

Women Awareness on the Importance of Agriculture Technologies Using ICT-Based Training Programs

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Abstract: Awareness policy intended to contribute to changing rural women realities to urgent needs of information and gain knowledge was to be demonstrated through in-depth information and communication technology-based (ICTs-based) training program that focused on the importance of advanced agricultural technologies in the production chain in developing countries like Egypt through access and use of the ICTs. Women are becoming well trained on the detailed steps of improved technologies applied in supply chain. Their increased awareness of the necessity of quality management to be followed during their work in the postharvest handling system helped them to produce high-quality products to meet the export requirements of foreign markets and add value to the export quality. Women have been able to reduce the extremely high losses that occurred due to improper handling in particular. The outcomes of proper and healthy procedures, precautions and personal protection were gained by rural women and technicians working in the supply chain. Moreover, women themselves became more confident in their know-how and more comfortable in transgressing cultural norms that inhibited their progress.

Key words: Rural women, gender research, training program, ICTs policy, awareness.

1. Introduction

This article illustrates what it takes for rural women to become aware and to benefit from integrating information and communication technology (ICT) based training program into their lives.

Women's roles have traditionally been confined to carrying out household chores, including raising children and caring for elderly family members. Their involvement in agriculture production activities was limited to household farms, which included seed sowing, cattle feeding and milking, and the sale of poultry products, or working in produce packing and in small enterprises. Gender disparities in farm management are greatly clear, only 16 percent of the total land holders are women, from whom less than 3% manage their own land [1].

Women are known to be responsible for 60%-90%

of agricultural production in the developing world. If they had the same access to productive resources as men, they could increase yields on their farms by 20-30 percent. This could further raise total agricultural output in developing countries by 2.5-4 percent, reducing global hunger by 12-17 percent [2].

Very few studies have assessed the information needs of women towards the activities related in particular to postharvest of fresh fruits and vegetables.

Women's contributions to postharvest and reducing losses are still the key factor to increase the demand for produce, which in turn would elevate the family income. In order to get better acquainted with the relevant information, they are keen to attend training sessions on agriculture practices in general, and on postharvest operations and systems in particular [3].

The ultimate target of this article is to make information available for rural women using ICTs-based training programs to get them aware

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towards the use of improved technologies in the production chain for maintaining the produce quality and reducing food losses.

2. Research Methodology

2.1 Need of the Training of Women

Women usually collect some information from radio talks, television programs, and from neighboring private firm workers. While exploring and acting upon the question “How would their situation change if rural women acquired the knowledge to share in either crop production or operations throughout the postharvest handling system?”, it became evident that, for the women to gain knowledge, it would mean changing their status.

Through primary sessions to evaluate women’s ability to join training programs, it was found that the performance of women in agriculture practices and as postharvest workers is constrained in many ways. They have less access to information in comparison with men because they are not encouraged, or even invited, by agricultural department staff to participate in extension programs.

The women selected as participants in the training sessions were individuals who were involved in the whole crop production chain including different postharvest operations, with a certain level of education that qualified them to be ready to gain knowledge and get acquainted with the latest

technologies.

2.2 Designing Training Programs Suitable for Women with Different Backgrounds

The participant women’s needs were assessed through in-depth interviews (Fig.1), which found that the lack of information on acquiring suitable technology and modern operations was the primary missing element. Needs assessment surveys were conducted using questionnaires to determine the exact information needs of women in agriculture, and in postharvest technology in particular. During interviews, women were asked to reflect on their aspirations and to identify what information and knowledge they needed [4]. These reflections highlighted a large gap between the present status and their experiences in the postharvest field, which basically contributed to the existing postharvest losses (PHL).

A team of scientists and specialists worked as trainers to mentor rural women on computer skills and on how to search and use online agricultural information resources and other web-based content. The program evolved through cycles of learning, implementation, sharing, and reflecting. There is a need to systematically identify the information needs of the rural women who are candidates for joining the training program in various communities, as their needs are varied, this was as follow.

