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(101) General Mills, Inc., Minneapolis, Minn.

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FINAL REPORT

US/AID CONTRACT AID/nesa-386

<u>Report Date:</u>	31 December 1971	<u>Contractor:</u>	General Mills, Inc.
<u>Prepared by:</u>	D. L. Andersen	<u>Locale:</u>	West Pakistan

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BACKGROUND

The INTERIM STATUS REPORT (US/AID Contract AID/nesa-386), dated 6 February 1970, details the background leading up to the actual undertaking by General Mills, Inc. (GMI) of the feasibility study which was the subject of said contract.

STATUS SUMMARY, PRIOR TO THIS REPORT

Prototype soy-based high protein foods brought to West Pakistan by the Project Personnel (Odell/Andersen) were exposed to, reviewed by, and preliminarily tested by Pakistanis.

Initial reactions were favorable and no major negatives were uncovered.

The appropriate arm of the Pakistan Armed Services was introduced to the concept of meat extension or meat replacement with high protein dry products. Reaction was favorable and feeding demonstrations were planned.

The College of Home Economics in Karachi was given samples and, utilizing these prototypes, developed instructions for handling and indigenous recipes.

Exposure of the concept and the prototype unflavored meat extender to kabab vendors generated initial enthusiasm. Additional tests, including "in-shop" trials with actual feeding to customers were set-up.

The local (Karachi) sub-contractor, Nasiruddeen and Associates,

.....continued.....

proposed to taste test the College of Home Economics recipes with and without the GMI prototype high protein foods. Assuming favorable response from these preliminary taste tests, additional quantities of two of the prototypes were to be supplied from the U.S. to Karachi and actual use situations were to be set-up and monitored, both with housewives and kabab vendors.

Backgrounding these consumer evaluations was the knowledge that soy protein was not a feasible local raw material and that de-gossypolized cottonseed protein represented the best hope for an indigenous source. Preliminary reports from Dorr-Oliver indicated substantial progress was being made in an AID sponsored program to provide degossypolized cottonseed protein.

FINAL RESULTS

- I. Prototypes Supplied to West Pakistan since 6 February 1970
- A. Product for Housewife and Kabab Vendor Evaluation. On 26 March 1970, 386 lbs. gross weight (approx. 130 lbs. net of unflavored soy protein granules and approx. 150 lbs. net of lamb flavored soy protein chunks) were shipped air freight to US/AID, Karachi for transfer to the sub-contractor, Nasiruddeen and Associates.
- B. Product for Armed Services, Pakistan. On 27 May 1970, 116 lbs. gross weight (50 lbs. net of unflavored soy protein granules and 50 lbs. net of lamb flavored soy protein chunks) was shipped air freight to US/AID, Rawalpindi for transfer to the Pakistan Armed Services.

II. Results of Pakistan Armed Services Evaluation

Despite initially very favorable reception at the "command level" of the concept of meat extension or meat replacement with soy protein analogs, when finally tested by the "working level", results were negative.

Appendix "A" sets forth copies of the correspondence detailing the results of the Nasiruddeen test and the test carried out by the Armed Services themselves.

Questions can be raised as to the validity of the test methods used by the Pakistan Armed Services, their evaluation of results, etc. However, such questions become moot in the light of present conditions and the decision to terminate.

III. Results of Evaluations by Kabab Vendors and Consumers

- A. Prior Status. The Interim Report (6 February 1970) set forth the general enthusiasm and acceptance received in initial contacts with kabab vendors. It was also indicated that a more extensive test with selected vendors was in progress at the time of the Project Team's departure from Karachi (January, 1970).
- B. Results of Group Discussion with Kabab Vendors. Appendix "B" sets forth the Nasiruddeen report. In summary, when used as extenders for minced meat, unflavored soy protein granules were generally acceptable. No strong negatives were uncovered. Some slight variations between the two types of granules (two proprietary processing techniques) were observed.
- C. Results of Discussions with Kabab Consumers. Having received generally favorable comments from the vendors, the next step was to have vendors prepare kababs and provide them to actual consumers and solicit their reactions.

Appendix "C" sets forth the Nasiruddeen report. In summary, 86% of the 50 consumers contacted found the standard form (GME) of unflavored soy granules when mixed 1:1 with minced meat to yield kababs equivalent to or superior to all minced meat kababs. No large body of negative comments were experienced. Overall acceptance was very good.

.....continued.....

IV. Initial Taste Tests, Housewives

The College of Home Economics was to develop indigenous recipes and handling instructions for soy-based high protein foods. With these dishes as concept prototypes, Nasiruddeen planned to assemble a panel of housewives from the Karachi area and expose them to the product and obtain their responses.

Appendix "D" sets forth the Nasiruddeen report detailing the recipes generated by the College of Home Economics.

Appendix "E" sets forth the Nasiruddeen report detailing the Group Discussions. In summary, the concept of a meat extender was reasonably well received. The negatives being: bite (softer); slight taste difference; American origin. Also in summary, the lamb flavored chunks were perceived as too small, hence were really minced meat not meat chunks. As a replacement for minced meat it fared reasonably well--the negatives being: softer bite, American origin.

In both the meat extender and the meat replacement concepts, the as yet unresolved aspect was that of cost and availability as compared to meat. The concensus seemed to be that given a significant price advantage over meat, consumer usage could be expected to be significant provided adequate distribution were obtained.

V. Initial Taste Test, Factory Workers and Staff Members

Based on recipes supplied by the College of Home Economics, Nasiruddeen was to arrange for mass feeding preparation of typical

.....continued.....

factory or institutional dishes and obtain comments from the factory workers and the staff.

Appendix "F" sets forth the Nasiruddeen report. In summary, 90% of the 100 factory workers tested perceived the lamb flavored soy protein chunk as equal to or superior to a dish prepared with ordinary meat when the soy analog was substituted for meat; a 76% response was obtained for the unflavored granules. In a test of 23 staff members, the results were 76% for the lamb flavored chunks and 87% for the unflavored granules. Superior taste seemed to be the basis for a preference where it existed.

No major negatives were uncovered.

VI. "Take Home" Test, Housewives

Armed with the native language instructions for handling and suggestions for using, Nasiruddeen's proposal was to provide the two types of product (unflavored granules and lamb flavored chunks) to a panel of housewives to be tested by the housewife in her own home and served to her family. Follow-up interviews would ascertain acceptance.

Appendix "G" sets forth the Nasiruddeen report and a detailed summary of the test. Briefly, the results were: Out of 109 households approached, 80 agreed to test the products (reasons for refusal were "new", "American"); of the 80 who said they would test, only 65

.....continued.....

actually did test; housewife was asked to prepare product 3 times; 6 of the 40 receiving the unflavored granules cooked it only once; 15 of the 40 receiving the lamb flavored chunks cooked it only once; 27 of the 40 receiving unflavored granules were willing to test again; 19 of the 40 receiving the lamb flavored chunks were willing to test again; in general the unflavored granules were more favorably received, both by the housewife and her family.

Major negatives perceived were in the area of "new", "foreign", "American", and possibly religious views. When actually tested, the product (particularly the unflavored granule as a meat extender) fared quite well.

FINANCIAL STATUS

Based on financial reports submitted to AID/Washington, as of
30 December 1970 expenditures were:

<u>Category</u>	<u>Firm Budget Amount</u>	<u>Total Expenditures</u>
Salaries, Wages, and Consultant Fees	\$ 20,000.00	\$ 12,597.05
Allowances:		
Travel and Transportation	1,000.00	547.98
Other Direct Costs	3,000.00	---
Equipment	<u>2,000.00</u>	<u>---</u>
TOTALS	\$ 26,000.00	\$ 13,145.03

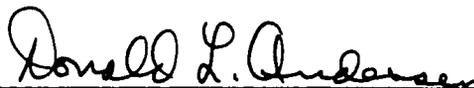
General Mills, Inc. has elected to make no additional charges for the period since 30 December 1970. The project has been inactive. Therefore, out of a budgeted \$26,000.00 in USA funds, expenditures in total for the contract were \$13,145.03.

FINAL RECOMMENDATIONS

Although product acceptance was quite good, based on the political and economic climate and on the general unavailability of a suitable protein raw material, General Mills, Inc. as the contractor recommended termination of US/AID Contract AID/nesa-386. This recommendation was accepted by US/AID.

Appendix "H" sets forth the correspondence re the termination recommendation.

Respectfully submitted



Donald L. Andersen
Project Manager, AID/nesa-386

Date 10 January 1972

Approved:



E. W. Swanson
Project Administrator, AID/nesa-386

Date 10 January 1972

APPENDIX "A"

RETYPE COPY

FROM:-
Mohammad Athar, CSS
Section Officer,
Phone: 20661

Government of Pakistan
President's Secretariat
Economic Coordination and
External Assistance Division.

10(28)BU.5/68

December 18, 1970.

SUBJECT:-HIGH PROTEIN MEAT ANALOG STUDY.

Dear Mr. Grant,

Please refer to para seven of Mr. Dominguez letter dated the 29th June 1970 on the subject mentioned above.

2. I am desired to say that the G.H.Q. Science Laboratory at Chaklala has informed us that various dishes prepared from meat analogues were served to a group of officers consisting of both civilian and military officers. They were very favourably received. Large scale troop trials could not be carried out as the samples were not sufficient for the purpose.

Yours sincerely,

(signed)

(Mohammad Athar)

Mr. Robert Y. Grant,
Asstt. Director,
Population and Health,
Headquarters Office, USAID Mission,
Islamabad.



**UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT
MISSION TO PAKISTAN**

OM: USAIDPAK

**HEADQUARTERS OFFICE
ISLAMABAD**

January 9, 1971

**Dr. Donald L. Andersen
Project Manager
Pakistan AID Study
General Mills, Inc.
9000 Plymouth Ave. North
Minneapolis, Minnesota 55427**

Dear Dr. Andersen:

Reference is made to Mr. Robert Grant's letter of September 10, 1970 regarding the report on the testing of meat analogs by the Pakistan Army. USAID has now received a letter on the subject from the Government of Pakistan. The "report" does not provide any additional information than what was conveyed to you by Mr. Grant, yet it is the official word and you may want to have it for your files. A copy of this letter is, therefore, enclosed.

Has any progress been made on development of meat analogs based on cottonseed flour? I learned that General Mills had contacted Dorr-Oliver to procure about a ton of the foodgrade cottonseed flour they have developed in India, and use it in producing meat analogs. We are very much interested in the outcome of this study and shall appreciate receiving a status report, if available.

Sincerely yours,

**M. Latif Rasulpuri
Food Technologist**

Attachments: a/s



**UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT
MISSION TO PAKISTAN**

GPO: USAIDPAK

**HEADQUARTERS OFFICE
ISLAMABAD**

February 3, 1971

**Dr. Donald L. Andersen
Project Manager
Pakistan AID Study
General Mills, Inc.
9000 Plymouth Ave. North
Minneapolis, Minnesota 55427**

Dear Dr. Andersen:

The letter of January 9, 1971 from Dr. Latif Rasulpuri transmitting a letter from the Government of Pakistan "reporting" on the test conducted by the Pakistan Army on the meat analogs supplied by General Mills was sent out while I was on leave. To say the least, I found the Pakistan Army handling of the test feeding not to be very satisfactory.

We have now received a letter from GHQ Science Laboratory, the research base for the Pakistan Military Services indicating that they want to have someone from that organization trained in the U.S. on the preparation of meat analogs from oil seed proteins. On the basis of this, I will get together with our Defense Department representative and go over to see what exactly transpired in the use of your 100 lb. sample. It is a bit difficult to deal with these things because of "security" problems, but I think that this is something that requires more than a cursory handling.

Sincerely yours,

A handwritten signature in black ink, which appears to read "Robert Y. Grant". The signature is written in a cursive style with a large loop at the end.

**Robert Y. Grant
Assistant Director
Population & Health**

nasiruddeen & associates limited

3RD. FLOOR , ROCK COURT , ABDULLAH HAROON ROAD , KARACHI -3 . PHONE: 511051/52/53

A REPORT ON THE DEMONSTRATION MADE TO QUARTER MASTER GENERAL OF THE PAKISTAN ARMY FOR GME AND GL MEAT ANALOGUES, DEVELOPED BY GENERAL MILLS INC., U.S.A

Background

Nasir-ud-Deen & Associates Ltd. had been constantly in contact with Brigadier A. Jabbar, Director of Supplies and Transport of the Pakistan Army, to arrange a demonstration of the dishes prepared from GME and GL. Finally, Brigadier Jabbar asked Mr. Shamsi of Nasir-ud-Deen & Associates Ltd. to come to Rawalpindi on 30th of March 1970 and finalise the details regarding the demonstration. The demonstration was arranged on 1st April, 1970.

Brigadier Jabbar showed a great deal of interest in the above meat analogues and thought that there was a large potential in the army. He called in the Army Science Laboratory personnel to familiarise the reconstituting process of the products and the manner in which each product has to be used for making various types of Pakistani meat dishes.

It was decided that for demonstration purposes, two dishes should be prepared. 'Qeema Allo' from GME and 'Peas meat curry' from GL. A cook was hired from Rawalpindi and the demonstration was held in the premises of G.H.Q. The dishes were also cooked at the G.H.Q. where three Colonels watched the process of cooking.

Demonstration

The present Quarter Master General has received his transfer orders and the new General is taking over. Both the Generals were present at the demonstration. Three other Generals from G.H.Q. also came to see the demonstration. In addition three Brigadiers and three Colonels were also present.

Brigadier Jabbar opened the session and said that these products have been produced by General Mills from "Soya" and a factory will be set up in Pakistan where the meat analogues will be produced from cotton-seed. Later on the writer of this report gave them the level of protein contents in G.M.E and G.L. and explained the method of making Pakistani dishes from these products.

The dishes were first tasted by the Generals and their initial reaction was that both the dishes looked exactly like the nominal dishes prepared from ordinary meat. They decided to taste the GL dish first, because this dish had been made purely from meat analogue and did not have real meat and they felt that taste can best be evaluated since meat was not added in this dish. None of them gave any serious unfavourable comments except that GL pieces were too small. They appeared to be more concerned with the quality and level of protein content. They asked their Laboratory man whether the percentage of protein would go down after the analogues have been cooked as Pakistani dishes. He said that it would. Then they tasted GME dish and liked its taste very much. One of them remarked that GME dish was much better in taste than the GL dish. One General who came from the Medical Services Division liked both the dishes very much. He ate quite a lot and asked to send the dishes to his office. He pointed out that these products should be analysed by the Army's Service Laboratory.

Brigadiers and the Colonels, tasted the dishes later, and all of them had favourable comments towards the dishes.

Brigadier Jabbar told me in the end that both the Quarter Master Generals have liked the analogues and would like to have the product tested in their laboratory. Two lbs of GME and two lbs of GL dehydrated material have been given to him for this purpose. It may be mentioned here that both Brigadier Jabbar and the present Quarter Master General were of the view that General Mills should set up a factory in Pakistan. They thought that this would erase doubts if any from the minds of the people regarding the constitution and formation of the product.

Prepared By : M.S. Shamei

Date: 2nd April, 1970



**UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT
MISSION TO PAKISTAN**

Code: USAIDPAK

**HEADQUARTERS OFFICE
ISLAMABAD**

April 13, 1971

**Dr. Donald L. Andersen
Project Manager
Pakistan AID Study
General Mills, Inc.
9000 Plymouth Ave. North
Minneapolis, Minnesota 55427**

Dear Dr. Andersen:

At long last and notwithstanding the rather complex events taking place in Pakistan these days, I finally managed to talk with Lt. Col. A. Hannan, Officer-in-Charge, GHQ Science Laboratory, about the handling of the samples of the meat analogs which you furnished for the field tests by the Pakistan Army. It turns out that the tests actually were somewhat more carefully conducted than was indicated in the copy of the letter from the Government forwarded to you with our letter of January 9, 1971. Not only were a number of feeding trials undertaken, but I gathered that some quantity of the analog material is still available and additional work is being programmed.

Col. Hannan agreed that the report provided was not really very satisfactory and promised to send us a more detailed description of the work done as well as an outline of what further investigations are to be carried out. I will remind him that he owes us this information in a week or so and see that a report is forwarded to you as soon as possible.

Sincerely yours,


**Robert Y. Grant
Assistant Director
Population and Health**



**UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT
MISSION TO PAKISTAN**

OM: USAIDPAK

HEADQUARTERS OFFICE

ISLAMABAD

May 25, 1971

**Dr. Donald L. Andersen
Project Manager
Pakistan AID Study
General Mills, Inc.
9000 Plymouth Ave. North
Minneapolis, Minnesota 55427**

Dear Dr. Andersen:

As promised in my letter of April 13 I am forwarding herewith a copy of the report on testing of the meat analogs by the Pakistan Army.

Unfortunately, and contrary to what I had hoped, Lt. Col. Abdul Hannan, Officer-in-Charge of the GHQ Science Laboratory, has devoted a major portion of the report to recapitulating the events which led to his testing the meat analogs. He has included virtually no information on preparation of the samples, method of presentation, type of score card (if any) used, compilation and interpretation of the results. Also, in the field testing, there is no mention whether or not the officers tasted the same dishes which were offered to the soldiers, and if so, what their reaction was.

There is a great contrast in the results of these tests: all the "Chiefs" say that the meat analogs are excellent, whereas all the "Indians" say they would not eat them if given the option.

We have learned that before the field testing started the cook had leaked out the word that the soldiers were being offered a synthetic meat product which was made from cattle feed "stuff" (oilseed meal is traditionally used as cattle feed). Coupled with the bias thus introduced is the fact that in this culture (and others) innovation is resisted and the new is suspect - usually the lower the education level the greater is the resistance to change. From these probably came the strong reaction to the meat analogs shown by the soldiers.

On the other hand the officers also knew that the meat analogs had been produced from oilseed meal. However, since they might have seen in the meat analogs a solution to the problem of formulating nutritious field rations they would have taken part in the tests with little or no bias. This is only conjecture; what actually happened, we don't know.

As I said before, it is not much of a report, and for this I am truly sorry.

Even though the meat analog program came a cropper we are still interested in meat analogs. Has any progress been made on producing them from cottonseed flour developed by Dorr-Oliver, Inc.? We are greatly interested in the outcome of this study and shall appreciate receiving a status report if available.

Sincerely yours,


Robert Y. Grant
Assistant Director
Population and Health

Attachment: a/s

RETYPE COPY

MEAT ANALOGUES

Mr. A. D. Dominquez of USAID met Brigadier Jabbar, former Director of Supply and Transport of Pakistan Army in early 1970 and showed samples of prototype meat analogues. Brigadier Jabbar expressed the opinion that meat analogues could be well of interest to Pakistan Army. Later on Mr. Odell, Mr. Andersen and Mr. Dominquez of USAID/General Mills met General Azhar, former Quartermaster General and Brigadier Jabbar and arranged a brief demonstration of two prototypes of meat analogues. This demonstration evoked great interest and General Azhar arranged a bigger demonstration in April, 1970 which was attended by Army Officers of the rank of Generals and Brigadiers. Almost all the officers were of the opinion that there was little difference between freshly cooked real meat and artificial meat. It was decided that a larger quantity of the samples be made available for actual feeding trials.

2. 50 lbs of each type of the two types of meat analogues were supplied to this laboratory in July, 1970. Another demonstration was held in General Headquarters. About six dishes prepared from meat analogues and fresh meat were presented to a group of officers consisting of one Brigadier, a few Lt. Colonels and senior civilian officers. Almost all the officers were unable to discriminate between the dishes prepared from meat analogues and those prepared from real fresh meat.

3. Actual troop feeding trials were also held recently. Three groups of soldiers consisting of 100 men each were served with Pakistani dishes i.e. meat chunks potato curry and minced meat pea curry prepared from imitation meat as well as from real fresh meat. The results of trials have not been favourable. Most of the troops reported that the taste and flavour was not like that of real meat and that they would never eat it if given the option.

APPENDIX "B"



Nasiruddeen & Associates Limited

3RD. FLOOR . ROCK COURT , VICTORIA ROAD . KARACHI-3 . PHONE: 511051/52/53

REPORT OF MEAT EXTENDERS TESTS ON KABAB VENDORS

INTRODUCTION

Meat Extenders have been prepared from Soya Bean Seeds by General Mills Incorporated U.S.A. They wanted to find out the suitability of these extenders in the preparation of Seekh Kababs. M/s Nasiruddeen & Associates Ltd. were commissioned to conduct tests among the kabab vendors of Karachi. For this purpose it was planned initially to hold a kebab-preparation demonstration where the procedure of preparation was to be demonstrated before 6 to 8 kabab vendors. Their impressions were to be recorded through a group discussion. This discussion could not be completed because the initial group discussion where three kabab vendors had participated, brought up a serious point that they were unable to give their opinion about the different qualities of the product as they were not preparing the kababs themselves.

Alternatively, the remaining five kebab vendors were individually approached. Each one was given the product and was explained the usage of the product. He was then asked to prepare the kebabs separately from SME and GME and to give his impressions. He was not asked specific questions but motivated to comment on the product at large and describe its qualities both before preparation and after preparation. Two varieties of extenders, namely GME and SME were tested. Meat extenders were used with minced meat in the ratio of 60% to 40%.

MIXING

Respondents overall impression was that extenders could mix with minced meat. With regard to GME and SME they felt that GME mixed more evenly with the minced meat. SME did not blend so well and one could feel tougher particles of SME in the mixture. They also mentioned that the kebabs made from the extenders did not break (while putting the mixture on iron bars for roasting) because the extenders were well mixed with minced meat.

ROASTING

All the respondents mentioned that the extenders kababs roasted like the ordinary kababs and no significant difference was observed in this process. It was, however, pointed out that the fat contents in both SME and GME were low. (The fat did not drip while the mixture was put on flames for roasting). Three of them were of the opinion that less time and heat were required to roast extenders' kababs because of the low fat contents and if kababs were prepared purely from extenders they might even get burnt.

