

A GEOGRAPHICAL STUDY OF OIL-SEEDS CULTIVATION IN YAMETHIN TOWNSHIP

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Abstract

Yamethin Township, located in the dry zone of Myanmar, is one of the two townships of Yamethin District in Mandalay Region. It is suitable for the various kinds of crops including oil-seeds. This paper emphasized on how the physical and human factors affect the oil-seeds cultivation of the rural dwellers. To acquire the data of the crop yields and variations crops of village tracts level, the formula by Harpal S. Mavi (2000) was applied. Moreover, Subsistence Efficiency Indices (SEI) was also worked out. Then, it can be clear that the sufficient edible oil-seeds can be supplied in the study area. So, the edible oil is the main product to meet local needs. Moreover, it is found that there is not only edible oil self-sufficiency but also surplus in Yamethin Township and oil-seeds cultivation plays an important role in the economy of the local people and production also meets local needs.

Key Words: Oil-seeds, Cultivation, Production Efficiency, Subsistence Efficiency Index

INTRODUCTION

Myanmar's economy is based on agriculture. The government is attempting to transform the country into an industrialized nation based on agriculture. Therefore, scientific method of cultivation, selection of pure quality seeds for cultivation to increase yield per acre are being conducted. There are new factories producing agricultural machineries and implementations to use in Myanmar for mechanized farming.

This paper is a geographical study on oil-seeds cultivation in Yamethin Township which is located in the southern part of Mandalay Region, Central Dry Zone of Myanmar. Physical environment of the study area favours the successful agriculture. Although the area receives little rainfall and it is insufficient for agriculture, the supply of water from lake and many streams is available for the entire region. But the canal irrigation is impossible for some village tracts which lie on the high portion. Therefore, such areas have to rely on only rainfall.

Aim and Objectives

The main aim is to evaluate the oil-seeds cultivation of Yamethin Township.

The specific objectives are as follows:

- to study the physical bases that control the oil-seeds cultivation in Yamethin Township
- to examine the social bases that indicate the potential development of oil-seeds cultivation in the study area
- to trace the temporal changes of oil-seeds cultivation and production in the \ study area
- to analyze oil-seeds productivity of the study area

MATERIALS AND METHODS

The primary data are collected with the help of personal interviews, field observation and the secondary data are collected from various sources: Government Administrative Department, Myanmar Agriculture Services, Department of Agricultural Land Management

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and Statistics, the Department of Meteorology and Hydrology and Department of Population in Yamethin Township are carried out.

Major attention will be paid on the crop yields and their variations crops in village tracts level by using the following formula, adopted by Harpal S. Mavi (2000)

$$\text{Production Efficiency of Crop "x"} = \frac{\text{Average yield of crop "x" in a village tract}}{\text{Average yield of crop "x" in the township}} \times 100$$

For understanding the yield per acre of selected crops, there are various factors which can influence the output of those crops. Among them, Subsistence Efficiency on edible oil for rural area of the study area is examined by using Subsistence Efficiency Index (SEI). So, SEI is used to examine whether the production of main crops does meet the local needs of consumption for a year or not. The index can be calculated by using the following formula:

$$\text{Subsistence Efficiency Index} = \left(\frac{\sum PT}{\sum Ln} \right) \times 100$$

Where $\sum PT$ is the total production of a selected crop in an area and $\sum Ln$ is the total local need of the crop in the area, within a year.

Study Area

Yamethin Township is situated in the southern part of Mandalay Region in the Dry Zone of Central Myanmar. Astronomically, it lies between the latitudes of 20°10' N and 20°30'N and the longitudes of 95°40'E and 96°32'E. It is situated at the junction of Yangon-Mandalay Highway (AH-1) and railway. Yangon-Mandalay Express Highway and Inter-District roads are passing through in the western and eastern part of the township, respectively. It covers an area of 836.92 square miles (535,626 acres) and constituted of 11 Stations or Administrative Units (five wards and 63 village tracts), formed of 234 villages. Figure (1) and (2)

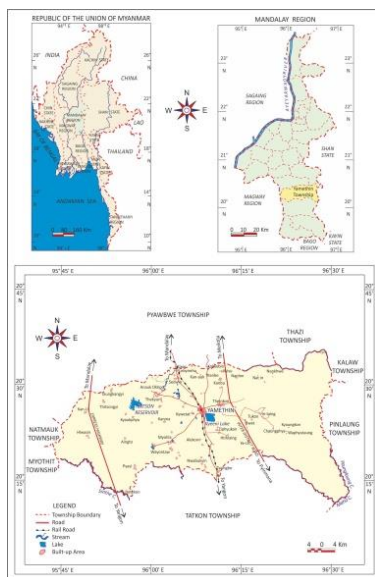


Figure (1) Location of Yamethin Township.
Source: UTM Map.