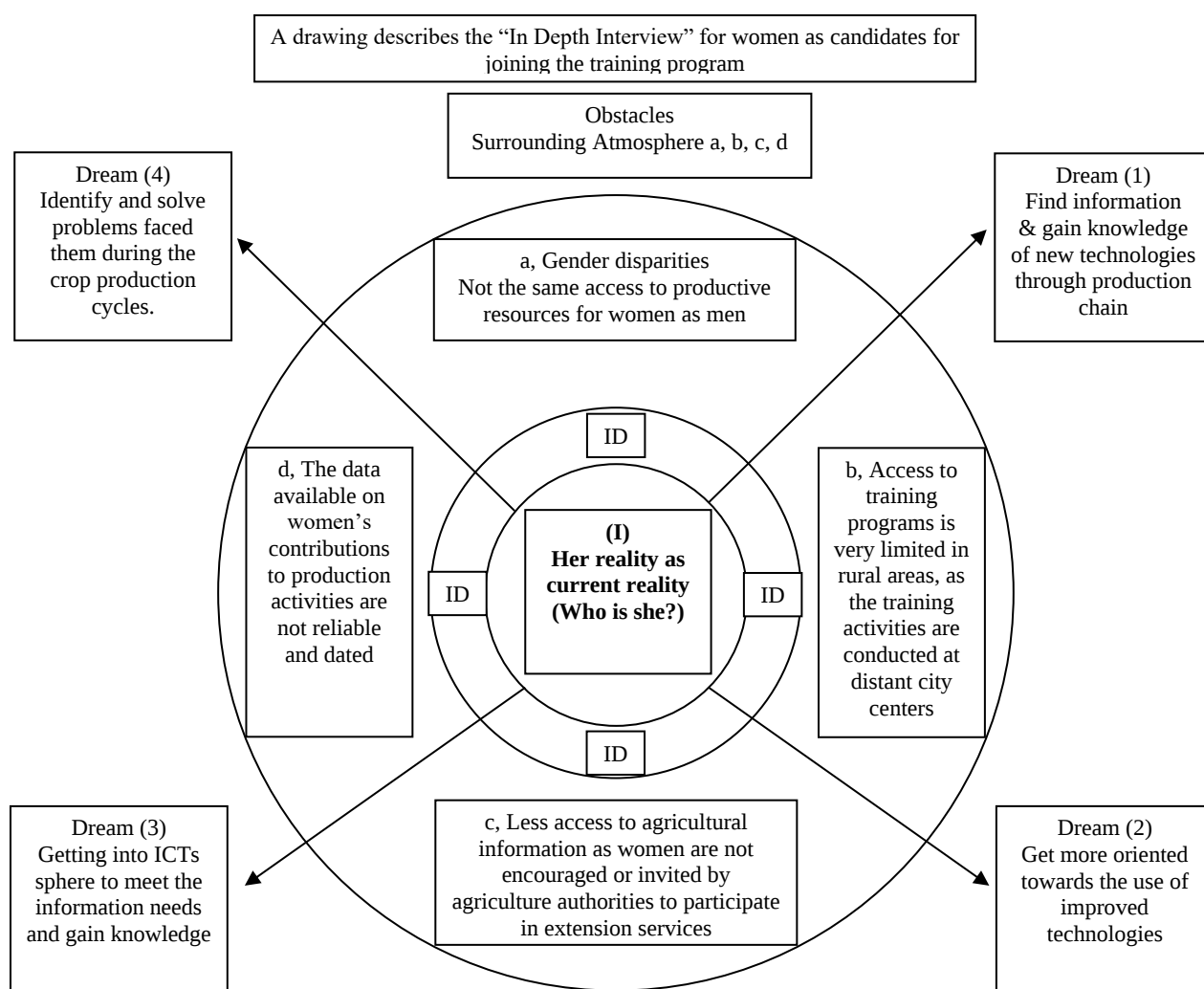


Fig. 1 In Depth Interview of Candidate Women for Joining Training Programs.

- (1) Identity (I): Woman to describe “her reality as current reality” or as “who is she”;
- (2) Identity (ID): Woman herself what she is doing and what she wants and needs to do;
- (3) Surrounding conditions: what are/or not available as an extension programs, source of information and means of technologies as women’s access to training programs is very limited in rural areas, since the training activities are conducted at distant city centers;
- (4) Dreams: Women were asked to reflect on their dreams to be well trained and be aware on the agriculture technology using ICTs as to have their dreams come true;
- (5) The obstacles: Women face in life as barriers toward being aware women.

3. Training Program

The training programs were designed after proper identification of what would enable the women to increase crop productivity through gaining knowledge of new technologies, which guaranteed the best quality and reduced PHLs. The focus of the training program was on the strategies to produce and maintain high-quality fresh produce suitable for export, starting from the harvest and continuing until it reached the

end users (from “field to fork”).

