



**Ministry of Agriculture, Livestock and Irrigation**  
**Department of Agriculture**

**Finding Local Adaptable New Silkworm Strain**  
**Research in Myitkyina Sericulture Farm**  
**Myitkyina District, Kachin State**

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# 1. Introduction



- ❑ Myitkyina Sericulture Farm is mulberry cultivation, silkworm rearing and cocoon production
- ❑ Distributing mulberry stalks for farmers
- ❑ Sharing the technology of Moriculture and Sericulture
- ❑ Providing trainings, workshops and demonstrations

## 2. Research Objectives

- ❑ To study the new silkworm strain is adaptable and suitable for the Kachin state
- ❑ To compare the cocoon yield and quality of silkworm strains
- ❑ To recommend good yield and quality silkworm strain for local farmers



### 3. Rationale of the study



- ❑ Increase production of high quality cocoon and popularize Sericulture in the local area
- ❑ Replace good quality new strain and cover with genetic variation of silkworm strain
- ❑ Chinese buyers impressed Myanmar silkworm cocoon
- ❑ Introduce high quality strains to minimize the risk of cocoon production
- ❑ Enhance job opportunities and household income level

## 4. Materials and Methods



- |                        |   |   |
|------------------------|---|---|
| 1. New Strain          | - | New Silkworm Strain(1)                              |
| 2. Control             | - | INO6 x N24 ( Kachin )                               |
| 3. Experimental Design | - | Simple Test   |
| 4. Experimental Date   | - | November, 2019                                      |
| 5. Experimental Place  | - | No(6),Rearing House , Myitkyina<br>Sericulture Farm |
| 6. Township / District | - | Myitkyina / Myitkyina                               |
| 7. Region              | - | Kachin State  |

# 4. Materials and Methods

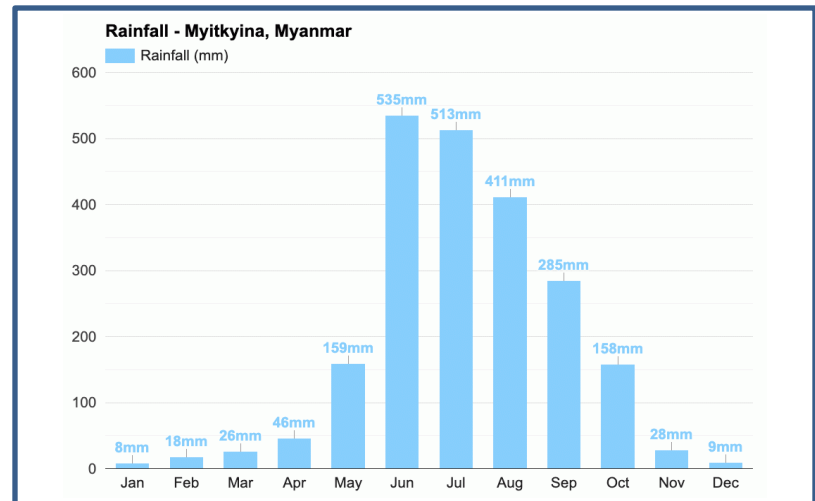
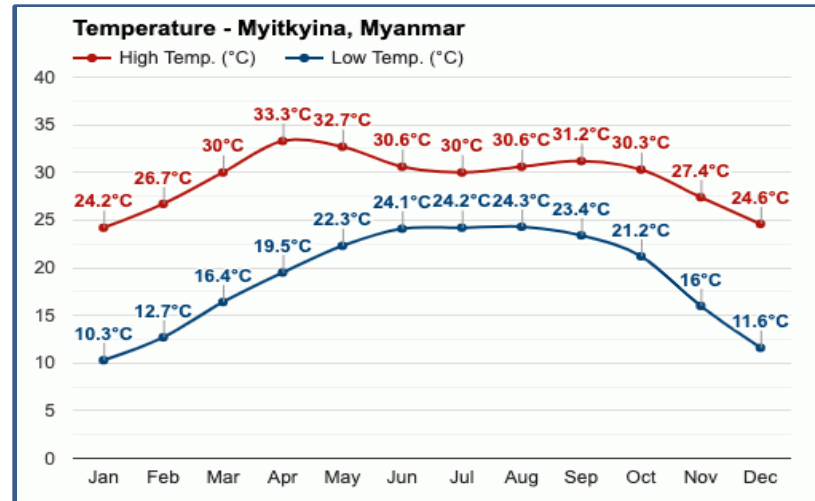
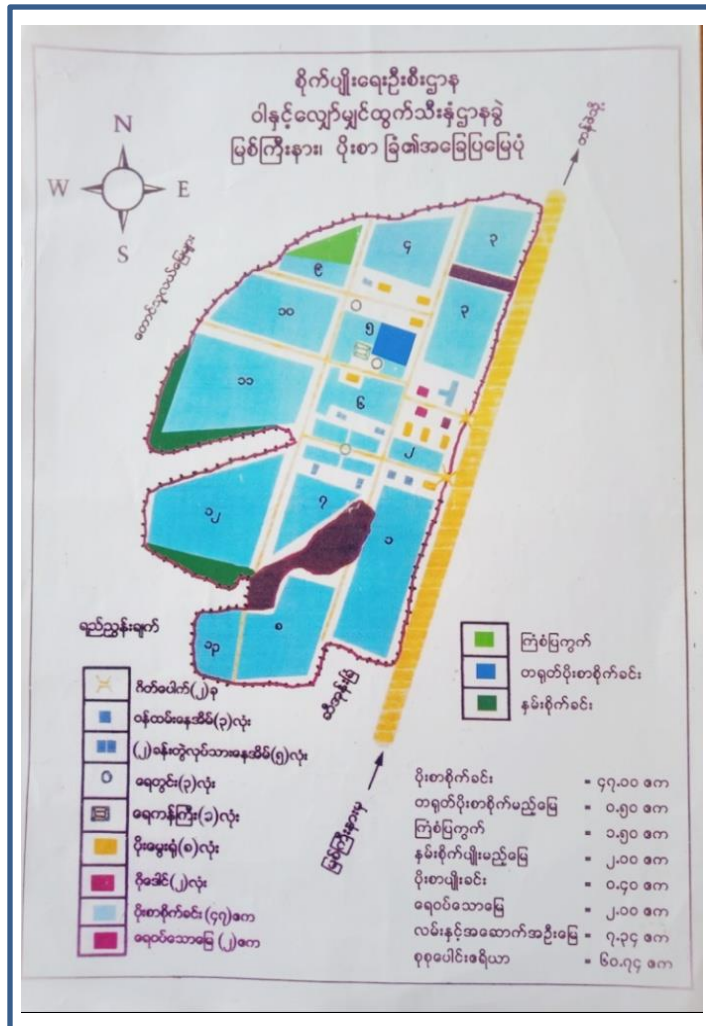
## 4.1 Description of the experiment

