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R E P O R T

SOY FOODS: PRIMARY MARKETING RESEARCH AND INDUSTRIAL LIAISON IN THE CITY OF BHOPAL, M.P., INDIA

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Consultant Report by

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SPU/CIAE/ICAR PROJECT

CONSULTANCY REPORT

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TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	1
1. SCOPE OF ACTIVITIES	2
2. INTRODUCTION	3
3. FOCUS GROUP RESPONSE	5
4. SURVEY OF PROCESSOR/RETAILER/ MANUFACTURERS/DISTRIBUTORS	8
5. TECHNICAL EMBODIMENTS	10
5.1 PRODUCT SELECTION	10
5.2 PACKAGING CONSIDERATIONS	13
5.3 SAMPLE DESIGN	14
5.4 QUESTIONNAIRE: LOGIC AND CONSTRUCTION	16
6. SURVEY FINDING AND DISCUSSION	20
7. INDUSTRIAL LIAISON	37
8. CONCLUSIONS	38
9. RECOMMENDATIONS	39
10. TRIP REPORT TO GBPUAT	42
ACKNOWLEDGEMENT	43
DAILY ACTIVITIES	
APPENDICES	

EXECUTIVE SUMMARY

This report describes a month long consultancy work on Primary Marketing Research on soy-foods in Bhopal M.P. market. The target market is 100,000 households with 5 or less family members. The questionnaire returns, high to an extent of 35%, were complemented ab-initio by a focus-group analysis composed of experts from SPU/CIAE.

The findings are favorable and encouraging with respect to pricing and product quality. The survey responses have been found valuable in estimating industry sizes of 415 MT of "soy-pro" biscuit and 2009 MT of full fat soy-flour, respectively. Also, the respective prices acceptable to the consumer are Rs.30-32/kg and Rs.13-14/kg.

The survey reveals that consumer education by way of recepies, promotional literature, "on-package" use-information, and conventional publicity methods are viable and practical marketing tools as suggested by the respondents.

Hospital feeding and school lunch programs were identified by a majority of respondents as plausible and effective means of publicity, promotion, and product introduction.

This is the first report of its kind on Soy-foods marketing: it should be replicated in order to fine tune tomorrow's plans for their marketing and industrial liaison for speedy commercialization.

1. OBJECTIVES, SCOPE AND ACTIVITIES

The stated objective of this work was to assist SPU/CIAE staff in primary market research of soy-foods. The components of this broad objective are:

1. Selection of candidate soy-products.
2. Selection of target population and statistically significant sample population.
3. Designing questionnaire to be used for mail survey.
4. Analysis of responses such as to reflect.
   - 4.1 Pricing: basis and level
   - 4.2 Market segments.
   - 4.3 Sizing new manufacturing plants and facility.
5. Designing packages.
6. Selecting technical and promotional package information.

Another objective, by implication and by the very nature of marketing function, is to define the means and steps of industrial liaison as it relates to marketing, industrial economics, and growth of soy foods industry.

2. INTRODUCTION

The basic thrust of my consultancy assignment has to do with primary market research on "Soy-based food ingredients and finished consumer food products in the city of Bhopal, M.P. Given the infantile state of processed food industry in India, both 'ingredients' and 'packaged processed foods' from soybean are referred to as soy-foods in this report. Industrial liaison is deemed central to market development and this report emphasizes it to be an essential SPU/CIAE activity.

Marketing activities are vital to growth and development of a society; they represent a set of processes facilitating decision making in an entirely inter-related business environment of exchange of goods, e.g., soy-foods present a case-study in this report. The totality of all such activities is listed in Figure 1. As a matter of hypothetical case, we should think of CIAE as an enterprise (a company) and, therefore, this research attempts to identify controllable marketing elements as if CIAE were a business enterprise. Although not all other independent elements are pertinent to the Indian conditions, they are listed for sake of completeness.

All marketing activities and corresponding decisions must be based on extensive, reliable and credible information and data bases. This information has two major sources 1) secondary marketing research based either on an enterprises internal records on sale, pricing, and production costs or on records in public domain (government, trade, corporate reports, professional associations, media, universities, foundations, and commercial data services and 2) primary research. The former source in case of India is either non-existent or, at best, only scant and terribly unreliable. This is especially true of soyfoods marketing. As a matter of fact, the entire field of soybean production, commodity processing, and soy-foods product development is in its early stages of growth. Therefore, the primary research is the only viable alternative.

The primary market research involves four major tasks: research design, sample design, questionnaire design, data collection and, of course, the data so collected have to be analyzed, interpreted, and reported. Our research design incorporates mail survey.

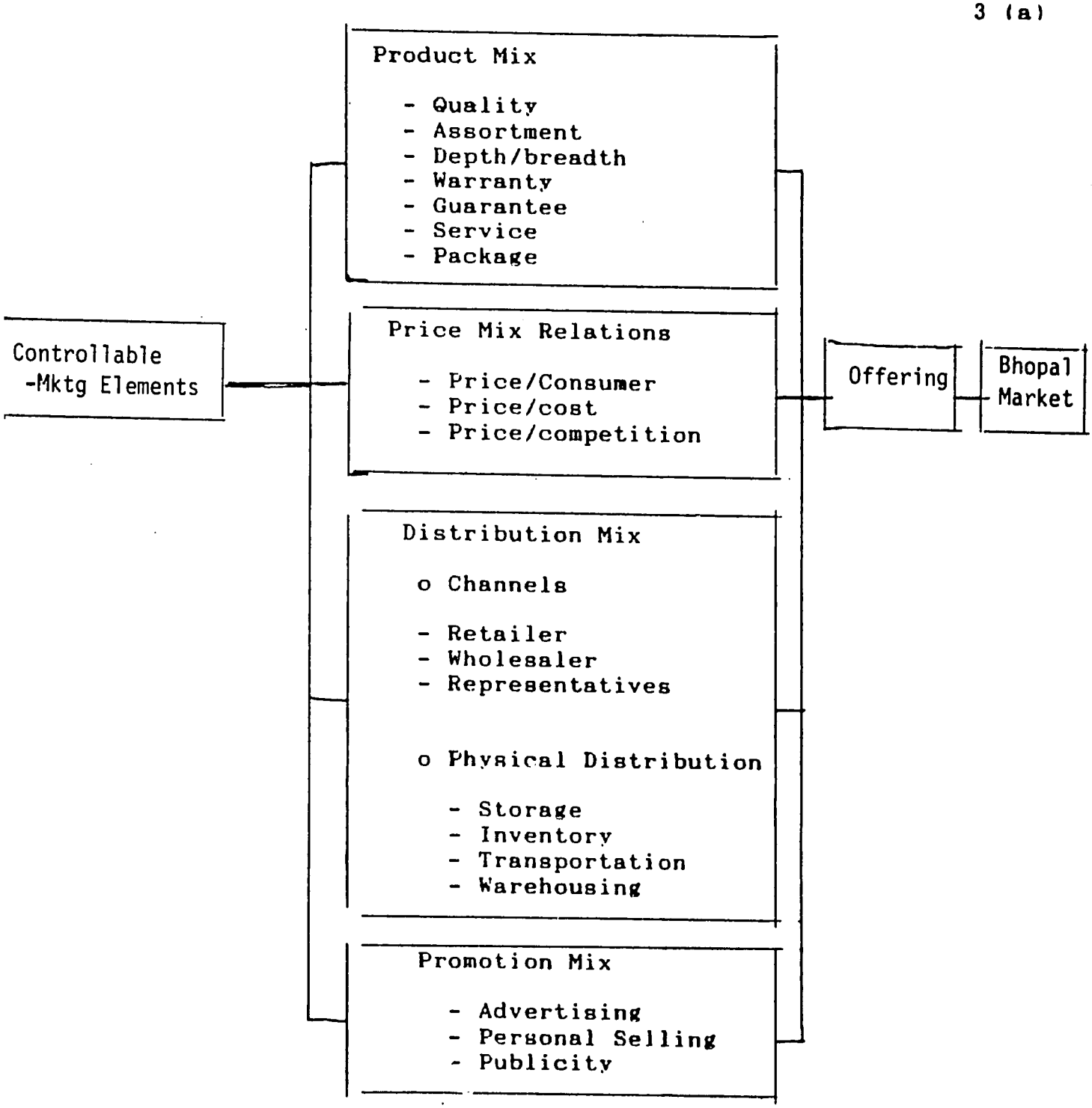

Figure 1: Totality of marketing activities

In consultation with Dr. Nawab Ali and Mr. Bisht. I decided to complement the mail survey research with 'focus group' interviews of CIAE soy-technology experts following a Delphi questionnaire-a qualitative technique used for forecasting new product sale and new developments (albeit only single sequence). The approach was designed to assess the marketing elements as best known to the experts and to compare it with data from target sample population in Bhopal.

What follows is the systematic description of soy foods market research in Bhopal, M.P. India. The research strategy is formulated to assess, as best as possible, the nature of market, size of the market, product attribute acceptability, pricing and promotional tactics, competitive forces if any, use related problems, and finally the most likely candidate products that local entrepreneur can commercialize.

Marketing of high protein soyfood is taking hold in India. Private sector does need assistance. This study by CIAE can have a very positive influence if pursued with consistency and quality of needful industrial liaison activities.

This report is drafted in a schematic format. A few sections appear "free-standing". The report should not be viewed as a research paper in the traditional sense.

3. FOCUS GROUP (DELPHI TYPE FORECASTING QUESTIONNAIRE) RESPONSE CONDUCTED IN JULY, 1990

(Questionnaire prepared on July 20, 1990)

The purpose of this focus group study was (1) to confirm our assumptions, (2) to assess as to where CIAE scientists stand in their analysis and appraisal of marketing issues, and (3) thus to complement the primary market research - the major element of this consultancy work. What follows is the analysis and interpretation of expert responses.

1) More than 85% of CIAE experts agree with the need and critical value of primary market research on soy products and direct soy fortified consumer foods.

2) The potential market size in Bhopal - a population of 1 million- was estimated to be 10%, 20% and 50% by 3,4, and 2 respondents respectively. Therefore, our 10% estimate of target market is a bit conservative and realistic.

3) The use frequency responses were

once/week	3
once a while	3
very often	2

Let us call it once/week

Even if we assume that a family of five uses only 1 kg/ month or 12kg/yr, our target population (1 million x 0.1) can use 120,000 (10,000x12) or approximately 5.5 MT of soy product. I suggest that this could be the annual scale of subsidized public sale of soy products from SPU's pilot plant and a mini plant facility. This activity will accomplish two purposes: advertising and promotion and an expected revenue of Rs 58 lakhs. The pilot plant facility should be converted into a free standing mini-plant, it must be rendered fully functional. A public sale's counter, a store room, and a product display facility should complement CIAE's sales work in order to achieve maximum marketing synergy.

4) Soy product awareness is critical. Only 3 out of 8 respondents indicated other (than themselves) sources of awareness. Effective promotional strategies should be activated. Item 3 above can accomplish this effectively.

5) Other response frequencies are listed as follows:

a) Utilization strategy

Fortification	9
New products	4
New ingredients	2

b) Marketing strategy

Emphasize nutrition	8
Emphasize function	3
Emphasize cost advantage	3

c) Market segmentation

Urban	8
Rural	4

d) Product concept

Baked goods	10
Flour	9
Soy milk	6
Tofu	7
Edible oil	3
Health foods	1
New ingredients	1
Baby foods	1

e) Product acceptance; Grounds for

Nutrition	4	
Fortified foods	5	(meaning nutrition)
Baked goods	5	
Tofu	5	
Snacks	4	
Oil	3	
Soymilk	3	

f) Driving Force

Nutrition	18
Convenience and case of use	12
Low cost	11
Taste	6
Texture	2

g) Marketing problems

Lack of education	3
Taste problems	3
Storage life of Tofu	2
Difficulty in preparing soyflour	2
High cost	2
Dispersion	1
Grity flour	1
Poor supply	1

In the light of the foregoing, it is easy to conclude that our selection of soy flour, soy fortified biscuit, and Tofu is in line with general expert consensus. Necessary attempts should be made to solve or at least devise solutions for future commercial factories against the problems under 'Recommendations-(Item #9)'.

