The Dining Hall is also nearer the Main Gate of CPU, Weston Hall, and the Roselund Hostel and Guest Houses, which makes it more accessible to visitors and guests for snacks and meals. Thus, more respondents of ages above 21 years are present in this area compared to those in the Uy

Building. It is also observed that among the respondents, the female group was more than the male, except in the Elementary canteen.

Overall Consumer Preference in Four Testing Areas

High school students most preferred the taste of Competitor 3 RTD beverage and the LGKG RTD, the least (Table 3), while a handful of elementary students prefer the LGKG better than the other two similar beverages. The LGKG was preferred by more respondents in the Dining Hall but was least preferred by most respondents in the Uy Building.

Table 2.
Descriptive Characteristics of the Respondents (Blind Testing)

Area (Number of Respondents)	Variables	Frequency	
<i>High School Canteen (n = 97)</i>	<i>Age</i>	13 – 15	50
		16 – 17	47
	<i>Gender</i>	Male	40
		Female	57
<i>Uy Building Food Court (n = 100)</i>	<i>Age</i>	12 and below	3
		13 – 20	84
		21 – 30	4
		31 – 40	4
		41 – 50	3
		51 and above	2
	<i>Gender</i>	Male	41
		Female	59
<i>Elementary Canteen (n = 100)</i>	<i>Age</i>	6 – 10	56
		11 – 13	44
	<i>Gender</i>	Male	51
		Female	49
<i>Dining Hall (n = 100)</i>	<i>Age</i>	12 and below	10
		13 – 20	56
		21 – 30	10
		31 – 40	13
		41 – 50	10
		51 and above	1
	<i>Gender</i>	Male	27
		Female	73

Table 3.
Overall Consumer Preference Per Area

Area	Frequencies for Product Preference		
	LGKG	Competitor 1	Competitor 3
High School Canteen (n=97)			
1-Most preferred	14	37	52
2-Less preferred	22	49	29
3-Least preferred	61	11	16
Uy Building (n=100)	LGKG	Competitor 1	Competitor 2
1-Most preferred	20	57	26
2-Less preferred	17	30	54
3-Least preferred	63	13	20
Elementary Canteen (n=100)	LGKG	Competitor 1	Competitor 3
1-Most preferred	12	5	4
2-Less preferred	45	13	28
3-Least preferred	43	82	68
Dining Hall (n=100)	LGKG	Competitor 1	Competitor 3
1-Most preferred	39	30	34
2-Less preferred	23	44	39
3-Least preferred	38	26	27

High School Canteen. The LGKG showed the lowest preference among the three beverages based on taste, with around 63% of the respondents indicating the least preference and was most preferred by only 14%. Competitor 3, was the most preferred by 54% of the high school students. Competitor 1, was most preferred by 38% of the students.

Uy Building Food Court. The LGKG was most preferred by 20% of the respondents and least preferred by 63%. Competitor 1, was most preferred by 57% of the respondents, while Competitor 2, was most preferred by 26%.

Elementary Canteen. There is an apparent discrepancy of results for the elementary pupils since there was only a total of 21 out of 100 students who indicated most preferred for the three beverages and more than 100 students indicated least preferred for

all beverages. This is because they ranked two beverages twice for less or least preferred, and it was not controlled during the sampling process since the elementary pupils were allotted a very short recess time.

The LGKG was least preferred by 43% of the respondents. However, 68% and 82% of the respondents indicated the least preference for Competitor 3 and Competitor 1, respectively. There were 12% who indicated that they most prefer the LGKG; 5% most prefer Competitor 1, while 4% most prefer Competitor 3. Overall, it appears that very few elementary respondents prefer the LGKG RTD better than the other two beverages available in their canteen. However, the observation that only 21 out of the 100 respondents indicated most preferred based on taste means that the elementary pupils have the least liking for these kinds of beverages and may prefer other types of beverages such as soft drinks, choco- or milk drinks, or water.

Dining Hall. Among the respondents, 39% indicated that the LGKG is their most preferred according to taste, but 38% also signified the least preference for this product. Competitor 3 was most preferred by 34% and Competitor 1, by 30% of the respondents.