TEXTURE

All the respondents mentioned that SME was tougher than GME. One of them mentioned that its granules were thicker than those of GME and even after hydration SME did not become so soft. According to three of them, the kababs made from these extenders were somewhat tougher. These respondents also mentioned that the kababs made from extenders were slightly different from ordinary kababs because extenders kababs were dr

BITE

Except two, all the respondents noticed the difference in the bite of the kababs made from extenders. They commented that extenders kababs seemed to be tougher in bite. One of them also mentioned that he could feel that something had been added to the meat. This remark was specifically made for the SME kab.

TASTE

The respondents did not mention any difference in taste between ordinary kababs and extenders kababs.

APPEARANCE & COLOUR

A majority of the respondents said that in appearance extenders kababs looked like meat kababs. Three respondents, however, pointed out that their surface was not smooth. All of them mentioned that these kababs got the colour of minced meat and other ingredients which were put in the preparation of kababs.

FRAGRANCE

According to them, in kababs, fragrance is due to spices. This is true for both ordinary and extenders kababs.

GENERAL

All the respondents gave strong positive indications that they would sell the kababs made from these extenders and customers would buy

3.

them. Two of them were willing to use the product as such. Three of them suggested that the extender after mixing with minced meat should be passed through a grinding machine. One of them suggested to grind it dry before mixing it with meat. Another respondent suggested that the product would have to be softened by using a meat softner.

APPENDIX "C"

**KADABS CONSUMER TEST OF
MEAT EXTENDERS**

**A REPORT ON KARACHI CONSUMER TEST
OF MEAT EXTENDERS CONDUCTED IN KARACHI**

F O R

GENERAL MILLS INCORPORATED, USA.,

B Y

**HAFIZUDDIN & ASSOCIATES LIMITED
MANAGEMENT & MARKETING CONSULTANTS
2ND FLOOR, MOON CHEN,
ABDULLAH HADON ROAD
KARACHI.**

NIK:MSB

February 1970

INTRODUCTION & SUMMARY OF MAJOR FINDINGS

INTRODUCTION

Samples of meat extenders manufactured by General Mills Incorporated, USA were given to various Kabab vendors in Karachi to evaluate the handling and cooking qualities of the meat extenders in kababs. The report for this has already been submitted.

This section of the study pertains to the consumers of kababs and their opinions and preferences regarding the meat extender when used in the preparation of kababs.

Sampling & Methods

The sample size for this consumer test was 50 kabab consumers. The respondents were served with kababs made from the meat extenders and were interviewed by staff members of Macfarlane & Associates Limited.

Two kabab shops were selected and twenty five respondents were interviewed from each shop. The meat extenders were mixed in the ratio of 1:1 with meat in two separate lots, one with GME and the other with SME. The 50 respondents were served with both types of kababs, but in order to eliminate a end bias, 25 respondents were served GME first while the other 25 were served with SME first.

The information was recorded in an open ended questionnaire.

FINDINGS

Opinion:

1. Taste: Kababs prepared with GME meat extender drew a higher number of favourable comments (86%) regarding taste compared to the kababs prepared with SME meat extender (82%). The two most significant favourable comments were 'It is like ordinary meat' (56% for GME and 52% for SME) and 'Taste is good' (32% for GME and 10% for SME).

Whereas GME drew only 12% unfavourable comments, SME drew 44% unfavourable comments. The two most serious unfavourable comments against SME are 'Taste is not good' (20%) and 'It is not like meat kabab' (24%).

2. Colour: Regarding colour GME has drawn a slightly higher level of favourable opinions (84%) compared to SME (74%) and a slightly lower level of unfavourable opinions (16% compared to 26% respectively). The most significant finding here is that 44% of the respondents found that the kababs were 'like ordinary kababs' in both the cases.

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Introduction and Summary of Major Findings

TABLE NO.

PART - I

OPINION, LIKES & DISLIKES REGARDING EXTENDER KABAAB

- 1** Opinion about the taste
- 2** Opinion about the colour
- 3** Opinion about chewing
- 4** Particular likes
- 5** Particular dislikes

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- 6** Comparison of **ENK** and **ENR** kabaab with ordinary kabaab
- 6A** Reasons for preferring extenders' kabaab
- 6B** Reasons for preferring ordinary kabaab

PART - III

COMPARISON OF **ENK KABAAB WITH **ENR** KABAAB**

- 7** Comparison of **ENK** kabaab with **ENR** kabaab
- 8** Reasons for preferring **ENK** kabaab over **ENR** kabaab
- 9** Reasons for preferring **ENR** kabaab over **ENK** kabaab

APPENDIX

Questionnaire

3. Chewing: Regarding the chewing qualities of the kababs, here again GNE drew a higher level of favourable opinion (50%) compared to GME (42%). The most significant finding here is that 82% of the respondents found GME tough to chew, while only 41% of the respondents found GNE tough.

LIKES

Whereas 20% respondents had 'No particular like' for GNE, 42% of the respondents had 'No particular like' for GME, which might indicate the level of preference between the two extenders. The most significant like mentioned was taste (42% for GNE and 24% for GME).

DISLIKES

Again the level of preference between the two extenders may be gauged by the proportion of the respondents who gave 'No particular dislike' for the two extenders (20% GNE and 24% GME), which means that only 20% of the respondents had any dislike for GNE, while 42% had dislikes for GME. The most significant dislikes for GNE were 'Taste' (20%), 'Fragrance' (10%) and 'Spices were not good' (8%) and for GME 'Consistency' and 'Spices were not good' (8% each) were the two main dislikes.

COMPARISON OF GNE & GME WITH ORDINARY KABABS

When asked to compare the two extenders with ordinary kababs the following picture emerged:-

<u>Comparative Opinion</u>	<u>GNE</u>	<u>GME</u>
	<u>(PERCENT OF RESPONDENTS)</u>	
Extender kababs superior	20	40
Same as ordinary kababs	20	44
Extender kababs inferior	58	18
No Opinion	-	2

Whereas 20% of the respondents found GNE kababs the same or superior to ordinary kababs, only 40% thought the same of GME kababs.

Among these respondents who preferred the extender kababs the most significant reason for their preference was 'taste' and the same reason was given by those respondents who preferred ordinary kababs to the extender kababs.

COMPARISON OF GNE KABABS WITH GME KABABS

42% of the respondents preferred GNE kababs while 20% preferred GME kababs.

The most significant reason mentioned for preferring GNE kababs was taste (20% of those who preferred GNE kababs) followed by softness (10%).

Of the 20% who preferred GME over GNE kababs, 75% said that they preferred GME because of 'Taste' while 25% preferred them because they are as tough as ordinary kababs.

PART I

**OPINION, LIKES AND DISLIKES
REGARDING EXTENSIVE KABAAS**

KARANS COMPARISON TEST OF GNE & GNI

TABLE NO. 1
OPINION ABOUT THE TASTE
 (n = 99 All respondents)

Q. 1 & 1A What is your opinion about the taste of these kababs ?

	GNE KARANS	GNI KARANS
	(PERCENT OF RESPONDENTS)	
FAVOURABLE OPINION		
It is like ordinary meat kababs	28	36
Taste is good	10	33
Taste is better than GNE	-	13
Taste is better than GNI	3	-
Taste is very good	3	10
Spices were strong	3	-
Other favourable	3	6
TOTAL	53	98
UNFAVOURABLE OPINION		
GNE is worse than GNI	10	-
Taste is not good	10	-
It is not like meat kababs	3	-
It has some bitterness	-	4
Too saltish	-	4
Other unfavourable	3	10
TOTAL	44	18

- NOTE:-**
- 1) Percentages add up to more than 100 because of multiple mentions.
 - 2) Other favourable include 'It is OK', 'We will buy if you sell', and 'It is like roasted meat'.
 - 3) Other unfavourable include 'It tastes like pulce', 'Like vegetable', 'As if something has been mixed with it', 'Dry' and 'I did not like it'.

**KARABO CONSUMER TEST OF SNE & SNE
KARABO**

**TABLE NO. 2
OPINION ABOUT THE COLOUR
n = 60 (All respondents)**

Q. 2 & 2A What is your opinion about the colour of these karabo ?

	SNE KARABO	SNE KARABO
	(PERCENT OF RESPONDENTS)	
<u>FAYOURABLE OPINION</u>		
It is like ordinary karabo	44	44
It is alright/OK	18	18
It is good	8	14
It is very good	-	4
It is better than SNE	-	4
Other favourable	4	8
TOTAL	74	84
<u>UNFAVOURABLE OPINION</u>		
It is lighter than meat	8	18
SNE's colour is better	10	-
Not good	4	-
Other unfavourable	10	4
TOTAL	26	16

- Note:-**
- 1) Other favourable include 'SNE's colour is better than that of SNE', 'lighter colour', and 'It is suitable'.
 - 2) Other unfavourable include 'It is too light', 'It is too brownish', and 'I do not like it'.

**KABAB CONSUMER TEST OF SHE & SHE
KABAB**

**TABLE 2. 1
OPINION ABOUT SHEKINS**

n = 50 (All respondents)

Q. 5 & 5A When you were chewing these kabab what did you feel ?

	SHE KABAB	SHE KABAB
	(PERCENT OF RESPONDENTS)	
FAVOURABLE OPINION		
Like ordinary kabab	24	28
Soft and tender	12	12
Delicious	-	6
Other favourable	8	18
TOTAL	44	64
UNFAVOURABLE OPINION		
Tough	22	6
It gives no taste	6	-
Not like ordinary kabab	6	-
As if chewing vegetable/pulce	-	6
Other unfavourable	8	6
TOTAL	42	18

- NOTE:-**
- 1) 10% of the respondents gave no opinion about SHE and 30% gave no opinion for SHE.
 - 2) Percentages add up to more than 100 because of multiple mentions.
 - 3) Other favourable include 'Too fine', 'Chew quickly', 'Not as tough as SHE', 'As tough as meat', 'It was properly roasted', 'good', and 'OK'.
 - 4) Other unfavourable include, 'It does not have fibres', 'It has got stickiness', 'Spongy', 'Not like meat', 'Taste does not last long' and 'It has too much onion'.

KABAB CONSUMER TEST OF ONE & ONE
KABAB

TABLE NO. 4
PARTICULAR LIKES
Q. 5 & 5A

Q. 5 & 5A What do you particularly like in these kababs ?

	ONE KABAB	ONE KABAB
(PERCENT OF RESPONDENTS)		
PARTICULAR LIKES		
No particular like	42	29
Taste	28	48
It is like meat kababs	8	18
Spices were good	12	6
Soft	4	8
Fragrance	4	4
Colour	-	4
Others	10	10

- Note:-**
- 1) Percentages add up to more than 100 because of multiple mentions.
 - 2) Others include 'Appearance', 'Toughness', 'Better than ONE', 'Better than ONE', 'It is useful for our country', and 'It was well roasted'.

**KABAB CONSUMER TEST OF SHE & CHE
KABAB**

**TABLE NO. 5
PARTICULAR DISLIKES
n = 50 (All respondents)**

Q. 4 & 4A What do you particularly dislike in these kababs ?

	SHE KABAB	CHE KABAB
	(PERCENT OF RESPONDENTS)	
<u>PARTICULAR DISLIKES</u>		
No particular dislike	50	50
Taste	14	4
Fragrance	6	-
Toughness	3	6
Bitterness	4	3
Dryness	4	-
Stickiness	2	3
Spices were not good	6	6
Taste like onions/pulse	3	3
Others	6	-

Note:- 1) Percentages add up to more than 100 because of multiple mentions.

2) Others include, 'It is gritty' and 'Does not have onions'.

PART II
COMPARISON OF EXTENDERS
KABABS WITH ORDINARY KABABS

**KABABS CONSUMER TEST OF ONE & ONE
KABABS**

**TABLE NO. 4
COMPARISON OF ONE & ONE KABABS
WITH ORDINARY KABABS**

n = 50 (All respondents)

**Q. 5 & 6A How do you compare ONE & ONE kababs with
ordinary kababs ?**

COMPARATIVE OPINION	ONE KABABS	ONE KABABS
	(PERCENT OF RESPONDENTS)	
Superior	38	40
Same	30	46
Inferior	38	18
No Opinion	-	8

**KABAB CONSUMER TEST OF SHE & ONE
KABAB**

TABLE NO. 4-A

REASONS FOR PREFERING EXTENDER'S KABAB

(Only those respondents who preferred extender's kabab over ordinary kabab)

Q. 7 & 7A Why do you prefer SHE or ONE kabab over ordinary kabab?

REASONS	SHE KABAB n = 16	ONE KABAB n = 20
	(PERCENT OF RESPONDENTS)	
Taste	81 = 13	90 = 18
Softness	18 = 2	6 = 1
Like meat	6 = 1	4 = 1
On the whole	15 = 2	-
Can chew it easily	6 = 1	-
Colour	-	9 = 6
Fragrance	-	2
TOTAL	100	100

NOTE:- Percentages add up to more than 100 because of multiple mentions.

**KABAB CONSUMER TEST OF SMH & OMS
KABAB**

**TABLE NO. 4-2
REASONS FOR PREFERENCE OF ORDINARY KABAB OVER SMH OR OMS
(Only those respondents who prefer ordinary kabab)**

Q. 8 & 8A Why do you prefer ordinary kabab over SMH or OMS ?

REASONS	SMH KABAB	OMS KABAB
	n = 19 (PERCENT OF RESPONDENTS)	n = 6 (PERCENT OF RESPONDENTS)
Taste is not the same	68 = 12	67 = 4
Tougher than meat	21 = 4	-
Dryness	6 = 1	17 = 1
Too salty	-	33 = 2
Stickiness	6 = 1	17 = 1
Bitter	6 = 1	-
Fragrance	6 = 1	-
TOTAL	100	100

Note:- Percentages exceed 100 because of multiple mentions.

PART III

**COMPARISON OF ONE KABAB
WITH ONE KABAB**

KABAB CHOICE TEST OF ONE A ONE
KABAB

TABLE NO. 7
COMPARISON OF ONE KABAB
WITH ONE KABAB

n = 50 (All respondents)

Q. 9 Of these two kababs which one do you prefer ?

COMPARATIVE OPINION	PERCENT OF RESPONDENTS
ONE was better	66
ONE was better	36
No difference	8
TOTAL	100

KABAB CONSUMER TEST OF ONE & ONE
KABABI

TABLE NO. 2
REASONS FOR PREFERRING ONE
KABAB OVER ONE KABAB

**n = 55 (These respondents
who preferred ONE over
ONE)**

Q. 10 Why do you prefer ONE over ONE ?

REASONS	PERCENT OF RESPONDENTS
Taste	58 = 26
Softness	16 = 5
It is like meat kabab	9 = 3
Chewing is easier	6 = 2
Others	9 = 3
TOTAL	100

- Notes:**
- 1) Percentage add up to more than 100 because of multiple mentions.**
 - 2) Others include 'Colour', 'Fat contents', were more in ONE than ONE', and 'It was too fine'.**

**KABAB-CONSUMER TEST OF SHE & CHE
KABAB**

**TABLE NO. 2
REASONS FOR PREFERRING SHE OVER CHE**

**n = 15 (These respondents who
preferred SHE over CHE)**

Q. 11 Why do you prefer SHE over CHE ?

REASONS	PERCENT OF RESPONDENTS
Taste	77 - 4
I like it because it is as tough as ordinary kabab	35 - 3
Soft and tender	15 - 2
TOTAL	100

Note: Percentages add up to more than 100
because of multiple mentions.

APPENDIX

KABAB CONSUMER TEST OF SNE & GNE
QUESTIONNAIRE

PART I - FOR GNE KABAB

Q. NO.

- 1 What is your opinion about the taste of these kababs ?
- 2 What is your opinion about the colour of these kababs ?
- 3 What did you particularly like in these kababs ?
- 4 What did you particularly dislike in these kababs ?
- 5 What did you feel when you were chewing these kababs ?
- 6 How do you compare these kababs with ordinary kababs ?
- 7 (If better) In what ways ?
- 8 (If worse) In what ways ?

PART II - FOR SNE KABAB

- 1-A What is your opinion about the taste of these kababs ?
- 2-A What is your opinion about the colour of these kababs ?
- 3-A What did you particularly like in these kababs ?
- 4-A What did you particularly dislike in these kababs ?
- 5-A What did you feel when you were chewing these kababs ?
- 6-A How do you compare these kababs with ordinary kababs ?
- 7-A (If better) In what ways ?
- 8-A (If worse) In what ways ?

PART III

- 9 Which of these two kababs, that I gave you, did you like more ?
- 10 (If GNE) In what respect ?
- 11 (If SNE) In what respect ?

APPENDIX "D"

RECIPES FOR PAKISTANI DISHES

na

nasiruddeen & associates limited

management and marketing consultants

rock court, abdullah haroon road, karachi.

GENERAL MILLS INC. U.S.A
EXPLANATIONS OF ABBREVIATIONS FOR
WEIGHTS AND MEASURES

ABBREVIATIONS

t	-	Tea spoon
T	-	Table spoon
C	-	Cup
b	-	Bunch
fl	-	Flakes
sq.	-	Squares
chk	-	Chattak
R	-	Rupees (Currency)
mts	-	Minutes
No.	-	Number
Sr.	-	Seer
Oz	-	Ounce
lbs	-	Pounds

EQUIVALENTS

1 C ::	16 T
1 T ::	3t
1 Sr ::	2 lbs :: 4 pao
1 pao ::	4 chk
1 chk ::	2 oz
1 oz ::	2 T
1 tollm ::	1/40 lb

PROJECT :
TO EVALUATE BY EXPERIMENT THE NEW PRODUCT
OF M/S GENERAL MILLS INC. U.S.A.

EXPERIMENT
SHEET

RECIPE No. - I
SHEET No. - 1

RECIPE : SHANT KARAR

SER. No.	INGREDIENTS	UNITS	UNIT COST Rs.	S A M P L E S											
				I		II		III		IV		V		VI	
				Qty.	Cost Rs.	Qty.	Cost Rs.	Qty.	Cost Rs.	Qty.	Cost Rs.	Qty.	Cost Rs.	Qty.	Cost Rs.
1	Beef pieces (tinned beef)	gms	0.62	1/2	0.31	1/2	0.22	1/2	0.15	1/2	0.22	1/2	0.15		
2	Extender	pao	?	-	-	1/2	?	1/2	?	1/2	?	1/2	?		
3	Water, hot	cup	-	-	-	-	-	-	-	-	-	-	-		
4	Dal, channa (Pulses & Grams)	chk	0.08	1/2	0.02	1/2	0.04	1/2	0.04	1/2	0.04	1/2	0.04		
5	Onions, medium	No.	0.05	1/2	0.025	1	0.05	1	0.05	1	0.05	1	0.05		
6	Garlic	pao	0.37	1 fl	0.002	2 fl	0.005	2 fl	0.005	2 fl	0.005	2 fl	0.005		
7	Ginger	pao	0.50	1/2"sq.	0.004	1"sq.	0.016	1"sq.	0.016	1"sq.	0.016	1 1/2"sq.	0.02		
8	Red chillies, whole	chk.	0.16	3 no.	0.002	6 no.	0.005	6 no.	0.005	6 no.	0.005	6 no.	0.005		
9	Green chillies	chk.	0.12	2 no.	0.01	2 no.	0.01	2 no.	0.01	2 no.	0.01	2 no.	0.01		
10.	Chilli powder	pao	0.88	1/2 t	0.004	1 t	0.018	2 t	0.036	1 1/2 t	0.027	1 T	0.055		
11.	Dhania powder (Ground Coriander)	pao	0.62	1/2 t	0.001	1/2 t	0.006	1/2 t	0.006	1/2 t	0.006	1/2 t	0.006		
12.	Salt	pao	0.09	1/2 t	0.002	1 T	0.012	1 1/2 t	0.014	1 T	0.012	1 2/3 T	0.02		
13	Water	cup	-	1 1/2	-	2	-	2	-	2	-	2 1/2	-		
14	Fresh dhannia (Coriander leaves)	bunch	0.06	1/12	0.005	1/6	0.01	1/6	0.01	1/6	0.01	1/6	0.01		
15	EGG	No.	0.23	1/2	0.055	1/2	0.055	1/2	0.055	1/2	0.11	1/2	0.11		
16	Ghee (fat)	pao	1.17	1 T	0.073	2 T	0.146	3 T	0.22	2 T	0.146	3 T	0.22		

Total Cost

Rs 0.513

Rs. 0.593

Rs. 0.617

Rs. 0.657

Rs. 0.701

Cost Per Portion

Rs. 0.12

Rs. 0.06

Rs. 0.04

Rs. 0.05

Rs. 0.04

Size of Portion

medium

medium

medium

medium

medium

Cooking Time

30 mts.

40-45 mts.

45-50 mts.

45 mts.

60 mts.

REMARKS :

Appearance
Odour
Flavour
Tenderness
Juiciness

Desirable
Moderately
-do-
Tender
Moderately rich.

Desireable
-do-
Moderately
Tender
Slightly

Prepared By : College of Home Economics.

PROJECT:
 TO EVALUATE BY EXPERIMENT
 THE NEW PRODUCT OF M/S
 GENERAL MILLS INC. U.S.A.

METHOD SHEET

RECIPE NO. 1
 SHEET NO. 2

 RECIPE: SHAMI KABAB

S. NO.	INGREDIENTS	METHOD
1.	Extender	Step-1: Soak 5 minutes
2.	Water - hot	
3.	Beef Qeema	Step-2: Cook on medium heat till mixture dries. Add extender and grind till mixture is pasty. Add in egg.
4.	Dal, channa	
5.	Onion, sliced	
6.	Garlic, chopped	
7.	Ginger, chopped	
8.	Red chillies, whole	
9.	Dhania powder	
10.	Salt	
11.	Water	Step-3: Form the ground mixture into patties and add filling.
	<u>Filling</u>	
12.	Green chillies, chopped	
13.	Onions, chopped	
14.	Hara dhania (corriander chopped leaves)	Step-4: Heat the ghee and fry patties till brown.
15.	Ghee	

 PREPARED BY: THE COLLEGE OF HOME ECONOMICS

PROJECT: EXPERIMENT SHEET
 TO EVALUATE BY EXPERIMENT THE NEW
 PRODUCT OF M/S GENERAL MILLS INC. U.S.A.

