Women and Vegetable Production in Abra, Philippines: Benefits and Challenges

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There is limited literature on how to engage the rural women in agriculture and improve their contributions to household food security and income. This study aimed to contribute to literature on women engagement in agriculture through vegetable production using good agricultural practices. The empirical data used were drawn from technology demonstrations and experimentation, learning fields, and training. Field work ran from May 2010 to November 2010. Participant observation, focus group discussion, individual interviews and survey were used in data collection. The potentials of vegetable production using good agricultural practices in improving women's household food security and income were investigated. But how gender-responsive is this technology to women farmers? The study was started with 68 women farmers from Barangays Dalaguisen, Pawa and Nagtupacan in Lagangilang, Abra, Philippines. The same technologies and training were given to all women however the volume of vegetables produced and the benefits derived varied among women partners. The major challenge lies in making the women's vegetable production practices attain maximum potential gain for women, their household and the community. Strategies to determine the champions and profiling the champions is a very important research move to mobilize them.

Keywords: Women farmers, off-season vegetable production, Training

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1. Introduction

Location-specific technologies on vegetable growing with emphasis on good agricultural practices were developed and promoted in Northwestern Philippines through the Technical Cooperation Project Phase 3 (TCP3) of the Philippine Rice Research Institute (PhilRice) and Japan International Cooperation Agency (JICA) in collaboration with the local government units of Currimao, Ilocos Norte, and Cabugao, Ilocos Sur (Agres et al., 2000).

Three years after the end of the project, Catudan and Martin (2012) noted that women are likely adopters of off-season vegetable production as men. Women in farming households that are not earning salaried income can be tapped as potential growers of off-season vegetables. They will not only be converted into income-earning members of the households but also as providers of the vegetables required by their households. This is parallel with the literature as most vegetables grown in home gardens are tended almost exclusively by women and remarkably proven to be productive and critically important to nutritional and economic well-being of their households (Koopman 2009, Sanyang et al. 2009, Yiridoe and Anchirinah 2005, Marsh 1998).

Having proven that the location specific technologies on vegetable production is for women farmers in Ilocos, PhilRice in Batac City, Ilocos Norte, Philippines embarked on expanding it in Abra which was identified by the government to have serious nutritional problems among pre-school children because of low income and low production of vegetables. The foregoing accounts indicate the potential for small-scale vegetable production to be a gender appropriate technology that is responsive to women farmer's needs. The limited number of local literatures about initiatives on training women on vegetable production using good agricultural practices is a research gap that this paper would like to address. The paper aims to discuss the benefits derived and the challenges encountered by these women.

2. Materials and methods

The empirical data that used in this paper were drawn from the 12 months of field demonstration cum research and training following the farmer field school (Pontius et al., 2002). Baseline work on this research was drawn from 68 women farmers. Data were obtained from participant observation, observation guide, checklist of technology components, planting calendar and a semi-structured questionnaire. The research sites were barangays Dalaguisen, Pawa and Nagtupacan in Lagangilang, Abra, Philippines. Lagangilang is a 5th

class municipality, 21 kilometers and about 30 minutes away from Bangued, the capital of Abra. It has the 5th highest incidence of malnutrition in the province, and has no technologist trained on vegetable production. Being in the uplands, men and women farmers could engage in off-season vegetable growing, since after transplanting rice the men do not have any more major activity and the women do not also engage in livelihood activities.

3. Results and discussion

The training of the women on vegetable production resulted in socio-economic benefits:

3.1 Increased availability of fresh vegetables for household:

Before the training, few women (20%) raised leguminous vegetables in their backyards for home consumption. After the training, 88% of the women partners were planting off-season bitter gourd, eggplant, string beans, squash, bottle gourd, finger pepper and tomato (Table 1). Most of them practiced mixed cropping for diversity of produce. Each household maintained 8m^2 to 200 m^2 vegetable plots, or 40 m^2 on the average. Two of the women partners produced seedlings and distributed these to the mothers of underweight children and the recipients of the human development program called Pantawid Pamilyang Pilipino Program(4Ps) (DSWD, 2012). When the women raised off-season vegetables, the households were not only able to consume adequate amounts of their produce (93%) but they were able to share their neighbors a portion of their produce (82%) (Table 2).

