

SECOND ANNUAL REPORT

1996 – 97

Dr. (Mrs.) Vijaya Khader

Director

CENTRE OF ADVANCED STUDIES

DEPARTMENT OF FOODS AND NUTRITION

COLLEGE OF HOME SCIENCE

POST GRADUATE AND RESEARCH CENTER

ACHARYA N.G.RANGA AGRICULTURAL UNIVERSITY

RAJENDRANAGAR, HYDERABAD 500 030

SECOND ANNUAL REPORT OF CENTRE OF ADVANCED STUDIES FOR THE YEAR 1996-97

1. Project title : centre of advanced studies
 2. Sanction No : proc .No. 37735/ H.Sc./ A1/94,
 dt .22-9-95 of APAU.
 3. Report Period From 1996 to 1997.
 4. Report No . 2
 5. Date of Start : 02—11—1995
 6. a) Name of Institute / : Acharya N.G. Ranga Agricultural University, Hyderabad.
 Station.

b) Division / Department /Section : Centre of Advanced Studies
 Post Graduate & Research Centre
 Department of Foods & Nutrition
 Rajendranagar, Hyderabad – 30.

7. a) Technical Programme as approved for the scheme
 b) Technical Programme approved for the year } Appendix – I enclosed
 c) Technical Programme approved for the next year

8. Technical Personnel employed (List Vacancy, if any)

Sanctioned Posts	Posts filled	Posts to be filled
1. Steno – cum-Typist	U .D. Steno Filled on 2-9-1996	NIL
2. AVA Operator	Converted into JACT	The incumbent yet to join.
3. Attender	Filled	NIL

Name With Designation	Date of joining	Date of Leaving
R. V. N. S. Murthy U.D. Steno.	02—09—1996	----
V. Narsinga Rao, Attender.	22—06—1996	----

9. Total outlay (1996-97) : Rs. 13,06,260 /-
10. Total amount spent in pervious year
(1996-97) : Rs. 4,45,350 /-
11. Total amount sanctioned / spent during the year under report
- a) Sactioned : Rs. 14,47,550/-
- b) Spent : Rs. 13,06,260/-
12. Total No. of man – months during
the year. : 12 months (From April '96 to March '97)
13. Summary : Report objective wise enclosed

Signature :

Name & Designation :

REPORT ON ACTIVITIES CARRIED OUT UNDER CENTRE OF ADVANCED STUDIES – 1996 – 97

I. INFRA STRUCTURE FACILITIES :

1. Staff Recruitment :

The posts of Steno-cum-typist and attender have been filled up. The post of A.V. Operator will be filled up Shortly.

2. Civil Works :

Civil work has been completed. Electrical and sanitary work has to be completed. Now the centre of Advanced Studies in Foods & Nutrition has the following facilities.

- Seminar hall / Lecture hall
- Conference hall
- Library room
- Equipment room / Laboratory
- Computer room
- Office room
- Store room

II. EQUIPMENT :

The following lab equipment has been purchased.

- Gerhardt Kjeldal digester
- Exide batteries
- V. Guard stabilizers
- Eurostar cooler – cum – purifier
- Microwave oven
- Digital weighing machine
- Samsung refrigerator
- Wooden measurement stands
- Electronic weighing machine
- Anthropometry rod (Height) with bag
- Hakims Multipanel Kit.

Furniture :

The following furniture and furnishings have been purchased to furnish the seminar hall. Conference hall. Computer room etc.

List of furniture and furnishings :

- Dias table : 1
- Seminar hall chair : 85
- Rostrum : 1
- Computer chairs : 2
- Computer tables : 2
- Printer tables : 2
- Xerox machine table : 1
- Carpet
- Curtains

III. MAINTENANCE AND REPAIR :

The following activities were undertaken under maintenance and repairs.

- Electrical wiring to UPS
- Maintenance for Xerox machine
- Deionizer servicing
- AMC of AC machine

IV. PURCHASE OF BOOKS AND JOURNALS :

Two books namely (1). Advances in food colloids and (2). Food properties hand book have been purchased.