RECIPE No. II
 SHEET No. 1

RECIPE: SHAKH KABAB

S.NO.	INGREDIENTS	UNIT	UNIT COST Rs	SAMPLES			
				I QTY.	II COST	III QTY.	IV COST
1.	Beef quema	pao	0.62	1	0.62	1	0.31
2.	Extender	pao	?	-	-	1	?
3.	Water, hot	cup	-	-	-	1 1/2	-
4.	Papaya, raw	No.	0.19	1"sq	-	1sq	-
5.	Garlic	chk.	0.09	3ft	0.006	6ft	0.012
6.	Salt	pao	0.09	IT	0.004	IT	0.012
7.	Khas Khas	chk.	0.16	1/2	0.037	1/2	0.075
8.	Almonds, small	chk.	0.56	1/2	0.14	1/2	0.28
9.	Cinamon	chk.	1.50	1 stick	0.05	2sticks	0.10
10.	Cardamon, small	tola	3.00	1/6	0.50	1/6	0.50
11.	Chilli powder	chk.	0.22	1/6	0.036	1/2	0.11
12.	Zaera, black	chk.	0.88	1/2t	0.036	1t	0.07
13.	Onions, medium	pao	0.12	1/3	0.04	2/3	0.08
14.	Roasted channa	chk.	0.19	1	0.19	-	-
15.	Ghee	chk.	0.29	1/2	0.215	1 1/2	0.43

TOTAL COST		Rs 1.874	Rs 1.979
YIELD/NO. OF PORTIONS		6	16
COST PER PORTION		Rs 0.31	Rs 0.12
SIZE OF PORTION		4"length	4"length
COOKING TIME		45 mts	75mts
REMARKS	Appearance		Desirable
	Odour		Moderately desirable
	Flavour		- do -
	Tenderness		Slightly desirable
	Juiciness		- do -

PREPARED BY: THE COLLEGE OF HOME ECONOMICS

PROJECT:
TO EVALUATE BY EXPERIMENT
THE NEW PRODUCT OF M/S
GENERAL HILLS INC. U.S.A.

METHOD SHEET

RECIPE: NO. II
SHEET: NO. 2

RECIPE: SEEKH KABAB

S.NO.	INGREDIENTS	METHOD
1.	Beef qeema	Step-1: Grind slightly Set aside for 1/2 hour.
2.	Extender	
3.	Raw papaya, peel slices (or other meat softner)	
4.	Garlic, chopped	
5.	Slat	
6.	Khas khas	Step-2: Grind. Add to the above mixture and knead for 10 minutes. Add ghee. Coat 4 inches lenght on a seekh Roast on charcoal fire.
7.	Almonds	
8.	Zera, black	
9.	Cinnamon sticks	
10.	Cardamon, sticks	
11.	red chillies, powdered	
12.	Fried onions, slices	
13.	Ghee	Step-3: Baste with ghee,

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PROJECT:
TO EVALUATE BY EXPERIMENT THE
NEW PRODUCT OF M/S GENERAL
MILLS INC. U.S.A.

EXPERIMENT
SHEET

RECIPE NO. III
SHEET NO. 1

RECIPE: SAMOSA

S.NO.	INGREDIENTS	UNITS	UNIT COST ₹	S A M P L E S			
				I		II	
				Y extender	zero % extender	50% Ext. SME	60% Ext. SME
				QTY.	COST	QTY.	COST
1.	Beef qaema	pao	0.62	½	0.31	½	0.15
2.	Extender	pao	?	-	-	½	?
3.	Hot water	cup	-	-	-	1½	-
4.	Onions, medium	pao	0.09	½	0.007	½	0.014
5.	Oil, cotteseed	chk	0.25	½	0.12	½	0.19
6.	Ginger, garlic ground	chk	0.19	½t	0.005	IT	0.015
7.	Salt	pao	0.09	½t	-	2½t	0.004
8.	Dhania powder	pao	0.62	½t	0.05	IT	0.013
9.	Chilli powder	pao	0.88	½t	0.009	IT	0.055
10.	Water	cup	-	½	-	½	-
11.	Green chillies	chk	0.06	1no.	0.002	15no.	0.03
12.	Hara dhania	bunch	0.02	1/8	0.002	½	0.005
13.	Onions, medium	pao	0.09	½tr	0.014	2no.	0.05
14.	Lemon, medium	No.	0.06	½	0.03	2	0.12
15.	Samosa patti	dez.	0.25	1	0.25	4 2/3	1.16
16.	Maida	pao	0.22	IT	0.005	2T	0.01
17.	Water	cup	-	½	-	½	-
18.	Ghee	pao	1.17	½	0.58	1½	1.75
TOTAL COST			₹ 1.339		₹ 3.659		
YIELD/NO. OF PORTIONS			12		56		
COST PER PORTION			₹ 0.11		₹ 0.06		
SIZE OF PORTION			1½"Triangle		1½ triangle		
COOKING TIME			40 minutes		60 minutes		
REMARKS	Appearance				Desirable		
	Odeur				Slightly		
	Flavour				Desirable		
	Tenderness				Slightly		
	Juiciness				Medium rich		

PREPARED BY: THE COLLEGE OF HOME ECONOMICS.

PROJECT: **METHOD** **RECIPE NO. III**
TO EVALUATE BY EXPERIMENT SHEET SHEET NO. 2
THE NEW PRODUCT OF M/S
GENERAL MILLS INC. U.S.A.

RECIPE: SAMOSA

S.NO.	INGREDIENTS	METHOD
1.	Onion, sliced	] Step-1: Fry brown Add:
2.	Oil	
3.	Beef kima (minced	] Step-2: Fry to blend n masala Add:
4.	Extender (soaked in hot water)	
5.	Ginger/garlic, ground	
6.	Salt	
7.	Dhania powder	
8.	Chilli powder	
9.	Water	Step-3: Cook till mixture gets dry. Cool
10.	Green chillies, chopped.	] Step-4: Add to cooked mixture and use as filling.
11.	Hara dhania, chopped	
12.	Onion, chopped	
13.	Lemon juice	
14.	Samosa patti (available in market)	Step-5: Fill each with IT filling
15.	Maida	Step-6: Cook. Seal each samosa with the cooked starch.
16.	Water	
17.	Ghee	Step-6: Fry brown

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TO EVALUATE BY EXPERIMENT THE
NEW PRODUCT OF
M/S GENERAL MILLS INC. U.S.A.

EXPERIMENT
SHEET

RECIPE No. - IV
SHEET No. - 1

RECIPE : KOFTA CURRY (meat balls only)

SER. NO.	INGREDIENTS	UNITS	UNIT COST Rs	SAMPLES			
				I	Zero % Extender	II	50 % Ext. -SME
				Qty.	Cost Rs	Qty.	Cost Rs
1	Beef qeema (Minced beef)	pao	0.62	½	0.15	½	0.075
2.	Extender	pao	?	-	-	½	?
3	Water, hot	cup	--	-	-	½	-
4	Dal channa (Pulses and Grams)	chk	0.08	½	0.02	½	0.02
5	Garlic	pao	0.37	2 ft	0.004	2 ft	0.004
6	Ginger	pao	0.50	½" sq.	0.008	½" sq.	0.008
7	Salt	seer	0.37	1t	0.004	2½ t	0.009
8.	Chilli powder	pao	0.88	1t	0.018	½ T	0.027
9	Dhania powder	pao	0.62	½t	0.006	½ t	0.006
10.	Cinammon sticks	chk	1.50	1stk	0.05	1stk	0.05
11.	Pepper, black	chk	0.88	4 no.	0.005	4 no.	0.005
12.	Zeera, black	chk	0.88	1/8t	0.008	1/8t	0.008
13.	Onions medium	seer	0.50	½ no.	0.012	½ no.	0.012
14.	Water	cup	-	1	-	½	-
15.	Ghee	pao	1.17	2T	0.146	5T	0.365

TOTAL COST

Rs 0.431

Rs 0.589

COST PER PORTION

Rs 0.11

Rs 0.06

YIELD/NO. OF PORTIONS

4

10

SIZE OF PORTION

Ping Pong ball

Ping Pong ball

COOKING TIME (Minutes)

60

75

REMARKS

Appearance

Desirable

Odour

- do -

Flavour

- do -

Tenderness

Tender

Juciness

Juicy

PREPARED BY: THE COLLEGE OF HOME ECONOMICS.

PROJECT:
TO EVALUATE BY EXPERIMENT
THE NEW PRODUCT OF M/S
GENERAL MILLS INC. U.S.A.

METHOD SHEET

RECIPE NO. IV-
SHEET NO. 2-8

RECIPE: KOFTA CURRY'S GRAVY (ONLY)

S.NO.	INGREDIENTS	METHOD
1.	Onions, sliced	Step-1: Fry brown
2.	Oil	
3.	Almonds, roasted	Step-2: Grind Add to above and fry slightly.
4.	Khas khas, roasted	
5.	Cppra, roasted	
6.	Red chillies, whole	
7.	Ginger, chopped	Step-3: Add. Cook till curd mixes thoroughly.
8.	Garlic, flakes	
9.	Curd	
10.	Salt	
11.	Cinnamon, pieces	
12.	Zera, black	Step-4: Add. Cook 30 minutes.
13.	Pepper, black, whole	
14.	Water	
15.	Hara dhania, chopped	Step-5: Add/sprinkle on gravy Serve with kofta balls (cooked seperately).

REMARKS: For kofta's recipe, refer sheet-1.

PREPARED BY: COLLEGE OF HOME ECONOMICS.

PROJECT :
TO EVALUATE BY EXPERIMENT
THE NEW PRODUCT OF
M/S GENERAL MILLS INC. U.S.A.

EXPERIMENT
SHEET

RECIPE No. - V
SHEET No. - 1

RECIPE : QUESMA - PEAS

SER. No.	INGREDIENTS	UNITS	UNIT COST Rs	SAMPLES			
				I	Zero % Extender	II	50% Ext. - SMC
				Qty.	Cost Rs	Qty.	Cost Rs
1	Beef qesma (Minced beef)	chk	0.15	2	0.31	1	0.15
2	Extender	pao	?	-	-	1/2	?
3	Water, hot	cup	-	-	-	1 1/2	-
4	Onions, medium	pao	0.09	2/3	0.03	2/3	0.06
5	Ghee (fat)	pao	1.17	1/2	0.29	1/2	0.87
6	Ginger, garlic, ground	chk	0.19	1 t	0.005	1 T	0.045
7	Chilli powder	pao	0.88	1 t	0.018	1 1/2 T	0.08
8	Dhania powder (Ground Coriander)	pao	0.62	1 t	0.005	1 t	0.013
9	Haldi (Turmeric)	tola	0.16	1/8 t	-	1/2 t	0.001
10	Hara dhania (Coriander Leaves)	bunch	0.06	1/2	0.015	1/2	0.03
11	Salt	pao	0.09	1 t	0.002	1 1/2 t	0.006
12	Water	cup	-	2	-	2	-
13	Peas, shelled (unshelled)	pao	0.37	1/2	0.12	1/2	0.24

Total Cost :	..	..	Rs. 0.787	Rs. 1.495
Cost Per Portion	..	..	Rs. 0.26	Rs. 0.10
Size of Portion	..	..	1/3 cup	1/3 cup
Cooking Time	..	..	20 mts.	30 mts.

REMARKS : Appearance Desirable
Odours Slightly "
Flavours Moderately
Tenderness Tender
Juiciness Juicy

Prepared By : College of Home Economics.

PROJECT:
 To evaluate by
 Experiment the
 new product of
 M/s GENERAL MILLS INC. U.S.A.

METHOD SHEET

RECIPE NO. V
SHEET NO. 2

RECIPE : QHEMA - PEAS

S.NO.	INGREDIENTS	METHOD
1.	Onion, sliced] Step-1: Fry Brown Add:
2.	Chee	
3.	Ginger & Garlic ground] Step-2: Fry slightly Add:
4.	Chilli powder	
5.	Dhania powder	
6.	Haldi	
7.	Hara Dhania	
8.	Beef qeema] Step-3: Fry till fragrance is pronounced
9.	Extender (soaked in hot water	
10.	Salt	
11.	Water	Add: Step-4: Cook till partially tender
12.	Peas, shelled	Step-5: Cook covered till tender

PREPARED BY: THE COLLEGE OF HOME ECONOMICS

RECIPE : AALLOO GHOSHETH

SER. NO.	INGREDIENTS	UNITS	UNIT COST Rs.	SAMPLES			
				I Substitute Lamb		II Substitute Chicken	
				Qty.	Cost Rs	Qty.	Cost Rs
1	Meat Substitute	chk	?	½	?	½	?
2	Water, hot	cup	-	½	-	½	-
3	Onions, medium	pao	0.09	2/3	0.06		
4	Ghee (fat)	chk	0.29	3/4	0.217		
5	Ginger, garlick, ground	chk	0.19	½ t	0.005		
6	Dhania powder (Ground coriander)	chk	0.15	1/12	0.01		
7	Salt	pao	0.09	1½ t	0.006		
8	Haldi (Termeric)	tola	0.16	½ t	-		
9	Chilli powder	chk	0.22	½ t	0.009		
10	Water	cup	-	3	-		
11	potatoes	pao	0.19	½	0.09		
12	Hara dhania (Coriander Leaves)	bunch	0.06	½	0.01		

Exactly
Similar
To Sample -I

Total Cost Rs. 0.407
 Cost Per Portion Rs. 0.10
 Size Of Portion ½ cup
 Cooking Time 48 mts.

REMARKS : Appearance Desireable Desireable
 Odour Moderately Slightly
 Flavour -do- -do-
 Tenderness Moderate Slight
 Juiceness -do- -do-

Prepared By : College of Home Economics.

APPENDIX "E"

**GROUP DISCUSSIONS ON ACCEPTABILITY
OF MEAT EXTENDER GME & MEAT SUBSTITUTE GL**

na

nasiruddeen & associates limited

management and marketing consultants

rock court abulullah haroon road, karachi.

**GROUP DISCUSSIONS ON ACCEPTABILITY
OF MEAT EXTENDER GME & MEAT SUBSTITUTE GL**

**A REPORT ON GROUP DISCUSSIONS
HELD IN KARACHI**

F O R

GENERAL MILLS INC. USA

B Y

**NASIRUDDEN & ASSOCIATES LIMITED
3RD FLOOR, ROCK COURT,
ABDULLAH HAROON ROAD, KARACHI**

H.S. : NSS

Discussions conducted in March 1970

Report presented: April 1970.

C O N T E N T S

Introduction :

- A - General**
- B - Sample Size**
- C - Place of discussions and methods of contacting the housewives.**
- D - Dishes tested**
- E - Method of collecting the data**
- F - Explanation of income brackets and Pakistani terms used in the text.**

Summarised findings and conclusions drawn from Group discussions on Extender GME.

Summarised findings and conclusions drawn from Group discussions on Substitute GL.

Text of discussions on extender GME (1A, 1B, 1C, 1D)

Text of discussions on substitute GL (2A, 2B, 2C, 2D)

INTRODUCTION

A - General :

This report presents a full text and the summarized findings and conclusions drawn from the group discussions held in Karachi by Nasir-Ud-Deen & Associates Limited for General Mills Inc. USA. These discussions were held in order to determine acceptability amongst housewives for General Mills' products Meat Extender GME and Meat Substitute GL. Acceptability was tested for the following aspects :

1. Acceptability to qualities like taste, smell, bite etc.
2. Acceptability to a new product. In order to gauge this, 50% of the respondents were not told as to which of the dishes was prepared from meat analogue while the other 50% the identity of the dishes was revealed.
3. Acceptability to an American product. This was tested by disclosing to 50% of the groups that the product was manufactured in America. Hesitation and suspicion among these groups was compared with the groups to which this fact was not disclosed.

B - Sample Size :

Each of the products was tested on 4 groups. Extender GME was tested on 24 housewives and substitute GL was tested on 26 housewives. This slight deviation from the original sample (which had been determined at 25 housewives for each product) was due to the fact that participants failed to turn up at the last moment and it was not possible to get substitutes. For each group, however, a couple of extra housewives were invited but in spite of this, in four of the groups, last moment invitations had to be issued because less than 6 housewives turned up eventually.

C - PLACE OF DISCUSSION AND METHOD OF CONTACTING THE RESPONDENTS :

The four discussions for each product were conducted in four A & B income areas, namely Nazimabad, Saddar, Fir Illahi Bux Colony and P.E.C.H.S. in order to obtain as representative a sample as possible. Participants were neighbours of the persons at whose houses the discussions were held. Invitations were issued a day or two before the actual discussion by a member of the family at whose house the discussion was to take place and the leader of the discussion.

D - DISHES TESTED :

Extender GME was tested in the form of mince with peas (i.e. Qeema Matar) and Substitute GL was cooked as meat curry with potatoes (i.e. aloo gosht). In order to obtain a comparative opinion these dishes were served together with the ordinary minced meat with peas and meat curry with potatoes respectively. In order to eliminate end bias 50% of the groups were served the meat analogue dish first and the other 50% were served the ordinary dish first.

The two dishes were prepared in exactly the same methods to ensure uniformity.

E - METHOD OF COLLECTING THE DATA :

The discussions of all the groups were taped. In order that the respondents may not become conscious, the recorder and the microphone were hidden.

F - EXPLANATION OF INCOME BRACKETS AND TERMS USED IN THE TEXT :

Income Categories : (Family Income)

A - above Rs 700/-	per month
B ₁ - 500 - 699	" "
B ₂ - 250 - 499	" "

Terms Used :

Aloo Gosht	: Curry with large chunks of meat and potatoes.
Barya	: Small lump of powdered pulse dried in the sun before being cooked.
Gosht	: Meat (large chunks)
Kerala	: Bitter gourd
Qeema	: Minced meat
Qeema Matar	: Minced meat with peas.

SUMMARISED FINDINGS AND CONCLUSIONS

DRAWN FROM GROUP DISCUSSIONS (NOS. 1A to 1D)

(EXTENDER ONE)

- APPEARANCE:** On the whole no difference was detected between the extender mince and ordinary mince in appearance.
- TASTE:** There are indications that in taste, extender ONE is slightly different from ordinary mince. In the groups where the identity of the dishes was not revealed, 5 - 6 participants (out of 12) correctly identified the two dishes and at least three of them seemed to be most sure of what they were saying. The participants however could not express what the main difference was except for a very vague comment like 'It (extender) does not have that particular taste which is present in meat'.
- Effect on the respondents when they knew that they were eating the extender:** A large number of respondents liked the taste of the extender though a very small proportion expressed a preference for the extender mince over the ordinary mince. None of the respondents who knew that they were eating the extender gave a preference for it; they either preferred the ordinary mince or said that they could not choose between the two. On the other hand when respondents were not told as to which was the extender mince, a nearly equal number gave the three types of responses namely 'Preferred extender', 'preferred ordinary' and 'liked both of them'.
- BITE:** This was the main area where extender ONE differed from ordinary mince. The extender mince was found to be softer by participants in all the groups. In two of the groups the respondents said that it tasted like fish or prawn mince because of its softness. In group number 1A, participants were puzzled by the fact that both the mince dishes had chunks of meat in them. They said that the extender seemed to have been minced in a machine while the ordinary mince had been minced by hand.
- SMELL:** There did not seem to be any noticeable difference between the smell, of the extender and the ordinary mince. In the groups where respondents did not know which dish was the extender no comments were made about the smell; while three of the respondents who knew that they were eating the extender commented on its smell. As soon as the extender was brought to the table one of them said that it smelt different. The other two respondents (from the other group) after having tasted the extender said that it smelt as if it had been cooked in sesame oil.

ACCEPTABILITY OF AN AMERICAN PRODUCT : Participants who knew that the extender was an American product reacted somewhat different from those who did not know about this fact. Only one participant out of the twelve who did not know that the extender was an American product showed some sort of suspicion. One of the two groups which knew that the extender was an American product reacted rather anxiously as if they wanted to be reassured that what they had eaten was not forbidden by their religion. In the group (i.e. group No. 1A) other no hesitation was exhibited towards the product. It is felt that this was due to the very good relations between the participants and the person at whose house the discussions were being held and also to the fact that she was a practicing muslim. They trusted her and felt that she would not let them eat anything that was forbidden by the religion.

OTHER FACTORS : Respondents indicated that the main factors which would make them decide whether to buy the extender or not would be the price, preservation and convenience/time saved during its preparation.

The nutritional value did not seem to be a significant point. A very small proportion mentioned this factor even after it had been brought up by one of the participants in the group.

Some of the respondents were of the opinion that this product should be good for vegetarians and useful on meatless days. A point brought up by one of the respondents was that what was the use of adding ordinary mince to the extender. This question indicated that she felt that this would involve as much time and effort as in cooking ordinary mince.

One of the points which emerged in group No. 1B was consumers' believability in advertisements. One of the respondents commented that "you may advertise the fact that this product has all the nutritional values present in fresh meat, but not every body is going to believe that, at least I will not".

CONCLUSIONS : Significant points which emerged from these discussions are as follows :

1. In appearance there was no difference between the ordinary mince and the extender.
2. In taste, the extender emerged as being slightly different from the ordinary mince.

3.

3. In bite, it was slightly softer than ordinary mince.
4. In smell there was no noticeable difference between the two.
5. Acceptability was lower among these respondents who knew that the extender was an American product.
6. Price, convenience/time saved in cooking and preparation are the plus points of this product and would be the major deciding factors for its purchase.
7. Housewives did not give much thought to the nutritional value of the extender thus indicating that they do not consciously plan their daily diet accordingly.

