DEVELOPMENT OF INSTRUCTIONAL MATERIALS FOR IMPARTING KNOWLEDGE TO RURAL WOMEN REGARDING UTILIZATION OF SOYBEAN IN THEIR DIET

Thesis

Submitted to the Punjab Agricultural University
in partial fulfilment of the requirements
for the degree of

MASTER OF SCIENCE
in
HOME SCIENCE EXTENSION EDUCATION
(Minor Subject : Sociology)

By

Barkha Garg
(L-99-H.Sc.-223-M)

Department of Home Science Extension Education
College of Home Science
PUNJAB AGRICULTURAL UNIVERSITY
LUDHIANA - 141 004

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CERTIFICATE - I

This is to certify that the thesis entitled, **"Development of instructional materials for imparting knowledge to rural woman regarding utilization of soybean in their diet"** submitted for the degree of **M.Sc.** in the subject of **Home Science Extension Education** (Minor subject : **Sociology**) of Punjab Agricultural University, Ludhiana, is a bonafide research work carried out by **Barkha Garg** (**L-99-H.Sc.-223-M**) under my supervision and that no part of this thesis has been submitted for any other degree.

The assistance and help received during the course of investigation have been fully acknowledged.

RRandhawa 24/7/2001

Major Advisor
Dr. (Mrs.) Ranbir Randhawa
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CERTIFICATE - II

This is to certify that the thesis entitled, **"Development of instructional materials for imparting knowledge to rural woman regarding utilization of soybean in their diet"** submitted by **Barkha Garg (L-99-H.Sc.-223-M)** to the Punjab Agricultural University, Ludhiana, in partial fulfillment of the requirements for the degree of **M.Sc.** in the subject of **Home Science Extension Education** (Minor Subject : **Sociology**) has been approved by the student's Advisory Committee after an oral examination on the same, in collaboration with an external examiner.

RRandhawa 12/9/2001

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ACKNOWLEDGEMENTS

By the grace of Almighty, activity initiated at esteemed Punjab Agricultural University Ludhiana, I am able to bring into light this research.

It is a matter of proud and pleasure for me to undertake the investigation under the able guidance of Dr. (Mrs.) Ranbir Randhawa, Professor, Department of Home Science Extension Education, Punjab Agricultural University for timely advice, active guidance, suggestions, and participation in addition to constructive criticism during the entire course of study. Her efforts in getting the activity critically reviewed so as to bring it into shape is duly acknowledged.

I owe my deep sense of gratitude and profound thanks to the members of my Advisory committee, Dr. (Mrs.) R. Mohindra, Associate Professor, Department of Home Science Extension Education, Dr. (Mrs.) R. Jain, Associate Professor, Department of Food and Nutrition, Dr. Harnek Singh, Associate Professor, Department of Economics and Sociology and Dr. (Miss) G. Goyal, Professor and Head, Department of Home Science Extension Education, Dean PG Nominee for their valuable suggestions, cooperation for successful completion of this investigation.

Special thanks are also due to my parents, sister and brother for selfless sacrifices and providing the needed atmosphere for achieving the goal.

I am greatful to my respondents for timely help during the course of study.

I express my heartiest thanks to dear friend Sukhvir, classmates and all others whose names would not be mentioned but are unforgettable for their encouragement and cooperation in the duration.

Last but not the least services of Mr.Deepak (Oswal Document Centre) Ludhiana and Shri Naresh Dhuria (Auto Printers) Abohar in getting this manuscript computerised are also duly acknowledged.

(BARKHA GARG)

Title of Thesis	:	Development of instructional materials for imparting knowledge to rural woman regarding utilization of soybean in their diet.
Name of the student	:	Barkha Garg
and Admission No.	:	L-99-H.Sc.-223-M
Name & Designation	:	Dr. (Mrs.) Ranbir Randhwa
of Major Advisor		Professor
Major Subject	:	Home Science Extension Education
Minor Subject	:	Sociology
Degree to be awarded	:	M.Sc.
Year of award of Degree	:	2001
Total pages in the Thesis	:	51+ Appendices
Name of University	:	Punjab Agricultural University Ludhiana-141004, Punjab, India

ABSTRACT

Information on scientific developments across the country regarding utilization of soybean in diet is of great importance and needs to be communicated to rural women. The audio visual aids can be the effective communication menas to educate rural women. The present study was primarily designed to develop instructional materials i.e. audio and video cassettes and pamphlet and to test their effectiveness for imparting knowledge on utilization of soybean to rural women. The readability of pamphlet was measured by using the formula given by Flesch (1951). Three understandability and adequacy indices were prepared for testing the understandability and adequacy of the developed instructional materials i.e. audio-video cassettes and pamphlet the responses of the experts were collected and overall mean scores were calculated. The developed instructional materials were used to educate 60 rural women (20 rural women from each three purposively selected villages i.e., Kera Khera, Bahawal Bassian and Panjpeer of Abohar block in district Ferozepur). To ascertain gain in knowledge of rural women with respect to developed instructional materials, knowledge test was administered before and after the treatment. The difference between the post-knowledge mean scores and pre-knowledge mean scores of respondents was calculated and analyzed through paired t-test. The major findings revealed that pamphlet was easy to read and instructional materials i.e. audio and video cassettes, pamphlet were understandable and adequate for imparting knowledge to rural women. Significant gain in knowledge by the respondents through the use of developed instructional materials was observed.

RRandhawa 24/7/2001

Signature of Major Advisor

Signature of Student

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CHAPTER - I

INTRODUCTION

Good nutrition is an indispensable component of healthy life. It is the common denominator of mind and body. The intake of appropriate and adequate food and their effective utilization by the human body is seen as the corner stone of human growth and development. PEM (protein-energy malnutrition) is by far the most widespread nutritional problem affecting mainly children in the preschool age (1-5 years) particularly among the poor socio-economic groups of the population (Devadas *et al* 1993) and is still a major problem in all segments of people of India (Sivapriya and Sarojini 1996).

Food sources of animal protein are of prohibitive prices and the main source of protein for Indian people is of vegetable origin. Therefore, malnutrition in the country will have to be tackled by improving existing vegetarian diets. Pulses and legumes are good sources of protein. But due to ignorance of its nutritive value most of the people especially the poor sections of the society, use it merely as a medium of taking chapati in the form of their meals. That is the reason why people use potatoes and other cheap vegetables mainly as part of their daily diet.

To overcome this grave situation of protein-energy malnutrition, the effective use of soybean foods can go a long way towards correction of dietary protein inadequacies. Soybean with about 43% protein and 20% oil holds promise of meeting the problem of protein malnutrition in population amongst protein

deficient countries (Ali and Bhatnagar 1990). Soyprotein contains all the amino acids essential for human nutrition and is the cheapest source of protein both among animal and vegetable proteins. This is a most important consideration for the major proportion of the people of India who consume mostly vegetarian foods (Mader 1972).

Soyproteins are unique among plant proteins by virtue of their relatively high biological value and balanced essential amino acids pattern. They are abundantly rich in lysine, which is a limiting amino acid in most of the cereals (Singh *et al* 2000). Soyprotein is also suitable to diabetic patients as they contain less carbohydrates. It is also beneficial to those who are allergic to animal protein/milk. Soyprotein can also lower plasma cholesterol level (Ali and Bhatnagar 1990).

Soybean contains more protein than beef, more calcium than milk and more lecithin than eggs. Also it is rich in minerals, vitamins and amino acids (Ensminger *et al* 1983). Hence, soybean has tremendous potential to combat protein-energy malnutrition. The inclusion of soybean in the diets of the Indian population will help in taking care of the deficiencies with respect to protein and energy malnutrition in them.

Soybean, though is rich source of almost all the important nutrients it is not regarded with favour as food in many areas, because of its objectionable flavour or odour. It's poor cooking quality usually hinders its consumption. Actually it has been researched out that the objectionable flavour is not present in beans itself,

rather it develops when cell tissue of cotyledons is damaged in any way in the presence of even a small amount of moisture (Hindon 1977). Therefore Soy-protein is not used properly due to lack of proper knowledge and ignorance, where as this pulse is fully capable of meeting the long term essential amino acids and protein requirements of children and adults. So, there is need to popularize the soybean with correct cooking procedures among the masses in general and rural masses in particular (constituting major part of population). Hence, simplest way to use soybean in our daily diet must be explored so that it gets easily accepted by the rural people. However, Gupta (1972) found that the soybean recipes were accepted by rural mothers and children of Ludhiana district.

The utilization of soybean may be encouraged among the rural masses through extension personnels by effective communication and in a concrete and comprehensible manner. The effective communication depends to a great extent on the choice and use of appropriate teaching method along with teaching aids (Kumari 1988). It was also pointed out by Dale (1969) that audio-visual aids can greatly improve teaching because they can help to make the learning experience memorable. They also cut through the barriers of illiteracy and drive home the message effectively. So, also to disseminate this technology successfully, extension personnels require proper instructional materials.

Print media (like pamphlets etc.) is a powerful media for communicating information to the masses in written form. It is the most popular medium because it is easy to carry, is comparatively cheaper and can be used

according to the convenience of the learners. People usually have confidence in printed page and it can be read and studied at leisure time and kept for future use also.

Training of farm women and farmers involves creation of learning situations by the trainers for various batches of training. It however becomes difficult for the trainers to repeat the same massage with same interest and enthusiasm. In addition, resource persons like scientists; outstanding farmers and extension workers cannot be practically available in all training session and in all training institutes for the obvious reasons. Recording their experiences and views in a little media known as audio cassettes could be done and the same could be used anywhere and also any number of times (Nagaraj and Reddy 1985). This little media better suits to rural women as it takes into consideration their needs, problems, language, comprehension and social norms etc. It can serve at low cost and act as an effective means in transfer of technology.

Video cassette has also become a very powerful communication media Both picture and sound reaches an eye and ear simultaneously to make the message more effective. Video tape attracts and hold the attention of masses. One of video's prime attributes is its suitability for many different environments. It can be broadcast, cable cast, mailed or handed from person to person or group to group (Smith 1991). . It is now being effectively used for supporting developmental programmes as well. Directorate of Extension, Ministry of Agriculture,

Government of India has been quick to grab the opportunity and integrate video into the training and visit system of extension (Keshava and Kumar 1996).

Hence, the use of audio and video cassettes and pamphlets can go a long way in disseminating the knowledge regarding utilization of soybean to the masses to improve their daily diet to combat presumed protein +energy malnutrition. The use of three instructional materials makes learning easy and effective. However, the major problem being confronted by the extension personnel and change agents in this task is the improper availability of appropriate instructional materials to impart the requisite information to their clientele groups effectively. Hence, there is a dire need of developing appropriate instructional materials to disseminate this technology successfully.

Keeping in view the above facts the study entitled, "Development of instructional materials for imparting knowledge to rural women regarding utilization of soybean in their diet" has been undertaken with the following objectives.

1. To develop instructional materials i.e. audio and video cassettes and pamphlet to impart knowledge among rural women regarding utilization of soybean.
2. To test the effectiveness of developed instructional materials.

Significance of the Study

The developed instructional materials related to utilization of soybean in diet may prove to be a great asset to impart knowledge regarding nutritive value

of soybean among rural masses. These can be utilized for disseminating soybean related information in general and also on soybean day (special day), nutrition education programmes and Kisan Melas in particular.

The outcomes of the research would provide a new dimension to the department by equipping its extension personnel, teachers and researchers with a comprehensive training kit consisting of varied instructional aids i.e., audio and video cassettes, along with pamphlet to use it for extension purposes.

In addition, the developed instructional materials could be multiplied and distributed at different extension training centres to be used by instructors during training for educating rural women.

Limitations Of The Study

1. The study was limited to rural women only.
2. The message was limited to only importance and four recipes of soybean.
3. The panel of judges was limited to ten experts.
4. The opinion of judges was limited to the extent to which they responded objectively to self determined indices.
5. The effectiveness of developed instructional materials was determined on limited number of rural women of only three villages.

Operational Definitions

1. Instructional materials

It referred to the educational materials (viz., pamphlets, audio cassettes and video cassettes) used to supplement verbal communication for imparting knowledge

effectively with respect to utilization of soybean in daily diet.

2. Pamphlet

It referred to a folded paper having illustrations and written material giving information on utilization of soybean in rural diets.

3. Audio cassette

It referred to a small flat plastic case containing tape for playing or replaying recorded message (sound and music) on utilization of soybean in routine diets of rural masses to educate rural women.

4. Video cassette

It referred to a small flat plastic case containing magnetic tape for playing or replaying recorded information (sound and picture) on utilization of soybean in routine diets of rural masses to impart knowledge to rural women.

5. Pre-knowledge test

It referred to knowledge quantified in terms of scores of a given test gained by the respondent before the exposure of the treatment.

6. Post-knowledge test

It referred to the knowledge quantified in terms of scores of a given test gained by the respondent after the exposure of the treatment.

7. Gain in knowledge

It referred to the difference in knowledge between the post-knowledge score and pre-knowledge score of the respondent.

8. Effectiveness

It referred to the ability of developed instructional materials i.e. audio and video cassettes and pamphlet to communicate the desired message i.e. utilization of soybean in routine diets of rural masses in terms of gain in knowledge.

9. Treatment

It referred to the selected method i.e. lecture supplemented with specific developed instructional material by which the message related to the utilization of soybean in the diet was imparted to the rural women.

10. Readability

It referred to the easiness of the written material of the developed pamphlet on utilization of soybean in the diet by the respondents.

11. Understandability and adequacy

It referred to the understandability and adequacy of the developed instructional material i.e. audio and video cassettes and pamphlet for the message.

CHAPTER - II

REVIEW OF LITERATURE

The present chapter gives a brief review of the theoretical and research studies available related to the present study. The literature cited has been grouped into two different sections, which are as follows:

2.1 Studies related to importance of soybean in human diet.

2.2 Studies related to effectiveness of instructional materials (pamphlet, audio cassette and video cassette).

2.1 Studies Related to Importance of Soybean in Human Diet

According to Agrawal (1970) soy protein is of high quality and comparable to milk protein which is the ideal and the best-balanced protein for edible purposes. It's cost is much lower than that of animal protein. Two table-spoons in a glass of water is all that is required of a full-fat soy flour pleasantly flavoured to make a refreshing beverage similar to milk. Two glasses of this every day meet the protein requirement of an adult. Thus, soybean is a golden bean, rather 'Sona Bean' with immense potentialities for the Indian population.

A study was conducted by Maley (1970) on people's response to soybean preparations. Fourteen preparations including those for breakfast, lunch and beverages were prepared. Water soaked and deep fat fry soy pulse was liked most. Salted dishes were preferred over sweet dishes. Since, most of the soybean preparations were liked by all groups including adults, these can be incorporated in

the daily diet through effective trials of the various recipes of soybean. The investigator also suggested, since soybean preparation were liked by children, these could be ideally utilized for nutritious mid-day meal programmes for children.

Rangnekar (1970) studied on soyflour incorporating it with wheat flour as chapati ingredient for dietary supplementation. It was concluded that soyflour can be profitably used as ingredient of chapaties with a proportion of 20 to 35 percent to boost the daily protein intake of poorer masses.

A study was conducted by Gupta (1972) on acceptance of soybean preparations by preschool children and their mothers of Ludhiana district and attitude of mothers for its use. Sixty pre-school children having their own mothers were randomly selected. Four preparations, two of daily use and two of special occasions were developed and standardized. The attitude of the mothers were favourable for all the soybean dishes and were accepted by children also, however some mothers showed unfavourable response for cooking the dishes which involved time and labour. Dishes saltish in nature were more acceptable to both mothers and children.

Kumari (1974) undertook an investigation on availability of amino acids from food supplemented with soybean. Four commonly consumed food preparations namely, *parantha, halwa, laddus* and *nan khattai* were supplemented with 30 per cent to 50 per cent soyflour in order to improve their protein quantity and quality. The supplemented recipes were as acceptable as the unsupplemented ones. There was a considerable increase in protein content, lysine content, total

methionine content and available cystine content in the supplemented recipes with soyflour as compared to unsupplemented or regular recipes.

Manna and Reddy (1985) mentioned that soybean is a leguminous crop rich in both protein and oil content. It contains about 42 per cent protein, 26 per cent carbohydrate, 20 per cent oil, 4 per cent minerals and 2 per cent phospho-lipids which has high biological value for human being and animals. It also contains two important amino acids like lysine and vaniline, thus considered as complete in composition of amino acids as that of meat protein. The milk extracted can be substituted for cow's milk. Soybean being a leguminous crop, enriches the soil fertility status by fixation of atmospheric nitrogen. Therefore, raw soybean has to be popularised as food, milk and pulse etc. for better utilization of soya grains. The food value and economics of growing soybean must be well understood.

