

A Study on Economic Plants Grown in Khayan and Thanlyin Townships

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Abstract

Various kinds of cultivated plants such as cereal crop, pulses and oil seed crops, perennial crops and vegetable crops in Khayan and Thanlyin townships are thoroughly studied from the economic botanical points of view. In this research paper *Oryza sativa* L. (Rice) which is one of the cereals crop are presented. Morphological characters, climate and soil types, agronomy, diseases and pests, production and their uses are analyzed. The yield, costs, income and profit of the local growers are calculated and compared between two townships. Yield per acre of rice was higher in Khayan than in Thanlyin townships.

Key words: Economic Botany, Paddy, Profit per acre

Introduction

Economic Botany is broadly defined as the study of the relationship between people and plants. Economic Botany deals with the various uses of plant and plant products that are applied to the well-being of mankind. Man's dependence on plants for the essentials of his life like, food, fiber and shelter has been of paramount importance in his life since the human race began. Civilization, however, has brought with it an ever-increasing complexity, and has increased man's requirements to an amazing degree (Pandey, 2000).

Economic Botany is a branch of science which deals with the study of plants and their products in relation to the economy. The early man of the Stone Age depended totally on plants for their survival and developed means for utilizing these natural resources. As the human civilization progressed, its multifarious uses also increased and this led to a better understanding and appreciation of the plant kingdom and its economic importance. Man discovered that plants could be used as food, they could provide fibers for making clothes, and also they were a source of wood for providing shelter, for making weapons and a variety of useful articles. One of the economically important crops, pulses, is protein rich food, used as an important and indispensable part of our daily diet (Pandey & Chadba, 2000).

Rice is the most important crop of Myanmar. It is the staple food as well as an important export crop. As Myanmar is an agri-based country, agricultural sector remains important to economy of the country. The agricultural sector will continue to be essential for food production with the growing population as well as for the country to occupy a large part of the export earnings. Therefore, growth in agricultural sector is necessary to increase food availability and to sustain the economic development continuously (Dutta, 1965).

Paddy cultivation area is 112155 acres (45387.59 hectares) in Khayan Township and 61908 acres (25053.32 hectares) in Thanlyin Township. Khayan and Thanlyin townships are favourable to grow a variety of crops because of their fertile soil, rich water resources and the favourable climate. Therefore many crops such as cereal, pulses, oil seed crops and vegetables have been grown throughout the year for a long time. In the studied area, regional economy depends mainly on agriculture.

Khayan Township is located in the southern part of Ka-wa, Bago Region, the western part and southwest of Mo-ta-ma gulf, the northern part of Thone-khwa Township and the eastern part of Thanlyin Township. The average rainfall is 125.4 inches (3185.16 mm), the average maximum temperature is 40°C and minimum temperature is 32°C. Total area of Khayan Township is 236.75 square miles (613.18 km²) (Figure-1).