On the whole, the extender seemed to be acceptable in appearance, taste and smell. In bite however it was softer than ordinary mince. It is however felt that the final acceptability will be determined by these factors and factors like price, convenience and time saved in its preparation

**SUMMARISED FINDINGS AND CONCLUSIONS
DRAWN FROM GROUP DISCUSSION NOS. 2A-2D**

(SUBSTITUTE GL)

APPEARANCE :

The general opinion about the appearance of Substitute GL was that it looked more like mince than meat because the chunks were not large enough.

TASTE :

A majority of the participants liked the taste of the substitute, but they commented that the substitute tasted more like minced meat than whole meat. In groups where the identity of the dishes was revealed, most of the respondents were of the opinion that even if they did not know what they were eating, they would have thought that it was ordinary minced meat.

In the groups where the identity of the dishes was not revealed, respondents at once detected which dish had been prepared from the substitute; when respondents were asked how they had determined the difference, some of them said that the substitute dish did not have the taste of meat which was present in the ordinary meat dish.

When respondents knew that they were eating the Substitute, they did not express any verbal hesitation towards it though overt hesitations were noticed. It was observed that respondents were more hesitant in tasting the substitute dish rather than the real meat curry.

BITE :

The bite of the Substitute was found to be significantly different from that of ordinary mince. A very large proportion expressed that the substitute was softer than ordinary meat. Two of the participants said that it was spongelike and rubbery while 2 remarked that in softness the Substitute was just like meat which had been overcooked or like meat which had been boiled before being cooked.

SMELL :

No significant difference emerged between the smell of the substitute and that of ordinary meat. In fact this aspect was not at all noticeable except to one respondent (from the group to which the identity of the dishes was disclosed). She said that when the meat dish was brought to the table there was a distinct smell of meat. This smell was missing when the substitute was brought to the table. Only one participant agreed with her, the others did not make any comments whatsoever.

**ACCEPTABILITY OF AN
AMERICAN PRODUCT :**

There were definite indications that awareness of the fact that the product was American affected its acceptability. In the two groups which knew that this product was American, it was noticed that participants showed greater hesitation towards tasting it and exhibited suspicion towards it.

OTHER FACTORS :

Participants wanted to know the advantages of this product and expressed the opinion that if it were cheaper and more convenient in cooking it could be accepted as a substitute for minced meat.

A majority of the respondents were of the opinion that if it could be kept in the house then it would be very useful on meatless days since most of them did not like the taste of meat kept in the refrigerator while some of them did not own a refrigerator. It was also mentioned that the substitute should come in very handy during unexpected visits from guests.

A very small proportion of respondents were anxious to know about the nutritional values of the substitute. This is an indicator of the fact that housewives are not really particular about this factor.

Also, some participants inquired as to what variety of dishes could be prepared with it.

One point which cropped up during the discussions was the absence of bones - one respondent was of the opinion that nowadays there are more bones than meat so the substitute would be an advantage in this respect. On the other hand, one participant felt this to be a disadvantage saying that she and her family loved to chew on the bones.

CONCLUSIONS :

Significant points emerging from the group discussions are as follows :

1. In appearance it was more like minced meat rather than whole meat.
2. The taste of the substitute was quite favourable though, not as whole meat but as minced meat.
3. In bite, the substitute was softer than ordinary mince.

4. In smell, no difference was reported between the substitute dish and the meat dish.
5. The acceptability of the substitute was affected negatively by the knowledge of the fact that it was an American product.
6. Factors like price, convenience in cooking and preservation emerged as important factors which could affect the acceptability of the Substitute.
7. It was found that housewives are not very particular about nutritional values in their daily diet.

On the whole these discussions revealed that Substitute GL was not acceptable as a substitute for whole meat. On the other hand it was acceptable as a substitute for minced meat in appearance, taste and smell. The only difference detected between the substitute and ordinary mince was in the bite; the substitute was found to be softer in bite than ordinary mince.

GROUP DISCUSSION NO. 1A

EXTENDER GME vs QEEMA MATAR

AREA: NAZIMABAD

PARTICIPANTS:

1.	Age Group	Below 20	Income Bracket A
2.	Age Group	21 - 30	Income Bracket B1
3.	Age Group	31 - 40	Income Bracket A
4.	Age Group	31 - 40	Income Bracket B1
5.	Age Group	41 - 50	Income Bracket B2
6.	Age Group	Above 50	Income Bracket B1

L : Leader

Dish served first: Extender GME

L: Introduces the participants to the topic of the discussion;

**Facts revealed during introduction: 1. High protein product prepared from Soya beans
2. American product**

Facts hidden: 1. Which of the two dishes has been prepared from the extender (Extender GME is now served)

L: What is your opinion about the appearance of this dish ?

3: It looks exactly like qeema

4: It is exactly qeema to look at

6: It is just like qeema in both taste and appearance

L to 1 And what is your opinion ?

1: It looks just like qeema to me

2 & 5 Agree with 1

L: What about its taste ?

6: As I said before it tastes just like qeema should taste

4 & 5 That's right

3: It looks like qeema alright, but doesn't taste like qeema

L: Why do you say that it doesn't taste like qeema ?

3: Well (pause) maybe because I know

1: It tastes rather nice

L: How do you find it with respect to chewing ?

(All agree that it is just like qeema)

2: (Talking of taste) The taste is O.K., in fact it is quite nice, but it does not have the taste of real qeema ... that is, it does not have that particular taste of meat which real qeema has

4: (Feeling the qeema with her hand) Look it has pieces of beef in it so it must be real qeema (to her neighbour) Just feel it and see.

L: What about its colour ?

(All agree that it is like ordinary qeema)

Pause

- 4: It seems to be qeema though it may not be so
 3: It is a bit soft
 4: (Agrees but is doubtful for again feeling the chunks of beef says) Look at these

Ordinary qeema is now served

- 3: (Very emphatically) This is real qeema
 4: (Somewhat uncertainly) This is qeema, but (feeling it) in both there are chunks of beef
 5: This one has not been minced properly
 4: Agrees
 6: This one has been minced by hand while the first one was minced in a machine
 3: Yes that one was softer
 2: This one tastes very nice
 5: Yes it is good
 6: Agrees
 2: I feel that this one tastes better
 L: In what ways ?
 2: There seems to be a slight difference in spices - the first one tasted somewhat different
 4: That is because the first one had been minced by machine while this one has been minced by hand
 2: I don't think that's the difference, because in the first one too there were chunks of beef
 4: ... but fewer and it was finely ground
 3: No one can guess as to whether it was finely ground or whether it was something entirely different
 2: There is not much difference for one to say that they are different things - both are very nearly the same
 4: No difference at all - except in the mincing
 3: Yes, the first one was softer
 6: Since we were told that there is a difference in the two we are looking for the difference; had we not known this, the two would have seemed very much similar
 L: Do you find any difference in chewing the two ?
 2: There is no difficulty in chewing wither
 3: The first one was softer and therefore easier to chew
 2: Yes
 4: I don't like this one (ordinary)
 6: That's right the first one was better - this is slightly difficult to chew
 4: This one is ordinary mince
 L: Why do you say that ?
 4: Because that one was finely ground and(pause) ...
 5: As compared to this one, the first one seems somewhat tasteless
 2: Yes - this one has more taste
 This one has more of a taste of meat in it than that one, that is the only difference between the two ... otherwise they are very much alike, but ...
 4: If I were asked to compare the two, I would prefer the first one, it is better in taste
 2: As qeema, I prefer this one - the first one was too soft
 4: I feel that if this one had been minced in a machine, there would be no difference between the two
 3: There is not much difference between the two - only the first one was slightly softer

3.

- 5: In this one there seem to be more spices and ghee than in the first
- 4: There is not much difference between the two, but when you tell me which is which, I would also like to know why there are chunks of meat in both
- 6: Both are nice in their own ways
- 1: Neither has a bad taste
- 4: That's right, but the first one was better
- L: Which one do you prefer in appearance ?
- 4: The first one because the second one is thicker
- 5: In taste, the second one is better, while in appearance I prefer the 1st one
- 1: First one was better in all respects

They are now told as to which is which

- 2: On feeling it and tasting it, I knew that the first one was not real mince, but had I been given that one without being told anything, I would not have suspected that it was not made from meat, but that it had been cooked in a different way
- 3: I felt that the second one was real qeema but the difference is very slight
- 6: Though it is not real qeema, it is very good and I would like to buy it
- 4: ...so would I provided that it is easier to cook and cheaper than minced beef
- 5: Could you show us a sample of your product ?

After seeing the sample

- 4: It looks like fish feed
- 1: It's a nice thing
- 6: I should like to try it out if you could give me a sample
- 5: Yes I'd also like some

All the participants asked for samples to try it out.

GROUP DISCUSSION NO. 1 B

EXTENDER GMB vs QEEMA MATAR

AREA : SADDAR

PARTICIPANTS :

1.	Age Group	21 - 30	Income Bracket	B1
2.	Age Group	21 - 30	Income Bracket	A
3.	Age Group	31 - 40	Income Bracket	A
4.	Age Group	31 - 40	Income Bracket	A
5.	Age Group	31 - 40	Income Bracket	A
6.	Age Group	Above 50	Income Bracket	A

L. Leader

Dish served first : Qeema Matar

L: Introduces the participants to the topic of the discussion

Facts revealed during introduction: High protein product prepared from Soya Beans

Facts hidden: 1. American product
2. Which of the two dishes has been prepared from the extender

Ordinary mince is now served.

1: It looks exactly like ordinary qeema

6: Yes the colour and general appearance is of qeema

2,4

& 5 Agree

6: In taste I don't think that it is ordinary qeema there is a slight difference

L: In what respect ?

6: It is hard to say but the taste is slightly different from the taste of mutton

5: Agree

3: No, in taste and appearance, it is just like qeema

1 & 4: Agree with 3

L to 2: What do you think ?

2: It looks like ordinary qeema but doesn't taste like ordinary qeema

6: The difference is very slight and since I have been told about it, I can detect the difference

L: What about its bite ?

4: It is just like ordinary qeema

The others all agree

Extender is now served

4: (After tasting it) This is not the real one

L: Why do you say that ?

4: After having eaten the first one, I detected at once that this one has not been prepared from fresh meat

6: No, this one tastes more like ordinary qeema than the first one

2&5 Agree

1: Both of them have a very good taste but I feel that the first one was made from ordinary qeema

3: Agrees with one

4: I preferred the first one in taste - it was juicier and tasted just like qeema should taste, though this one is not bad either.

L to 5: Which one did you prefer with respect to taste ?
 5: This one
 2: Agree
 6: Well I liked both of them
 L: Did you find any difference in the bite ?
 4: Definitely this one is softer than the first one

 The others all agree

 L: What about its appearance
 4: In appearance there is no difference at all, both
 look similar
 3: Yes, looking at them one can't say that they are different
 1,2,5, & 6 Agree
 1: Could you tell us which is which ?
 This fact is revealed
 4: How does one cook it ?
 L: Explains
 6: What is the point of mixing it with ordinary w
 qeema
 4: I suppose it would be more economical
 6: God knows what you have made us eat, but whatever
 it was, it was very delicious. I don't think that it is
 easy to detect the difference
 4: Yes, especially if you don't know what it is
 1: I would like to take some home to prepare it to see what
 it's like
 4: I don't think I would take it home

1, 2, 3, and 5 ask for samples

GROUP DISCUSSION NO. 1C

Extender GME Vs. Qeema Matar

AREA : PIR ILLANI BUX COLONY

PARTICIPANTS :

1.	Age Group	21 - 30	Income Bracket	A
2.	"	"	"	"
3.	"	"	"	"
4.	"	"	"	"
5.	"	"	"	"
6.	"	"	"	"

L : Leader

Dish served first : Extender GME

L : Introduces the participants to the topic of the discussion:

Facts revealed during introduction :

1. High protein product prepared from Soya bean.
2. Which of the two dishes has been prepared from the extender.

Facts hidden : 1. American Product.

(Extender GME is now served)

5 : It looks just like ordinary Qeema.

2 : Yes.

3 : That's right but the taste is quite different.

2 : There's a lot of difference in the taste.

1 : It looks like ordinary meat, but tastes different.

L to 4: What do you think ?

4 : I agree with Mrs... (1).

6 : (Very emphatically) Yes it does look like ordinary Qeema but tastes different, its softer and has a flavour of sesame oil in it.

1 : It tastes good and could be used instead of real Qeema (Hesitantly) it does have a slight flavour in it.

5 : I agree that it tastes good but it is slightly sweet.

L : What is your opinion regarding its bite ?

5 : I think that it is slightly softer than ordinary Qeema.

2 : Yes, in chewing its more like fish or prawn mince rather than meat mince.

3 : It is softer.

All the others agree with 3.

(Qeema Matar is now served)

6 : (Immediately) This one looks exactly like the first one.

The others agree.

2 : The two are most definitely different in taste.

L : In what way ?

2 : Well (hesitates) this one tastes more like meat than the first one.

1 : Both of them taste good, but the first one had a slight smell of oil in it.

6 : I also think that the first one had a slight smell - as if it had been cooked in sesame oil.

3 : Yes - it had some sort of sweetness in it too

4 : (Hesitantly) There is a slight difference in the two and one could put it down to spices.

5 : The two are different in taste and I think that the main difference is that the first one was softer, this one tastes more like mince should taste - one can feel it in the bite.

- L : Of the two which did you prefer ?
1 : Its hard to say because the difference is very slight and both have been cooked well.
2 : I agree that both are delicious, but even so I prefer the second.
L : Why ?
2 : Because as Mrs. _____ (5) has said, whilst chewing this one, one gets the feel of mutton mince, the first one was too soft for that.
- L to 4 : What do you think ?
4 : I don't know....(pause of 3-4 seconds) I can't detect what the difference is and I like both of them.
2 : Don't you feel that the first one is softer.
4 : Yes, it is slightly softer, but that does not affect the taste drastically.
5 : I think that the first one was softer and it also had a slight sweetness in it which one does not find in ordinary mince.
6 : This sweetness as you call it is a flavour which is prominent when food is cooked in sesame oil.
5 : You are right. Any how, I preferred the second one.
3 : The first one was different from this mince but very slightly, so that if we had not known about the difference, I'd have thought that its because the 2 have been cooked slightly differently.
- L to 6 : What do you think ?
6 : I liked both of them.
1 : I read about this product just the other day.
5 : I haven't read about it.
4 : I think that it is a very good thing and that it should become quite popular.
3 : Especially if it is cheaper than ordinary mince.
6 : Did you cook it in oil ?
L : No, it was cooked in Banaspati Ghee.
6 : Then that means that there is a sweetness in it which was not present in the ordinary Qeema.

Discussion on how the Qeema was cooked.

N.B. All participants asked for samples to try it out.

GROUP DISCUSSION NO. 1D
Extender GME Vs. Qorma Matar
Area : P.E.C.H.S.

PARTICIPANTS :

	Age Group	Income Bracket	A
1	31 - 30		
2	" " 31 - 40	" "	A
3	" " 31 - 40	" "	A
4	" " 31 - 40	" "	A
5	" " 41 - 50	" "	A
6	" " above 50	" "	A

L Leader

Dish Served First : Qorma Matar

L. Introduces the participants to the topic of the discussion:

Facts revealed during introduction :

1. High protein product prepared from Soya Beans.
2. American product.
3. Which of the two dishes has been prepared from the extender.

(Qorma Matar is now served)

2. This looks just like ordinary Qorma.
4. Agrees
3. It is qorma to look at,
The others all agree.
2. It tastes like Qorma.
6. No. It does not taste exactly like Qorma, there seems to be something mixed in it.

1. Yes it does not taste exactly like mutton qorma.

L : I told you that it is ordinary mutton qorma.

1. But I feel that there is some difference in it. It does not have that particular taste which ordinary meat has.
3. To me it tastes just like meat.
4. Yes it does, and (feeling it) just feel it, it is exactly like meat.
2. Yes it has shreds in it just like in ordinary meat.

(Extender is now served)

3. (as the extender is brought to the table) This one is definitely not the real mutton qorma.

L : You haven't tried it as yet.

3. Yes, but as soon as you brought it to the table there was a particular smell which was different from that of ordinary meat.

2. Also the first one had shreds of meat in it.

(After tasting)

- 6: When chewing the first one I felt that I was eating meat whilst the bite of this one feels like
- 3: Cotton wool
- 6: That's right
- 3: I am sure that this qeema is the soya bean one, from its smell and taste
- 2,4
& 5
- 6: Agree
(Agreeing says) If this qeema were given to someone without being told that its different then too she would want to know what has been added in the meat for it does not taste like meat at all.
- 3: There is a peculiar softness in this one
- 2: Yes it is like flour
- 1: In both taste and bite it is not like meat qeema at all
- L: Leaving aside the difference between the two, what is your opinion about the taste of this one ?
- 4: It is quite good
- 3: But it cannot take the place of meat
- 2: If it were cheaper than meat then it would be alright
- 3: Even if it were cheaper, I would not buy it if I could very well afford to buy fresh meat, but people who are tight on money may use it though they would have to get used to its taste first. Isn't that so ?
- 4,5
& 6
- 6: Agree
There is also a flavour of plants in this one
- 2: You said that this product is being manufactured in America ?
- L: That's right
- 6: I hope it is not(hesitates) ?
- 5: If it is made from soya beans then to give it a meat flavour they must be adding meat essence to it and if the essence is American, it would not be ...(hesitates) ...?
- 3: One reason why I would not use this product is that in meat there is a certain amount of proteins etc which are essential for ones daily diet and my children must have meat
- L: Well soya beans are protein rich and this product has been prepared in such a way that it has all the nutritional values that are present in ordinary meat. Moreover, I do not think that any essence is added during the processing of this product
- 3: You may advertise the fact that this product has all the nutritional values present in fresh meat but not everybody is going to believe that, at least I will not
- 5: Agree
- 2: This thing should be good for vegeterians and should also prove useful on meatless days
- 1: Yes, it would be very handy on meatless days
- 5: It is not bad in taste, but the thing is that it is very different from ordinary meat
- 3: Yes it is not bad but at the same time it is not so extraordinarily wonderful that one raves about it and wants to cook it immediately for the family
- 2: Well, it definitely cannot be compared to the real thing
- 3: I think that once in a while I could use it as a dish additional to a meat dish but I do not think that I would use it as a substitute for meat
- 4: No matter how cheap it were, I would not use it instead of meat
- L: Do you think there is any difference between the two in appearance ?
- 6: None whatsoever
- 1: Both look similar

All agree

3.

- 1: Look even the feel of this qeema is different. Real qeema has some shreds in it while this one does not
5: (Feeling it) but it does have shreds of meat in it, Why is that so ?
L: That is because it has been mixed with meat.
J: How was it cooked ?

Discussion veers off to how it is cooked etc. None of the participants ask for samples.

GROUP DISCUSSION NO. 2A

Substitute QL Vs. Aloo Cocht

AREA : MAZIMABAD

PARTICIPANTS :

1.	Age Group	21 - 30	Income Bracket	A
2.	"	"	"	B2
3.	"	"	"	B1
4.	"	"	"	A
5.	"	"	"	B2
6.	"	"	"	B1

L : Leader

Dish served first : Substitute QL

L : Introduces the participants to the topic of the discussion.

Facts revealed during introduction :

1. High protein product prepared from Soya Beans.
2. American Company

Facts hidden : 1. Which of the two dishes has been prepared from the Substitute

(Substitute QL is now served)

L : What is your opinion about its general appearance ?

3 : It looks very nice.

1 : Yes, just like ordinary mince.

6 : In taste it is very good.

1 : Very delicious.

6 : Has Barya* flavour?

3 : Is this real mince or not ?

L : What do you think?

3 : It looks like mince alright but does not exactly taste like mince though its delicious.

3 : That's right it doesn't taste like meat Qeema.

6 : It tastes more like minced fish with potatoes and small tomatoes added for taste.**

1 : I think its minced beef.

3 : It has a slight flavour of prawns.

4 : Taste good, but not like minced beef.

L to 5: What is your opinion about its taste ?

5 : It tastes very good, but.....

6 : I must say that it has been cooked well.

5 : It does have a slight flavour of beef, but still there is some difference from the ordinary beef mince.

4 : - no, its more like prawns.

5 : I think you are right, it does have prawn flavour in it.

6 : No, it tastes like Barya.

L : In bite what is it like?

1 : In bite it is very much different from minced beef.

4 : Minced beef has to be chewed for a longer period, while prawns and fish are softer and easier to chew.

6 : That's right this mince is softer than ordinary minced beef or mutton.

3 : I don't find much difference (in bite) in this mince from the ordinary mince, though no doubt this one is slightly softer.

3 : It is definitely softer.

Second dish (Aloo Gosht) made from ordinary beef is served.

- 1: (still talking of GL) : If it were prawns, how do you account for these pieces
6: Whatever it is, its delicious
2: Yes.
6: (About aloo gosht) : This is real beef.
1: Of course it is.
All the others also agree.
2: This is also very delicious.
Everyone agrees.
3: Both the dishes are nice.
6: Yes, all the spices were put in the right proportion.
3: Tastes like Korma - very good.
5: What was the mince made of?
4: Whatever it was made of, it was delicious
5: Hope it was not.....
6: We have eaten it without knowing what it was so if it was any such thing, we have not sinned and God will forgive us; those who made us eat it are the sinners.
L: I have already told you what its made from.
1: Even then who knows.
2: Anyhow as-(6) said we have not sinned.
4: Whatever it is, both were delicious.
3: Yes both are good, but I preferred the first one (GL).
6: That's right, if I were to rate it, I would rate that (GL) first.
L: Why?
6: Because
3:we always have this (Aloo gosht), so it is quite ordinary.
2: Both the Qorma and the Aloo gosht were delicious.
5: Yes.
L: If such a product were on the market would you buy it?
6: Yes, why not, when meat is so expensive if this were cheaper then we'd surely buy it.
3: In fact this would prove to be time saving
4: Of course.
1: It would prove to be very useful especially on meatless days.
L: Would you like to look at the product in its uncooked state.
1,3,5: Yes, of course.
(After seeing and feeling it)
1: How is it to be cooked.
L: In exactly the same way as.....
6: I suppose you use the same spices.
L: That's right (explain how to use it).
3: Takes only 10-15 minutes to cook, that's very nice.
2: I suppose one can keep it for a long time.....it doesn't go bad?
L: No.
4: Its very much like fish or prawns.
3: Yes, has taste of fish.

