

**YANGON UNIVERSITY OF ECONOMICS
MASTER OF ECONOMICS**

**A STUDY ON MIGYAUNG-KUNBAT
PRODUCTION OF BOGALAY TOWNSHIP IN
AYEYARWADY REGION
(2008-2018)**

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**YANGON UNIVERSITY OF ECONOMICS
DEPARTMENT OF ECONOMICS**

**A STUDY ON MIGYAUNG-KUNBAT
PRODUCTION OF BOGALAY TOWNSHIP IN AYEYARWADY
(2008-2018)**

A thesis submitted in partial fulfillment toward the requirement for the
Degree of master of Economics, M.Econ (Economics) Degree.

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ABSTRACT

A study on Migyaung-kunbat production of Bogalay township in Ayeyarwaddy Region is analyzed for the period 2008-2018. The main aim of this study is to explore the income situation of Migyaung-kunbat cultivator in Bogalay township. The study based on survey data. Migyaung-kunbat has opportunity to become the export for foreign exchange earnings, thus the study of Migyaung-kunbat production is able to create the benefit for Myanmar economy. As Migyaung-kunbat is herbal plant. The farmers who grow Migyaung-kunbat can get more income. Migyaung-kunbat production has significantly increased after 2012. During the period from 2008-09 to 2017-18, land use in agricultural sector has changed. The most important inputs are agricultural loans and labors, and it is not sufficient for agricultural sector development of Bogalay Township. Migyaung-kunbat should be promoted by supporting technology, infrastructure and financing to peasants.

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CHAPTER 1

INTRODUCTION

1.1 Rationale of the study

Migyaung-kunbat has opportunity to become the export for foreign exchange earnings, thus the study of Migyaung-kunbat production is able to create the benefit for Myanmar economy. Migyaung-kunbat is one of the interested plants and a short duration crop grown throughout the year. As Migyaung-kunbat is herbal plant, people can get advantages from it. Migyaung-kunbat is the exported, raw material that can grow in the sea-side well. The more it is grown the more it is useful. The farmers who grow Migyaung-kunbat can get more income. China and India are the main countries where Migyaung-kunbat is exported. Migyaung-kunbat is used as medication in India. As more and more Migyaung-kunbat is exported year by year, it is important in exportation. The income from Migyaung-kunbat is more convenient for the farmers. Raising the production of Migyaung-kunbat means that it is highly demanded.

Being an agricultural country, Myanmar gets much income in exportation of Migyaung-kunbat. The regions where paddy cannot grow in summer season, more Migyaung-kunbat plants are grown. By growing that, the farmers get more income as well as the country gets more budget. And also, we can produce the medicine locally by using new technology.

Myanmar and India are the countries where Migyaung-kunbat is grown widely. As Migyaung-kunbat is a raw material, other various materials can be produced. The exportation of Migyaung-kunbat increases from 40 weight to 40000. Migyaung-kunbat is spreading in the market.

As the villages in low land of Bogalay township are near the sea, Migyaung-kunbat plants are grown mostly these. So, in this thesis it can be observed that the farmers get more income by growing Migyaung-kunbat.

The production of Migyaung-kunbat cultivation have been increased year by year in the region. In that region, social and economic conditions mainly depend on the agricultural production. Migyaung-kunbat does not destroy other plants and it is the natural plant that grows in the places where sea-water is available.

As it is an herbal plant, it can be used as Myanmar traditional medicine. Migyaung-kunbat can be exported to foreign countries. So, it can develop the market

economy. Moreover, the more acres, there are, the more income and the more per-capital income they get. And also, it can support to raise the living standard.

So, besides using as the traditional medicine locally, it is necessary to get the raw materials in abroad. Thus, growing Migyaung-kunbat is being studied as an important sector.

1.2 Objective of the study

The objective of the study is to explore the income situation of Migyaung-kunbat cultivator in Bogalay township.

1.3 Methods of study

This thesis is used survey methods. It is also based on the information from Immigration and Manpower Department, Land Record Department, libraries, Central Statistical Organization (CSO) and available online resources.

1.4 Scope of the study

Data and information used in this study are based on the period from 2008-2009 to 2017-2018 for the production of Migyaung-kunbat in Bogalay township. The study is regarding the resources situation, production, cost and return of crops in the major Migyaung-kunbat growing areas, under the Bogalay township and processing and marketing of Migyaung-kunbat as a commodity.

1.5 Organization of the study

This research is composed of five chapters. Chapter 1 is the introduction. It includes of rational, objectives, scope and limit, method of the study and organization of the study. Chapter 2 contains the literature review. Chapter 3 studies Historical Background of Bogalay township, this portion requires the background of Bogalay township, population, race and religions, soil and water, rainfall and temperature, land utilization, environment and climatic condition for growing Migyaung-kunbat. Chapter 4 focuses on the production of Migyaung-kunbat in Bogalay township, sown area and production of Migyaung-kunbat, result of the survey, income from Migyaung-kunbat, the cost of production, Agricultural marketing. Chapter 5 presents the conclusion, the findings and suggestions.

CHAPTER 2

LITERATURE REVIEW

2.1 The Origin of Migyaung-Kunbat

Migyaung-Kunbat, Genus is *Hygrophila* and species is *Spinosa*. In botanical description, *H. spinosa* T Anders syn. *H. Auriculata*, Hiene; *Asteracantha Longifolia* (Linn) Nees. It is herb growing in wet places. A stout herb, stems fasciculate, erect 0.6-1.5 m tall, thickened at the nodes, hispid with long hair, with axillary spines, leaves 9 into 1 cm, hairy, oblanceolate, in whorls. Flowers 2-3 cm long, purple-blue, in whorls. Fruits capsule, 8 mm long, 4-8 seeded. Each flower yields at least 6 seeds.

