International Journal of Agricultural Science, Research and Technology in Extension and Education Systems (IJASRT in EESs)
Available online on: http://ijasrt.iau-shoushtar.ac.ir
ISSN: 2251-7588 Print
ISSN: 2251-7596 Online
2015: 5(3):145-151

Received: 26 March 2016
Reviewed: 1 July 2016
Revised: 7 July 2016
Accepted: 22 July 2016

Mapping of Agricultural Information Flows for Yam Minisett Technology in Delta State, Nigeria

[1]Agbamu, J.U; [2]Ozor, A.O and [3]Ajieh, P.C[*]
[1] Professor of Agricultural Economics and Extension Department, Delta State University, Asaba Campus, Asaba, Nigeria
[2] Assistant Professor of Agricultural Economics and Extension Department, Delta State University, Asaba Campus, Asaba, Nigeria
*[3] Associate Professor of Agricultural Economics and Extension Department, Delta State University, Asaba Campus, Asaba, Nigeria * Corresponding Author: ajieh2002@yahoo.com*

Abstract

This study examined information flow on minisett technology among yam farmers in Delta State, Nigeria. A sample size of 180 respondents was involved in the study. Data were obtained from respondents of the study through the use of a validated interview schedule. Percentage, frequency and mean scores were used to summarize data, while line diagrams were used to develop maps of information flows. Results of the study revealed that the chain type of information flow was associated with the Delta North Agricultural Zone, while Delta Central and Delta South Agricultural Zones were associated with Community based and Multiple contact types of information flows respectively. Federal and State government establishments, youth clubs, mass media, socio- cultural groups, farmers' cooperatives, religious bodies, community development committees and non-governmental organizations were useful in driving information flows on yam minisett technology. The study also revealed that only few farmers used agricultural extension officers as source of information in Delta State. The major sources of information on yam minisett technology include radio (M=2.51); relatives (M=1.83); neighbours (M=1.61); contact and fellow farmers (M=1.47) and television (M=1.26). Based on these findings, the study recommends that multi-media approach should be adopted in the dissemination of information on yam based technologies. Also, farm radio and television broadcasts should be extensively used to air agricultural information to farmers on regular basis.

Keywords: Mapping, Agricultural information, Yam minisett technology, Information flow

1. Introduction

Agricultural information used by farmers do not always flow in a simple linear direction as charted by the trickle-down method of innovation diffusion. There exist a network of individuals, groups and institutions in and around farmers' communities that communicate with farmers about agro-technologies. The mapping of information flow helps to clarify an agricultural information system, visualize the direction of information flows and the relative importance of different links within a farming community (Lawrence, 1997). The mapping of information flow can help to pinpoint where a bridge could be introduced into farmers' communication network in order to enhance smooth information flow. A mapping method can also help to understand how to manage flow of agricultural message through a social system and monitor its performance and problem areas.

The yam minisett technology was developed for the production of seed tubers which are separate from the production of ware yam. According to Oguntade, Olaniran and Ige (2010), yam minisett technology involves cutting of a yam tuber into small setts of 20-30gms each with some portion of the cuticle attached, the minisett is planted 9cm deep with a spacing of 25cm apart and the seed yam harvested after six months.

The general objective of this study is to use mapping method to visualize agricultural information flows in Delta State of Nigeria and highlight their necessity for planning agricultural communication strategies. The specific objectives are to: 1) describe the socio economic characteristics of yam farmers; 2) identify the theoretical types of information flow associated with each of the agricultural zones in Delta State; and 3) ascertain sources of information used by yam farmers.

2. Materials and methods

Delta State where the study was conducted has a land area of 17, 698 km^2 and lies roughly between latitude 5^0 00^1 and 6^0 30^1 North and longitude 5^0 00^1 and 6^0 45^1 (Delta State Dairy, 2014). According to National Population Commission (2006), Delta State has a population of 4,098,391. It is made of twenty-five local government areas and has three agricultural zones: Delta North, Delta Central and Delta South.

