Ministry of Agriculture, Livestock and Irrigation

Department of Agriculture

Monywa Township

Experiments on Production of Cauliflower by Reducing Chemical Inputs

Presented by

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Apprentice

Introduction

- Food safety and security – vital factors for consumers and producers
- Myanmar is one of the agro–based countries and production of vegetables was gradually increased
- Fresh vegetables are an essential part of a healthy diet, however vegetables can also be a source of poisonous toxic
- Most of the imported agri–inputs in developing countries are chemicals
- Farmers use chemical inputs without full understanding of the impact on human health and the environment
- Therefore, the farmers' rate of awareness, knowledge, attitudes and practices on chemical inputs use are properly considered

Problem Statement

- Monywa, one of largest townships in Sagaing Region, situated on the favorable transportation
- The Chindwin river and it's settlements are utilizing natural resources for vegetable cultivation
- There is a large wholesale and retail markets everyday and induced increasing production year by year according to market demand
- Most of the farmers used high yield varieties, and also increasing the utilization of chemical inputs, so heavy chemical utilization in vegetable production causes high production cost and adverse effect
- Therefore, the experiment attempted to reduce the chemical utilization of vegetable production in Monywa Township

Objectives

- To attain food safety and quality products
- To provide awareness of utilizing non–chemical inputs instead of chemicals
- To compare cost and benefit from experiment and farmer practice






Description of Monywa Township

(1)Location– Coordinates

22° 6’ 30” N

95° 8’ 30” E

(2)Area

Width – 266 Sq.miles

(3)Border Townships

Ayadaw(E), Salingyi and Yinmarbin(W), ChaungU(S) and Budalin (N)

(4)Village Tracts and Households

Quarter	– 31
Village Tracts	– 54
Villages	– 171
Households	– 73,735
Human Population– 371,963	

