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# Empowering the entrepreneurial skills of women vegetable growers through farmer business school

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**Abstract** Vegetable growing is a promising enterprise but production is dominated mostly by men. Women are involved merely in the marketing of the produce without considering the business aspect. Thus, there is a need to empower women vegetable growers to harness the best of them in terms of their production and entrepreneurial capabilities. The study was undertaken todetermine the personal and growing characteristics of FBS participants, assess their knowledge on vegetable growing as a business and determine their concurrence that participation in FBS improved their skills on vegetable growing as a business. The study utilized 111 women participants who are dominated by 50 years old, married, high school graduates with five household members and earned a monthly income of below PhP5,000.00. Their vegetable cultivation experience were averaged of 12.34 years and their averaged farm size were about 3,000 square meters. The most common grown vegetable included the ingredients used in "pinakbet" Filipino delicacy, which are grown at least 1.5 times a year. They owned the lands they had used for vegetable growing and retailed their produce. The conduct of FBS generally improved the knowledge and skills of the participants on vegetable growing as a business. The conduct also was affected with climate-related problems, conflicted with participant's farm work, absenteeism and drop-out. Incentives were given to control such. Scaling-up program may further be developed to reach out to a greater number of women farmers in the province.

**Keywords:** Entrepreneurship, Agricultural production

## Introduction

Women's role in agricultural production and food security cannot be underestimated. Women accounted for about 43% of the world's labor force and supplied more than half of the world's food (Doss, 2014; FAO, 2011b). Despite their contribution to agriculture, however, because of patriarchal policies, attitudes and traditions, women are still often deprived and access to livelihoods is withdrawn. There is an urgent need then, according to Doss *et al*.

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(2018) to guide policies towards women farmers in order to unveil their significant role in agriculture.

Empowerment in agriculture is generally characterized as one's ability to take decisions on matters relating to agriculture and one's access to the material and social resources necessary to make those decisions (Alkire *et al*., 2013). According to Akter *et al*. (2017), women's empowerment in agriculture is seen as important in achieving global food stability. Empowerment has a direct impact in terms of agricultural production, food security and nutrition within the household (Sraboni *et al*., 2014; Harper *et al*., 2013; Verhart *et al*., 2015). Patel (2012) further emphasized that empowerment gives small farmers the ability to control the production of food and to produce their own food.

With the above premise, Schreinemachers *et al*. (2018) recommended prioritizing smallholder farmers' investment in vegetables because it needs only small amounts of land, but in a relatively short period of time offers increased economic opportunities. It also provides employment opportunities in poor rural areas, especially for women (Everaarts *et al*., 2015).

In Quirino Province, most of the women farmers do not practice vegetable growing as a business. They just plant vegetable mostly for home consumption and sell the surplus to generate extra income for the family. As such, they do not practice record keeping of their expenses incurred during land preparation; purchase of seedlings, fertilizer and pesticide application, harvesting and hauling. They don't have either record of sales of their produce. There is a need then to empower these women to harness the fullest potential vegetable growing may bring by exposing them to agricultural entrepreneurship. According to Pindado and Sanchez (2017), agricultural operation provides entrepreneurial opportunities, such as production of new goods, advances in business processes and changes in distribution and marketing. However, entrepreneurship in the agricultural sector is a dynamic activity and faces sudden changes and new challenges emerging from the aspects of supply and demand, low levels of human and financial resources, relatively limited markets and weak connectivity as most of the people involved come from the rural areas (Mcelwee, 2006; Gellynck *et al*., 2015; Korsgaard *et al*., 2015). Because of this complexity, the direct environment of agricultural holdings, the family farm enterprise and the role of women in the new established farm sector must then be taken into account (Lans *et al*., 2017).

Many researchers accentuate the essential effects of the entrepreneurial activities of farmers in the communities. Education and training was reported by Dias *et al.* (2019) to have a positive effect on the conduct of entrepreneurship in the agricultural sector. Quirino State University (QSU) has always been at the forefront capacitating farmers in Quirino Province. One of

the most recent projects it has implemented is titled “Capacitating Farmers on Integrated Pest Management and Entrepreneurship for Sustainable Rural Development” which was funded by the Commission on Higher Education through its National Agriculture and Fisheries Education System (CHED-NAFES) Extension Program. The general objective of the project was to ensure sustainable agricultural development by building the capacity of small-scale farmers on Community Integrated Pest Management and Entrepreneurship. To realize this objective, one of the project activities was the conduct of Farmer Business School (FBS) in selected barangays in the province to help women on vegetable growing and possible entrepreneurial activities out of it. The study was undertaken todetermine the personal and growing characteristics of FBS participants, assess their knowledge on vegetable growing as a business and determine their concurrence that participation in FBS improved their skills on vegetable growing as a business. Issues and problems affecting the conduct of FBS were also noted.

