

**A STUDY OF COMMUNICATION LINKAGES IN THE CONTEXT OF  
GENERATION AND TRANSFER OF DRYLAND AGROTECHNOLOGY  
IN ANANTAPUR DISTRICT OF ANDHRA PRADESH**

**THESIS SUBMITTED TO THE  
ANDHRA PRADESH AGRICULTURAL UNIVERSITY  
IN PART FULFILMENT OF THE REQUIREMENTS  
FOR THE AWARD OF THE DEGREE OF  
DOCTOR OF PHILOSOPHY IN AGRICULTURE  
(EXTENSION EDUCATION)**

**By  
PUJARI DAIVADEENAM,  
M.Sc (Ag)..,**

**EXTENSION EDUCATION INSTITUTE  
COLLEGE OF AGRICULTURE  
ANDHRA PRADESH AGRICULTURAL UNIVERSITY  
RAJENDRANAGAR :: HYDERABAD :: 500 030**

**1987**

*(Year of Award 1988)*

**CERTIFICATE**

Sri Pujari Daivadeenam has satisfactorily prosecuted the course of research and that the thesis entitled " A STUDY OF COMMUNICATION LINKAGES IN THE CONTEXT OF GENERATION AND TRANSFER OF DRYLAND AGRO-TECHNOLOGY IN ANANTAPUR DISTRICT OF ANDHRA PRADESH" submitted is the result of original research work and is of sufficiently high standard to warrant its presentation to the examination. I also certify that the thesis or part thereof has not been previously submitted by him for a degree of any University.

Date : 2.12.87

  
( CH. SATYANARAYANA )  
Major Advisor

**CERTIFICATE**

This is to certify that the thesis entitled "A STUDY OF COMMUNICATION LINKAGES IN THE CONTEXT OF GENERATION AND TRANSFER OF DRYLAND AGROTECHNOLOGY IN ANANTAPUR DISTRICT OF ANDHRA PRADESH" submitted in partial fulfilment of the requirements for the degree of "DOCTOR OF PHILOSOPHY IN AGRICULTURE" of the Andhra Pradesh Agricultural University, Hyderabad is a record of the bonafide research work carried out by Sri Pujari Daivadeenam under my guidance and supervision. The subject of the thesis has been approved by the Student's Advisory Committee.

No part of the thesis has been submitted for any other degree or diploma or has been published. Published part has been fully acknowledged. All the assistance and help received during the course of the investigations have been duly acknowledged by him.

*Ch. Satyan*

CHAIRMAN OF THE ADVISORY COMMITTEE

Thesis approved by the Student's Advisory Committee

CHAIRMAN (Dr. CH. SATYANARAYANA)  
Professor & Head  
Extn. Edn. Institute  
Rajendranagar, Hyderabad

*Ch. Satyan*  
\_\_\_\_\_

MEMBER (Dr. N. YELLA REDDY)  
Professor of Extension  
Education, Extn. Edn.  
Institute, Rajendranagar  
Hyderabad.

*N. Yella Reddy*  
\_\_\_\_\_

MEMBER (Dr. G. VENKATESWARA REDDY)  
Professor & University Head  
Dept. of Agronomy  
College of Agriculture  
Rajendranagar, Hyderabad

*G. Venkateswara Reddy*  
\_\_\_\_\_

MEMBER (Dr. (Smt) M. MEENAKSHI BAI)  
Associate Professor & Head  
Dept. of Statistics & Maths  
S.V. Agril. College, Tirupati.

*M. Meenakshi Bai*  
\_\_\_\_\_

## ACKNOWLEDGEMENTS

I express my profound sense of gratitude to Dr. Ch. Satyanarayana, Professor & Head, Extension Education Institute, Rajendranagar, Hyderabad and Chairman of my Advisory Committee who provided research insight, intellectual stimulation, encouragement and expert guidance throughout the present study.

I am high grateful to Dr. N. Yella Reddy, Professor of Extension Education and Member of my Advisory Committee for his valuable suggestions and continued encouragement for this study.

I am extremely thankful to Dr. G. Venkateswara Reddy Professor & University Head, Department of Agronomy, APAU and Member of my Advisory Committee for his guidance in carrying out this research work.

I record my sincere thanks to Dr. (Smt.) M. Meenakshi Bai, Associate Professor and Head, Department of Statistics and Mathematics, S.V.Agricultural College, Tirupati and Member of my Advisory Committee for her constant guidance in statistical analyses of the data.