A study was conducted on soydhal blends and the shelf life of soydhal. Sago flour or rice flour was added to soydhal at 5 per cent and 10 per cent levels. Pigeonpea, *mung, urd* and lentil dhals were added to soydhal at 5, 10, 15 and 50 per cent proportion respectively. It was concluded by blending soydhal with rice flour and sago flour and also other dhals, the protein content of the product and the final taste were improved (Gandhi and Ali 1986).

Jayalakshmi and Neelakantan (1987) undertook an investigation on the acceptability of sorghum - soya blends in South Indian dishes and their keeping quality. It can be concluded from the study that soy flour could be incorporated with sorghum flour upto 50 per cent level for making deep fat fried products like *methu,*

pakkoda and *murukka*. For the preparation of *puttu, laddu, senari, upma* and *roti*, soy flour could be blended with sorghum flour only upto 30 per cent level. The blends could be stored in tin containers for a period of two months. Incorporation of soyflour not only improved the nutritional quality of the sorghum flour but also improved its keeping quality.

An analysis was conducted by Khan (1987) on widespread malnutrition in India. The Indian diet is short of 1250 calories and contains only 45 gms of protein which is of inferior quality. The damage done by this malnutrition is not only physical but also psychological and mental and often results in irreparable damage to both growth and development of body. Moral conscience demands something about it, and that too quickly, because healthy nationals are the wealth of a nation. He concluded that there is a dire need to demonstrate the importance of pulses to the public through the media of television, radio and newspapers as the masses are ignorant of its nutritive value.

Kanchana *et al* (1990a) conducted a study on the formulation of high protein snack foods using soybean. Results revealed that soybean could be used for the preparation of a high protein sweet snack item. Processing of the bean was necessary to eliminate the trypsin inhibitor activity. Soyballs prepared were found to be nutritionally and economically good. The soyballs provided 21 gms of protein, 9 gms of fat, 55 gms of carbohydrate and 385 Kcal of energy per 100 gms.

A study was conducted by Kanchana *et al* (1990b) on formulation of high protein snack foods using soybean. The results of the study revealed that snack

foods could be prepared from both soydhal and soybean. The antinutritional factors were completely eliminated in the preparation of savory items. The savory items were found highly acceptable by both adults and children. The snack items provided 41 gms of protein per 100 gms of the product.

A study on sensory evaluation of *soy-dhokla* was undertaken by Kanekar *et al* (1990). *'Dhokla'* products prepared from batter of soybean flour, either exclusively or mixed with bengal gram flour and also wet ground soydhal, fermented with and without curds were subjected to sensory evaluation by inhouse trained judges for flavour, taste, texture and overall quality. Statistical analysis of the data revealed that the product made out of soyflour mixed with bengal gram flour and fermented without curds was acceptable and almost reached to the score of the traditional *'dhokla'*. The odd flavour of soybean was totally replaced by pleasant fermented flavour. The fermentation process thus could be fruitfully used to make soybean popular in Indian diet.

An investigation was conducted by Neerja *et al* (1991) on the preparation of poshak : a soybased supplementation food. Soybean though is a rich source of two important food nutrients, viz. protein and oil, but due to antinutritional factors, the raw soybean has to be processed to eliminate these harmful factors. Roasted beans can be used for making simple traditional *sattu* with wheat and bengal gram to add the third major component, the carbohydrates (starch) and to get rid of beany flavour. The poshak made by blending soybean with these not only enriches sattu like material from protein but also from good quantity

of fat with essential fatty acids. The preparation of poshak is simple and can be prepared at home and also the poshak is cheaper than the supplemented food available in the market.

An investigation was conducted by Sharma and Subramanian (1991) on the soy-wheat flour blends in chapati making. Protein malnutrition is a serious problem of people whose diet consist mainly of cereal or starch foods, has aroused keen interest in fortifying chapatis. Of the protein rich foods available, soy flour is most attractive in price, quality and quantity. Two varieties of soy-flour were blended with wheat flour in 10, 15, 20 and 25 per cent proportions and taken for study of chemical constituents. It was observed that while blending soyflour with wheat flour there was appreciable increase in all the nutrients present and thereby its nutritional value. Trypsin inhibitor activity also decreased during chapati making process.

According to Yee (1994) soybean is unique among the oilseeds in that it is a good source of both high quality oil and protein. Numerous studies have demonstrated the nutritional importance of soybean in health and disease prevention. Soyprotein consumed as traditional soyfoods or as ingredients in formulated foods, have contributed significantly to the nutritional well being of much of the world's population. Many recent studies have highlighted the hypocholesterotenic and possible anticarcinogenic effect of soybean and its products. Soy fibers have been shown to improve glucose tolerance and insulin response in diabetic patients. Soybean also have positive impact on osteoporosis,

renal diseases and paediatric diarrhoea, besides providing low cost high quality nutrients to needed population in developing countries.

Chauhan and Sharma (1997) conducted a study on fortification of fruits and ginger with soybean for protein rich toffees. The processing parameters for preparation of fruit and ginger soy toffees for acceptability of soybean were studied and observed good results in relation to develop more nutritious products. The study points out the possibility of supplementation of natural ingredients like soybean or other legumes, cereals to the fruit pulps for fruit based toffee making.

Beatrice *et al* (1998) mentioned in his study that per capita availability of food in India has not met the recommended allowances of the Indian Council of Medical Research (ICMR) resulting in under nutrition and malnutrition. To overcome this grave situation a search for new conventional source of protein is sought for. Soybean holds great promise to meet the present day nutritional requirements of various population groups. His study on development of selected built-in culinary foods using defatted soyflour revealed that incorporation of defatted soyflour increased the cost of product marginally by 20 paise while there was a considerable increase in protein content.

Deshpande and Vaidehi (1999) studied the nutritional benefits of cereal products enriched with fullfat and defatted soyflours. Soyflour is comparatively easy to process and can be used in Indian diet as recognised means of enhancing the nutritive value of cereal based staple products as the amino acids of soy protein and cereals supplement each other. Soyflour incorporation at 20% level

in some staple cereal products showed that nutritive value and protein quality improved significantly. Full fat soyflour blended products have the great potentiality for alleviating the protein-calorie malnutrition. This would solve the nutritional problems of our country to a greater extent without changing the food habits or incurring excessive expenditure.

According to Riaz (1999) soybean is a very rich source of essential nutrients and one of the most versatile foodstuffs. He mentioned in his article that over last two decades, researchers have documented the health benefits of soy protein, especially for those who take soy protein daily. Soy protein benefits in reducing the cholesterol level, menopause symptoms and lowering the risk of several chronic diseases i.e., cancer, heart disease and osteoporosis. It is also an excellent source of good quality protein, is comparable to other protein foods and is suitable for all ages (infants to elderly). It provides an alternative source of protein for people who are allergic to the protein in cow's milk. Soy protein is highly digestible (92-100%), contains all essential amino acids and equals to proteins quality of milk, meat and eggs. Moreover, soybean is acceptable in almost all diets.

A study was conducted by Singh *et al* (2000) on nutritional evaluation of soy-fortified biscuits. This investigation was undertaken to use defatted soy flour in preparation of biscuits in order to improve their nutritional quality. Addition of soy flour in the recipe increased the protein, ash, crude fibre, calcium, phosphorus, iron, sugar and available lysine contents of biscuits. No trypsin inhibitor activity

was found in soy biscuits. Incorporation of soyflour improved the digestibility. The protein efficiency ratio (PER) of soy biscuits had improved to a great extent.

From the above-mentioned studies we conclude that soybean has tremendous potential to meet protein energy deficiencies and it can be easily incorporated in the Indian diet. But the studies highlight ignorance of the rural masses about nutritive value of soybean pulse. So, we conclude that rural women need to have knowledge about the importance and preparation of soybean to enrich their diet with required nutrients.

2.2 Studies Related to Effectiveness of Instructional Materials (Pamphlet, Audio Cassette and Video Cassette).

Readability of farm information folders was studied by Siddaramaiah *et al* (1976) in terms of time taken to read 100 words in folders containing 9 to 10 words per sentence. The findings revealed that readability was related to size of letters and sentence length. Thus, it was suggested that the readability of the folders should be increased either by increasing the size of letters or by decreasing the length of sentence or resorting to both these measures.

Bhandal (1978) conducted a study on Home Science students of Punjab Agricultural University, Ludhiana and the message was on "Foods and Nutrition". The three treatments viz. taped lecture (T_1), cyclostyled lessons (T_2) and cyclostyled lessons plus taped lecture (T_3) were randomly assigned to three experimental groups. The objective type test was administered to each group immediately and one week after the treatment. The finding revealed that

comprehension of message was more for T_3 after one week of the treatment than for T_1 and T_2. The treatments T_1 and T_3 differed significantly from each other. There was positive and significant correlation between scores obtained immediately after the treatments and scores obtained one week after the treatments.

Bajaj and Mehta (1979) conducted a study on effect of different techniques on the knowledge and practices of nutrition. Nutrition education was imparted to the students between the age group of 8-13 years. The nutrition education was imparted using talks, dramatized songs, film strips etc. The results indicated that the mean scores of control group ranged from 8 to 16, where as those of the experimental group ranged from 10-20. Out of possible total of 20 points the mean scores were 10.92 and 15.77 of control and experimental group, respectively. The difference was found to be significant at 1 per cent level of significance.

Bhardwaj and Hansra (1983) studied on effectiveness of some selected modes of communication in imparting knowledge to the members of Ladies Charcha Mandals in Ludhiana District. The modes selected for the study were printed material only, tape recorded message followed by group discussion and tape recorded message only and the content was on immunization. All the selected modes were found to be significantly effective for imparting knowledge, but the printed material followed by group discussion was found to be the most effective mode for communicating knowledge to the respondents. It was also inferred from the intra modes comparisons that the groups who had the treatment along with group discussion scored higher mean gain score than the group who had

treatment without discussion.

Manchanda and Hansra (1983) studied on gain and selection of nutritional knowledge by the members of Ladies Charcha Mandals by the use of selected extension teaching methods. It was concluded that there was a significant gain in knowledge and retention of gained knowledge through selected extension teaching methods viz. lecture method, printed material followed by group discussion method, film and slide-tape presentation when compared with control group. It was further found that printed material followed by group discussion method was more effective than the lecture method. The other three methods were found almost equal in their effectiveness regarding gain in knowledge and retention in knowledge.

Channegowda and Jalihal (1984) in their study on indirect influence of print information under different communication situations indicated that the leaflets were most effective in creating indirect influence among the illiterate farmers, the form involving printed information were better than the distribution of leaflets alone.

The effectiveness of selected media combinations was tested by Mangat (1984) and the respondents were farmers of the Farmer Training Centre, Ludhiana. The treatments selected for the study were film + discussion, slide tape + discussion, demonstration + discussion and lecture + discussion. The message was on improved techniques of grain storage. Findings revealed that the media combination of demonstration + discussion was the most effective in gain and

retention of knowledge with the highest mean scores, percentages increase and rank order followed by film + discussion, slide tape + discussion and lecture + discussion.

Nagaraj and Reddi (1985) tested the relative effectiveness of lecture, tape-recorded lecture and their combinations with selected visuals. The study revealed that tape-recorded lecture was superior to lecture method of presentation in making farmers to gain more knowledge. It was equally effective with respect to retention of knowledge and symbolic adoption. Thus, this research has identified that use of tape-recorded has great potential for extension work. These could be very conveniently used under situations where the experts are in scarce. Their recorded lectures could be used be get extended advantages of and expert lecture.

A study was conducted by Kumari (1986) on effectiveness of lecture supplemented by leaflets in teaching selected topics of Home Science to adult education workers of Ludhiana district. The findings indicated that the lecture supplemented by leaflets was very much effective method of teaching than lecture alone in providing information regarding household aspects and adult education to the farm families.

A study was conducted by Bhangoo (1987) on the effectiveness of lecture/lecture demonstration, printed material, video film and their combinations to teach adult rural women. The study reported that although the three selected methods and their four combinations were significantly effective in gaining as well as retaining knowledge. Yet a combination of methods helped to gain as well as

retain significantly more knowledge.

The effectiveness of selected graphic aids was tested by Kumari (1988) on rural women of Ludhiana district. The message was on "sun drying of vegetables". The treatments selected for the study was taped message supplemented with flash cards. There were two groups of the respondents and treatments selected for the study were randomly assigned to the control and experimental group. The mean knowledge score of experimental group with the treatment of taped message and flash cards was higher than the mean knowledge score of the control group with taped message alone. It was concluded that taped message along with flash cards was more effective for educating rural women than taped message alone.

Puri and Mehta (1988) in his study revealed that lecture, demonstration and practice classes when supplemented with audio-visual aids like films, posters, flannel graphs, models and actual food stuffs can enhance the knowledge scores, attitude and skills of the pre-school teaching more effectively and efficiently.

Kaur T (1990) conducted a comparative study on dramatized song and video programme. Respondents were selected from four schools of age group of 11 to 12 years. They were divided into four groups to compare the two methods and comparison of rural and urban respondents. Dramatized songs on basic nutrients of food were prepared and video film was also shot on the same subject. There was significant gain in knowledge through dramatized sons and video programme.

However, the gain in knowledge was more through dramatized songs than the video programme and urban respondents gained more knowledge than rural respondents.

Kaur R (1995) conducted a study on effectiveness on audio and video cassettes for imparting knowledge regarding breast feeding to rural women. The study revealed that the video cassette was found to be more effective than the audio one. However, audio cassette did prove beneficial in imparting the knowledge to the rural women.

Kaur N (1998) conducted an investigation on the development of training package containing instructional materials viz. photographs, actual specimens, charts and pamphlet etc. for imparting knowledge on infant care practices to rural women of district Faridkot. Two pamphlets were developed for imparting knowledge related to child bathing and diaper folding practices to rural women. Both the pamphlets on bathing and diaper folding practices were found easy to read with reading ease scores of 81.76 and 81.15 respectively. The pamphlets were also found to be understandable and adequate for imparting knowledge to rural mothers.

The studies reviewed indicate that pamphlet, audio cassette and video cassette are very effective instructional materials to impart required information to rural women.

CHAPTER - III

MATERIALS AND METHODS

The present investigation was undertaken on development of instructional materials for imparting knowledge to rural women regarding utilization of soybean in their routine diet. For ease of discussion, the procedure adopted for conducting the study has been categorized in the following manner.

3.1 Development of instructional materials and training package/kit

3.1.1 Development of contents

3.1.2 Selection of instructional materials

3.1.3 Development of instructional materials

3.1.4 Development of training package/kit

3.2 Development of indices to measure the understandability and adequacy of instructional materials i.e. pamphlet, audio cassette and video cassette

3.3 Development of knowledge test

3.4 Measurement of readability of pamphlet

3.4.1 Calculating the reading ease score

3.5 Measurement of understandability and adequacy of developed instructional materials i.e. pamphlet, audio cassette and video cassette

3.6 Determining the effectiveness of developed instructional materials for disseminating knowledge to rural women on utilisation of soybean in their routine diet

3.6.1 Selection of respondents for determining the effectiveness of developed instructional materials

3.6.2 Selection of treatment

3.6.3 Effectiveness of developed instructional materials in terms of gain in knowledge

3.1. Development of instructional materials and training package/kit

Major problem confronting the communicators is the improper availability of appropriate aids in a composite form, for the learning situation. The use of audio-visual aids results in greater acquisition of knowledge of facts and ensures longer retention of the information gained. A need was therefore, felt to develop instructional materials viz. pamphlets and cassettes on utilization of soybean in rural diets. The investigator referred to all kinds of available literature, which helped to evolve the following steps for development of instructional materials.

3.1.1 Development of contents

The relevant literature like books, journals, magazines etc. were consulted apart from the thorough discussion with the experts from Food & Nutrition for developing the contents for instructional materials. These contents included importance of soybean in routine diet and selected four recipes of soybean. They selected contents were then given to experts of Food and Nutrition and Home Science Extension Education to judge their correctness and completeness. The contents were modified as per their suggestions.

The four recipes of soybean were tried by the investigator and were got adjudged by the experts related to the discipline of Home Science. Then, the modifications in the preparation of recipes were made accordingly. The contents thus developed are given in appendix-I. These were translated into Punjabi language with the help of language experts.