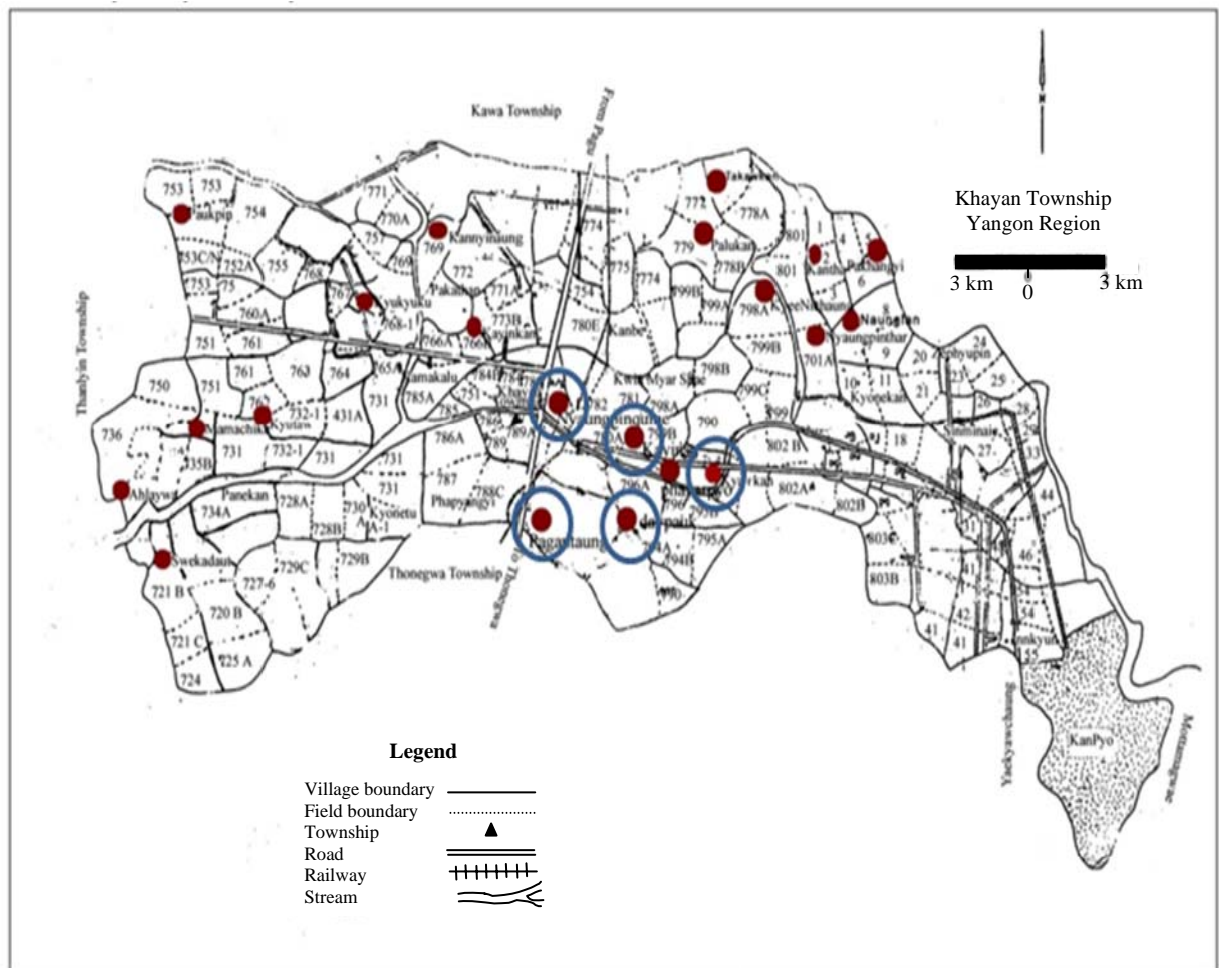


Figure (1) Location map of Khayan Township

Thanlyin Township is located at $16^{\circ} 45' N$ and $16^{\circ} 59' N$ and $96^{\circ} 25' E$ and $96^{\circ} 37' E$. It is 12.99 feet (4 m) above sea level. The exact location is near the junction of Yangon River and Bago River, on the left side of Bago River. The average rainfall is 99.19 inches (2519.43mm) and the average temperature is $99.86^{\circ} F$ ($37.7^{\circ} C$) during the study period. Total area of Thanlyin Township is 143.98 square miles (372.91 km^2) (Figure-2).

Aims and objectives

- To inform the agro-based economy of Khayan and Thanlyin townships.
- To investigate the role of cultivated crops for the development of agribusiness sector.
- To recommend the potential crops to improve the economy of both townships.

Methodology

To obtain the economically important data on rice, 4 field trips were undertaken from 2006-2007. Preliminary Survey trips were arranged to Khayan and Thanlyin townships. Phayr-pyo, Naung-pin-quine, Day-pauk, Pa-gan-taung and Ka-yin-su villages were surveyed in Khayan Township and Ka-yin-saitt, Bot-tha-pye-kan, Yone-tha-pye-kan, Thu-htay-quine and Sit-pin-quine villages in Thanlyin Township.