In terms of frequency counts or mode per RTD product per area, the LGKG was the most preferred in the Dining Hall and Elementary Canteen areas against the two other competitor products.

Consumer Preference According to Age

Table 4 shows and compares consumer preference of the lemongrass kalamansi-ginger RTD variant according to age in the four different canteens. The diversity of the age groups served by the food areas are depicted, with most of the respondents in the Uy Building and Dining Hall being in the 13 to 20 years age group, corresponding to the High School and College students.

High School Canteen. Thirteen of the 50 younger students aged 13 to 15 years old (Table 2) showed the most preference for the LGKG than the those in the 16 to 17 age group (1 out of 47). This response from the 13 to 15 age group accounts for the 13% out of the 14% of the overall respondents who indicated they most prefer the LGKG in this testing area. On the contrary, around 26 students from the younger group and 35 from the older group said that they least prefer the LGKG RTD. Both age groups most preferred competitor 3.

Uy Building Food Court. The 13 to 20 age group (Table 2), among the other age groups, had the greatest influence on the preference of the RTD beverages. Within this group, 52 out of 84 (compare Table 4 with Table 2) indicated the most preferences for Competitor 1, 22 for Competitor 2, and only 12 indicated a most preference for the LGKG. Among the 63% of the total respondents who signified the least preference for LGKG within the Uy Building, 57% is accounted for by this age group (Table 4).

Table 4.
Consumer Preference According to Age

Area		Frequencies for Product Preference		
High School Canteen (n=97)		LGKG	Competitor 1	Competitor 3
1-Most preferred	13-15	13	18	22
	16-17	1	19	30
2-Less preferred	13-15	11	27	14
	16-17	11	22	15
3-Least preferred	13-15	26	5	14
	16-17	35	6	2
Uy Building (n=100)		LGKG	Competitor 1	Competitor 2
1-Most preferred	12 and below	1	3	0
	13-20	12	52	22
	21-30	3	0	1
	31-40	3	0	1
	41-50	0	2	1
	51 and above	1	0	1
2-Less preferred	12 and below	0	0	3
	13-20	15	24	46
	21-30	0	3	1
	31-40	0	2	2
	41-50	1	0	2
	51 and above	1	1	0
3-Least preferred	12 and below	2	0	0
	13-20	57	8	16
	21-30	1	1	2
	31-40	1	2	1
	41-50	2	1	0
	51 and above	0	1	1

Continued Table 4

Elementary Canteen (n=100)		LGKG	Competitor 1	Competitor 3
1-Most preferred	6-10	7	4	3
	11-13	5	1	1
2-Less preferred	6-10	19	8	16
	11-13	26	5	12
3-Least preferred	6-10	30	44	37
	11-13	13	38	31
Dining Hall (n=100)		LGKG	Competitor 1	Competitor 3
1-Most preferred	12 and below	0	5	6
	13-20	17	19	22
	21-30	6	2	2
	31-40	8	2	2
	41-50	7	2	2
	51 and above	1	0	0
2-Less preferred	12 and below	3	3	3
	13-20	15	23	20
	21-30	1	6	4
	31-40	2	9	5
	41-50	2	3	6
	51 and above	0	0	1
3-Least preferred	12 and below	7	2	1
	13-20	24	14	14
	21-30	3	2	4
	31-40	3	2	6
	41-50	1	5	2
	51 and above	0	1	0

Elementary Canteen. Among the 56 pupils in the 6 to 10 age group, 30, 44, and 37 respondents said they least prefer LGKG, Competitor 1, and Competitor 3, respectively. Seven pupils of ages 6 to 10 and 5 of ages 11 to 13 signify they most prefer the LGKG. Thus, elementary pupils of the younger age group showed the least preference for the taste of all beverages, although both age groups prefer the LGKG better than the other beverages sold in the canteen.