We should sell "nutrition" not "soy product" i.e. compare cost of soy products with high cost foods like non fat dry milk, horlics and bournvita. Fortification of conventional cooked and baked goods seem to be the way to go. Tofu is generally indicated as a good "substitute" for milk paneer. I suggest that SPU staff assess post coagulation process and packaging cost, compare it with drying of high solids Tofu curd, and calculate net incremental cost for a dry tofu powder. Such a product exists in western markets. The dry product concept is the only plausible answer for storage and cost of transportation problems in India.

My personal observations are:

1) A direct selling approach should be practiced and promoted.

2) Child nutritions should be emphasized. We have to create a generation that is trained to like soy based foods.

3) Texture, chewiness, and low breakage of fortified foods should also be used as "marketing tools" in order to gain consumer acceptance.

4) School and hospital feeding programs should be launched. SPU/CIAE should interact with local industry to accomplish these goals.

4. SURVEY OF SOY PROCESSORS, SOY FOOD MANUFACTURERS, RETAILORS AND DISTRIBUTORS

I found it necessary to estimate the private sector interest in soybean processing and soyfoods manufacturing and to determine the driving forces behind such interest. Beyond a simple listing of various categories as below, my counter-part scientist Mr. Bisht, his associate Mr. Bargale, and I made a few direct contacts in Bhopal and its vicinity - Noble Soy House and V.P. Solvex. The direct contacts and face-to-face discussions with company executives were helpful in identifying the extent, need, and direction of industrial liaison activities. The following list is a good indicator of private sector involvement in soy-processing. As a matter of fact, it establishes the need for industrial liaison and preliminary market research and market development works.

Solvent Extraction		Product
1.	M.P. State Oilseeds Growers Coop. Fdn., 214 M.P. Nagar, Bhagwan Complex, Bhopal, M.P.	Oil, meal
2.	Surya Agro Oils Ltd., Industrial Area, Salamatpur, Raisen, M.P.	Oil, meal extruded Prod.
3.	Kabra Agro Industries, Hathwans, Piparia, M.P.	Oil, meal
4.	V.P. Solvex, Vidisha, M.P.	Oil, meal Hydrolysate
Soy Food Processors		
5.	M.P. State Agro Ind. Corpn. Panchanan Bldg., T.T. Nagar, Bhopal, M.P. (Dhar Plant)	Soy-Badam Extruded Snacks
6.	Noble Soy House Shahpura, Area Colony, Bhopal, M.P. (Mamdodeep Plant)	Soy-milk, Soy-beverage, creamer dry goods
7.	Britannia Industries Area Colony, Bhopal, M.P. (Vidisha Plant)	Defatted flour Extruded chunks
8.	Premier Foods Ltd., Bhopal, M.P.	Soy-milk

9.	Amrit Protein Foods Ltd., Ghaziabad, U.P.	Soy-milk

Meat Analogue

10.	Ruchi Pvt.Ltd.	Nutri-Nugetts
11	Gladstone Kylly Ltd.	Nuter Soy
12	Mysore Snack Food Ltd.	Meal Maker
13	Consolidated Foods Pvt.Ltd.	Nutri-soy

DEALERS/DISTRIBUTORS/RETAILORS

14 Ahuja Proteins, Bhopal, M.P.

15 Jaihind Proteins, Bhopal, M.P.

16 Jaihind Provisions, Bhopal, M.P.

17 Smart Proteins, Bhopal, M.P.

18 Jawahar Proteins, Bhopal, M.P.

19 Batra Achar, Bhopal, M.P.

20 Shankar Proteins, Bhopal, M.P.

ASSOCIATIONS

21 Soybean Processors Assocn. of India, Malviya Nagar, A B Road, Indore-4522 003, M.P.

It is quite obvious that there exists considerable private sector interest in soybean processing in the state of M.P., the city of Bhopal in particular. We found two soy-food processors (Britannia and Mysore Snack Foods) very visible in up-scale grocery stores in the city of Bhopal.

Therefore, Bhopal is an ideal market for market survey, test marketing, and, from CIAE's point of view, launching industrial liaison programs. The industry does need technical help and the companies we visited seemed eager to cooperate. Both Takai Tofu pilot-plant and extrusion-systems are of sincere interest to the industry and so are the underlying technologies.

The fact that there are seven protein food retailors and distributors in Bhopal area is a good indicator of soy-foods - market potential.

5. TECHNICAL EMBODIMENTS

5.1 Product Selection

Full fat Soyflour and Tofu (Soy-paneer) as low cost and soy-pro (soy fortified biscuit) as a high cost soy food ingredient and consumer food respectively were selected for the market survey. The selection of these products was made on three grounds: expert opinion, prior preliminary experience, and price compatibility considering the low income rural or urban and high income market segments.

The survey response for dry and 'easy-to-distribute' soy-flour and soy-pro biscuits is complete. The survey results for Tofu will be forthcoming; the analysis, interpretation, and reporting of responses per the guidelines established for soy-flour and soy-pro biscuits will be completed as soon as possible by Mr. Bisht and his associate Mr. Bargale.

Although official standards and specifications do not exist in India for these products, general guidelines can be drawn from standards in U S A and Japan. Such guidelines will serve as a basis for final standards to be developed under the aegis of SPU-CIAE in consultation with Indian Standard Institution (Bureau of Indian Standards).

The chemical composition, physical properties (characteristics), and microbiological quality data from published records are included here in order to select appropriate criteria and corresponding internationally recognized analytical methods. I emphasize international because such methods will render acceptance of standards and specification easy by both international trading authorities and subsidiaries of multinational corporations operating (or to operate in future) in India.

FULL-FAT SOY FLOUR
Physical Description

Code	Soy-Pro
Brand Name	Tan Powder
NSI	65%
Granulation	See below

Packaging Material: Polyethylene pouch with no moisture barrier were used and shelf-life was printed on all pouches.

Technical Data (SPU/CIAE)

Particle size (U.S. Standard Screen)

ISS	MICRON	%RETAINED
35	350	5
30	300	10
20	200	52
15	150	15
10	100	10
<10	<100	8

(Tentative, collect actual data)
Dispersibility-

Flavor
Composition (percent)

Compatible for wheat flour blending

Moisture	10%
Fat	4-8%
Protein (as is)	40-45%
Crude Fiber	2-4%
Ash	5-6%
Heavy metal	negative

Nutritional Information
Essential Amino Acids (g/100g)

Lysine	6.25	Methionine/cyst	1.0
Threonine	4.0	Leucine	7.7
Isolencine	4.4	Phenylalanine	4.8
Tyrosine	3.5	Tryptophane	1.4
Histidine	2.6	Valine	4.7

Vitamins and Minerals (mcg/gm)

Thiamine	3.4	Phosphorous	7000.00
Riboflavine	2.5	Molybdenuin	40.00
Niacine	21.0	Sulphur	4000.00
Pantethemic	24.0	Sodium	110.00
Pyridoxine	5.0	Nagnessium	2600.00
Brotin	0.5	Manganese	310.00
Folic Acid	2.6	Zinc	530.00
Iron	80		

Microbiological Quality

Standard plate count	less than 50,000
Salmonella	negative
E. cli	negative

TOFU

Tofu (soy-paneer) used in this survey will be produced in the SPU's pilot plant at CIAE, Bhopal. The process used is as recommended by Takai of Japan - the supplies of the Tofu pilot-plant equipment. The general composition of Tofu (soy-paneer) so produced is listed below (The Book of Tofu, Vol.1 by William Shurtleff and Akino Ayojagi, Ten Speed Press, Berkley, CA p 335, 1983).

COMPOSITION OF TOFU PER 100 gm

	General	CIAE Data
Energy	72 Cal	
Moisture	84.9%	84.0
Protein	7.8%	7.0-8.0
Fat	4.3%	5.0
Sugar	2.3%	2.0
Fiber	-	1.0
Ash	0.7%	
Calcium	146.0 mg	
Sodium	6.0 mg	
Phosphorous	105.0 mg	
Iron	1.7 mg	
Vit. B1	0.02 mg	
Vit. B2	0.02 mg	
Vit. B3	0.50 mg	

SOY-PRO BISCUIT

Fortified soy-pro biscuits were pilot-produced by the SPU staff at CIAE. The basic formula used was as follows with the exception that 30 parts of full fat soyflour is used for every 100 parts of wheat flour. The baker's composition is listed below:

Composition of Soy-Pro Biscuit

Flour	100.00
Sugar	50.0
Shortening	30.0
Salt	1.0
Na-bicarbonate	0.8
Baking Powder	1.0
Water	45.0

The major quality attributes of biscuits were judged by a panel of experts with the results given in the following table.

Frequency of Expert-panel Response on the Quality of baked soy Pro Biscuits

Quality	Very good (8)	Good (7)	Average (6)	Bad (4)	Very Bad (2)
Appearance		5	3		
Color		5	3		
Taste	1	7			
Texture	4	2	2		
Shape-size		7	1		

Note: The rating is based on a scale of zero to ten.

It is advisable to adhere to good packaging specifications and standards for tofu. It is a perishable product. Standards for sterility must be promulgated, thoroughly tested, and made comparative to those in Japan - a leading Tofu producing and consuming nation in the world.

5.2 Packaging Considerations

Packaging material and package design for soyfoods in India has to be effective but at the same time economical. In any case, packaging cost is found to be between 30-40% of total cost of the packaged consumer soy-food. This cost is justifiable if the following objectives are accomplished:

1. Product is protected from humidity and oxidative spoilage.
2. Product is promoted via nutritional information and image-building sloagans.

3. Customer is educated as to the value of high and balanced protein nutrition.

4. Product is rendered psychologically unique.

5. Packaging material and design must consider production line speed and overall rate of production.

There are a few general package development criteria that have been used in CIAE soyfood packages.

1. Appearance of big size without being deceptive - dimension not visible in product display should be smallest.

2. The product must draw attention - name, graphics, and color combinations.

3. Appearance of quality.

4. Readability.

5. Front panel in one solid color - no more than two.

6. Front panel should not contain anything more than name of product and legally required information.

7. All printing should be horizontal.

8. Product name should be printed in as large a size as possible.

9. If possible, picture of fortified soyfood should be included on the front panel.

Polyethylene pouch packages were designed for full fat soy flour and soy-Biscuit. Tofu will be packaged as a pouch within a pouch with printed paper insert. A number of recipes were include on the full fat soy-flour package.

All promotional elements were included on the back panel: recipes, nutritional/dietary information and, for future, even competive advantages. The high protein value and healthfulness aspects were printed prominently.

5.3 Sample Design

The 'sample' here means a sample of Bhopal, M.P. population. A stratified random sampling is considered. If the individual stratum is found not to have the same distribution, the strata are weighted assuming their internal homogeneity. The key criteria is sample size.

The sample size depends on 1) needed precision, confidence level of estimate, size of population, budgetary constraints, and heterogeneity of population. We have considered three major strata; income group (high/low), Age (below and above 30), and family size (below and above 5), Education level goes with income group, at least in India, and therefore, we did not treat it as a separate stratum.

As a rule of thumb, a doubling of accuracy at a fixed significance level requires four fold increase in sample size. The following criteria were utilized for assessing an appropriate sample size for Bhopal (particulars given in the following block).