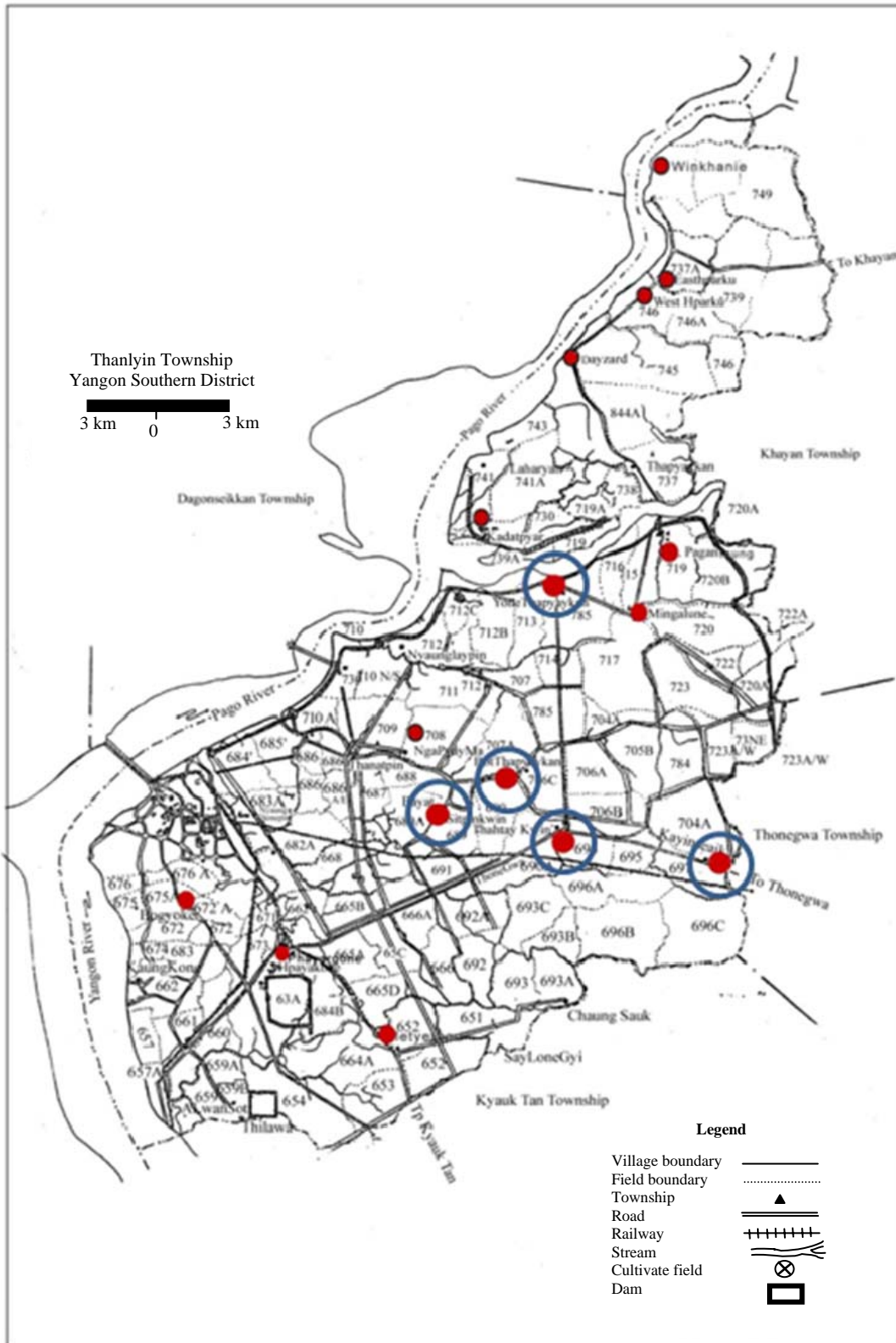


Figure (2) Location Map of Thanlyin Township

Field data for rice cultivation were collected by interviewing 15 local farmers; 3 from each of the 5 villages studied in both townships. In this study, the field data, the time of cultivation, cultivars, application of fertilizer, yield, cost of cultivation, and selling price were questioned and recorded, and the profits were calculated.

Results

Only paddy crop was found to be of economic importance in the study area.