1. Experimental unit - New Strain (10g)and Control(10g)
2. Source of silkworm strain - Sericulture Research and Development Center, Pyin Oo Lwin
3. Hatching forecasted date - 9.11.2019
4. Forerunner date - 5.11.2019
5. Actual hatching date - 7.11.2019 (I Group)  
(New Strain (40%) and Control (85%))  
- 9.11.2019 (II Group)  
(New Strain (60%) and Control (15%))
6. Hatchability(%) - 95%



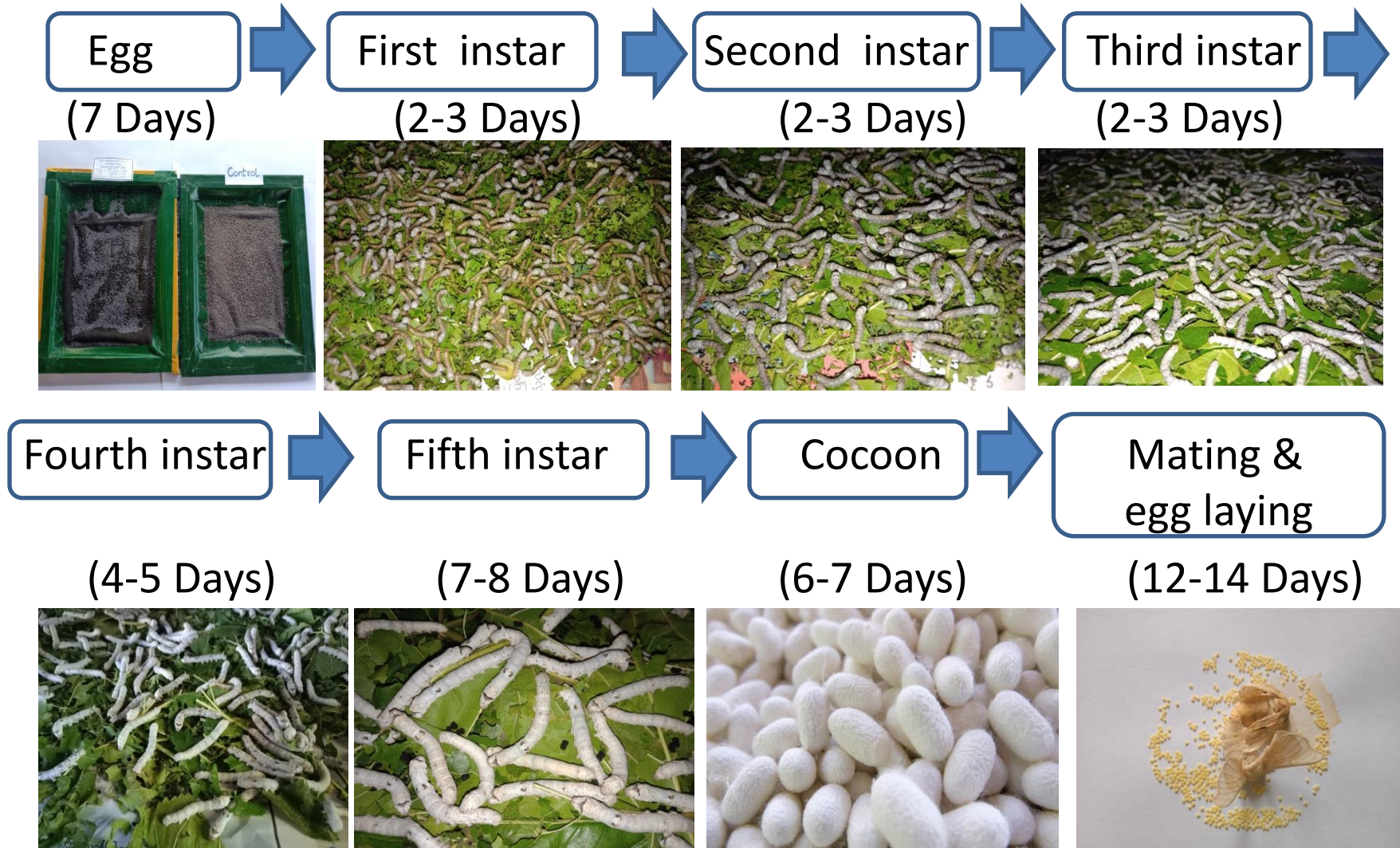
# 5. Results and Discussions

## 5.1 Geographic of Myitkyina Sericulture Farm and climatic condition of Myitkyina Township



# 5. Results and Discussions

## 5.2 Description of the silkworm life cycle



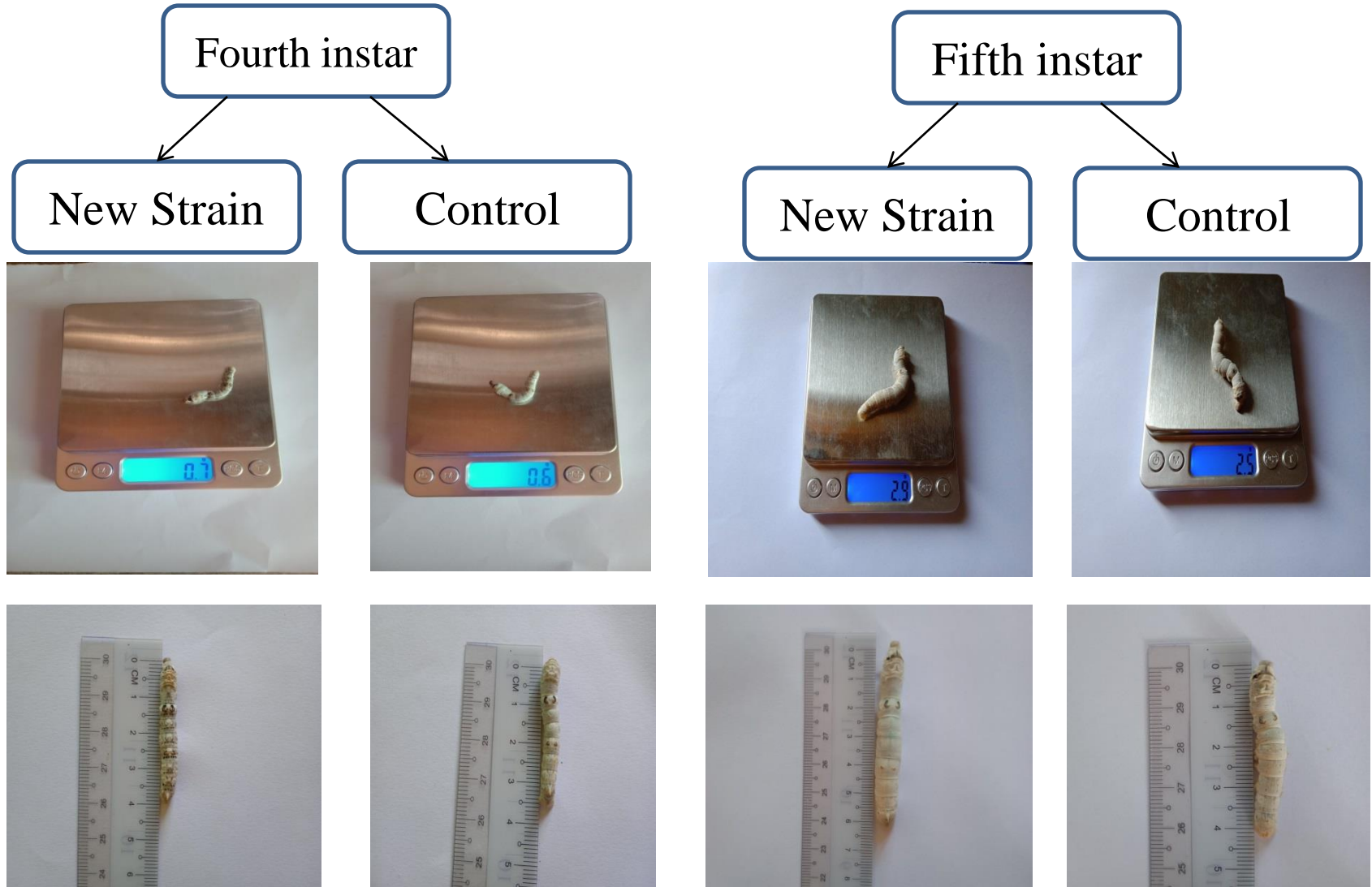
# 5. Results and Discussions

## 5.3 Comparison of larval weight and length of silkworm strains

No.	Larval Stages	Average Weight (g)		Average length (cm)	
		New Strain	Control	New Strain	Control
1.	First instar	-	-	-	-
2.	Second instar	-	-	-	-
3.	Third instar (2 Days)	0.21	0.2	2.16	2.15
4.	Fourth instar (2 Days)	0.63	0.59	3.24	3.11
5.	Fifth instar (2 Days)	2.41	2.4	5.0	4.93
6.	Mature/ Ripe instar	4.13	3.88	5.41	5.3