1.	Overall population	1,000,000
2.	No. Households	200,000
3.	No. Households with income over Rs.1,000	100,000
4.	Range of item 3	95,000 to 110,000
5.	Interval	15,000
6.	Variance = $\frac{\text{Intvl}}{6}$	2,500

Note : 6 standard deviations cover all population

Characteristics of Bhopal population

Given the above, sample size can be calculated in two ways:

1. $n = \frac{p\,(1-p)}{[S.E.(p)]^2}$ where S.E. (p) is Standard Error of proportion.

$$= \frac{0.5\,(1 - 0.5)}{(0.03)^2}$$

$$= \frac{0.25}{0.0009} = \frac{2500}{9} = 277$$

In above equation p is proportion between 2 and 3 in the block above, S.E. (p) is standard error tolerable (3%).

2. $n = z \frac{\sigma p}{\sqrt{N}}$

Where,

z = 2.57, standard value from table at 99% confidence.

σp = 2500, see block above

N = 100,000

Therefore,

$$n = 6.6 \times \frac{2500}{\sqrt{100,000}}$$

$$= \frac{6.6 \times 2500}{328}$$

$$= 2 \times 25 \qquad = 50$$

A sample size between 50 to 277, therefore, is statistically fine. Since our population is heterogeneous, we have deliberately kept our size above 200, 300 to be exact. Also each strata is kept constant in sample size.

Ideally population (universe of target market) should be composed of consumers, stores, sales-persons, manufacturers, representatives and buyers. However, in view of time and cost considerations and undefined nature of soy-food products in India, only users were included in our survey. This consisted of both prior users and potential users. Every effort was made to avoid factor overlapping.

5.4 Questionnaire : Logica and Construction

Preparation of the questionnaire is a serious undertaking, it is the most important and driving instrument for primary market research. No survey is better than its questionnaire.

A questionnaire must be convenient to use. No leading and ambiguous questions should be incorporated because their answers introduce inherent bias. Here are some guidelines that were followed in formulating the questionnaire for soy-foods market research.

1. Pose specific questions.
2. Use simple and unambiguous language.
3. Use non-presumptive questions.
4. Don't use hypothetical questions.
5. Don't use personalized questions.
6. Don't use questions involving respondent's memory.
7. Maintain a funnel sequence (broad to specific) of questions.
8. Use open-ended questions at the end.
9. Use dichotomous (yes/no) questions early on the page.

10. Use multiple choice questions for information on product quality/attribute and price. The respondents need not tax their memory and judgement.
11. Although same questionnaire is not distributed to economically and educationally overlapping groups, we violate this tactics in view of the strong cultural homogeneity in India.

12. Prepare the questionnaire in Hindi. They can be dichotomous, multiple choice preference, rating based, rank based, and open-ended at the end of questionnaire.

From the market research point of view, mail surveys are cost-effective, permit wide-spectrum stratified sampling, make it easy for even the personal questions to be answered with minimal bias, allow easy access to respondents of multiple strata, and avoid an interviewers personal bias. Questions regarding product attributes not differentiated by consumer should never be included.

Individual questions must be drafted such as to permit considered response with as much spontaneity as possible and such as to render as many questions independent as possible.

A best effort questionnaire was prepared in Hindi for the mail survey. This questionnaire was pre-tested with CIAE's SPU experts. An independent questionnaire, prepared on purpose with no input of SPU staff, was used for focus group survey. The group consisted of SPU experts and the questioning technique was based essentially on Delphi forecasting methodology. The two questionnaires are appended and made part of this report.

The purpose behind supplementing the general mail survey with expert focus group response is to temper and refine the analytical outcome of the general mail survey. This questionnaire was not pre-tested.

The visual quality and brevity of language is a questionnaire's strength: it is an indicator of the strength and prestige of the institution conducting the survey. We have tried to capitalize this asset at all cost. However, we had to depart from the ideal in regard to language and phraseology in view of the psychological profile of the target population as we could understand it best.

The functional features of the general questionnaire were designed to be as follows:

1. No designated respondent. the general assumption is that it would be the head of the household.

2. Complete avoidance of possible bias due to researcher's opinions and expectations.

3. Least possibility of wrong, either deliberate or unintentional response.

4. Maximum individual true value response.

The response error variance decreases with increasing number of periodic surveys. It is advisable to redesign the questionnaire for any future market survey. The sampling variance is minimized by appropriate sampling technique described elsewhere in this report.

Statistical Analysis

All discrete or continuous data were reduced to frequency. The objective here is to check the significance of the population variance. However, in most mail surveys this is considered unnecessary. Since, our response data deal with statistics of attributes (positive/negative; Yes/No), a distribution fee non-parametric test for categorical data is appropriate. This is Chi-Square test wherein an observed variance is compared with a theoretical (Table value) against a given degree of freedom.

In order to meet the requirements of this test, the following was made part of the research design.

1. Collect random stratified data.
2. Keep data independent.
3. Keep sample size above 50.
4. Keep degrees of freedom at least 5 or more. Normal requirement is 10, but for stratified random sample even as low as 5 is statistically permissible and relevant.

The steps involved in Chi-square testing are as follows, the Null hypothesis being - "There is no relationship between attributes".

1. Prepare contingency table for testing independence.
2. Expected frequency = Row total of cell multiplied by column total of cells.
3. Calculated variance.

$$X^2 = \frac{(Oij-Eij)^2}{Eij}$$

(ith row, jth column)

No estimates of sampling variance and/or response variance are made in this study. In primary market research replication of survey takes care of the former and proper design of the questionnaire takes care of the latter. Non-quantitative methods are preferable. We assume that we have an "Epsom Sample" whose individual elements have same probability.

Tabulation of numerical data and cron-classification for independence testing has been emphasized in this report. Nominal, differential, ordinal, and ratio data ought to be analyzed very carefully.

6. SURVEY FINDING AND DISCUSSION

In essence, we have two market segments for soy-foods in Bhopal: Urban and Rural

The high income urban group will buy status foods - fortified biscuits, cakes, and extruded snacks and rural group will buy indigenous fortified foods - chappaties, puri, samosa, bari etc. In the latter case, a host of indigenous products can be included: Dal, Namkeen, additives for chatni, etc.

Table 6.1 summarizes the findings on "soy-pro" biscuits. The target population is not very aware of it. However, 80% of the urban population is willing to buy; they like the product quality (6.1.7 through 6.1.12). Our target population can consume 415 metric tons of fortified biscuits. An 8 tons per week fortified biscuit manufacturing plant can serve 100,000 households in Bhopal. At Rs.30/kg, the expected revenue will be Rs.1,350,000/yr. At such a scale, 63 tons of full fat soy-flour will be consumed. This is still a small scale production facility.

Table 6.3 compiles all response data on use of full fat soy-flour making indigenous fortified foods. Rural people are less aware of soy-flour use than the urban people. Most of them will be repeat buyers and they are satisfied with existing product quality (color, texture). My personal view is that the product be improved at least in one respect:

Granulation - Two flour categories should be developed:

A coarse product for batter type applications and a fine product compatible with the particle size of wheat flour. This will give product options, price flexibility, and better control of quality.

Most sub-tables of 6.3 are self-explanatory. Table 6.3.17 shows calculations of tonnage required for the target population in Bhopal. A 2009 ton/yr rated capacity plant can operate full capacity with an expected revenue of Rs.30.144 million. Additional capacity can be added such that the same plant produces enough flour for making fortified biscuits and other upscale products.

Tables 6.4 and 6.5 describes health problems, their reported incidence, and attendant bias in response. The entries are self-explanatory.

Table 6.6 should be examined carefully. Marketing themes (listed as driving forces) are listed in descending order of priority. Such should be the priority of pushing marketing themes to consumer via package design, educational schemes, and direct advertising. The problems are also listed in descending order of priority.

These are often encountered marketing problems. For instance, taste and flavor are the most serious problems. Product development strategies must address and solve this problem as early as possible. Advertising is the role of an established business. However, ICAR as a government institution, can publicize the nutritional and health value of soy-foods to the general public.

Table 6.1

Mail Survey Results on Soy-Pro Full Fat Soy fortified Biscuits (Frequency of attribute Response)

6.1.1 Product Awareness

Response	Urban	Rural	Total
Yes	9 (10)	0 (1)	9 (11)
No	31 (39)	15 (39)	46 (78)
Uncertain	0 (1)	-	(1)

6.1.2 Attitude towards Purchase

Response	Urban	Rural	total
Will definitely buy	32 (40)	9 (31)	41 (71)
May buy	8 (9)	4 (7)	12 (16)
Undecided	- (1)	2 (2)	2 (3)
Total	40 (50)	15 (40)	55 (90)

6.1.3 Retail Price Acceptability at Rs.30.00/kg (IC)

Response	Urban	Rural	Total
Sure to buy	27 (34)	9 (32)	36 (66)
May buy	8 (10)	4 (5)	12 (15)
Undecided	4 (5)	2 (2)	6 (7)
Will not buy	1 (1)	- (1)	1 (2)
Total	40 (50)	15 (40)	55 (90)

Table 6.1 (continued)

6.1.4 Product Price Preference

Preferred Price (Rs/kg)	Urban	Rural	Total
40	9 (9)	4 (9)	13 (18)
36	8 (12)	5 (12)	13 (21)
32	10 (14)	6 (9)	16 (23)
30	5 (8)	- (4)	5 (12)
28	5 (6)	- (3)	5 (9)
26	5 (4)	- (3)	3 (7)
Total	40 (50)	15 (40)	55 (90)

6.1.5 Current Product Consumption per month

Consumption (of/month)	Urban	Rural	Total
<100	1 (1)	1 (2)	2 (3)
101-250	14 (15)	1 (5)	15 (20)
251-500	18 (21)	3 (13)	21 (34)
501-1000	5 (8)	7 (12)	12 (20)
>1000	2 (5)	3 (8)	5 (13)
Total	40 (50)	15 (40)	55 (90)

6.1.6 Product Market Share Potential

As percent of current consumption

Potential Market share (%)	Urban	Rural	Total
<10%	3 (3)	1 (5)	4 (8)
11-25	8 (10)	3 (13)	11 (23)
26-50	18 (24)	5 (9)	23 (33)
>50	11 (13)	6 (13)	17 (26)
Nil	-	-	-
Total	40 (50)	15 (40)	55 (90)

Table 6.1 (Continued)

6.1.7

Product Appearance

Response	Urban	Rural	Total
Very good	18 (18)	0 (9)	18 (27)
Good	16 (21)	9 (24)	25 (45)
O.K.	6 (10)	6 (7)	12 (17)
Poor	- (1)	- -	- (1)
Very Poor	-	- -	-
Total	40 (50)	15 (40)	55 (90)

6.1.8

Product Color

Response	Urban	Rural	Total
Very good	16 (17)	0 (6)	16 (23)
Good	18 (23)	12 (30)	30 (53)
OK	6 (10)	3 (4)	9 (14)
Bad	- -	- -	
Total	40 (50)	15 (40)	55 (90)

6.1.9

Product Shape and Size

Response	Urban	Rural	Total
Very good	10 (10)	2 (9)	12 (19)
Good	23 (25)	4 (19)	27 (44)
O.K.	7 (15)	9 (12)	16 (27)
Bad	- -	- -	- -
Total	40 (50)	15 (40)	55 (90)

Table 6.1 (Continued)

6.10 Product Texture

Response	Urban	Rural	Total
Very Good	13 (15)	2 (10)	15 (25)
Good	24 (31)	10 (27)	34 (58)
OK	3 (4)	3 (3)	6 (7)
Bad	-	-	-
Very bad	-	-	-
Total	40 (50)	15 (40)	55 (90)

6.1.11 Product Taste

Response	Urban	Rural	Total
Very Good	23 (26)	1 (25)	24 (51)
Good	15 (21)	13 (14)	28 (35)
OK (average)	2 (3)	1 (3)	3 (4)
Bad	-	-	-
Very bad	-	-	-
	40 (50)	15 (40)	55 (90)

6.1.12 Product Mothfeel

Response	Urban	Rural	Total
Very good	20 (24)	1 (10)	21 (34)
Good	18 (21)	13 (27)	31 (48)
OK	2 (5)	1 (3)	3 (8)
Total	40 (50)	15 (40)	55 (90)

Note: Numbers in parentheses are new frequencies compiled when more filled-in questionnaire were received. There will be more coming in. Mr. Bisht has the responsibility of final up-date for internal CIAE records.