Source plant	-	<i>Oryza sativa</i> L.
Family	-	Poaceae
English name	-	Rice, Paddy
Local name	-	Saba

Morphological characters

Annual stem erects with nodes and internodes, height 2-4 feet (60-120 cm). Leaves are alternate, linear-lanceolate, leaf-base sheathing. Inflorescences are panicle of spikelets. Flowers, terminal, bisexual, with 2 small glumes; lemma boat-shaped, large; palea yellow, consists of short awn, pedicel short. Perianth consists of 2 lodicules, stamens 6, in two whorls, ovary with 1 basal ovule, stigma 2, feathery. Fruit caryopsis is varying in size, whitish yellow (Hooker, 1885) (Plate – I)

Climate and soil

The crop thrives under the condition of moderately high temperature 20°-35°C and plenty of rainfall. Proper irrigation paddy grows best in clayey loam soil and soil pH 6.5 (Hill, 1952).

Agronomy

The seedlings were grown in nurseries and transplanted. The seedlings were ready to be transplanted at 20-25 days after sowing.

The land prepared by 1-2 times of ploughing and three times of harrowing. Ploughing is done by 1 or 2 buffaloes, probably when there is 7.5-10.0 cm of water on the land, and harrowing during which big clods of soil are broken and puddle with water from May-June. 500kg of cowdung, 100 kg of urea, 50 kg of T-super are applied before planted. The paddy is grown at the beginning of June. The transplanted seedlings were sown by hand in the puddle soil and the spacing is 15-25 cm. The fully mature plants are harvested by using a sickle starting from October (Plate - II).

Diseases and pests

Rice can be affected by diseases and pests such as brown spot, leaf spot, stem rot, virus diseases and stem borer's pests and other insects.

Uses

Rice is the main staple food of Myanmar. Rice grain is cooked by boiling water and is eaten mostly with pulses, vegetables, fish or meat. Rice straw is used as fodder for cattle.

Among the 5 villages in Khayan Township, the average profit per acre was the highest in Pha-yar-pyo and the second highest in Pa-gan-taung followed by Day-pauk , Kayin-su and Naung-pin-quine villages (Figure- 3).

Discussion and Conclusion

Myanmar is an agro-based country and agriculture is still the most important economic sector as the main source of livelihood for the people living on agriculture related activities. The agriculture sector plays the dominant role in economy of the township and was closely linked to other socio-economic sectors of distinct townships. Economic development of the both townships totally depends on the thriving of agriculture.

In cereal crop cultivation among the 5 villages in Khayan Township, the average profit per acre was the highest in Pha-yar-pyo Village (124771 Kyats) and the lowest in Naung-pin-quine Village (72288 Kyats). The difference between the average profits of paddy per acre of Pha-yar-pyo was 42.06 %.

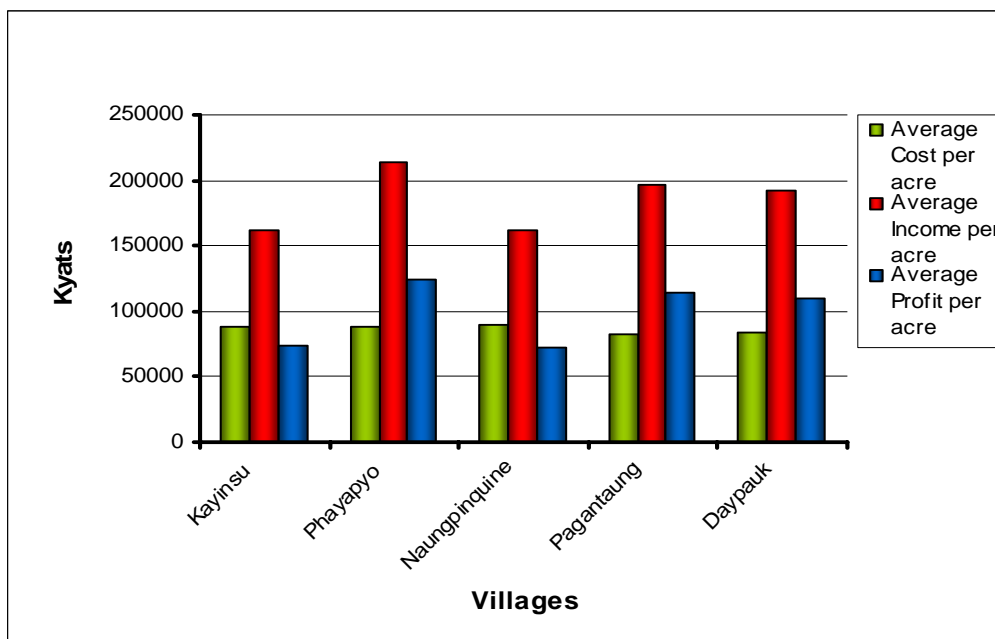


Figure (3) Comparison Paddy cultivated in Khayan Township (2006-2007)

