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## *Perception of and Interest in Distance Education in Agriculture among Extension Agents in Trinidad and Tobago*

**Wilhelmina Kissoonsingh**

*M.Phil Graduate Student. The University of the West Indies, St. Augustine, Trinidad*

### *Abstract*

Agricultural Extension is the key instrument that supports agricultural development in many Caribbean countries. Through the extension process, the role of change agents is critical in interfacing with farmers in order to create new opportunities for production, a competitive base for local and international trade and a sustainable agriculture. As a result, competent extension agents are needed to make decisions and train farmers.

Distance Education training can be a powerful tool to increase the competence of agents. This can be utilised for extension in-service training because it provides the benefits of lower training costs due to lack of travel requirements and the ability of agents and specialists over a large geographic region to exchange information and ideas. Responses to a self-administered questionnaire to extension agents in Trinidad and Tobago revealed that they were strongly receptive to this form of training. The questionnaire showed that there are existing resources which support the use of distance education within the environment of the extension agent. The survey goes on to show some of the perceived limitations to implementation of distance education programs within the extension service, willingness of agents to pay for the service and areas identified for further training. Information was also obtained on the present ways extension agents gather information, satisfaction of current farmer training, and factors limiting current extension efforts. From the survey it can be concluded that there is great potential for the use of distance education training of extension agents in Trinidad and Tobago.

### **INTRODUCTION**

This study surveys extension agents in Trinidad and Tobago in an effort to gain their perceptions of, and interest in, Distance Education training for agriculture. For decades, the extension service in Trinidad & Tobago has traditionally conducted formal and informal education programs for

farmers. They have offices in every county in the country, from which they service farmer needs and transfer information on agriculture related topics. The ultimate goal is to reach their targeted audience and provide information they need.

The role of extension agents is critical in interfacing with farmers in order to create

new opportunities for production, a competitive base for local and international trade and a sustainable agriculture. As a result competent agents are needed to make decisions and train farmers. At present, the employer usually provides inservice training in traditional classroom settings and it requires the agents to be away from the office for the duration of the training.

Among the world's extension systems, distance education is being challenged to train extension agents. Agents can have training whenever their demanding and unpredictable schedules permit. It can eliminate the need to travel to a specific location thus saving time and money. There are different delivery techniques used for distance education which have progressed from correspondence courses and film to videos, satellite linking, cable television and, most recently, internet access, to the worldwide web and email. These can be used as a tool for asynchronous distance teaching and sharing information and ideas throughout the region (Telg, 1996).

A survey that investigates the interest of extension agents in Trinidad and Tobago has been carried out. This research sought to determine what perceptions and interest extension agents have in distance education training. It explores the resource and support facilities available for the training of extension agents.

#### LITERATURE REVIEW

Distance Education can be a powerful tool used for in-service training. It provides the benefits of lower training cost due to lack of

travel requirements and the ability of agents and specialist over a large geographic region to exchange information and ideas (Lippert and Plank 1999). Throughout the world today distance education is being explored as a means of training extension agents. A correspondence program entitled "Quality Water for Home and Farm" was used to train county extension agents in the USA in Water Quality and Management principles and how to use education materials to teach farmers and homeowners those principles through a distance education training program. Pre/post test showed 80% of extension agents who participated increased their understanding of Water Quality and Management Principles in 20 major areas. The program also worked to encourage county extension agents to use educational materials to teach in their county and share with other water quality professionals (Manci 1996).

Extension agents in North Carolina, South Carolina, Georgia and Alabama participated in a three-week internet training course entitled "Current Issues in Cotton Fertility Management". The paper reported that the strongest advantages for the internet training were flexibility in instruction time and lack of travel. They also liked the regional aspect of the training, where they accessed a wide variety of specialists opinions. The study found that this high tech approach, which had no face-to-face interaction, could be a feasible method of training agents (Lippert and Plank 1999).