The study designed three theoretical typologies of information flow by use of mapping method. Based on a pilot study that the researchers did, the typologies of information flow likely to exist in Delta State are depicted in Figures 1 to 3 to represent chain type, community-based type and multiple contact type of information flows. Simple random sampling technique was used to select two Local Government Areas (LGAs) from each of the three agricultural zones in the state to give a total of six LGAs. The six LGAs are Oshimili North and Aniocha North from Delta North Zone; Ughelli North and Ughelli South from Delta Central Zone; Bomadi and Warri North from Delta South Zone. Two villages were selected from each of the six LGAs to give a total of twelve villages.

Based on gender, age and educational level, stratified sampling technique was used to select fifteen yam farmers from each of the 12 villages to get a sample size of 180 yam farmers out of 596 yam farmers who registered with the Delta State Agricultural Development Programme (ADP). Primary data were obtained from farmers using interview schedule to ascertain how information on yam minisett technology flow to farmers through various sources. The extent of use of mass media and interpersonal sources of information were measured by use of a four-point likert scale in which very often, often, seldom and never used were assigned scores of 1, 2, 3 and 4 respectively. Books, journals, newsletters and other forms of literature constituted secondary sources of information. Data were analysed using percentages, mean scores and line diagram to develop a map of information flow.

3. Results and discussion:

3.1 Socio economic characteristics of respondents

Entries in Table 1 show that 65% of the yam farmers were males, while 35% were females. The profile of the yam farmer in Delta State is an individual who is 46.7 years old, has a family size of 6 persons per household, a farming experience of 19.7 years, had awareness about yam minisett technology 15 years ago and has farm size of 2.6 hectares and an annual farm income of ₦299, 388.89. On education level, most of the farmers (63.9%) had primary education; 16.7 % and 8.3% of them had secondary and higher education respectively. These findings indicate that 88.9% of the farmers were educated. Basic education is important for farmer's ability to understand and evaluate production techniques like yam minisett technology. Education helps to cerate positive mental attitude towards innovations and it is one of the salient variables that enhance adoption of innovations (Agbamu, 2006).

3.2 Theoretical types of information flow associated with agricultural zones in Delta State

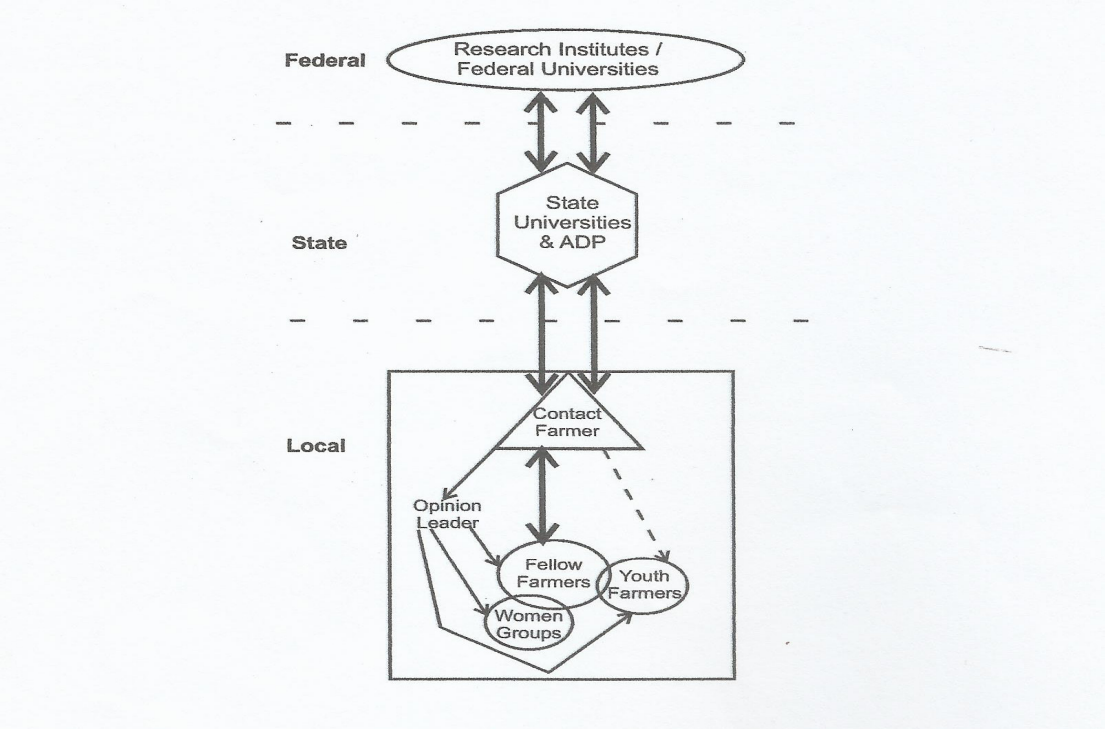
The chain type of agricultural information flow was found in Delta North Agricultural Zone, as shown in Figure 1. Three levels are discernable in this type: Federal, State and Local. There were strong information flows between Federal institutions and the State ADP, and between State ADP//University and contact farmers. The flow of information between contact farmer and fellow farmers was also strong compared to other networks within the local level. Community-based type of information flow shown in Figure 2 was found in Delta Central Agricultural Zone. In this type, the influence of mass media linked to a web of local operators in co-operatives, women and youth groups was felt. Apart from the institutionalized link of Federal and State establishments, operations of informal social groups and community heads in the information flow was observed. This study found that multiple contact type of information flow depicted in Figure 3 was observable in Delta South Agricultural Zone. The Multiple Contact type showed evidence of the activities of religious societies, non-governmental organizations and community development committees in driving agricultural information flows.