Migyaung-Kunbat commonly known as Swampweed in English, is a genus of flowering plants in the acanthus family, *Acanthaceae*. There are about 80 to 100 species of which many are aquatic plants. The genus is distributed across the tropical and subtropical world. It is one of only two genera in its family that contains aquatic plants, the other being *Justicia*. The genus is treated in the tribe *Hygrophileae*, which is noted as being in need of revision at the genus level, meaning the current taxonomic boundaries of *Hygrophila* are likely to change in the future. It is common in moist places- on the banks of tanks, ditches, and paddy fields. Many member of the genus are troublesome weeds in irrigation and drainage ditches as well as rice fields.

Migyaung-Kunbat plant can be found commonly in the sub-tropical and tropical region of India, and in various part of the world, like Nepal, Malaysia, Sri Lanka, Burma and the Philippines. The plant generally grows in freshwater swamps, ponds, near river beds and in stagnant streams. It has often been seen growing luxurious in low lands that received plenty of water. However, due to industrialization, the natural habitat of this miracle plant is fast disappearing, which would be bad news, because it has got some incredible medicinal uses and health benefits to offer.

There are two kinds of Migyaung-Kunbat plant that are called the red plants and the green plants. The farmers cultivated the red plant successfully in this regions. The period of time in growing Migyaung-Kunbat is July, and cultivating time is March. Its lasts for 9 months. In growing Migyaung-Kunbat, there are garden and spreading lands. In growing Migyaung-Kunbat, spreading seeds in plateau and growing in the farm. In growing Migyaung-Kunbat, the place that has to be harvested early is the land and it is ripe in early.

There is more achievement growing on the breakwater. Pa-lae fertilizer is necessary for growing Migyaung-Kunbat. If it is grown in early time, the plant gets higher and if it is grown late, it causes short and less. Early growing gets more production. Migyaung-Kunbat plants favor hard soil and it grows in higher place well. In growing in the farm, it is suitable to grow where it gets more water. In cultivating time, it cannot be cultivated if there is moist. Migyaung-Kunbat plants do not achieve fruits if there is shade. It favors high temperature.

Cultivating in the farm has more delay and it needs to harvest on the land one month ahead. In growing Migyaung-Kunbat, ploughing with machine on the farm has to be done well. And then, fertilizer has to be fed. Cutting with hands and reaping with machine are necessary. If there are diseases, no plant can be grown. Therefore, not to spread the diseases, Pa-lae insecticide has to be fed. So, Migyaung-Kunbat can be found mostly in sea-water regions.

2.2 Cultivation Process

In basic economic condition, people cultivate cash crops for their families; they produce crops, weave clothing and construct shelters for their families. Depending on the types of soil, the cultivated lands are classified by condition of water available for cultivation. The area under temporary cropping includes all land used for crops with a growing cycle of less than one year, which needs to be sown or planted for further production after the harvest. Migyaung-kunbat is a raw crop. In the Migyaung-kunbat cultivation system, Migyaung-kunbat cultivation in Bogalay is classified according to the cultivation period as monsoon Migyaung-kunbat.

The cultivation of Migyaung-kunbat involves the following steps, preparation of lands, growing Migyaung-kunbat plants, and harvesting then and input materials. Two cultivation methods are used: (1) sowing direct Migyaung-kunbat seeds directly on to the land and (2) using nursery. Before cultivating, farmers prepare small canals between kazin and distribute fertilizers or animals waste or manure on their lands. Some farmers cultivate their lands near the water resources, but some farmers cannot get water. So land owners or farmers who cannot get water work for other farmers who can get water. Farmers contribute labor on a reciprocal basic. This practice is currently used in some rural areas of Bogalay township.

For nursery preparation, land preparation comprises two stages: ploughing and harrowing. The ordinary plough consists of stock plough, plough beam, and knee of

plough. The plough is driven by two cattle using a yoke. The latter includes a lot to which the teeth or harrow are attached; the shaft of a harrow, tooth of a harrow, and handle bar. Generally, the harrow is like a plough with two cattle and driven round over the plough field using spiral curve, about eight times in different directions, but the number of times depends on the nature of soil, the water supply condition, and many other situations. If ploughed and harrowed soil is in good conditions, the farmers can estimate the amount of Migyaung-kunbat to produce and how much of the land needs to be transplanted. Nursery cultivation is used by small tractors in some areas.

The increases of Migyaung-kunbat production in Bogalay township mainly attributes to the more monsoon Migyaung-kunbat area expansion. Migyaung-kunbat production is increased year by year. For area expansion, Migyaung-kunbat cultivation is more feasible.

2.3 The Use of Migyaung-Kunbat

There are lots of medicinal uses of Migyaung-Kunbat plants for that include the treatment of diseases, mainly of the blood, and enhancing sexual performance among other conditions.

The plants have been used for a long time for controlling, preventing, treating and improving a whole host of diseases. Extensive research on the medicinal uses of plant has revealed that it can also improve the patient condition, by reducing testosterone production. It also disrupts the regular working mechanisms of hypothalamic pituitary gonadal axis. Due to the fact that Migyaung-Kunbat has been used primarily in Ayurvedic medicine, the uses of medicine generally include information relating to Ayurvedic treatments. It has been said that the extract of the plant is useful for administrating the following

- Protecting the liver
- Breaking and expulsing
- Nourishing cells in the body
- Improving body strength
- Strengthening and improving the genital system

These are just some of the uses of Migyaung-Kunbat which enable it to be one of the most popular herbs.

CHAPTER 3

HISTORICAL BACKGROUND OF BOGALAY TOWNSHIP

3.1 Historical Background of BOGALAY Township

The Ayeyarwaddy delta region was traditionally part of the Mon kingdom. Bogalay is a township of Pyapon District in the Ayeyarwaddy region of Myanmar. Bogalay is a small city. It is located on the south –western part of Myanmar on the mainland section of the country. It is between latitudes 16°,17',15"N and longitudes 95°,23', 25"E. The Bogalay township region of Myanmar has many natural resources that drive their economy. The products that are made from the natural resources are taxed harshly by the oppressive military junta. The people of the Bogalay township see little benefit of the taxation the government places on their products and commerce. Outside of the main city, roads are sketchy at best and people are practically cut off from the main Bogalay city.