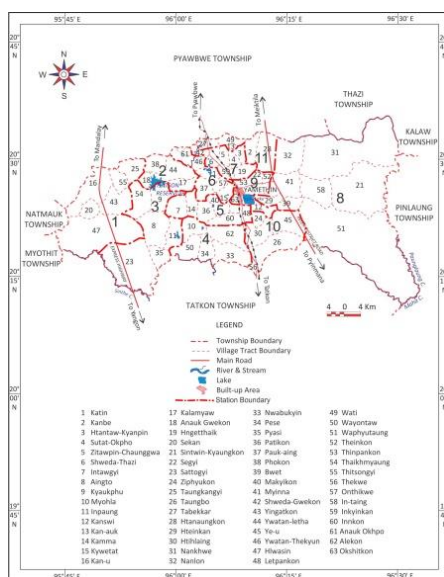


Figure (2) Village Tracts by Stations of Yamethin Township.
Source: Agricultural Land Management and Statistics Department, Yamethin

Relief and Drainage

In general, Yamethin Township is topographically divided into three distinct parts. They are:

1. Hilly area of the Northern *Bago Yoma* in the west,
2. The Central plain, and
3. The Shan Highland in the east. (Figure 3)

The western part of the township is occupied by northern *Bago Yoma* which is composed of hills and ranges. It has an average elevation of 1,000 feet (304.8 m). The hill ranges are higher in the western part and become lower in elevation towards the east and south. The highest peak is *Patle Taung* with an elevation of 383 m (1,256 ft) high. The low-lying undulating terrain is found in the northwestern part of the township.

The central part of the Yamethin Township is occupied by a level plain which forms a part of the Yamethin-Kyaukse plain. Apart from the *Shwemyintin Taung*, situated in the north-eastern part of the township is 337 m (1,006 feet) above sea level, the remaining part is a level plain. The central lowland has an average elevation of below 1,000 feet. Northern part of the lowland has an elevation about 500 feet and rises toward *Kyeeni Lake* in the central part up to above 600 feet. Then the land surface is lower again in the southern part.

The Shan Highland is the offshoots of Eastern Highland and contains the *Paunglaung Range* in the eastern part of the study area. The average elevation of the hill ranges is about 1,600 feet. The *Paunglaung Range* varies in height from 3000 to 5000 feet. There are also notable peaks such as *O-gwe Taung* 1,227 m (4,189 ft), *Moehti Taung* 1,404 m (4,606 ft), *Htongyi Taung* 1,313 m (4,308 ft) and *Matein Taung* 1,349 m (4,426 ft).

The western and central parts of the township are suitable for the cultivation of oil-seeds.

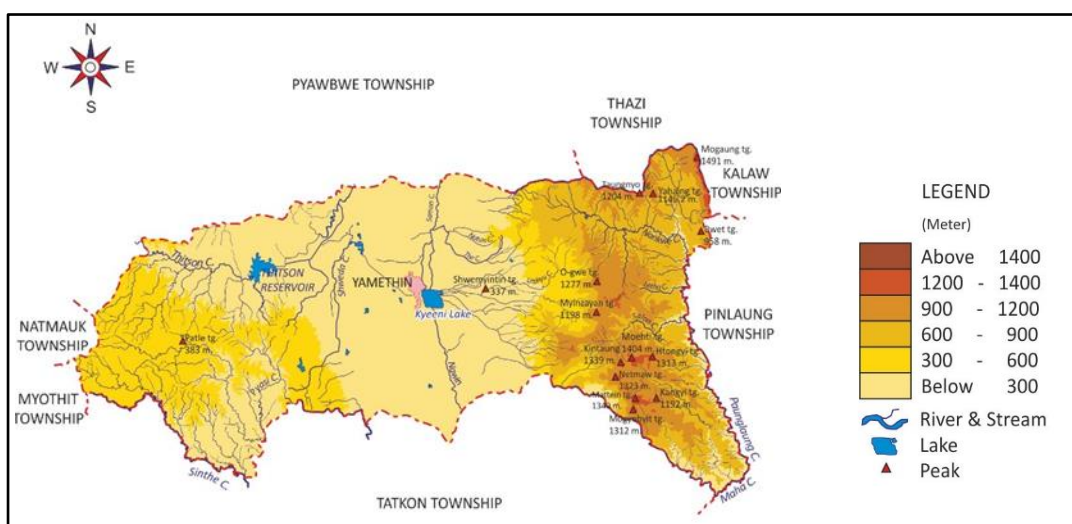


Figure (3) Relief and Drainage of Yamethin Township.

Source: UTM-Map.