(5) Location of Demonstration Plot

Kyar Paing Village

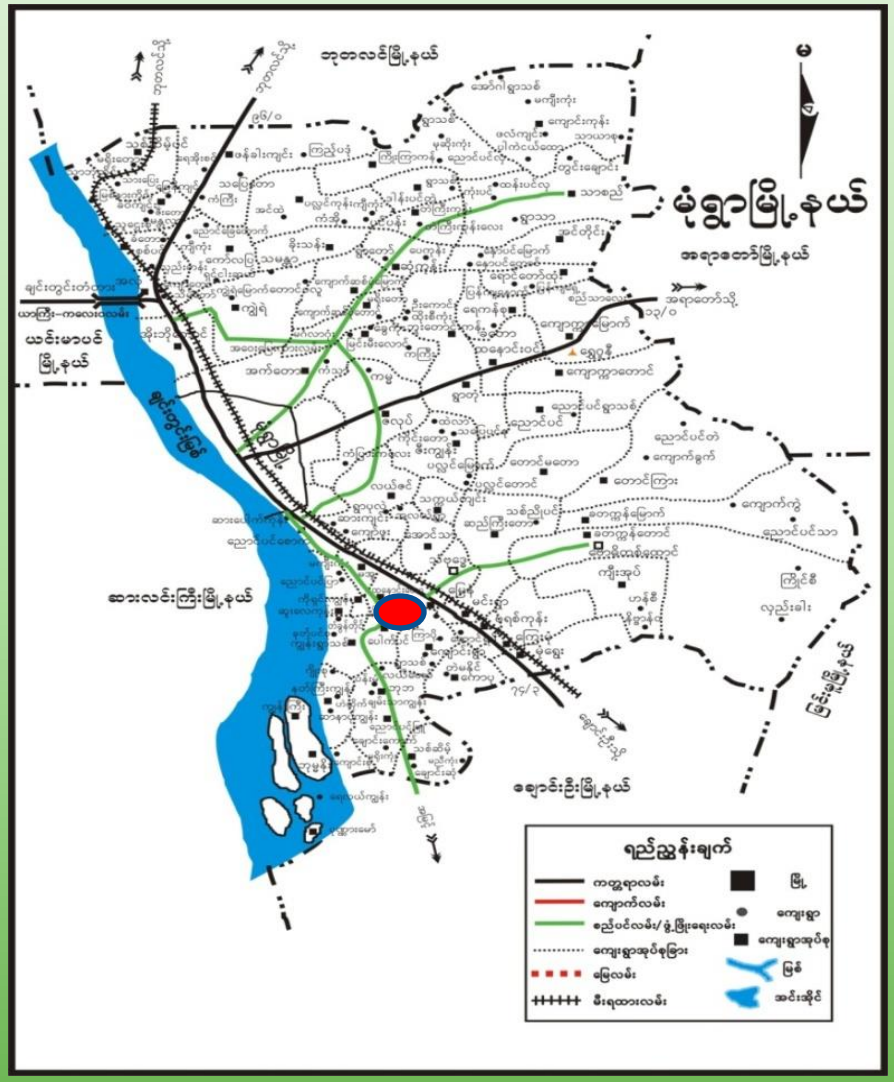

Figure 1. Map of Monywa Township with selected village

Table 1. Land Utilization of Monywa Township

No	Content	2018	2019	
			Areas	Content %
1	Sown Area	103,710	103,710	61
i	Net sown area	103,618	103,618	61
	– Low land area	9,113	9,113	5
	– Upland area	85,725	85,725	50
	– Silt land area	8,839	8,839	5
	– Orchard land area	33	33	0.02
ii	Fallow land area	92	92	0.05
2	Virgin land area	8,291	8,291	5
3	Urban, village and other land	58,239	58,239	34
	Total	**170,240**	**170,240**	

Table 2. Rainfall situation of Monywa Township

No	Month	Normal		2016		2017		2018		2019	
		Day	Inch	Day	Inch	Day	Inch	Day	Inch	Day	Inch
1	Jan	–	0.03	–	–	–	–	1	0.27	1	0.12
2	Feb	–	0.07	–	–	2	0.20	–	–	–	–
3	Mar	–	0.24	–	–	–	–	–	–	–	–
4	April	3	1.55	4	5.51	2	0.27	4	2.68	1	0.55
5	May	6	4.11	5	2.80	15	13.27	8	8.30	3	1.53
6	June	5	1.93	7	4.45	7	3.23	12	6.66	5	6.51
7	July	5	3.10	4	1.81	4	0.80	5	3.58	2	1.18
8	Aug	8	5.17	14	9.33	7	4.28	6	1.15	8	4.18
9	Set	8	5.83	15	11.89	8	4.60	5	4.60	5	3.55
10	Oct	9	7.14	6	3.04	8	3.30	10	6.81	1	0.31
11	Nov	1	0.41	1	1.41	2	0.71	1	0.16	–	–
12	Dec	–	0.09	–	–	–	–	–	–	–	–
	Total	**45**	**29.67**	**56**	**40.24**	**55**	**30.66**	**52**	**34.21**	**26**	**17.93**