Because of the Bogalay township, ideal location on the base of the delta, farming and agriculture are huge industries in the region. The Bogalay township region is one of the largest producers of the rice in the whole Myanmar. The rice is grown during two crops seasons. The first season, which typically yields less rice than the second season, occurs between June and September-December during the rainy season. The second growing season is actually shorter but yields a greater amount of rice. This season lasts for four months March-June.

The rice is typically processed in factories in downtown of Bogalay township. Those largest factories employ 2,500 workers in downtown of Bogalay. This rice is often sold in local markets as a vital source of food for villagers. The national government military Junta heavily taxes the rice production and get profits in the region. This is a key source of revenue for the military governmental regime.

3.2 Population, Race and Religion

Population sector is an important sector which should be taken into account when studying the development of either a region or a country because all development planning and data collection strategies are based on the population. The population of Bogalay Township is going to be presented as the following headings.

3.2.1 Organization of Bogalay Township

According to the Immigration and Manpower Department, the population of Bogalay Township is 348,756 and the area is 868.88 square miles. Among them 14% of total population live in urban and 86% of people live in rural area. Nearly 90% of the township people engaged in agriculture, whereas approximately 7.26% and 2.74% were government servants and add-job workers respectively.

3.2.2 Structure of Population by Race and Religion

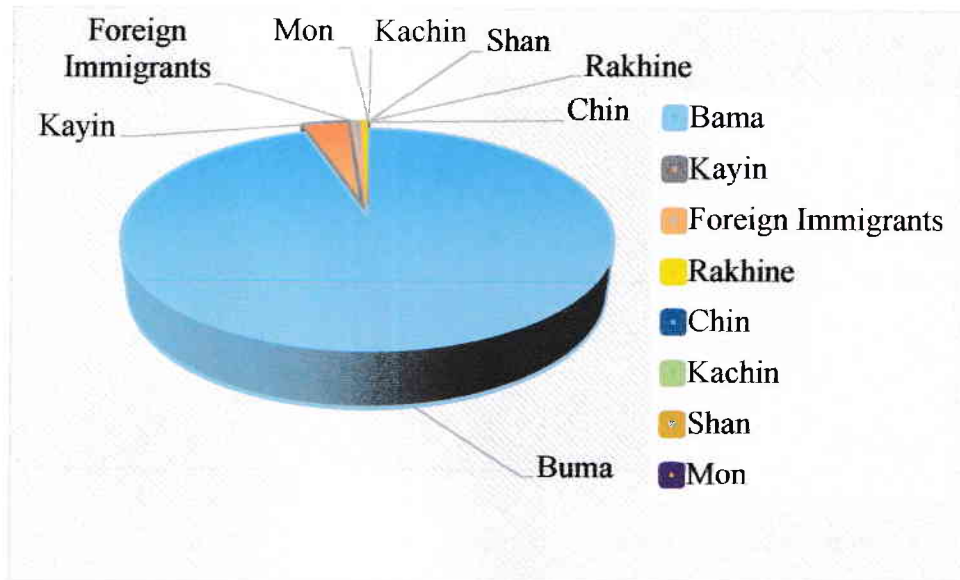
Different races live in Bogalay Township and among them Bama is the highest in percentage, and Mon is the least in percentage. Foreign immigrants such as Chinese, Indian, Pakistan, Bangladesh and others also reside in the township. It is shown in the table (3.1).

Table (3.1) The Structure of Population by Race in Bogalay Township (2017-2018)

Sr. No,	Race	Number of Population	Percentage (%)
1.	Bama	330,941	94.89
2.	Kayin	13,496	3.86
3.	Foreign Immigrants	2,815	0.80
4.	Rakhine	1,458	0.41
5.	Chin	35	0.01
6.	Kachin	5	0.001
7.	Shan	4	0.001
8.	Mon	2	0.0006
	Total	348,756	100

Source: Immigration and Manpower Department, Bogalay Township, 2018

Figure (3.1) The Structure of Population by Race in Bogalay Township (2017-2018)



Source: Immigration and Manpower Department, Bogalay Township, 2018

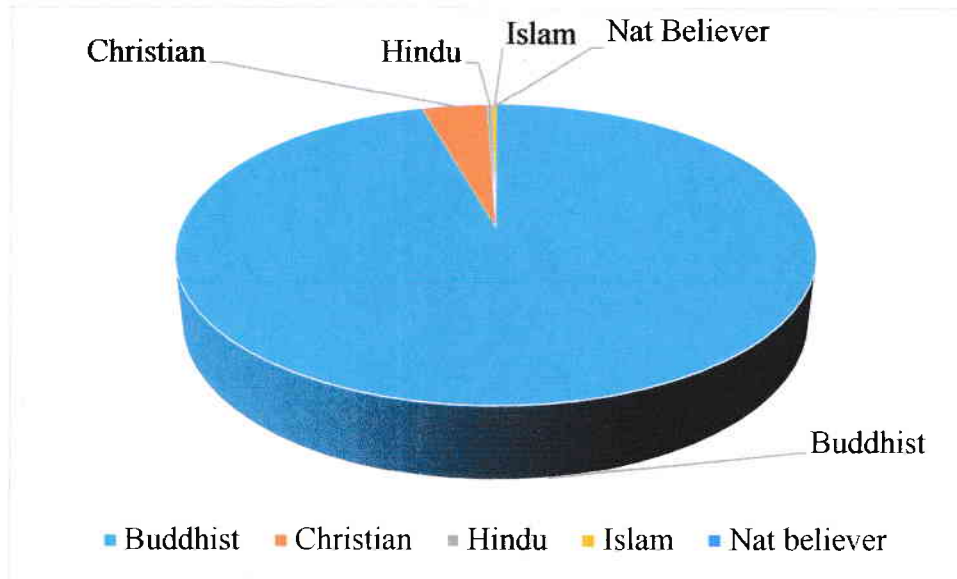
According to the table (3.2), there are Buddhists, Christians, Hindus, Islam and Nat believer. The number of Buddhists is the largest. The number of Christian is the second largest. The number of Nat believer is the least in this township. In studying the population in Bogalay Township, there is low density of population in Bogalay Township. The population density is 35% about population per one square mile.