Climate

Climatically, the Yamethin Township lies in the Dry Zone of Central Myanmar. By the records of temperature and rainfall for 15-year period from 2004 to 2018, Yamethin Township

has the annual mean temperature and annual rainfall of 80.16° F and 36.38 inches. Generally, April is the hottest month with the average temperature of 87.47° F. December is the coldest month with the average temperature of 70.75° F. Thus, range of temperature in the study area is 16.72° F. According to Koppen's climatic classification, the township enjoys a “Tropical Savanna Climate” (or) Aw Climate. Moreover, the average minimum temperature and the average maximum temperature are 67.44° F and 92.44° F in the study area. Therefore, average temperature and annual rainfall of Yamethin Township are suitable for oil-seeds crop cultivation. See Table (1)

Table (1) Monthly Average Temperature and Rainfall in Yamethin Township(2004-2018).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total/ Average
Max Tem; (°F)	87.36	88.03	98.94	103.08	98.39	93.35	90.67	90.87	91.85	91.79	89.13	85.79	92.44
Min Tem; (°F)	54.27	57.52	65.87	72.64	73.83	73.98	72.34	73.11	71.98	72.59	63.84	57.32	67.44
Mean Tem; (°F)	71.56	76.04	83.14	87.47	86.13	83.54	81.71	81.63	82.04	81.43	76.52	70.75	80.16
Rainfall (inches)	0.33	0.08	0.17	1.37	5.19	4.54	5.15	5.39	6.42	6.51	0.88	0.35	36.38

Source: Hydrology and Meteorology Department

Soils

Soil is one of the natural resources which influences utilization of land and agricultural capacity. The soils found in the Yamethin Township can be distinguished into seven types. They are:

(1) Yellow brown forest soils, (12.92% of the total area), (2) Red brown savanna soils (11.67% of the total area), (3) Meadow soils (31.91% of the total area), (4) Cinnamon soils (6.99% of the study area), (5) Mountain red earth soils, (36.87% of the study area), (6) Turfy carbonate soils (0.45% of the total area) and (7) Primitive crushed stone soils (0.2% of the total area). Figure (4)

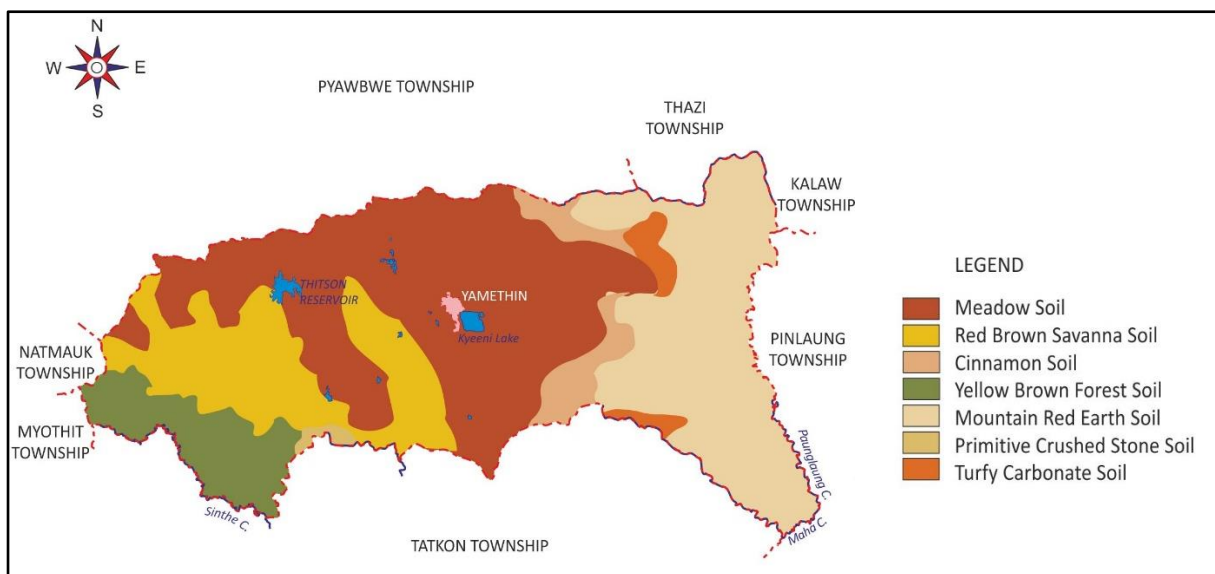


Figure (4) Soil Types of Yamethin Township.

Source: Land Use Bureau, Yangon.

Total Population and Population Growth

The total population of Yamethin Township was 75,809 people in 1921. In taking population census for the whole country in 1973 and 1983, the total population of Yamethin Township was 145,207 people and 181,973 people respectively. The population increased to 36,766 within a decade at an average growth rate of 2.28 %. In addition, the total population was 258,091 in 2014 census. According to General Administrative Department data, the total population of Yamethin Township was 258,193 in 2018. During the four years period from 2014 to 2018, there was an increase by 102 persons with the growth rate of 0.01%.

Urban and Rural Population

According to Table (2), the urban population increased from 19,560 persons in 1973 to 23,586 persons in 2018. During this period, the proportion of the urban population also decreased from 13.47 % in 1973 to 9.14 % in 2018. The rural population also increased from 125,647 persons in 1973 to 234,607 persons in 2018. However, the proportion of the rural population increased from 86.53 % in 1973 to 90.86 % in 2018.

Table (2) Urban and Rural Population of Yamethin Township.

Township (No. person)	1973		1983		1993		2014		2018	
	No. person	%	No. person	%	No. person	%	No. person	%	No. person	%
Urban	19,560	13.47	25,955	14.26	33,240	15.70	27,698	10.73	23,586	9.14
Rural	125,647	86.53	156,018	85.74	173,106	84.30	230,393	89.27	234,607	90.86
Total	145,207	100	181,973	100	206,346	100	258,091	100	258,193	100

Source: Department of Population, Yamethin Township.