Table 6.2

Annual Tonnage and size of a small-scale Full-fat Soy flour production facity: Calculations

Weighted average (Table 1-C2), 376 g/person/ per capita		4.5 kg
Requirement of Biscuit for Target population of 100,000	=	9.9 lb 9900001b
		450 Tons
weighted % T 1-C3		14%
Annual flour (Soy) plant Fortified Biscuit		63 Tons 415 m Tons

Table 6.3

Mail Survey Results on Full fat Soy Flour For Indigenous food's kitchen-scale fortification.
(Frequency of attribute Response)

6.3.1 Product Awareness

Responses	Urban	Rural	Total
Aware	34	10	44
Not aware	46	61	107
Total	80	71	151

6.3.2 Attitude Towards Purchase

Responses	Urban	Rural	Total
Will Buy	34	37	71
May Buy	13	22	35
Undecided	1	-	1
Unanswered	2	-	2
Total	50	59	109

6.3.3 Retail Price Acceptability

	Rs. 14/kg			Rs.10/kg		
Responses	Urban	Rural	Total	Wh.	Ri.	Total
Very low price	-	-		1	-	1
Low price	1	-	1	2	-	2
O.K.	4	14	18	24	20	44
High price	25	44	69	17	30	47
Very high price	20	1	21	3	6	9
Not answered	-	-	3	3	3	6
	50	59	109	50	59	109

Table 6.3 (continued)

6.3.4 Current Product Consumption Potential (kg/Mo)

Responses	Urban	Rural	Total
<1.5kg	3	2	5
1.5-1 kg	21	12	33
1-3kg	8	28	36
3-5kg	9	10	19
>5kg	4	7	11
unanswered	5	-	5
Total	50	59	109

6.3.5 Product color

Responses	Urban	Rural	Total
Very good	14	5	19
Good	29	41	70
OK	7	12	19
Bad	-	-	-
Very Bad	-	1	1
Unanswered	-	-	-
Total	50	59	109

6.3.6 Product Texture (3-F) compared to Wheat Flour

Responses	Urban	Rural	Total
Very good	14	5	19
Good	29	41	70
OK	7	12	19
Bad	-	-	-
Very Bad	-	1	1
Unanswered	-	-	-
Total	50	59	109

6.3.7 Product Texture (3-F) compared to Wheat Flour

Responses	Urban	Rural	Total
Very good	20	38	58
Good	24	17	41
OK	6	4	10
Bad	-	-	-
Very Bad	-	-	-
Not answered	-	-	-
Total	50	59	109

Table 6.3 (continued)

6.3.8 Prior Use of Soy flour

Responses	Urban	Rural	Total
Yes	11	10	21
No	39	49	78
Don't Remember	-	-	
Total	50	59	109

6.3.9 Types of Fortified Products made (Multiple choice question)

Response	Urban	Rural	Total
Chapati	44	54	98
Paratha	34	16	50
Pakora	22	21	43
Puree	16	10	26
Others	5	5	10
No.of Recipes	121	106	227
Frequency	50	59	109

* Includes samosa, mathari, papad, bari, toti,tisal (upama), mixed in Dal, and Halwa.
* Frequencies do not have to correspond,

Table-6.3 (continued)

6.3.10 Ease of Preparation and Cooking

Response	Urban	Rural	Total
Very difficult	0	0	0
Difficult	0	0	0
OK	10	9	19
Easy	21	49	70
Very Easy	19	1	20
Total	50	59	109

6.3.1 Taste of Fortified Food Prepared and Consumed

Responses	Urban	Rural	Total
Very good	17	2	19
Good	23	44	77
OK	9	13	22
Bad	-	-	-
Very Bad	-	-	-
Unanswered	1	-	1
Total	50	59	109

6.3.12 Acceptability of Soy fortified Indigenous finds

Responses	Urban	Rural	Total
Very Good	12	6	18
Good	29	44	73
OK	9	9	18
Bad	-	-	
Very Bad	-	-	
Total	50	59	109

Table 6.3 (continued)

6.3.13 Intention for Repeat Use

Response	Urban	Rural	Total
Yes	41	54	95
May be	9	5	14
No	0		-
Total	50	59	109

6.3.14 Opinion on Soy Flour Package

Responses	Urban	Rural	Total
Very good	20	6	26
Good	22	43	65
OK	8	10	28
Bad	-	-	
Very Bad	-	-	
Total	50	59	109

6.3.15 Reading of Information provided on package

Responses	Urban	Rural	Total
Complete Reading	47	46	93
Partial reading	3	13	16
Did not Read	0	0	
Total	50	59	109

Table-6.3 (continued)

6.3.16 Degree of Completeness of package Information

Responses	Urban	Rural	Total
Complete	31	47	78
Enough	17	11	28
Not Enough	2	-	2
Not responded	-	1	1
Total	50	59	109

6.3.17 Expected consumption and pricing

Weighted average of use (Table 6.3.4) 2.26kg/mo
= 25.12kg/yr

Use of 100,000 households 2512000kg
= 2512 tons/yr

Correction of revise intention factor (80%) (6.3.13) = 2512x0.8
= 2009 tons/yr

(38 tons/week or 5.5 tons/day)

Price at 12/kg
Revenue = Rs.30,144,000

Note: Just to serve the 100,000 households in Bhopal, we need a facility to produce 2009 tons/yr of full fat soy-flour - a Rs 3 million enterprise.

Table 6.4

Quantitative Descriptions of problems
(Full fat Soy Flour Questionnaire)

Question No.13 - Health problems

No.13 - Health problems

Total Respondents (4)	50
No Problem	44
Problem	6

(CIAE-biased) Majority of the 6 respondents above are CIAE employees

Dysentry to children	1
Gastric Trouble	1
Stomach ache/Dysentry	2
Hea------stomach	1

5/50 = 10%

Total (Rural)	59
Problem	1

(0.8%)

No.18. Main Advantages of flour use

Rural : indirectly aware health and nutrition, need to be educated about nutritional and general health advantages of soy fortified foods.

Note: There were no controls used side by side. Therefore, product misuse is a possibility. Answers to Question No.13 should be interpretated very carefully.

Table 6.5

Problems stated by respondent and their overall rating and reuse intention

Problem stated by respondent	Dating of soy flour in totaling by him/her	Reuse intention
A. Urban		
1. Dysentry to children	Good	Yes surely
2. Gastric trouble	Good	May be
3. Stomach ache and dysentry	OK	May be
4. Difficult to digest	Good	Yes surely
5. Heaviness, no hunger	Very good	Yes surely
B. Rural		
1. Stomach ache	Good	Yes surely

The details of the stated problems need to be found out to establish whether or not the stated problems were caused by soy-fortified foods per se. Rating and reuse intention responses are contradictory to problems. Whether the problems are minor or not there exists a bias: "preconcieved opinions".

Table 6.6

Marketing Forces and Problems per customer reaction to full-fat soy-flour use.

Urban		Rural	
Driving Force	Problems	Driving Forces	Problems
Nutrition Health advertizing	Unknown long-term effects	Tasty/soft chappatie	No
Child nutrition	High cost	Education about soy foods	No
Nutrition during pregnancy	Poor quality Poor supply	Meager knowledge of health benefits	
Taste (Positive)	Short shelf-life		Preparation of soy-flour at home not possible.
Convenience (easy to use)	Use information not available	long shelf-life	
Functional value crispness elastic chapatti	Odor-objectionable		
Freshness	Digestibility		
Vegetarian food			
New food varieties			
Appetizing			

GIVEN THE ABOVE, WHAT TO DO

1. Publicity in both rural and urban populations.

2. Distribution of booklets on tried out receipes and use information. Give precautionary advice in order to avoid product misuse.

3. Use of hospital and school channels to promote products.

Pricing strategies evolve in relation to supply, competition, quality of raw material, and the cost of regulatory compliance. Given today's business environment in India, the price of up-scale fortified foods and full fat soy-flour can range from Rs.32 - 33 and Rs.12-13, respectively. There are two key bases of pricing: Nutrition and health from pro ein and high cost edible value of these bases either directly by education or indirectly by superior quality of consumer foods, higher margin via pricing may be possible. On the contrary competition in food manufacturing sector and increase in supply of soybean can more than offset such margins. Therefore, price must be realistic; it should be cost of manufacturing + selling and administration + conventional profit margin.

The plastic package for full fat soy flour was found satisfactory. However, the package for "soy-pro" needs improvement. I suggest that the front panel of "soy-pro" biscuit should have the following format.

1. Top of pront panel (2/3rd) is to consist of 2 rectangular blocks: One large containing name "soy-pro" and the other smaller (only in vertical dimension) containing the qualifiers.

2. Items in one above be reverse printed with wide line perimeter.

3. Color should be close to that of biscuit or darker.

4. Bottom rectangle should contain picture of half a role of biscuit.

5. The bottom 1/3 rd can be printed in different ink. It should be used for CIAE's name and address plus any legally mandated information.

6. The back panel should have nutritional and promotional information printed directly (not in reverse).

Market survey on Tofu should be done as soon as possible. SPU/CIAE staff has the necessary guidelines. We should use a sorbate type self-life extender within the package (in liquid).

It is not common to subject independent and non parametric data to statistical analysis. For clear-cut associative response attributes chi-square should be used. The technical embodiment section describes the technique in brief. SPU/CIAE staff has been advised to complete such tests if deemed necessary.

7. INDUSTRIAL LIAISON

Liaising effectively with the private sector soyfood manufacturers is necessary. It is more true of India where food manufacturing is largely a private sector undertaking.

For a successful liaison, the SPU/CIAE scientists and engineer must follow-up and keep current on soy-food manufacturing in India and have a clear understanding of directly/indirectly related technology and commercial developments in the rest of the world. They must be capable of service better than their counterparts in the private sector.

Industrial liaison can be accomplished in number of ways:

1. Assist industry in problem solving on a confidential basis.

2. Assist industry in scale-up of pilot plant manufacturing.

3. Engage in joint research and development.

4. Offer training programs in soy-foods technology and soybean processing.

The mini-plant recommended earlier and later under recommendations can serve very effectively as an agent of liaison.

These must evolve a mechanism to pool professional and physical resources of GBPUAT and CIAE to this end. The liaison function is not local to Bhopal. Soy foods plants all over India need and will need more expert advice, scale-up service, preliminary engineering service, and even product testing service. SPU/CIAE must train and prepare its staff to be able to render such services. The SPU unit at Bhopal already has a more than adequate pilot plant and analytical facility.

8.

CONCLUSIONS

This market survey by mail questionnaire was very successful with mail return of 35% (more than 100 out of 300). The key findings are:

1. There are two market segments: Urban and Rural.

2. Soyfoods need be publicized more in rural areas than in urban but effective education of both is necessary.

3. The quality of "Soy-pro" biscuits is unquestionably acceptable to the consumer. Any deficiency may have been due to pilot scale production of biscuits at the SPU/CIAE lab. Quality of commercial products will be better.