Table (3.2) The Structure of Population by Religion in Bogalay Township (2017-2018)

Sr. No,	Religion	Number of Population	Percentage (%)
1.	Buddhist	333,089	95.5
2.	Christian	13,536	3.88
3.	Hindu	1,296	0.37
4.	Islam	801	0.22
5.	Nat believer	34	0.009
	Total	348,756	100

Source: Immigration and Manpower Department, Bogalay Township, 2018

Figure (3.2) The Structure of Population by Religion in Bogalay Township (2017-2018)



Source: Immigration and Manpower Department, Bogalay Township, 2018

3.3 Soil and water

There are various types of soil in the Ayeyarwaddy region in relation to the variable characters of the relief and drainage. Climate and nature vegetation of the region. There are two distinct types of soil in the Ayeyarwaddy region as follows.

- (1) Soil of the mountainous region and
- (2) Soil of the lowland region

Migyaung-kunbat can be seen in the regions near the sea. And, it can grow mostly in uncultivated soil. Besides, it can be grown in the fields. To grow Migyaung-kunbat, it does not need to stir soil. As the regions near the sea, it can be grown in the place where sea-water is available and there is no need to irrigate.

3.3.1 Rainfall and Temperature

Bogalay Township has a tropical climate. The annual rainfall varies from (100) to (200) inches. Since it is close to the sea, it has a temperature climate which is found to be favorable for agriculture. The average temperature in April in the southern towns is 85 F (29.4°C) approximately and it is more in the northern towns. The day average temperature in the same month in the southern towns is about 100 F (37.8°C) and the northern town are hotter. The average temperature of January is 75 F (23.9°C) in the southern part and the northern part is cooler.

There is significant rainfall in most months of the year. The short dry season has little effect on the overall climate. The average annual temperature is 26.8°C in Bogalay Township. About 2541 mm of precipitation falls annually.

3.4 Land Utilization

The land area of Bogalay Township is estimated to be approximately over 556,075 areas in 2017-2018, in which the net sown area in that year was only about 330,684 (million acres). The net sown area in 2008-2009 had been 223,592 (million acres) so that 107,092 (million acres) had been increased in ten -year period. Because after 2009, according to the stability in the country, good in transportation, newly introduced market economy and price of stability of crops, the area of crops sown are significantly increased. So the areas of fallow land and cultivable waste land were characterized by a decreasing trend. In 2008-2009, the areas of fallow land were 223 (million acres) and in 2017-2018 was no fallow land. Similarly, the areas of reserved land are the same. (see table (4.1) and figure (3.3)).

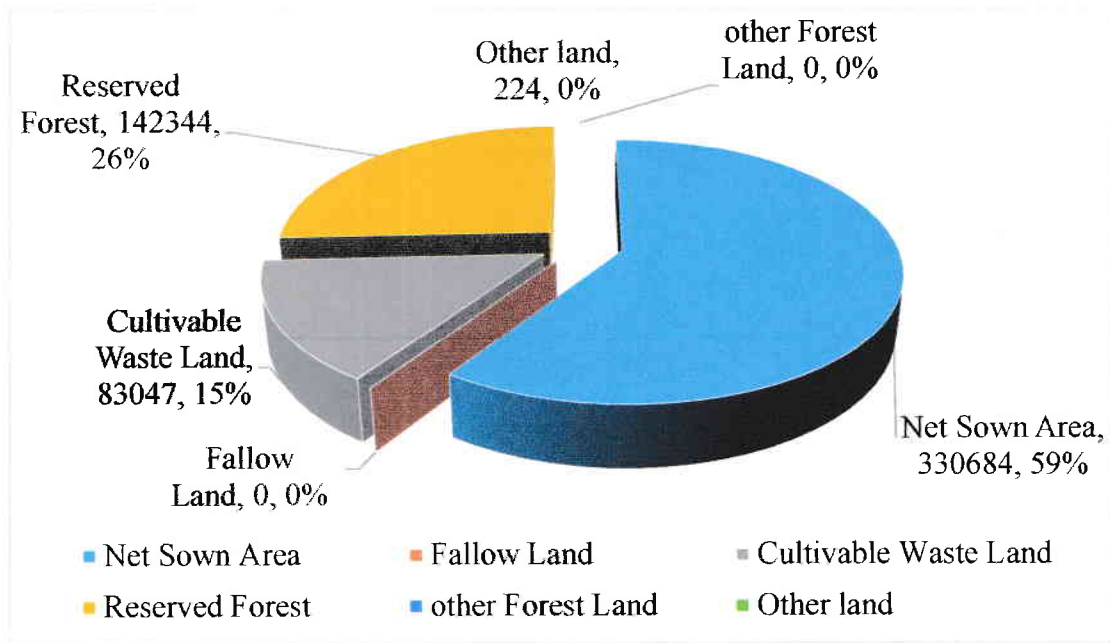
Table (3.3) Land Utilization in Bogalay Township (2017-2018)

(Million Areas)

Year	Net Sown Area	Fallow Land	Cultivable Waste Land	Reserved Forest	Other Forest Land	Other Land	Total
2008-2009	223592	223	80153	252053	54	224	556299
2009-2010	223004	223	80641	252053	54	224	556199
2010-2011	223084	138	80746	252053	54	224	556299
2011-2012	223108	138	80776	252053	-	224	556299
2012-2013	223185	61	80776	252053	-	224	556299
2013-2014	305557	-	82880	157638	-	224	546299
2014-2015	305557	-	82880	157638	-	224	546299
2015-2016	330552	-	83179	142344	-	224	556299
2016-2017	330761	-	82970	142344	-	224	556299
2017-2018	330684	-	83047	142344	-	224	556299

Source: Settlement and Land Record Department (Bogalay Township), 2018

Figure 3.3 Land use Pattern in Bogalay Township, 2017-2018



Source: Table (4.1) Land use Pattern in Bogalay Township, 2017-2018

3.5 Environment and climatic condition for growing Migyaung-kunbat

The location and topography of the region generated a diversity of climate conditions. Seasonal changes in the monsoon wind directions create summer, rainy and winter seasons. The core delta receives its annual rains mainly from the south-west monsoon from mid-May to mid-October. The southern part of Bogalay Township has a monsoon climate of the tropical region and the northern part having decreased rainfall has Savannah climate of the tropical region. The hottest months of the year are March, April and May while the coldest are December and January. During the rainy season, region receives lesser sunshine and rains usually extend to approximately six months in a year. Migyaung-kunbat is able to be grown at the time less heat in the wet weather.