# 5. Results and Discussions

## 5.4 Comparison of larval weight and length of fourth and fifth instar



## 5. Results and Discussions

### 5.5 Comparison of morphological characteristics of cocoon

No.	Content	New Strain	Control
1.	Single cocoon average length(cm)	3.78	3.27
2	Single cocoon average width(cm)	2.5	2.33
3.	Single fresh cocoon average weight (with pupa) (g)	1.93	1.86
4	Single dry cocoon average weight (with pupa) (g)	0.76	0.73
5	Single pupa average weight(g)	1.56	1.51
6	Single shell average weight(g)	0.37	0.35
<b>7</b>	<b>Shell ratio(%)</b>	<b>19.2</b>	<b>18.8</b>

# 5. Results and Discussions

## 5.6 Measurement of cocoon weight, pupa weight, shell weight, cocoon length and width

New Strain



Control

# 5. Results and Discussions

## 5.7 Comparison of cocoon yield and quality of silkworm strains

No.	Content	New Strain	Control
1.	Cocoon yield(lb) /10 g	67	63
2.	No. of double cocoon	56	64
3.	No. of flimsy, stained cocoon	236	264
4.	No. of dead larvae	392	467
5.	No. of cocoon per 1 lb	211	238
6.	(100)Cocoon average weight(lb)	0.43	0.41