Table 1. Common vegetable crops grown by women partners

Crop	% Growers	No. of HP**	Area (m^2)
Bitter gourd	73	11	22
Eggplant	71	51	26
String beans	61	48	36
Squash	47	8	16
Bottle gourd	27	14	28
Finger pepper	26	16	8
Tomato	21	20	10
Ridge gourd	12	8	17
Water melon	9	54	108
Lady finger	5	21	11
Mungbean	2	500	200
Onion	2	1000	10
Pechay	2	40	10
Gabi	2	30	15
Ginger	2	20	2
Mixed crops*	88	200	40

*Bitter gourd, eggplant, beans, finger pepper, bottle gourd, squash. ** Hills Planted

Table 2. Changes in food security of women's households

Improvement	% Responding
Increased availability of fresh vegetables for household	93
Improved capability to buy food other than vegetables	48
Can afford to share vegetable produce to neighbors	82
Can afford not to sell rice harvest	13

Table 3. Income of women from off-season vegetable growing.

Crop	Area (m^2)	Yield (kg/100 m^2)	Average Unit Price (₱/kg)	Gross Income(₱)
Bitter gourd	22	53	50	2,650
Eggplant	26	55	34	1,925
String beans	36	54	50	2,700
Squash	16	69	40	2,760
Bottle gourd	28	109*	30	3,270
Pepper	8	42	35	1,470
Tomato	10	107	70	7,511
Ridge gourd	17	65	45	2,925

*Number of pieces

3.2 Generation of additional cash income:

The women strived to grow the vegetables during off-season to take advantage of the price premium. During periods of very low supply of vegetables, the women sold their produce for as high as ₱90.00 for 1 kg of bitter gourd, ₱60.00 for tomato and string beans, ₱50.00 for eggplant and ridge gourd, and ₱30.00 per piece of bottle gourd (Table 3). With off-season vegetable growing, cash became more readily available for the school needs of the children. Because of the additional income, the women were also able to purchase vegetables from the market that were not raised in their gardens.

3.3 Increased knowledge through learning by doing and hands-on experimentation:

Limited by resources such as suitable area to plant vegetables, some women used plastic containers and sacks to grow vegetables. There were at least 3 women who compared their own produce seeds with hybrid varieties and proved that hybrid varieties can yield higher and are resistant to pests. Majority of the women recycled plastics and old containers for producing seedlings because they could not buy plastic cell trays. However, the use of the recycled containers resulted in bigger seedlings. The women also experimented on using garden soil to take the place of compost as part of the seedling media, and found that weeds grew with the vegetable seedlings since the garden soil did not undergo the hot temperature during the first 4 days of the compost

pile. The women who made use of local materials for mulching their vegetables proved that plastic mulch controlled weeds but local materials also served the purpose.

The woman farmer who expanded her vegetable production in to commercial scale reportedly conducted her own variety trial of bottle gourd, tomato and eggplant. She used the variety with high yield, tolerance to pests and favored by consumers. She also produced her own compost. She has saved on fertilizer inputs and she increased her net income. The harvesting period of her bottle gourd and eggplant was extended to more than one year because of her pruning of old leaves and unproductive shoots. This same woman also planted flowering plants around her vegetable garden with repellant action to pests but attracts beneficial insects and other arthropods. Eventually, the women applied the results of their experimentation in their off-season vegetables which resulted to superior productivity and longer production period.

3.4 Enhancements of household participation:

The women cannot haul rice straw and rice hull in producing materials for the seedling media, cannot carry the heavy sacks of compost and CRH for storage, cannot collect bamboo and posts for the seedling nursery and trellis for the climbing vegetables, cannot operate the tractor to prepare the land, or start the water pump to irrigate the crops. The husband or older son was asked to help her do the activity. This was the same thing that when the man was busy in rice production, the woman leads the vegetable production. Normally, the wife led in the care and maintenance, though children were asked to periodically water the vegetables and assist in harvesting and marketing of the produce.

3.5 Provided employment:

There were two women participants who found employment by marketing the harvests of some of the women. One of them is physically challenged, who participated in the training but did not own a land. She collected and sold the harvests of other women. Another woman brought the produce to the neighboring municipality, Dolores, Abra, Philippines. In addition to the household responsibilities, the women converted their idle time toproductive vegetable production and marketing.

3.6 Improvement of women's role and self-confidence:

With the improvement in their income due to the multiplier effect of reinvesting on livestock and feeds by 11% of women, on small business like buying and selling of vegetables, "sari-sari store" and preparation of native delicacies by 5%, and for hiring additional farm labor by 2% (Table 3), the women gained control over their income, spent more on food, health and education (Table 4), and enjoyed greater self-reliance and self-confidence.

Many of the women participants have come out of their shells and frequently attended trainings and seminars on crop production and food processing conducted by the Provincial and Municipal Agriculture Offices and other DA-attached agencies.

More importantly, the women assisted in the implementation of the *Gulayan sa Paaralan* in the elementary schools where their children were enrolled; and in the neighboring Barangays where the project was up-scaled.