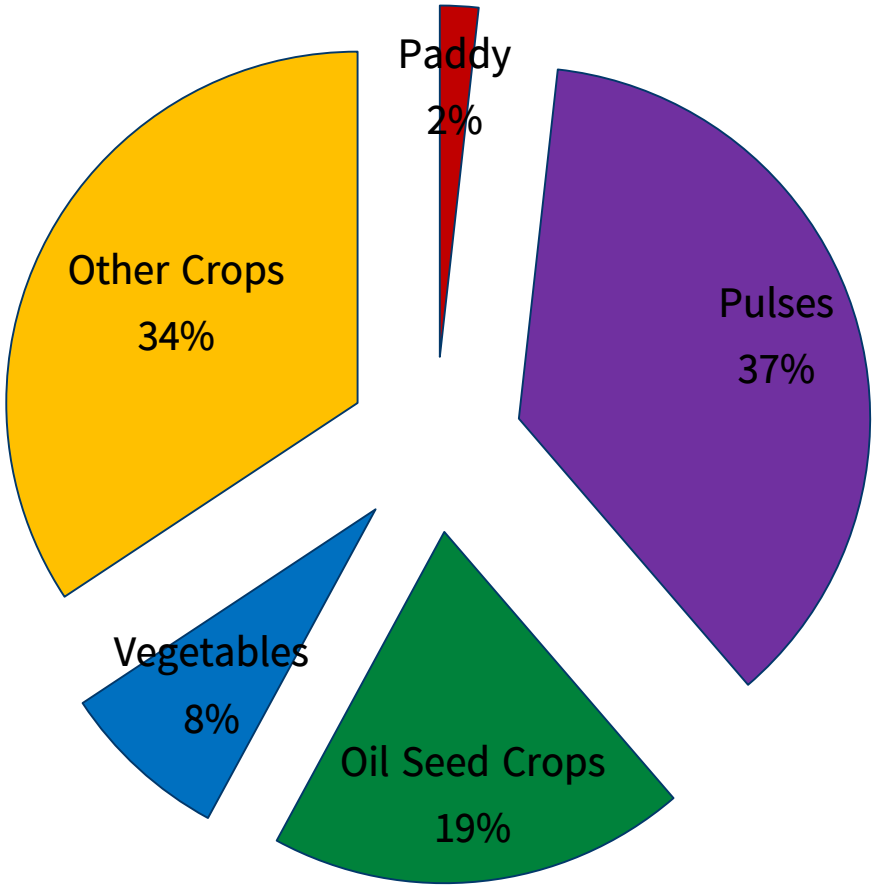

Figure 2. Percentage of cultivated crops in 2018–2019

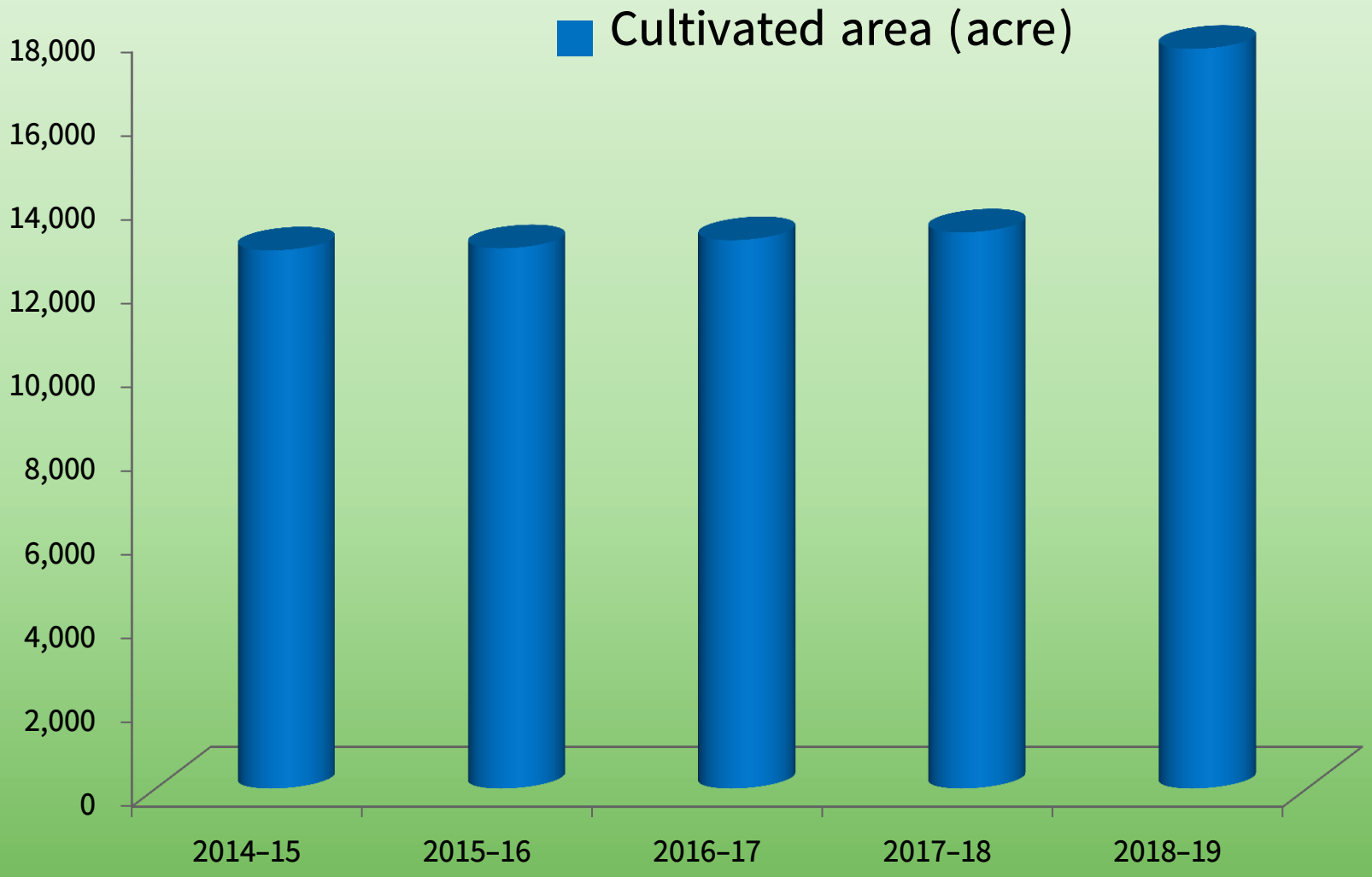

Figure 3. Cultivated area of vegetables in Monywa Township (2014–15 to 2018–19)

