

# Application of ICT in Agricultural Sector: Women's Perspective

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**Abstract**— Agriculture is the mainstay of most third world economies and occupies a pivotal position in the development of these countries. Despite the importance of agriculture, improvements in this sector have been uneven and, on the whole, disappointing. In any farming system, it is important to recognize the various roles of women. Many women experience a life that is a complex web of multi roles and multi-tasks which requires the average woman to conduct different things in a bid to fulfil her family needs. Women in rural communities are extensively involved in arduous farm operations and agricultural activities, from planting to harvesting and other post harvesting operations. These women have been using and managing natural resources, collecting food etc for their livelihood. In Nigeria, women provide 60 – 80 percent of labour in agriculture through production, processing and marketing of food. They assist on family farms and are farmers in their own right. So the Nigerian women are in an important position to contribute to food supply. This sector faces major challenges for enhancing production in a situation of dwindling natural resources necessary for production. ICT plays an important role in addressing these challenges. The paper analyzes the problems facing women in the agricultural sector and suggests ways to solve these problems. Furthermore the paper surveys the information needs of rural women and how ICT can be used to meet their information needs.

**Keywords**— Agriculture, information and communication technology, women.

## I. INTRODUCTION

Agriculture plays a very important role in rural and national development. There is a strong relationship between gender and agriculture. Reference [10] on the status of world women reports that women are twice as likely to be involved in agricultural related activity as men. Many women experience a life that is a complex web of multiple roles and multi task. This requires an average woman to conduct different roles at different times in a bid to fulfill her family needs. Women especially those in the rural areas are extensively involved in serious farm operation and agricultural activities. Women make up over half the agricultural labour force yet they are frequently subject to discrimination. They play a vital but underrecognised and unsupported role in food production. Looking at the national average of women in the agricultural labour force, they vary but globally they have a principal role in agro business, food processing and consumer related activity.

In Nigeria, women consists 60 – 80 percent of labour in agriculture starting from production, processing and marketing of food. These women have their own farms and also assist in the family farms. This has made the Nigerian women to be in a position to contribute to food supply.

The agricultural sector faces a lot of challenges for enhancing production due to dwindling economy. These

challenges can be addressed using information and communication technology.

## II. PROBLEMS FACING WOMEN IN AGRICULTURE

The major problems facing these women that are the lifeline of the society and who also spend 138 days in year in crop related activities against their men counterpart that spend 98 days in a year are the following:

### A. Access to Land

They have less access to land. They are constrained in land tenure and ownership because of the kind of culture that exists. For example, in the Caribbean the women control less land than men [9]. Women seek the right to use, control and own the land unlike men. Infact, in Igbo ethnic group of Nigeria, women are never given a right to own and use land. A widow can only own land if she has a male child. The land belongs to that male child no matter the age.

### B. Access/Weak Extension Services

In most African Countries, agricultural extension services, which are central to economic development programs, are non-existence, weak or unsatisfactory. Unfortunately, even where extension services are available, the content and mode of service delivery are often insensitive to the needs of female farmers [3] in [6]. It was observed that new technologies are usually introduced to help men [7]. The basic assumption is that women carry out only menial tasks, example weeding, thinning, and transplanting, and that the traditional tools they use, like hoes, are sufficient to enable them to step up and sustain productivity. Reference [1] observed in [6] that only 7% of extension time and resources is devoted to African female farmers and that only 7% of extension agents are female. This gender inequity, coupled with poor extension packages, inadequate delivery approaches, and cultural and religious barriers, is further compounded by transportation and communication problems. Female extensionists work more effectively with female farmers [3]. This is particularly true in Muslim communities. Hence, extension services need to train and recruit more women. As a result, Nigeria has adopted hiring more female extension agents to work with rural female farmers and retraining male extension agents to work with women [6]. The International fund for Agricultural Development (IFAD) has worked to increase the number of female extension workers and female trainers and trainees throughout the projects it finances in Africa [7].

### C. Access to Credit

Since collateral is needed before a loan can be advanced and deeds of ownership are usually the available collateral, and since women are generally denied right of ownership, they have little or no access to formal credit.

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As a result of the land-tenure laws in place in various African countries, deeds of ownership are often issued to men, which leaves women without the most common collateral – land. Women in agricultural sector need credit facilities to enable them to buy basic agricultural inputs, such as fertilizers and seeds and also to introduce new agricultural technologies. This is a problem since they need collateral before they can be given a loan and they are disadvantaged because of the land tenure system which allows men to own lands that serves as collateral for the loan. Reference [8] argued that men's productivity is high when compared to that of women because the women lack access to credit and labour constraints. The women also are not able to get credit because of non access to extension services and co-operatives. Because they lack extension training they can only access less of the loans for farm development, product development and marketing. Women have been denied of many agricultural inputs because they don't have credit which can be used to overcome other obstacles e.g. labour, information [2]. In Nigeria, only 5% of women farmers when compared to 14% of male farmers have received bank loans. This has resulted in these women using self-help which served as credit for the individual women.