CHAPTER 4

PRODUCTION OF MIGYAUNG-KUNBAT IN BOGALAY TOWNSHIP

4.1 Sown Area and Production of Migyaung-kunbat

Agriculture has been the dominant sector of Myanmar. But just before the war, Burma was an export economy based on fairly commercialized peasant agriculture. Rice was the major export crop and was cultivated mostly in the rain-fed alluvial delta areas of lower Burma. In addition to rice, there were other crops such as beans, pluses, oil seeds, sesame and groundnut, cultivated in the dry zone areas of upper Myanmar.

Migyaung-kunbat plants includes one of the export crops. The production of Migyaung-Kunbat was significantly increased and the sown area for Migyaung-Kunbat was also increased year by year. Then, the growth in agriculture sector, Migyaung-Kunbat sown acres and production are increased.

The following table shows the production of the Migyaung-Kunbat and each of the villages.

Table (4.1) Production of Migyaung-Kunbat in villages

Name of Village	Sown Acreage (Acres)	Yield Per Acres	Production (Viss)
Apyinmayan	37	150	5,550
NagPyoneTinTan	4	150	600
MaPaweTan	21	130	2,730
YayKyawGyi	36	150	5,400
ZeePhyu	29	140	4,060
GawekyaungGyi	123	150	18,450
Boatkyaung	45	150	6,750
DaNikyaung	73	130	9,490
PaDaekaw	38	150	5,700
HlayLonekawe	82	150	12,300
Total	488		71,030

Source: Survey Data, 2018

According to the table (4.5), in Gawe-khaung-gyi, the cultivated areas of 123 acres is the place where people. Migyaung-Kunbat mostly. Hlay-lone-kawe is the second cultivated areas of 82 acres. Da-Ni-Kyaung has 73 acres and if is the third village. The rest of the villages have between 30 and 40 acres. Nag-Pyone-Tin-Tan where people grow in 4 acres is the least village.

4.2 Result of the Survey

4.2.1 Survey Area and Surveyed Households

In Bogalay Township, having 76 groups of villages, there are 6 groups of villages where people grow Migyaung-Kunbat mostly. Among the 6 groups of the villages, there are 84 villages in total. In the 10 villages studied, survey area includes 10 villages around the field and the roads linked one village to another. Table (4.2) shows the number of households and number of surveyed households in the 10 villages.

Table (4.2) Number of Households and surveyed Households

No.	Village Name	Number of Households	Number of Surveyed Households	Percentage (%)
1	ApyinMayan	48	7	4.51
2	NagPyoneTinnTan	70	3	1.93
3	MaPaweTan	56	11	7.09
4	YayKyawGyi	85	12	7.74
5	ZeePhyu	56	7	4.51
6	GawekyaungGyi	60	25	16.12
7	Boatkyauung	97	21	13.54
8	DaNikyaung	90	22	14.19
9	PaDaekaw	315	22	14.19
10	HlayLonekawe	88	25	16.12
	Total	965	155	100

Source: Survey Data,2018

4.2.2 Survey Method

This paper used a quantitative method of research employing primary data sources. A questionnaire survey is carried out on selected households from the 10 villages. Households were selected with convenient sampling method. Key informant Interviews were conducted using an interview guideline on the headmen of the village.

Sampling Design

The sampling design employed in the survey was quota sampling. The sampling unit in the survey was households. There are altogether ten villages around the field and Village to Village linking Road. That are also beneficial and altogether 965 households in those villages. From the 965 households, 155 households were selected as a beneficial sample. The required data was collected from all the sample households through face-to-face interview using well prepared questionnaire. The collected survey data was analyzed with the help of Statistical Package for Social Science (SPSS).

Questionnaire Design

The questionnaire was designed to get information on socio-economic characteristics of households in the study area. There are three parts. In part (1), basic information was collected on the number of household members, their ages, sex, household size and own acre occupation. Part (2), Agricultural Information, a farmer was interviewed for varieties of cultivated crops, sown acres and yield per acres before and after, duration of crops cultivation, stage of cultivated process, cost of cultivated crops, revenue of crop production. Part (3), Benefits and difficulties of Migyaung-Kunbat cultivation and market of selling crops. The questionnaires were prepared in Myanmar language. The set of questionnaire is provided in Appendix.

4.2.3 Characteristics of Sample Households

Characteristics of 155 sample households were classified, according to the head of households by sex, occupations of the heads of the households and size of the households.

Table (4.3) Percentage of Households Heads by sex

Gender	Number of Households	Percentage (%)
Male	138	89
Female	17	11
Total	155	100

Source: Survey Data, 2018

The sex of the heads of the sample households are presented in table (4.3). The table shows that the majority of the household heads are male in all sample villages. This mean that the total sample households of the study area is 155 of which 138 were males and 17 were females.

4.2.4 Size of Households

Household size refers to the number of household members that live, work and eat together. They reside under one roof and share household expenses. Household members are parents, children and relatives who cooperate in the daily economic and social life.