There were two women partners who became Barangay Nutrition Scholars (BNS) from their previous Barangay Health Worker (BHW) position due to the improvement in their leadership capabilities**.** One of them was awarded as the Most Outstanding BNS in Abra for 2011 and 2012 after promoting the vegetable production technologies to recipients of the 4Ps, and the Timpuyogti Inna, a women's organization in the barangay. This woman later became a member of the Community Radio Council, and now a radio announcer of the *NUTRI-BALITA*- the Barangay health and nutrition program at DZNA FM – 99.9 Radio Kabinnulig. She loved to retell on-air the success stories of the women who have improved their household food sufficiency and nutrition, and economic and social well-being after the project.

The site of another woman partner was chosen as the municipality's Best Palayamanan Site. Since then, the Agricultural Training Institute in Benguet, Mountain Province, Philippines and the Office of the Provincial Agriculturist in Abra brought their participants of trainings and seminars to her site for cross visit (Figure 2). Lately, the Municipal Agriculture Office of Luba, Abra, an upland municipality which was starting to establish their Palayamanan sitebrought two women's groups to the site for a cross visit. Not to mention other women and men farmers coming regularly asking for the technologies of the woman farmer partner. This woman farmer partner has become a farmer leader and technology resource person.

After attending the training on vegetable production, the women more frequently attended trainings and seminars on crop production and food processing. Through their exposure to trainings and seminars, they have gained confidence and new friends and have become more sociable (Table 4).

3.7 Discussion

The present study showed that providing technology to women through training and demonstration can have significant socio-economic impacts and life-changing effects in eliminating food

insecurity and alleviating poverty in their households as proven by the studies of Boakye et al. (2012), Chiong-Javier et al.(2012), Resurreccion (2012), FAO (2009), Ramachandran (2006) and Quisumbing et al. (1995).Women when trained on crop production can increase income, can have improved bargaining power and decision-making roles in the household (Upadhyay et al. 2005; Joffre et al. 2010). Similarly, women's leadership can mobilize the entire household to cooperate in undertaking different activities in the farm (Chiong-Javier et al. 2012). Women's scientific interest can improve the knowledge they gained from training and innovate on their own through experimentation (Agres et al. 2012).

Table 4. Changes in social status of the women adopters of LST on vegetable production.

Improvement	% Responding
Became a farmer leader, technology resource person	20
Gained new friends and confidence, more sociable	77
Better relationship with fellow women, shared produce	74
Established market outlets because of quality produce	12
Husband and children helping in production	35
Site visited by other local farmers participants of trainings and seminars conducted by DA province or region	26
Awarded as outstanding women farmer, outstanding site or outstanding information disseminator of vegetable technology	5

4. Conclusion and Recommendations

In a rural area where malnutrition and low sufficiency of vegetables has been challenging owing to several factors such as lack of training and technology, providing these services to the unserved population should be a welcome idea. Tested and appropriate technologies and methods of technology transfer must be implemented. This is what the piloting on vegetable production using good agricultural practices is all about. It mobilized an important resource in the local community: the women, and uses a strategy that facilitates technology transfer in a fast and sustainable way: technology demonstration and experimentation, learning field, and training following the farmer field school approach.

The effort to mobilize the women who are regarded as invisible in agricultural statistics is another initiative that merits attention. It insists that the women can improve their contributions to household food security, nutrition and income when provided with the needed resources such as technologies and training.

Some researchable areas include strategies to engage other household members and the society to support this initiative. Strategies on determining the champions and lead in finding them, and the ways by which they can be optimized are in the right direction. Profiling the champions is a very important research move since it will lead to better approaches in mobilizing them.

The foremost challenge appears to be related to the need to standardize women farmer's vegetable production practices to maximize returns particularly for increased production and income. During the training, the women learned about the good agricultural practices in vegetable production. The knowledge they received was uniform but findings revealed that there was a wide variation in the technologies they adopted and how wide and extensive their production of vegetables was. What had caused the wide variation in the technologies they adopted and the size of the areas they planted? What could have prevented the women from adopting the technologies they learned? These are some of the questions that must be included in investigating the factors that affected women farmer's actual practices. The answers can be utilized in designing training for women in vegetable production for commercial purposes.

The mobilization of the husband and the older son in activities which the women cannot accomplish by themselves is an effort to increasing the workload of household members.

The overall findings of this study on the pilot of vegetable production using good agricultural practices have proven very promising as a gender-responsive technology for rural women farmers. The technologies have met women farmer's social, technical, economic and food security needs and have helped to boost their self-confidence.

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