Among the 5 villages in Thanlyin Township, the average profit per acre was the highest in Yone-tha-pye-kan and the second highest in Bot-tha-pye-kan followed by Sit-pin-quine, Ka-yin-saitt and Thu-htay-quine villages (Figure - 4).

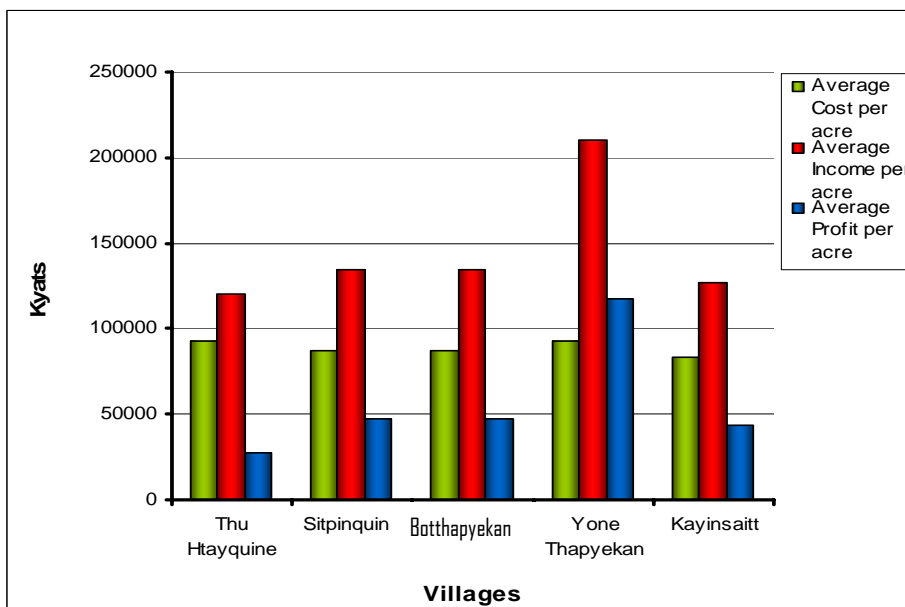


Figure (4) Comparison Paddy cultivated in Thanlyin Township (2006-2007)



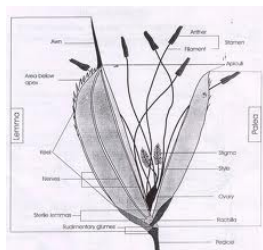
(a) Paddy plant



(b) Inflorescence



(c) Flower as seen



(d) Single flower



(e) Seed

Plate (I) Morphology of Paddy

Among the 5 villages in Thanlyin Township, the average profit per acre was the highest in Yone-tha-pye-kan Village (117600 Kyats) and the lowest in Thu-htay-quine Village (27636 Kyats). The difference between the average profit per acre of Yone-tha-pye-kan was 76.5% higher than Thu-htay-quine Village.

Comparison of the two Townships revealed that the average profit per acre was higher in Khayan Township (93108 Kyats) than Thanlyin Township (51598 Kyats) although the cultivated area in Thanlyin Township was higher than Khayan Township because the average cost per acre was higher in Thanlyin Township.

So the average profit per acre of paddy in Khayan Township was 44.58 % more than Thanlyin Township.

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(1) Nursery bed



(2) Seedling



(3) Ploughing



(4) Transplanted



(5) Plantation



(6) Paddy plant



(7) Fully mature plant



(8) Harvesting



(9) Paddy straw



(10) Pile of paddy



(11) Packing



(12) Packing

Plate (II) Agronomy and production of paddy

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