4. The most serious drawback of the full fat soy flour is the "pre-perceived" notions of health problems. Although responses of this type are less than 10%. a repeat survey should differentiate between actual problem and inherent bias for one or another reason.

5. Full fat soyflour can be priced at Rs.13.0/kg. The oil value in this product must be emphasized in order to downplay the perception of high price.

6. Soy fortified baked foods, biscuits being a candidate in this survey, can be priced at Rs.30-32/kg. This price fares well with the market price of extruded foods in Bhopal.

7. A 415 ton/yr facility for "Soy-pro" biscuit and a 2009 ton/yr facility for full fat soy flour is indicated by this survey, with corresponding revenues of Rs.1.3 and Rs.30.14 million/yr.

8. Industrial liaison activities must be chalked out and put in action as soon as possible. From Govt. of India's point of view, this by itself is a kind of promotion and advertising activity.

9. The role of soybean in upgrading Indian economy and Indian dietary should be fully understood by the staff at SPU/CIAE and FST-PHFPE/GBPUAT. They should collectively champion this cause.

9.

RECOMMENDATIONS

GENERAL

1. Design products for two major segments of the Indian market; 1) rural and low income urban and 2) high income urban. Promote soy flour, soy-paneer, soy-dal for the former segment and higher quality baked goods and snacks for the latter.

2. Emphasize high quality protective and informational packaging for high quality baked snack foods for the high income consumers.

3. Sell nutrition, 'protein and health'. Don't compare soy flour with wheat flour, compare it with high cost nutritive infant and adult foods available in the local Bhopal and other Indian cities.

4. Formulate soy foods with typical Indian food flavors. Taste and flavor appeal is the most important aspect of marketing processed foods not only in India but world over. It is more true of India.

5. Establish a product and process technology display room. Equip it with promotional literature - nutrition, recipes, modified indigenous food preparation techniques, and general health/unit cost benefits of soy foods - and distribute to visitors and product buyers (described later under recommendations 10).

SPECIFIC

6. Initiate and fully put in action primary school lunch and in-hospital patient feeding program utilizing major cost competitive soy foods - soy milk, tofu, soydal, and Indian stylesoydal based snack foods.

7. Assist private sector in executing the feeding programs identified under recommendation 6 above.

8. Improve and up-grade SPU's technology base commensurate with expectations and existing level of soy foods process and product formulation technology development by the private sector.

9. Conduct primary market research in replicates (as many as budgetary conditions permit). This 'in and by itself' is an advertising activity. ICAR, CIAE, and CIAE's SPU unit stand to gain public recognition on one hand and marketing and market development advantage on other.

10. ICAR should commit fixed and initial operating capital for the installation of a mini-soy processing plant independent of the existing pilot-plant. This plant should be used for the following purposes.

    a. Pilot plant to production scale up studies for the industry. This is one of the best methods of industrial liaison practiced in the U.S., Europe, Japan and even the newly industrialized countries like South Korea, Taiwan and Singapore. ICAR's NDRI facility is a good example.

    b. Sell soyproducts on site to local consumers and small retailors/distributors. In addition to being an effective marketing and promotional tool, this approach can easily off-set most of the annual operating expenses of the mini-production plant.

    c. Train young industry recruits in soy foods processing and product development.

    d. Offer "in plant" apprenticeship to graduating students in the area of soy processing, soy foods utilization, and soy-products marketing and market development.

11. Marketing is an activity central to national development in democratic free market economy. Granted, the Indian markets not as free as they ought to be, ICAR can be an effective institutional instrument of new market development. The food and agriculture sector being a major component of Indian economy, ICAR's role in developing commodity process technology and industrial markets for soy-ingredients and direct consumer foods must be decisive. This institution, by policy and programs, should create operating mechanisms for ongoing primary marketing research and soy foods market development. SPU/CIAE in Bhopal can act as a vehicle of pre-commercial marketable foods development of predetermined technical and economic feasibility.

12. Developing and implementing industrial liaison activities are the thematic and functional basis of all these recommendations. Soybean processing and soy food manufacturing is growing fast in India. Since ICAR is a research and development institution, Industrial liaison, in my opinion, is a necessity in order to fully exploit technologies developed at its various centers - SPU/CIAE in this instance.

Marketing activities are key elements of industrial economics. The role of soybean in the development of rural India and industrial India is inseparable. ICAR should put in action plans and programs to promote this theme. In particular, this concept should become clear to project scientists at both centers CIAE and GBPUAT.

10. TRIP REPORT: GBPUAT PANTNAGAR (AUG 6-9, 1990

I spent half a day each with post-harvest food process engineering (PHFPE) and department of food science and technology (FST). I was told by the PHFPE group that the Indo-U.S. SPU project is split 10:90 between GBPUAT's two groups and SPU/CIAE at Bhopal. Also, I learned that PHFPE/GBPUAT is to conduct basic research supportive of both FST/GBPUAT and SPU/CIAE.

With the benefit of more than a month long association with SPU project and interactions with professionals at GBPUAT, albeit just for a day, I make the following observations.

1. Project selection at PHFPE should be specific, complementary, and synergistic by design in order to render coordination easy. We should do our best to integrate project works at FST, PHFPE, and SPU/CIAE.

2. Individual projects should not ignore the larger objectives of the Indo-U.S. project, i.e, quality-wise acceptable foods from soybeans.

3. Duplication of technical work and major physical facility should be avoided.

4. Full fat soy flour and defatted soy flour should be viewed as functional ingredients. Applications research on one is complementary to the other. We should develop products from either that is acceptable to the consumer in terms of taste and flavor.

5. Dr. B.P.N. Singh emphasized the need for commercial literature. He is right and assistance in this regard should be given to all three project subunits.

6. The soy foods processing plant at Haldi (Nainital) is grossly underutilized. It should be made operational. If managed properly, it can help promote soyfoods on an ongoing basis from its operating revenue.

7. Industrial liaison should become a stated imperative for all three centers- FST, PHFPE, and SPU/CIAE. This is the only way to transfer all new and unconventional technologies. It does require knowledge and understanding of commercial literature, both domestic and foreign.

ACKNOWLEDGEMENT

First of all I sincerely thank the Indian Council of Agricultural Research and its officials for inviting and entrusting me for this primary market research as a U S A I D consultant. The foresight and visionary programming that has gone into planning and executing this Indo-US Sub-project on Soybean protein utilization is commendable. My sincere thanks to Dr A.Colin McClung of Winrock International; Mr. John A. Becker and Dr. Surjan Singh of USAID in Delhi; and Mr. S.K. Misra - Director General, Dr.T.P. Ojha - Deputy Director General, and Dr. A. Alam - Assistant Director General of ICAR whose joint efforts have made my consultancy work possible.

Also, I must accord my thanks and appreciation to Dr. N.S.L. Srivastava, Director, CIAE, Bhopal for the courtesy from his good office and for his personal involvement in seeing this work through and complete. Dr. Nawab Ali's commitment to facilitating administrative clearances related to this study and to integrating the entire project is noteworthy. In his absence, Dr. A.P. Gandhi has been equally effective, courteous, and cooperative in assisting me with physical facility and background technical information.

The entire SPU team of scientists, technical, and administrative staff at SPU unit of CIAE, I must categorically emphasize, has served as an operating vehicle of performance. My very sincere thanks to all of them for timely performance with due courtesy and urgency.

Finally, I express without any reservation that this study would have been literally impossible without the dedicated efforts by Messrs. Bisht and Bargale. As a special commendation, I wish to acknowledge the services and cooperation from my counterpart scientist Mr. Bisht. I find him as a man of firm convictions to product development and marketing.

The most sincerely acknowledged are those individuals whose names I am missing inadvertently. My inputs in planning and executing this joint research program have been technically genuine and personally sincere. I hope the study in its reported format stands up to the expectations of ICAR, USAID, Winrock International, and various functional divisions of ICAR.

Signed

Triveni P. Shukla
(USAID Consultant)
President, F.R.I. Enterprises
New Berlin, WI 53151 USA

CENTRAL INSTITUTE OF AGRICULTURAL ENGINEERING (ICAR), BHOPAL - 18

Indo-US Sub-project on Soybean Processing and Utilization

REVISED SCHEDULE/SCOPE OF ACTIVITIES OF DR T P SHUKLA AS CONSULTAN IN SPU PROJECT DURING JULY 2 - AUG. 5, 1990.

Area/Scope of work	:	Market survey (primary research) consumer feed-back studies on soy products and package design.
Sitting/working place	:	Consultant room (CPE Building/SPU Lab)
Counterpart Scientist	:	Mr BS Bisht
Office working hour	:	0930-1630 hrs

Date		Activity	Contact Personnel
1		2	3
July 2, 1990 (Monday)	o	Arrival in Bhopal. Stay at Lake View Ashok Hotel	Mr BS Bisht
	o	Discussions with Director CIAE	Dr NSL Srivastava
	o	Meeting with SPU Scientists	All SPU Scientists
	o	Visit to SPU Lab and pilot plant facility	Mr BS Bisht
July 3, 1990 (Tuesday)	o	Visit to SPU Pilot Plant facility and see demonstration of SPU equipment, Insta-pro 600 Jr. Extruder, Takai-tofu system, Wenger X-5 Extruder, etc.	All SPU Scientists
July 4, 1990 (Wednesday)		Rest Day (Id-Ul-Zuha)	
July 5, 1990 (Tuesday)	o	Discussions with the Project Director, SPU	Dr Nawab Ali
	o	Deliver a talk on 'Emerging trends in marketing of soyfoods'	All SPU Scientists
July 6, 1990 (Friday)	o	Work on technical programme for conducting consumer acceptability study, selection of products	Mr BS Bisht/ Dr Nawab Ali

1		2	3
July 7, 1990 (Saturday)	o	Technical programme finalisation for marketing studies on fullfat soyflour	Mr BS Bisht
	o	Discussions with SPU Scientists on technical programme	All SPU Scientists
July 8, 1990 (Sunday)		Rest Day	
July 9, 1990 (Monday)	o	Finalize the package design	
	o	Finalize the recipes related information as promotional material on packages	
	o	Visit to consumer cooperative stores, super markets in Bhopal for study of processed food items marketing	Mr BS Bisht/ Mr PC Bargale
July 10, 1990 (Tuesday)	o	Finalize the technical programme	Mr BS Bisht/ Mr PC Bargale/ Dr AP Gandhi/ Mr SD Kulkarni
	o	Develop the questionnaires for survey	
July 11, 12, & 13, 1990 (Wednesday, Thursday & Friday)	o	Pretesting of questionnaires	Mr BS Bisht/ Mr PC Bargale/ Dr AP Gandhi
	o	Study of institutional markets	
July 14, 1990 (Saturday)	o	Discussions with dealers and retailers of food items in Bhopal	Mr BS Bisht/ Mr PC Bargale
July 15, 1990 (Sunday)		Rest Day	
July 16-19, 1990 (Monday-Thursday)	o	Printing work on packages of soyproducts	Mr BS Bisht Mr PC Bargale
July 20-26, 1990 (Friday-Thursday)	o	Supervise the work of field survey	Mr BS Bisht/ Mr PC Bargale
	o	Delphi survey	
July 27, 1990 (Friday)	o	Seminar talk on 'Emerging Global Trends in Post Harvest Technology'	All CIAE Scientists
July 28, 1990 (Saturday)	o	Experts opinion survey on quality of soya-pro (soy-fortified biscuits)	All SPU Scientists
July 29, 1990 (Sunday)		Rest Day	

PROMOTION AND MARKETING OF SOY PRODUCTS
Questionnaire for Distributors, Whole Sales and Retailers
of Foods and Related Items in Bhopal

Name and address of the respondent : _____

_____

_____

1. What segment of Bhopal population in your opinion will buy soybased foods or soybean products ?
(Please put a tick mark at the most appropriate answer)

10% _____

20% _____

40% _____

Other (give %) _____

2. What economic group, irrespective of cost, will buy soy-foods or soy products ?

Income above Rs. 5000/m _____

Income above Rs. 3000/m _____

Income above Rs. 1000/m _____

3. How well aware is Bhopal population of soy foods or products (your opinion, not you) ? Rate in percent.

Very aware _____

Moderately aware _____

Little aware _____

Not aware at all _____

4. Given your selling and merchanding experience, please rate the relationship between economic status and level of education.