Dining Hall. Among the respondents, 17, 19, and 23 out of 56 belonging to age group 13 to 20 indicate a most preference for LGKG, Competitor 1, and Competitor 3, respectively. Most of the respondents above 20 years old indicated that they most prefer the LGKG, with 6% (6 out of 10), 8% (8 out of 13), and 7% (7 out of 10) from the 21 to 30, 31 to 40, and 41 to 50 respective age groups contributing into the overall 39% who signified most preference for LGKG in the Dining Hall area. However, 7% and 24% of those who indicated the least preference for the LGKG in this area came from the younger group of ages 12 and below, and 13 to 20

years, respectively. Thus, in the Dining Hall area, it appears that age is an important factor for the preference of taste for LGKG.

Consumer Preference According to Gender

Data in Table 5 shows that more females than males said they most prefer the LGKG in the High School canteen (10 out of 57 females; there are 57 female respondents in the High School Canteen in Table 2) and Dining Hall (30 out of 73). The opposite is true in the Elementary Canteen and Uy Building, where 8 out of 51 males, and 11 out of 41, respectively, indicated they most prefer the LGKG drink.

Table 5.
Consumer Preference According to Gender

Area		Frequencies for Product Preference		
High School Canteen (n=97)		LGKG	Competitor 1	Competitor 3
1-Most preferred	Male	4	18	20
	Female	10	19	32
2-Less preferred	Male	7	18	17
	Female	15	31	12
3-Least preferred	Male	29	4	3
	Female	32	7	13
Uy Building (n=100)		LGKG	Competitor 1	Competitor 2
1-Most preferred	Male	11	23	10
	Female	9	34	16
2-Less preferred	Male	5	12	23
	Female	12	18	31
3-Least preferred	Male	25	6	8
	Female	38	7	12
Elementary Canteen (n=100)		LGKG	Competitor 1	Competitor 3
1-Most preferred	Male	8	3	3
	Female	4	2	1
2-Less preferred	Male	23	6	15
	Female	22	7	13
3-Least preferred	Male	20	42	33
	Female	23	40	35
Dining Hall (n=100)		LGKG	Competitor 1	Competitor 3
1-Most preferred	Male	9	13	5
	Female	30	17	29
2-Less preferred	Male	9	10	11
	Female	14	34	28
3-Least preferred	Male	9	4	11
	Female	29	22	16

Acceptability of the Lemongrass Kalamansi-Ginger RTD

A total of 500 respondents in Dining Hall, Uy Building food court, Elementary and High School Canteens participated in the food evaluation survey. Presented in Table 6 are the characteristics of the respondents. The majority were of ages 13 – 18 years (40.4%), females (60.2%), and students (51.2%). These belong to the various allowance or income brackets. One hundred thirty-four of them (26.8%) claimed that they mostly drink soft drinks everyday, while almost half (48.6%) drink juices or tea everyday. The majority (87.2%) also signified that they are health-conscious.

Table 6.
Descriptive Characteristics of the Respondents (Open Evaluation)

Variables (N = 500)	Frequency	%
Age		
12 and below	105	21.0
13 – 18	202	40.4
19 – 24	73	14.6
25 and above	120	24.0
Gender		
Male	199	39.8
Female	301	60.2
Category		
Pupil	100	20.0
Student	256	51.2
Professional	144	28.8
Allowance/Income (PhP)		
<i>Students/Pupils</i>		
50 and below	161	32.2
51 – 100	68	13.6
101 – 150	23	4.6
151 – 200	46	9.2
Above 200	58	11.6
<i>Professionals</i>		
Below 1000	54	10.8
1001 – 2000	25	5.0
2001 – 3000	16	3.2
3001 – 4000	12	2.4
Above 4000	37	7.4
Everyday drink		
Soft drinks	134	26.8
Fruit juice	95	19.0
Iced tea	80	16.0
Hot tea	57	11.4
Powdered juice drink	11	2.2
Others	123	24.6
Health-conscious		
Yes	436	87.2
No	64	12.8

Overall Acceptability

Table 7 shows that 472 respondents expressed that they like the lemongrass product. The frequency counts based on various variables are further shown, with the chi-square test for independence values. Among the respondents who indicated that the product was acceptable, most were of ages 13 – 18 (184), females (285), students (234), and health-conscious (412). The acceptability or liking of the product was significantly associated with age ($\chi^2 = 11.312, p < 0.05$) and category ($\chi^2 = 12.913, p < 0.01$), but not with gender, allowance, income, everyday drink or health-consciousness. Both age (Cramer’s V = 0.15, $p < 0.05$) and category (Cramer’s V = 0.161, $p < 0.05$) has low but significant association with overall acceptability. Pairwise comparisons between age in association to acceptability indicated significance in ages 25 and above ($p_{adjusted} < 0.00625$), while pairwise comparisons in category showed significance in the students and the professionals ($p_{adjusted} < 0.00083$) group.