3.1.2 Selection of instructional materials

Audio and video cassettes and pamphlet were selected as instructional materials for imparting knowledge to rural women regarding the importance and utilization of soybean in routine diet of rural masses.

3.1.3 Development of instructional materials

The following instructional materials i.e. pamphlet and audio and video cassettes were prepared for imparting information to rural women regarding utilization of soybean in routine diet.

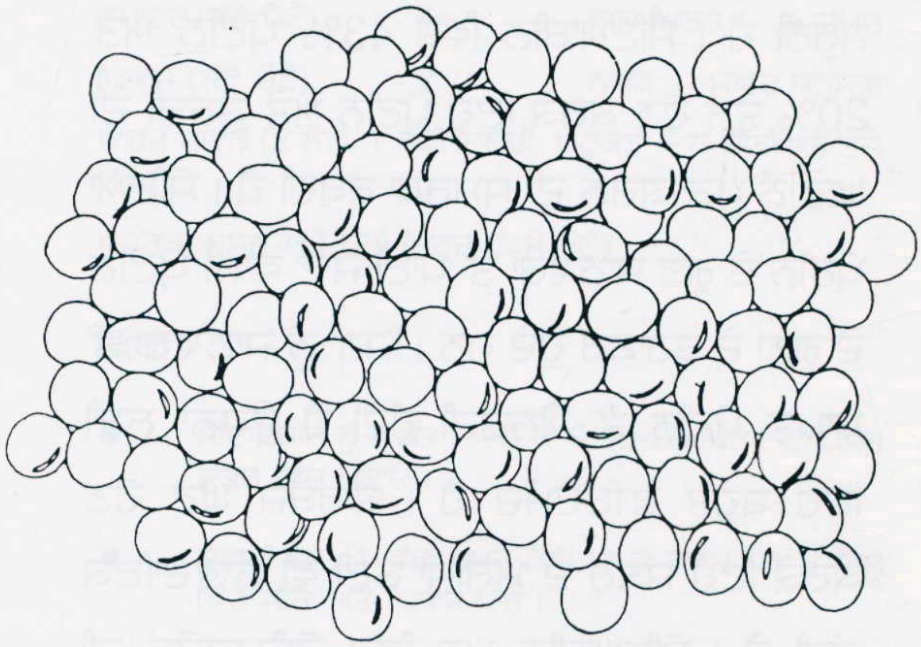
a. Pamphlet

A pamphlet was prepared on the utilization of soybean through four selected soybean recipes, taking into consideration the important elements for the development of pamphlet such as size and illustration etc. as per Hass and Packer (1968). The developed contents (in Punjabi) were transformed in the form of pamphlet, which is attached herewith. The English version of the same is given in appendix-II.

b. Audio and video cassettes

The audio and video cassettes were also prepared on the utilization of

ਸੋਇਆਬੀਨ ਦੀ ਖੁਰਾਕੀ ਮਹੱਤਤਾ ਅਤੇ ਪਕਵਾਨ



ਹੋਮ ਸਾਇੰਸ ਪਸਾਰ ਸਿੱਖਿਆ ਵਿਭਾਗ,
ਪੰਜਾਬ ਐਗਰੀਕਲਚਰਲ ਯੂਨੀਵਰਸਿਟੀ,
ਲੁਧਿਆਣਾ ।

Pamphlet : Regarding Importance of Soybean in diet and its recipes

soybean through four selected recipes. They were developed by keeping into consideration the various important elements for their effective preparation as per Shukla and Hansra (1986).(Plate I and PlateII)

The developed contents were transformed into audio script and video script in Punjabi language. The scripts were given to the experts of Home Science Extension Education and Extension Education for judging their appropriateness and completeness and the necessary modifications were made. The audio and video cassettes were then developed on the basis of finalized scripts. (Appendix III a & III c). The English version of the same is also given in (Appendix III b & III d).

3.1.4 Development of training package/kit

The developed instructional materials (i.e. Pamphlet, audio cassette and video cassette) can be used in future for imparting knowledge to rural women regarding utilization of soybean in routine diets of rural masses. Keeping in view the importance of storage of developed instructional materials, a wooden kit of smallest possible in size and light in weight was got prepared. The training package/kit is to help the extension personnel/trainers who can easily transport the instructional materials to remote areas or from one place to another. (Plate III, Plate IV & Plate V).

3.2 Development of indices to measure the understandability and adequacy of instructional materials i.e. pamphlet, audio cassette and video cassette.

Three understandability and adequacy indices were developed in order to measure the understandability and adequacy of pamphlet, audio cassette

Plate I View of video cassette

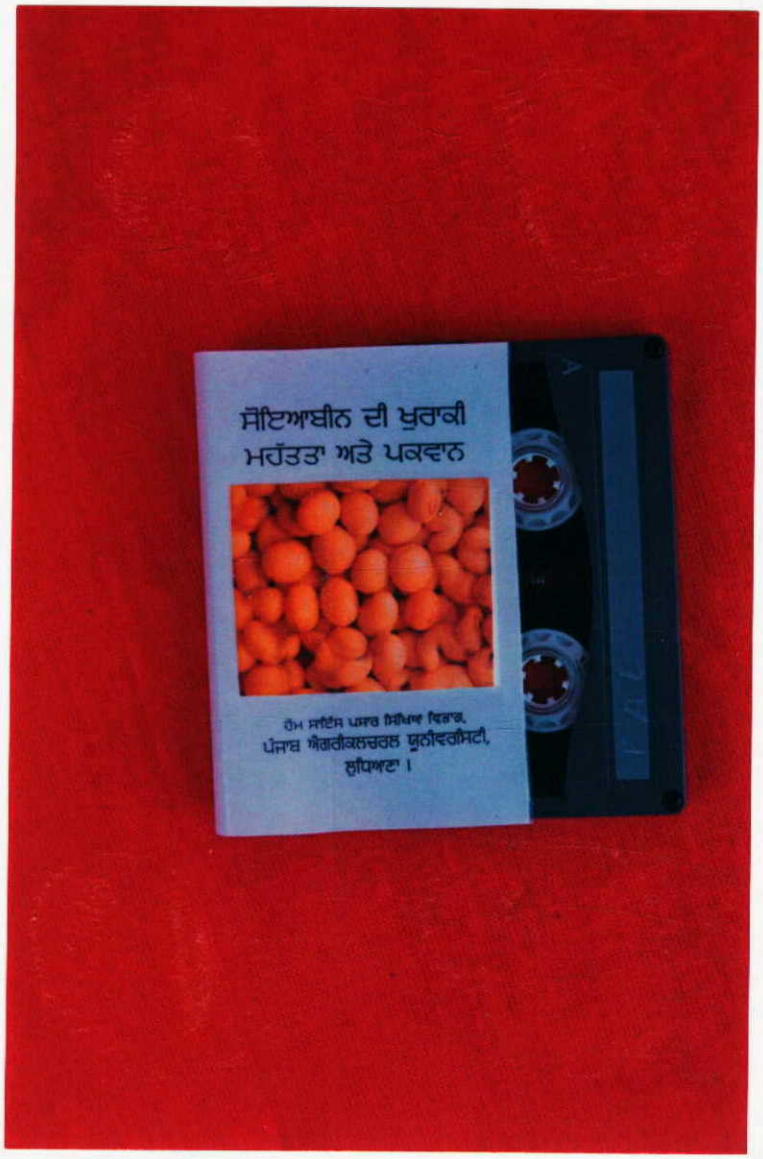


Plate II View of audio cassette

Plate III Front view of training kit

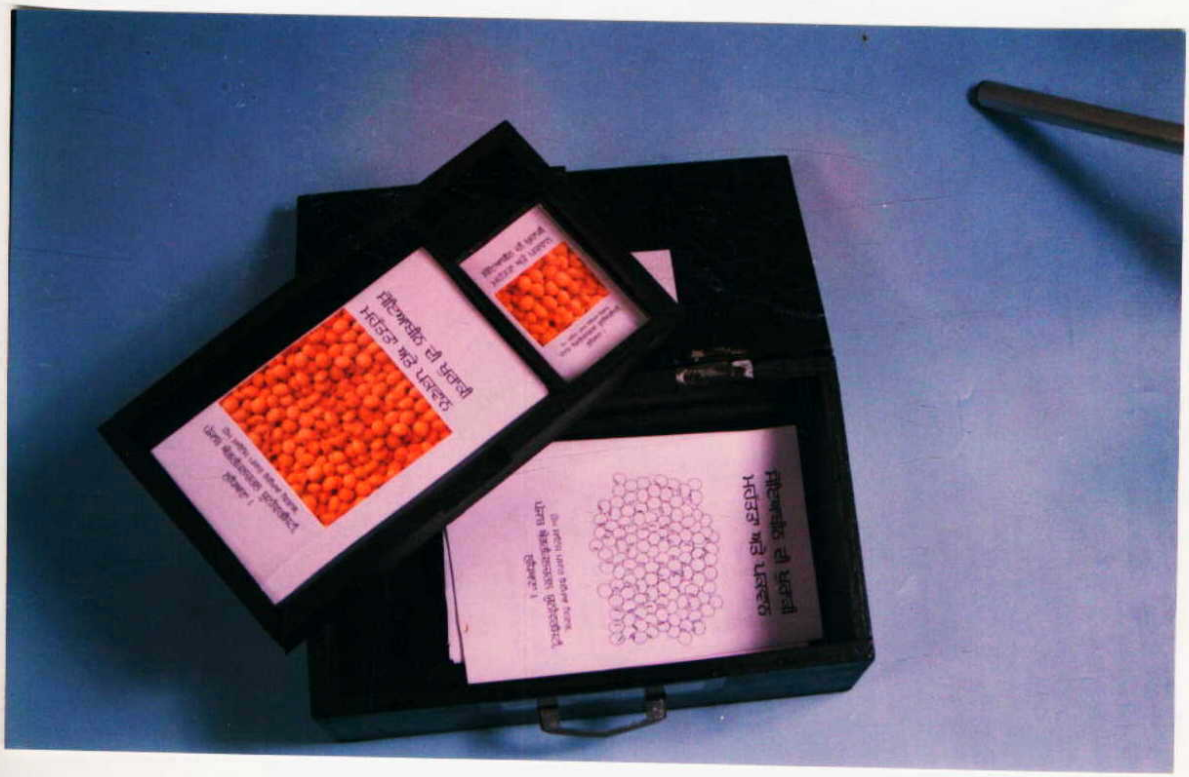


Plate IV View of detachable part of training kit

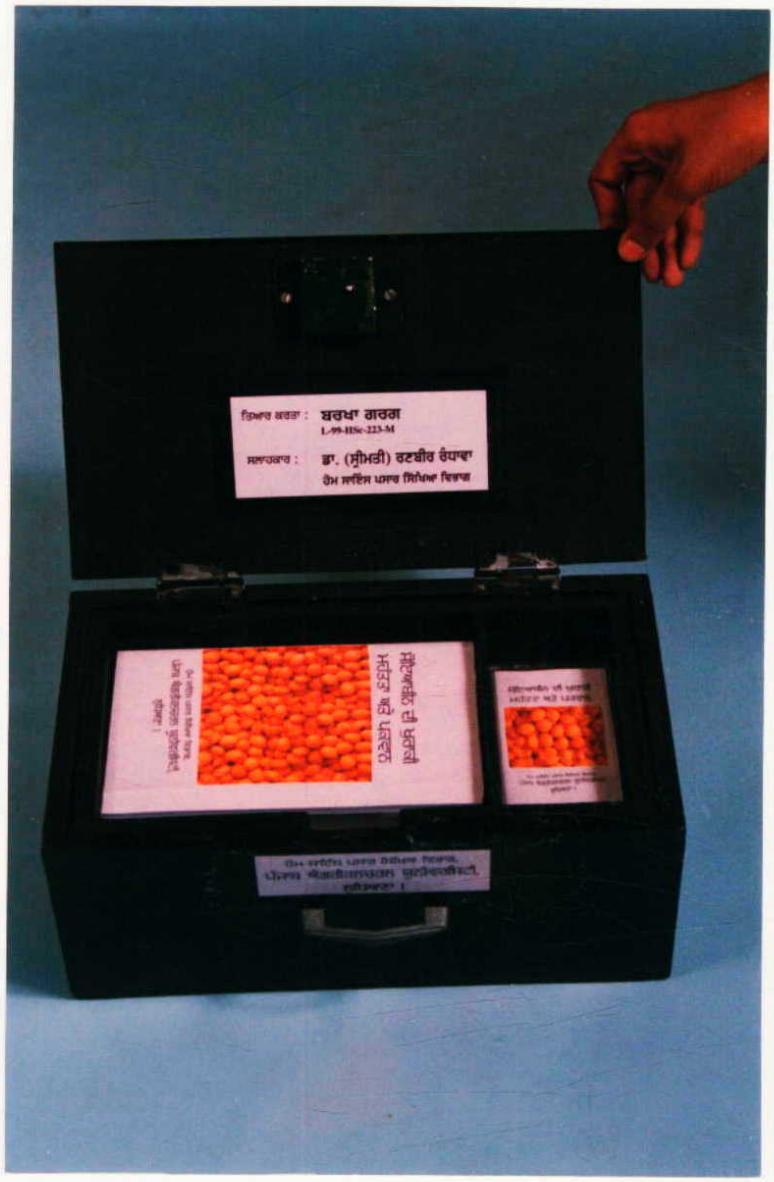


Plate V Divisions of training kit in different parts for the storage of audio cassette, video cassette and pamphlet

and video cassette as per Haas and Packer (1968) and Shukla and Hansra (1986). The indices were given to the experts from the field of Home Science Extension Education and Extension Education, PAU, Ludhiana The suggestions were then incorporated to improve the indices.

The three developed indices regarding imparting of knowledge related to utilization of soybean to rural women were as follows : (Appendix IV)

Index A

The index consisted of nine statements to evaluate the understandability and adequacy of pamphlet.

Index B

The index included ten statements to evaluate the understandability and adequacy of audio cassette.

Index C

The index for the video cassette contained ten statements for judging its understandability and adequacy .

3.3 Development of knowledge test

In order to ascertain the effectiveness of developed instructional materials i.e. pamphlet, audio cassette and video cassette related to utilisation of soybean in routine diets of rural masses, an objective type knowledge test was prepared to measure gain in knowledge of respondents. The test constituted a combination of true-false, multiple choice and fill in the blanks, items. The details of the number and type of test items selected for the knowledge test is elicited in

table 3.1. All the test items had a score of one for each correct response. The developed test and the contents related to utilization of soybean were given to experts of Food and Nutrition and Home Science Extension Education for judging the concreteness and completeness of the developed knowledge test. Necessary improvements were made as per the suggestions of the experts.

The developed knowledge test was pretested on 10 rural women in a Pakki village of Abohar Block representing the same characteristics as that of the rural women of the selected villages for the study in order to find out the understandability and the response of the respondents to the questions included in the knowledge test. Suitable modifications in the formation and structure of the questions were made as per the responses of the respondents (Appendix V).

Table 3.1 A detail account of the number and type of test items selected for knowledge test

Topic	True false items (No.)	Multiple choice items (No.)	Fill in the blanks items (No.)	Total items (No.)
Soybean -Its importance and recipes	6	5	5	16

3.4 Measurement of readability of pamphlet

The readability of pamphlet was measured in terms of its easiness for reading. According to Flesch (1951) readable means, "easy or interesting to read".

The reading ease of the developed pamphlet regarding utilization of soybean in routine diets of rural masses was determined by taking into

consideration the steps and formula as suggested by Flesch (1951) is as follows :

i. If the piece of writing is short, apply the readability test to all the material.

ii. Determine the number of syllables per 100 words (word length)

iii. Determine the average number of words per sentence (Sentence length).

Formula

Reading Ease Score (RES)

RES = 206.835 - (0.846 WL + 1.015 SL)

3.4.1 Calculating the reading ease score

The reading ease score of the pamphlet was determined in the following manner with the help of Punjabi language experts.

i. Application of readability test

The total material of the pamphlet was taken into account for determining the reading ease score.

ii. Determination of word length (WL)

The average number of syllables per 100 words in the pamphlet were determined

iii. Determination of sentence length (SL)

The average number of words per sentence in the pamphlet was calculated.

iv. Calculating Reading Ease Score of the Developed Pamphlet.