General Land Use of Yamethin Township

Generally, the land use types of the township are divided into four kinds. They are (1) cultivable (agricultural) land (2) cultivable (virgin) land (3) uncultivable land and (4) forest land.

In 2017-2018, there were 200,386 acres (37.41 %) of the agricultural land, 169,593 acres (31.66 %) of the uncultivable land, 161,615 acres (30.17 %) of forest land and 4,032 acres (0.75 % of total township area) of the cultivable (virgin) land.

Agricultural Land Use

Myanmar’s economy depends on the agricultural enterprise. Among the factors which influence the cultivation of crops in study area, the agricultural land use is also one of the main factors. Regarding the land use of agricultural land, the net sown agricultural land use was 195,629 acres or 97.63% of the total agricultural land use in 2017-2018. Among these agricultural land uses, “Ya” land, “Le” land, “Taungya” land and Garden land were 111,266 acres or 56.88%, 83,032 acres or 42.44%, 726 acres or 0.37% and 605 acres or 0.31% of the total net sown agricultural land use respectively.

Cultivated Crops

The most important crops cultivated in Yamethin Township are Green gram (Pedisein), Paddy, Chilli, Cotton, Sunflower, Groundnut, Sesamum, Gram (Kalabe), Pigeon pea, and Grape. Out of the crops of the study area, the first priority crop is Oil-seeds and the second

priority crop is pulses. The third and fourth priority crops are paddy and chilli. The last crop is onion in the Yamethin Township. See Table (3) and Figure (5)

Table (3) Sown Acreage of Cultivated Crops in Yamethin Township (2017-2018)

No.	Crops	Sown Acre	% of Total Sown Acre
1	Oil-seeds	82,508	29.42
2	Pulses	77,972	27.81
3	Paddy	52,805	18.83
4	Chilli	37,962	13.54
5	Cotton	13,251	4.73
6	Vegetable	11,803	4.21
7	Grape	3,083	1.10
8	Onion	1,025	0.37
Total		280,411	100.00

Source: Agricultural Land Management and Statistics Department, Yamethin.

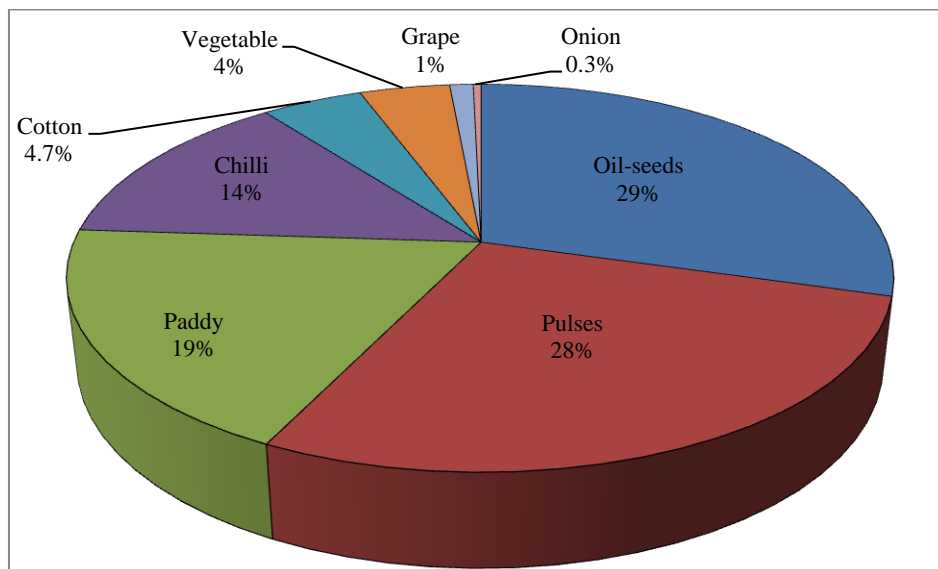


Figure (5) Sown Acreage of Cultivated Crops in Yamethin Township (2017- 2018)

Source: Based on Table (3).

Temporal Changes of Oil-seeds Cultivation in Yamethin Township

Agricultural innovation is a well-established remedy of the global food problem. The factors of the agricultural innovation included here are manures, fertilizers, seeds, agricultural equipment, insecticides, irrigation and method of farming. Farmers are trying to get more per acre income from their fields. They are using lands for different crops for more of per acre products.

Major oil-seed crops of Yamethin Township are, in descending order of sown acreage, sunflower, groundnut and sesamum. Acreage of oil-seed crop occupies first rank and then pulses and paddy are in second and third rank, respectively. It accounts for 82,508 acres or 29.42% of the township's total acreage in 2017-2018. Among the oil-seed crops, the total amount sunflower is the largest in sown acreage with 39.55%, then groundnut with 36.75% and sesamum with 23.7%.