1 of the participants gets up and the discussion breaks.

* Barya : A small lump of powdered pulse dried in the sun before being cooked.

** No tomatoes were included whilst cooking.

.. None of the participants asked for samples.

GROUP DISCUSSION NO. 22

Substitute QL Vs. Aloo Gosht

AREA : SARRAR

PARTICIPANTS :

	Age Group	Income Bracket	A
1.	21 - 30	" "	A
2.	" "	" "	A
3.	31 - 40	" "	B1
4.	" "	" "	A
5.	31 - 40	" "	B1
6.	" "	" "	A
7.	above 50	" "	A

L : Leader

Dish served first : Aloo Gosht

L : Introduces the participants to the topic of the discussion:

Facts revealed during introduction :

1. High protein product prepared from Soya Bean.

Facts hidden : 1. American product

2. Which of the two dishes has been prepared from the Substitute.

(Aloo Gosht is now served)

7 : It looks just like aloo gosht.
2 : Yes it does & (tasting it) it also tastes like aloo gosht.
1 : Its been cooked very well, just as we cook it at home and it looks nice too.

3 : It tastes alright, just like aloo gosht.

L to 7 : You haven't tasted it as yet.

7 : (Suspiciously) Well no. It does look like mutton, but I don't know what

5 : Don't worry I don't think she (indicating the hostess) would have invited us if it was not alright.

6 : Well, one never knows.

4 : It looks and tastes so much like mutton that it could not be anything else.

7 : (after tasting) I agree that it tastes just like aloo gosht.

6 : Yes and its delicious.

5 : Agrees with 6.

L : How do you find it with respect to bite?

5 : Just like ordinary mutton.

Others : Agree.

(Substitute QL is now served)

7 : This is not gosht.

5 : It looks like mince.

3 : It is just like mince.

1,3,4,6 : Agree that it looks like mince.

1 : (after tasting it) It tastes very nice, but not like aloo gosht.

6 : Yes, its more like mince in taste.

7 : (Suspiciously) You said you'd be giving us gosht and now you serve mince - God alone knows what it really is.

L : Why don't you taste it and make up your own mind?

7 : (Very hesitatingly tastes a little) It is more mince than gosht but its different from ordinary mince it does not have that particular taste of meat.

L : Don't you like it ?

7 : It has been cooked very well & its delicious, but that particular flavour which you get in meat mince is missing.

- 6: You are right and I think that this mince is softer than ordinary mince. that's
- 6: In fact I think that the main difference between this mince and ordinary mince, otherwise in taste, it is quite alright.
- L to 4: What do you think ?
- 4: This mince is delicious & I am as yet not certain that its not ordinary mince, may be its just overcooked and thats why its softer.
- 3: I don't think I really like it.
- L: Why ?
- 3: Well (pause of 3-5 Seconds) I don't say why but its just different from ordinary meat.
- 4: I don't think that the difference is really so marked.
- 3: Agrees
- L to 3: How do you find it with regards taste ?
- 3: Its alright.
- L: And bite ?
- 3: Slightly softer.
- 5: Well I think that that is the main difference between the two.
- 7 to L: Is that all that you want to know? If so, I would like to see what you have made us eat today.
- 6: Yes lets see what it is like in its uncooked state and then we can at least be sure that its nothing.....
- 3: Yes.
- L: Before showing it there is one more thing, which of these 2 dishes did you prefer ?
- 7: The first one of course.
- 6: Yes, at least it was real meat.
- 4: Its not fair to ask for preference, because one was mince while the other was Gecht, both were nice in their own ways.
- 3: Agrees.
- 2: If there was a choice between the 2, I would take the first one.
- L: Why ?
- 3: Because I know what it is.
- L to 1: What about you.
- 1: I liked both of them.
- 5: So did I.
- Substitute GL is now shown to the participants.
- 5: If you could only have larger pieces, it would look like meat.
- 7: So what, I don't think I would use it.
- 1: There is no harm in using it.
- 7: I much prefer the natural to the synthetic.
- 3: I should like to try it out if you could spare some.

Except for 7 & 2, all the participants ask for sample to try them out.

GROUP DISCUSSION 2C
SUBSTITUTE QL vs ALOO GOSHT
AREA: Pir Ellahi Bux Colony

PARTICIPANTS

1.	Age Group	21 - 30	Income Bracket B1
2.	Age Group	21 - 30	Income Bracket B2
3.	Age Group	21 - 30	Income Bracket B2
4.	Age Group	31 - 40	Income Bracket A
5.	Age Group	31 - 40	Income Bracket A
6.	Age Group	41 - 50	Income Bracket A
7.	Age Group	above 50	Income Bracket B1
L:	Leader		

Dish served first: substitute QL

L: Introduces the participants to the topic of the discussion:

Facts revealed during introduction:

- i. High protein product prepared from Soya Beans
- ii. Which of the two dishes has been prepared from the substitute
- iii. American product

QL is now served.

L: What is your opinion about this dish?
5: It looks very nice
1: Yes it looks very nice
7: The colour and general appearance is like aloo qeema not aloo gosht
2: It tastes just like aloo qeema and also looks like aloo qeema
4: I like it in taste and appearance - its just like aloo qeema
L to 1: What is your opinion about it?
1: It tastes very nice, just like aloo qeema cooked at home
5: Its not like aloo qeema at all in taste. It has some sort of bitterness
3: I also think that it tastes different
L: In what way?
3: It does not have that particular flavour of meat
6: In fact it tastes like meat that has been kept in the fridge for two or three days
3: It has some sweetness in it
6: You are right (pauses for a couple of seconds) ... it is most peculiar, but together with bitterness, there is also some sweetness in it.
1: (Hesitantly) I also think that it is different from the ordinary aloo qeema
5: Also in chewing it is like rubber
6: Yes its soft and rubbery
7: It does have a softness but to me that's the only difference between it and ordinary aloo qeema
1 - 4: Agree that it is soft

Ordinary aloo gosht is now served

5: This one looks like aloo gosht
6: Yes, the chunks of meat are larger
4: In colour both were similar, but the only difference is that the first one looked more like qeema than this one.
5: Its not only that. When you brought this one to the table there was a distinct smell of meat which was missing in the first one

- 7: That's right. In taste however I don't detect any difference except that the first one was softer and I ofcourse find that an advantage because of my teeth
- 5: It's not only that the first one was softer, but it had no shreds in it
- L to 3: What do you think ?
- 3: There is a lot of difference in taste. This one has more taste of meat than the first one
- L: Would you buy the first one ?
- 3: No, I don't think I would
- 4: If it were cheaper I think that I would
- L to 1: What about you ?
- 1: Well... (hesitates for two seconds) .. I liked the first one, it tasted rather nice but it was quite different from ordinary meat and I don't think that I would cook it
- 7: I don't think there is much difference in taste, If it were served in the form of qeema then nobody would realise that it is different. As gosht, however, it would not be acceptable because of the softness and also the fact that it has no bones .. (hesitates 2 seconds) .. most people ... at least in my family everybody loves to chew the bones
- 5: I find a lot of difference even in the taste and if it were served as qeema then too I would think that there was something different in it
- L: Does that mean that you did not like the first one ?
- 5: No, it has been cooked rather well and in that respect there is not much difference between the two, the difference is in the flavour, this one has a distinct flavour of meat and also in bite the first one did not give the feel of meat
- 4: Since you know that the first one was not fresh meat you can detect the difference but had you not been told what it was you would have eaten it thinking that it was qeema
- 3: You are wrong. As Mrs.. (5) said there's a distinct meat flavour in the second one and also, it is softer than ordinary meat
- 2: The first one is different, but not markedly so and if it were served by itself, one would not be able to detect the difference because it looks just like qeema and has been cooked like qeema
- 6: The only difference in the first one was that it tasted like stale qeema which had been kept in the fridge for a couple of days - it had that same softness and sponginess and as someone just said one would not be able to say that it is not meat (pauses for 3 seconds) .. I would not cook it because
- 5: I would not use it either
- 7: I don't see why not
- L to 2: What about you ?
- 2: Well I don't really know, it would depend on the price and...
- 5: (interrupting 2) You did say that this was an American Product
- L: Yes
- 3: I hope its (hesitates)
- L: Since it is not a meat product but a vegetable product you need not have doubts on the point
- 5: Still... one never knows what one's eating (pause)
- L to 2: You were saying something about the price ?
- 2: I said that if it were cheaper and easier to prepare, I may use it
- L: Explains how it is prepared
- 2: I suppose that it can also be kept in the house ?
- L: Yes
- 4: If it cooks faster than meat then I would definitely use it for it would save me money on kerosene oil

- 2: If it can be stored in the house, then that's very good for me I do not have a fridge and cannot keep meat I can use this product on meatless days
- 4: Agrees
- 5: In spite of all this I don't think I would buy something that is not real
- 4: You would get used to it. Just see how people are using banaspati these days when at one time they would not even dream of using it
- 5: Well that was different
- 7: Not at all

Discussion veers on to banaspati

N.B. The identity of the dishes was revealed to this group right from the beginning. It was noticed that three of the participants were very hesitant to taste the sample product and served themselves with very little of the extender Qeema, although when the ordinary Qeema matar was served they had more of it.

At the end of the discussion only 4 & 7 asked for samples.

GROUP DISCUSSION NO. 20

SUBSTITUTE GL vs ALOO GOSHT

AREA: PECHS

PARTICIPANTS:

1.	Age Group	21 - 30	Income Bracket	A
2.	Age Group	31 - 30	Income Bracket	A
3.	Age-Group	31 - 40	Income Bracket	A
4.	Age Group	31 - 40	Income Bracket	A
5.	Age Group	31 - 40	Income Bracket	A
6.	Age Group	41 - 50	Income Bracket	A

L: Leader

Dish served first: Aloo Gosht

L: Introduces the participants to the topic of the discussion
Facts revealed during introduction: 1. High protein product prepared from soya beans. 2. Which of the two dishes had been prepared from the substitute

Facts hidden: American Product

(Aloo gosht is now served)

3: This looks exactly like ordinary meat
2: Yes
L: As I told you, it is ordinary meat
3: Tastes good
1: Just as we cook it at home
6: Like ordinary meat
2: She has told us that it is ordinary meat
4: Taste is quite alright
5: Agrees

Substitute GL is now served

3: This one looks different
2: It looks more like qeema than gosht
5: Tastes OK
2: The chunks should be larger
1: It has a good taste, but there is a distinct flavour of Kerala* in it
3: You are right
4: It does have some bitterness
6: ... As if kerala and qeema
5: Or as in ordinary meat, there is slightly more salt
2: It could be that the onions have been browned more

Pause

L: What about its bite
6: In bite it is not much different, in fact it is softer than ordinary meat.
3: Yes
2: I think that if you had not told us as to which dish was prepared from ordinary meat we would not have detected the difference

- 3 : Yes, then we would not have known the difference.
1 & 4 : Agree.
2 : Now that I know which is which, I can make out the difference. Ordinary meat mince is juicier while this has some dryness in it.
4 : Is this stuff cheaper than meat ?
L : The price is as yet undecided.
3 : It should be cheaper since Soya Beans are so very cheap. At the most the price should not exceed Rs 2/- per seer.
2 : What about its nutritious value, is it the same as meat.
L : This product is very rich in protein and has the same nutritious value as meat.
6 : This mince, it tastes just like mince which is first boiled and then cooked
5 : Yes, it has that softness and has a slightly less taste of meat than ordinary mince
3 : Yes, as Mrs. (1) just said, it has the bitterness of Kerala in it - If you cook mince and potatoes there is more flavour of mince than potatoes, whereas in this case, that particular mince flavour is not as pronounced.
2 : How does one cook this - is it easier and faster than ordinary mince ?
L : Yes (explains method of preparation)
1 : How will it be available to us - in tins ?
L : That is undecided as yet - could be in tins or in cellophane bags
3 : Of course tins would increase its cost, cellophane would be cheaper.
4 : When will it come on the market?
L : Once it has been found to be acceptable among our people
1 : I think it will be acceptable.
6 : Especially if it is cheaper
1 : Agrees
3 : Leaving aside the price factor, look at the state of meat these days.
2 : Yes, more bones than meat
5 : And the prices are going up every week
1 : If this product is well publicised among the lower classes it should be popular with them too
5 : Further, it can also be kept in the house and would be quite an advantage when unexpected guests arrive
2,4 & 6 : Agree
6 : I suppose different dishes can be cooked with it.
L : Yes, you can make different types of kababs
2 : And also mince with other vegetables, like peas, etc?
L : Yes.
Pause
4 : Now that you have introduced us to this product first hand I am very interested in it and would buy it very eagerly.
2 : Yes, had I heard of it or seen it being advertised I would not buy it as willingly and unhesitatingly as I now would.
3 : As time goes on, people will accept it - take the case of these frozen chickens, I would never have even thought of buying them at one time but now I am used to them.
6 : Yes.
5 : One has to develop a taste for these things.
3 : That and necessity. Previously fresh chickens were easily available, but now since they are not we have to make do with these.

6 : Same with the eggs?

4 : Yes, now we have to eat them.

Discussion veers on to the taste of eggs.

1 : Would you like to see the uncooked product ?
It is shown

2 : Can't you have larger chunks, so that they look like meat

3 : I suppose that could be done.

6 : Then it would not taste very much like meat -
would be less juicy, I feel.

2 : I think it will be very handy for me because we are
going to live at Hawks Bay in a couple of months' time
and I won't be able to shop very often.

3 : You can keep a week's store of meat in the fridge

2 : I do that now also

6 : But meat kept in the fridge for more than one day
loses its flavour

3 : Yes

2 : Oh No. This is just imaginary.

None of the participants asked for samples.

* Unfertilized eggs.

** Hawkebay : A remote seaside resort about 20 miles
from Karachi.

APPENDIX "F"

CONSUMER TEST OF MEAT ANALOGUES

ma

masiruddin & associates limited

management and marketing consultants

rock court, abduallah hameed road, karachi.

CONSUMER TEST OF MEAT ANALOGUES

**A REPORT OF CONSUMER TEST OF
MEAT ANALOGUES CONDUCTED ON
FACTORY WORKERS AND STAFF MEMBERS**

FOR

GENERAL MILLS INC. U.S.A.

BY

**NASIRUDDEN & ASSOCIATES LIMITED
MANAGEMENT AND MARKETING CONSULTANTS
3RD FLOOR, ROCK COURT
ABDULLAH HAROON ROAD
KARACHI**

ZAS/SUD/MIK.

March/April, 1970

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Factory Workers

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- 1 - Opinion about the taste**
- 2 - Opinion about the colour**
- 3 - Opinion about the flavour**
- 4 - Particular likes**
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- 6 - Chewing quality**
- 7 - Overall comparative opinion**
- 8 - Reasons for preference of Extender/Substitute**
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SECTION - II

Staff Members

- 1 - Opinion about the taste**
- 2 - Opinion about the colour**
- 3 - Opinion about the flavour**
- 4 - Particular likes**
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- 6 - Chewing quality**
- 7 - Overall comparative opinion**
- 8 - Reasons for preference of Extender/Substitute**
- 9 - Reasons for not preferring Substitute/Extender**

Appendix

- Questionnaire**
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INTRODUCTION

General

Samples of meat extenders and substitutes manufactured by General Mills Inc, U.S.A. are in the process of consumer testing in Pakistan. The following report presents the findings of the test conducted among the factory workers and staff members of two factories in Karachi.

Objective

To determine the acceptability of the products among factory workers and staff members.

Sampling & Methodology

The test was conducted in two factories and 100 workers were to be interviewed from each factory. In one factory only 86 workers could be interviewed because some of the workers took the food outside and could not be traced.

Another problem which was faced in the factory that was that most worker could not express themselves properly and gave non-serious and irrelevant answers.

GME was tested on 100 workers and 15 staff members in one factory and WL was tested on 86 workers and 8 staff members in the other factory.

SUMMARY OF MAJOR FINDINGS

Section I - Factory Workers

OPINION

I) Taste : Regarding taste GL drew a higher number of favourable comments (90%) as compared to GME (77%). The most significant favourable comment was 'taste is good' (58% for GL and 35 for GME).

Where as only 16% unfavourable comments have been given for GL, GME drew 38% unfavourable comments. The most significant of these was 'taste is not good' (19 for GME).

II) Colour: Very high number of favourable opinion has been mentioned for both GL and GME. Only 8% unfavourable comments were given for GL and 14% for GME.

III) Flavour : Regarding the flavour of the dislikes prepared from GME and GL, almost equal number of favourable comments were drawn by both the products (85% by GME and 84% by GL). The only significant unfavourable opinion about the flavour of these Products was 'no smell of meat' (GME 6% and GL 4%).

IV) Chewing : When asked to give opinion about the chewing qualities of the product, GL received a higher proportion of favourable comments (106%) as compared to GME (91%). It seems that GME has succeeded in fitting into the Pukistan dishes which are made from mince. This is emerged from the fact that 22% of the respondents thought that GME was just like ordinary queema where as on 1% of the GL respondents thought that GL was like ordinary meat. 36% of the respondents mentioned that GL was softer than ordinary queema while only 5% said that GME was stoffer than ordinary Queema. No significant unfavourable comments were given either for GME or GL.

Likes and Dislikes:

The main aspects of likes in the products are as under:

		GME	GL
Over all Opinion is good	..	6%	29%
Taste is good	..	16%	17
It is good	..	16	6

Almost equal proportion of the respondents in each case could not mention any dislike in the products. In both cases, however, had smell was the main dislike (4% each) 3% of the respondents also did not like the taste of GME and 1% did not like the taste of GL.

Comparison of GME or GL with Ordinary Queema/meat:

The following picture emerged when the extender and substitute were compared with ordinary queema and meat respectively.

			GME	GL
Superior	...	..	38%	73%
Neutral	..	..	48	17
Inferior	..	..	24	19

The main reason for the preferring both GME and GL was taste (32% and 59% respectively) and the same reason was given by those respondents who preferred ordinary dishes over GME and GL (42% and 25% respectively).

Section II - Staff Members

OPINION

I) Taste: Among the staff members, it appears that GME was liked more than GL as 96% favourable comments were given for GME and 88% for GL about taste. An equal number of unfavourable comments were, however, given for both of them (25% each)

II) Colour: Whereas not a single respondent mentioned unfavourable opinion about the colour of GL, 20% of the respondents who tested GME gave unfavourable opinion about it.

47% of the respondents who tested GME said that the colour of GME was like ordinary queema while 38% of those who tested GL said that colour of GL was like ordinary meat.

III) Flavour: Whereas GME has drawn a higher proportion of favourable comments (73% as compared with 63% for GL) 38% of the respondents mentioned that the smell of GL was like ordinary queema as compared to 27% of the respondents who said that smell was like ordinary queema.

IV) Chewing: Whereas not a single unfavourable response was given for GME when asked about the Chewing quality, 26% of the respondents who tested GL gave unfavourable comments, about GL. The most significant of the favourable comments was 'It is like ordinary queema/meat (60% for GME and 38% for GL).

Likes and Dislikes:

The main likes mentioned for GL were 'Queema was good' 'Likes the Queema' and 'Taste' (each 25%). The main likes mentioned for GME were liked the Queema' and 'Taste' (20% each)

Whereas 80% of the respondents did not mention any particular dislike in GME, only 38% of the respondents said the same for GL. 25% of the respondents who tested GL did not like its taste.

Comparison of extender/substitute with ordinary queema/meat

The following picture emerged when asked to compare the meat analogues with ordinary dislikes :

		GME	GL
Superior	..	60%	63%
Neutral	..	27	13
Inferior	..	13	25

Amongst those who gave their preference for the meat analogues, the main reason was 'taste'. (78% for GME and 80% for GL).

SECTION I - FACTORY WORKERS

TEST ON FACTORY WORKERS

TABLE NO. 1
OPINION ABOUT THE TASTE

Q. 1 What is your opinion about the taste of this Qeema Aloo/Aloo Gosht ?

	QMS Base = 100	GL Base = 86
(PERCENT OF MENTIONS)		
FAVOURABLE		
Taste is good	35	58
O.K.	14	18
Taste is like meat	6	3
Just like Qeema	17	-
Very Good	5	9
Others	-	2
TOTAL	77	90
NEUTRAL		
No particular taste	4	-
TOTAL	4	-
UNFAVOURABLE		
Taste is not like meat	5	3
Taste is not good	19	1
Sour/bitter	4	1
Does not taste like Qeema	3	-
Taste like lentile	-	4
Others	17	7
TOTAL	38	16

- Note:-**
- 1) Percentages exceed 100 due to multiple mentions.
 - 2) Others favourable in GL include 'spices are good', 'better'.
 - 3) Others unfavourable in QMS include 'it appears hard', 'adulterated', 'tastes like straw', 'less spices'.
 - 4) Other unfavourable in GL, 'it is like udder', 'too much ghee', 'too many chillies', 'spicy', 'gives bad smell', 'it is like Beans'.