RES = 206.835- (0.846 WL + 1.015 SL)

v. Degree of Readability of the Pamphlet

In order to interpret the degree of readability of the developed pamphlet the description table given by Flesch (1951) was used which is as follows:

Description Table : Degree of readability

Reading ease score	Description style
90-100	Very easy
80-90	Easy
70-80	Fairly easy
60-70	Standard
50-60	Fairly difficult
30-50	Difficult
0-30	Very difficult

3.5 Measurement of understandability and adequacy of developed instructional materials i.e. pamphlet, audio cassette and video cassette.

The three developed indices (Index A, Index B and Index C) were administered to the panel of ten experts in order to measure the understandability and adequacy of instructional materials. They rated their responses regarding the developed instructional materials i.e. pamphlet, audio cassette and video cassette, separately with respect to various characteristics to be considered for measuring their understandability and adequacy for imparting information. Scores were

awarded to the various responses on three point scale i.e. appropriate, some what appropriate and not appropriate. These responses were assigned weightage of three, two and one scores, respectively. These scores were computed and mean was worked out.

3.6 Determining the effectiveness of developed instructional material for disseminating knowledge on utilization of soybean in routine diets of rural masses.

3.6.1 Selection of respondents for determining of effectiveness the developed instructional materials

The developed instructional materials were field tested in purposively selected villages as per the convenience of the investigator viz. Kera Khera, Bhawal Bassian and Panjpeer of Abohar block of district Ferozepur. A list of rural women who could read and write and were actively participating in kitchen activities was prepared for each of the three selected villages. Out of these three lists 20 rural women were randomly selected from each of the three selected villages to study the effectiveness of developed instructional materials.

3.6.2 Selection of treatments

The teaching method used by the investigator for testing the effectiveness of developed instructional materials for imparting knowledge to rural women regarding utilization of soybean in routine diet of rural masses was discussion supplemented by developed instructional materials. The investigator was conscious about the uniformity of discussion in all the three treatment groups.

Villages	Treatment
Bhawal Bassian	Pamphlet + discussion
Kera Khera	Audio Cassette + discussion
Panjpeer	Video cassette + discussion

3.6.3 Effectiveness of developed instructional materials

The effectiveness of developed instructional materials was determined in terms of gain in knowledge. The pre-knowledge test was administered to the selected respondents before giving the selected treatment. The treatments were then given to the selected respondents. Post knowledge test was administered to respondents immediately after the treatment for obtaining post test scores of the respondents. The same knowledge test was used as pre-test and post-test for gain in knowledge.

The difference between post-test and pre-test scores for each respondent was worked out in order to know the amount of knowledge gained by respondents after the treatment.

Gain in knowledge = Post test scores - Pre test scores

The data were analysed by the paired t test which was applied to find out the significant gain in knowledge of the respondents.

Formula :

$$t = \frac{\bar{d} - 0}{S/\sqrt{n}}$$

Where

$$S^2 = \frac{1}{n-1} \sum_{i=1}^{n} (d_i - \bar{d})^2$$

$\bar{d}$ = Mean of differences

n = Total number of respondents

CHAPTER - IV

RESULTS AND DISCUSSION

The results of the present study entitled, "Development of instructional materials for imparting knowledge to rural women regarding utilization of soybean in their routine diet" have been reported under the following headings :

4.1 Readability of pamphlet

4.2 Measurement of understandability and adequacy of pamphlet

4.3 Measurement of understandability and adequacy of audio cassette.

4.4 Measurement of understandability and adequacy of video cassette.

4.5 Effectiveness of developed instructional materials in training package/kit in terms of gain in knowledge.

4.1 Readability of the pamphlet on, "Soybean-Its importance and recipes".

Table 4.1 Degree of readability of the content of pamphlet on 'Soybean-Its importance and recipes'.

Total no. of sentences in pamphlet	Total no. of words in pamphlet	Total no. of syllables in pamphlet	Average no. of syllables per 100 words (WL)	Average no. of word per sentence (SL)	Reading ease score	Readability
90	708	928	132.34	8	86.76	Easy

Table 4.1 reveals the readability of the contents of the developed pamphlet on utilization of soybean in routine diet of rural masses. The reading ease

score for the pamphlet was 86.76. Then, this value was compared with description table prescribed by Flesch (1951) already explained in methodology. The readability of the pamphlet was found to be easy.

It can be concluded on the basis of reading ease scores that the pamphlet was easy to read and proves to be of great utility for imparting information to rural women on utilization of soybean in routine diet to rural women.

Bhangoo (1987) and Kaur N (1998) also developed pamphlets on the same line and found them to be effective in disseminating the innovative household information.

4.2 Measurement of understandability and adequacy of pamphlet on, "Soybean-Its importance and recipes".

Table 4.2 Mean scores on different characteristics to measure understandability and adequacy of pamphlet on, "Soybean-Its importance and recipes".

S. No.	Characteristics	Mean score (out of 3)
1	Appearance of pamphlet	3.00
2	Caption of pamphlet	3.00
3	Size of lettering	2.90
4	Illustrations	3.00
5	Content of pamphlet	3.00
6	Understandability of language	3.00
7	Number of technical words	2.7
8	Sequence of information provided	3.00
9	Storage the pamphlet	3.00
	Overall mean score	**2.96**

Table 4.2 explains the understandability and adequacy of developed

pamphlet on, "Soybean - Its importance and recipes" in terms of mean scores. The mean scores on different characteristics of pamphlet i.e. appearance of pamphlet, caption of pamphlet, size of lettering, illustrations, content of pamphlet, understandability of language, number of technical words, sequence of information provided, storage of pamphlet were 3.0, 3.0, 2.9, 3.0, 3.0, 3.0, 2.7, 3.0, and 30, respectively. The overall mean score of the pamphlet on soybean was 2.96. Hence, we can conclude that the pamphlet was understandable and adequate for imparting information to rural women regarding utilization of soybean in their routine diet.

4.3 Measurement of understandability and adequacy of audio cassette on "Soybean-Its importance and recipes"

Table 4.3 Mean scores on different characteristics to measure understandability and adequacy of audio cassette on, 'Soybean-Its importance and recipes'.

S. No.	Characteristics	Mean score (out of 3)
1	Audio Clarity	3.00
2	Understandability of language	3.00
3	Pronunciation	3.00
4	Speed	3.00
5	Pause	2.90
6	Emphasis	2.80
7	Duration	3.00
8	Clarity of message	3.00
9	Sequence of information	3.00
10.	Content	3.00
	Overall mean score	**2.96**

The data in table 4.3 indicate the understandability and adequacy of the developed audio cassette on, "Soybean - Its importance and recipes" in terms of

mean scores. The mean scores on different characteristics of audio cassette i.e. audio clarity, understandability of language, pronunciation, speed, pause, emphasis, duration, clarity of message, sequence of information and content were 3.0, 3.0, 3.0, 3.0, 2.9, 2.8, 3.0, 3.0, 3.0 and 3.0, respectively. The overall mean score of the audio-cassette on soybean was 2.96, which means that the audio cassette is understandable and adequate for imparting knowledge related to utilization of soybean in routine diets to rural women.

Bhangoo (1987), Kaur T (1990) and Kaur R (1995) also observed the effectiveness of audio cassette in disseminating home related information to rural as well as urban women folk.

4.4 Measurement of understandability and adequacy of video cassette on, "Soybean-Its importance and recipes"

The data in table 4.4 depict the understandability and adequacy of the video cassette on, "Soybean-Its importance and recipes" in terms of mean scores. The mean scores on different characteristics of video cassette i.e. audio clarity, focus and sharpness of picture, speed, duration, understandability of language, music, sequence of information provided, clarity of message, cultural comparability and content were 3.0, 2.9, 29, 2.8, 3.0, 3.0, 3.0, 3.0, 2.9 and 3.0, respectively. The overall mean score of the video cassette on soybean was 2.96 which means that the video cassette on soybean is effective for imparting required information. Thus, it can be concluded that video cassette was understandable and adequate for disseminating the knowledge regarding utilization of soybean in routine diets to rural women.

The results of the study are in line with the studies conducted by Bhangoo (1987) and Kaur R (1995).

Table 4.4 Mean scores on different characteristics to measure understandability and adequacy of video cassette on, 'Soybean- Its importance and recipes'.

S. No.	Characteristics	Mean score (out of 3)
1	Audio Clarity	3.00
2	Focus and sharpness of picture	2.90
3	Speed	2.90
4	Duration	2.80
5	Understandability of language	3.00
6	Music	3.00
7	Sequence of information provided	3.00
8	Clarity of message	3.00
9	Cultural compatibility	2.90
10.	Content	3.00
	Overall mean score	**2.96**

4.5 Effectiveness of developed instructional materials in training package/kit in terms of gain in knowledge

Table 4.5 explains the effectiveness of developed instructional materials viz. pamphlet, audio cassette and video cassette which was determined in terms of gain in knowledge further which was statistically tested with the help of paired 't' test. The calculated t-values on selected treatments i.e. pamphlet +

Table 4.5 Effectiveness of developed materials in training package/kit regarding utilization of, "Soybean-Its importance and recipes".

S. No.	Village	Treatment	Mean pre-Knowledge scores	Mean post-Knowledge scores	Mean gain in Knowledge scores	Calculated t-value
1.	Bahawal Bassian	Pamphlet+ discussion	2.25	13.85	11.6	35.97*
2.	Kera Khera	Audio cassette + discussion	2.05	13.45	11.4	33.20*
3.	Panjpeer	Video cassette + discussion	2.35	14.25	11.9	34.97*

* Significant at 1% level.

discussion, audio cassette + discussion and video cassette + discussion were found to be 35.97, 33.20 and 34.97, respectively which were statistically significant at 1% level. Thus it can be inferred that the instructional materials in training package/kit were found to be effective in terms of gain in knowledge scores which implies that these instructional materials and these can be used effectively by the extension personnel to impart the knowledge to rural women on the utilization of soybean in their routine diet.

CHAPTER - V

SUMMARY AND CONCLUSION

The rural women are ignorant and have poor knowledge with respect to various aspects of nutrition. Protein malnutrition is a serious problem among rural people whose diets are mainly of cereal or starchy food. Soybean has great potential for use as human food because of its higher level of good quality protein and as unique nutritional properties.

The use of audio-visual aids can provide good supplementation to communication for disseminating information related to utilization of soybean in the routine diet of rural families. Therefore, it is necessary to disseminate desired information to the target group through audio-visual aids, which may capture the attention of the viewers and retain the gained knowledge for a longer period. Further these aids need to be stored in a package/kit form so that the change agents and extension personnel may use them repeatedly as required. Keeping the above in view the study entitled, "Development of instructional materials for imparting knowledge to rural women regarding utilization of soybean in their diet" was undertaken by the investigator with the following objectives :

1. To develop instructional materials i.e. audio and video cassettes and pamphlet to impart knowledge among rural women regarding utilization of soybean.
2. To test the effectiveness of developed instructional materials.

5.1 Materials and Methods

The procedure adopted for undertaking the study is summarised under the following headings.

5.1.1 Development of instructional materials and training package/kit

The following steps were taken for the development of instructional material.

5.1.1.1 Development of contents

The relevant literature like books, journals, magazines etc. were consulted apart from the through discussion with the experts from Foods and Nutrition for developing the contents for instructional materials. These contents were given to the experts to judge their correctness and completeness and contents were modified as per their suggestions. The four recipes of soybean were tried and were got adjudged by the experts. Modifications in the recipes were made accordingly. The contents were then translated into Punjabi language with the help of language experts.

5.1.1.2 Selection of instructional materials

Audio and video cassettes and pamphlet were selected as instructional materials for imparting knowledge to rural women regarding the importance and utilization of soybean in routine diet of rural masses.

5.1.1.3 Development of instructional materials

The following type of instructional materials were prepared.

a) Pamphlet

The developed contents were transformed in the form of pamphlet, taking into consideration the important elements for the development of pamphlet.

b) Audio and Video Cassettes

The developed contents were also transformed into audio script and video script, keeping into consideration the various important elements for their effective preparation as per Shukla and Hansra (1986). The scripts were given to the experts for judging their appropriateness and completeness and the necessary modifications were made. The audio and video cassettes were then developed on the basis of finalized scripts.

5.1.1.4 Development of training package/kit

Keeping in view the importance of storage of developed instructional material a wooden kit was got prepared of smallest possible in size and light in weight.

5.1.2 Development of indices to measure the understandability and adequacy of developed instructional materials i.e. pamphlet, audio cassette and video cassette.

The three understandability and adequacy indices were developed in order to measure the understandability and adequacy of pamphlet, audio cassette and video cassette.

5.1.3 Development of knowledge test

An objective type knowledge test was also got prepared to measure gain in knowledge of respondents in order to ascertain the effectiveness of

developed instructional materials.

5.1.4 Measurement of readability of pamphlet

The readability of the developed pamphlet on utilization of soybean in routine diet was measured in terms of its easiness of reading. The reading ease scores for the pamphlets were determined on the basis of formula given by Flesch (1951).

5.1.5 Measurement of understandability and adequacy of instructional materials i.e. pamphlet, audio cassette and video cassette.

To measure the understandability and adequacy of pamphlet, audio cassette and video cassette, the three developed indices were administered to the panel of ten judges from the department of Food and Nutrition and Home Science Extension Education. The judge rated their responses against various characteristics of developed instructional materials. The scores were computed and mean scores were worked out.

5.1.6 Determining the effectiveness of developed instructional materials for disseminating knowledge on utilization of soybean in routine diet of rural masses

The developed instructional materials were field tested in purposively selected villages viz. Kera Khera, Bhawal Bassian and Panjpeer of Abohar Block of district Ferozepur. A list of rural women who could read and write and were actively participating in kitchen activities was prepared and 20 rural women from each village were selected randomly.

The teaching method used by the investigator for testing the

effectiveness of developed instructional materials was discussion supplemented by developed instructional materials.

The pre-knowledge test and post-knowledge test scores were administered before and immediately after each treatment. The difference between the pre and post mean scores was calculated which was termed as gain in knowledge of the respondents. These scores were statistically tested by applying paired t-test to find out the effectiveness of developed instructional materials to impart knowledge on soybean to rural women.

5.2 Salient Findings

5.2.1 The pamphlet on 'Soybean - Its importance and recipes' was found to be easy to read. The reading ease score as per formula given by Flesch (1951) for pamphlet on soybean was 86.76.

5.2.2 Measurement of understandability and adequacy of the pamphlet revealed that the overall mean score for the pamphlet on, 'Soybean - Its importance and recipes' was 2.96. The overall mean score indicated that the pamphlet was understandable and adequate to educate rural women.

5.2.3 Measurement of understandability and adequacy of the audio cassette revealed that the overall mean score for audio cassette on, 'Soybean - Its importance and recipes' was 2.96. The overall mean score indicated that the audio cassette was understandable and adequate to educate rural women.

5.2.4 Measurement of understandability and adequacy of the video cassette revealed that the overall mean score for video cassette on 'Soybean-Its

important and recipes' was 2.96. The overall mean score indicated that the video cassette was understandable and adequate to educate rural women.

5.2.5 Respondents gained as high as 11.6 knowledge scores by reading the developed pamphlet followed by discussion by the investigator.

5.2.6 Respondents gained as high as 11.4 knowledge scores by listening the developed audio cassette followed by discussion by the investigator.

5.2.7 Respondents gained as high as 11.9 knowledge scores by watching the developed video cassette followed by discussion by the investigator.

5.2.8 The gain in knowledge scores through the use developed instructional materials viz., pamphlet, audio and video cassettes on 'Soybean-Its importance and recipes' was found to be statistically significant at 1% level of significance.

5.3 Conclusion

On the basis of the findings of this study, it could be deduced that developed instructional materials i.e. pamphlet, audio cassette and video cassette related to utilization of soybean in routine diet of rural masses was effective for educating the rural women. The developed training package/kit can further be beneficial for storage of instructional materials and convenient for carrying out messages to rural women in remote areas. Therefore, it may be concluded that the audio-visual aids when supplemented with discussions lead to greater gain in knowledge.

5.4 Implications of the Study

5.4.1 The findings of the study revealed that developed instructional materials i.e. pamphlet, audio cassette and video cassette were effective in educating rural women. So, instructional materials can be effectively used by change agents/extension personnel as and when required.

5.4.2 Since there is scarcity of extension personnel, hence it is not possible for them to reach everywhere to disseminate the information related to household activities. Therefore the developed instructional materials can be multiplied and given to different agencies for dissemination of the information wherever needed.