Table 7.
Acceptability of the Lemongrass RTD Beverage

(N = 500)	Yes (n = 472)		No (n = 28)		Stat. Analyses
Age	f	%	f	(%)	$\chi^2 = 11.312^*$, df=3 Cramer’s V=0.15* $p_{adjusted} = 0.00625$; df=1
12 and below	99	94.29	6	5.71	
13 – 18	184	91.09	18	8.91	
19 – 24	69	94.52	4	5.48	
25 and above***	120	100.00	0	0.00	
Gender	f	%	f	6.03	$\chi^2 = 0.116$, df=1
Male	187	93.97	12	5.32	
Female	285	94.68	16	5.32	
Category	f	%	f	6.00	$\chi^2 = 12.913^{**}$, df=2 Cramer’s V=0.161* $p_{adjusted} = 0.00833$; df=1
Pupil	94	94.00	6	8.59	
Student***	234	91.41	22	0.00	
Professional***	144	100.00	0	0.00	

Continued Table 7

Allowance/Income (PhP)					
<i>Students/Pupils</i> 50 and below	f	%	f	7.45	$\chi^2 = 3.203, df=4$
	149	92.55	12	10.29	
51 – 100	61	89.71	7	0.00	
101 – 150	23	100.00	0	10.87	
151 – 200	41	89.13	5	6.90	
Above 200	54	93.10	4	6.90	
<i>Professionals</i> Below 1000	f	%	f	0.00	-----
	54	100.00	0	0.00	
1001 – 2000	25	100.00	0	0.00	
2001 – 3000	16	100.00	0	0.00	
3001 – 4000	12	100.00	0	0.00	
Above 4000	37	100.00	0	0.00	
Everyday drink					
	f	%	f	8.21	$\chi^2 = 10.389, df=5$
Soft drinks	123	91.79	11	3.16	
Fruit juice	92	96.84	3	8.75	
Iced tea	73	91.25	7	3.51	
Hot tea	55	96.49	2	18.18	
Powdered juice drink	9	81.82	2	2.44	
Others	120	97.56	3	2.44	
Health-conscious					
	f	%	f	5.50	$\chi^2 = 0.059, df=1$
Yes	412	94.50	24	6.25	
No	60	93.75	4	6.25	
* $p < 0.05$		** $p < 0.01$		*** $p < p_{adjusted}$	

This implies that the LGKG product is most acceptable to those of ages 25 and above, and the students and professionals, and this product should be sold to these age and category groups among the others. However, the product is equally acceptable whether the consumer is male or female, and regardless of how much the daily allowance of the students/pupils are. The product is also equally acceptable regardless of the type of everyday drink of the respondents, and whether they are health-conscious or not.

Willingness to Buy

A total of 457 respondents signified that they are willing to buy the LGKG product (Table 8). The majority of the respondents willing to buy were aged 13 to 18 (181), females (283), students (230), and health-conscious (397). The willingness to buy the product was significantly associated with age ($\chi^2 = 20.101, p < 0.01$), gender ($\chi^2 = 6.604, p < 0.05$), category ($\chi^2 = 23.315, p < 0.01$) and students' daily allowance ($\chi^2 = 12.766, p < 0.05$), but not with everyday drink or health-consciousness. Age (Cramer's V = 0.201, $p < 0.05$), gender (Phi = -0.115, $p < 0.05$), category (Cramer's V = 0.216, $p < 0.05$), and daily allowance of students (Cramer's V = 0.15, $p < 0.05$), were all weakly but significantly associated with willingness to buy. Pairwise comparisons between age as associated in willingness to buy was significant in ages 12 and below, and 25 and above ($p_{adjusted} < 0.00625$), while pairwise comparisons in category showed significance in the pupils and the professionals ($p_{adjusted} < 0.00083$) group.