Another internet course in Sustainable Agriculture, designed for regional and middle-school science teachers was offered

for graduate credit by Clemson University. Course participants also included cooperative extension agents in the USA. Assessment exams were all distributed and returned via-mail. The course exposed professionals to the modern technology of food production, while emphasizing the importance of the safe use of natural resources (Lippert et al 1998). The authors compared internet training with other methods of distance learning, such as video courses or live satellite instruction. They said the advantages of an internet course are:

- (i) it allows for greater personal interaction between the instructor through the list service and chat sessions;
- (ii) it allows much greater time flexibility than a televised real-time instruction where students must meet at a designated facility for scheduled instruction; and
- (iii) it expands resource opportunities through access to the worldwide web and the potential to communicate with specialists throughout the world (Lippert et al 1998).

The extension agents in the study had some advantages in this type of program. They could study when they were mentally ready (not at a fixed class time), they could freely explore a wide range of topics and they could access more information than available in local libraries. Also, there was no commute time and lots of on-line interaction with instructors and other students as well as learning how to use on-line searches and communications.

In October 1988 the Inter-American Institute for Cooperation on Agriculture (IICA) and Texas A and M University established the first IICA Distance Training Center in Costa Rica. In March 2001, a center was established in Trinidad. The objective was to offer CD-ROM courses to support training and business development within the region. Their clients included farmers, technicians from the private industry, government and NGOs and entrepreneurs from the agri-business sector. The courses offered to date at IICA are farm management, health and occupational safety, e-commerce, organic farming, interactive information and extension agriculture training (Ramnanan 2001).

FAO has a framework for approaches to distance education that says "an appropriate conception of distance education would require a focus on programs in which participants have control over not only what is taught, but how and where distance education takes place" (McLean 2000).

The organization emphasizes that the characteristics of the target population of learners must be understood, and the main features of their learning environments known and that resource requirements identified so that communication media that are available, reliable and affordable to learners are used.

#### **METHODOLOGY**

This study attempts to understand these characteristics among extension agents in Trinidad and Tobago. It would be able to compare the responses from Trinidad and

Tobago with other geographical situations. For the purpose of this study Agricultural Assistant I (AAI's) and II were selected from the Ministry of Agriculture as well as frontline extension agents in agricultural input supply companies. These were selected because they deal directly with farmers and conduct educational training programs for them, hence they are a potential target for in-service training by distance.

From a total population survey of 86, 71 persons responded, 12 from the private sector and 59 from the public sector. This represented 80% and 82% respectively, of the total population. No response was from people unwilling and/or unavailable to participate.

The data was collected during the period August-November 2001. At an office visit, each participant was asked to complete a 42 item self-administered questionnaire. Apart from demographic information, the questionnaire attempted to gather data on perceptions of and interest in distance education and available resources and infrastructure that can support distance education. Data was analyzed using Epi-info 6 and Minitab 12, version 13.

## RESULTS

Fifty of the respondents were male and 21 female giving a female to male ratio of 1:2.4. The study showed that the highest percentage of extension agents was within the 26-35 years age group (see Figure 1). The number of years service ranged from <1 to 29. The mean number of years service

was 9 ( $\pm$  SD 7.52), the median 7 and the mode 4.

Figure 2 shows that the highest job-related qualification recorded by respondents ranged from diplomas (69%) to masters degree (11%). All diplomas were attained at the Eastern Caribbean Institute for Agriculture and Forestry (ECIAF).

The extension agents offered a variety of service to farmers. Table 1 shows that the three main services offered by the government sector were training (99%), regulatory work (80%) and consultancy (54%). The three main services offered by the private sector were training (77%), consultancy (54%) and promotion of products (46%). Fifty-four (76.1%) of the extension agents stated that they were satisfied with their job performance to date, (see Table 2).

Table 3 shows that the percentage of time spent training ranged from 5% to 100%, mean 45.5% ( $\pm$  SD 26.8).

Extension agents reported that sessions were not well-attended and in certain cases were as low as 18.3%. There was good attendance in vegetable production, and 12.7% attendance to livestock-related training sessions.

Respondents identified a variety of factors which they thought limit the effectiveness of the present services they offered. Table 4 shows that 58% of the extension agents identified funding as the factor limiting their service the most, followed by the availability of support services (48%) and availability of audio visual material (48%).