5.3.3 The developed instructional materials viz., pamphlet, audio cassette and video cassette, can be made use of through print media (like newspapers), radio broadcast and television broadcast respectively to popularize soybean among the rural masses.

5.5 Recommendations for Future Studies

5.5.1 Different instructional materials could be developed for other topics related to home science.

5.5.2 The study can be replicated on rural women who have not been exposed to the message in the past.

5.5.3 A comparative study of the combination of different teaching methods or audio-visual aids on the same topic can be undertaken.

5.5.4 Different recipes of soybean can be tried to develop these type of instructional materials.

5.5.5 The developed instructional materials can be translated or dubbed in different languages.

5.5.6 The instructional materials can be developed for formal teaching situations i.e. in schools and colleges also.

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Contents: Utilization of Soybean in Routine diets of rural masses.

Protein is very important nutrient. Protein foods are most expensive of all the food stuffs. Proteins are necessary for physical and mental growth and maintenance of good health and vigour. Protein deficiency in childhood period retards growth and development and may cause permanent damage to the body and mind. Indian diets are cereal based and deficient in proteins and calories. Soybean with about 43% protein and 20% oil has tremendous potential to meet protein calorie malnutrition. It carries all essential amino acids in right proportion and its protein value approaches or equals to that of food of animal origin. Soybean foods are also suitable for diabetic patients as they contain less carbohydrate. Soy-protein is also good for those who are allergic to animal protein/milk. Soybean also has high satiety value due to their relatively high oil content. Soybean can also lower plasma cholesterol level.

In addition, soybean can be stored for a long time in the form of soybean seed without perishing and without costly refrigeration. It yields more protein per acre i.e. 2 to 3 times higher than that of other pulse crops. It's cost is much lower than that of animal protein. Soybean cultivation also enriches the soil by fixing nitrogen from atmosphere.

Soybean though is rich source of all the important nutrients; its poor cooking quality hinders its consumption. Due to poor cooking qualities

unacceptable and unpleasant odour develops. Other cause, which may cause hindrance in its consumption, is that soybean contains a tryprin inhibitor, which may interfere in digestion of proteins. This problem does not appear to be a serious problem, since they are largely inactivated by moist heat (10-15 minute boiling is sufficient) for overnight soaked beans.

So, its correct cooking procedure may help in removing the hindrances in its consumption.

SOYBEAN SOAKING PROCEDURE

- Wash Soybean after removing discoulored and spoiled seeds.
- Soak Soybean overnight or forr 9-10 hours in four times water (quantity wise).
- Drain off un-soaked water and rinse well in clean water.

PREPARATION OF SOYBEAN FLOUR OR SOYFLOUR

- Soak soybeans as above.
- Dehull by rubbing beans in the hands; float the nulls off with water.
- Place the dehulled beans in boiling water and steam for 5 minutes.
- Spread soaked beans in a thin layer on cloth and air dry in the sun.
- Take the dried beans to the local 'chakki' for milling.

(Recipes and simple ways of utilizing soybean in our daily diet are given in appendix II)

English Version of Developed Pamphlet

Appendix-II

IMPORTANCE OF SOYBEAN IN DIET

Protein is an important nutrient of food. It is necessary for physical and mental development. Soybean contains 43 percent protein and 20 percent oil due to which it has tremendous potential to meet the deficiencies of protein and energy. Protein value of Soybean approaches or equals to that of food from animal origin. Soyprotein is good for those who are allergic to animal protein/milk. Soybean foods are suitable for diabetic patients as they contain less carbohydrate. It is also helpful in lowering blood cholesterol level.

Improper cooking procedures hinder its consumption. But proper cooking can help in proper utilization of its nutritive value.

SOYBEAN SOAKING PROCEDURE

- Wash soybean after removing discolored and spoiled seeds.
- Soak soybean overnight or for 9-10 hours in four times water. (Quantity wise)
- Drain off unsoaked water and rinse well in clean water.

SOYFLOUR PREPARATION

- Soak soybean as above.
- Dehull by rubbing beans in hands, float the hulls off with water.
- Steam for 5 minutes in cooker or 10-15 minutes in ordinary vessel.
- Remove water and spread cooked beans in an open sun for drying.
- Take the dried beans to the local chakki for milling.

MISSIE PARONTHA

INGREDIENTS

Soy flour	-	½ cup	Ginger	-	1 sm all piece
Bengal gram flour	-	½ cup	Corriander	–	little
Whole wheat flour	-	1 cup	Salt	-	to taste
Onion	-	2	Water	-	to need
Green chilly	-	2			

Method

- Sieve three flours together.
- Knead with water in to stiff dough after adding chopped onions, ginger, green chilly, corriander and salt to the flour.
- Make flattened round balls with palms. Roll out in a chapati and heat on griddle for frying with ghee.

SOY DALMOTH

INGREDIENTS

Soybean - 2 cups Oil -2 cups

Black peeper, roasted cumin powder, black salt, amchoor, red chilies and salt to taste.

Method

- Soak soybean
- Boil for five minutes, strain and spread on a cloth to drain off moisture.
- Deep fry in oil on medium heat until crisp.
- Season with powdered spices and mix well.

SOY-FLOUR BESAN LADDU

INGREDIENTS

Soy flour	½ Cup	Boora Sugar	1 Cup
Bengal gram flour	1 ½ cup	Cardamom (finely powdered)	½ Cup
Desi/Vanaspati Ghee	1 cup		

Method

- Sieve two flours together.
- Melt desi/vanaspati ghee in frying pan.
- Add flour mixture and fry on slow fire until golden brown.
- Allow it to cool.
- Mix Boora sugar, powdered coardamom and shape into small balls (Laddu)

SIMPLE WAYS OF UTILISING SOYBEAN IN OUR DAILY DIET.

- Soaked soybean for 9-10 hours may be cooked for 5-10 minutes in pressure cooker and make paste in wet grinder. It can be stored in refrigerator for many days and used in many ways like mixing with wheat flour, black gram for Dahi vadah etc.
- Soybean can be used in the form of soyflour with wheat, maize or rice flour.

SOY-POTATO VEGETABLE

INGREDIENTS

Soaked soybean – 1 cup
Boiled Potato (cut into pieces) – 2
Tomato (cut) - 4
Onion (cut) – 2
Cumin seeds – ½ tsp
Turmeric – ½ tsp
Red chilly – ½ tsp
Salt – to taste
Whole spices (2 cloves, 1 big cardamon, 1 stick cinnamon, bay leaf), (ginger, garlic and green chilly) grinded into paste.

Method

- Cook the soybean with all whole spices in pressure cooker for 15-20 minutes.
- Heat one tsp ghee in griddle, add cumin seeds and onion to it.
- As soon as the onion color becomes light brown, add paste of ginger, garlic and red chilly, cook for a minute and add tomato pieces.
- Add salt, red chilly and turmeric.
- Add boiled and cooked soybean (as in first step) and cook.
- Now, add potatoes and water as per need and cook for 10-15 minutes in open.

ਹਸਤਲਿਖਤ ਸ਼ੋਤਕਥਾ ਕੈਸਟ

ਵਿਸ਼ਾ	ਸੋਇਆ ਬੀਨ ਦੀ ਖੁਰਾਕੀ ਮਹੱਤਤਾ ਅਤੇ ਪਕਵਾਨ
ਸਕਰਿਕਪਟ ਲੇਖਕ	ਬਰਖਾ ਗਰਗ
ਸਲਾਹਕਾਰ	ਡਾ (ਸ਼ੀਮਤੀ ਰਣਬੀਰ ਰੰਧਾਵਾ) ਪ੍ਰੋਫੈਸਰ, ਹੋਮ ਸਾਇੰਸ ਪਸਾਰ ਸਿੱਖਿਆ ਵਿਭਾਗ ਪੰਜਾਬ ਐਗਰੀਕਲਚਰਲ ਯੂਨੀਵਰਸਿਟੀ ਲੁਧਿਆਣਾ
ਪੇਸ਼ ਕਰਨ ਦਾ ਢੰਗ	ਸੰਗੀਤ ਸੋਇਆਬੀਨ ਸੋਇਆਬੀਨ ਸੋਇਆਬੀਨ ਸੋਇਆਬੀਨ ਖਾਉ ਅਤੇ ਪ੍ਰੋਟੀਨ ਦੀ ਕਮੀ ਨੂੰ ਪੂਰਾ ਕਰੋ, ਅਜ ਇਸ ਕੈਸੇਟ ਦੁਆਰਾ ਅਸੀ ਤੁਹਾਨੂੰ ਸੋਇਆਬੀਨ ਦੀ ਖੁਰਾਕੀ ਮਹੱਤਤਾ ਅਤੇ ਇਸ ਦੇ ਵਧੀਆ ਵਧੀਆ ਪਕਵਾਨ ਬਣਾਉਣੇ ਦੱਸਣ ਜਾ ਰਹੇ ਹਾਂ ਇਹ ਕੈਸੇਟ ਹੋਮ ਸਾਇੰਸ ਪ੍ਰਸਾਰ ਸਿਖਿਆ ਵਿਭਾਗ, ਪੰਜਾਬ ਐਗਰੀਕਲਚਰਲ ਯੂਨੀਵਰਸਿਟੀ ਲੁਧਿਆਣਾ ਵਲੋਂ ਬਣਾਈ ਗਈ ਹੈ । ਠੱਕ! ਠੱਕ! ਠੱਕ!
ਜੋਤੀ	ਸਤਿ ਸ਼੍ਰੀ ਅਕਾਲ ਭਾਬੀ ਜੀ ।
ਭਾਬੀ	ਸਤਿ ਸ਼੍ਰੀ ਅਕਾਲ ਹੋਰ ਜੋਤੀ ਕੀ ਕਰਦੀ ਸੀ ।
ਜੋਤੀ	ਕੁਝ ਨਹੀਂ ਭਾਬੀ ਜੀ ਸੋਇਆ ਦਾਲਮੋਠ ਬਣਾ ਰਹੀ ਸੀ ।
ਭਾਬੀ	ਸੋਇਆ ਦਾਲ ਮੋਠ ਉਹ ਕਾਹਦੇ
ਜੋਤੀ	ਇਹ ਸੋਇਆਬੀਨ ਦੇ ਬਨਦੇ ਨੇ
ਭਾਬੀ	ਸੋਇਆਬੀਨ ਤਾਂ ਬਿਲਕੁਲ ਚੰਗੀ ਨਹੀਂ ਬਣਦੀ,
ਜੋਤੀ	ਨਹੀਂ ਨਹੀਂ ਭਾਬੀ ਜੀ ਇਹ ਤਾਂ ਬਹੁਤ ਚੰਗੀ ਬਣਦੀ ਹੈ ਬਸ ਇੱਕ ਮਿੰਟ ਮੈਂ ਬਣਾ ਹੀ ਲਏ ਨੇ ਤੇ ਮੈਂ ਹੁਣੇ ਤੁਹਾਨੂੰ ਖੁਆਨੀ ਆਂ ਆ ਲੋ ਭਾਬੀ ਜੀ ਖਾ ਕੇ ਵੇਖੋ ਤੇ ਦਸੋ ਕਿਵੇਂ ਬਣੇ ਨੇ ।
ਭਾਬੀ	ਵਾਹ ਜੋਤੀ ਇਹ ਤਾਂ ਬਹੁਤ ਸੁਆਦ ਬਣੀ ਐ ਪਰ ਤੈਨੂੰ ਕਿਹਨੇ ਬਣਾਉਣੀ ਸਿਖਾਈ ਹੈ
ਜੋਤੀ	ਇਹ ਮੈਨੂੰ ਬਰਖਾ ਦੀਦੀ ਨੇ ਸਿਖਾਈ ਸੀ ।
ਭਾਬੀ	ਇਹ ਕੋਣ ਏ ।

ਜੋਤੀ — ਇਹ ਮੇਰੇ ਮਾਮਾ ਜੀ ਦੀ ਕੁੜੀ ਏ ਅਤੇ ਲੁਧਿਆਣੇ ਯੂਨੀਵਰਸਿਟੀ ਵਿੱਚ ਗ੍ਰਹਿ ਵਿਗਿਆਨ ਦਾ ਕੋਰਸ ਕਰਦੀ ਹੈ ।

ਭਾਭੀ — ਅੱਛਾ ਅੱਛਾ ਉਹ ਅਬੋਹਰ ਵਾਲੇ ਮਾਮੇ ਦੀ ਕੁੜੀ ।

ਜੋਤੀ — ਹਾਂ, ਦੀਦੀ ਨੇ ਅਜ ਵੀ ਆਉਣਾ ਹੈ ਤੇ ਮੈਨੂੰ ਹੋਰ ਵੀ ਚੀਜਾ ਸਿਖਾਉਣੀਆਂ ਨੇ ਤੁਸੀਂ ਵੀ ਹੁਣ ਠਹਿਰ ਕੇ ਹੀ ਜਾਇਓ ।

ਭਾਬੀ — ਫੇਰ ਤਾਂ ਮੈ ਜਰੂਰ ਸਿੱਖ ਕੇ ਜਾਊ ਹੋਰ ਵੀ ਚੀਜਾਂ ।

ਠੱਕ ਠੱਕ ਠੱਕ

ਜੋਤੀ — ਲਓ ਸਾਇਦ ਦੀਦੀ ਆ ਗਈ
ਸਤਿ ਸ਼੍ਰੀ ਅਕਾਲ ਭਾਬੀ ਜੀ

ਭਾਬੀ ਜੀ ਇਹ ਬਰਖਾ ਦੀਦੀ ਨੇ

ਭਾਬੀ — ਸਤਿ ਸ਼੍ਰੀ ਅਕਾਲ, ਜੋਤੀ ਨੇ ਮੈਨੂੰ ਤੁਹਾਡੇ ਬਾਰੇ ਦੱਸਿਆ ਸੀ ਤੁਸੀਂ ਤਾਂ ਬਹੁਤ ਹੀ ਵਧੀਆ ਚੀਜ ਬਣਾਉਣੀ ਸਿਖਾਈ ਹੈ ਉਹਨੂੰ ਇੱਕ ਵਾਰੀ ਮੈਂ ਵੀ ਬਣਾਈ ਸੀ ਸੋਇਆਬੀਨ ਪਰ ਸਾਡੇ ਘਰ ਤਾਂ ਕਿਸੇ ਨੇ ਖਾਦੀ ਨੀ ਸਾਰੇ ਕਹਿੰਦੇ ਸੁਆਦ ਹੀ ਨਹੀਂ ਬਣਦੀ।

ਬਰਖਾ — ਭਾਬੀ ਜੀ ਸੋਇਆਬੀਨ ਤਾਂ ਬਹੁਤ ਚੰਗੀ ਚੀਜ ਹੈ ਤੇ ਇਹਦੇ ਵਿੱਚ ਪ੍ਰੋਟੀਨ ਬਹੁਤ ਹੁੰਦੀ ਹੈ ।

ਭਾਬੀ — ਪ੍ਰੋਟੀਨ ਇਹ ਕੀ ਹੰਦੀ ਏ ।

ਬਰਖਾ — ਇਹ ਭੋਜਨ ਦਾ ਇੱਕ ਬਹੁਤ ਮਹੱਤਵਪੂਰਨ ਤੱਤ ਹੈ ਤੇ ਬਚਿਆਂ ਲਈ ਇਹ ਬਹੁਤ ਜਰੂਰੀ ਹੈ ਜੇ ਬਚਿਆਂ ਵਿੱਚ ਇਸ ਦੀ ਘਾਟ ਹੋ ਜਾਵੇ ਤਾਂ ਉਹਨਾਂ ਦੇ ਸ਼ਰੀਰਕ ਤੇ ਦਿਮਾਗੀ ਵਿਕਾਸ ਵਿੱਚ ਰੁਕਾਵਟ ਪੈਦਾ ਹੋ ਸਕਦੀ ਹੈ ।

ਭਾਬੀ — ਤਾਂਈਓ ਤਾਂ ਡਾਕਟਰ ਨੇ ਕਿਹਾ ਸੀ, ਮੋਨੂੰ ਵਿੱਚ ਪ੍ਰੋਟੀਨ ਦੀ ਘਾਟ ਹੀ ਹੋਣੀ ਹੈ ਤਾਈਉ ਤਾ ਵੱਧਦੀ ਫੁਲਦੀ ਨਹੀ ।