Table 8.
Willingness to Buy the Lemongrass RTD Beverage

(N = 500)	Yes (n = 457)		No (n = 43)		Stat. Analyses
Age	f	%	f	%	$\chi^2 = 20.101^{**}$, df=3
12 and below***	88	83.81	17	16.19	Cramer'sV=0.201*
13 – 18	181	89.60	21	10.40	$p_{adjusted} = 0.00625$; df=1
19 – 24	68	93.15	5	6.85	
25 and above***	120	100.00	0	0.00	
Gender	f	%	f	%	$\chi^2 = 6.604^*$, df=1
Male***	174	87.44	25	12.56	Phi= -0.115*
Female***	283	94.02	18	5.98	$p_{adjusted} = 0.0125$; d=1
Category	f	%	f	%	$\chi^2 = 23.315^{**}$, df=2
Pupil***	83	83.00	17	17.00	Cramer'sV=0.216*
Student	230	89.84	26	10.16	$p_{adjusted} = 0.00833$; df=1
Professional***	144	100.00	0	0.00	

Continued Table 8

Allowance/Income (PhP)					
<i>Students/Pupils</i>	f	%	f	%	$\chi^2=12.766^*$, df=4 Cramer'sV=0.189*
50 and below	134	83.23	27	16.77	
51 – 100	57	83.82	11	16.18	$p_{adjusted}=0.005$; df=1
101 – 150	23	100.00	0	0.00	
151 – 200	44	95.65	2	4.35	
Above 200	55	94.83	3	5.17	
Professionals					
<i>Professionals</i>	f	%	f	%	-----
Below 1000	54	100.00	0	0.00	
1001 – 2000	25	100.00	0	0.00	
2001 – 3000	16	100.00	0	0.00	
3001 – 4000	12	100.00	0	0.00	
Above 4000	37	100.00	0	0.00	
Everyday drink					
<i>Everyday drink</i>	f	%	f	%	$\chi^2=3.794$, df=5
Soft drinks	118	88.06	16	11.94	
Fruit juice	88	92.63	7	7.37	
Iced tea	72	90.00	8	10.00	
Hot tea	53	92.98	4	7.02	
Powdered juice drink	10	90.91	1	9.09	
Others	116	94.31	7	5.69	
Health-conscious					
<i>Health-conscious</i>	f	%	f	%	$\chi^2=0.516$, df=1
Yes	397	91.06	39	8.94	
No	60	93.75	4	6.25	

* $p<0.05$

** $p<0.01$

*** $p<p_{adjusted}$

Thus pupils, 12 years old and below, and professionals, of ages 25 and above, are most willing to buy the product, and it is best to sell the LGKG RTD product to these groups. However, all professionals, regardless of the take-home income per payday are willing to buy the product. Also, both male and female groups are willing to buy the product.

Price Preference

There were four price ranges evaluated for the respondents' preference, and as expected, the majority of the respondents (435) chose the lowest price of P15 to P20 (Table 9). These respondents were mostly of ages 13 to 18 (167), females (264), students (215), and health-conscious (378). Forty-seven respondents were

willing to buy the product at P21 to P25, nine who will buy it at P26 to P30, and also nine who are still willing to buy at a price range of P31 to P35. The respondents' price preference of the product was significantly ($\chi^2 = 12.703$, $p < 0.05$) associated with category only, but not with the age, gender, income or allowance, and health-consciousness. The association was weak but significant (Cramer's $V = 0.113$, $p < 0.05$).