V. ACADEMIC ACTIVITIES:

Objectives I : To serve as a national resource and training centre for faculty in the field of Foods & Nutrition by conducting summer institutes and short courses. Two short courses (duration of three weeks each) namely :

- Assessment of Nutritional Status from 8th – 27th july, 1996.
- Recent developments in fruits and vegetable processing from 3rd – 22nd , Feb. 1997.

Were conducted. A three day training programme on Anthropometry was also organized.

Assessment of Nutritional Status :

Nutritional Status assessment is one of the important areas of nutrition, where rapid changes are taking place in developing new methods and to refine existing methods and their interpretation. This knowledge is essential to all the nutritionists engaged in teaching or conducting research. To any nutrition oriented welfare programme, this knowledge is useful to initiate, monitor and evaluate the programme.

The objectives of the training programme are :

- 1) To disseminate the knowledge on recent developments in the methods of assessment of nutritional status to the staff of the State Agricultural Universities;
- 2) To equip the trainees with the latest techniques in the methods of nutritional status assessment and interpretation.

Eleven participants from various Universities have participated in the programme. Two staff members were from Assam Agricultural University, Jorhat; 2 from University of Agricultural Sciences, Dharwad; 2 from Rajendra Agricultural University, Bihar; 1 from College of agriculture, Udaipur; 1 from Marathwada Agricultural University, Parbhani, 1 from University of Agricultural Sciences, Bangalore; 1 from Sri Padmavathi Mahila University, Tirupati; and 1 from the University college of women, Osmania University, Hyderabad. All except two are engaged in teaching "Foods and Nutrition" in Home Science Colleges and one participant is a biochemist and another participant has specialized in extension education.

In order to fulfill the objectives of the short course, the content was developed based on the latest developments and trends in the subject. Apart from including established methods of nutritional assessment such as anthropometry, diet surveys, clinical and biochemical methods, topics on recently developed techniques like rapid assessment procedures (RAP), participatory rural assessment (PRA), focused ethnography and stake holder analysis for community assessment were also included. Topics on sampling procedures, experimental design and development of structured questionnaires, use of computers in analyzing the data related to anthropometry and diet surveys were also included.

Emphasis was given on the practical components of the programme. Participants were given field training in conducting diet surveys, taking anthropometric measurements of school children including analysis and interpretation of data. A hospital visit was arranged to provide first hand information in identifying the clinical deficiency symptoms. Participatory Rural Assessment was conducted in a rural area. Laboratory methods on estimating haemoglobin, serum protein, vitamin -A levels by using spectrophotometer and HPLC methods were demonstrated. Knowledge gained by each participant before and after the programme

revealed that there is a significant increase in the knowledge level of all the participants in the subjects. Detailed lecture notes consisting of 248 pages was prepared and given to participants.

Recent developments in fruits and vegetable processing:

Nature has gifted our Country with a wide variety of fruits and vegetables and these are important items in our dietaries from the point of minerals and vitamins they contain. They are highly perishable due to the high moisture content. Reports indicate that nearly 25 – 30% of these valuable commodities are lost annually for various reasons like wilting, inadequate storage (pre-cooling and cold storage) facilities at production centres, wrong methods of handling and transportation, bruising, microbial spoilage, rodent damage, etc. even though the processing technologies are available to reduce the post harvest losses and increase value addition, presently the capacity utilization of the existing processing units is very low and of the total production of fruits and vegetables, less than two per cent only is being processed in the country as against 70 -80% in many developed countries. The processing units are not used to the fullest advantage and most of the technologies are available to reduce the post harvest losses and increase value addition, presently the capacity utilization of the existing processing units is very low and of the total production of fruits and vegetables, less than two per cent only is being processed in the country as against 70n -80 % in many developed countries. The processing units are not used to the fullest advantage and most of the technologies are primitive.