### D. Lack of Supportive Policies

Women farmers are often depicted as an exploitable instrument and as such weak and ignorant. Traditions, culture and religion have also rendered women as second class citizens. Their lack of involvement in decision making and policy formulations has impeded development in the agricultural sector and it has resulted in decision makers neglecting most of the key issues affecting women. As a result of this, women are now organizing themselves into groups and movements to press for their causes at all levels.

### E. Access/Nonadoption of new agricultural technologies

Despite the technological advances in irrigation, crop varieties, agro forestry, and fertilizers, most technologies do not reach female farmers, as they receive no information about them. Most rural farmers are illiterate and poor and do not adopt new technologies because they lack knowledge and cash. Future growth must come from yield increases, achieved through the use of improved seeds and other planting materials and better agronomic practices and harvesting and processing techniques. Women's lack of involvement into technology design and implementation results in the appropriateness of new technologies and has created a new problem. This problem has resulted in having a reversed effect on their work load instead of providing them with the expected benefit.

### F. Restricted access to training and education

Most rural women lack both the means and the opportunity to obtain a formal education because of their poor status. When training opportunities for rural agricultural producers arise, they mostly go to the men, who already have some formal education, despite the fact that it is more important to expand and enhance the production knowledge of the principal workers i.e the women. Some women also opt out of training programs because of cultural, religious, or family pressures [1] in [6].

These problems can be solved if these women receive proper training, their revenues will increase dramatically. Female farmers will have to be empowered to take more control and manage the farm. Women will need access to credit and training on new and appropriate technologies.

Also, agricultural researchers should do more adaptive research to ensure that the new technologies are suitable for the female farmers' agroecological zones and management constraints. It is observed that with the help of ICT tools, knowledge is acquired faster and is better incorporated in the field. With emailing and mobile phoning farmers can always sell their goods without having to go through the middle-men who take the biggest share of their profit. The women haven't this opportunity since only a few have basic access to ICTs [4]. With the training of the farm operations and implements they will perform better and this will help the overall development of farm families. The training shows that technology has helped in reducing the physiological cost of work, reducing heart rate and energy expenditure during the agricultural operations. This will increase output and will reduce postural discomfort. Since their credit are from self help groups, when these groups are organized, there is then the skill development training which help these farm women to set up different enterprises in Agriculture eg vegetable cultivation, door mat making, fish cultivation, agro processing etc. This will lead to confidence in them and also in decision making.

## III. INFORMATION NEEDS OF RURAL WOMEN

The main problem of these women is integrating ICT in their daily activities. The main constraint is their not being mobile unlike the men because they are house-bound. Their access to ICT resources for their business opportunities is limited. For the women to get economic stability, they require the following:

- Education: they need the minimum basic education which enables them to read and write
- Information to ensure food security
- Knowledge on how to improve seed selection, and their cultivation, irrigation and fallowing techniques and how to use appropriate techniques to harvest and conserve food crops.
- Knowledge of market/opportunities
- Ability to access the markets so as to sell their goods/products/services

Proper assistant in effective usage of ICT. If this is done, ICT can empower them as individuals, and it will improve their chances of networking in agri-food business endeavours

## IV. USE OF ICT TO MEET THE NEEDS

Traditional and modern ICTs can be used concurrently to speed up the circulation of information. It can be tools that assist them to optimize their production and marketing plans. To make effective use of scarce land by planting for market demand. Use of ICTs to promote the expansion of local markets, and provide direct access for women producers to international markets and productive resources;

- It provides access to a range of information on likely markets planning, management techniques.
- It is a powerful tool in production and marketing system. It affords inexpensive access to vast amount of information and networks, access to market information and the ability to directly access lucrative markets.

Telecentres have been established in villages where appropriate rural female farmers can tap these resources and access information using new ICTs, such as e-mail, the World Wide Web, electronic networks, teleconferencing, and distance-learning tools. Information can empower rural female farmers to participate in decision-making, exchange ideas with others in developed and developing countries, and improve the quality of life of the people of Africa.

The internet, email and wireless mobile phone empower these women by offering access to services unavailable to them because of high cost in the rural areas. In [5] Gameen phone ladies benefit four timely access to markets process for agricultural products or handicrafts.

## V. CONCLUSION

Information is essential for facilitating agricultural and rural development and bringing about social and economic change. Unfortunately, most African countries have not devoted adequate attention to providing their citizens with access to information, especially in rural areas, where 70-80% of the African population lives.. ICT facilities exchange among women from diverse social groups; allow rapid access to information needed for exchanging, buying, producing, and selling products and lead to increased productivity gains.

Through accessing, possessing, and using ICTs, women will play a bigger role in the redistribution of resources and wealth, and globalization is expected to bring about improved market operations and economic effectiveness within and between countries.

Information initiatives should, therefore, be geared to strengthening the grass roots, with special emphasis on women, and be developed in places without public libraries or other information resources. This may be achieved by setting up functional, integrated information systems in rural and peri-urban communities, which would bring in new and diverse resources to enable women to access information. By doing this, the female farmers will be empowered thereby reducing the gap between their male counterparts.

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