## Materials and methods

FBS is undertaken “to help farmers learn how to make their growing enterprises and overall farm operations profitable and able to respond to market demands” (FAO, 2011a). For this project, the FBS was focused on building the entrepreneurial capacities of women including their children so that they will become innovative and forward-looking. By building their capacities, they will be able take advantage of opportunities in the market and this in the long run will lead to sustainable businesses.

To operationalize the FBS, project staff facilitated the selection of project sites, farmer-cooperators and participants in coordination with the Municipal Agriculture Office (MAO) of the different municipalities and barangay local government units (BLGU). MAO selected the project sites and farmer-cooperators while the BLGU selected the participants. Farmer-cooperators refer to the woman vegetable grower who led the participants for the different activities from land preparation until harvesting and processing of produce. Their farms were used as well as demonstration sites for the vegetable growing activities and until the FBS (lectures and on-site tutoring) was completed. Participants, on the other hand, refer to the women vegetable growers who undergone FBS but no counterpart farms used for demonstration purposes.

A total of six barangays, one per municipality, were selected as demonstration sites. From these sites, farmer-cooperators were identified. One of the criteria in the selection of farmer-cooperator includes the ownership of at least 1,000 square meters of land which was used for the establishment of vegetable garden and where the FBS took place. A Memorandum of Agreement

(MOA) between the six identified farmer-cooperators and the QSU was signed. On the other hand, the selection of FBS participants were turned over to the BLGU of the selected demonstration sites. Six MOAs with BLGUs were signed for this purpose.

The MOA signed between the farmer-cooperator and QSU stipulates the roles and responsibilities of both parties to ensure the success of the FBS and the methodology which was followed during the conduct of FBS. QSU provided farm inputs like seeds, fertilizers, gardening tools (sprinkler, hose, pail, and drums among few) and training kit for the participants while the farmer-cooperators provided land labor during the FBS period. The farmer-cooperators are also responsible in the management and protection of vegetable farms. All farm proceeds/income went to the farmer-cooperators.

The four-month FBS which ran from March to June 2018 include a half-day lecture once a week followed by actual vegetable growing activities at the demonstration/farmer-cooperators sites. The 111 participants were closely coached and mentored on various topics including understanding the basic concepts of entrepreneurship; vegetable growing as a business; understanding market through actual survey; understanding enterprise profitability through record keeping; components of business plan; and benchmarking through field visitation. The participants were also brought to public market to conduct market survey to help them identify commodities that has high price and demand so they could incorporate these in succeeding cropping periods. Aside from lectures, participants were also mentored on the preparation of organic foliar fertilizers like fermented fruit juice which they used in their demonstration farms.

### *Data collection and analysis*

The instrument to gather data from the participants was personally developed by the authors. It underwent expert validity. Suggestions and recommendations are made by the expert which incorporated before it was utilized. It determined the change on the knowledge, skills and attitudes (KSA) of the participants before and after the conduct of the FBS. Data gathered were analyzed using frequency count and percentage, mean and paired t-test.

## Results

### *Personal and growing characteristics of the participants*

The frequency and percent distribution of participants to the FBS as to personal profile is shown in Table 1. Majority of the 111 women participants are dominated by 41-60 years old age bracket and the mean age was 50 years

old. Majority of the participants are married and high school graduates. The average household member was five. They had earned a minimal monthly income below PhP5,000.00.

In terms of their growing characteristics, results showed that majority of the participants were within the 1-10 years growing experience bracket. The mean vegetable cultivation experience was 12.34 years. Majority of the participants had .01-.5 hectares of farms, but the average farm size was about 3,200 square meters.

The participants grew a number of vegetables but the most common include the vegetables used in a Filipino delicacy "pinakbet" like string beans, eggplant, squash, bitter gourd, okra, green pepper and tomato. These vegetables are grown at least 1.5 times a year. In general, the lands used for vegetable growing are owned by the participants. Participants grew vegetables for sale. Majority of them retailed their produce house to house.