In recent times many newer technologies have been developed by the scientists working in the area of fruit and vegetable processing. These technologies have added advantage of getting a product of superior quality with maximum nutrient retention, value addition and export potential. The existing curriculum of under graduate programme in Foods & Nutrition, has a subject entitled food storage and preservation, which deals with many methods of processing and preservation. Extending the knowledge on newer methods and technologies to the teachers and researchers working in the faculty of Home Science in State Agricultural Universities (SAU) is very essential. It is also the responsibility of the researchers in the State Agricultural Universities to explore appropriate process technologies for developing new products based on the available and existing technologies. Hence this particular short course on “Recent Developments in Fruit & Vegetable Processing”, was conceived, planned and conducted with the following objectives:

- To upgrade the knowledge and skills of the teachers and researchers working in SAU's in the areas of fruits and vegetable processing.

- To strengthen the existing course content of food preservation with recent developments.
- To enable them to guide student research effectively in the relevant areas.

Keeping these objectives in view the short course on “Recent Developments in Fruit & Vegetable Processing” was held from 3rd – 22nd February , 1997.

Training Programme in Anthropometry:

A three day training programme in Anthropometry was conducted to the faculty members of united planter’s Association of Southern India, Krishi Vignan Kendra, Coonoor, Tamil Nadu from 1st to 4th January, 1997.

Objective II :

a) Restructuring of Post Graduate Courses :

The subject matter of Foods & Nutrition has expanded very widely since the last decade covering a broad spectrum of areas starting from courses focusing on basic sciences like food, biochemistry to areas such as programme planning and management. Between these two extremes come the applied and technology oriented courses. Today Foods & Nutrition is a broad field covering several aspects starting from post harvest handling, storage processing, utilization, bio availability, safety and toxicity in foods and nutritional requirement, assessment, food security, intervention, dietetics, programme planning and management etc., on nutrition side. Moreover the opportunities of employment are becoming distinctly different requiring different backgrounds of knowledge skill and training. In view of the diversified changes that have taken place in the field of employment, the lacuna in the present training has been viewed seriously and discussed in the staff meeting and student meetings of the department. The participants have also expressed similar opinion.

The Department of Foods & Nutrition of the Home Science Faculty of Acharya N.G.Ranga Agricultural University has always played a leading role among agricultural universities in terms of curriculum development and research. The UNDP consultants and the Senior Programme Officer of Nutrition, FAO had also indicated a reviving in P.G. curriculae and separate specialization to meet the changing needs of the State and Country.

Keeping all these points in view, a large number (33) of M.Sc and Ph.D courses have been modified and two specific areas of nutrition have been identified i.e., Nutrition and Dietetics and Community Nutrition. These courses were approved by the academic Council of ANGR Agricultural University held on 24th and 25th May, 1996. The list of approved courses are given below.

REVISED / NEW COURSES OF DEPARTMENT OF FOODS & NUTRITION

Sl. NO.	Courses No.	Title of the course	Credits
1.	FN 690	Food Chemistry	3(2+1)
2.	FN 691	Intermediary Metabolism	3(2+1)
3.	FN 692	Macro and Micro Nutrients in Human Nutrition	3(2+1)
4.	FN 693	Physical and Functional Properties of foods constituents.	3(2+1)
5.	FN 696	Ecology of Foods and Nutrition	2(2+0)
6.	FN 697	Nutrition for vulnerable groups	3(2+1)
7.	FN 698	Clinical Nutrition	3(2+1)
8.	FN 699	Food Industry Experience	3(0+3)
9.	FN 710	M.Sc. Seminar	1(1+0)
10.	FN 720	M.Sc. Research in F.N.	20(0+20)
11.	FN 730	M.Sc. Special project / problems	2(0+2)
12.	FN 740	Food and Nutrition programme planning and management	3(2+1)
13.	FN 790	Food Product development	2(2+1)
14.	FN 791	Community Nutrition and Health Intervention	3(2+1)
15.	FN 792	Advanced Techniques in Nutritional Assessment	3(2+1)
16.	FN 793	Nutrition Communication and Education	3(1+2)
17.	FN 794	Field experience in community nutrition	3(0+3)
18.	FN 795	Physiologic and Metabolic changes in disease	2(2+0)
19.	FN 796	Advances in diet therapy	3(2+1)
20.	FN 797	Institutional Food Service Management	2(1+1)
21.	FN 798	Nutrition and diet Counsellig	2(1+1)
22.	FN 799	Practicing dietetics	3(0+3)
23.	FN 810	Ph.D. Seminar	1(1+0)
24.	FN 820	Ph.D. Research in FN	45(0+45)
25.	FN 830	Ph.D. Special project / problems	2(0+2)
26.	FN 891	Food Carbohydrates	2(0+2)
27.	FN 892	Food Lipids	3(2+1)
28.	FN 892	Food Protein	3(2+1)