TEST ON FACTORY WORKERS

TABLE NO. 2
OPINION ABOUT THE COLOUR

Q. 2 What is your opinion about the colour of this Qeema Aloo/
Aloo Gocht ?

	GME Base = 100	GL Base = 86
(PERCENT OF MENTIONS)		
FAVOURABLE		
Colour is OK	30	32
Colour is good	19	39
Just like Qeema	29	9
Just like meat	5	17
Colour is very good	1	4
Others	5	-
TOTAL	87	101
NEUTRAL		
No Opinion	1	1
Colour depends on spices	1	-
No colour	1	-
Tolerable	1	-
TOTAL	4	1
UNFAVOURABLE		
Not good colour	1	4
Others	13	4
TOTAL	14	8

- Note:** 1) Percentages exceed 100 due to multiple mentions.
 2) Others favourable in GME include, 'just like ordinary
 curry', 'just like Qeema made from machine', 'if it always
 remains like this then it is very good'.
 3) Others unfavourable in GME include, 'lighter than it should
 be', 'little light in colour', 'two colours appear', 'less
 spicy', 'dark colour', 'light colour', 'colour is red',
 'colour is like vegetable'.
 4) Others unfavourable in GL include, 'colour is not like
 Qeema', 'dark colour', 'red colour'.

TEST ON FACTORY WORKERS

TABLE NO. 3

OPINION ABOUT THE FLAVOUR

Q. 3 What is your opinion about the flavour of this Qeema Aloo/ Aloo Gosht ?

	GME Base = 100	GL Base = 86
(PERCENT OF MENTIONS)		
FAVOURABLE		
Good	23	47
Very Good	3	3
OK	30	20
Better	3	-
Just like ordinary meat	4	3
Just like ordinary Qeema/curry	19	6
Less smell	2	-
Like potato	1	-
TOTAL	86	84
NEUTRAL		
No Opinion	1	2
Slight difference in smell	1	-
Equal	1	-
TOTAL	3	2
UNFAVOURABLE		
Not good	6	1
No smell of meat	5	4
Smells like lentils	1	1
Does not have the smell of Qeema	-	3
Others	10	8
TOTAL	22	17

- Notes:-**
- 1) Percentages exceed 100 due to multiple mentions.
 - 2) Others unfavourable in GME include, 'No smell', 'smell like uncooked fish', 'smells like fish', 'smell is not OK', 'did not like smell', 'little bad', 'less spicy', 'spices should be there', 'slight difference in taste from Qeema'.
 - 3) Others unfavourable in GL, 'not comparable with curry', 'does not have the smell of curry', 'very bad', 'smells like beans', 'smells bad', 'smell of onions', 'spices are tolerable', 'spices are good', 'it tastes like dhal'.

TEST ON FACTORY WORKERS

TABLE NO. 4

PARTICULAR LIKES

Q. 4 What do you like in this Qeema Aloo/Aloo Gosht ?

	GME Base = 100	GL Base = 86
(PERCENT OF MENTIONS)		
FAVOURABLE		
No particular likes	30	3
Overall opinion is good	6	29
Taste is good	16	17
Good	16	5
Qeema/Meat	8	2
Potatoes/Qeema cooked well	8	-
Qeema is good	-	4
O.K.	7	4
Curry is cooked well	-	3
Just like meat	3	3
Spices are good	-	8
Spices are OK	-	4
Just right	-	6
Like spices/chillies	2	-
Colour	4	1
No difference at all	3	-
Smell is good	1	2
Tastes like vegetables	2	-
Qeema is soft	-	3
Better than previous meat	-	2
Others	4	1
TOTAL	110	97
NEUTRAL		
No opinion	-	5
TOTAL	-	5

- Note:-**
- 1) Percentages exceed 100 due to multiple mentions.
 - 2) Others in GME include, 'less spices', 'ghee/oil is better', 'it is soft enough', 'smell is good'.
 - 3) Others in GL include 'less fat in it'.

TEST ON FACTORY WORKERS

TABLE NO. 4
PARTICULAR DISLIKES

Q. 5 What do you dislike in this Qeema Aloo/Aloo Gosht ?

	QMS Base = 100	GL Base = 86
(PERCENT OF MENTIONS)		
UNFAVOURABLE		
No particular dislike	74	76
Gives bad smell	4	4
Less spices	9	1
Too much salt	-	3
Not cooked well	3	-
Taste is not QeK:	3	1
Too much fat	-	3
Less fat	-	3
Taste is not like ordinary Qeema/Potato	-	2
No taste/Tasteless	2	-
Others	5	10
TOTAL	100	101

NEUTRAL

No opinion	-	4
TOTAL	-	4

- Note:-**
- 1) Percentages exceed 100 due to multiple mentions.
 - 2) Others unfavourable included in QMS are, 'tastes like vegetables', 'tastes like uncooked fish', 'softer', 'it appears like small pieces of lentile while eating whereas the Qeema of ordinary meat is tough'.
 - 3) Others unfavourable in GL include, 'less soup', 'do not like the colour', 'did not like it at all', 'did not like spices at all', 'too soft', 'meat is not proper', 'meat is less stringy', 'too much onion', 'too much spices; smells like vegetables'.

TEST ON FACTORY WORKERS

TABLE NO. 6

CHewing QUALITY

Q. 6 What is your opinion about the chewing quality of this Qeema Aloo/Aloo Gosht ?

	QMS Base = 100	GL Base = 86
(PERCENT OF MENTIONS)		
FAVOURABLE		
OK in chewing	24	32
Good in chewing	11	27
Just like ordinary qeema	22	-
Just like ordinary meat	10	1
Softer than Qeema	6	36
Like it because it is soft like ordinary Qeema	17	-
Better than ordinary Qeema	2	2
Like ordinary Qeema	-	6
Not sticky	-	2
TOTAL	91	106
NEUTRAL		
No particular opinions	8	1
TOTAL	8	1
UNFAVOURABLE		
Does not resemble Qeema while chewing	-	3
Differs little from meat	1	2
Bit harder	-	2
Others	-	2
TOTAL	1	9

Note:- 1) Percentages exceed 100 due to multiple mentions.
 2) Others unfavourable in GL include ('it is like Bhari' (bitter)').

TEST ON FACTORY WORKERS

TABLE NO. 7

OVERALL COMPARATIVE OPINION

Q. 7 How do you compare this Quema Aloo/Aloo Gosht with ordinary Quema Aloo/Aloo Gosht you normally eat ?

Opinion	Base:	GME 100	Base:	CL 86
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(PERCENT OF MENTIONS)

Favourable:

Better		27		69
Much Better		1		14
	Total:	28		73

Neutral:

Same		43		15
No Particular Opinion		5		2
	Total:	48		17

Unfavourable:

Inferior		24		9
	Total:	24		9

TEST ON FACTORY WORKERS

TABLE NO. 8
REASONS FOR PREFERENCE OF EXTENDER/SUBSTITUTE

Q. 8 (If better) In What respect ?

Opinion		GEM Base: 28	GL Base:63
		(PERCENT OF MENTION)	
<u>Reasons for preferring</u>			
Taste	..	32	59
Spices	..	11	14
Flavour	..	11	13
Like it	..	11	-
Cooked Well	..	4	16
Delicious	..	7	3
Colour	..	7	3
Soft	..	7	6
Fresh	..	4	4
Thin	..	4	-
Minced Well	..	4	2
Chewing Quality	..	4	11
From Vegetable point of view.		4	-
Less Water	..	-	2
No Chhichra	..	-	3
No Particular Reason		11	8
		Total: 121	140

Note: Percentages add up to more than 100 due to multiple mentions.

TEST ON FACTORY WORKERS

TABLE NO. 9

REASONS FOR NOT PREFERING SUBSTITUTE/EXTENDER

Q. 9 (If bad) In What respect ?

Opinion	Base:	GEM 24	GL Base: 8
(PERCENT OF MENTION)			
<u>Reasons</u>			
Taste	..	42	25
Spices	..	17	-
Flavour	..	8	-
State	..	4	-
Hard	..	-	13
Lequid	..	-	13
Looks Artificial	..	-	13
Taste like Vegetable	..	4	-
Taste like lentiles	..	4	13
Taste like Dhal	..	4	-
Not Cooked well	..	4	-
Quema is worse than meat		4	-
Just like mix Vegetable .. and Fish.	..	4	-
Feel bad after eating	..	-	13
No particular Reason	..	4	13
Total:		<u>99</u>	<u>103</u>

SECTION II - STAFF MEMBERS

TEST ON STAFF MEMBERS

TABLE NO. 1

OPINION ABOUT THE TASTE

Q. 1 What is your opinion about the taste of this Qeema Aloo / Aloo Gosht ?

<u>Opinion</u>	<u>Base :</u>	<u>GMS</u> <u>15</u>	<u>GL</u> <u>8</u>
<u>(PERCENT OF MENTIONS)</u>			
<u>Favourable :</u>			
Taste is O.K.	..	40	13
Taste is good	..	20	38
Taste like ordinary qeema		30	25
Taste is very good	..	13	-
Tasty	..	-	13
<u>Total :</u>		<u>93</u>	<u>88</u>
<u>Un-favourable :</u>			
Taste is not good	..	-	13
Differs from ordinary qeema		-	13
Spices are more	..	13	-
Spices are less	..	6	-
It is not stringy like ordinary meat	..	6	-
<u>Total :</u>		<u>25</u>	<u>25</u>

Note : Percentages add up to more than 100 due to multiple mentions.

TEST ON STAFF MEMBERS

TABLE NO. 2
OPINION ABOUT THE COLOUR

Q. 3 What is your opinion about the colour of this Qeema Aleo / Aleo Gecht ?

Opinion		GME	GL
	Base :	15	Base : 8
(PERCENT OF MENTIONS)			
<u>Favourable :</u>			
It is like ordinary qeema		47	38
It is like ordinary meat		-	38
O.K.	..	27	50
Very good	..	-	13
	<u>Total :</u>	<u>74</u>	<u>100</u>
<u>Neutral :</u>			
No opinion	..	7	-
<u>Un-favourable :</u>			
It is light	..	13	-
Different	..	7	-
	<u>Total :</u>	<u>20</u>	<u>-</u>

TEST ON STAFF MEMBERS

TABLE NO. 3
OPINION ABOUT THE FLAVOUR

**Q. 3 What is your opinion about the flavour of this
Qeema Alee / Alee Gesht ?**

Opinion	GMS Base :	GL Base :
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(PERCENT OF MENTIONS)

Favourable :

Smell like ordinary qeema	27	38
Nice flavour ..	13	-
O.K. ..	13	26
Good ..	30	-
<u>Total :</u>	<u>73</u>	<u>63</u>

Neutral :

No opinion ..	7	-
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Un-favourable :

Differ in smell from ordinary qeema ..	-	13
No smell ..	13	13
Smells bad ..	-	13
Vegetable flavour ..	7	-
<u>Total :</u>	<u>20</u>	<u>38</u>

TEST ON STAFF MEMBERS

TABLE NO. 4

PARTICULARS LIKED

Q. 4 What do you like in this Qeema Aloo / Aloo Gosht ?

Likes	GME		G.L.	
	Base :	15	Base :	8
(PERCENT OF MENTIONS)				
Qeema was good ..		-		25
Liked qeema ..		20		25
Taste		20		25
Potatoes were good ..		13		13
Overall opinion is good ..		-		13
It is like ordinary qeema		20		-
Good		13		-
O.K.		7		-
Nice Texture		7		-
Better in taste than ordinary qeema		7		-
No particular like ..		13		25
Total :		120		126

Note : Percentages add up to more than 100 due to multiple mentions.

TEST ON STAFF MEMBERS

TABLE NO. 5

PARTICULAR DISLIKES

Q. 5 What do you dislike in this Qeema Aloo/Aloo Gosht ?

Dislikes	QMS	G.L.
	Base : 15	Base : 8
(PERCENT OF MENTIONS)		
Taste	-	25
Qeema was thick	-	13
Fats	-	13
Potatoes were not good	7	13
Tough	7	-
Do not like Onion	7	-
No particular dislikes	80	38
Total :	100	100

TEST ON STAFF MEMBERS

TABLE NO. 6

CHEWING QUALITY

**Q. 6 What is your opinion about the Chewing of this
Qeema Alee / Alee Gosht ?**

Opinion	GMS	G.L.
	Base : 15	Base : 8

(PERCENT OF MENTIONS)

Favourable :

It is like ordinary qeema/meat	..	60	38
O.K.	13	25
Soft	13	-
Good	7	-
	Total :	<u>93</u>	<u>63</u>

Neutral :

No opinion	..	7	13
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Un-favourable :

Pieces of thick meat		-	13
Not stringy	..	-	13
	Total :	-	<u>26</u>

TEST ON STAFF MEMBERS

TABLE NO. 7

OVERALL COMPARATIVE OPINION

Q. 7 How do you compare this Qeema Alee/Alee Geest with Ordinary Qeema Alee/Alee Geest you normally eat?

Opinion	GME Base:	G.L. Base: 8
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(PERCENT OF MENTIONS)

Favourable:

Better	53	50
Much Better	7	13
		<u>Total:</u>	<u>63</u>

Neutral:

Same	27	13
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Un-favourable:

Worse	13	25
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TEST ON STAFF MEMBERS

TABLE NO. 8

REASONS FOR PREFERENCE

Q. 8 If better in what respect ?

Reasons	GME	G.L.
	Base : 9	Base : 5

(PERCENT OF MENTIONS)

Favourable :

Taste	.. ..	78	80
Flavour	.. ..	22	20
Cooked well	.. ..	-	20
Texture	.. ..	11	-
Not cramed with green chilly		11	-
In every respect	.. ..	11	-
Colour	.. ..	11	-
Total :		144	120

Note : Percentages add up to more than 100 due to multiple mentions.

TEST ON STAFF MEMBERS

TABLE NO. 2

REASONS FOR NOT PREFERING SUBSTITUTE/EXTENDER

Q. 2 If bad in what respect ?

Reasons			GMB	G.L.
	Base :		2	Base : 2
(PERCENT OF MENTIONS)				
<u>Un-favourable :</u>				
Taste	..	..	50	100
Flavour	..	..	50	-
Total :			100	100

APPENDIX

QUESTIONNAIRE

- Q. 1 What is your opinion about the taste of this Qeema Aloo / Aloo Gosht ?
- Q. 2 What is your opinion about the colour of this Qeema Aloo / Aloo Gosht ?
- Q. 3 What is your opinion about the flavour of this Qeema Aloo / Aloo Gosht ?
- Q. 4 What do you like in this Qeema Aloo / Aloo Gosht ?
- Q. 5 What do you dislike in this Qeema Aloo / Aloo Gosht ?
- Q. 6 What is your opinion about the chewing quality of this Qeema Aloo / Aloo Gosht ?
- Q. 7 How do you compare this Qeema Aloo / Aloo Gosht with ordinary Qeema Aloo / Aloo Gosht you normally eat ?
- Q. 8 (If better) in what respect ?
- Q. 9 (If bad) in what respect ?
-

APPENDIX "G"

SUMMARY OF IN-HOME TEST OF GME AND GL

Starting with a list of homes classified according to household income (four income groups: A= > Rs. 700/mo.; B₁= Rs. 500-699/mo.; B₂= Rs. 250-499/mo.; C= Rs. 100-249/mo.), housewives were contacted randomly within each list with the aim of obtaining a total of 80 respondents, 40 for GME and 40 for GL, with the 40 for each analog consisting of 10 from each income strata. The housewives contacted were told that the product was a new protein-rich meat analog from soybeans being tested for an American company.

<u>Results:</u>	<u>GME</u>	<u>GL</u>
Total Housewives contacted	54	55
Housewives refusing to test	14	15
Housewives accepting sample	40	40

Samples were given to each accepting housewife together with preparation instructions and she was told that the interviewer would return to ask her what she thought of the product.

Of the 80 housewives accepting samples (40 GME, 40 GL) only 65 actually evaluated the product.

<u>Results:</u>	<u>GME</u>	<u>GL</u>
Housewives accepting samples	40	40
Housewives who did not test	8	7
Actual test homes	32	33

Thus, out of 109 housewives contacted, 44 housewives held a strong enough negative opinion (or were influenced by their husbands) toward the concept that they would not test. Based on this extremely small sample, the willingness to test or acceptance factor is 60% (4 out of every 10 housewives could be expected to reject the product before even cooking it).

Of the 65 housewives who did cook one or the other product in their home at least once and served it to members of their family, 6 housewives would not accept another GME sample, 15 would not accept another GL sample (6 and 15, respectively for GME and GL, were also the numbers of housewives who cooked the product only once and although it is not specifically so indicated, it is a reasonable assumption that the ones who would cook it only once would also refuse to accept a second sample).

<u>Results:</u>	<u>GME</u>	<u>GL</u>
Housewives cooking at least once	32	33
Housewives refusing second sample	6	15
Housewives who would "try again"	26	18

If one equates refusal to accept another sample and try again as rejection of the concept (a reasonable conclusion), the overall acceptability of the concept is summarized as follows:

<u>Results:</u>	<u>GME</u>	<u>GL</u>
Total Housewives contacted	54	55
Those refusing to take product	14	15
Those taking but not cooking	8	7
Those who wouldn't test again	6	15
Total negative responses	28	37
% "Acceptability"	48%	32%

Overall for both products:

Total contacts	109
Total negatives	65
% Acceptability	40%

To place this degree of rejection or negativism in perspective, it would appear that the following factors should be considered:

1. Cultural shock
 - a. A product of a foreign power
 - b. dietary/religious factors
 - c. a completely unfamiliar technology

2. lack of a basis of comparison
 - a. no comparable or even similar products currently available in Pakistan
 - b. concept of convenience foods or dietary supplements almost unknown
3. incomplete communication of the concept

Taking these factors, and a myriad of other subtleties, into account, it is not surprising to experience a negative attitude or rejection of a concept not having the benefit of a campaign of consumer education.

On the brighter side, when the products were given a bona fide trial in the home, the general reactions and attitudes were gratifyingly positive.

Housewives agreeing to accept product for testing were asked to prepare dishes as follows:

	<u>GME</u>	<u>GL</u>
- mix rehydrated GME 1:1 with mince and prepare a mince/potato dish	20	
- mix rehydrated GME 1:1 with mince and prepare a mince/spinach dish	20	
- use rehydrated GL as a substitute for mince in a mince/spinach dish		20
- use rehydrated GL as a substitute for meat pieces in a meat/spinach dish		20

Of the 40 accepting GME for testing, 8 did not prepare any dish. Of the 40 receiving GL, 7 did not prepare any dish. Tabulation was not made as to what the distribution of spinach or potato dishes were in the 32 GME testers. However, no negatives were reported relative to whether spinach or potatoes were the base; hence, it is assumed that for purposes of evaluating GME it made no difference.

Bona fide trials of the products were obtained as follows:

	<u>GME</u>	<u>GL</u>
- no. of homes where 1:1 GME:mince was evaluated	<u>32</u>	
- no. of homes where GL was used as a substitute for mince		16
- no. of homes where GL was used as a substitute for meat pieces		17

Although asked to try the product at three different meals, many housewives tried the product fewer times than that:

	<u>Trials</u>			
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>
Agreed to test 1:1 GME:mince	8	6	18	8
Agreed to test GL as a substitute for mince or pieces	7	15	13	5

This result is not particularly disturbing in that it would appear to be unrealistic to ask a housewife to prepare the same dish as frequently as 3 times in a week or so.

Responses of the testers were categorized and point-weighted. Transposing Nasirruddeen's scale to a more familiar one yields:

	(Very good	5.0 (Like very much)
Favor-	(Good	4.0 (Like moderately)
able	(OK	3.5 (Like a little)

Unfavor-	(Bad	2.0 (Dislike moderately)
able	(Very bad	1.0 (Dislike very much)

Asking just the housewife, her overall opinion was as follows:

	<u>GME</u>	<u>GL</u>
No. of housewives who tried product	32	33
No. of housewives giving favorable responses (3.5, 4.0, or 5.0)	28	20
No. of housewives giving unfavorable responses (2.0 or 1.0)	4	13
Weighted response on the above 5-point scale	3.6	2.6
% of housewives giving favorable response	87%	60%

In the 32 households where GME was served, there were a total of 216 other family members (not including housewives). Of these, 216, 206 responded to questions as to opinion of the product (7 adult males were away from home and didn't try it, 3 children were on baby food). Seventeen didn't try the product. Hence of those who tasted GME, responses were as follows:

<u>GME</u>	<u>Total</u>	<u>Wouldn't Try</u>	<u>Total Tasting</u>	<u>Favorable</u>	<u>Unfavorable</u>
Husbands	26	3	23	17	6
Adult Males	25	7	18	13	5
Adult Females	27	5	22	20	2
Teenage Males	29	1	28	28	0
Teenage Females	20	0	20	17	3
Children	<u>79</u>	<u>1</u>	<u>78</u>	<u>63</u>	<u>15</u>
	206	17	189	158	31

% of favorable comments by those who tasted = $158/189 = 83\%$

In the 33 households where GL was served, there were a total of 211 other family members (not including housewives). Of these 211, 195 responded (9 weren't home, 7 babies on baby food). Twenty-seven wouldn't taste product.

GL

	<u>Total</u>	<u>Wouldn't Try</u>	<u>Total Testing</u>	<u>Favor- able</u>	<u>Unfavor- able</u>
Husbands	29	6	23	15	8
Adult Males	28	7	21	10	11
Adult Females	23	5	18	8	10
Teenage Males	24	3	21	11	10
Teenage Females	14	3	11	7	4
Children	<u>77</u>	<u>3</u>	<u>74</u>	<u>55</u>	<u>19</u>
	195	27	168	106	62

% of favorable comments by those who tasted = $106/168 = 63\%$

Other general results of interest:

1. No (not any!) reported problems in preparation.
2. 22 out of the 32 housewives who tried GME said they would be willing to pay Rs. 2.0-2.5 per seer (2 lbs).
3. Acceptance or willingness to try did not appear to have any correlation with income strata.
4. Whether the housewife was asked to use GL to substitute for mince or pieces had little if any effect on overall responses.
5. 27 out of 32 housewives who tried GME were willing to take another sample. 19 out of 33 who tried GL were willing to take another sample.
6. Relative to initial rejection or failure to test product after accepting, there appeared to be a strong correlation with prior knowledge of the concept -- those who had learned of the product through radio, TV, or newspaper coverage were generally willing to test; rejection was greatest with those who knew nothing of the product.