**Table 1.** Socio-demographic and Vegetable Growing Characteristics of Participants

| Profile | Number/Percentage |
|---|---|
| Age (average) | 50.07 |
| Married | 89.62% |
| High school graduate | 28.96% |
| Household size | 4.56 |
| Monthly income (average in Philippine peso) | 3,361.15 |
| Land ownership | |
| Owned | 71.58% |
| Rented | 28.42% |
| Farm size (average in square meters) | 3,200 |
| Years in vegetable growing (average) | 12.34 |
| Cropping per year (average) | 1.52 |
| Vegetables grown (common) | |
| String beans (*Vigna unguiculata*) | 67.21% |
| Eggplant (*Solanum melongena*) | 60.11% |
| Squash (*Cucurbita maxima*) | 49.18% |
| Bitter gourd (*Momordica charantia*) | 45.36% |
| Okra (*Abelmoschus esculentus*) | 37.16% |
| Green pepper(*Capsicum annuum*) | 35.52% |
| Tomato (*Solanum lycopersicum*) | 26.78% |
| Mode of selling vegetables | |
| Retail only | 68.31% |
| Wholesale only | 18.03% |
| Wholesale and retail | 13.66% |

### *Knowledge of participants on vegetable growing as a business*

The summary on the knowledge of women participants on vegetable growing as a business before and after the conduct of the FBS is shown in Table 2. The test for difference done on the knowledge of women on vegetable

growing as a business before and after the conduct of FBS is shown in Table 2. Statements presented to the participants revolved around seed quality, vegetable production for cash, recording of income and expenditure, credit, importance of marketing, value adding, storing, group buying, competitors, and demand and prices. The results revealed that participants have high knowledge on almost all statements except for items 2 and 7 which is very low. However, after their participation in the FBS, their knowledge on the matter has improved. The p-values for the majority of the statements showed that there were significant increased in the knowledge of women after undergoing the FBS.

**Table 2.** Knowledge of Women on Vegetable Growing as a Business before and after the Conduct of FBS

| | Statements | MPS | | t-comp | p-value |
|---|---|---|---|---|---|
| | | Before FBS | After FBS | | |
| 1. | Quality seeds are important in getting higher yield. | 96.95 | 100.00 | 2.26 | .025 |
| 2. | A farmer is engaged in a farm business if he focuses more on producing for cash rather than for food. | 40.24 | 95.12 | 13.43 | .000 |
| 3. | It is always better in a farm business to keep a record of all expenses and income to keep track of profit and losses. | 96.34 | 100.00 | 2.49 | .014 |
| 4. | If credit is not well-utilized, it could result in debt and hardship. | 89.02 | 97.56 | 3.22 | .002 |
| 5. | Marketing is necessary in establishing vegetable growing as a business. | 93.90 | 100.00 | 3.25 | .001 |
| 6. | Adding a value or processing the vegetable (fermented mustard) will increase profit. | 93.29 | 98.17 | 2.57 | .011 |
| 7. | Storing products is important to extend the availability of produce over a longer period than if it were sold immediately after harvest. | 75.00 | 96.95 | 6.54 | .000 |
| 8. | Group buying is important because it increases bargaining power, lowers transaction costs and improves prices. | 92.07 | 98.17 | 2.54 | .012 |
| 9. | It is important to know who the competitors in the market are. | 94.51 | 98.17 | 1.74 | .083 |
| 10. | Farmers should know which vegetable products have high demand in the market including their prices and schedules. | 98.78 | 100.00 | 1.42 | .158 |

p-value of .05 and below are significant and above .05 are not significant

### *Concurrence of participants on the improvement of their skills after the FBS*

The summary of data on the agreement of participants on vegetable growing as a business before and after the conduct of FBS is presented in Table 3. Of the 10 statements, participants “agree” on at least four statements and

"strongly agree" after the conduct of FBS. Their agreement to the 10 statements presented to them changed to "strongly agree" after the conduct of the FBS. In general, all of the statements had p-values lower than the level 0.05 which denoted significant difference on the initial and final agreements of the participants.