A little over 66% of the extension agents reported having received some form of training in natural resource management and extension methodology within the two years prior to the survey. In the case of 61% of these, training took place in the Caribbean (mainly Trinidad).

Table 5 shows the variety of sources from which extension agents get farming information to transfer to farmers. From the table it can be seen that 63% of the agents get information from discussions with farmers and professional colleagues. This was followed by information from seminars (61%) and then information from agricultural input supply companies (57%).

When agents were asked to rate the four most commonly-used methods of gathering information, discussions with professional and non professional colleagues, farmers and agricultural input suppliers was the method most commonly used (47%) (see Figure 3).

The survey revealed that 5.6% of the respondents had previous exposure to distance education in the areas of music, social science, research methodology and rural development.

Ninety-three percent of the respondents thought that distance education was a useful tool to help improve the services they offered to farmers. Chi square testing was performed to test for association between age, gender, level of education, number of years service and location. The results in Table 6 show that interest in distance education was independent of these variables.

When asked about areas in which they would be interested in pursuing distance education courses, pest and disease identification was the most common area identified (60.6%) and apiculture was the least common area (2.8%) (see Table 7).

Chi Square testing showed that male to female did not differ with respect to the topics of interest.

Sixty-three percent of the extension agents were willing to pay tuition for distance education programs. Extension agents expected a distance education course with four modules to cost a mean of \$1,274.05 ( $\pm$ SD 1651). The minimum cost identified was \$20.00 and the maximum \$9,000.00, median \$1000.00, mode \$1,000.00.

Despite their interest in distance education programs, respondents identified a variety of factors they thought would hinder the successful implementation of distance education training for people in their field.

The main factor that is most likely to hinder is implementation cost (64.8%), followed by time (47.9%) and then availability of resource material (43.7%) (see Figure 4).

Available support systems for distance education extension agents had within their environment were identified. Sixty-six percent claimed they had internet access, of these 85% had access at home, while 22.4% had access at the work place and 17% had access in cafés. Respondents had access to a variety of other resources; television, radio, computer and video. Forty-two percent of the respondents had access to television at home only, while 52% had

access both at home and at work. Table 8 shows that 8.5% of the extension agents had access to computer both at home and at work.

#### DISCUSSION

The survey revealed that a greater percentage of the extension agents are young, where 51% of them were within the 26-36 year age group. These agents have an average of nine years service. Seventy percent of the agents have diplomas as their highest level of job related qualification. This type of training is generalist and there is need to supplement this so that agents can deal more competently with farmers, as Carpenter (2000) suggested after his needs assessment survey of the extension service. These factors show that there is potential for distance education in service training. Since the staff is relatively young, investments made in service training programs would be worthwhile, since agents have a lot more years ahead to serve in extension.

A large percentage of agents spend their time training farmers (93% in the public sector and 77% in the private sector). However, only a little over 66% of them received in-service training in two areas within the two years prior to the survey. This shows the need to improve in-service training of staff, so that more agents are trained in more areas of agriculture.

Attendance to training sessions was low by farmers. Could this be because extension is not able to provide them with the up-to-date information they need, or that farmers are not responding to the methodologies

used by extension? Something has to be done to improve the low attendance to these training sessions by farmers. Agents identified regulatory work, support services, and availability of resources material as three of the main factors at present limiting the effectiveness of the services they offer. In-service training of agents can help alleviate or solve the problem of availability of resource material.

Agents rely heavily on information from agriculture input supply companies for updated farm information. This information can be biased, therefore there is need to have a more general or broad information source, where agents can have access to specialist opinion from across the region and even the world.

Distance education can be used to provide this type of training since over 90% of the agents thought that distance education was a useful tool to help improve the service they offered to farmers. It could make information more accessible and provide up-to-date farming information.

These in-service distance education programs should focus on the areas agents express interest in, which are mainly crop production issues – pest and disease identification, integrated pest management and agronomy. Attention should also be given to extension methodology and natural resource management since these areas were also identified by a large number of agents.