ਬਰਖਾ — ਹਾਂਜੀ ਇਹੀ ਗਲ ਹੋਈ ਐ ਤੇ ਜੇ ਇਸ ਤਰਾਂ ਦੀ ਗਲ ਹੈ ਫੇਰ ਤਾਂ ਤੁਸੀਂ ਉਸ ਨੂੰ ਸੋਇਆਬੀਨ ਜਰੂਰ ਖੁਵਾਇਓ ਕਿਉਕਿ ਸੋਇਆਬੀਨ ਵਿੱਚ 43% ਪ੍ਰੋਟੀਨ ਅਤੇ 20% ਤੇਲ ਹੁੰਦਾ ਤੇ ਤੇਲ ਦੀ ਮਾਤਰਾ ਜਿਆਦਾ ਹੋਣ ਕਰਕੇ ਇਸ ਨੂੰ ਖਾਣ ਨਾਲ ਕਾਫੀ ਦੇਰ ਭੁੱਖ ਨਹੀ ਲਗਦੀ ਤੇ ਖੂਨ ਵਿੱਚ ਕਲੈਸਟ੍ਰੋਲ ਦੀ ਮਾਤਰਾ ਘੱਟ ਕਰਨ ਵਿੱਚ ਵੀ ਮਦਦ ਕਰਦੀ ਹੈ ਸੋਇਆਬੀਨ ਤੇ ਬਾਕੀ ਜਿਨਾ ਨੂੰ ਸ਼ੱਕਰ ਦਾ ਰੋਗ ਹੁੰਦਾ ਉਹਨਾਂ ਲਈ ਵੀ ਸੋਇਆਬੀਨ ਬਹੁਤ ਜਰੂਰੀ ਹੁੰਦੀ ਹੈ ।

ਭਾਬੀ — ਫੇਰ ਤਾਂ ਇਹ ਬੇਬੇ ਜੀ ਲਈ ਵੀ ਬਹੁਤ ਵਧੀਆ ਹੋਊ

ਬਰਖਾ — ਹਾਂਜੀ ਇਸ ਤੋਂ ਇਲਾਵਾ ਇਹਦੇ ਤਾਂ ਹੋਰ ਵੀ ਬਹੁਤ ਫਾਇਦੇ ਨੇ । ਸੋਇਆਬੀਨ ਤੋਂ ਜਿਹੜੀ ਆਪਾਂ ਨੂੰ ਪ੍ਰੋਟੀਨ ਮਿਲਦੀ ਹੈ ਉਹਦੇ ਗੁਣ ਜਾਨਵਰਾਂ ਤੋਂ ਪ੍ਰਾਪਤ ਪ੍ਰੋਟੀਨ ਦੇ ਬਰਾਬਰ ਹੁੰਦੇ ਨੇ ਜਿਵੇ ਜਾਨਵਰਾਂ ਤੋਂ ਪ੍ਰਾਪਤ ਭੋਜਨ ਜਿਵੇ ਦੁੱਧ, ਮੱਖਣ, ਘਿਓ ਮੀਟ ਆਦਿ ਤੇ ਜਿੰਨਾਂ ਨੂੰ ਉਸ ਤੋਂ ਐਲਰਜੀ ਹੁੰਦੀ ਹੈ ਜਿਵੇਂ ਬੱਚੇ ਦੁਧ ਵਗੈਰਾ ਨੀ ਪੀ ਕੇ ਰਾਜੀ ਇਸ ਕਰਕੇ ਉਹਨਾਂ ਲਈ ਵੀ ਇਹ ਪ੍ਰੋਟੀਨ ਦਾ ਬਹੁਤ ਮਹੱਤਵਪੂਰਨ ਸੋਮਾਂ ਹੈ।

ਭਾਬੀ — ਫੇਰ ਤਾਂ ਬਹੁਤ ਚੰਗੀ ਚੀਜ ਹੈ।

ਬਰਖਾ — ਹਾਂਜੀ ਇਹਦੇ ਤਾਂ ਖੇਤੀ ਬਾੜੀ ਪੱਖੋਂ ਵੀ ਬਹੁਤ ਫਾਇਦੇ ਨੇ।

ਭਾਬੀ — ਖੇਤੀ ਬਾੜੀ ਪੱਖੋਂ, ਉਹ ਕਿਵੇ?

ਬਰਖਾ — ਇਹਦੀ ਜਿਹੜੀ ਪ੍ਰਤੀ ਏਕੜ ਉਪਜ ਹੈ ਉਹ ਬਾਕੀ ਦਾਲਾਂ ਨਾਲੋਂ ਦੋ ਤਿੰਨ ਗੁਣਾਂ ਜਿਆਦਾ ਹੁੰਦੀ ਹੈ। ਨਾਲੇ ਨਾਈਟ੍ਰੋਜਨ ਫਿਕਸ਼ੇਸਨ ਨਾਲ ਧਰਤੀ ਦੀ ਉਪਜਾਊ ਸ਼ਕਤੀ ਵੀ ਵਧਾਉਂਦੀ ਹੈ।

ਭਾਬੀ — ਚਲੋ ਇਹ ਸਭ ਤਾਂ ਠੀਕ ਹੈ ਪਰ ਤੁਸੀਂ ਮੈਨੂੰ ਇਕ ਗੱਲ ਦੱਸੋ ਬਈ ਇਹਦੇ ਪਕਾਉਂਣ ਵੇਲੇ ਇਹਦੇ ਵਿਚੋਂ ਅਜੀਬ ਜਿਹਾ ਮੁਸ਼ਕ ਆਉਂਦਾ ਹੈ।

ਬਰਖਾ — ਉਹ ਤਾਂ ਇਹਨੂੰ ਪਕਾਉਣ ਦੇ ਗਲਤ ਤਰੀਕਿਆਂ ਕਰਕੇ ਹੋ ਸਕਦਾ ਹੈ। ਵੈਸੇ ਕੋਈ ਐਡੀ ਖਾਸ ਗੱਲ ਨੀ ਹੈਗੀ ਤੇ ਮੈਂ ਤੁਹਾਨੂੰ ਦਸ ਦਿੰਨੀ ਹਾਂ ਵੀ ਇਹਨੂੰ ਆਪਾਂ ਕਿਵੇ ਵਧੀਆਂ ਤਰੀਕਿਆਂ ਨਾਲ ਪਕਾ ਸਕਦੇ ਹਾਂ।

ਭਾਬੀ — ਸਭ ਤੋਂ ਪਹਿਲਾ ਤਾਂ ਮੈਨੂੰ ਸੋਇਆ ਦਾਲਮੋਠ ਹੀ ਦੱਸੋ ।

ਬਰਖਾ — ਚਲੋ ਠੀਕ ਹੈ ਮੈਂ ਸਭ ਤੋਂ ਪਹਿਲਾਂ ਤੁਹਾਨੂੰ ਦਾਲ ਮੋਠ ਹੀ ਦਸਦੀ ਹਾਂ । ਇਹਦੇ ਲਈ ਆਪਾਂ ਨੂੰ ਪਹਿਲਾਂ ਸੋਇਆਬੀਨ ਨੂੰ ਭਿਉਂਣ ਦਾ ਤਰੀਕਾ ਦੇਖਣਾ ਪਊਗਾ । ਉਹਦੇ ਲਈ ਆਪਾਂ ਕੀ ਕਰਨਾਂ ਬਜਾਰੋਂ ਜਿਵੇ ਆਪਾਂ ਸੋਇਆਬੀਨ ਲਿਆਂਦੀ

ਭਾਬੀ — ਬਜਾਰੋਂ ਸੋਇਆਬੀਨ ਲਿਆਉਣ ਦੀ ਭਲਾ ਕੀ ਲੋੜ ਏ ਪਿਛਲੇ ਸਾਲ ਬੀਜੀ ਤਾਂ ਸੀ ਤੇਰੇ ਵੀਰ ਨੇ ਤੇ ਉਹ ਘਰ ਰਖੀ ਸੀ ਵਰਤੀ ਤਾਂ ਹੈ ਨੀ

ਬਰਖਾ — ਚਲੋ ਠੀਕ ਹੈ ਨਾਲੇ ਤਾਂ ਕੰਮ ਆਜੂ ਗੀ, ਤੁਸੀਂ ਹਲੇ ਤੱਕ ਸਮਝਦੇ ਸੀ ਬਈ ਬੇਕਾਰ ਹੀ ਪਈ ਹੈ । ਤੇ ਇਹਨੂੰ ਆਪਾਂ ਭਿਉਣਾ ਏਦਾਂ ਬਈ ਪਹਿਲਾਂ ਆਪਾਂ ਸੋਇਆਬੀਨ ਨੂੰ ਚੰਗੀ ਤਰਾਂ ਸਾਫ ਕਰ ਲਵਾਂਗੇ ਪੱਥਰ ਕੰਕਰ ਜਾਂ ਖਰਾਬ ਦਾਣੇ ਇਸ ਵਿੱਚੋ ਕੱਡ ਦਾਂਗੇ। ਫੇਰ ਇਹਨੂੰ ਆਪਾਂ ਦੋ ਤਿੰਨ ਵਾਰੀ ਪਾਣੀ ਨਾਲ ਧੋ ਲਵਾਂਗੇ ਫੇਰ ਇਹਨੂੰ ਆਪਾਂ ਰਾਤ ਨੂੰ ਭਿਉਂਣਾ ਹੈ। ਚਾਰ ਗੁਣਾ ਪਾਣੀ ਪਾ ਕੇ ਜਿਵੇ ਜੇ ਆਪਾਂ 1 ਕੋਲੀ ਸੋਇਆਬੀਨ ਲਈ ਹੈ ਉਸ ਵਿੱਚ ਚਾਰ ਕੌਲੀਆਂ ਪਾਣੀ ਦੀਆਂ ਪਾਵਾਂਗੇ ਜਾ ਫੇਰ ਜੇ ਰਾਤ ਨੂੰ ਨਾਂ ਭਿਉਂਤੀ ਤਾਂ 9-10 ਘੰਟੇ ਭਿਉ ਲਈ ਤਾਂ ਉਹ ਵੀ ਰਾਤ ਦੇ ਬਰਾਬਰ ਹੀ ਹੁੰਦੀ ਹੈ ਬਈ ਜਾ ਰਾਤ ਨੂੰ ਭਿਉ ਲਈ ਜਾਂ 9-10 ਘੰਟੇ । ਫੇਰ ਆਪਾਂ ਇਹਦਾ ਆਟਾ ਬਣਾਵਾਂਗੇ ਸੋਇਆਬੀਣ ਦਾ

ਭਾਬੀ — ਆਟਾ ਭਲਾ ਦੂਜੇ ਆਟੇ ਵਾਂਗੂ ਪਿਸਾਈਦਾ ਜਿਵੇਂ ਚੱਕੀ ਤੋ ।

ਬਰਖਾ — ਨਹੀ ਜੀ ਜਿਵੇਂ ਕਣਕ ਦੇ ਆਟੇ ਚ ਜਾਂ ਮੱਕੀ ਦੇ ਚ ਤਾਂ ਆਪਾ ਜਿਵੇ ਕਣਕ ਧੋ ਲਈ ਤੇ ਪਿਆਉਣੀ ਦੇ ਤੀ, ਪਰ ਇਹਦੇ ਵਿੱਚ ਕੀ ਹੈ ਬਾਈ ਆਪਾਂ ਰਾਤ ਨੂੰ ਭਿਉਂ ਕੇ ਰਖਾਂ ਗੇ ਤੇ ਸਵੇਰੇ ਆਪਾਂ ਹੱਥਾਂ ਨਾਲ ਮਲ ਕੇ ਇਹਦਾ ਛਿਲਕਾ ਉਤਾਰ ਦੇਵਾਂਗੇ ਛਿਲਕਾ ਲਾ ਕੇ ਇਹਨੂੰ ਉਬਾਲਦੇ ਤਾਂ ਕਰਕੇ ਹਾਂ ਬਈ ਇਹਦੇ ਵਿੱਚ ਇਕ ਤੱਤ ਹੁੰਦਾ ਜਿਹਨੂੰ ਟ੍ਰਿਪਸਟ ਇਨਿਹਿਬਟਰ ਕਹਿੰਦੇ ਹਾਂ ਤੇ ਇਹ ਸੋਇਆਬੀਨ ਵਿਚਲੀ ਪ੍ਰੋਟੀਨ ਨੂੰ ਪਚਾਉਣ ਵਿੱਚ ਥੋੜੀ ਜਿਹੀ ਔਖ ਪੈਦਾ ਕਰਦਾ ਹੈ ਜਿਵੇ ਲੋਕੀ ਕਹਿ ਦਿੰਦੇ ਨੇ ਬਈ ਇਹਨੂੰ ਪਚਾਉਣਾ ਔਖਾ ਹੈ ਤੇ ਉਬਾਲਨ ਨਾਲ ਇਹ ਤੱਤ ਨਸ਼ਟ ਹੋ ਜਾਂਦਾ ਤੇ ਇਸ ਨੂੰ ਅਰਾਮ ਨਾਲ ਪਚਾ ਸਕਦੇ ਹਾਂ । ਤੇ ਹੁਣ ਇਸਨੂੰ ਧੁੱਪ ਵਿੱਚ ਸੁਕਾ ਕੇ ਚੱਕੀ ਤੋਂ ਆਟਾ ਪਿਸਵਾ ਲਵਾਂਗੇ । ਇਸ ਤਰਾਂ ਦੂਜੇ ਆਟੇ ਨਾਲੋਂ ਇਹਦੀ ਵਿਧੀ ਵਖਰੀ ਹੈ ।

(ਬਰਖਾ ਅਤੇ ਭਾਬੀ ਦੀ ਗਲਬਾਤ ਵਿੱਚ ਬਰਖਾ ਨੇ ਸੋਇਆਬੀਨ ਅਤੇ ਉਸਦੇ ਪਕਵਾਨਾ ਨੂੰ ਸਹੀ ਤਰਾਂ ਬਨਾਉਣ ਦੀ ਜਾਨਕਾਰੀ ਦਿੱਤੀ, ਜੋ ਕਿ ਇਸ਼ਤਿਹਾਰ ਵਿਚ ਮੈਟੀਰੀਅਲ ਅਤੇ ਮੈਥਡ ਵਿਚ ਦਿੱਤੀ ਗਈ ਹੈ।)

Appendix – III b

ਹਸਤ ਲਿਖਤ ਦ੍ਰਿਸ਼ਟ ਕਥਾ

ਵਿਸ਼ਾ : ਸੋਇਆਬੀਨ ਦੀ ਖੁਰਾਕੀ ਮਹੱਤਤਾ ਅਤੇ ਪਕਵਾਨ ਸਮਾਂ : 30 ਮਿੰਟ

ਸਕ੍ਰਿਪਟ ਲੇਖਕ : ਬਰਖਾ ਗਰਗ
L-99-H.Sc.-223-M

ਸਲਾਹਕਾਰ : ਡਾ (ਸ੍ਰੀਮਤੀ) ਰਣਬੀਰ ਰੰਧਾਵਾ
ਪ੍ਰੋਫੈਸਰ, ਹੋਮ ਸਾਇੰਸ ਪਸਾਰ ਸਿੱਖਿਆ ਵਿਭਾਗ

ਲੜੀ ਨੰ.	ਦ੍ਰਸ਼	ਦ੍ਰਸ਼ ਦਾ ਵੇਰਵਾ	ਸੰਗੀਤ
1.	ਸੋਇਆਬੀਨ ਦੇ ਦਣਿਆਂ ਉਤੇ ਪੰਜਾਬੀ ਵਿੱਚ ਲਿਖਿਆ ਸੋਇਆਬੀਨ ਅਤੇ ਸੋਇਆਬੀਨ ਦੀ ਖੁਰਾਕੀ ਮਹਤੱਤਾ ਅਤੇ ਪਕਵਾਨ		ਹਲਕਾ ਸੰਗੀਤ
2.	ਹਥਾਂ ਵਿੱਚ ਪਈ ਸੋਇਆਬੀਨ ਉਤੇ ਲਿਖਿਆ ਹੋਸ ਸਾਇੰਸ ਪਸਾਰ ਸਿਖਿਆ ਵਿਭਾਗ ਪੰਜਾਬ ਐਗਰੀਕਲਚਰਲ ਯੂਨੀਵਰਸਿਟੀ ਲੁਧਿਆਣਾ		ਹਲਕਾ ਸੰਗੀਤ
3.	ਸੋਇਆਬੀਨ ਦੇ ਹਰੇ ਖੇਤ ਅਤੇ ਉਸ ਵਿਚ ਕੰਮ ਕਰ ਰਹੀਆਂ ਮਜਦੂਰ ਔਰਤਾਂ		ਹਲਕਾ ਸੰਗੀਤ
4.	ਪੱਕੀ ਸੋਇਆਬੀਨ ਦੀ ਵਢਾਈ ਕਰ ਹਰੇ ਮਜਦੂਰ		ਹਲਕਾ ਸੰਗੀਤ
5.	ਘਰ ਵਿੱਚ ਸੋਇਆਬੀਨ ਦੀ ਬੋਰੀ ਲੈ ਕੇ ਆਉਂਦਾ ਕਿਸਾਨ	ਕਿਸਾਨ - ਆ ਲੈ ਫੜ ਭਾਬੀ ਦਸ ਕਿਥੇ ਰਖਾਂ	---
6.	ਘਰ ਵਿੱਚ ਬੈਠੀ ਕੰਮ ਕਰ ਰਹੀ ਭਾਬੀ	ਭਾਬੀ - ਵੇ ਕਿ ਲੈ ਕੇ ਆਇਆਂ	
7.	ਬੋਰੀ ਰਖਦਾ ਹੋਇਆ ਕਿਸਾਨ	ਕਿਸਾਨ - ਇਹ ਭਾਬੀ ਸੋਇਆਬੀਨ ਮੰਡੀ ਲੈ ਕੇ ਚਲੇ ਸੀ ਵੀਰ ਕਹਿੰਦਾ ਥੋੜੀ ਘਰ ਦੇ ਆ।	