Since these were the first production capacity and commercialization trials conducted for the LGKG RTD beverage, it was not foreseen at the time of drafting of the acceptability questionnaire that the production cost would be high. The choice of the lemongrass RTD variant was based on a previous taste test which showed LGKG as the most preferred variant according to taste preference. However, this formulation consists of more ingredients and is also the most tedious to prepare among the four variants. The other variants were Lemongrass-Original flavor, Lemongrass-Kalamansi flavor, and Lemongrass-Dalandan flavor, which consist of fewer ingredients and require less work upon production. During the preparation of the questionnaires, the price choices were based on the price of the similar products available at the Canteens and Dining areas of CPU. Another question should have been added "Are you still willing to buy the product at P50 and above?"

Table 9.
Price Preference of the Lemongrass RTD Beverage

(N = 500)	P 15 – 20 (n=435)		P 21 – 25 (n = 47)		P 26 – 30 (n = 9)		P 31 – 35 (n = 9)		Stat. Analyses
Age	f	%	f	%	f	%	f	%	$\chi^2=15.363,$ df=9
12 and below	90	85.71	9	8.57	4	3.81	2	1.90	
13 – 18	167	82.67	26	12.87	4	1.98	5	2.48	
19 – 24	630	86.30	79	9.59	1	1.37	2	2.74	
25 and above	115	95.83	55	4.17	0	0.00	0	0.00	
Gender	f	%	f	%	f	%	f	%	$\chi^2=1.282,$ df=3
Male	171	85.93	20	10.05	3	1.51	5	2.51	
Female	264	87.71	27	8.97	6	1.99	4	1.33	
Category	f	%	f	%	f	%	f	%	$\chi^2=12.703^*$ df=6 Cramer'sV=0.113*
Pupil	850	85.00	99	9.00	4	4.00	2	2.00	
Student	215	83.98	32	12.54	3	1.17	6	2.34	
Professional	135	93.75	64	4.17	2	1.39	1	0.69	
Allowance/Income(PhP)									
Students/Pupils	f	%	f	%	f	%	f	%	$\chi^2=5.977,$ df=12
50 and below	133	82.61	20	12.42	4	2.48	4	2.48	
51 – 100	558	80.88	94	13.24	2	2.94	2	2.94	
101 – 150	210	91.30	14	4.35	0	0.00	1	4.35	
151 – 200	413	89.13	47	8.70	1	2.17	0	0.00	
Above 200	501	86.21	77	12.07	0	0.00	1	1.72	

Continued Table 9

Professional s	f	%	f	%	f	%	f	%	$\chi^2=10.306,$ df=12
Below 1000	49	90.74	3	5.56	2	3.70	0	0.00	
1001 – 2000	24	96.00	0	0.00	0	0.00	1	4.00	
2001 – 3000	15	93.75	1	6.25	0	0.00	0	0.00	
3001 – 4000	12	100.00	0	0.00	0	0.00	0	0.00	$\chi^2=22.702,$ df=15
Above 4000	35	94.59	2	5.41	0	0.00	0	0.00	
Everyday drink	f	%	f	%	f	%	f	%	
Soft drinks	120	89.55	10	7.46	3	2.24	1	0.75	
Fruit juice	75	78.95	15	15.79	0	0.00	5	5.26	
Iced tea	68	85.00	8	10.00	2	2.50	2	2.50	$\chi^2=1.549,$ df=3
Hot tea	50	87.72	4	7.02	3	5.26	0	0.00	
Powdered juice drink	10	90.91	1	9.09	0	0.00	0	0.00	
Others	112	91.06	9	7.32	1	0.81	1	0.81	
Health-conscious	f	%	f	%	f	%	f	%	
Yes	378	86.70	43	9.86	7	1.61	8	1.83	
No	57	89.06	4	6.25	2	3.13	1	1.56	
*p<0.05									

Market, Competitor and Company Analyses

The analyses of various aspects of the LGKG RTD in comparison with the other similar beverages sold at the different dining areas of CPU are presented in Table 10.