Materials and Methods

Farmer name	–	U Bo Yee
Village tract	–	Kyar Paing
Field no:	–	703
Demonstrated area	–	1.00 acre
Variety	–	Royal – 900
Sowing time	–	late winter
Sowing / Transplanting date	–	25.12.2017/ 19–20.1.2018
Spacing	–	2.5ft × 2ft
Harvesting date	–	20–25.3.2018
Pest and Disease infection		–Pests (aphid, diamond back moth, caterpillar, leaf webber, green semilooper)
		–Disease (powdery mildew)

Materials and Methods (Contd.)

Fertilizer application

Fertilizer	Experimental plot	Farmer practice
Chemical		
Gypsum	50 kg/ac	50 kg/ac
Compound(15:15:15)	25 kg/ac	100 kg/ac
Urea	–	50 kg/ac
Reduced–chemical		
Super bokashi	10 bsk/ac	Non
Urea + cow dung	25 kg/ac+ 2.5 bsk/ac	Non

Materials and Methods (Contd.)

Pesticide application

Pesticide	Experimental plot	Farmer practice
Chemical		
Contact	150 cc/ac	2 li/ac
Fungicide	–	200 gm/ac
Systemic	–	3 li/ac
Reduced–chemical		
Lime sulphur	1 li/ac	
EM 5	6 li/ac	
IEM	15 li/ac	Non
Fish EM	1.5li/ac	
Tobacco	15 li/ac	

Results and Discussion

Table 3. Yield components of cauliflower

No	Items	Data	
		Experimental plot	Farmer practice
1	Plant height (ft)	2	2.5
2	Length of leaf (ft)	1.8	2.1
3	Flower wide (inch)	8–10	6–8
4	Flower color	White, pale yellow	Purple tint
5	Flower compactness	Compact	Loose
6	Price per unit (MMK)	200	150
7	Farmers' preference	More	Ordinary

Table 4. Costs and benefit calculation per acre

No	Items	Amount (MMK)	
		Experimental plot	Farmer practice
1	Land preparation	54,000	54,000
2	Nursery preparation	25,000	25,000
3	Inputs	154,000	279,000
	–Seed	36,000	36,000
	–Fertilizer	97,000	147,000
	–Pesticide	21,000	96,000
4	Planting	30,000	30,000
5	Weeding	60,000	60,000
6	Fertilizer application	12,000	9,000
7	Pesticide application	45,000	45,000
8	Harvesting	33,000	33,000
9	Transportation	30,000	30,000
	Total costs	**443,000**	**565,000**
	Yield	**8,200 flowers**	**8,200 flowers**
	Income	**8,200×200 = 1,640,000**	**8,200×150= 1,230,000**
	Net benefit	**1,197,000**	**665,000**

Preparation of IEM and EM–5

Providing of non–chemical pesticides

Field visit by Parliment

Field inspection

Summary

By using non–chemical inputs instead of chemicals,

- ❑ produced more white color flowers
- ❑ larger size and more compact
- ❑ higher price than farmer practice and more income

Conclusion

By visual view,

- ❑ produce quality products
- ❑ vegetable farmer got more income
- ❑ reduced side effect of chemicals by farmer, workers, consumers and environment
- ❑ neighboring visited farmers have been interested this practices

Suggestion

- ❑ This practice should be encouraged in the farmer level
- ❑ Staff should be extended in the other villages

Forwarding plan

Because this practice is effective for vegetable cultivation,

- ❑We will continue this practice in the most vegetable cultivated villages within our township
- ❑More trainings and discussions in seasonal
- ❑More demonstrating non–chemical inputs making methods
- ❑Demonstration plot cultivation with contact farmers
- ❑In conclusion, we will attempt to reach more chemical reduced fields and GAP for food safety and security

THANK YOU FOR YOUR KIND ATTENTION