I am highly indebted to Dr. B.V.S. Rao, Associate Professor, Department of Extension Education, College of Agriculture, Rajendranagar, for his kind help in successful completion of the study.

v

I am very much thankful to Sri M. Anjanappa, Assistant Research Officer and Sri A. Satyanarayana, Research Officer, Computer Cell, APAU for their help in analyses of the data.

I record my sincere thanks to Dr. Belum, V.S. Reddy, Plant Breeder, ICRISAT, Dr. Y.V.R. Reddy, Senior Scientist (Agril. Economics), CRIDA, Sri P. Gidda Reddy, Assistant Extension Specialist, DARS, Anantapur and Sri B.C. Katama Reddy, Agronomist, DARS, Anantapur, who have helped me in obtaining data from the respondents of the study.

I am thankful to the Officials of ICRISAT, CRIDA, State Department of Agriculture, Anantapur and Farmers of Anantapur district who were the respondents for the study.

Thanks are also due to my friends Sri N.S. Ingale, Dr. K.S. Raju, Dr. K. Pandarinath Reddy and Sri C.G. Davankar for their co-operation throughout the study.

I am also thankful to Sri Ch. Sitaramaiah for typing the thesis and Sri P. Ramaiah for his assistance in drawing the figures.

I sincerely express my thanks to the Andhra Pradesh Agricultural University for deputing me for higher studies leading to Ph.D degree in Extension Education.

I am grateful to the ICAR, New Delhi for providing financial assistance in the form of Senior Research Fellowship.

I owe a lot to my wife Smt. Jayalakshmi, son Chi. Gopi Krishna and daughter Chi. Meena Kumari, for shouldering the household responsibilities and enabling me to concentrate and complete this study.

*P. DAIVADEENAM* 2/12/87  
( P. DAIVADEENAM )

## CONTENTS

CHAPTER		PAGE
I	INTRODUCTION	1
II	REVIEW OF LITERATURE	10
III	MATERIALS AND METHODS	52
IV	FINDINGS AND DISCUSSION	83
V	SUMMARY AND CONCLUSION	293
	LITERATURE CITED	323
	APPENDICES	333
	V I T A	386

## LIST OF TABLES

Table	Title	Page
1	Selection of dryland farmers from the population for the study	57
2	Communication linkages - modes - used by researchers for generation of technology with mean values and critical difference (C.D) value.	86
3	Communication linkages - sources - used by researchers for generation of technology with mean values and critical difference (C.D) value.	99
4	Communication linkages used by researchers for transfer of technology to extension personnel with mean values and critical difference (C.D) value.	110
5	Communication linkages used by researchers for transfer of technology to farmers with mean values and critical difference (C.D) value.	121
6	Communication linkages used by extension personnel for acquisition of technology with mean values and critical difference (C.D) value.	131
7	Communication linkages used by extension personnel for transfer of technology to farmers with mean values and critical difference (C.D) value.	143
8	Communication linkages used by farmers for acquisition of technology with mean values and critical difference (C.D) value.	154
9	Correlation coefficients of independent variables with modes used as communication linkages by researchers for generation of technology	167
10	Correlation coefficients of independent variables with sources used as communication linkages by researchers for generation of technology.	169

Table	Title	Page
11	Correlation coefficients of independent variables with communication linkages used by researchers for transfer of technology to extension personnel.	174
12	Correlation coefficients of independent variables with communication linkages used by researchers for transfer of technology to farmers.	177
13	Correlation coefficients of independent variables with communication linkages used by extension personnel for acquisition of technology.	181
14	Correlation coefficients of independent variables with communication linkages used by extension personnel for transfer of technology to farmers.	184
15	Correlation coefficients of independent variables with communication linkages used by farmers for acquisition of technology	187
16	Multiple linear regression analysis of independent variables with modes used as communication linkages by researchers for generation of technology	192
17	Multiple linear regression analysis of independent variables with sources used as communication linkages by researchers for generation of technology.	195
18	Multiple linear regression analysis of independent variables with communication linkages used by researchers for transfer of technology to extension personnel.	198
19	Multiple linear regression analysis of independent variables with communication linkages used by researchers for transfer of technology to farmers.	201
20	Multiple linear regression analysis of independent variables with communication linkages used by extension personnel for acquisition of technology.	205