Highly related _____

Moderately related _____

Least related _____

5. Who may be the good target for soy product sale ?

Senior Govt. employees _____

University/ School employee _____

Rich business community _____

Low income business community _____

Average people with less than Rs. 1000/m _____

Pre-and primary school children _____

1		2	3
July 30, 1990 (Monday)	°	Visit to Noble Soy House, Mandideep, Distt.Raisen, M.P. (Mr Gopal Sharma, M.D. to conduct the visit)	Mr PC Bargale
July 31, Aug.1, 1990 (Tuesday & Wednesday)	°	Survey data compilation	Mr BS Bisht/
Aug. 2, 1990 (Thursday)	°	(MOHARRUM) Visit to Vippy Solvex, Dewas Distt. Indore, M.P. (Mr Mahajan of Vippy Solvex to conduct the visit)	Mr BS Bisht
Aug. 3 & 4., 1990 (Friday, Saturday)	°	Data analysis and report writing	Mr BS Bisht/ Mr PC Bargale/ Dr AP Gandhi/ Mr SD Kulkarni
Aug. 5, 1990 (Sunday)	°	Departure for Delhi IC-433	Mr BS Bisht/ Dr AP Gandhi/ Mr PC Bargale

(A P GANDHI)
Project Director I/c
SPU Project

Circulation:

1. Dr T P Shukla, Consultant, SPU Project
2. All concerned Scientists
3. PA to Director, CIAE, for kind information of the Director, please.
4. Winrock International, New Delhi Office
5. SPU Office - 2 copies

6. What should we, as research workers emphasize to promote soy product ?

Nutrition/Health _____

General public welfare _____

Children health/longevity _____

Low cost foods compared to wheat and rice _____

Fancy foods for upper class _____

Good, storable foods for all _____

7. How often the same customer buys conventional foods from your shop/store ?

Twice/week _____

Once/week _____

Twice/month _____

More often _____

8. Please do your best to rate (%)

Your educated/degreed customers _____

High government employees _____

Local businessmen _____

Public you think is poor _____

9. What is the average size of purchase ?

10 kg _____

5 kg _____

2.5 kg _____

1 kg _____

0.5 kg _____

for packaged goods

5 packets _____

2 packets _____

1 packet _____

10. If we maintain a shop in BHEL area, what is your assessment of the success of business ?

Very good _____

Average _____

Slim _____

11. How would you rate the need for good packaging ?

Necessary _____

Desirable _____

Needed to promote a product _____

Needed to educate people _____

Needed to protect the product _____

Easy to keep inventory _____

12. How many of your customers will gladly pay for high cost of packaging ?

10% _____

20% _____

30% _____

More than 50% _____

13. What percent of packaging cost you think your customers can tolerate (% of total product cost).

10% product cost _____

20% product cost _____

30% product cost _____

40% product cost _____

14. What additional profit margin (%) above your current profit marging is needed to move soy product ?

10% _____

20% _____

None _____

15. Given your customer profile (class/status), what price/lb should we sell soy flour ?

Rs. 18/kg _____

Rs. 15/kg _____

Rs. 12/kg _____

16. What, in your opinion, is the best way to advertise soy-products ?

Sign board at your store _____

On-package information _____

Data sheet insert in package _____

Recipe booklets _____

TV advertising _____

CIAE's extension programme _____

17(a) List every and all things you expect from Central Institute of Agricultural Engineering.

17(b) How many percent of your friends and associates know of and about CIAE ?

10% _____

20% _____

More than 50% _____

18. Please list a single most disadvantageous aspect of soyfoods.

19. Please list a single most <u>important</u> advantageous aspect of soyfoods (your opinion).

20. Please write all good and bad things about soyfood or soyproduct.

_____

_____

_____

_____

_____

_____

21. Should CIAE maintain a promotional shop at Nabi Bagh ?

Yes _____

No _____

or in the city of Bhopal ?

Yes _____

No _____

22. Should CIAE maintain a mini factory at Nabi Bagh for promotional sale, how much soy product will you like to by per week ?

50 kg/week _____

100 kg/week _____

250 kg/week _____

23. We plan to create a soy-paneer in dry powder form that is to be mixed in water and made into paneer. Please give your opinion.

(a) You can seel it at

Rs. 30/kg _____

Rs. 35/kg _____

Rs. 40/kg _____

(b) Should we try to design a method such that dry instant Tofu can be sold at only.

3 time soyflour _____

3.5 times soyflour _____

4.0 times soyflour _____

24. Please give a rough estimate of you competitors annual sale.

0.5 lakh _____

1 lakh _____

5 lakh _____

Other estimate _____

25. In your judgement, how many people often by high cost items like biscuit, snacks, cakes etc.

5 % _____

10% _____

15% _____

20% _____

Thank you for your cooperation

केन्द्रीय कृषि इंजीनियरी संस्थान
नबीबाग, बैरसिया रोड, भोपाल - 18

प्रिय महोदय/महोदया,

सोयाबीन से बने कुछ पदार्थों का हम उपभोक्ता (प्रयोग करने वालों) की रुचि, पसंदगी हेतु यह अध्ययन कर रहे हैं । इस अध्ययन के परिणामों से संस्थान के वैज्ञानिकों के लिए निर्णय लेने में आसानी होगी कि सोयाबीन से किस प्रकार के पदार्थ बनाए जाएं जो उपभोक्ता को पसंद भी हो व स्वास्थ्य हेतु लाभदायक भी हो, अर्थात पौष्टिक भी हों ।

आपसे अनुरोध है कि निम्न प्रश्नावलि (फार्म) में पूछे गए प्रश्नों के उत्तर सही-सही बिना संकोच देकर इस अध्ययन में सहयोग प्रदान करें । आपके उत्तर गोपनीय रखे जायेंगे तथा केवल इस अध्ययन में निष्कर्ष निकालने में ही प्रयोग होंगे ।

धन्यवाद ।

(डॉ0 नवाब अली)
परियोजना निदेशक,
सोयाबीन संसाधन एवं उपयोग परियोजना

प्रश्नावलि

कृपया संक्षिप्त रूप में उत्तर देने की कृपा करें । उपयुक्त कोष्टक में टिक मार्क (✓) लगायें या संख्या भरें ।

1. आपका शुभ नाम :----------

2. पता :----------

3. परिवार के सदस्यों का आयु वर्गीकरण (कृपया कोष्टक मे संख्या भरें)

बच्चे 12 वर्ष तक [ ]

वयस्क 60 वर्ष तक [ ]

60 वर्ष से अधिक [ ]

4. परिवार के वयस्क सदस्यों का व्यवसाय [संख्या भरें]

नौकरी पेशा [ ] अपना व्यवसाय [ ] खेती-किसानी [ ]

अन्य [ ] घरेलू कार्य [ ]

5. आपका परिवार किस आय वर्ग मे आता है, कृपया सही वर्ग मे टिक (✓) मार्क लगाये.

प्रतिमाह पारिवारिक आय रु0 1000 तक ☐

रु0 1001 से 2000 तक ☐

रु0 2001 से 3000 तक ☐

रु0 3001 से 5000 तक ☐

रु0 5000 से अधिक ☐

6. परिवार के सदस्यों की शिक्षा (कृपया कोष्टक में संख्या लिखें)

बी. ए. / बी. एस. सी. या अधिक ☐

हायर सेकेन्ड्री तक पढ़े ☐

पाँचवीं कक्षा तक पढ़े ☐

बिल्कुल नहीं पढ़े ☐

7. आपने सोयाबीन के किन-किन पदार्थों का अब तक उपयोग किया है ?

कृपया सही (✓) का निशान लगायें ।

आटा	दाल	बड़ी	पनीर	दूध	स्नेक्स	तेल	चिवड़े	अन्य -

8. आपने सोयाबीन मिले या सोयाबीन से बने कौन-कौन से खाद्य पदार्थ बनाए हैं/ खाए हैं? कृपया (✓) का निशान लगायें ।

रोटी	दाल	बड़ी	पनीर	दूध	नमकीन	मिठाई	हलवा	पूड़ी	बिस्कुट
इडली	डोसा	चिवड़े	अन्य -						

9. सोयाबीन के निम्न पदार्थों में आप कौन-कौन से पदार्थ बिना मूल्य परीक्षण करना चाहेंगे, कृपया ✓ का निशान लगायें ।

(अ) सोयाबीन का पूर्ण वसा-युक्त आटा,

(ब) सोयाबीन बिस्किट,

(स) सोयाबीन का पनीर,

10. उपरोक्त पदार्थों के उपयोग पर आधारित आपके अनुभव क्या रहे यह हम जानना चाहेंगे । हम, लगभग 3-4 दिनों बाद आपसे पुनः इसके लिए मिलना चाहेंगे । कृपया आप अपनी सुविधा जनक तिथि व समय हमें देने का कष्ट करें । सहयोग हेतु धन्यवाद ।

तिथि:----------

समय:----------

सर्वेक्षणकर्ता के हस्ताक्षर

B

केन्द्रीय कृषि इंजीनियरी संस्थान
नबीबाग, बैरसिया रोड, भोपाल - 18

: सोयाबीन पदार्थों के साथ उपयोग पर प्रश्नावली :

प्रिय महोदय/महोदया,

आशा है कुछ समय पूर्व हमारे द्वारा परीक्षण हेतु दिया गया सोयाबीन आटा आपने इस्तेमाल किया होगा । इस प्रश्नावली के माध्यम से हम यह जानना चाहते हैं कि आपने उक्त पदार्थों का उपयोग किस प्रकार किया व इनसे बने साथ आपको कैसे लगे । कृपया निम्न प्रश्नों के उत्तर बिना किसी संकोच, सही-सही देकर अपने अनुभव हमें बतायें ।

धन्यवाद ।

(डॉ0 नवाब अली)
परियोजना निदेशक,
सोयाबीन संसाधन एवं उपयोग परियोजना

प्रश्नावली

1. आपका (उत्तरदाता) का नाम : _____

आयु : _____ वर्ष

शिक्षा : _____

पता : _____

_____

_____

2. क्या आपने सोय-आटे का प्रयोग साथ पदार्थ बनाने में किया ? कृपया उपयुक्त उत्तर पर टिक मार्क (✓) लगायें ।

हाँ	पता नहीं	नहीं किया

3. कृपया बतायें कि सोय-आटे का रंग आपको कैसा लगा ?

बहुत अच्छा	अच्छा	ठीक-ठीक	खराब	बहुत खराब

4. आपको सोय-आटा छूने - परखने में कैसा लगा ?

बहुत अच्छा, मैदे की तरह	अच्छा, गेहुँ आटे सा	ठीक-ठीक	खराब	अति खराब, रेतीला

5. सोय-आटा की पैकिंग आपके अनुसार कैसी थी ?

अतिउत्तम	उत्तम	ठीक-ठीक	बेकार	बहुत बेकार

6. क्या आपने सोयबीन आटे का इसके पूर्व भी खाद्य हेतु उपयोग किया है ?