(Contd.,)

Sl.NO.	Course No.	Title of the course	Credits
29.	FN 894	Nutrition and Agriculture development	3(3+0)
30.	FN 900	Nutrition Research Methods	3(3+0)
31.	FN 991	Metabolic Studies	3(3+0)
32.	FN 994	Mineral Nutrition and Metabolism	3(2+1)
33.	FN 995	Metabolism and function of vitamins	2(1+1)

B. Allocation of seats under P.G. program.

M.Sc.

Over and above the sanctioned strength of 14 M.Sc. students two more candidates who have been nominated by ICAR have been admitted under Centre Advanced Studies (one from Karnataka and one from Bhuvaneswar)

Ph.D.

Ms. Mary Walingo an inservice candidate from Kenya has been nominated by ICAR and admitted in Ph.D during the year 1995 – 96. She is also permitted to carry out her research “Impact on dairy programme on nutritional status of vulnerable groups in Kenya”, at Kenya. She is the first International candidate to be admitted into the Ph.D programme of the department and also permitted to work at Kenya.

C. Development of Text Books :

Two University level text books entitled “Food storage and preservation” and “Food Science and Technology” were submitted by Dr. Vijayakhader, Director, centre of Advanced Studies to the University Grants Commission and Indian Council of Agricultural Research for reviewing.

D. Development of Laboratory Manuals :

Manuals prepared : Two laboratory manuals at P.G. level namely Macro and Micro Nutrients in Human Nutrition and Physical and functional properties of food constituents have been prepared by the faculty member.

Manuals under progress : Two manuals at P.G. namely Applied dietetics and Food Chemistry are under progress.

Two manuals at U.G. level are being developed.

E. Compilation of P.G. Research :

All the abstracts of research work carried out by M.Sc and Ph.D. students over a period of three decades in the department of foods & nutrition has been compiled.

F. Compilation of data on tribals of Andhra Pradesh :

The data available on tribals of Andhra Pradesh and their nutritional status has been compiled.

Objective III.

To support the Government in training personnel and in implementing and evaluation of nutrition programme.

Action plan :

Assessing and developing the training needs of the line departments (Women's Development & Child Welfare; Social & Tribal Welfare; Panchayat & Rural Development) through meetings and groups discussions.

A. Interaction meeting with scientists of ANGRAU, Local ICAR, Govt. Of India Institutes and ICRISAT, held on 3-6-1996 at E.E.I. Seminar Hall, Rajendranagar.

The presentation of implementable technologies by the scientist of APAU, Directorate of Rice Research, National Research Centre for Sorghum, Directorate of Oil seeds Research, CRIDA, ICRISAT, NBPGR, IGSI, CFTRI, Walantari and MANAGE. Were put up on 6th june, 1996, at an interaction meeting of scientists of ANGRAU and National Institute with Officers of DOA, DOH and APSSDC.

Dr. S.V. Subba Reddy, Hon'ble Minister for Agriculture, Horticulture and Sericulture, Govt. Of A.P.; Sri K. R. Kishore, IAS, Director of Agriculture; Sri Ajeyakallm, IAS, Director of Horticulture were participated. Technology relevant to cereal and millet based products; technologies relevant to legumes; processing techniques for Amaranth seed; Indigenous plant material as grain protectants' processing of Oyster mushroom; technologies pertaining to fruit & vegetable processing have been explained by Dr. Vijayakhader, Director, CAS.

B. World bank aided operational research project in ICDS centres of Srikakulam district has been initiated by the department of foods & nutrition in the year 1996. The main aim of the project is to test the effect of therapeutic food supplementation on the growth and morbidity

status of pre-school children of ICDS project run by the department of women Development & Child Welfare, Govt. Of A.P.