SunFlower

In Yamethin Township, the sunflower is the most important oil seed crop. Sunflower is moderately resistant to drought condition but not to water logged condition. It has to receive a total rainfall ranging from 20 inches to 25 inches. It should not be grown on sandy soils, stony soils, and clay soils. The sunflower is cultivated in August or September and harvested in November and December. Today it is commonly grown on *Ya* land as mono crop separately, for local consumption and as a commercial crop. Sunflower cultivation and production by year is described in Table (4) and Figure (6).

During the 10-year period from 2008-09 to 2017-18, the smallest sunflower sown acreage occurred in 2012-13 with 23,734 acres and the largest amount was in the year of 2009-10 with 37,908 acres. In 2009-10, the sown and matured acreages of sunflower total 37,908 acres, with a yield rate of per acre 24.87 baskets and produce 9422,680 baskets. Therefore, it is found that sunflower cultivation varies with climate condition, market price and benefit for farmers.

Table (4) Sunflower Cultivation and Production of Yamethin Township from 2008-2009 to 2017-2018.

No.	Years	Sown Area (Acre)	Matured Area (Acre)	Yield per Acre (Basket)	Production (Basket)
1	2008-2009	24,590	24,590	25.44	625,563
2	2009-2010	37,908	37908	24.87	942,680
3	2010-2011	35,244	35,244	26.76	943,278
4	2011-2012	25,298	25298	25.64	648,661
5	2012-2013	23,734	23,734	23.30	552,933
6	2013-2014	27,803	27,803	28.79	800,432
7	2014-2015	27,349	12,991	29.56	384,069
8	2015-2016	29,055	29,055	29.58	859,573
9	2016-2017	26,975	14,071	30.15	424,241
10	2017-2018	32,634	32,634	30.12	982,936

Source: Agricultural Land Management and Statistics Department, Yamethin Township

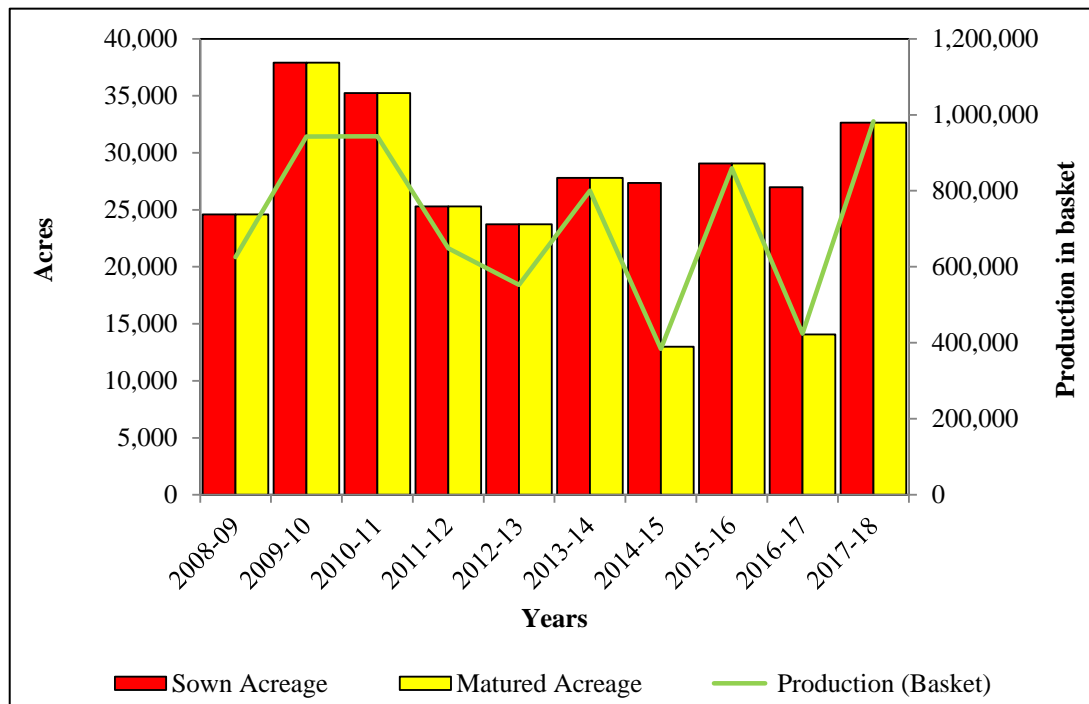


Figure (6) Sunflower Cultivation and Production of Yamethin Township from 2008-2009 to 2017-2018

Source: Based on Table (4)

Groundnut

Groundnut can be grown in regions of good drainage condition and light soil. It can well grow under the temperature between 68° F and 95° F and under the rainfall between 30 inches and 50 inches. In Yamethin Township, average mean temperature is 80.16°F and annual rainfall is 36.38 inches. It is grown on “*Ya*” land and “*Kaing-Kyun*” land to get edible oil. It is cultivated as mono crop. It is sown in October or November and harvested in January or February.