हाँ	नहीं	याद नहीं

7. यदि सोय- आटा आपकी परिचित दुकान पर या सुपर-मार्केट में उपलब्ध हो तो क्या आप खरीदना चाहेगें ?

हाँ	सोचेंगे	नहीं

8. कृपया बतायें कि सोय-आटा से आपके परिवार में क्या-क्या खाद्य बनाऐ गए ?
प्रत्येक बनाऐं खाद्य के नाम पर टिक मार्क (✓) लगायें ।

चपाती	पराठा	हलवा	पूड़ी	फुलोड़ा	केक	बिस्किट	इडली	डोसा	अन्य....

9. सोय-आटे के सम्मिश्रण से बने पदार्थ बनाने व पकाने में आपको कैसे लगे ?

बहुत कठिन	कठिन	ठीक-ठीक	आसान	बहुत आसान

10. सोय-आटा के पैकेट पर दोनों ओर कुछ लिखित जानकारी दी गयी थी । कृपया बिना संकोच बतायें कि आप इसे कितना पढ़ पाये ?

नहीं पढ़ा	कुछ पढ़ा	पूरा पढ़ा

11. आपके विचार से क्या छपी हुई जानकारी पूर्ण थी ?

पूर्ण थी	ठीक-ठीक थी	कम थी

12. सोया-आटा से बने साग आपको व परिवार के सदस्यों को स्वाद में कैसे लगे ?

बहुत अच्छे	अच्छे	सामान्य	खराब	बहुत खराब

13. सोय-आटा से सम्मिश्रित साग पदार्थो से आपके परिवार के किसी भी सदस्य को स्वास्थ्य सम्बंधी परेशानी हुई हो तो कृपया निसंकोच विवरण लिखें ।

---

14. कुल मिलाकर सोय-आटा आपको साग हेतु कैसा लगा?

अति उत्तम	उत्तम	ठीक-ठाक	बेकार	बहुत बेकार

15. क्या आप सोय-आटा फिर प्रयोग करना चाहेंगे?

हाँ अवश्य	सोचेंगे	नहीं करेंगे

16. यदि हाँ तो कृपया बताऐं कि एक महीनें में आपके परिवार हेतु कितना सोय-आटा चाहिए होगा?

1/2 किलो से कम	1/2 से 1 कि0	1 से 3	3 से 5 किलो	5 किलो से अधिक

17. यदि सोय-आटा रू0 14 प्रति किलो बाजार में उपलब्ध हो तो इस मूल्य के लिए आपकी प्रतिक्रिया क्या होगी?

मूल्य कम है	ठीक है	अधिक है	बहुत अधिक है

18. आपके विचार में सोय-आटा के साग हेतु उपयोग से मुख्य फायदे क्या हैं? कृपया लिखें।

(अ). ----------

(ब). ----------

(स). ----------

19. सोय-आटा का मूल्य रु0 10 प्रति किलो आपकी परिचित दुकान या सुपर-बाजार में हो तो इस पर आपकी राय क्या होगी?

मूल्य बहुत कम है	कम है	ठीक है	अधिक है	बहुत अधिक है

20. सोय-आटा को लोकप्रिय बनाने में क्या-क्या बाधाएँ हो सकती हैं? कृपया अपने विचार लिखिए।

(अ). ----------

(ब). ----------

21. सोय-आटा की उपयोगिता व साथ में इसके प्रयोग पर आपके कुछ सुझाव विचार हों तो कृपया बताएँ।

आपका बहुत-बहुत धन्यवाद

सर्वेकर्ता की टिप्पणी:

सर्वेकर्ता के हस्ताक्षर व नाम

दिनांक:

C

केन्द्रीय कृषि इंजीनियरी संस्थान
नबीबाग, बेरसिया रोड, भोपाल- 18
(सोय सम्मिश्रित बिस्किट पर उपभोक्ता के अनुभव)

प्रिय महोदय/ महोदया,

हमारे द्वारा परीक्षण हेतु दिये गए बिस्किटों का स्वाद आपने लिया होगा, इस प्रश्नावली के माध्यम से हम यह जानना चाहते हैं कि उक्त सोय-प्रो बिस्किट आपको विभिन्न दृष्टिकोण से कैसे लगे। कृपया निम्न प्रश्नों के उत्तर बिना किसी संकोच, सही-सही देकर अपने अनुभव हमें बताऐं। आपके उत्तर हमारे लिए अत्यन्त महत्वपूर्ण हैं।

धन्यवाद,

(नवाब अली)
परियोजना निदेशक

भोपाल
दिनांक:----------

प्रश्नावली

1. आपका (उत्तरदाता) का नाम:----------

पता:----------

---

2. कृपया बताऐं कि क्या इसके पूर्व कभी आपने सोयबीन मिश्रित बिस्किट खाए हैं? सही उत्तर के सामने कोष्ठक पर टिक मार्क (✓) लगाऐं।

हाँ [ ] नहीं [ ] याद नहीं [ ]

3. सोय-प्रो बिस्किट आपको बाहरी तौर पर देखने में (APPEARANCE) में कैसे लगे?

अति उत्तम [ ] उत्तम [ ] ठीक [ ] खराब [ ] बहुत खराब [ ]

8

4. सोय-प्रो बिस्किट का रंग§ COLOUR § आपको कैसा लगा?

अति उत्तम ☐ उत्तम ☐ ठीक ☐ खराब ☐

5. सोय-प्रो बिस्किट आकार-प्रकार SHAPE & SIZE,में आपको कैसे लगे?

अति उत्तम ☐ उत्तम ☐ ठीक ☐ खराब ☐

6. सोय-प्रो बिस्किट को दाँत से तोड़ने पर इसकी आंतरिक संरचना व बनावट § TEXTURE § आपको कैसी लगी?

अतिउत्तम ☐ उत्तम ☐ ठीक ☐

खराब ☐ बहुत खराब ☐

7. स्वाद§टेस्ट§ में यह बिस्किट आपको कैसे लगे?

अति स्वादिष्ट ☐ स्वादिष्ट ☐ साधारण ☐

खराब ☐ अति खराब ☐

8. सोय-प्रो बिस्किट खाने के तुरंत बाद आपको इसका जायका MOUTH FEEL,कैसा लगा?

बहुत अच्छा ☐ अच्छा ☐ साधारण ☐

9. यदि सोय -प्रो बिस्किट आपकी परिचित दुकान पर या सुपर मार्केट में उपलब्ध हों तो क्या आप खरीदना चाहेंगे?

हाँ,अवश्य ☐ हाँ,संभवत: ☐ सोचेंगे ☐

नहीं लेंगे ☐

10. बाजार में अच्छी कम्पनी के बिस्किट का भाव लगभग 28 या 30 रुपये प्रति किलो है। यदि सोय-प्रो का मूल्य भी लगभग इतना हो तो आपकी प्रतिक्रिया क्या होगी?

अवश्य खरीदेंगे [ ] संभवतः खरीदेंगे [ ] सोचेंगे [ ] नहीं खरीदेंगे [ ]

11. सोय-प्रो बिस्किट में अन्य उपलब्ध बिस्किटों की तुलना में 50 प्रतिशत अधिक पौष्टिकता § § है। इस जानकारी के पश्चात आप इस बिस्किट के लिये अन्य बिस्किट जो कि 30 रु0 प्रति किलो है, कितना मूल्य देना चाहेंगे?

40 रुपये प्रति किलो [ ] 36 रुपये [ ] 32 रुपये [ ] 30 रुपये [ ]

28 रुपये [ ] 26 रुपये [ ]

12. आपके परिवार में साधारणतया उपलब्ध बिस्किट की खपत प्रतिमाह प्रायः होती है?

100 ग्राम या कम [ ] 100 से 250 ग्राम [ ] 250 से 500 ग्राम [ ]

500 ग्राम से 1 किलो [ ] एक किलो से अधिक [ ]

13. सोय-प्रो बिस्किट आपके प्रतिमाह बिस्किट की खपत में कितने प्रतिशत स्थान पा लेंगे? यदि मूल्य अन्य बिस्किटों के लगभग बराबर हो ।

10 प्रतिशत तक [ ] 11-25 प्रतिशत तक [ ] 26 से 50 प्रतिशत [ ]

50 प्रतिशत से अधिक [ ] बिल्कुल नहीं [ ]

14. सोय-प्रो बिस्किट के प्रचार-प्रसार हेतु आपका सुझाव हो तो कृपया बतायें:-

§1§. ----------

§2§. ----------

धन्यवाद

सर्वेक्षणकर्ता की टिप्पणी:

हस्ताक्षर

A

केन्द्रीय कृषि इंजीनियरी संस्थान
नबीबाग, बैरसिया रोड, भोपाल - 18

प्रिय महोदय/महोदया,

सोयाबीन से बने कुछ पदार्थों का हम उपभोक्ता (प्रयोग करने वालों) की रुचि, पसंदगी हेतु यह अध्ययन कर रहे हैं । इस अध्ययन के परिणामों से संस्थान के वैज्ञानिकों के लिए निर्णय लेने में आसानी होगी कि सोयाबीन से किस प्रकार के पदार्थ बनाए जाएं जो उपभोक्ता को पसंद भी हो व स्वास्थ्य हेतु लाभदायक भी हो, अर्थात पौष्टिक भी हों ।

आपसे अनुरोध है कि निम्न प्रश्नावली (फार्म) में पूछे गए प्रश्नों के उत्तर सही-सही बिना संकोच देकर इस अध्ययन में सहयोग प्रदान करें । आपके उत्तर गोपनीय रखे जायेंगे तथा केवल इस अध्ययन में निष्कर्ष निकालने में ही प्रयोग होंगे ।

धन्यवाद ।

(डॉ0 नवाब अली)
परियोजना निदेशक,
सोयाबीन संसाधन एवं उपयोग परियोजना

प्रश्नावली

कृपया संक्षिप्त रूप में उत्तर देने की कृपा करें । उपयुक्त कोष्टक में टिक मार्क (✓) लगायें या संख्या भरें

1. आपका शुभ नाम :----------

2. पता :----------

3. परिवार के सदस्यों का आयु वर्गीकरण (कृपया कोष्टक मे संख्या भरें)

बच्चे 12 वर्ष तक [ ]

वयस्क 60 वर्ष तक [ ]

60 वर्ष से अधिक [ ]

4. परिवार के वयस्क सदस्यों का व्यवसाय [संख्या भरें]

नौकरी पेशा [ ] अपना व्यवसाय [ ] खेती-किसानी [ ]

अन्य [ ] घरेलू कार्य [ ]

5. आपका परिवार किस आय वर्ग मे आता है, कृपया सही वर्ग मे टिक (✓) मार्क लगाये.

प्रतिमाह पारिवारिक आय रु0 1000 तक [ ]

रु0 1001 से 2000 तक [ ]

रु0 2001 से 3000 तक [ ]

रु0 3001 से 5000 तक [ ]

रु0 5000 से अधिक [ ]

6. परिवार के सदस्यों की शिक्षा (कृपया कोष्टक में संख्या लिखें)

बी. ए. / बी. एस. सी. या अधिक [ ]

हायर सेकेन्ड्री तक पढ़े [ ]

पाँचवीं कक्षा तक पढ़े [ ]

बिल्कुल नहीं पढ़े [ ]

7. आपने सोयावीन के किन-किन पदार्थों का अब तक उपयोग किया है ?