Table 10. Market, Competitor and Company Analyses

	Long Liv	Competitor 1	Competitor 2	Competitor 3
Overview and Profile	Product of Central Philippine University Research aimed at Health and Wellness Registered with Intellectual Property Office of the Philippines (UM 2-2013-000410) To be distributed within Iloilo city	Product of Coca Cola bottling company Local and International distribution	Product of Universal Robina Corporation First ready to drink tea in the Philippines Local and International distribution	Home-made/Cottage Industry Distributed within Iloilo City
Competitive Advantage	Healthier product Optimized citral, high antioxidants, great taste Uses indigenous raw materials, e.g., tanglad	Brand Equity	Mechanized Brewing and bottling	Healthy product
Target Market	From elementary pupils to professionals, seniors and the health conscious people	Health conscious people	Individuals who are concerned about physical appearance and aging	Health conscious people
Marketing Strategies	Promotion (during research events) Catering during University-wide and Special Events Participation in Trade Fair Operation of Daily kiosks at Canteens Advertise in CPU website	TV commercials are aired mostly in ABS CBN, GMA, etc. (top celebrity endorser) Sponsoring event Facebook Account Sales promotion	TV commercials are aired mostly in ABS CBN, GMA, etc. (top celebrity endorser) Sponsoring event Facebook Account Sales promotion	"libod" and consignment
Selling Price	330 ml – P50.00	480ml- P19.50 – P27.00	355 ml – P17.50 – P25.00 500 ml – P19.50 – P 25.00	330ml – P25.00
Distribution Channels	Direct Channel Producer Consumer Areas Canteens Catering Events	Intensive Distributive Channel Producer Wholesaler Retailer Consumer Areas Supermarket Convenience Stores Sari-sari Stores Groceries Restaurants Canteens	Intensive Distributive Channel Producer Wholesaler Retailer Consumer Areas Supermarket Convenience Stores Sari-sari Stores Groceries Restaurants Canteens	Direct Channel Producer Consumer Areas Canteens Other areas within Iloilo city

Continued Table 10

<p>Strengths</p>	<ol style="list-style-type: none"> 1. A thorough study was done to LONGLIV product (research and development) 2. Knowledgeable and skilled personnel involved 3. The product was protected of intellectual property (patented). 4. More healthy benefit can be obtained from drinking of LONGLIV product 5. Has a good location 6. Has a good relationship with the supplier of lemongrass 	<ol style="list-style-type: none"> 1. Largest Market Share 2. Strong image of branding 3. Customer Loyalty 4. Has international standards 	<ol style="list-style-type: none"> 1. Already established and well-known product 2. Manufacture its own PET bottles and has packaging division 3. Cost Advantage 4. Affordable price 5. Increasing sales 	<ol style="list-style-type: none"> 1. Competitive Pricing 2. Made of natural ingredients
<p>Weaknesses</p>	<ol style="list-style-type: none"> 1. High production cost 2. No available laboratory exclusively for making LONGLIV product 3. The start-up cost was high (equipment and facilities) 4. Establishing a reputation in the market will be challenging 5. Small business units 	<ol style="list-style-type: none"> 1. Water Management 	<ol style="list-style-type: none"> 1. Nutritional value almost at level with the soft drink's calorie content. 	<ol style="list-style-type: none"> 1. Small business units
<p>Opportunities</p>	<ol style="list-style-type: none"> 1. Additional income to the supplier of lemongrass 2. Growing community of lemongrass 3. High demand for healthy RTD beverage products especially the Department of Education passed the resolution that only healthy RTD beverage can be sold in the canteen 4. Potential for other uses of waste lemongrass such as essential oil 5. Additional income or allowance to work students 	<ol style="list-style-type: none"> 1. Growing demands 2. Global market 	<ol style="list-style-type: none"> 1. Growing snacks market 2. Improve market penetration 3. Affordability of the product compared with other RTD offered in the market 	<ol style="list-style-type: none"> 1. Growing demands
<p>Threats</p>	<ol style="list-style-type: none"> 1. The prices of competitor products are lower compared to LGKG RTD 2. Similar product already exist in the market and competitors have loyal customers already 3. Failure of suppliers to meet quality requirements of raw materials 4. Price increases from suppliers of raw materials (lemongrass, kalamansi, and ginger) 5. Scarcity of lemongrass 	<ol style="list-style-type: none"> 1. Raw material sourcing (water) 2. Indirect Competitor 3. Many beverage manufacturers are venturing into the RTD 	<ol style="list-style-type: none"> 1. Many beverage manufacturers are venturing into the RTD 2. Indirect Competitor 3. Bad publicity 	<ol style="list-style-type: none"> 1. Price changes 2. Financial capacity 3. Increase in labor cost 4. Scarcity of raw materials