The reasons responsible for differences in patterns of information flows in the three agricultural Zones in Delta State are: (1) the differences in sociological background of farmers in Delta North, Delta Central and Delta South Agricultural Zones, particularly in the ways the communities and their various groups are organized; (2) differences in farmers' communication patterns in different social

settings; (3) use or non-use of community development committees to drive agricultural information flow in a given agricultural zone and (4) differential roles of religious bodies in their involvement in agricultural practices and youth development in various areas of Delta State.

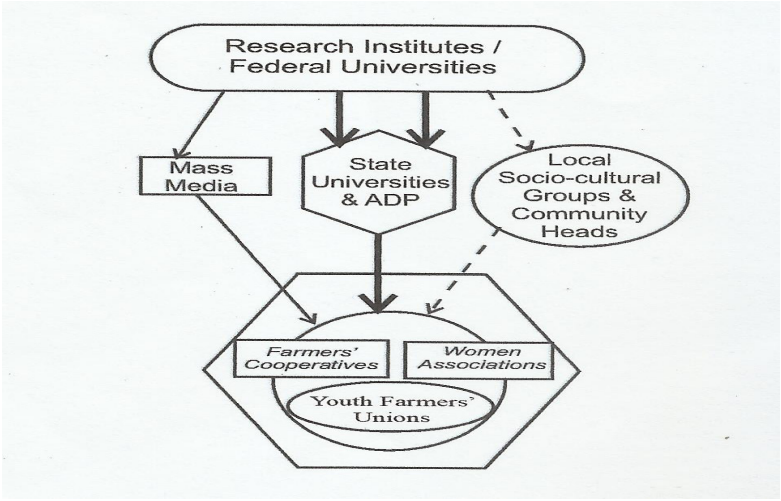
Table 1. Distribution of respondents according to their socio-economic characteristics (n = 180)

Socio-economic characteristics	Frequency	Percentage	Mean
Gender			
Males	117	65	
Females	63	35	
Age (Years)			
20 – 29	15	8.3	
30 – 39	35	19.4	
40 – 49	55	30.6	46.7 years
50 – 59	45	25.0	
60 – 69	30	16.7	
Marital Status			
Single	22	12.2	
Married	148	82.2	
Widow/Widower	10	5.6	
Household Size			
3 – 5	63	35	
6 – 8	90	50	6.4 persons
9 – 11	27	15	
Education Level			
No formal education	20	11.1	
Primary education	115	63.9	
Secondary education	30	16.7	
Post Secondary education	15	8.3	
Yam Farming Experience (years)			
1 – 10	30	16.7	
11 – 20	70	38.9	19.7 years
21 – 30	55	30.6	
31 – 40	25	13.9	
Awareness of yam minisett technology (years)			
1 – 10 years ago	56	31.1	
11 – 20 years ago	84	46.7	15 years
21 – 30 years ago	32	17.8	
31 – 40 years ago	08	4.4	
Farm Size (Ha)			
0.1 – 1.99	70	38.9	
2.0 – 3.99	85	47.2	2.6 hectares
4.0 – 5.99	20	11.1	
6.0 – 7.99	05	2.8	
Income Level/Annum			
₦221,000 – ₦260,000	65	36.1	
₦261,000 - ₦280,000	50	27.8	
₦281,000 - ₦320,000	10	5.6	₦299,388.89
₦321,000 - ₦360,000	25	13.9	
₦361,000 - ₦480,000	25	13.9	
₦481,000 - ₦600,000	05	2.8	