According to the table, the least sown acreage of groundnut was 22,666 acres in 2012-2013 and then the highest sown acreage is 30,318 acres in 2017 - 2018. In 2017-2018, the sown and matured acreage of groundnut totals 30,318 acres, with a yield rate of 30.66 baskets and produces 929,400 baskets. See Table (5) and Figure (7)

Table (5) Groundnut Cultivation and Production of Yamethin Township from 2008-2009 to 2017-2018.

No.	Years	Sown Area (Acre)	Matured Area (Acre)	Yield per Acre (Basket)	Production (Basket)
1	2008-2009	28,515	28,515	30.67	874,441
2	2009-2010	30,015	30,015	31.21	936,906
3	2010-2011	25,843	25,843	32.41	837,623
4	2011-2012	26,218	26,218	24.56	643,918
5	2012-2013	22,666	22,666	21.84	494,964
6	2013-2014	28,560	28,560	28.91	825,714
7	2014-2015	26,904	26,904	29.05	781,607
8	2015-2016	28,450	24,865	29.79	740,659
9	2016-2017	28,305	20,506	32.53	920,859
10	2017-2018	30,318	30,318	30.66	929,400

Source: Agricultural Land Management and Statistics Department, Yamethin Township.

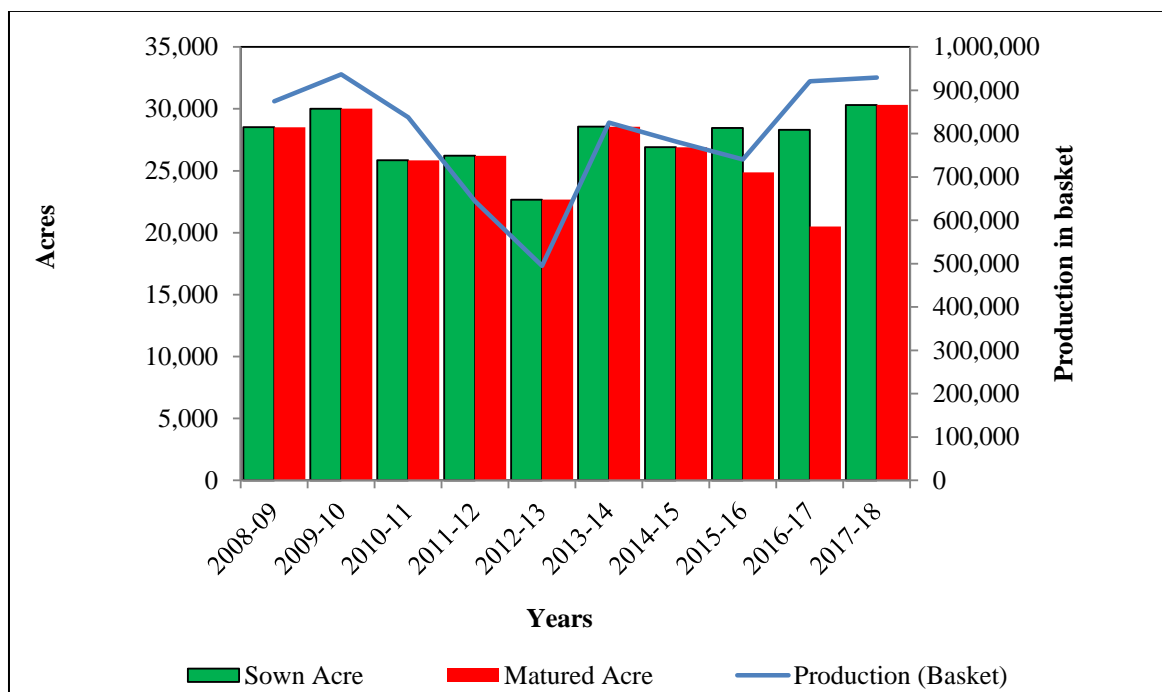


Figure (7) Groundnut Cultivation and Production in Yamethin Township from 2008-2009 to 2017-2018.

Source: Based on Table (5)

Sesamum

Sesamum is one of the most important crops of the township and grown as double cropping and strip cropping. The major crops are rain sesamum (*Hnan Hlyin*) and winter sesamum (*Hnan gyi*). Rain sesamum has short growing season and thus it is called *Hnanhlyin*. Generally, life span from germination of plant to ripening of seeds of *Hnanhlyin* is 65 to 100 days long. It is grown mostly on “ya” land. Its sown acreage varies with recession period of flood and early or late retreat of monsoon rain. Being a tropical crop that can be grown in any season, it can be grown in places of other cash crops whose sowing season is late.

During the 10-year period from 2008 – 2009 to 2017-2018, the least sown acreage of sesamum was 17,786 acres in 2012-2013 and the largest sown and matured acreage was 21,135 acres in 2009-2010. The annual production of sesamum in the township is found directly related to sown acreage, i.e. the smaller the sown acreage, the lesser the total production. See Table (6) and Figure (8)

Table (6) Sesamum Cultivation and Production of Yamethin Township from 2008-2009 to 2017-2018.