# 5. Results and Discussions

## 5.8 Description of silkworm life cycle duration

No.	Laval Stages	New Strain	Control
1.	First instar	3 days & 19 hours	3 days & 19 hours
2.	First molting	<b>19 hours</b>	1 day
3.	Second instar	<b>2days &amp; 19 hours</b>	2days & 14 hours
4.	Second molting	<b>1 day</b>	1 day & 5 hours
5.	Third instar	<b>3days &amp; 5 hours</b>	3 days
6.	Third molting	1day & 5hours	1 day & 5 hours
7.	Fourth instar	4 days	4 days
8.	Fourth molting	2 days & 5hours	2 days & 5hours
9.	Fifth instar /Ripe	8days & 5 hours	8 days & 5 hours
	<b>Total duration</b>	<b>27 days &amp; 5 hours</b>	<b>27 days &amp; 5 hours</b>

# 5. Results and Discussions

## 5.9 Description of larval feeding rate throughout the life cycle

No.	Larval Stages	New Strain (lb)			Control (lb)			Compare ( lb )
		I (Group)	II (Group)	Total	I (Group)	II (Group)	Total	
1.	First instar	0.85	1.45	2.3	1.8	0.5	2.3	-
2.	Second instar	4.5	7.5	12	8.5	1.5	10	+2
3.	Third instar	25	40	65	50	10	60	+5
4.	Fourth instar	100	151	251	212	39	251	-
5.	Fifth instar	398	537	935	844	91	935	-
	<b>Total</b>	<b>529.35</b>	<b>736.95</b>	<b>1265.3</b>	<b>1116.3</b>	<b>142</b>	<b>1258.3</b>	<b>+7</b>

# 5. Results and Discussions

## 5.10 Parameter of the area of rearing bed

No.	Larval stages	New Strain		Control	
		I(Group)	II(Group)	I(Group)	II(Group)
1.	Brushing time	1'X 1'(1bed)	1'X 1'(1bed)	1'X 1'(1bed)	1'X 1'(1bed)
2.	First instar	2'X 1.5'(1bed)	2'X 1.5'(2bed)	2'X 1.5'(2bed)	2'X 1.5'(1bed)
3.	Second instar	2.5'X 2'(3bed)	2.5'X 2'(4bed)	2.5'X 2'(5bed)	2.5'X 2'(2bed)
4.	Third instar	4'X 3'(6bed)	4'X 3'(8bed)	4'X 3'(12bed)	4'X 3'(2bed)
5.	Fourth instar	4'X 3'(10bed)	4'X 3'(16bed)	4'X 3'(23bed)	4'X 3'(3bed)
6.	Fifth instar	4'X 3'(16bed)	4'X 3'(22bed)	4'X 3'(32bed)	4'X 3'(6bed)
<b>Total</b>		<b>4'X 3'(38bed)</b>		<b>4'X 3'(38bed)</b>	

# 5. Results and Discussions

## 5.11 Household Income Level

No.	Content	New Strain	Control
1.	1 ac of mulberry yield/year	5000 lb	5000 lb
2.	(Rearing Box) Unit/year	4	4
3.	Cocoon yield/year	536 lb	504 lb
4.	Cocoon price/ lb	3000 ks	2500 ks
5.	Income	1608000 ks	1260000 ks
6.	Labor cost/year	500000 ks	500000 ks
7.	Benefit for rearing/1ac of mulberry	1108000 ks	760000 ks
<b>8</b>	<b>Comparison</b>	<b>+ 348000 ks</b>	

## 6. Conclusion and Suggestion



- ❑ Larval mortality and disease infestation in New Silkworm Strain(1) is lower than IN06xN24(Kachin)
- ❑ First and second molting stage in new Silkworm Strain(1) is earlier about 5 hours than IN06xN24(Kachin)
- ❑ Characteristic of larva and cocoon (size, weight, length)in New Silkworm Strain (1) is higher than IN06xN24(Kachin)
- ❑ Maturing / Riping Silkworm of New Silkworm Strain(1) is uniform at the same time than IN06xN24(Kachin)

## 6. Conclusion and Suggestion Contd;



- ❑ Cocoon yield, shell ratio (%) and cocoon quality of New Silkworm Strain (1) are better than IN06xN24(Kachin)
- ❑ New Silkworm Strain (1) was high yielding and economically profit
- ❑ Therefore , New Silkworm Strain (1) was recommended that local adaptable and higher yield in Myitkyina District
- ❑ Finding of the study will also support the recommendation of Myitkyina District and similar areas with the same climatic condition



THANK YOU SO MUCH