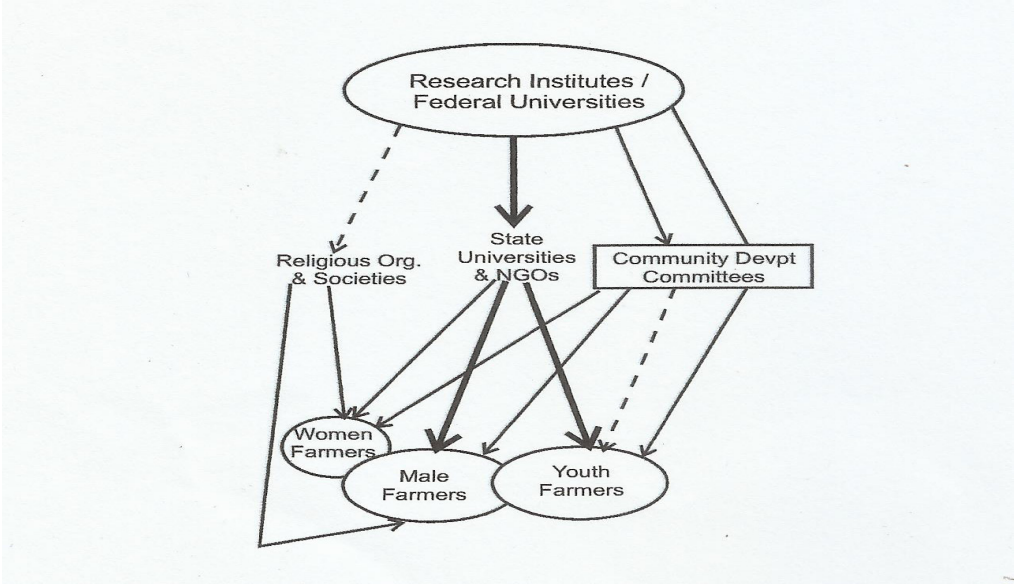
Lines represent information flow
Thicker lines represent stronger information flow/institutionalized and regular links.
Broken lines represent informal/irregular links and boundaries of the levels

Figure 1. Chain Type of Information Flow



Lines represent information flow
Thicker lines represent stronger information flow/institutionalized/regular links.
Broken lines represent informal/irregular links

Figure 2. Community-based Type of Information Flow



Lines represent information flow
Thicker lines represent stronger information flow/institutionalized/regular links.
Broken lines represent informal/irregular links.

Figure 3. Multiple Contact Type of Information Flow

Table 2. Degree of use of mass media information sources (n= 180)

Mass media information sources	(4)	(3)	(2)	(1)	Total Score	Mean Score	Rank
Radio	72(288)	25(75)	5(10)	78(78)	451	2.51	1st
Newspapers and Magazine	4(16)	21(63)	8(16)	147(147)	242	1.34	2nd
Television	1(4)	18(54)	8(16)	153(153)	227	1.26	3rd
Agricultural Newsletters	3(12)	5(15)	6(12)	166(166)	205	1.14	4th
Mobile Phones	2(8)	5(15)	3(6)	170(170)	199	1.11	5th
Internet Services	1(4)	5(15)	2(4)	172(172)	195	1.08	6th
Pamphlets	3(12)	1(3)	3(6)	173(173)	194	1.08	6th
Video	1(4)	2(6)	4(8)	173(173)	191	1.06	8th
Extension Guide	1(4)	1(3)	5(10)	173(173)	190	1.06	8th
Posters	1(4)	1(3)	3(6)	175(175)	188	1.04	10th

(4) Very Often used, (3) Often used, (2) Seldom used, (1) Never used
Values in parentheses are scores from a 4-point Likert type scale. The cut off point which indicates adequate usage is 2.50 (< 2.5 = inadequate usage; ≥ 2.5 represents adequate usage)