8.	ਕੰਮ ਕਰਦੀ ਭਾਬੀ	ਭਾਬੀ - ਵੇ ਕੀ ਕਰਨੀ ਸੀ ਪਿਛਲੇ ਸਾਲ ਵੀ ਲਿਆਂਦੀ ਸੀ ਖਾਂਦਾ ਤਾਂ ਕੋਈ ਹੈ ਨੀ।	
9.	ਬਰਖਾ ਦਾ ਘਰ ਵਿਚ ਆਉਂਣਾ	ਬਰਖਾ - ਸਤਿ ਸ੍ਰੀ ਅਕਾਲ ਭਾਬੀ ਜੀ ਹੋਰ ਕੀਹਨੂੰ ਬੋਲੀ ਜਾਨੇ ਐਂ	
10.	ਬਰਖਾ ਅਤੇ ਭਾਬੀ ਗਲਬਾਤ ਕਰਦੇ ਹੋਏ।	ਭਾਬੀ - ਕੁਝ ਨੀ ਉਹ ਤਾਂ ਸੋਇਆਬੀਨ ਦੀ ਗੱਲ ਹੁੰਦੀ ਸੀ ਤੇਰੇ ਵੀਰ ਨੇ ਭੇਜੀ ਸੀ ਪਰ ਖਾਂ ਕੇ ਤਾਂ ਕੋਈ ਰਾਜੀ ਨੀ ਅਖੇ ਚੰਗੀ ਨੀ ਬਣਦੀ। ਤੁਸੀਂ ਤਾਂ ਗ੍ਰਹਿ ਵਿਗਿਆਨ ਦਾ ਕੋਰਸ ਕਰਦੀਆਂ ਐਂ ਯੂਨੀਵਰਸਿਟੀ ਚ ਬੋਨੂੰ ਤਾਂ ਪਤਾ ਹੋਊ ਇਹਦੇ ਬਾਰੇ। ਬਰਖਾ ਭਾਬੀ ਜੀ ਸੋਇਆਬੀਨ ਤਾਂ ਬਹੁਤ ਚੰਗੀ ਚੀਜ਼ ਹੁੰਦੀ ਹੈ। ਇਸ ਵਿਚ ਪ੍ਰੋਟੀਨ ਬਹੁਤ ਹੁੰਦਾ ਹੈ। ਭਾਬੀ ਇਹ ਪ੍ਰੋਟੀਨ ਕੀ ਹੰਦੀ ਹੈ। ਬਰਖਾ ਪ੍ਰੋਟੀਨ ਭੋਜਨ ਦਾ ਬਹੁਤ ਮਹੱਤਵਪੂਰਨ ਤੱਤ ਹੈ ਇਹ ਵੱਧਦੇ ਬੱਚਿਆ ਲਈ ਬਹੁਤ ਜਰੂਰੀ ਹੈ ਤੇ ਜੇ ਬੱਚਿਆਂ ਵਿਚ ਇਹਦੀ ਘਾਟ ਹੋ ਜਾਵੇ ਤਾਂ ਉਹਨਾਂ ਦੇ ਸਰੀਰਕ ਅਤੇ ਦਿਮਾਗੀ ਵਿਕਾਸ ਵਿੱਚ ਰੁਕਾਵਟ ਪੈਦਾ ਹੋ ਸਕਦੀ ਹੈ। ਭਾਬੀ ਅੱਛਾ ਫੇਰ ਤਾਂ ਇਹ ਬਹੁਤ ਚੰਗੀ ਚੀਜ਼ ਹੈ। ਬਰਖਾ ਸਿਰਫ ਏਨਾ ਹੀ ਨਹੀਂ ਇਹਦੇ ਤਾਂ ਹੋਰ ਵੀ ਬਹੁਤ ਫਾਇਦੇ ਨੇ, ਸੋਇਆ ਪ੍ਰੋਟੀਨ ਦੇ ਗੁਣ ਜਾਨਵਰਾਂ ਤੋਂ ਪ੍ਰਾਪਤ ਪ੍ਰੋਟੀਨ ਦੇ ਗੁਣਾਂ ਦੇ ਬਰਾਬਰ ਹੁੰਦੇ ਹਨ ਤੇ ਸ਼ਕਰ ਦੇ ਮਰੀਜਾਂ ਲਈ ਵੀ ਇਹ ਬਹੁਤ ਫਾਇਦੇਮੰਦ ਹੁੰਦੀ ਹਨ। ਭਾਬੀ ਅੱਛਾ ਫੇਰ ਤਾਂ ਇਹ ਬੇਬੇ ਜੀ ਲਈ ਵੀ ਬਹੁਤ ਚੰਗੀ ਚੀਜ਼ ਹੈ। ਬਰਖਾ ਇਸ ਨੂੰ ਆਪਾਂ ਦਾਲ ਦੇ ਰੂਪ ਵਿੱਚ ਲੰਬੇ ਸਮੇਂ ਤੱਕ ਰਖ ਸਕਦੇ ਹਾਂ, ਤੇ ਇਸ ਦੇ ਤਾਂ ਖੇਤੀ ਬਾੜੀ ਪੱਖੋਂ ਵੀ ਬਹੁਤ ਫਾਇਦੇ ਹਨ। ਭਾਬੀ ਅੱਛਾ ਉਹ ਕਿਵੇਂ। ਬਰਖਾ -ਸੋਇਆਬੀਨ ਦੀ ਪ੍ਰਤੀ ਏਕੜ ਉਪਜ ਬਾਕੀ ਦਾਲਾਂ ਨਾਲੋਂ 2-3 ਗੁਣਾਂ ਜਿਆਦਾ ਹੁੰਦੀ ਹੈ। ਇਹ ਨਾਈਟ੍ਰੋਜਨ ਫਿਕਸੇਸ਼ਨ ਨਾਲ ਜਮੀਨ ਦੀ ਉਪਜਾਊ ਸ਼ਕਤੀ ਵੀ ਵਧਾਉਂਦੀ ਹੈ।	

Appendix – III b Contd...

		ਭਾਬੀ ਫੇਰ ਤਾਂ ਇਹ ਬਹੁਤ ਚੰਗੀ ਚੀਜ਼ ਹੈ ਮੈਂ ਤਾਂ ਇਹਨੂੰ ਉਈਂ ਨਿੰਦੀ ਗਈ। ਪਰ ਇੱਕ ਗੱਲ ਹੈ ਜਦੋਂ ਇਹਨੂੰ ਬਣਉਂਦੇ ਆ ਇਹਦੇ ਵਿਚੋਂ ਹੋਰੇ ਲੋਟ ਦਾ ਮੁਸ਼ਕ ਜਿਹਾ ਆਉਂਦਾ ਹੈ। ਬਰਖਾ ਇਹ ਤਾਂ ਇਸ ਨੂੰ ਪਕਾਉਣ ਦੇ ਗਲਤ ਤਰੀਕਿਆਂ ਕਰਕੇ ਹੋ ਸਕਦਾ ਹੈ। ਭਾਬੀ ਫੇਰ ਤੁਸੀ ਐ ਦਸ ਦੋ ਚੰਗੇ ਤਰੀਕੇ। ਬਰਖਾ ਇਹਦੇ ਲਈ ਪਹਿਲਾਂ ਤੋਂ ਥੋੜੀ ਜਿਹੀ ਤਿਆਰੀ ਕਰਨੀ ਪਵੇਗੀ। ਭਾਬੀ ਫੇਰ ਤੁਸੀ ਮੈਨੂੰ ਦਸ ਦੋ ਬਈ ਕੀ ਕੀ ਤਿਆਰ ਕਰਨੀ ਮੈਂ ਤਿਆਰ ਕਰਕੇ ਰਖੂੰ ਤੇ ਤੁਸੀਂ ਅਗਲੀ ਵਾਰੀ ਆ ਕੇ ਦਸ ਜਾਇਓ ਬਈ ਕਿਵੇਂ ਬਣਾਉਣੀ ਹੈ।	

(ਬਰਖਾ ਅਤੇ ਭਾਬੀ ਦੀ ਗੱਲ ਬਾਤ ਵਿਚ ਸੋਇਆਬੀਨ ਨੂੰ ਭਿਉਂਣ, ਇਸ ਦਾ ਆਟਾ ਬਣਾਉਣ ਅਤੇ ਸਹੀ ਤਰੀਕੇ ਨਾਲ ਪਕਵਾਨ ਬਣਾਉਣ ਦੀ ਜਾਣਕਾਰੀ ਦਿੱਤੀ ਗਈ ਹੈ, ਜੋ ਕਿ ਇਸ਼ਤਿਹਾਰ ਵਿਚ ਮੈਟੀਰੀਅਲ ਅਤੇ ਮੈਥਡ ਵਿਚ ਦਿੱਤੀ ਗਈ ਹੈ।)

SCRIPT FOR AUDIO CASSETTE

Topic "SOYBEAN – ITS IMPORTANCE AND RECIPES"

Script Writer Barkha Garg
L-99-H.Sc.-223-M

Major Advisor Dr. (Mrs.) Ranbir Randhawa
Professor, Department of Home Science Extension Education

Way of Presentation Discussion

Target group Rural women

Time 17 minutes

Introduction Music
Soybean Soybean Soybean
Eat soybean and meet protein requirements. Today through this cassette we are going to tell you the dietary importance of soybean and its recipes. This cassette is prepared by department of Home Science Extension Education, Punjab Agricultural University, Ludhiana.
Thak! Thak! Thak!

Jyoti Hello, Bhabhi ji.

Bhabhi ji Hello, what were you doing?

Jyoti Nothing, I was preparing Soydalmoth

Bhabhi ji Soydalmoth, with what they are prepared?

Jyoti They are prepared from soybean.

Bhabhi ji Soybean is never tasty.

Jyoti No. It is very tasty. I have prepared it and just now, I will bring to taste for you. Taste it.

Bhabhi ji It is very tasty, but who has taught you to prepare it.

Jyoti She is my Uncle's daughter and she is doing Home Science course at Ludhiana University.

Bhabhi ji O.K.

Jyoti She is also coming today to teach me more recipes.

Bhabhi ji Then, I will also learn many things.

Thak! Thak! Thak!

Jyoti Didi has come, Hello didi.

Barkha Hello Jyoti, what is the matter?

Jyoti Bhabhi ji, she is Barkha didi.

Barkha Hello Bhabhi ji.

Bhabhi ji Hello, Jyoti has told me about you. You have taught her many things to cook. Once I had also prepared soybean but no one had it.

Barkha Bhabhi ji, it is very good food and contains maximum proteins

Bhabhi ji Protein, what is this?

Barkha Protein is very important nutrient. Proteins are necessary for physical, mental growth and maintenance of good health and vigour. Protein deficiency in childhood period retards growth and development and may cause permanent damage to the body and mind.

Bhabhi ji That's why doctor was saying that Monu had the deficiency of protein.

Barkha If this is the case, you should give her soybean in diet. Soybean contains 43% protein and 20% oil. Soybeans also have high satiety value due to its relatively high oil content. It also helps lowering blood cholesterol level. It is also good for diabetic patients.

Bhabhi ji Then, it is also good for my mother-in-law.

Barkha Besides these it has more advantages also. Its protein value approaches or equals to that of food of animal origin. It is also good for those who are allergic to animal protein/milk.

Bhabhi ji Then, it is very good thing.

Barkha It has many advantages from agricultural point of view also.

Bhabhi Ji Agricultural point of view, how?

Barkha It gives more yields per acre i.e. 2 to 3 times higher than that of other pulse crops. Soybean cultivation also enriches the soil by fixing nitrogen from atmosphere.

Bhabhi ji But, why it smells foul after cooking.

Barkha It may be due to poor cooking. I will tell you the correct cooking procedure.

Bhabhi ji Then first of all tell me how to prepare soy dalmoth.

Barkha O.K. for that you have to look into soaking of soybeans. First of all, bring soybeans from the market.

Bhabhi Ji Why from the market? Your brother had sown last year. I can use that.

Barkha O.K.

(By discussion with Bhabhi ji, Barkha gives the instructions about the correct cooking procedure of preparation of different recipes of soybean which are as per Appendix II.)

Appendix – III d

SCRIPT OF VIDEO CASSETTE

Topic SOYBEAN – ITS IMPORTANCE AND RECIPES

Script Writer Barkha Garg
L-99-H.Sc.-223-M

Major Advisor Dr. (Mrs.) Ranbir Randhawa
Professor, Department of Home Science Extension Education

S. No.	Shot Description	Narration	Music
1.	Soybean-Its importance and recipes written on Soybean grains		Light Music
2.	Soybean keeping in hands and written as Home Science Extension Education, Punjab Agricultural University. Ludhiana		Light Music
3.	Rural women working on soybean green crop in field.		Light Music
4.	Rural women harvesting ripe soybean		Light Music
5.	Farmer entering in his house with gunny bag of soybean grain	**Farmer** - please tell me Bhabhi where to keep the gunny bag	---
6.	Bhabhi Sitting and working at home	**Bhabhi** – oh! what have you brought?	
7.	Farmer keeping the gunny bag	**Farmer** – Bhabhi, I had taken soybean to mandi. Brother told me to keep little at home	

8.	Bhabhi Working	**Bhabhi-** Oh! what has to be done? Last year also it was brought but nobody consumed	
9.	Barkha entering home	**Barkha** – Hello Bhabhi ji, with whom you are talking?	
10.	Barkha and Bhabhi talking each other	**Bhabhi** –Nothing, talking about soybean. Your brother had send las year but nobody was happy with its consumption. It is said that its preparation is not good. You are doing Home Science course in university. You must be knowing about this. **Barkha** – Soybean is good and has a lot of protein **Bhabhi** – What is this protein? **Barkha** – Protein is an important element for growing children. If it lacks in children, they get physical and mental growth retardness. **Bhabhi** – Good, then it is very good. **Barkha** – Not only this but it has many other advantages also Soyprotein from soy equals proteins from animals and is very beneficial for diabetic patients. **Bhabhi-** Good, then it is very good for mother. **Barkha** – We can store it as a pulse for a long time. It is profitable from agricultural point of view. **Bhabhi** – Good, how? **Barkha** – Yield of Soybean per acre is 2 to 3 times more	

		than other pulse crops. It is also nitrogen fixing crop and help in increasing soil fertility. **Bhabhi** – Then it is very good. I was criticising un-necessary. But one thing is there that it smells foul at the time of cooking. **Barkha** – It is only because of improper cooking methods **Bhabhi** – Then, you tell some good methods. **Barkha** – For this, first of all some preparations will be needed. **Bhabhi** – Then tell me what preparations will have to be done, I will keep them ready. Please tell me when you come next time.	

NEXT TIME DEMONSTRATION

SOYBEAN SOAKING PROCEDURE

- Wash soybean after removing discolored and spoiled seeds.
- Soak soybean overnight or for 9-10 hours in four times water. (Quantity wise)
- Drain off unsoaked water and rinse well in clean water.