Table (4.4) Number of Households by Size of Households

Size of Households	Number of Households	Percentage (%)
<3	12	8
3-5	114	74
6>	29	18
Total	155	100

Source: Survey Data, 2018

Table (4.4) shows the household size in the sample villages. Most households have members between 3 and 5. Therefore 74 percent of sampled households had 3-5 members, 18 percent of sampled households had above 6 members and 8 percent of sampled households had below 3 members.

4.3 Income from Migyaung-kunbat

Income is an integral part of all production chain which consists of capital cost, overhead cost, direct production cost and price of products etc. Production cost can vary from place to place, however; crop budget analysis was conducted based on the current price in China.

Table (4.5) Income from Migyaung-Kunbat in villages

Name of Village	Number of Surveyed Households	Average Income(Kyats) of Migyaung-kunbat	
		Before Cultivation	After Cultivation
Apyinmayan	7	6,600,000	11,100,000
NagPyoneTinTan	3	900,000	1,200,000
MaPaweTan	11	3,300,000	6,300,000
YayKyawGyi	12	9,600,000	10,800,000
ZeePhyu	7	7,800,000	8,700,000
GawekyaungGyi	25	28,200,000	36,900,000
Boat kyaung	21	6,300,000	13,500,000
DaNikyaung	22	18,600,000	21,900,000
PaDaekaw	22	4,200,000	11,400,000
HlayLoneKawe	25	17,100,000	24,600,000

Source: Survey Data, 2018

According to the table (4.6), In comparison income before and after cultivation, the farmers grow more income. The more acres they grow, because the more income they got. Hlay-lone-kawe, Pa-dae-kaw, Boat-kyaung and Ma-pawe-tan are the villages that grow much. Those villages grow more and more as they get more income.

Table (4.6) Income from Migyaung-kunbat in villages

Group (Acre)	Number of Households	Average Annual Income of Migyaung- kubat (Kyats)	
		Before	After
1-5	141	507,600,000	1,015,200,000
6-9	9	24,300,000	48,600,000
10>	5	15,000,000	30,000,000

Source: Survey Data, 2018

Table (4.7) shows average annual income of each household income per acre for Migyaung-Kunbat farmers were increased in all average income per acre of three groups after production of Migyaung-Kunbat. For group I, the average incomes of farmers who are planting in acre between 1 and 5 was about 1,015,200,000 kyats after production of Migyaung-Kunbat compared with 507,600,000 kyats before production of Migyaung-Kunbat. For group II, the average annual income of farmers who are planting in acre between 6 and 9 was about 48,600,000 kyats after production of Migyaung-Kunbat compared with 24,300,000 kyats before production of Migyaung-Kunbat. For group III, the average annual income of farmers who are planting in acre above 10 was about 30,000,000 kyats after production of Migyaung-Kunbat compared with 15,000,000 before production of Migyaung-Kunbat. As a result, these measures were higher than before the production of Migyaung-Kunbat in all average annual income of three groups. Therefore, the production of Migyaung-Kunbat was beneficial for the sample households.

4.4 Costs of Production for Migyaung-Kunbat

Cost of production for establishment of one acres of Migyaung-Kunbat was prepared based on direct field cost from July to March in Myanmar as Migyaung-Kunbat is a short crop. All cost was calculated according to the current price of present time. Beside cost that can be done by family workforce is also included so that this cost of production can correspond to farmers. Most of labor cost is calculated in pieces rate but rural labor cost is on average Kyats 4000-5000 day in villages. For not being easy to harvest, there are many workers in those regions. It's not easy in cultivating as the plants are hard. Yields reflects actual harvested yield from medium

and large Migyaung-Kunbat farms. The selling prices of Migyaung-Kunbat were based on this year 3000-3200 market price. The investor does not need to borrow money so that there no need to calculate the interest. Cost of production for one acre of Migyaung-Kunbat will be Kyats 150,000 incurred during 9 months. In calculating, direct field cost from July to March includes maintaining, harvesting, fertile fed, processing Migyaung-Kunbat and related cost for storage.

Table (4.7) Costs of Production

Name of villages	Number of Surveyed Households	Cost of Production (Kyats) of Migyaung-kunbat	
		Before Cultivation	After Cultivation
Apyinmayan	7	3,300,000	5,550,000
NagPyoneTinTan	3	450,000	600,000
MaPaweTan	11	1,650,000	3,150,000
YayKyawGyi	12	4,800,000	5,400,000
ZeePhyu	7	3,900,000	4,350,000
GawekyaungGyi	25	14,100,000	18,450,000
Boat kyaung	21	3,150,000	6,750,000
DaNikyaung	22	9,300,000	10,950,000
PaDaekaw	22	2,100,000	5,700,000
HlayLoneKawe	25	8,550,000	12,300,000

Source: Survey Data, 2018

According to the table (4.8), The more Migyaung-Kunbat they grow, the more charge they cost for production. The village that costs most and gets most income is Gawe-kyaung-gyi. In comparison with before and after, Migyaung-Kunbat is the economical business for the farmers, the most income is Gawe-kyaung-gyi, the second income is Hlay-lone-kawe and the third incomes is Da-Ni-kyaung. That villages grow Migyaung-Kunbat more and more year by year.

Table (4.8) Costs of Production

Group (Acre)	Number of Households	Average Cost of Production of Migyaung-kunbat (Kyats)	
		Before	After
1-5	141	70,500,000	141,000,000
6-9	9	8,100,000	16,200,000
10>	5	5,000,000	10,000,000

Source: Survey Data, 2018

Table (4.9) shows the average cost of production of each household income per acre for Migyaung-Kunbat farmers were increased in all average cost of production per acre of three groups after production of Migyaung-Kunbat. For group I, the average incomes of farmers who are planting in acre between 1 and 5 was about 141,000,000 kyats after production of Migyaung-Kunbat compared with 70,500,000 kyats before production of Migyaung-Kunbat. For group II, the average cost of production farmers who are planting in acre between 6 and 9 was about 16,200,000 kyats after production of Migyaung-Kunbat compared with 8,100,000 kyats before production of Migyaung-Kunbat. For group III, the average cost of production farmers who are planting in acre above 10 was about 10,000,000 kyats is after production of Migyaung-Kunbat compared with 5,000,000 before production of Migyaung-Kunbat. As a result, these measures were higher than before production of Migyaung-Kunbat in all average cost of production in three groups. Therefore, the production of Migyaung-Kunbat was beneficial for the sample households.