Table 3. Extent of use of interpersonal information sources on yam minisett technology (n=180)

Mass media information sources	(4)	(3)	(2)	(1)	Total Score	Mean Score	Rank
Relatives	36(144)	18(54)	6(12)	120(120)	330	1.83	1st
Neighbors	22(88)	20(60)	4(8)	134(134)	290	1.61	2nd
Contact and Fellow Farmers	14(56)	16(48	10(20)	140(140)	264	1.47	3rd
Agricultural Extension Officers	3(12)	10(30)	7(14)	160(160)	216	1.20	4th
Yam Farmers' Association	2(4)	8(24)	2(4)	168(168)	204	1.13	5th
Opinion Leaders	2(8)	5(15)	3(6)	170(170)	199	1.11	6th
Public Lectures and Workshop	1(4)	2(6)	1(2)	176(176)	188	1.04	7th
Mobile Phones	1(4)	2(6)	1(2)	175(175)	187	1.04	7th
Officials of Research Institutes	0(0)	1(3)	3(6)	176(176)	185	1.03	9th
NGO Officials	1(4)	1(3)	1(2)	177(177)	186	1.02	10th
Religious Organization Officials	0(0)	1(3)	2(4)	177(177)	184	1.02	10th

Values in parentheses are scores from a 4-point Likert type scale. The cut off point which indicates adequate usage is 2.50 (< 2.5 = inadequate usage; ≥ 2.5 represents adequate usage)

3.3 Sources of information used by yam farmers

Data on Table 2 show the use of mass media sources of information on yam minisett technology. Results showed that radio (M = 2.51), newspaper and magazine (M = 1.34) and television (M = 1.26) were the mass media sources mostly used by farmers. Radio was found to be the only source that was adequately used and this is in agreement with Ekumankama and Nwankwo (2002) who described radio as the most powerful medium of farmer education in the tropics. Entries in Table 3 showed that relatives (M = 1.83), neighbors (M = 1.61), contact and fellow farmers (M = 1.47) constituted the interpersonal information sources mostly used by yam minisett farmers. Agricultural extension officers (M = 1.20) ranked 4th and lacked adequate usage. The findings of Ofuoku and Ajieh (2005) which showed low score for extension officers as a source of information on animal health issues corroborated this study which revealed that very few farmers (9.4%) used agricultural extension officers as a source of information on yam minisett technology in Delta State.

4. Discussion, Conclusion and Recommendations

It can be concluded that the typical yam farmer in Delta State is an individual who is 46.7 years old, with a farm size of 2.6 hectares and had awareness of yam minisett technology about 15 years ago, a low income earner with low level of education and a farming experience of 20 years. The chain type of information flow was associated with Delta North agricultural zone while Delta Central and Delta South agricultural zones had community-based and multiple-contact type of information flows respectively. The major sources of information used by yam minisett farmers were radio and relatives. Very few yam farmers used agricultural extension officers as source of information in Delta State. The dissemination of yam based technologies in Delta State calls for a multi-media approach. Federal and State Government establishments, youth clubs, mass media, socio-cultural groups, farmers' co-operatives, religious bodies, community development committees and non-governmental organizations were useful in driving information flows on yam minisett technology.

Having found that the yam farmers depend more on radio, television, relatives and neighbours, it is recommended that farm radio and television broadcasts be established by Delta Broadcasting Service and Nigerian Television Authority to air fortnightly or monthly agricultural programmes. The differences in typologies of information flow in different zones in Delta State portrayed the need for agricultural extension officers to apply differential communication approaches in driving innovations in different agricultural zones in Delta State.

References:

1) Agbamu, J. U. (2006). Essentials of Agricultural Communication in Nigeria, Lagos: Malthouse Press Limited, pp. 104-105.

2) Delta State Dairy. (2014). Delta State Government Dairy, Asaba: Delta State Government Press.

3) Ekumankama, O. O and Nwankwo, G. (2002). Radio Farm Broadcasts: A Study of Adoption of Agricultural Innovations in Umuahia Zone, Abia State. Journal of Agricultural Extension, 6: 17-24.

4) Lawrence, A. C. (1997). Mapping Information Flows. Newsletter of Low External Input and Sustainable Agriculture, 13(1):22-23 Leusden, Netherlands.