SOYFLOUR PREPARATION

- Soak soybean as above.
- Dehull by rubbing beans in hands, float the hulls off with water.
- Steam for 5 minutes in cooker or 10-15 minutes in ordinary vessel.
- Remove water and spread cooked beans in an open sun for drying.
- Take the dried beans to the local chakki for milling.

AFTER ONE WEEK DEMONSTRATION

MISSIE PARONTHA

INGREDIENTS

Soy flour	-	½ cup	Ginger	-	1 sm all piece
Bengal gram flour	-	½ cup	Corriander	–	little
Whole wheat flour	-	1 cup	Salt	-	to taste
Onion	-	2	Water	-	to need
Green chilly	-	2			

Method

- Sieve three flours together.
- Knead with water in to stiff dough after adding chopped onions, ginger, green chilly, corriander and salt to the flour.
- Make flattened round balls with palms. Roll out in a chapati and heat on griddle for frying with ghee.

SOY DALMOTH

INGREDIENTS

Soybean - 2 cups Oil -2 cups
Black peeper, roasted cumin powder, black salt, amchoor, red chilies and salt to taste.

Method

- Soak soybean
- Boil for five minutes, strain and spread on a cloth to drain off moisture.
- Deep fry in oil on medium heat until crisp.
- Season with powdered spices and mix well.

SOY-FLOUR BESAN LADDU

INGREDIENTS

Soy flour	–	½ Cup	Boora Sugar	–	1 Cup
Bengal gram flour	–	1 ½ cup	Cardamom	–	½ Cup
Desi/Vanaspati Ghee-		1 cup	(finely powdered)		

Method

- Sieve two flours together.
- Melt desi/vanaspati ghee in frying pan.
- Add flour mixture and fry on slow fire until golden brown.
- Allow it to cool.
- Mix Boora sugar, powdered coardamom and shape into small balls (Laddu)

SIMPLE WAYS OF UTILISING SOYBEAN IN OUR DAILY DIET.

- Soaked soybean for 9-10 hours may be cooked for 5-10 minutes in pressure cooker and make paste in wet grinder. It can be stored in refrigerator for many days and used in many ways like mixing with wheat flour, black gram for Dahi vadah etc.
- Soybean can be used in the form of soyflour with wheat, maize or rice flour.

SOY-POTATO VEGETABLE

INGREDIENTS

Soaked soybean – 1 cup
Boiled Potato (cut into pieces) – 2
Tomato (cut) - 4
Onion (cut) – 2
Cumin seeds – ½ tsp
Turmeric – ½ tsp
Red chilly – ½ tsp
Salt – to taste
Whole spices (2 cloves, 1 big cardamon, 1 stick cinnamon, bay leaf) (ginger, garlic and green chilly) grinded into paste.

Method

- Cook the soybean with all whole spices in pressure cooker for 15-20 minutes.
- Heat one tsp ghee in griddle, add cumin seeds and onion to it.
- As soon as the onion color becomes light brown, add paste of ginger, garlic and red chilly, cook for a minute and add tomato pieces.
- Add salt, red chilly and turmeric.
- Add boiled and cooked soybean (as in first step) and cook.
- Now, add potatoes and water as per need and cook for 10-15 minutes in open.

Appendix IV

Respected Madam/Sir,

I have undertaken a study entitled, **"Development of instructional materials for imparting knowledge to rural women regarding utilization of soybean in their diet"**. I have developed a training package/kit consisting of instructional materials i.e. pamphlet, audio cassette and video cassette. The instructional material needs to be judged for their adequacy and understandability for imparting the message effectively and efficiently. Different characteristics have been identified for judging the appropriateness of each of these components. As you have been selected as one of the experts for this purpose you are requested to please give your response for each of characteristic as per the three options provided against each characteristic.

Thanking you in anticipation.

Yours Sincerely

Barkha Garg
M.Sc. Student
C/o Dr. (Mrs.) R. Randhawa
(Major Advisor)
Professor, Deptt. of Home Science
Extension Education, PAU, Ludhiana

INDEX –A

Understandability and Adequacy Index for pamphlet on "Soybean-Its importance and recipes"

Directions:

Kindly tick (✓) your response to judge the developed pamphlet in relation to various characteristics.

Characteristics	Response	Pamphlet
1. Appearance	Appealing	
	Somewhat appealing	
	Not appealing	
2. Caption	Appealing	
	Somewhat appealing	
	Not appealing	
3. Size of lettering	Appealing	
	Somewhat appealing	
	Not appealing	
4. Illustrations	Suitable	
	Somewhat suitable	
	Not suitable	

5.	Understandability of language	Understandable	_____
		Somewhat understandable	_____
		Not understandable	_____
6.	Number of Technical words	Too many	_____
		Few in number	_____
		None	_____
7.	Sequence of information provided	Sequence wise	_____
		Somewhat sequence wise	_____
		Not sequence wise	_____
8.	Storage	Easily storable	_____
		Storable to some extent	_____
		Not storable	_____
9.	Content	Suitable	_____
		Somewhat suitable	_____
		Not suitable	_____

INDEX –B

Understandability and Adequacy Index for audio cassette on "Soybean-Its importance and recipes"

Directions :

Kindly tick (✓) your response to judge the developed audio cassette in relation to various characteristics.

Characteristics		Response	Audio Cassette
1.	Pronunciation	Appropriate	
		Somewhat appropriate	
		Not appropriate	
2.	Audio Clarity	Clear	
		Somewhat clear	
		Not clear	
3.	Speed	Appropriate	
		Somewhat appropriate	
		Not appropriate	
4.	Pause	Appropriate	
		Somewhat appropriate	
		Not appropriate	

5.	Emphasis	Appropriate	_____
		Somewhat appropriate	_____
		Not appropriate	_____
6.	Understandability of	Appropriate	_____
	language	Somewhat appropriate	_____
		Not appropriate	_____
7.	Duration	Appropriate	_____
		Somewhat appropriate	_____
		Not appropriate	_____
8.	Clarity of message	Clear	_____
		Somewhat clear	_____
		Not clear	_____
9.	Sequence of	Sequence wise	_____
	information provided	Somewhat sequence wise	_____
		Not sequence wise	_____
10.	Content	Suitable	_____
		Somewhat suitable	_____
		Not suitable	_____

INDEX –C

Understandability and Adequacy Index for video cassette on "Soybean-Its importance and recipes"

Directions :

Kindly tick (✓) your response to judge the developed video cassette in relation to various characteristics.

Characteristics	Response	Audio Cassette
1. Audio clarity	Clear	
	Somewhat clear	
	Not clear	
2. Focus & sharpness	Appropriate	
of picture	Somewhat appropriate	
	Not appropriate	
3. Speed	Appropriate	
	Somewhat appropriate	
	Not appropriate	
4. Duration	Appropriate	
	Somewhat appropriate	
	Not appropriate	

5.	Understandability of language	Understandable	_____
		Somewhat understandable	_____
		Not understandable	_____
6.	Music	Suitable	_____
		Somewhat suitable	_____
		Not suitable	_____
7.	Sequence of information provided	Sequence wise	_____
		Somewhat sequence wise	_____
		Not sequence wise	_____
8.	Clarity of message	Clear	_____
		Somewhat clear	_____
		Not clear	_____
9.	Cultural compatibility	Compatible	_____
		Somewhat compatible	_____
		Not compatible	_____
10.	Content	Suitable	_____
		Somewhat suitable	_____
		Not suitable	_____

ਗਿਆਨ ਪ੍ਰੀਖਿਆ

ਭਾਗ ਪਹਿਲਾ

1. ਨਾਮ _____

2. ਪਰਿਵਾਰ ਦਾ ਮੁੱਖੀ _____

3. ਪਿੰਡ ਤੇ ਜ਼ਿਲ੍ਹਾ _____

4. ਉਮਰ _____

5. ਸਿੱਖਿਆ ਪੱਧਰ _____

   ੳ) ਪ੍ਰਾਇਮਰੀ _____

   ਅ) ਮਿਡਲ _____

   ੲ) ਮੈਟ੍ਰਿਕ/10+2 _____

   ਸ) ਗਰੈਜੂਏਸ਼ਨ ਅਤੇ ਉੱਤੇ _____

6. ਪਰਿਵਾਰ ਦੀ ਕਿਸਮ ਸਾਂਝਾ/ਇਕੱਲਾ

7. ਮੁੱਖੀ ਦਾ ਕਿੱਤਾ _____

ਭਾਗ ਦੂਜਾ

'ਸੋਇਆਬੀਨ ਦੀ ਖੁਰਾਕੀ ਮਹੱਤਤਾ ਅਤੇ ਪਕਵਾਨ'

I. ਹੇਠ ਲਿਖਿਆ ਵਿਚੋਂ ਜੋ ਸਹੀ ਹੈ ਉਸ ਅੱਗੇ ਦਿੱਤੀ ਥਾਂ ਤੇ (✓) ਅਤੇ ਜੋ ਗਲਤ ਹੈ ਉਸ ਅੱਗੇ (×) ਨੂੰ ਗੋਲਧਾਰਾ ਬਣਾਉ।

		ਠੀਕ	ਗਲਤ
ੳ)	ਸੋਇਆਬੀਨ ਵਿੱਚ ਪ੍ਰੋਟੀਨ ਨਹੀਂ ਹੁੰਦੀ।	✓	×
ਅ)	ਪ੍ਰੋਟੀਨ ਬੱਚਿਆ ਦੇ ਸਰੀਰਕ ਅਤੇ ਮਾਨਸਿਕ ਵਿਕਾਸ ਲਈ ਜਰੂਰੀ ਹੈ।	✓	×
ੲ)	ਜਿਨ੍ਹਾਂ ਨੂੰ ਜਾਨਵਰਾਂ ਤੋਂ ਪ੍ਰਾਪਤ ਪ੍ਰੋਟੀਨ ਤੋਂ ਐਲਰਜੀ ਹੁੰਦੀ ਹੈ, ਉਹ ਸੋਇਆਬੀਨ ਵੀ ਨਹੀਂ ਖਾ ਸਕਦੇ।	✓	×
ਸ)	ਸੋਇਆਬੀਨ ਵਿੱਚ ਤੇਲ ਬਿਲਕੁਲ ਨਹੀਂ ਹੁੰਦਾ।	✓	×

ਹ) ਸੋਇਆਬੀਨ ਖੂਨ ਵਿੱਚ ਕੋਲੈਸਟਰੋਲ ਦੀ ਮਾਤਰਾ ਘੱਟ ਕਰਨ ਵਿੱਚ ਮੱਦਦ ਕਰਦੀ ਹੈ। ✓ ×

ਕ) ਸੋਇਆਬੀਨ ਦਾ ਆਟਾ ਪਿਸਾਵਾਉਣ ਤੋਂ ਪਹਿਲਾ ਇਸ ਦਾ ਛਿਲਕਾ ਉਤਾਰ ਦੇਣਾ ✓ × ਚਾਹੀਦਾ ਹੈ।

II. ਨਿਮਨਲਿਖਿਤ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਤਿੰਨ-2 ਉੱਤਰ ਦਿੱਤੇ ਗਏ ਹਨ, ਢੁਕਵੇ ਉੱਤਰ ਤੇ (✓) ਦਾ ਨਿਸ਼ਾਨ ਲਗਾਉ।

1. ਕਿਹੜੀ ਦਾਲ ਵਿੱਚ ਸਭ ਤੋਂ ਵੱਧ ਪ੍ਰੋਟੀਨ ਹੁੰਦੀ ਹੈ।

ੳ) ਸੋਇਆਬੀਨ

ਅ) ਮੂੰਗੀ ਦੀ ਦਾਲ

ੲ) ਅਰਹਰ ਦੀ ਦਾਲ

2. ਸੋਇਆਬੀਨ ਨੂੰ ਬਣਾਉਣ ਤੋਂ ਪਹਿਲਾਂ ਕਿੰਨੀ ਦੇਰ ਲਈ ਭਿਉਂਣਾ ਜਰੂਰੀ ਹੈ।

ੳ) 2-3 ਘੰਟੇ

ਅ) 9-10 ਘੰਟੇ ਜਾਂ ਪੂਰੀ ਰਾਤ

ੲ) 4-5 ਘੰਟੇ

3. ਸੋਇਆਬੀਨ ਵਿੱਚ ਕਿੰਨੀ ਪ੍ਰਤੀਸ਼ਤ ਪ੍ਰੋਟੀਨ ਹੁੰਦੀ ਹੈ।

ੳ) 43

ਅ) 10

ੲ) 15

4. ਸੋਇਆਬੀਨ ਵਿਚੋਂ ਆਉਣ ਵਾਲੀ ਗੰਧ ਦਾ ਮੁੱਖ ਕਾਰਨ

ੳ) ਪਕਾਉਣ ਦਾ ਗਲਤ ਤਰੀਕਾ

ਅ) ਸੋਇਆਬੀਨ ਦੀ ਆਪਣੀ ਗੰਧ

ੲ) ਸੋਇਆਬੀਨ ਨੂੰ ਭਿਉਂਣ ਕਰਕੇ

5. ਸੋਇਆਬੀਨ ਦਾ ਆਟਾ ਬਣਾਉਣ ਤੋਂ ਪਹਿਲਾਂ ਛਿਲਕਾ ਕਦੋਂ ਉਤਰਨਾ ਚਾਹੀਦਾ ਹੈ।

ੳ) ਉਬਾਲਣ ਤੋਂ ਬਾਅਦ

ਅ) ਉਬਾਲਣ ਤੋਂ ਪਹਿਲਾ

ੲ) ਧੁੱਪ ਵਿੱਚ ਸੁਕਾਉਣ ਤੋਂ ਬਾਅਦ

III. ਨਿਮਨਲਿਖਿਤ ਵਾਕਾਂ ਵਿੱਚ ਖਾਲੀ ਥਾਵਾਂ ਵਿੱਚ ਉਨਾਂ ਦੇ ਨੀਚੇ ਦਿੱਤੇ ਗਏ ਉੱਤਰਾਂ ਵਿਚ ਸਹੀ ਉੱਤਰ ਭਰੋ।

ੳ) ਸੋਇਆਬੀਨ ਵਿੱਚ_____ਪ੍ਰਤੀਸ਼ਤ ਤੇਲ ਹੁੰਦਾ ਹੈ।
2/20

ਅ) ਸੋਇਆਪ੍ਰੋਟੀਨ ਦੇ ਗੁਣ ਜਾਨਵਰਾਂ ਤੋਂ ਪ੍ਰਾਪਤ ਪ੍ਰੋਟੀਨ ਦੇ ਗੁਣਾਂ ਦੇ _____ਹੁੰਦੇ ਹਨ।
ਘੱਟ/ਬਰਾਬਰ

ੲ) ਸੋਇਆਬੀਨ ਸ਼ਕਰ ਦੇ ਮਰੀਜ਼ਾਂ ਲਈ _____ਹੁੰਦੀ ਹੈ।
ਫਾਇਦੇਮੰਦ/ਫਾਇਦੇਮੰਦ ਨਹੀਂ

ਸ) ਸੋਇਆਬੀਨ ਵਿਚਲੇ ਅਨਚਾਹੇ ਤੱਤ (ਟਰਿਪਸਨ ਇਨਹਿਬਟਰ) ਨੂੰ_____ ਨਾਲ ਨਸ਼ਟ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
ਭਿਉਣ/ਉਬਾਲਣ

ਹ) ਸੋਇਆਬੀਨ ਦਾ ਆਟਾ ਪਿਸਵਾਉਣ ਤੋਂ ਪਹਿਲਾ ਇਸ ਨੂੰ _____ਮਿੰਟ ਲਈ ਪ੍ਰੈਸ਼ਰ ਕੂਕਰ ਵਿੱਚ ਭਾਫ ਦਵਾਉਣੀ ਚਾਹੀਦੀ ਹੈ।
5/20

VITA

Name of the student	:	Barkha Garg
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EDUCATIONAL QUALIFICATION

Bachelor degree	:	**B.Sc. Home Science**
University and year of award	:	Punjab Agricultural University, Ludhiana, 1999
OCPA	:	7.30/10.00
Master's degree	:	**M.Sc. (Home Science Extension Education)**
University and year of award	:	Punjab Agricultural University, Ludhiana, 2001
OCPA	:	7.99/10.00
Title of Master's Thesis	:	Development of instructional materials for imparting knowledge to rural woman regarding utilization of soybean in their diet
Award/Distinction/Fellowship/ Scholarships	:	Merit Scholarship during M.Sc. 2nd Year.