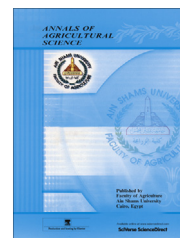




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ORIGINAL ARTICLE

The economic evaluation of extension activities in forage crops production in Sinai Peninsula, Egypt



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Abstract Farmers appeared to use more traditional knowledge in Sinai Peninsula; this required a more supportive extension role to help farmers to develop appropriate farming systems. The research was interested to identify the difference in production economics between traditional and improved management practices to reflect the results of extension activities (field days, training courses, and regional farmer field school) in developing the forage crops productivity, knowledge, skills and attitudes of farmers. The research employed surveyed data of 32 selected farmers, and selected farmers were the participated farmers in the project, The analytical tools were used descriptive statistics, gross margin analysis. The results indicated that Several extension activities had been implemented, These activities included field days, training courses, and regional farmer field school. These activities were implemented to introduce improved farm technologies to the farmers as a result of implementing the extension activities. The average net farm income of Egyptian clover, barley, fodder beet, pearl millet and sorghum cultivation under improved practices was 28.3%, 20.07%, 70.2%, 30.01% and 58.02% respectively higher than the cultivation under the traditional practices, and this increment in the net farm income because of all the forage crops productivity cultivation under improved practices was higher than the productivity cultivation under traditional practices.

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Introduction

Agriculture is the focal activity of rural areas, and most economic activities related to agriculture development in rural

areas can take place through improvements in agricultural inputs and practices.

Populations in Egypt are growing so quickly (92 million people) that the arable lands and the available fresh water are unable to sustain the population increments. Salinity that leads to desertification is a serious problem with crucial impacts on agriculture development in particular in arid and semiarid zones of Egypt. It is believed that cultivation of salt-tolerant crops, using marginal resources such as saline

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soils and irrigation water has significant social and economical potential to solve the problems of food for human being and animal feed shortages and decrease its costs. These plants can grow in saline to extremely saline habitats and have particular characteristics which enable them to evade and/or resist and tolerate salinity by various eco-physiological mechanisms. Such forage crops can constitute a major part of the yearly feeding program of animals since it provides a valuable reserve feed for animals particularly under drought conditions or fill regular gaps in feed supply caused by seasonal conditions. Farmers in Egypt are concerned with ways to prevent salinification and economically produce fodder crops to overcome the problems of crucial feed shortage leading to high feeding costs particularly in desert areas particularly during the dry seasons. It is worthy to note that the livestock sector plays a significant economic role in most regions of Egypt, and is essential for the food security of their rural population. It contributes to poverty alleviation and provides elements that are essential to the national economy, such as: food, fiber, leather, bank savings, by generating significant household cash income through sales of live animals or livestock products. For smallholder farmers and Bedouins with limited production capacity, it is important to find enough animal feeds all over the year to maintain good production and reproductive performance. Many farmers are forced to buy hay, concentrates or silage just to keep their animals alive and are unable to benefit due to the higher prices paid for animal feed.

Objectives

The objectives were to

- Identify the socio-economic farmers characteristics.
- Identify the extension activities used by extension agents.
- Assess production economics for the forage crops grown under traditional management practices.
- Assess production economics for the forage crops grown under improved management practices which introduced to the farmers by extension agents and difference in production economics between traditional and improved management practices to reflect the results of educational extension activities in developing the forage crops productivity, knowledge, skills and attitudes of farmers.

Data and methodology

The sample was purposively selected, the study employed surveyed data of 32 project participated farmers, a well structured interview schedule was used to collect data based on the socio-economic variables such as age, farm size, educational status, costs and returns, and information about implemented extension activities.

Study area

Sahl El-Tina is an important area in Sinai Peninsula, Egypt. It was selected to represent marginal ecosystem. The irrigation water was obtained from mixed water (Nile water + drainage waters) of El Salam Canal. The soil is characterized by severe salt affected, differ in depth and stratified profile layers. The

activities started in 2011/2012 winter season. The soil salinity and salinity of irrigation water for these farms varied between 12.5–15.6 dS/m and 1.6–2.3 dS/m (1000–1100 mg/L), respectively. In addition, the poverty and inappropriate management practices beside the marginal soil and water resources are the problems of agriculture development in this area.

Analytical technique

The analytical tools that were used for this include descriptive statistics, gross margin analysis and extension activities (field days, training courses, and regional farmer field school).

Descriptive statistics

The descriptive statistics that employed includes frequencies, percentages and ratios. This was used to analyze the socio-economic characteristics of the farmers.

Gross margin analysis

Gross margin analysis is by definition the difference between the gross farm income and total variable cost (Olukosi and Erhabour, 1988). Normally, gross margin analysis was used to assess production economics for the forage crops grown under traditional and improved management practices which introduced to the farmers through extension activities and to test the effects of changes that do not alter the fixed cost of production, especially the cost of land and other durable factors. It was used to determine the potential profitability and effect on farmer's farm income under traditional and improved management practices. It had the advantage of being simple as well as useful in the analysis of the profitability of small farms that have small fixed costs (Samm, 2009).

The gross margin analysis was estimated from costs and returns in forage crops production.

Gross margin model is expressed as follows:

$$GM = TR - TVC$$

where

GM = gross margin (LE/ha).

TR = total revenue or total value of output from the forage crops (LE/ha) It is the product of average output per hectare multiplied by the market price.

TVC = total variable cost or the costs that are specific in producing (forage crops) output (LE/ha).

TVC varies according to output and are incurred on variable inputs.

This includes cost of inputs like seeds, fertilizer, and harvesting, labor cost (hired/family).

Results and discussion

Table 1 shows the distribution of farmers by personal and socio-economic characteristics. Majority (34.4%) of the farmers fell in the age greater than 40 years, (31.3%) were 35 years and below while 31.3% were between 35 and 40 years.

Majority (84.4%) of the farmers were married and have children, and 15.6% were single. About 37.5% of the farmers

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