4.5 Agricultural Marketing

Except the remote areas in the mountainous region, most farmers in Myanmar have no difficulty to sell their surplus products due to network of primary collectors (village brokers) and middlemen at the farm and township levels, town wholesalers in small towns, and market wholesalers in large urban centers. The prices received by farmers are obviously dependent on the quality of their products, and whether there is shortage of the commodities in the local markets.

Marketing, as a relatively unplumbed field in low-income countries, undoubtedly provides other examples of potential to save physical products through improved techniques. Improved marketing also increases the economic value of output by increasing consumer satisfaction from a given quantity of produce by providing it with the form, time, and location utilities which in the most pleasing to the consumer.

Improvement in marketing may encourage increased production. Largely through the direct or indirect effect of higher prices to producers. The effect may work directly by reduced marketing costs being passed directly to producers in the form of higher prices. The process may also work indirectly through lower prices to the consumer, which, due to relatively high price elasticities, expand the market considerably and thereby raise price to producers.

The relatively high cost of marketing for many bulky, perishable commodities produced some distance from market result in large part from high transport cost. Elimination major transportation bottle necks may also provide a more general opportunity to reduce marketing costs substantially and thereby provide increased prices to producers and increased production.

CHAPTER 5

CONCLUSION

5.1 Findings

In order to boost the self-sufficiency and export of rice and pluses, it is necessary to promote the rice and pluses yielded to reach the national target yield level. Bogalay Township is of the modernized farming areas of Myanmar. Therefore, it is required to know the yield level, crop production and actual income situation for farmers. This region is one of the agricultural producers for export. Social and Economic conditions of people in this region mainly depend on an agricultural products and fishing. During the studied periods from 2008-2009 to 2017-2018, the sown area and production of Migyaung-Kunbat in Bogalay Township can be analyzed.

In Bogalay Township, the net sown acres were 223,592 in 2008-2009. And, it increased to 330,684 acres in 2017-2018. The difference is 107,092 until increased. Besides, the percentage of growing Migyaung-kunbat was 20%. Though the acres of Migyaung-kunbat decreases in 2016-2017, it is grown more and more in 2018. The village that Migyaung-kunbat is grown mostly in Gawekyaunggyi.

According to the observation of 10 villages in growing Migyaung-kunbat, the total growing acres are 488. The total growing acres are 488 and Gawekyaunggyi village grew till 37 acres mostly. The production profit among the villages is between 130 and 150 and the profit does not change yearly. The most production profit is 150 in one acre.

In studying Migyaung-kunbat growing before and after, the income of the farmers increases after growing Migyaung-kunbat. The income of the farmers was regular income but it increased double after growing Migyaung-kunbat. So, the farmers can spend more and eat more. It is known that Migyaung-kunbat should be grown more and more being beneficial crops for people. The more it is grown, the more income they can get. The research of 25 households in Gawekyaunggyi village, the income will be double. Although the income increases double, the cost also increases. Although the cost increases, the more profit the farmers get. The more grow, the more cost charge.

The more acres they grow, the more cost they charge in production Migyaung-kunbat. But it can also get more income. There are more productions in this region and it can support economic, social and education of the villages in that region. In the experience of field trip, although Migyaung-kunbat plants can be grown on any other ground, it can get more production in the place where sea water is available. Although it is grown on other ground, the seed cannot develop. Migyaung-kunbat is the raw material for main export. Exportation can get foreign income as well as it can be used as traditional medicine in local areas.

As there is the new product name in agriculture, the economic market spreads more. The market of Migyaung-kunbat becomes the one in economical market. Instead of paddy production in summer, growing Migyaung-kunbat in the farms can spread the market more.

The price of most crops becomes more attractive to be growers. Under market oriented economic system of the government, it is obvious that the farmers are likely to grow more profitable crops than ever before. Along with the opening of market economy, farmers in Myanmar possess an opportunity of selling out their products directly to open market and are gaining more profits.

Being raw material that exports to China and India, if it is grown more widely, they can get foreign income on the other hand. The condition of the market is up and down. Therefore, the farmers who grow Migyaung-Kunbat are not able to grow a lot. As the farmers, if they grow more acre, they can get more income and make the standard of living raise more. Moreover, the farmers intend to grow more acres according to the market condition. Being the export to abroad, farmers can get more income from it.

5.2 Suggestions

As the government, they should increase by cleaning wild ground. If the acre increases, the growing of Migyaung-kunbat will be increased. Among 10 villages, Gawekyaunggyi is the village that grow Migyaung-kunbat mostly. If another village grow more acres as this village the income can increase more. As the government, the agricultural facilities should be supported. Being crops that get income for people, it should be grown most.

Though there are a lot of cost, being able to get more income, Migyaung-kunbat should be grown. The income that get from growing Migyaung-kunbat can

increase income as well as it can get benefit in economy, society and education sectors. Being the raw export, the income of the country makes increase. These, that such crops should be grown widely and improve the market of economy.

Growing Migyaung-kunbat in Bogalay, the farmers can get more income. Therefore, farmers need agricultural inputs. As an agricultural sector, the rate of growing should be done to get more production. The use of farm acres should be increased. And, Migyaung-kunbat plants should be grown in the places where it is possible for more production. Besides, getting more income in local areas depends on the well production of Migyaung-kunbat plants. To get more production, the government and the farmers should cooperate each other.

Moreover, the development of agricultural sector is depending on cooperation of farmers with the Ministry of Agriculture and Irrigation.