**PANEL TEST AMONG HOUSEWIVES
EXTENDER ONE & SUBSTITUTE GL**

na

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**PANEL TEST AMONG HOUSEWIVES.
EXTENDER GMB & SUBSTITUTE GL**

**A MARKET RESEARCH REPORT
PREPARED FOR
GENERAL MILLS INCORPORATED**

BY

**NASIRUDDHEN & ASSOCIATES LIMITED
3RD FLOOR, ROCK COURT, ABDULLAH
HARJON ROAD, KARACHI.**

**HS:MSS
Report Submitted: May '70.**

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INTRODUCTION

This test was conducted in order to determine the acceptability of the two meat analogues Extender GME and Substitute GL among housewives after they had cooked and tasted the product.

Objectives: 1. The primary objective of this test was to determine acceptability of GME and GL.

2. The secondary objective was to determine the impact of the size of GL particles on its acceptability

Sampling and sample size: The sample consisted of 80 housewives from the A, B1, B2, and C income categories* Each of the Extender and the Substitute were tested on 40 housewives. Due to the small sample size it was decided to structure the sample by income, so that 10 respondents from each income category fell into the sample for each meat analogue. Contacts were made randomly on the basis of income from a list of houses.

Method: This was a two contact study. During the first contact, housewives were given a sample of one of the meat analogues together with instructions for preparing it. At the same time they were also explained the method of preparation by the field investigator. They were asked to cook a specific dish thrice and serve it to their families. Housewives were asked to tell their families that the dish served was prepared from a meat analogue and not from ordinary meat. The dishes that the housewives were asked to prepare were:

Extender-Mince meat with potatoes (20 respondents)
Mince meat with spinach (20 respondents)

Substitute-Whole meat with spinach (20 respondents)
Minced meat with spinach (20 respondents)

Respondents were recontacted after ~~14~~ 14 days and asked questions about various aspects of the analogues. The method used was that of personal interviews. Housewives were contacted at their places of residence by trained female field investigators who conducted interviews according to partly structured Urdu questionnaires. The English version of the question-

aire is presented in appendix 3.

In order to measure the impact of the size of Substitute GL particles on its acceptability, twenty housewives were asked to cook GL as a mince meat dish and the remaining twenty were asked to cook it as whole meat with spinach. The results of these two groups were to be compared in terms of overall opinion, opinion about various aspects like taste, smell, bite, and appearance and willingness to accept another sample.

*A income bracket - Rs.700/- and above per month.
B1 income bracket - Rs.500/- -Rs.699/- per month.
B2 income bracket - Rs.250/- - Rs.499/- per month.
C income bracket - Rs.100/- - Rs.249/- per month.

SUMMARY AND CONCLUSIONS

This report presents the acceptability among housewives for the two meat analogues - Extender GME and Substitute GL. The acceptability has been determined as:-

QUANTITATIVELY: Proportion of respondents who were willing to accept the two samples at various stages of the survey.

AND

QUALITATIVELY: By the opinion of respondents about various aspects of the analogue.

A. ACCEPTANCE OF THE SAMPLES:

- (i) During the first contact: Of the first 80 housewives contacted, all did not accept the sample and extra 20 households (27%) had to be contacted in order to reach the sample size of 80. Thus 80 out of 109 (i.e. 73%) housewives agreed to cook the sample during the first contact (Note No.1 of Table No.1).
- (ii) During the second contact: Out of the 80 housewives who had agreed to test the samples, 65 cooked and served it to their families this comprised 80% of the GME respondents and 83% of the GL respondents. (Table No.1). The remaining housewives refused to cook it, thus raising the degree of unacceptability by 19%.
- (iii) After having cooked it Once: Respondents were asked to cook the sample thrice. 6 of the GME respondents (i.e. 15% of 40) and 15 of the GL respondents (i.e. 38% of 40) cooked it only once (Table No. 14A). This to some extent also indicates the degree of acceptability because 93% of the above 15 GL respondents did not cook it again because of factors like 'No One Liked It', 'No One Ate It', etc., while 3 of the 6 GME respondents did not cook it for similar reasons (Table No. 14B).
- (iv) After having cooked and tasted it: In order to have a direct measure of acceptability, respondents who had cooked and tasted the analogue were asked if they were willing to accept another sample. 68% of the 40 GME respondents & 48% of the 40 GL respondents were willing to accept another sample. (Table No. 13A). This indicates a higher degree of acceptability for GME and is substantiated by the fact that respondents were willing to pay more for GME than for GL. (Table No. 13B).

B. FACTORS (OTHER THAN THE QUALITY OF THE PRODUCT) WHICH AFFECTED ACCEPTABILITY:

- (i) Awareness of the Product: It was noticed that initial acceptability depended very much on awareness of the product. Respondents who had heard about the protein rich product (either through television or newspapers) accepted it more willingly than those who did not know about it (Appendix 1).
- (ii) New, unknown Product: The main reason for refusing to initially accept the analogue was that it was a new product. This was also a major reason for not cooking the product after having accepted it (Notes 1 & 2 of Table No.1) and for other family members not tasting it (Note 2, Tables 10 & 11).
- (iii) American Product: Three respondents did not cook the analogue because it was American (Note 2, Table No. 1) and three family members did not taste it for the same reason (Note 2, Table No. 11).

C. OPINION & IMPRESSIONS ABOUT VARIOUS ASPECTS OF THE MEAT ANALOGUES :

- (i) Opinion, Likes and Dislikes: Overall opinion about extender GME and substitute GL was as follows:-

	GME	GL
Base:	40	40
Favourable	70%	51%
Unfavourable	10%	33%
Refused to cook	20%	18%
Co-efficient of Opinion	+ 0.28	+ 0.11

The above table as well as likes and dislikes reveal that on the whole GME was more acceptable than GL. The main aspect of GL which affected its acceptability was the smell. In opinion, a much higher proportion of GL respondents (23%) complained against the smell than the GME respondents - 5% (Table No. 2). Further in dislikes (Table No. 4) 36% GL respondents mentioned 'Bad Smell' while only 3% GME respondents mentioned the same. Taste has also affected acceptability though not to as great an extent as smell. In opinion and likes, a nearly equal proportion of GL and GME respondents have mentioned taste while in dislikes a larger proportion of GL respondents (23%) said bad taste as compared to GME respondents 10% (Table No.4). From table Nos.2 and 3 (opinion and likes) the fact has also emerged that GME is more like ordinary meat than GL.

- (ii) Comparison with ordinary meat: (In order to determine how the analogue compared with ordinary meat, respondents were asked for comparison in terms of taste, smell, bite and appearance).

Results indicate that GL is like mince meat and not like whole meat in bite, taste and appearance (Tables 5, 7 and 8). These tables and table no. 6 also indicate that GME is more acceptable than GL.

The main quality where GL differed from ordinary meat is in smell. A majority of respondents (60%) preferred the smell of ordinary meat over GL and only 23% said that GL was just like ordinary meat in smell. This is very low as compared to 63% of GME respondents who said 'No Difference' in smell (Table No. 6).

In taste also, GME emerged better than GL. 48% GL respondents preferred ordinary meat in taste as compared to 23% GME respondents (Table No. 5).

In bite and appearance both GME and GL have emerged equally well - both have been commented to be like ordinary mince meat by quite a large proportion. (Tables Nos.7&8).

D. OPINION OF THE OTHER FAMILY MEMBERS

Overall opinion of other family members about the analogues is as follows (Comment of Table Nos. 10 & 11):

	GME	GL
Base:	206	196
Favourable opinion	77%	55%
Unfavourable Opinion	15%	31%
Did not taste it	8%	14%

The above table also indicates a more favourable opinion of GME than GL

B. IMPACT OF THE SIZE OF THE GL PARTICLES ON ITS ACCEPTABILITY

(In order to test this, 50% of the GL respondents were asked to cook GL as a mince dish MM and 50% were asked to cook it as a whole meat dish WM. The purpose being to compare opinion and acceptability among these two groups and thus measure impact indirectly. A direct means of measuring impact was to ask the MM respondents if GL could be used as a substitute for mince meat and to ask the WM respondents if it could be used as a substitute for whole meat).

Results indicate that among both the MM group and the WM group, GL was considered to be minced meat and not whole meat, but this factor did not seem to have affected acceptability. Co-efficient of opinion was slightly higher among MM respondents +0.19 than WM respondents +0.09 (Table No. 12B) and also more of the MM respondents (63%) than the WM respondents (53%) were willing to accept another GL sample (Table No. 12C). This higher acceptability of GL among the MM respondents does not seem to be due to the fact that the respondents cooked it as ordinary meat because when the two groups (MM & WM) were asked directly if it could be used as a substitute for mince meat and whole meat respectively, acceptability was higher among the MM respondents than the WM respondents by only 4%.

SECTION I

**OPINION AND IMPRESSIONS ABOUT
VARIOUS ASPECTS OF THE MEAT
ANALOGUES**

TABLE NO. 1

HOUSEWIVES WHO COOKED THE MEAT ANALOGUE

By Income

n - 80

- Q. 1a Did you cook the sample which I had given you?
(If No) Why not?
- Q. 1b May I know your monthly family income, please?

Monthly Income (Rs)	Extender GME		Substitute GL	
	Base (Respondents)	Those who Cooked	Base (Respondents)	Those who Cooked
100 - 249	10	70% 3	10	90% 1
250 - 499	10	90% 1	10	70% 3
500 - 699	10	80% 2	10	100%
700 & above	10	80% 2	10	70% 2
Total :	40	80% 4	40	83% 7

Notes: 1) In order to obtain a sample of 80 respondents, 109 households were initially contacted because 29 housewives refused to take the sample (15 substitute & 14 extender). The main reason for refusing was suspicion towards a new product (8-10 housewives were of the opinion that it was related with the birth control programme).

2) Each of the samples was given in 40 households. The above table shows that extender was not cooked in 8 households and the substitute in 7 households. The main reason for refusing to cook the sample after having accepted it for test purposes, was that husbands had asked their wives not to cook it because it was a new product (6 households) and because it was an American product (3 households). Two housewives said that they would not cook it because "the Americans take out all the nutritional oils from the Soya Beans and send us the dry remains". Three housewives refused to cook it because they commented that the un-cooked substitute had a peculiar smell, while one housewife did not cook the extender because she said that it looked very unappetising when uncooked.

TABLE No. 2

OPINION ABOUT THE TWO MEAT ANALOGUES

n = 80

Q. 4 What is your opinion about the (dish prepared) that you prepared with it ?			Extender GME	Substitute GL
Opinion	Base (Respondents) :		40	40
(PERCENT OF RESPONDENTS)				
Very good	5	13
Good	55	33
O.K.	10	5
Delicious/Good taste	33	28
Just like ordinary	40	15
Cooks fast	15	10
Other favourable	15	5
Very Bad	5	5
Bad	5	28
Complaints against the smell*	5	23
Other unfavourable	20	20
Refused to cook	20	18
Co-efficient of Opinion			+ 0.28	+ 0.11

Notes : 1) The opinion question (No.4) was left verbatim so that maximum information could be obtained about the two meat analogues. In order to have an overall opinion, it was decided to calculate the co-efficient of opinion. This co-efficient gives the degree of favourable and unfavourable opinion about the analogues and makes it easier to compare the opinion given for the two samples. It ranges from -1.00 (which signifies that all respondents rated the product as "very bad") to +1.00 (signifying that all respondents rated the product as "very good"). The co-efficient is calculated by assigning weights to the various responses. Weights, however, can only be assigned if the responses are according to a uniform scale. For this purpose each individual responses were classified into one of the following categories and the respective weights were assigned to them :

- Very good + 2
- Good + 1
- O.K. + 0.5 This is not a 'No opinion' response, but a favourable response
- Bad - 1
- Very bad - 2

- 2) a. Other favourable comments for the extender were 'Good smell', 'Looks nice', 'Useful when meat is un-available', 'a variety of dishes can be cooked with it', 'none liked it the first time, but the second time they got used to it and liked it very much'.
- b. Other unfavourable comments for the extender were 'requires more fat in cooking', 'bad taste', 'tastes bad when cold', 'did not cook well' and 'very much different from ordinary meat'.
- 3) a. Other favourable comment for the substitute was 'could be useful on meatless days'.

Contd....

TABLE NO. 2

Contd...

Notes : 3) b. Other unfavourable comments for the substitute were 'it tasted so bad that I had one mouthful & threw the rest away', 'my children did not like it at all, they said it would have been better to have cooked some pulses or vegetables', 'tasted very bad when cold', 'bad taste', 'blackish brown in colour', 'requires more spices than ordinary meat', and 'not at all like ordinary meat'.

4) * This includes 'bad smell', 'prawn smell', 'bad smell during cooking', 'had to wash it thoroughly before cooking to remove the smell'

5) Percentages exceed 100 because of multiple mentions.

Comments :

1) The above table and the Co-efficient of opinion (which is +0.28 for the extender and +0.11 for the substitute) reveal a greater degree of acceptability for the extender than the substitute.

2) The main aspects for which GME achieved significant responses are 'Good (55%)', 'Just like ordinary'(40%) and 'Delicious/geed taste (33%)'.

TABLE NO. 3

QUALITIES LIKED IN THE MEAT ANALOGUES

n = 80

**Q. 5 What did you particularly like in it ?
(Verbatim Answers)**

Qualities Liked	Extender GME	Substitute GL
Base (Respondents) :	40	40
	(PERCENT OF RESPONDENTS)	
Good taste / delicious	33	38
Tastes just like minced meat	15	8
Good Smell	8	5
Cooks fast	-	10
Looked nice after being cooked	3	3
Requires very little fat in cooking	-	2
No particular likes	43	40
Refused to cook	20	18

Notes : 1) Percentages exceed 100 because of multiple mentions.
2) One respondent who liked its taste said that it had a taste of Barya (which are small lumps of powdered pulse that are dried in the sun before being cooked)

Comment :

The main quality mentioned as a like in the 2 analogues is the taste. Other qualities like smell, appearance etc. were not given even 1/5 the mentions of taste.

TABLE NO. 4

QUALITIES DISLIKED IN THE MEAT ANALOGUES

n = 80

Q. 6 What did you particularly dislike in it? (Verbatim answers)

Qualities Disliked	Extender GMS	Substitute GL
Base (Respondents):	40	40

(PERCENT OF RESPONDENTS)

Bad smell	3	35
Bad taste	10	23
Other complaints against smell *	3	10
Requires more fat during cooking	5	-
Harder than ordinary mince ..	5	-
Became black after being cooked	-	3
No particular dislike	53	28
Refused to cook	20	18

Notes : 1) Percentages exceed 100 because of multiple mentions.

2) * This includes 'Burnt smell', 'Prawn smell', 'Smell of cereals' and 'Bad smell which disappeared on cooking'.

Comments :

1) More respondents have mentioned dislikes in the Substitute than in the Extender.

2) The main qualities disliked strongly in the Substitute are the Smell (35%) and the Taste (23%). 'Smell' has been mentioned as a dislike in the Extender by only 3% .

TABLE NO. 5

OPINION ABOUT THE TASTE OF THE MEAT ANALOGUE VS. ORDINARY MEAT

n - 80

Q. 9a How would you compare the taste of the sample meat with ordinary meat? (If respondent mentions that there is a difference between the 2, ask) Which of the two would you prefer and why?

A - OVERALL COMPARISON

Comparison	Extender GME	Substitute GL
	Base (Respondents):	40	40
	(PERCENT OF RESPONDENTS)	
No difference/just like ordinary minced meat.	55	30
Preferred ordinary	23	48
Preferred meat analogue *	3	5
Refused to cook	20	18

B - REASONS FOR PREFERING THE ORDINARY MEAT

Reasons	Extender GME	Substitute GL
	Base (Those who preferred Ordinary meat) :	9
	(PERCENT OF THOSE WHO PREFERRED ORDINARY MEAT)	
Ordinary tastes better.	33	42
Real is always better	-	27
Meat analogue did not have meat taste.	67	11
Meat analogue was tasteless.	-	11
Meat analogue had a burnt taste.	-	5
Meat analogue had Barya ^{**} taste not meat.	-	5

Notes : 1) * The only reason given for preferring the analogue was that it "has a better taste".

2)** Refer to note No.2 in table No. 3.

Comments :

- 1) In taste the extender is more acceptable than the Substitute. A larger proportion of those who tasted the former found no difference between the meat analogue and ordinary meat as compared to those who sampled the substitute. Also a smaller proportion (23% totally) preferred the ordinary dish to the analogue dish as compared to 48%, who said the same for GL.
- 2) Reasons given for preferring ordinary meat to the two meat analogues do not reveal any definite negative qualities in GME & GL. The two main reasons were that ordinary meat has a better taste and the meat analogue did not have meat taste.

TABLE NO. 6

**OPINION ABOUT THE SMELL OF THE MEAT ANALOGUE
VS. ORDINARY MEAT**

n = 80

Q. 9b How would you compare the smell of the sample meat with ordinary meat? (If respondent mentions a difference between the two, ask) Which would you prefer & why?

A - OVERALL COMPARISON

Comparison	Base (Respondents):		Extender GME	Substitute GL
			40	40
			(PERCENT OF RESPONDENTS)	
No difference	65	23
Preferred ordinary	18	60
Refused to cook	20	18

B - REASONS FOR PREFERRED ORDINARY MEAT

Reasons	Base (Those who preferred Ordinary)		Extender GME	Substitute GL
			7	24
			(PERCENT OF THOSE WHO PREFERRED ORDINARY)	
Meat analogue had a bad smell	43	58
Meat analogue smell like Barya [*] not meat			14	13
Bad smell when being cooked	-	13
No smell of meat	14	8
Smelt like prawns	-	8
Smelt like cabbage	14	-
Smelt like some cereal	14	-

Note : * Refer to note No. 2 of table No. 3

Comment : Substitute GL has a distinctive smell which is different from ordinary meat and which respondents did not like. In Extender GME, the smell is not as distinct.

TABLE NO. 7

**OPINION ABOUT THE BITE OF THE MEAT ANALOGUE
VS. ORDINARY MEAT**

n = 80

Q. 9c How would you compare the bite of the sample meat with ordinary meat? (If respondent mentions a difference between the two, ask) Which would you prefer & why?

A - OVERALL COMPARISON

Comparison	Extender GME Substitute GL	
	Base (Respondents):	
	40	40
(PERCENT OF RESPONDENTS)		
No difference/just like ordinary mince	65	45
Preferred ordinary	10	18
Soft like ordinary mince	-	15
Different, but liked both	3	3
Preferred meat analogue *	3	-
Refused to cook	20	18

B - REASONS FOR PREFERRING ORDINARY MEAT

Reasons	Extender GME Substitute GL	
	Base: (Those who preferred Ordinary):	
	4	7
(PERCENT OF THOSE WHO PREFERRERD ORDINARY)		
Meat analogue was soft	75	43
Because ordinary is made from real meat	-	29
Ordinary is easier to chew ..	-	29
No reason given	25	-

Note: * The reason given for preferring the bite of the meat analogue was that 'it has no shreds'.

Comments: On the whole 16% of the GME respondents mentioned a difference in the bite of the extender and ordinary meat and 36% of the GL respondents mentioned such a difference. The main difference detected was that 'the analogue was softer than ordinary minced meat in bite'.

TABLE NO. 8

OPINION ABOUT THE APPEARANCE OF THE
MEAT ANALOGUE VS. ORDINARY MEAT

n = 80

Q. 9d How would you compare the appearance of the sample meat with ordinary meat? (If respondent mentions a difference between the two, ask) Which would you prefer & why?

Comparison	Extender GME		Substitute GL	
	Base (Respondents) :	40		40
		(PERCENT OF RESPONDENTS)		
No difference / just like mince		75		70
Prefer ordinary		-		5
Slightly blacker than ordinary		3		5
Prefer meat analogue (looks better)		-		3
When fresh, meat analogue looked like ordinary mince, but by evening it turned black & tasted different.		3		-
Refused to cook		20		18

- Notes:
- 1) Two respondents preferred ordinary meat and the reason for this was that the analogue did not look like meat at all.
 - 2) One respondent preferred meat analogue. The reason was that it looked better.

- Comments:
- 1) In appearance, both GME and GL are not much different from ordinary minced meat.
 - 2) None of those who tasted GL mentioned that it looked like whole meat.

TABLE NO. 9

**OPINION ABOUT THE APPEARANCE OF THE
MEAT ANALOGUES WHEN UNCOOKED**

n = 80

Q. 1 What is your opinion about its appearance?

Opinion	Extender GME		Substitute GL	
	Base (Respondents):	40	40	
				(PERCENT OF RESPONDENTS)
Can't tell (shall cook it and see)		58		50
Like dry mince		8		13
Like dry meat		8		10
Looks nice / alright		15		6
Like dry pulses		5		15
Like dry bread		3		3
Like Cocoa / Ovaltine		5		3
Has a good smell		5		3
Bad smell		-		5
Tastes good (uncooked)		5		3

Note : Percentages exceed 100 because of multiple mentions.

Comments : When asked to give an opinion about the uncooked analogues, most of the respondents could give no opinion. The opinion of the remaining respondents is too varied to form any definite conclusion about the uncooked GME & GL.

TABLE NO. 10

OPINION OF OTHER FAMILY MEMBERS ABOUT EXTENDER GME

n=206 (family members who were at home when GME was served)

- Q. 13 a How many members of your family live and eat at home?
 13 b Of these, how many tasted (dish prepared from analogue)?
 13 c (For those who did not taste it) Why did not (ask separately for each member who did not taste it) taste it?
 Q. 14 (Ask separately for each member who tasted it) What was the opinion of (family member) about it?