A need-based extension program designed by trainer’s team with content that included detailed information on the topics, crop production, pre/postharvest aspects, postharvest handling system, marketing, funding availability, land rights, landowner credit cards, registration of land credit, and the agricultural cooperative association was proposed.

For the women to have proper access, the training should be conducted in the nearby villages, in the

local language they prefer, and in accordance with a schedule convenient to them. The training sessions conducted for the women were well-appreciated for the use of posters, videos or computer presentations, workshops, and group discussions to identify, review, and prepare the needed information.

On-field demonstration of harvesting techniques, postharvest technologies, and pack house visits would assist in proper understanding to allow women to apply the extracted technologies in their own fields. Women should also be instructed in the field at the latest stages before harvest, extension and consultancy services are conducted regularly to identify and solve problems faced during the crop production cycles.

4. Women and Use of ICTs

The experience of using the ICTs expanded the women's knowledge and helped them in applying modern techniques in the postharvest field to guarantee good quality of the produce, reduce food losses, and increase export opportunities. Information should be accessible to rural women at selected sites, with various ICTs to facilitate easy access to relevant information and information exchange.

The lack of reliable and comprehensive information for women is a major hindrance to agricultural development. They require information on agricultural inputs, market prices, transportation systems, product potential, new environmentally sound production techniques and practices, new agricultural technologies, new markets, food processing and preservation, decision-making processes, the resource base, trade laws, and trends in food production, demand, and processing.

Women also need to exchange indigenous knowledge. However, most available local information is packaged in a raw form and is therefore difficult to access or use [5]. The situation is compounded because women do not know where to find this information.

The lack of information that related directly and

indirectly to farming strategic crops was responded through offering and use of the web-based programme, which was also made available on CD and as a paper document, and through a provision of training, including regular visits to the fields.

Rural women were mentored on computer skills, ways to search, and how to use the web-based program's content, as well as other online postharvest information and knowledge resources. They were provided with a CD-ROM version of the Internet-based information to use when their Internet connection was limited or not available.

5. Women's Awareness

The awareness of rural women toward the importance of new technologies in the production chain in developing countries like Egypt is important, as the majority of producers focus only on the quantity produced, but not on the quality.

To increase women's awareness of the necessity of advanced technologies in the production chain, a long-term training program based on the use of ICTs was provided.

5.1 Throughout the Career as Postharvest Interest

- Support rural women through extension work in fields, in packinghouses, or through companies to give instruction and advice.
- Harvest methods of fresh fruits and vegetables, in terms of the best way of harvesting, maintaining an adequate cool chain (Quality in Chain (QUIC)), and safe methods to control diseases.
- Women were instructed on the mistakes that may occur with the products prior to packaging, such as leaving the decayed parts of the commodity in the packaging which would serve as a source of infection to the rest.
- Acquire knowledge and obtain information in the field of postharvest diseases and related aspects, including traceability of exported fresh produce.
- The chemical fungicidal residues that last in the

tissues of fruits and vegetables in particular those with a high water content that are harvested fresh and consumed immediately after harvest.

- The disasters of pesticide use and the importance of effective safe control methods for diseases when used as pre- or post-harvest treatments at certain concentrations, and with regard to its dose and residual effects on human health.

- Introduce new limits to the use of chemical protectants according to increasing public concern and recent health authorities.

- Study some relevant alternatives to synthesized chemicals and grantee fully achieving the objective to protecting perishable commodities from harvest to consumer.

- Develop protection strategies that are ecologically sound, economically viable and safe for the consumers, considerable research methods on physical and biological and natural control agents' methodologies.

- The potential role of generally recognized as safe (GRAS) chemicals alone in the control of the major post-harvest.

- Train rural women on good postharvest practices to increase the scope for export.

- Maintain high-quality products to reduce PHLs which will reflect positively on the net income of the producer.

5.2 Throughout the Career as Health Service Interest

- Precautions and personal protection of rural women, workers and technicians in horticulture production in supply chain.

- Instruction on sanitizing of the wash water before

hand washing the products during preparation.

- Commitment to proper and healthy procedures of postharvest handling systems, starting from picking and continuing to the end users.

- Commitment to hygiene procedures, such as wearing masks, gloves, hat cover, etc., to guarantee the safety of products and human workers.

- Food pollution with mycotoxins including aflatoxin production in stored seeds and grains and the risks of its development regarding the harmful effects on humans.

- Instruction for home economic and public health aspects to household women.

- Awareness toward orchard sanitation and the risk of burying infected fresh fruits in the soil near the farm, as the infection can be transported back to the farm via irrigated water.