Marketing Strategy

Possible strategies are listed in Table 10, which includes promotion of the product during research events; including the product at catering services during University-wide and special events; participating in trade fairs; serving the product daily in kiosks at canteens in the University, and advertising the product at the CPU website. This entails united effort among key Colleges in the University, e.g., CHM and CBA. It is considered that the best way to make the product attractive is to store the product in dispensers and sell the product to consumers in plastic cups over ice. Furthermore, making the product as a base to make cocktail mix is another way of attracting consumers as they see their drinks creatively prepared before them.

It is also essential to emphasize the benefits of the RTD product so as to outweigh the cost. Table 11 shows the benefit positioning of the lemongrass beverage against the other brands. The unique feature of this product is the various phytochemicals contributed by three ingredients which provide more health benefits than the other beverage products. Phytochemicals from lemongrass tea possess anticancer (Dudai *et al.*, 2005; Halabi & Sheikh, 2014; Thangam *et al.*, 2014), anti-inflammatory (Figuerinha *et al.*, 2010; Francisco *et al.*, 2011) and antioxidant (Cheel *et al.*, 2005) activities. Phytochemicals from ginger also possess anticancer and antioxidant activities (Zaeoung *et al.*, 2005). Kalamansi naturally contains Vitamin C and antioxidant phytochemicals.

Table 11. *Benefit Positioning vs. Brand Matrix*

	Long Liv	Competitor 1	Competitor 2	Competitor 3
Phytochemicals	Antioxidants from lemongrass, ginger, kalamansi Citral Vitamin C	Antioxidants from tea leaves	Antioxidants from tea lives	Antioxidants from kalamansi Vitamin C
Preservatives	none	none	none	none
Artificial flavors	none	Yes: Caramel color; lemon juice from crystals	Yes: Caramel color;	none
Availability	Limited	Unlimited	Unlimited	Limited
Sugar-free	no	no	no	no

Salability of the RTD Product

The salability of the lemongrass beverage product is shown in Table 12. In the first two days, the “libod” system was employed in various areas, while the products were simply put on display at La Azotea Dining Area on Days 3 and 4. Pricing of the product was set at P50 on the first day and reduced on the succeeding days. When the price was high, only few bottles were bought. More consumers bought the product at a lower price.

Table 12. Sales during the Test Marketing

Day 1 @ P 50/bottle (Libod system)			
	Produce (Bottle)	Sold	Ending Inventory
High School	25	1	24
Elem/Univ Gym	25	17	8
Uy Building	25	8	17
Nursing	<u>25</u>	<u>0</u>	<u>25</u>
	100	26	74
	Beginning Inventory	Sold	Ending Inventory
Day 2 @ P 30/bottle (Libod system)			
Nursing	25	23	2
La Azotea	<u>49</u>	-	<u>49</u>
	74	23	51
Day 3 @ P 25/bottle			
La Azotea	51	25	26
Day 4 @ P25 buy 1 take 1			
La Azotea	26	18	8*

*The eight remaining bottles were given to selected people as a sample of the product.

CONCLUSION AND RECOMMENDATION

The LGKG RTD beverage product was most preferred in the Elementary Canteen and Dining Hall against two other competitor products. The majority of the respondents indicated that the LGKG was acceptable and that they were willing to buy the product at the price of P15 to P20. The product was not saleable.

Based on the results, it was recommended that the selling of the LGKG RTD beverage in canteens and dining areas all over CPU must be pursued. The high selling cost must be reduced by displaying the product in dispensers in one corner/kiosk of a canteen and selling in plastic cups as alternative packaging.

Younger consumers, e.g., elementary students, should be educated of healthy choices in terms of food, beverages, and lifestyle. Thus, BS Advertising majors could be encouraged to create media production projects focusing on the benefits of healthy choices, e.g., exercise, diet and lemongrass tea intake.

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