The A.P. Foods factory, Nacharam, Hyderabad, a Public Sector undertaking is manufacturing three types of supplements (a) Therapeutic food (b) Therapeutic food with Amylase Rich Food (ARF) and (c) Sweet Ready Mix (SRM) and supplying to 124 Anganwadi Centres in 3 ICDS Projects of Srikakulam district.

Objective IV :

To disseminate nutrition information to personnel of different sectors.

Action Plan :

- A. To bring out quarterly issue of foods & nutrition bulletin for circulation among the live departments and the organization and the organizations involved in nutrition related programmes.

Five quarterly issues of "Food & Nutrition News", were brought out.

Title	Issue Editor	Editor
a. Nutritional importance of Red Palm Oil.	Dr. R. Manorama	Dr Vijayakhader
b. Carotenoid and Tocopherol retention in Food products using Red Palm Oil.	Dr. G. Sarojini	Dr Vijayakhader
c. Alternate uses of sorghum	Dr. V. Vimala	Dr Vijayakhader
d. Aflatoxins – its prevention and detoxification	Dr. Uma Reddy	Dr Vijayakhader
e. iron nutritional status and work performance	Dr. Sharada	Dr Vijayakhader

- B. Organising group meeting for academicians, administrators, planners and extension workers to apprise them of nutrition situation and integrated nutrition component in the programmes of the department.

- i) Dr. S.L. Mehtha, Deputy Director General, visited the Centre of Advanced Studies, Hyderabad centre, on 24th July, 1996 and address the participants attending the Short Courses on Assessment of Nutritional Status.
- ii) ICRISAT Governing Body consists of 14 members headed by Dr. M.I. Quattara, Councilor for Developmental Affairs and Dr. Mariam. B., Professor, Department of crop and Soil Sciences, visited on 24th February, 1997.
- iii) Ethiopian Government Officials headed by her Highness H.E. Ms. Tadelech Hawle Mikeal, Head of Women Affairs, Sectors Office of the Prime Minister, Addis Ababa.

Ethiopia, visited on 12th March, 1997 and discussed about the various activities pertaining to women education, welfare programmes and Government Policies etc.

- iv) M.s.Raffa – Ei – Faliti – Yousuf, Personal Manager from Sudan Government has visited P.G. & Research Centre on 31st March to discuss about various research activities and academic programmes.
- v) Dr. R.S. Paroda, Director General from I.C.A.R. and Dr. M.V. Rao, former Vice-Chancellor of ANGRAU and Dr. Vijayakhader, Director of Advanced Studies have discussed about the progress of various activities in the programme (photograph).
- vi) The QRT consisting of Dr. (Mrs.) Adarsha Sharma, Dr. (Mrs.) Tejvarma and Mrs. Pankajam Sudaram have visited and appreciated the activities going on.

C. Food & Nutrition information through mass media (T.V., Radio and Press) :

Dr. Vijayakhader participated in a programme on “Akali – Aposhona – Pi – Poratam” (Telugu vernacular) meaning “Fight Against Hungry and Malnutrition”, was telecasted by Hyderabad Doordarshan on 16th October, 1996 from 6.30 P.M to 7.00 P.M.

News item: One article on Phoshakhahara – Lopam – Adhikhaminchatam – Eala (Telugu Vernacular) was published in Eenadu daily on 16th October, 1996 (cutting enclosed).

Exhibition : An exhibition on general health and nutrition, demonstration on preparation of weaning foods and low cost nutritious recipes was engaged by the Staff and Students of Foods & Nutrition Department at Khanapur on 16th October, 1996.

Publications : Twenty scientific papers and thirty popular articles were published by the staff.

Button mushrooms for high proteinous diet was published in Indian Farming, October Special Issue, 1996 by Dr.Vijayakhader.

Radio talks : Twenty radio talks were given by the Staff of Post Graduate and Research Centre.

Video cassette: One video cassette on “Oyster Mushroom” was developed and supplied to all Krishi Vignana Kendras in Andhra Pradesh. This cassette deals with preparation of pure culture, spawn, cultivation of mushroom and processing which will help the rural folk to have supplementary income.