5) National Population Commission. (2006). Nigeria's Population from 2006 Census Results, Abuja: National Population Commission.

6) Ofuoku, A.U and Ajieh, P.C. (2005). Sources of Information on Animal Health Management among Poultry Farmers in Delta State. Proceedings of 10th Annual National Conference of Animal Science Association of Nigeria, Held at University of Ado-Ekiti, September 12th – 15th, pp. 322-324.

7) Oguntade, A. E., Olaniran, T. A. and Ige, T (2010). Economics of Seed Yam Production using Minisett Technique in Oyo State, Nigeria. Field Actions Science Reports, 4:1-5.

مجله بین‌المللی علوم، تحقیقات و فناوری کشاورزی در نظام‌های آموزش و ترویج
قابل دستیابی در: http://ijasrt.iau-shoushtar.ac.ir
شاپا نسخه چاپی:۷۵۸۸-۲۲۵۱
شاپا نسخه برخط: ۷۵۹۶-۲۲۵۱
۱۵۱-۱٤٥:(۳)٥ :۲۰۱٥

۷ فروردین ۱۳۹۵ :دریافت نسخه اولیه
۱۱ تیر ۱۳۹۵ :ارسال پاسخ داوری
۱۷ تیر ۱۳۹۵ :دریافت نسخه اصلاحی
۱ مرداد ۱۳۹۵ :پذیرش

ترسیم جریان اطلاعات کشاورزی برای فناوری مینی‌ست سیب‌زمینی در ایالت دلتا، نیجریه

آکبامو، ب. یو[۱]، ازور، آ. او[۲] و آجیه، پی. سی[۳]

[۱] *استاد گروه ترویج و اقتصاد کشاورزی، دانشگاه ایالتی دلتا، پردیس آسابا، آسابا، نیجریه*
[۲] *استادیار گروه ترویج و اقتصاد کشاورزی، دانشگاه ایالتی دلتا، پردیس آسابا، آسابا، نیجریه*
[۳] *دانشیار گروه ترویج و اقتصاد کشاورزی، دانشگاه ایالتی دلتا، پردیس آسابا، آسابا، نیجریه*

چکیده

این مطالعه به بررسی جریان اطلاعات در زمینه فناوری مینی‌ست در بین سیب‌زمینی‌کاران ایالت دلتا، کشور نیجریه می‌پردازد. ۱۸۰ نفر به عنوان نمونه آماری در نظر گرفته شد. داده‌های مورد نظر از طریق مصاحبه جمع‌آوری شد. درصد، فراوانی و میانگین به منظور توصیف داده‌ها و دیاگرام خطی نیز برای تدوین جریان اطلاعات استفاده شد. نتایج تحقیق نشان داد که منطقه کشاورزی شمالی دلتا، در ارتباط با یک زنجیره جریان اطلاعات می‌باشد، در حالیکه منطقه مرکزی و جنوبی به ترتیب با یک جریان اطلاعات مبتنی بر جامعه و تماس چندگانه در ارتباط هستند. دولت فدرال و ایالتی، باشگاه جوانان، رسانه‌های انبوهی، گروه‌های فرهنگی و اجتماعی، تعاونی‌های زراعی، نهادهای مذهبی، کمیته‌های توسعه اجتماعی و سازمان‌های غیردولتی در هدایت جریان اطلاعات در زمینه فناوری مینی‌ست در بین سیب‌زمینی‌کاران مفید بودند. همچنین مشخص شد که فقط تعدادی از کشاورزان، ادارات ترویج کشاورزی را به عنوان منبع اطلاعات به کار می‌گیرند. منبع اصلی اطلاعات در این زمینه رادیو، بستگان، همسایگان، کشاورزان تماسی و همکار و تلوزیون بوده است. بر اساس این نتایج توصیه می‌شود که رهیافت چند رسانه‌ای برای اشاعه اطلاعات در زمینه فناوری‌های تولید سیب‌زمینی به کار گرفته شود. همچنین اجرای برنامه‌های رادیوی مزرعه و پخش تلوزیونی باید به طور گسترده برای انتقال اطلاعات کشاورزی به طور منظم در نظر گرفته شود.

کلمات کلیدی: ترسیم، اطلاعات کشاورزی، فناوری مینی‌ست سیب‌زمینی، جریان اطلاعات