6. Analysis on Accessing Information and Gaining Knowledge

6.1 Outcomes of the Rural Women

As the women farmers become confident in their capabilities, and with the increased knowledge of agriculture production and postharvest procedures, their incomes were markedly increased. The training created an opportunity for rural women to connect with others, which helped them, to be successful with the power of decision-making over their small enterprise. Such networking allowed the women to recognize issues related to new technology and their solutions. With the change in women's behavior (Fig.2), agricultural productivity increased, and family well-being improved [6].

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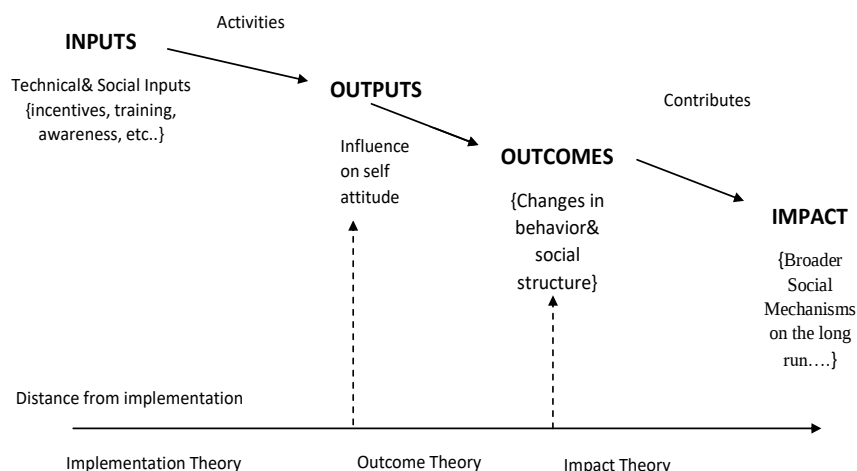


Fig. 2 A Theory of (Implementation- Impact) of Training Programs.

(1) Inputs: Technical & social inputs as incentives, awareness, and training program, etc.

(2) Outputs: Influences that identify objects outside women themselves as the experience and knowledge they gained through getting into ICTs sphere.

(3) Outcomes: Change in self-behavior and social structure, their involvement in ICTs was crucial in their own orientation toward self-progression.

(4) Impact: Broader social mechanisms on community or society in the long run.

6.2 Gaining Expertise, Confidence and Change Strategies

The visions that women have for themselves and their ability to move into their role in crop production increased awareness and confidence in their own capacities. They have changed themselves, social norms and practices of their community while increasing their status, self-confidence and self-determination.

The training programs and interactions among the women during the training affected the women in many dimensions, helping them to become successful workers in the postharvest handling system and in export companies they may join.

Learn how to be present, more precise, deeply expressive, and progressively go on toward success; have entrepreneur role in society as they have the authority of decision makers and “the power to” be creative and have the capability to solve the problem.

7. Research Examples: Beyond Access to ICTs for Acquiring Knowledge

Previously, a study was conducted for women

farmers in order to determine whether and how the use of ICTs, in the form of a web-based agricultural extension program, could support the women’s objective of taking on the management of their own land [7, 8]. The study concluded that web-based agricultural extension programs enhanced women’s agricultural knowledge and marketing opportunities.

El-Neshawy [6] explored women farmers’ use of communication tools to access information in combination with a focus on their identification of what was needed to overcome the hegemonic norms of society that sustained and normalized women’s loss of control over their own agricultural land. Their productive cultivation of their land is their means of securing their livelihood as well as their self-determination and actualization of their capacities and agency. The research process designed such that the women participants identified and accessed the technical information they needed to build their knowledge and confidence in virtual web-based extension.

El-Neshawy’s research endeavored to find out how the women “could enhance their self-confidence and self-determination as female farmers to the point of

questioning traditional male authority over their land and taking the lead themselves as effective, productive and empowered decision-making farmers of their own land” [9].

8. Conclusions

With these successful experience and ICT-based training programs, rural women in Egypt are becoming well trained on the detailed steps of improved agricultural technologies. They have been able to reduce losses due to proper handling and to produce high-quality products to meet the export requirements of foreign markets. Moreover, with this appropriate training in technical competencies or simple management practices, women were able to market their products through existing cooperative associations.

The potential of ICTs to meet the information needs of rural women no doubt offered several channels for the exchange of information and numerous opportunities.

It has been observed that the women who receive such training in the village are often better motivated and further willing to take other training courses at the centers or at the packinghouses.

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