Pledge : pledge taken on the occasion of “Janmabhomi Celebrations” in Telugu on the 4th January, 1997.

iii. Expected outcome by the end of the plan period :

- A) Providing common resource material for teaching and evaluation of food and nutrition programmes at U.G and P.G. level.

Resource material developed during all the three short courses namely: Recent developments in therapeutic nutrition, Nutritional assessment and Recent developments in fruit and vegetable processing and made available to the staff and students of the department and to all the participants from different states.

B. Faculty improvement in terms of teaching, research and extension.

1. Eight independent adhoc research projects on various aspects are going on in the department.
- ii. All – India Coordinated Research Project in the Department of Foods & Nutrition is going on from the inception of the project.
- iii. Dr. (Mrs.) Sarojini and Dr.(Mrs.) Manorama have presented papers on Red Palm Oil at a Workshop held in Malaysia.
- iv Dr. (Mrs.) Vijayakhader has got an offer to visit Bishlik (Russia) under U.G.C. Exchange programme.
- v. Two students one inservice candidate and another one fresh candidate have obtained Ph.D degree.
- vi. Staff have participated in various National Seminars.

APPENDIX – I

WORKPLAN FOR CENTRE OF ADVANCEDV STUDIES

Department of Foods & Nutrition
Post Graduate & Research Centre
Andhra Pradesh Agricultural University
Rajendranagar, Hyderabad 500030

I. OBJECTIVES

1. To serve as a national resource and training centre for faculty in the field of foods & Nutrition.
2. To upgrade the curriculum and courses of Foods & Nutrion to strengthen teaching and evaluation at UG and PG level.
3. To support the government in training personnel.
4. To disseminate nutrition information to personnel of different sectors.

II. OUTPUTS / PROGRAMMES TO BE IMPLEMENTED DURING THE CURRENT PLAN PERIOD

Objective 1

To serve as a national resource and training centre for faculty in the field of Foods & Nutrition in State Agricultural Universities.

Action plan

A. Summer Institutes / Short Courses

Conducting one Summer Institute Programme or one Short Course in priority areas of Foods & Nutrition every year.

Priority areas identified for summer Institute Programme / Short Courses

1. Recent developments in therapeutic nutrition.
2. Fruit and Vegetable Processing.
3. Grain processing.
4. Nutritional assessment and methods.
5. Nutrition toxicology.

B. Allocation of seats under PG programme

Provision of seats in M.Sc. and Ph.D. in Foods & Nutrition to outside State candidates selected by ICAR through a common test would be decided (as a policy matter) under AHRD subject to the approval state Government.

Objective 2

To update the curriculum and courses of Foods & Nutrition and strengthen teaching and evaluation at UG and PG level.

Action Plan

To implement the course curriculum for UG programme keeping in view the recommendation of Deans Committes (Workshop organized on 7th-12th June, 1993 at APAU, Hyderabad – Report awaited).

To organize one working for developing PG curriculum during III year of the programme.

To organizes workshop for preparing laboratory manuals for UG and PG programmes.

Action Plan

Assessing and developing the training needs of the line departments (women's Development & Child Welfare; Social & Tribal Welfare; Panchayat Raj & Rural Development) through meetings and group discussions.

Objective 4

To dessiminate nutrition information to personnel of different sectors.

Action Plan

To bring out quarterly issue of Food & Nutrition Bulletin for circulation among the line departments and the organizations involved in nutrition related programmes.

Organizing group meetings for academicians, administrators, planners and extension workers to appraise them of nutrition situation and integrate nutrition Component in the programmes of their departments.

Foods & Nutrition information through mass media (TV, Radio and Press).

III. EXPECTED OUTCOME BY THE END OF THE PLAN PERIOD

1. Providing common resource material for teaching and evaluation of food and nutrition programmes at UG and PG level.
2. Faculty improvement in terms of teaching, research and extension.
3. Strengthening postgraduate Education and research in Foods & Nutrition in other State Agricultural Universities.
4. Conducting need based multicentric studies to provide feed back to the planners and policy matters.