<b>Table</b>	<b>Title</b>	<b>Page</b>
21	Multiple linear regression analysis of independent variables with communication linkages used by extension personnel for transfer of technology to farmers.	208
22	Multiple regression analysis of independent variables with communication linkages used by farmers for acquisition of technology	211
23	Path coefficient analysis of independent variables with modes used as communication linkages by researchers for generation of technology.	216
24.	Path coefficient analysis of independent variables with sources used as communication linkages by researchers for generation of technology.	221
25	Path coefficient analysis of independent variables with communication linkages used by researchers for transfer of technology to extension personnel.	226
26	Path coefficient analysis of independent variables with communication linkages used by researchers for transfer of technology to farmers.	230
27	Path coefficient analysis of independent variables with communication linkages used by extension personnel for acquisition of technology.	235
28	Path coefficient analysis of independent variables with communication linkages used by extension personnel for transfer of technology to farmers	240
29	Path coefficient analysis of independent variables with communication linkages used by farmers for acquisition of technology	245
30	Constraints faced by researchers in generation of technology.	250

<b>Table</b>	<b>Title</b>	<b>Page</b>
31	Constraints faced by researchers in transfer of technology to extension personnel and farmers.	253
32	Constraints faced by extension personnel in acquisition of technology.	256
33	Constraints faced by extension personnel in transfer of technology to farmers.	260
34	Constraints faced by farmers in acquisition of technology.	264
35	Constraints faced by farmers in utilization of technology.	267
36	Extent of time taken (time lag) in transfer of certain selected dryland management practices from researchers to extension personnel (from conception to development and testing)	271
37	Extent of time taken (Time lag) in transfer of certain selected dryland management practices from researchers to farmers (after conception to development and testing)	273
38	Extent of time taken (time lag) in transfer of certain selected dryland management practices by extension personnel to farmers.	279
39	Extent of time taken (time lag) in utilization of certain selected dryland management practices by farmers.	285

## LIST OF FIGURES

Figure	Title	Page
1	Conceptual model of the study	50
2	Map showing the respondent (Researchers and Extension personnel) selected for the study in Andhra Pradesh.	53
3	Map showing the respondents (Farmers) selected for the study in Anantapur district.	55
4	Communication linkages - mode - used by researchers for generation of technology with mean values.	87
5	Communication linkages - sources - used by researchers for generation of technology with mean values.	100
6	Communication linkages used by researchers for transfer of technology to extension personnel with mean values.	111
7	Communication linkages used by researchers for transfer of technology to farmers with mean values.	122
8	Communication linkages used by extension personnel for acquisition of technology with mean values.	132
9	Communication linkages used by extension personnel for transfer of technology to farmers with mean values.	144
10	Communication linkages used by farmers for acquisition of technology with mean values.	155
11	Path diagram showing direct, indirect and largest indirect effects of independent variables on modes used as communication linkages by researchers for generation of technology.	218
12	Path diagram showing direct, indirect and largest indirect effects of independent variables on sources used as communication linkages by researchers for generation of technology.	223

Figure	Title	Page
13	Path diagram showing direct, indirect and largest indirect effects of independent variables on communication linkages used by researchers for transfer of technology to extension personnel.	228
14	Path diagram showing direct, indirect and largest indirect effects of independent variables on communication linkages used by researchers for transfer of technology to farmers.	232
15	Path diagram showing direct, indirect and largest indirect effects of independent variables on communication linkages used by extension personnel for acquisition of technology.	237
16	Path diagram showing direct, indirect and largest indirect effects of independent variables on communication linkages used by extension personnel for transfer of technology to farmers.	242
17	Path diagram showing direct, indirect and largest indirect effects of independent variables on communication linkages used by farmers for acquisition of technology.	247
18	Percentage of researchers who have transferred and not transferred the four selected dryland management practices to the farmers.	274
19	Extent of time taken (time lag) in transfer of the four selected dryland management practices by researchers to farmers.	275
20	Extent of time taken (time lag) in transfer of the four selected dryland management practices by extension personnel to farmers.	280
21	Percentage of farmers who have utilised, aware but not utilised and not aware of the four selected dryland management practices.	286
22	Extent of time taken (time lag) in utilization of the four selected dryland management practices by farmers.	287
23	Suggested model for generation, acquisition and transfer of dryland agrotechnology.	291

## ABSTRACT

Name of the author	P. DAIVADEENAM
Title of the Thesis	"A Study of Communication Linkages in the context of Generation and Transfer of Dryland Agrotechnology in Anantapur district of Andhra Pradesh"
Degree to which it is submitted	Doctor of Philosophy
Faculty	Agriculture
Guide	Dr. Ch. Satyanarayana Professor & Head Extension Education Institute Rajendranagar Hyderabad-500 030
University	Andhra Pradesh Agricultural University, Rajendranagar Hyderabad - 500 030
Year of submission	1987

In order to accelerate the process of modernization, it becomes essential to understand the communication linkages of the members of the researchers, extension personnel and farmers in the context of generation and transfer of farm technology. The present study was conceived with a general objective to analyse communication linkages, constraints, time lag and to develop an effective model which would serve as a guide in generation, acquisition and transfer of technology with particular reference to dryland agriculture, among researchers, extension personnel and farmers.