If distance education programs were used for in-service training they could be successful because according to FAO, programs which focus on the area

participants are interested in, as well as where and when it is taught, would be successful programs.

Since more than 50% of the agents have internet access this can be utilized for distance education programs. This would offer the flexibility of time and eliminate the need to travel, also asynchronous distance teaching and sharing information and ideas can take place as suggested by Telg (1996). Also distance education training via the internet was successfully used in other regions (Lippert 1998,1999).

Distance education programs using television and video can also be utilized for in-service training of staff, since a large percentage of agents had access to these resources/items.

CD-ROM courses like those offered by IICA might not be the most feasible method/median since less than 10% had access to computers at work and less that 40% had access at home. If this type of medium is used, more computer access should be provided.

It can be ascertained that agents value the information they receive, since over 60% of them were willing to pay for distance

programs. Maybe the cost of conducting distance education programs can be subsidized and agents asked to contribute a small percentage towards the course. This can be useful since agents identified implementation cost as the factor most likely to hinder the successful implementation of distance education programs for people in their field.

#### **CONCLUSION**

There is great potential for the use of distance education for in-service training of extension agents in Trinidad and Tobago. Over 90% of the agents thought that distance education was a useful tool to help improve the service they offered to farmers and more that 60% were willing to pay for distance education courses. The areas distance education in-service program should focus on are crop production issues like agronomy, pest and disease identification and Integrated pest management, as well as extension methodologies and natural resources management.



Figure 1: Age Distribution of Respondents by Percentage

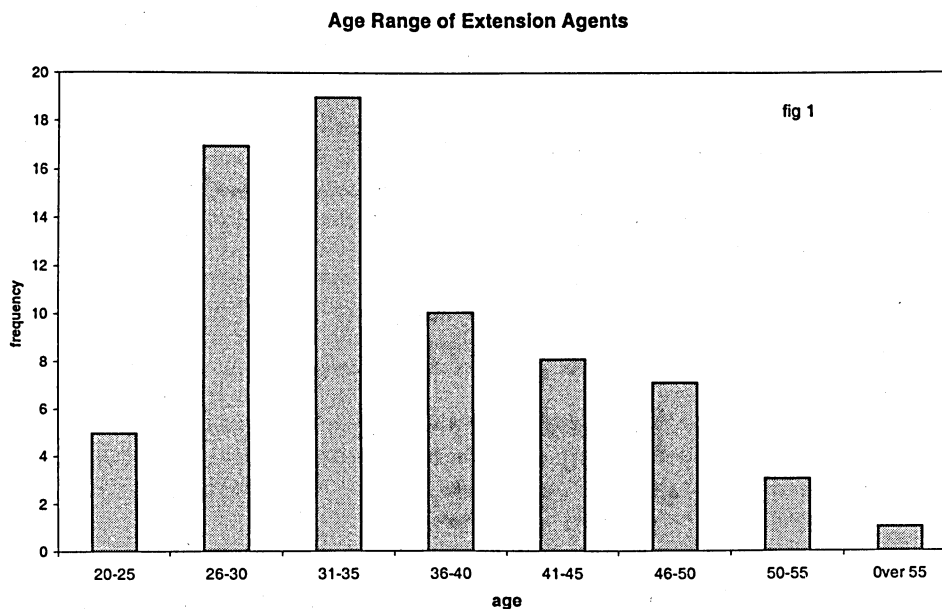


Table 1 : Service Offered by Sector Type

Service offered	Government Sector		Private Sector	
	'n	%	'n	%
Training	55	98.2	10	76.9
Regulator Work	45	80.4	2	15.4
Consultancy	30	53.6	7	53.8
Advisory	7	12.5	0	0.0
Promoting Products	0	0.0	6	46.2

Table 2: Satisfaction of Job Performance of Extension Agents to Date

Service	Satisfied		Not satisfied	
	'n	%	'n	%
Training	54	76.1	8	29.9
Regulatory work	48	67.6	-	-
Consultancy	34	47.9	3	4.2
Advisory	8	11.3	-	-
Promoting Products	6	8.4	-	-