No.	Years	Sown Area (Acre)	Matured Area (Acre)	Yield per Acre (Basket)	Production (Basket)
1	2008-2009	19,109	19,109	6.42	122,604
2	2009-2010	21,135	21,135	6.34	134,055
3	2010-2011	20,207	20,207	5.82	117,632
4	2011-2012	18,412	18,412	5.80	106,865
5	2012-2013	17,786	17,786	4.97	88,441
6	2013-2014	19,365	19,365	4.88	94,505
7	2014-2015	18,369	16,387	6.65	109,005
8	2015-2016	19,394	19,065	6.72	128,150
9	2016-2017	18,761	16,773	6.89	129,306
10	2017-2018	19,558	19,558	6.82	133,386

Source: Agricultural Land Management and Statistics Department, Yamethin Township.

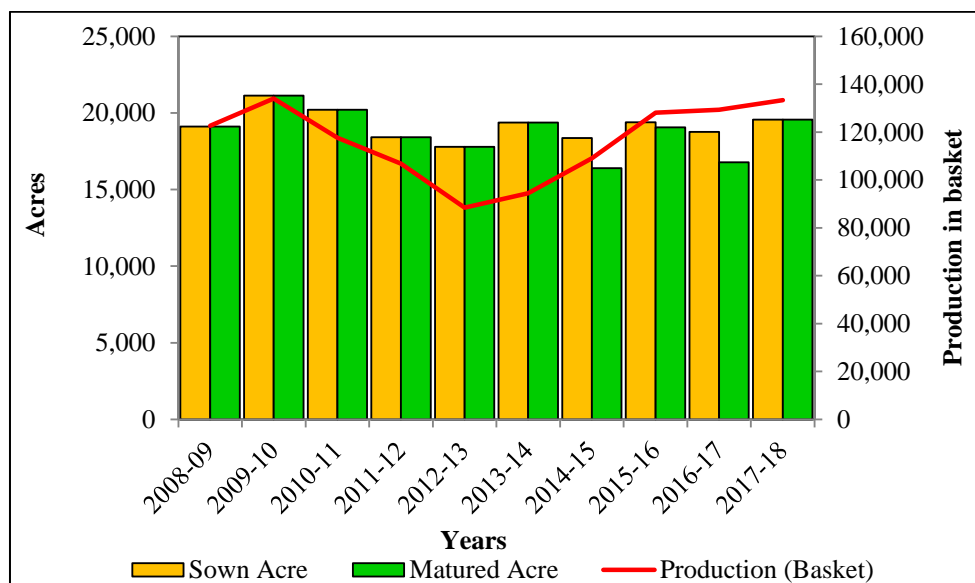


Figure (8) Sesamum Cultivation and Production of Yamethin Township from 2008-2009 to 2017-2018.

Source: Based on Table (6)

Oil-seeds production efficiency of Yamethin Township

There is a significant regional disparity in the level of agricultural productivity. It is imperative of the magnitude and factors in regional imbalances in agricultural productivity in the study area. Modern agricultural inputs based on irrigation such as chemical fertilizers, and high yielding varieties of seeds have emerged as explanatory variables. To assess the level of productivity, the efficiency of each crop production is calculated by using the following formula:

$$\text{Production Efficiency of Crop "x"} = \frac{\text{Average Yield of Crop "x" in a village tract}}{\text{Average Yield of Crop "x" in the township}} \times 100$$

In Yamethin Township, various food crops and non-food crops are cultivated as long as the conditions favour the cultivating process.

In studying the oil-seeds production efficiency of Yamethin Township, the high production efficiency rate in Aingto and Alekon Administrative units was found in at 19.06 and 16.51. Moreover, 10.53, 10.31, 8.82, 8.25 and 7.2 of moderate production efficiency were also found in Tabekka, Kamma, Hlawasin, Katin and Ywatan-Letha Administrative units of the study area. In Ziphyukon, Waphyutaung and Shweda-Thazi Administrative units, low production efficiency was found at the rate of 6.29, 5.65 and 4.8 of the Township. Theinkon Administrative unit was found with the lowest production efficiency of 2.58. See Table (7)

Table (7) Oil-seeds production efficiency of Yamethin Township in 2017-2018.

Sr.	Name of Administrative Unit	Production in Basket			Total Production (Basket)	Production Efficiency
		Sunflower	Groundnut	Sesamum		
1	Hlwasin	46,795	115,663	18,688	181,146	8.82
2	Ywatan-Letha	44,229	89,881	13,636	147,746	7.20
3	Aingto	91,805	274,815	24,709	391,329	19.06
4	Alekon	180,755	145,620	12,687	339,061	16.51
5	Kamma	59,409	129,266	22,910	211,584	10.31
6	Katin	117,255	45,984	6,135	169,374	8.25
7	Shweda-Thazi	87,993	8,361	2,205	98,559	4.80
8	Waphyutaung	95,736	10,687	9,610	116,033	5.65
9	Theinkon	33,688	16,316	2,948	52,952	2.58
10	Ziphyukon	48,217	69,702	11,299	129,218	6.29
11	Tabekka	178,079	29,514	8,556	216,148	10.53

Source: Calculated by Researcher.