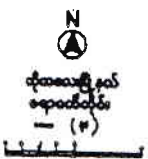
Moreover, the new high-yielding varieties distributed by the government are not enough, so the government should buy the high-yielding varieties from other countries and provide them for the necessary factors. For not being illegal in agricultural sector, it cannot get income for the country in exporting the Migyaung-Kunbat. That is why, as the government, they should pay attention to the Migyaung-Kunbat which can be grown in hot season to get more income after rice. If the Migyaung-Kunbat plant is added in agricultural sector, the income got from it makes the country's budget increase. By increasing the crop productivity, the farmer would get more yield and income from those crops.

References

1. Department of Immigration and Manpower (2018), *Census of Ayeyarwaddy Division, Bogalay 2018*, Ayeyarwaddy Division, Bogalay
2. Ma Lin Lin Thi, *The Role of Coffee Production in Myanmar Economy (2002 to 2011)*, (Unpublished Master Thesis), Master of Development Studies Programme, Yangon University of Economics
3. Nway Hnin Ei Ei Khaine, *Agricultural production in Hlegu Township (2000-2012)*, (Unpublished Master Thesis), Master of Economics, Yangon University of Economics
4. Nwet Nwet Aye, *Agricultural production in Pyay District (From 1988-89 to 2007-2008)*, (Unpublished Master Thesis), Master of Economics, Yangon University of Economics
5. Record Credibility Rating Global Species Completeness Lastest Record Review (2011)
6. Settlement and Land Record Department, Ayeyarwaddy Division Bogalay Township
7. Statistical year book (2016). Central statistical Organization, Ministry of National Planning and Economic Development, Yangon 2016
8. Thin Thin Swe, *A study on rice production in Ayeyarwaddy Region (from 2001 to 2014)*, (Unpublished Master Thesis), Master of Economics, Yangon University of Economics
9. Win Lae Lae Kyaw, *Agricultural production in Ayeyarwaddy Region (1988-89 to 2007-2008)*, (Unpublished Master Thesis), Master of Economics, Yangon University of Economics
10. Yoon Nadi Hlaing, *A study of Rural Transportation and rural Development in Ingapu Township (2016-2017)*, (Unpublished Master Thesis), Master of Economics, Yangon University of Economics
11. http://www.jakraya.com/journal/pdf/7-vriArtical_2.pdf
12. http://www.jpCBS.info/2015_3_3_8_Neharkar.pdf

Appendix I

ဧရာဝတီတိုင်း၊ ဗျာပုံခရိုင်
တို့ကလေးမြို့နယ် အညွှန်းပြမြေပုံ



ပြင်ဆင်ညွှန်ချက်များ

အပြင်ပတ်ဝန်းကျင်နယ်နိမိတ်	— · · · · ·
ပြည်နယ် / တိုင်း ခန့်နိမိတ်	— — — — —
မြို့နယ်နယ်နိမိတ်	— — — — —
မြို့	•
ကျေးရွာ	•
မြစ်၊ ဧရာဝတီ	—

Appendix II

အပိုင်း(၁)

အခြေခံသတင်းအချက်အလက်

၁။ တောင်သူအမည် -

၂။ အသက် -

၃။ ပညာအရည်အချင်း -

(က) မူလတန်း (ခ) အလယ်တန်း (ဂ) အထက်တန်း (ဃ) ဘွဲ့ရ

၄။ မိသားစုအရေအတွက် -

၅။ ပိုင်ဆိုင်သောမြေဧက -

အပိုင်း(၂)

စိုက်ပျိုးမှုဆိုင်ရာအချက်အလက်

၆။ ယခုအချိန်တွင်စိုက်ပျိုးသော သီးနှံအမျိုးအစားများ၊ စိုက်ဧကနှင့် တစ်ဧကအထွက်နှုန်း

စဉ်	သီးနှံအမျိုးအစား	စိုက်ဧက	တစ်ဧကအထွက်နှုန်း	စုစုပေါင်းအထွက်

၇။ ယခင်ကစိုက်ပျိုးသော သီးနှံအမျိုးအစားများ၊ စိုက်ဧကနှင့် တစ်ဧကအထွက်နှုန်း

စဉ်	သီးနှံအမျိုးအစား	စိုက်ဧက	တစ်ဧကအထွက်နှုန်း	စုစုပေါင်းအထွက်

၈။ သီးနှံစိုက်ပျိုးသည် အချိန်ကာလ

စဉ်	သီးနှံအမျိုးအစား	စတင်စိုက်ပျိုးချိန်	ရိတ်သိမ်းချိန်

၉။ စိုက်ပျိုးထုတ်လုပ်ပုံအဆင့်ဆင့်

(က) စပါး

(ခ) မိချောင်းကွမ်းဖတ် (ခ) ပင်လယ်နှမ်း

၁၀။ သီးနှံစိုက်ပျိုးစရိတ်

စဉ်	သီးနှံအမျိုးအစား	စိုက်ဧက	ထုတ်လုပ်မှုကုန်ကျစရိတ်

၁၁။ သီးနှံထုတ်လုပ်ခြင်းမှရငွေ

စဉ်	သီးနှံအမျိုးအစား	စိုက်ဧက	ရငွေ

၁၂။ သီးနှံရောင်းချသည့် ဈေးကွက်

(က) ပွဲစား (ခ) ငြို့အဝယ်နှင့်

အပိုင်း(၃)

မိကျောင်းကွမ်းဖတ်စိုက်ပျိုးခြင်း၏အကျိုးကျေးဇူးများနှင့် အခက်အခဲများ

၁၃။ မိကျောင်းကွမ်းဖတ်ကိုစိုက်ပျိုးရာတွင်မည်သည့် အခက်အခဲများရှိပါသလဲ။

၁၄။ မိကျောင်းကွမ်းဖတ်ကိုရောင်းချရာတွင်မည်သည့် အခက်အခဲများရှိပါသလဲ။

၁၅။ မိကျောင်းကွမ်းဖတ်စိုက်ပျိုးခြင်းကြောင့်မည်သည့်အကျိုးကျေးဇူးများရှိပါသလဲ။

၁၆။ သင့်အနေနဲ့မည်သည့်အကြံပြုချက်များပေးချင်သလဲ။