Figure 2: Highest Job Related Qualification of Extension Agent

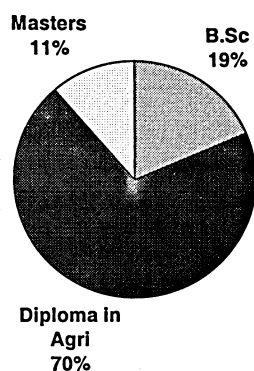


Table 3: Percentage of Time Spent on Service Offered over the Previous 2 Years

Service	Frequency	Minimum	Maximum	Median	Mean	±SD
Training	59	5	100	40	45.5	26.6
Regulatory Work	44	5	100	42.5	43.8	24.9
Consultancy	38	5	80	25	29	21.7
Promoting products	7	10	100	60	63.6	30.9
Advisory	7	10	100	20	89.3	18.7

Table 4: Factors Limiting the Effectiveness of Present Services Offered

Factors	Limiting		Not limiting	
	'n	%	'n	%
Regulatory Work	-	-	48	67.6
Funding	41	57.7	29	40.9
Support Service	34	47.9	30	22.5
Availability of resource material	34	47.9	35	49.3
Administrative Policy	33	46.9	36	50.7
Farmers Logistic	30	42.5	39	54.9
Audio visual support	28	39.5	41	59.2
Availability of training information	23	32.4	47	66.2
Availability of resource personnel	22	31.0	36	50.7
Inadequate training	5	7.0	1	1.4

Table 5: Source of Information with respect to Current Farm Matters

Source	'n	%
Discussion with professional colleagues	63	88.7
Discussion with farmers	63	88.7
Seminars	61	85.9
Discussion with agriculture input supplies	57	80.3
Facilities provided by employers e.g bulleting	56	78.9
Books	52	73.2
Journal	46	64.8
Internet	44	62.0
Discussion with non professional colleagues	42	59.2
Magazines	42	59.2
Newspaper	35	49.3
Television	32	45.1
Radio	26	36.6
Facilities provided by professional membership	19	26.8
Cable television	18	25.4

Figure 3: The Four Most Commonly Used Information Source

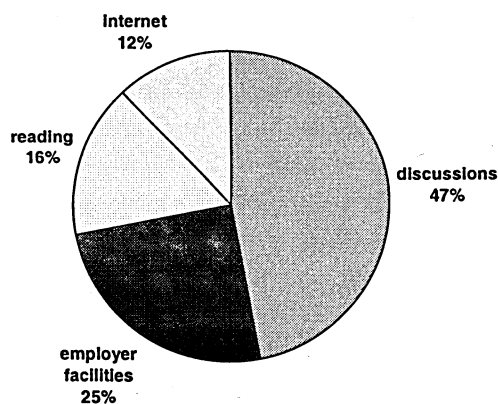


Figure 4: Factors Hindering the Successful Implementation of Distance Education Training