Finding

Agro – economy plays the most importance of rural development in Yamethin Township. The agro – economy is analyzed by mean of subsistence efficiency in Yamethin Township. Subsistence Efficiency on Edible Oil for the rural area of Yamethin Township is examined by using subsistence efficiency index (SEI). So, SEI is used to examine whether production of main crops does meet the local needs of consumption for a year. The index can be calculated by using the following formula:

$$\text{Subsistence Efficiency Index} = (\sum PT / \sum Ln) \times 100$$

Where $\sum PT$ is the total production of a selected crop in an area, and $\sum Ln$ is the total local need of the crop in the area, within a year. According to the formula, if the result is 100, it means “sufficiency”, if it is less than 100, it refers to “insufficiency”, if more than 100, and it indicates “more than enough” or “surplus”. The efficiency of oil seed crop is examined for the year 2017-2018. The urban population of the township is less than 9.13% and more than 90.87 % is rural population.

The spatial analysis is done based on the data of population, cultivated area, and production by village tracts for the year 2017-2018. According to Table (8), it was found that the largest amount of edible oil production was 835,944 visses of sunflower, groundnut and sesamum in Alekon Administrative unit. Moreover, the second largest amount of edible oil production such as sunflower, groundnut and sesamum was found in Aingto Administrative unit. Therefore, it can be clear that the edible oil seed production in Yamethin Township can produce not only sufficient amount of edible oil seed but also surplus.

Table (8) Edible Oil Production in Yamethin Township in 2017-2018.

Sr.	Name of Administrative Unit	Edible Oil Production (Viss)			Total Oil-seeds Production (Viss)
		Sunflower	Groundnut	Sesamum	
1	Hlwasin	139,917	179,278	102,785	421,980
2	Ywatan-Letha	132,245	139,316	74,998	346,559
3	Aingto	274,495	425,964	135,900	768,539
4	Alekon	540,457	225,711	69,776	835,944
5	Kamma	177,631	200,362	126,005	503,998
6	Katin	350,591	71,275	33,743	455,609
7	Shweda-Thazi	263,099	12,960	12,128	288,186
8	Waphyutaung	286,251	16,565	52,856	355,672
9	Theinkon	100,727	25,290	16,213	142,230
10	Ziphyukon	144,170	108,038	62,146	314,353
11	Tabekka	532,457	45,746	47,055	625,258

Source: Calculated by Researcher.

RESULT

The efficiency of edible oil in Yamethin Township and the production of oil seeds such as sunflower, groundnut and sesamum seed are considered together in supplying edible oil production for average daily consumption of edible oil per head. The rural area of Yamethin Township can be assumed to be self – sufficient in the year 2017-2018.

According to the Table (9), the result shows that there is not only edible oil self-sufficiency but also surplus in Yamethin Township. The Administrative units that produce the largest amount of edible oil in self-sufficiency with 1,875, 1,532, 1,526 and 1,499 of SEI value, were Katin, Kamma, Ziphyukon and Shweda-Thazi respectively.

Table (9) Subsistence Efficiency Index of Yamethin Township in 2017-2018.

Sr.	Name of Administrative Unit	Major Crop	Σ PT (in viss)	Σ Ln (in viss)	SEI
1	Hlwasin	Su + G + Se	421,980	50,523	835
2	Ywatan-Letha	Su + G + Se	346,559	36,333	954
3	Aingto	Su + G + Se	768,539	82,232	935
4	Alekon	Su + G + Se	835,944	66,301	1,261
5	Kamma	Su + G + Se	503,998	32,903	1,532
6	Katin	Su + G + Se	455,609	24,304	1,875
7	Shweda-Thazi	Su + G + Se	288,186	19,219	1,499
8	Waphyutaung	Su + G + Se	355,672	30,762	1,156
9	Theinkon	Su + G + Se	142,230	24,120	590
10	Ziphyukon	Su + G + Se	314,353	20,606	1,526
11	Tabekka	Su + G + Se	625,258	51,381	1,217

Source: Calculated by Researcher.

CONCLUSION

Agricultural production of Yamethin Township is largely favoured by its physical conditions and all human settlements are found in the present agricultural land area, and in the central plain of Yamethin Township. The agricultural land needs to be extended into a sufficient size for the land holders to operate an economic scale and to cover the costs for land reclamation or preparation. And then, the staff of Agricultural Department should teach or educate people about some cultivation systems that lead to produce the high-yield rate of crops with a low cost, and also should encourage animal breeders and fish farmers by helping them with some suitable means. Thus, Yamethin Township will improve in all aspects.

Due to the population growth, oil-seeds sufficiency is becoming essential for the study area. Consequently, proper land use planning is also needed to develop not only for food security but for the environment. In analyzing the oil-seeds production of Yamethin Township, it is found that there is the subsistence efficiency surplus for local people.

Although planting, harvesting, and threshing continues to be done manually or with primitive equipment, the utilization of some agricultural mechanization is also found today. Finally, it can be concluded that if the necessary assistances can be provided to the local people and local authorities, the oil-seeds cultivation can gain its momentum in Yamethin Township.

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