Exploratory research design was followed in the study. Anantapur district in Andhra Pradesh was purposively chosen as the locale for the study. 70 researchers belonging to Dryland Agricultural Research Station, Anantapur, CRIDA and ICRISAT of Hyderabad, 90 extension personnel of various categories and 100 dryland farmers belonging to Anantapur district have constituted as sample respondents for the study. The data were collected by mailed questionnaires and interview schedule. Appropriate statistical procedures were employed to analyse and interpret data.

"Self observation", as mode, "state level research institute" as source, were the most significantly used communication linkages for generation of technology; whereas "Professional meetings" and "Personal contacts" were the most significantly used communication linkages by researchers for transfer of technology to extension personnel and farmers respectively. "Professional meetings" and "Farm and home visits" were the most significantly used communication linkages by extension personnel for acquisition and transfer of technology respectively. "Demonstrations" was the most used communication linkage by farmers for acquisition of technology.

Correlation analysis revealed that age, education, total experience, training, cadre, job commitment, facilities and workload had significant relationship with communication linkages used for generation and transfer of technology by

researchers; whereas job satisfaction, facilities, organisational climate, workload and job commitment had significant relationship with communication linkages used for acquisition and transfer of technology by extension personnel; while training, innovativeness and achievement motivation had significant relationship with communication linkages used for acquisition of technology by farmers.

Multiple linear regression analysis indicated that all the selected 11 independent variables of researchers put together explained about 37 per cent variation in modes and 48 per cent in sources used as communication linkages for generation of technology; while 55 per cent and 56 per cent variation was explained in communication linkages used by researchers for transfer of technology to extension personnel and farmers respectively. It also indicated that all the selected nine independent variables of extension personnel put together explained about 60 per cent and 26 per cent variation in communication linkages used for acquisition and transfer of technology respectively. It, further revealed that all the selected 11 independent variables of farmers put together explained about 16 per cent variation in communication linkages used for acquisition of technology.

Path coefficient analysis revealed that total experience, cadre, age and education had highest direct effects; whereas age, total experience and facilities had highest

total indirect effects; while largest indirect effects were channelled through total experience, cadre and age on communication linkages used for generation and transfer of technology by researchers. It also indicated that facilities and job commitment had highest direct effects; whereas organisational climate and facilities had highest total indirect effects; while largest indirect effects were channelled through organisational climate and job commitment on communication linkages used for acquisition and transfer of technology by extension personnel. It further revealed that achievement motivation had highest direct effect; whereas innovativeness had highest total indirect effect, while largest indirect effect was channelled through training on communication linkages used for acquisition of technology by farmers.

It was also found in the study that a time lag of five to six years was taken from conception stage to transfer to the field in respect of four selected practices viz., intercropping, dead furrow, eenatigooru and compartmental bunding.

## ABBREVIATIONS

ADA	Assistant Director of Agriculture
AICRP	All India Coordinated Research Project
AICRPDA	All India Coordinated Research Project for Dryland Agriculture
AO	Agricultural Officer
APAIDC	Andhra Pradesh Agro Industries Development Corporation
APAU	Andhra Pradesh Agricultural University
APSSDC	Andhra Pradesh State Seeds Development Corporation
CHIDA	Central Research Institute for Dryland Agriculture
DARS	Dryland Agricultural Research Station
DDA	Deputy Director of Agriculture
IARI	Indian Agricultural Research Institute
ICAR	Indian Council Agricultural Research
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
JDA	Joint Director of Agriculture
KVK	Krishi Vigyan Kendra
LLP	Lab to Land Programme
NDS	National Demonstration Scheme
ORP	Operational Research Project
RARS	Regional Agricultural Research Station
RAWEP	Rural Agricultural Work Experience Programme
SIPP&PS	State Institute of Plant Protection and Pest Surveillance
SIRD	State Institute of Rural Development
VEO	Village Extension Officer
VIP	Very Important person
T&V	Training and Visit
ZRAC	Zonal Research Advisory Council