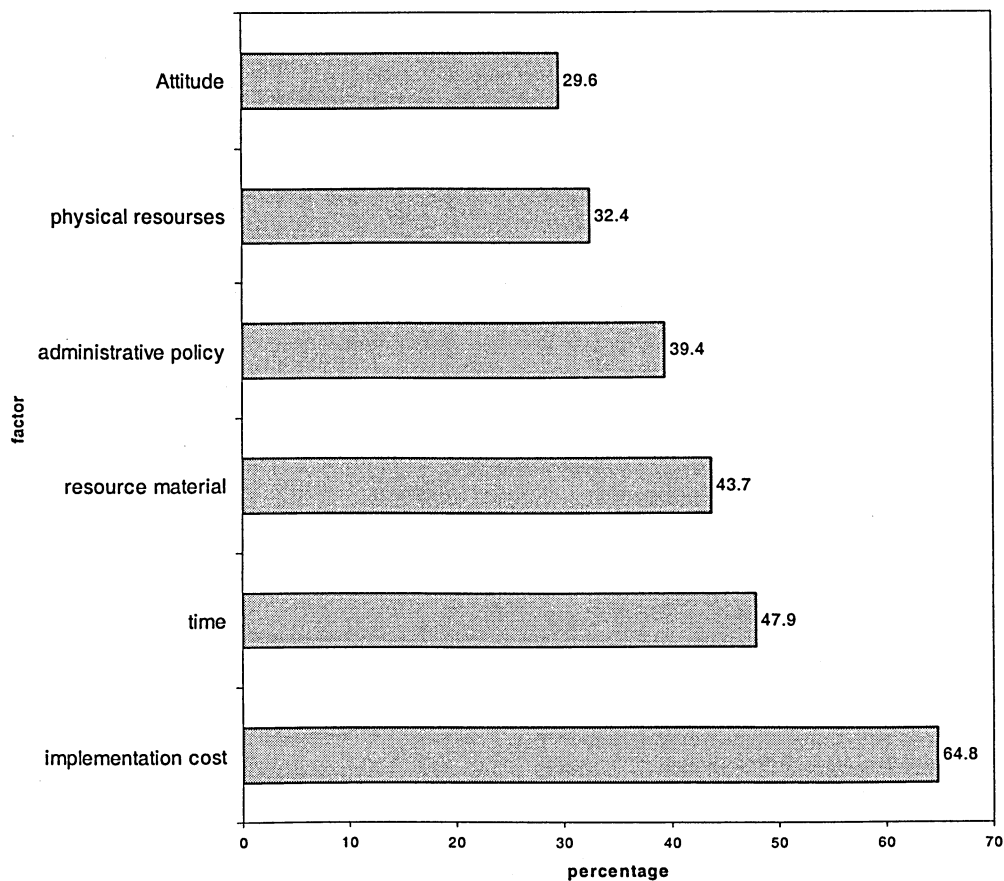


Table 6: Interest in Distance Education

Variable	X <sup>2</sup>	Df	P value
Age	9.42	8	0.30
Gender	0.97	5	0.90
Education	0.78	3	0.85
Years service	48.6	20	0.00
Location	7.1	9	0.63

Table 7: Preferred Distance Education Topics

Areas of interest	'n	%
Pest & Disease Identification	43	60.6
Integrated Pest Management	38	53.5
Extension Methods	32	45.1
Sustainable Environment	31	42.7
Skills Courses	27	38.0
Agronomy	24	33.8
Pesticide Handling	24	33.8
Post Harvest Technology	23	32.4
Farm Management	21	29.6
Irrigation Technology	21	29.6
Time Management	17	23.9
Farming Methods	15	21.1
Livestock Care and Management	14	19.7
Soil Conservation	14	19.7
Farm Machinery Maintenance and Repair	7	9.9
Horticulture	5	7
Apiculture	3	2.8

Table 8: Extension Agents Access to Resources.

Resources	Home only		Work only		Both	
	'n	%	'n	%	'n	%
Television	30	42.4	2	2.8	37	53.1
Radio	26	36.6	-	-	-	-
Video	21	29.6	7	9.9	33	46.5
Computer	28	39.4	7	9.9	6	8.5

### Bibliography

- Lippert and Plank 1999. "Responses to a First Time Use of Internet Inservice Training by Agricultural Extension Agents", *Journal of Natural Resource and Life Science Education*, Vol.28, 53-56 (1999).
- Lippert, Speziale, J.H.Palmer, and G.C. Delicio 1998. "Evaluating an Internet Distance Learning Course on Sustainable Agriculture", *Journal of Natural Resource and Life Science Education*, Vol.27, 75-79 (1998).
- Manci, Karen 1996. "Water Quality Distance Education Program for County Extension Agents", *The Ohio Journal of Science*, Vol.96, March 1996, No.1: 89-92.
- Mc Lean, Scott. 2000. "Distance Education and Distance Learning: A framework for the Food and Agriculture Organization of the United Nations" SD dimension (on line newsletter of the Sustainable Development Department, FAO).
- Telg, R. 1996. "Distance Education Considerations for IFAS faculty. University of Florida Academic Programs Publ. Ser.21.