Members	Base (Members)	Opinion							Did not taste it
		Good	Delicious	Very good	Other Favourable	Bad	Bad taste	Bad Smell	
(PERCENT OF MEMBERS)									
Husband	26	46	19	15	15	8	15	4	12
Adult males	25	20	16	16	-	20	-	-	28
Adult females	27	41	52	26	4	-	7	-	19
Teenage males	29	52	59	17	-	-	-	-	3
Teenage females	20	70	10	20	5	15	-	-	-
Children *	79	48	14	?	-	5	16	-	1
Total :	206	46	26	15	3	7	9	0.4	8

Notes : 1) The distribution of other family members in the 32 households where extender GME was served is :

Husband	29
Adult males	26
Adult females	27
Teenage males	30
Teenage females	22
Children	82

Total : 216

Opinion of the extender has been based on a total of 206 members instead of 216 because 7 adults were not at home when it was served to the family and three children were on baby food.

- 2) 8% of the total respondents did not taste the extender. According to the respondent the main reason was suspicion towards trying out a new product.
- 3) * Percentages do not add upto 100 because 8% of the children (3% of the total) who sampled the extender did not comment upon it but according to the housewives they gave the impression that they liked it.

TABLE NO. 10

Contd...

Notes : 4) Other favourable comments made were 'tasted just like ordinary mince', 'good but different from ordinary mince', 'nice & hard'.

5) Percentages exceed 100 because of multiple mentions.

Comment : The following table presents the consolidated favourable and unfavourable comments of other family members about the Extender :

	<u>Base</u> <u>(MEMBERS)</u>	<u>Favourable</u> <u>Opinion</u>	<u>Unfavourable</u> <u>Opinion</u>	<u>Did not</u> <u>taste</u>
		<u>(PERCENT OF MEMBERS)</u>		
Husband	26	65	23	12
Adult males	25	52	20	28
Adult females	27	74	7	18
Teenage males	29	97	-	3
Teenage females	20	85	15	-
Children	79	80	19	1
<u>Total :</u>	<u>206</u>	<u>77</u>	<u>15</u>	<u>8</u>

TABLE NO. 11

OPINION OF OTHER FAMILY MEMBERS ABOUT SUBSTITUTE GL

n=195 (family members who were at home when GL was served)

- Q. 13 a How many members of your family live and eat at home?
 b Of these, how many tasted (dish prepared from analogue) ?
 c (For those who did not taste it) Why did not (ask separately for each member who did not taste) taste it ?
- Q. 14 (Ask separately for each member who tasted it) What was the opinion of (family member) about it ?

Members	Base (Members)	Favourable Opinion				Unfavourable Opinion		Did not taste it	
		Very Good	Delicious	O.K	Other Favourable	Bad	Other Un-favourable		
(PERCENT OF MEMBERS)									
Husband	29	24	7	21	10	10	21	14	21
Adult males	28	32	-	4	-	14	39	11	25
Adult females	23	17	-	-	17	-	30	13	22
Teenage males	24	29	13	4	4	-	42	4	13
Teenage females	14	14	7	21	7	-	21	7	21
Children*	77	29	10	4	6	-	23	-	4
Total :	195	26	7	7	7	4	28	6	14

- Notes :**
- 1) There were totally 211 members in the 33 households where Substitute GL was served. The above table has been based on 195 members because the remaining family members were either not at home to taste the GL dish (9 respondents) or they were infants who were still on baby food (7).
 - 2) 14% of the total respondents did not taste the extender. The main reason was suspicion mainly because it was a new product (9 members) and because it was American (3 members). The remaining 15 members refused to taste the Substitute because it had a bad smell.
 - 3) * 26% of the children (10% of the total) did not comment upon the Substitute, but seemed to be enjoying it. These have not been included in the table and therefore percentages in the case of children do not add upto 100.
 - 4) a. Other favourable comments include 'tastes just like ordinary meat', 'looks like meat' and 'liked it in all respects'.
 b. Other un-favourable comments include 'bad smell', 'bad taste' and 'smells like fish'. One respondent remarked that as soon as she told her husband that he was eating a meat analogue he started criticising it though upto then he did not seem to have been disliking it.
 - 5) Percentages exceed 100 because of multiple mentions.

Contd...

TABLE NO. 11

Contd....

Comment : Percentage of other family members who gave favourable and un-favourable comments about the substitute is as follows (mentions are not multiple) :

	<u>Base</u> <u>(Members)</u>	<u>Favourable</u> <u>Opinion</u>	<u>Unfavourable</u> <u>Opinion</u>	<u>Did</u> <u>not</u> <u>taste</u>
	(PERCENT OF MEMBERS)			
Husband	29	52	28	21
Adult males	28	35	39	26
Adult females	23	35	43	22
Teenage males	24	46	42	13
Teenage females	14	50	29	21
Children	77	72	23	4
Total :	<u>195</u>	<u>55</u>	<u>31</u>	<u>14</u>

From this consolidated table it is evident that husbands, children & teenage females have a more favourable opinion of the Substitute than adult males, adult females and teenage males.

SECTION II

**IMPACT OF THE SIZE OF GL
PARTICLES ON ITS ACCEPTABILITY**

TABLE NO. 12A

**OPINION ABOUT TASTE, BITE AND
APPEARANCE OF GL vs ORDINARY
MEAT AMONG THE MM* & THE WM*
RESPONDENTS**

n = 33 (those who cooked GL)

Q. 9a,c,d How would you compare the taste, bite and appearance of the sample meat with ordinary meat ? (If respondent mentions a difference between the two ask) Which did you prefer and why ?

	MM*	WM*
Base (Those who cooked GL)	16	17

(PERCENT OF THOSE WHO COOKED GL)

A. TASTE

No difference	35	-
Just like ordinary mince	18	19
Prefer ordinary	47	69
Prefer meat analogues	-	13

B. BITE

No difference	63	12
Just like ordinary mince/ soft like ordinary mince	6	65
Prefer ordinary	31	18
Different, but liked both	-	6

C. APPEARANCE

No difference	81	18
Just like ordinary mince	-	71
Prefer ordinary	13	-
Prefer analogue	6	-
Slightly blacker than ordinary	-	12

Notes:- 1. *MM refers to respondents who cooked GL as a MINCED MEAT dish.

2. **WM refers to respondents who cooked GL as a WHOLE MEAT dish.

3. The smell factor has not been taken into consideration in the above table because there was no mention of the smell of GL being like ordinary mince. (All respondents said there was no difference).

4. Reasons for preference have not been tabulated because the size of the particles were not mentioned as a reason.

Comment:

A majority of the respondents found GL to be more like mince meat than whole meat especially in appearance and bite. This is evident from the fact that a majority of the MM respondents said that there was no difference between GL and ordinary mince (mainly in appearance and bite) while the WM respondents said that it was just like ordinary mince.

TABLE NO. 12C

WILLINGNESS TO ACCEPT ANOTHER SAMPLE
AMONG THE MM* AND WM** RESPONDENTS

n = 33 (those who cooked GL)

Q.10 Would you like to take another sample?

	MM*	WM**
Base (those who cooked):	16	17

(Percent of those who cooked GL)

Willing to accept another sample	63	53
Unwilling to accept another sample	38	47

Note: * Respondents who cooked GL as a mince dish .
** Respondents who cooked GL as a whole meat dish.

TABLE NO. 12D

RESPONDENTS' IMPRESSION OF GL AS A SUBSTITUTE
FOR WHOLE MEAT AND AS A SUBSTITUTE FOR MINCE MEAT

n = 33 (Those who cooked GL)

 Q. 12a. (For those who cooked GL as whole meat) Do you think
 it can be used as a substitute for whole meat ? (If no)
 Why not ?

Q. 12b. (For those who cooked GL as mince meat) Do you think it
 can be used as a substitute for mince meat ? (If no)
 Why not ?

Base (MM *) Can be used as a substitute for mince meat

	Yes	No
16	63%	38%

Base (WM**) Can be used as a substitute for whole meat

	Yes	No
17	59%	40%

- Notes:-
1. *Respondents who cooked GI as a MINCED MEAT.
 2. **Respondents who cooked GL as a WHOLE MEAT.
 3. Reasons for saying 'NO' among the MM respondents were 'does not taste like minced meat' (2), 'bad taste'(2), 'bad smell' (2).
 4. Reasons for saying 'NO' among the WM respondents were 'Bad smell' (3), 'bad taste' (2), 'has taste of vegetables not meat' (1), 'maybe it can in nutritional values, but not in taste (1)'.

COMMENT (Table nos. 12A, 12B, 12C, 12D): In order to determine the impact of the size of GL particles on its acceptability, 50% respondents (who cooked GL) were asked to cook it as a mince dish (MM respondents) and the remaining 50% were asked to cook GL as a whole meat dish. (WM respondents). The acceptability was measured by comparing the results of these two groups in terms of opinion and willingness to accept another sample.

From the above four tables it is clear that GL is more like mince meat than whole meat, but the size factor does not seem to have affected its acceptability. This is evident from the fact that preference for the ordinary dish over the meat analogue dish is not significantly higher among the MM respondents than among the WM respondents (table 12A). In table no. 12B, GL has emerged better among the MM than the WM respondents, but this difference (+0.10) is not very significant and also there are no indications that this difference is due to the size of the GL particles.

When respondents were asked if they were willing to accept another GL sample, a slightly higher percentage (10%) of the MM respondents showed willingness as compared to the WM respondents. This, however, could be due to factors other than the size of the GL particles as is indicated by table no. 12D. In this table, the impact of the size of GL particles on its acceptability was tested directly by asking the MM respondents whether they felt that GL could be used as a substitute for mince meat and by asking the WM respondents if it could be used as a substitute for whole meat. 63% of the MM respondents said that it could be used instead of mince meat and 59% of the WM respondents said that it could be used instead of whole meat. The difference between the two groups is very small (only 4%) which means that although these respondents consider the GL particles to be too small for whole meat, the size did not affect the opinion and acceptability of GL as a substitute for meat.

SECTION III

OTHER INFORMATION

TABLE NO. 13-A
WILLINGNESS TO ACCEPT ANOTHER
SAMPLE
n = 80

Q. 10 Would you like to take another sample ?

		Extender GME	Substitute GL
Willingness			
Base (Respondents) :		40	40
(PERCENT OF RESPONDENTS)			
Yes	.. .. .	68	48
No	.. .. .	13	35
Refused to cook	.. .. .	20	18

TABLE NO. 13-B
PRICE WILLING TO PAY
n = 80

Q. 11 How much would you be willing to pay for 1 Seer (2 lbs) of the meat analogue ?

		Extender GME	Substitute GL *
Price for 2 lbs (Rs)	Base (Respondents) :	40	40
(PERCENT OF RESPONDENTS)			
1.00	.. .. .	3	10
1.50	.. .. .	13	25
2.00	.. .. .	40	13
2.50	.. .. .	15	5
5.00	.. .. .	-	3
Can not say **	.. .. .	5	10
Not willing to buy	.. .. .	5	15
Refused to cook	.. .. .	20	18
Average price (Rs)		1.46	1.10

Note : 1) *One respondent said Re: 0.50 paisas
 2) ** These respondents were excluded while calculating the average price.

Comment: GME is more acceptable than GL. This is evident from the fact that a larger proportion of those who tasted GME were willing to accept another sample as compared to those who tasted GL. Further, average price that respondents are willing to pay is higher for GME than for GL.

TABLE NO. 14

NUMBER OF TIMES THE MEAT ANALOGUES WERE COOKED

n = 80

Q. 3 How many times did you cook it? (If once) Why did you not cook it a second time? (Record verbatim)

A - NUMBER OF TIMES MEAT ANALOGUES COOKED

Number of times cooked	Extender GME		Substitute GL	
	Base (Respondents):	40	40	
	(PERCENT OF RESPONDENTS)			
Once		15		38
Twice		43		33
Thrice		23		13
Refused to cook		20		18
Average Number of times cooked		1.7		1.4

B - REASONS FOR NOT COOKING IT A SECOND TIME

Reasons	Extender GME		Substitute GL	
	Base (Those who cooked once):	6	15	
	(PERCENT OF THOSE WHO COOKED ONLY ONCE)			
No one in the family liked it ..		33		60
No particular reason (shall cook again)		50		7
No one ate it		-		13
Family members were suspicious ..		-		13
Had peculiar smell		-		7
It upset our stomachs		17		-

Comment: A larger number of the GL respondents (15) cooked it only once as compared the GME respondents (6). The main reason was that no one in the family liked it.

TABLE NO. 15**PROFILE**

n = 60

		Extender GME	Substitute GL
Base(Respondents):		40	40
A - Monthly Family Income (Rs. Structured)		(PERCENT OF RESPONDENTS)	
100 - 249	.. ..	25	25
250 - 499	.. ..	25	25
500 - 699	.. ..	25	25
700 & above	.. ..	25	25
B - Respondent's Age (Years)			
Below 24	.. ..	5	8
25 - 34	.. ..	43	40
35 - 44	.. ..	45	45
Above 44	.. ..	8	8
C - Respondent's Educational Qualifications			
Illiterate	.. ..	23	35
Below Matric	.. ..	45	40
Matriculate	.. ..	15	18
Intermediate	.. ..	8	5
Graduate	.. ..	8	3
D - Husband's Occupation			
Big Businessmen (earning over Re 700/- per month)		8	5
Small " (earning below Re 700/- per month)		18	23
Class I Govt. officials (earning over Re 500/- per month)		8	5
Other Govt. officials	..	10	8
Professionals/Managers	..	13	20
Clerks/Assistants	..	25	15
Skilled workers	..	10	20
Retired	..	-	5
Widow	..	10	-

APPENDICES

APPENDIX NO. 1

REMARKS MADE BY THE RESPONDENTS
DURING THE FIRST CONTACT

	NO. OF RESPONDENTS
Seen it on television will definitely cook it	7
Read about it in newspapers	5
Should be useful on meatless days	3
Should be useful when guests arrive unexpectedly	2
It is good because it will be cheap	2
Hope it is not harmful	2

APPENDIX NO. 2

QUESTIONS NOT TABULATED

- Q. 2 (who cooked it) In all cases where analogue had been cooked, respondent herself had cooked it.
- Q. 3a (check question) Was asked to make sure that respondents who claimed to have cooked the sample had really cooked it. Responses indicated that all of them had cooked it.
- Q. 7 (Difficulties faced in cooking) No difficulties were mentioned.
- Q. 8 (Amount of mince mixed in the extender): All respondents mixed mince with the extender in the ratio 1:1.

APPENDIX No. 3

QUESTIONNAIRE

FIRST CONTACT

Introduce yourself and explain the purpose of the survey to the respondents.

Show a sample of the Substitute / Extender to the respondent and explain to her the method of its preparation.

Q. 1 What is your opinion about its appearance ?
(Record Verbatim)

Respondent's Name : _____

Address : _____

Telephone No: _____

Dish to be prepared : _____

Sample Code Number : _____

Date of Second Contact : _____

Comments made by the respondent and others present :

SECOND CONTACT

Q. 1a Did you cook the sample which I had given you ?

Yes	No
1	2

(If No) Why not? (Probe for reasons and record answers verbatim)

Q. 2 Who cooked it ?

Self	Other (Specify)
1	2

Q. 3 How many times did you cook it ?

Once	Twice	Thrice	More than thrice (Specify)
1	2	3	4

(If Once, ask) Why did you not cook it a second time? (Record verbatim)

3b When you cooked it the first time, how much water did you soak it in? When you started cooking it how much water was left?

Note: This question was introduced to check if respondent had really cooked the sample or not.

Q. 4 What is your opinion about the (dish prepared) that you prepared with it ? (Probe and record answer verbatim)

Q. 5 What did you particularly like in it? (Record Verbatim)

Q. 6 What did you particularly dislike in it? (Record Verbatim)

Q. 7 When you prepared it for the first time did you face any difficulties in cooking it?

(If Yes) a) What sort of difficulties?

b) How did you overcome these difficulties when you cooked it a second time?

Q. 7	Q. 7a Difficulties	Q. 7b How Overcome
Yes ()		
No ()		

Q. 8 (For those who cooked the Extender)

a. When you cooked it the first time, how much mince did you mix in it?

Equal amounts. 1	Other quantity (Specify) 2
---------------------	-------------------------------

b. When you cooked it the second time did you put in the same amount of mince? (If No) How much mince did you use?

Q. 9a How would you compare the taste of the sample meat with ordinary meat? (If respondent mentions a difference between the two) Which of the two would you prefer and why?

b. How would you compare the smell of the sample meat with ordinary meat? (If respondent mentions a difference, ask) Which would you prefer and why?

c. How would you compare the bite of the sample meat with ordinary meat? (If respondent mentions a difference, ask) Which would you prefer and why?

Q. 9d How would you compare the appearance of the sample meat with ordinary meat? (If respondent mentions difference, ask) Which would you prefer and why?

Q. 10 Would you like to take another sample ?

Yes 1	No 2
----------	---------

Q. 11 How much would you be willing to pay for 1 Sear (3 lbs) of the meat analogue ?

Q. 12 (For those who cooked the Substitute)

a. (Those who cooked it as whole meat) Do you think it can be used as a substitute for whole meat?
(If No) Why not ?

b. (For those who cooked it as mince meat) Do you think it can be used as a substitute for mince meat?
(If No) Why not ?

Q. 13a How many members of your family live and eat at home ?

b. (Of these) How many tasted (dish prepared from analogue) ?

c. (For those who did not taste it) Why did not (ask) separately for each member who did not taste it ?

	(a) Family members	(b) Those who tasted	(c) Reasons for not tasting
Self			
Husband			
Adult males			
Adult females			
Teenage males			
Teenage females			
Children			

Q. 14 (Ask separately for each member who tasted it) What was the opinion of (family member) about it ?

Member	Opinion
Husband	
Adult males	
Adult females	
Teenage males	
Teenage females	
Children	

Q. 15 May I know your age, please ?

Below 20 1	20 - 24 2	25 - 29 3	30 - 34 4
35 - 39 5	40 - 44 6	45 - 49 7	50 & above 8

Q. 16 May I know your husband's occupation, please ?
(Verbatim)

Q. 17 May I know your educational qualifications, please ?

Illiterate 1	Home education 2	Below Matric 3	Matriculate 4	Intermediate 5
Graduate 6	Post Graduate 7	Professional 8	Other (Specify) 9	

Q. 18 May I know your monthly family income, please ?

Below 100 1	100-249 2	250-499 3	500-699 4	700-999 5	1000-1499 6
1500 - 1999 7	2000 - 2499 8	2500 - 2999 9	3000 & above 10		

APPENDIX "H"



GENERAL MILLS, INC. • JAMES FORD BELL TECHNICAL CENTER • 9000 PLYMOUTH AVE. NO. • MINNEAPOLIS, MINN. 55427

July 13, 1971

Mr. Russell Dilts, Chief
NESA Contract Division
Department of State
Agency for International Development
Washington, D.C. 20523

Re: Contract AID/nesa-386 (Pakistan)

Dear Mr. Dilts:

This letter will serve as a recommendation by General Mills, Inc. (contractor) that all efforts on the above referenced contract be suspended or terminated.

It is the considered opinion of all General Mills personnel involved that a further expenditure of effort, time, and funds would be essentially unproductive at this juncture.

In depth studies of the reactions of potential Pakistani consumers (housewives and their families, kabab vendors and their customers, and in-plant feeding patrons) demonstrated generally good acceptance of unflavored soy-based meat extenders and flavored soy-based meat replacements. Initial contacts with the Pakistan Armed Forces generated a high degree of enthusiasm and acceptance at the staff level. However, a "field test", the details of degree of control or manner of presentation of which are completely lacking, yielded a rather negative picture, the true import of which is difficult to assess.

In summary, under controlled consumer testing procedures, a surprisingly good acceptance of the overall concept has been demonstrated.

In an orderly progression of concept development, the next step would be to perform a "market test" -- that is, to package product in bona fide retail packaging and to offer the product for sale through conventional channels and monitor both the initial trial and repeat purchase patterns.

.....continued.....

7/13/71

It is here that the raw material picture presents itself. Soybeans are not an indigenous crop in Pakistan and it does not appear that they will be for at least some years to come. The foreign exchange picture could appear to preclude importation of soy. Hence, any meaningful-scale future testing or marketing in Pakistan of a vegetable protein based meat extender or meat replacement depends upon the availability of some other suitable vegetable protein raw material--basically, degossypolized cottonseed protein.

This fact has been a basic element in General Mills' approach to the situation. Small scale lab tests have demonstrated the feasibility of preparing products quite comparable to soy-based products from cottonseed protein. These tests were performed with meal from genetically gossypol-free cottonseed and with lab-prepared degossypolized cottonseed meal. However, a testing program of any size demands availability of a commercial, or at least a pilot plant, source of degossypolized cotton seed meal.

To this end, General Mills has tracked the efforts of Dorr-Oliver and their AID contract re degossypolization of cottonseed meal from their pilot plant in Hubli, India. To date, satisfactory product has not been forthcoming--color, gossypol content, and degree of denaturation have not been satisfactory. Recent efforts to pin down an estimate of when sufficient quantity of specification product might be available have not yielded definitive answers.

This non-availability of satisfactory raw material coupled with the generally unsettled political situation in Pakistan are the basis for General Mills recommendation that contract efforts be indefinitely suspended or terminated, to be reinstated at some future date if conditions stabilize and the raw material picture clarifies.

If AID concurs with the General Mills recommendation, the report presently in preparation will be issued as a final report, a final accounting will be made, and per the contract terms, the data collected in the course of efforts on the contract will be turned over to AID.

Sincerely,



D. L. Andersen . .
Project Manager
AID/nesa-386 (Pakistan)

Approved:


E. W. Swanson

Project Administrator

DLA/rm