कृपया सही (✓) का निशान लगायें ।

आटा	दाल	बड़ी	पनीर	दूध	स्नेक्स	तेल	चिवड़े	अन्य -

8. आपने सोयावीन मिले या सोयावीन से बने कौन-कौन से खाद्य पदार्थ बनाए हैं/ खाए हैं? कृपया (✓) का निशान लगायें ।

रोटी	दाल	बड़ी	पनीर	दूध	नमकीन	मिठाई	हलवा	पूड़ी	बिस्कुट
इडली	डोसा	चिवड़े	अन्य -						

9. सोयावीन के निम्न पदार्थों में आप कौन-कौन से पदार्थ बिना मूल्य परीक्षण करना चाहेंगे, कृपया ✓ का निशान लगायें ।

(अ) सोयावीन का पूर्ण वसा-युक्त आटा,

(ब) सोयावीन बिस्किट,

(स) सोयावीन का पनीर,

10. उपरोक्त पदार्थों के उपयोग पर आधारित आपके अनुभव क्या रहे यह हम जानना चाहेंगें । हम, लगभग 3-4 दिनों बाद आपसे पुनः इसके लिए मिलना चाहेंगे । कृपया आप अपनी सुविधा जनक तिथि व समय हमें देने का कष्ट करें । सहयोग हेतु धन्यवाद ।

तिथि:----------

समय:----------

सर्वेक्षणकर्ता के हस्ताक्षर

B

केन्द्रीय कृषि इंजीनियरी संस्थान
नबीबाग, बैरसिया रोड, भोपाल - 18

: सोयाबीन पदार्थों के साथ उपयोग पर प्रश्नावलि :

प्रिय महोदय/महोदया,

आशा है कुछ समय पूर्व हमारे द्वारा परीक्षण हेतु दिया गया सोयाबीन आटा आपने इस्तेमाल किया होगा । इस प्रश्नावली के माध्यम से हम यह जानना चाहते हैं कि आपने उक्त पदार्थों का उपयोग किस प्रकार किया व इनसे बने खाद्य आपको कैसे लगे । कृपया निम्न प्रश्नों के उत्तर बिना किसी संकोच, सही-सही देकर अपने अनुभव हमें बताऐं ।

धन्यवाद ।

(डॉ0 नवाब अली)
परियोजना निदेशक,
सोयाबीन संसाधन एवं उपयोग परियोजना

प्रश्नावलि

1. आपका (उत्तरदाता) का नाम : ----------
   आयु : ----------वर्ष
   शिक्षा : ----------
   पता : ----------

   ----

2. क्या आपने सोय-आटे का प्रयोग खाद्य पदार्थ बनाने में किया ? कृपया उपयुक्त उत्तर पर टिक मार्क (✓) लगायें ।

हाँ	पता नहीं	नहीं किया

3. कृपया बतायें कि सोय-आटे का रंग आपको कैसा लगा ?

बहुत अच्छा	अच्छा	ठीक-ठीक	खराब	बहुत खराब

4. आपको सोय-आटा छूने - परखने में कैसा लगा ?

बहुत अच्छा, मैदे की तरह	अच्छा, गेहुं आटे सा	ठीक-ठीक	खराब	अति खराब, रेतीला

5. सोय-आटा की पैकिंग आपके अनुसार कैसी थी ?

अतिउत्तम	उत्तम	ठीक-ठीक	बेकार	बहुत बेकार

6. क्या आपने सोयबीन आटे का इसके पूर्व भी खाद्य हेतु उपयोग किया है ?

हाँ	नहीं	याद नहीं

7. यदि सोय- आटा आपकी परिचित दुकान पर या सुपर-मार्केट में उपलब्ध हो तो क्या आप खरीदना चाहेंगे ?

हाँ	सोचेंगे	नहीं

8. कृपया बतायें कि सोय-आटा से आपके परिवार में क्या-क्या खाद्य बनाये गए ?
प्रत्येक बनाये खाद्य के नाम पर टिक मार्क (✓) लगायें ।

चपाती	पराठा	हलवा	पूड़ी	पकोड़ा	केक	बिस्किट	इडली	डोसा	अन्य....

9. सोय-आटे के सम्मिश्रण से नये पदार्थ बनाने व पकाने में आपको कैसे लगे ?

बहुत कठिन	कठिन	ठीक-ठीक	आसान	बहुत आसान

10. सोय-आटा के पैकेट पर दोनों ओर कुछ लिखित जानकारी दी गयी थी । कृपया बिना संकोच बतायें कि आप इसे कितना पढ़ पाये ?

नहीं पढ़ा	कुछ पढ़ा	पूरा पढ़ा

11. आपके विचार से क्या छपी हुई जानकारी पूर्ण थी ?

पूर्ण थी	ठीक-ठीक थी	कम थी

12. सोया-आटा से बने खाद्य आपके व परिवार के सदस्यों को स्वाद में कैसे लगे ?

बहुत अच्छे	अच्छे	सामान्य	खराब	बहुत खराब

13. सोय-आटा से सम्मिश्रित खाद्य पदार्थों से आपके परिवार के किसी भी सदस्य को स्वास्थ्य सम्बंधी परेशानी हुई हो तो कृपया निसंकोच विवरण लिखें ।

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14. कुल मिलाकर सोय-आटा आपके खाद्य हेतु कैसा लगा?

अति उत्तम	उत्तम	ठीक-ठाक	बेकार	बहुत बेकार

15. क्या आप सोय-आटा फिर प्रयोग करना चाहेंगे?

हाँ अवश्य	सोचेंगे	नहीं करेंगे

16. यदि हाँ तो कृपया बताएँ कि एक महीनें में आपके परिवार हेतु कितना सोय-आटा चाहिए होगा?

1/2 किलो से कम	1/2 से 1 कि0	1 से 3	3 से 5 किलो	5 किलो से अधिक

17. यदि सोय-आटा रु0 14 प्रति किलो बाजार में उपलब्ध हो तो इस मूल्य के लिए आपकी प्रतिक्रिया क्या होगी?

मूल्य कम है	ठीक है	अधिक है	बहुत अधिक है

18. आपके विचार में सोय-आटा के खाद्य हेतु उपयोग से मुख्य फायदे क्या हैं? कृपया लिखें।

(अ). ----------

(ब). ----------

(स). ----------

19. सोय-आटा का मूल्य रु0 10 प्रति किलो आपकी परिचित दुकान या सुपर-बाजार में हो तो इस पर आपकी राय क्या होगी?

मूल्य बहुत कम है	कम है	ठीक है	अधिक है	बहुत अधिक है

20. सोय-आटा को लोकप्रिय बनाने में क्या-क्या बाधाएँ हो सकती हैं? कृपया अपने विचार लिखिए।

(अ). ----------

(ब). ----------

21. सोय-आटा की उपयोगिता व साथ में इसके प्रयोग पर आपके कुछ सुझाव विचार हों तो कृपया बताएँ।

आपका बहुत-बहुत धन्यवाद

सर्वेकर्ता की टिप्पणी:

सर्वेकर्ता के हस्ताक्षर व नाम

दिनांक:

C

केन्द्रीय कृषि इंजीनियरी संस्थान
नबीबाग, बेरसिया रोड, भोपाल- 18
(सोय सम्मिश्रित बिस्किट पर उपभोक्ता के अनुभव)

प्रिय महोदय/ महोदया,

हमारे द्वारा परीक्षण हेतु दिये गए बिस्किटों का स्वाद आपने लिया होगा, इस प्रश्नावलि के माध्यम से हम यह जानना चाहते हैं कि उक्त सोय-प्रो बिस्किट आपको विभिन्न दृष्टिकोण से कैसे लगे। कृपया निम्न प्रश्नों के उत्तर बिना किसी संकोच, सही-सही देकर अपने अनुभव हमें बताऐं। आपके उत्तर हमारे लिए अत्यन्त महत्वपूर्ण हैं।

धन्यवाद,

(नवाब अली)
परियोजना निदेशक

भोपाल
दिनांक:---------

प्रश्नावलि

1. आपका (उत्तरदाता) का नाम:----------

पता:----------

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2. कृपया बताऐं कि क्या इसके पूर्व कभी आपने सोयबीन मिश्रित बिस्किट खाए हैं? सही उत्तर के सामने कोष्ठक पर टिक मार्क (✓) लगाऐं।

हाँ [ ] नहीं [ ] याद नहीं [ ]

3. सोय-प्रो बिस्किट आपको बाहरी तौर पर देखने में (APPEARANCE) में कैसे लगे?

अति उत्तम [ ] उत्तम [ ] ठीक [ ] खराब [ ] बहुत खराब [ ]

61

4. सोय-प्रो बिस्किट का रंग§ COLOUR § आपको कैसा लगा?

अति उत्तम ☐ उत्तम ☐ ठीक ☐ खराब ☐

5. सोय-प्रो बिस्किट आकार-प्रकार SHAPE & SIZE,में आपको कैसे लगे?

अति उत्तम ☐ उत्तम ☐ ठीक ☐ खराब ☐

6. सोय-प्रो बिस्किट को दाँत से तोड़ने पर इसकी आंतरिक संरचना व बनावट § TEXTURE § आपको कैसी लगी?

अतिउत्तम ☐ उत्तम ☐ ठीक ☐

खराब ☐ बहुत खराब ☐

7. स्वाद§टेस्ट§ में यह बिस्किट आपको कैसे लगे?

अति स्वादिष्ट ☐ स्वादिष्ट ☐ साधारण ☐

खराब ☐ अति खराब ☐

8. सोय-प्रो बिस्किट खाने के तुरंत बाद आपको इसका जायका MOUTH FEEL,कैसा लगा?

बहुत अच्छा ☐ अच्छा ☐ साधारण ☐

9. यदि सोय -प्रो बिस्किट आपकी परिचित दुकान पर या सुपर मार्केट में उपलब्ध हों तो क्या आप खरीदना चाहेंगें?

जी,अवश्य ☐ हाँ,संभवतः ☐ सोचेंगे ☐

नहीं लेगे ☐

10. बाजार में अच्छी कम्पनी के बिस्किट का भाव लगभग 28 या 30 रुपये प्रति किलो है। यदि सोय-प्रो का मूल्य भी लगभग इतना हो तो आपकी प्रतिक्रिया क्या होगी?

अवश्य खरीदेंगे [ ] संभवतः खरीदेंगे [ ] सोचेंगे [ ] नहीं खरीदेंगे [ ]

11. सोय-प्रो बिस्किट में अन्य उपलब्ध बिस्किटों की तुलना में 50 प्रतिशत अधिक पौष्टिकता § § है। इस जानकारी के पश्चात आप इस बिस्किट के लिये अन्य बिस्किट जो कि 30 रु0 प्रति किलो है, कितना मूल्य देना चाहेंगे?

40 रुपये प्रति किलो [ ] 36 रुपये [ ] 32 रुपये [ ] 30 रुपये [ ]

28 रुपये [ ] 26 रुपये [ ]

12. आपके परिवार में साधारणतया उपलब्ध बिस्किट की खपत प्रतिमाह प्रायः होती है?

100 ग्राम या कम [ ] 100 से 250 ग्राम [ ] 250 से 500 ग्राम [ ]

500 ग्राम से 1 किलो [ ] एक किलो से अधिक [ ]

13. सोय-प्रो बिस्किट आपके प्रतिमाह बिस्किट की खपत में कितने प्रतिशत स्थान पा लेंगे? यदि मूल्य अन्य बिस्किटों के लगभग बराबर हो ।

10 प्रतिशत तक [ ] 11-25 प्रतिशत तक [ ] 26 से 50 प्रतिशत [ ]

50 प्रतिशत से अधिक [ ] बिल्कुल नहीं [ ]

14. सोय-प्रो बिस्किट के प्रचार-प्रसार हेतु आपका सुझाव हो तो कृपया बतायें:-

§1§. ----------

§2§. ----------

धन्यवाद

सर्वेक्षणकर्ता की टिप्पणी:

हस्ताक्षर