**Table 3.** Agreement of Participants on Vegetable Growing as a Business before and after the Conduct of FBS

| Statement | Initial Agreement | Final Agreement | t-computed | p-value |
|---|---|---|---|---|
| 1. Vegetable growing is a profitable business. | 3.48 | 3.98 | 6.690 | .000 |
| 2. Collective growing is better than individual growing. | 3.01 | 3.79 | 8.037 | .000 |
| 3. Small-scale farmers can also become successful entrepreneurs through vegetable growing. | 3.32 | 3.64 | 3.746 | .000 |
| 4. It is easy to maintain farm records | 3.20 | 3.91 | 8.466 | .000 |
| 5. Post-harvest facilities are important in vegetable growing. | 3.22 | 3.90 | 8.027 | .000 |
| 6. Value-adding or processing of harvest could add profit. | 3.35 | 3.90 | 6.714 | .000 |
| 7. Having a permanent market is important in vegetable growing. | 3.46 | 3.92 | 6.216 | .000 |
| 8. Marketing produce wholesale is better than retail. | 3.16 | 3.91 | 9.276 | .000 |
| 9. Competition always exists during marketing of produce. | 3.29 | 3.93 | 7.998 | .000 |
| 10. Wholesale is always better than retail. | 3.35 | 3.87 | 6.305 | .000 |

Legend: 3.26-4.00 Strongly Agree (SA)
2.51-3.25 Agree (A)
1.76-2.50 Disagree (D)
1.00-1.75 Strongly Disagree (SD)
p-value of .05 and below are significant while above .05 are not significant

### *Issues and problems affecting the conduct of FBS*

During the conduct of FBS, issues and problems were encountered by project staff. Among these problems were the prolonged dry season, farm work, absenteeism and drop-outs. The prolonged dry season affected the schedule of farm activities which temporarily held in abeyance until the weather conditions became favorable. FBS participants had their own farms, a number of them were not able to complete the different FBS modules, they became busy with farm works, as a result, the absences were observed and some were dropped from the FBS after incurring three absences.

## Discussion

Majority of the 111 participants are dominated by 50 years old, married, high school graduates with five household members and monthly income was below PhP5,000.00. The mean vegetable cultivation experience was 12.34 years; average farm size was about 3,000 square meters. This information revealed that women are highly involved in vegetable farming and/or gardening in rural areas like the Province of Quirino. Women were involved starting from the selection of seeds up to marketing of produce. They also did management and protection activities in between.The strong involvement of women in vegetable growing was also noted by Rahman *et al.* (2020) in their study who found that women play an important role in farming and are increasingly involved in managing farms. In the same way, Boza *et al.* (2020) found almost the same age range that is 53.3 years old for vegetable growers in Chile.

Vegetable growing was done by smallholder farmers. Smallholder in the sense, that vegetable growers still generally lack business skills, market knowledge and political empowerment (Shepherd, 2007 cited in Batt & Le, 2010). Vegetable growers in the province only established vegetable gardens that they can tend to save from labor and expenses. The results support the findings of Marble and Fritzel (2014) who statesthat vegetables are produced by smallholder farmers. However, the result of the studyshowing minimal income from vegetable growing contradict the result of study made by Navjot and Poonam (2017) in Punjab, India, who found that smallhold farmers were more into vegetable farming and whose farm income per acre is generally higher.

In terms of improving the knowledgeof participants on vegetable growing as a business, the conduct of FBS showed positive improvement on the knowledge and skills of participants on various aspects. This is so because the FBS covered a wide array of topics which were discussed to the participants over the course of FBS. This implies that FBS was a good tool in enhancing the knowledge of women participants on vegetable growing since training modules covered seed selection up to marketing of farm produce. This result affirmed that conducting FBS is a good strategy to motivate farmers to venture on vegetable farming as a business. This conforms to the study conducted by Chilemba and Ragasa (2018) in Central Malawi where they found that participation in FBS have impact on crop income and production of farmers who participate in such activity.

The agreement of women on vegetable growing as a business basically improved after the conduct of FBS. The changed in appreciation of women on vegetable growing as a business may have been influenced by the different lectures and on-site tutoring conducted, and even exposure in real-market

conditions, during the conduct of FBS. This result implies that the conduct of FBS further improved the agreement of participants to the different statements presented to them after the conduct of FBS. This also indicates that FBS is a good strategy in enhancing women's agreement to venture on vegetable growing as a business. Thorms to the idea of Reyes (2020) ho said that to promote agribusiness entrepreneurship, initiative should be focused on those who have the desire to go into agribusiness, so that the possibility of putting up agribusiness would be higher than before.

Although the FBS was seen as an effective tool, aside from environment-related issues and problems, abseentism and drop-outs among the participants were recorded. As such incentives were provided in the form of farm inputs and tools. Those who were able to complete the whole FBS participated in a learning visit at Nature Costales Farm - an organic farm at Majayjay, Laguna, Philippines to observe the processes done from growing up to post-growing. The provision of incentives to the participants eventually improved the attendance and participation in the FBS.

Continuous mentoring and coaching and close monitoring should be done to these women vegetable growers by the project staff to ensure the sustainability of the project.

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