Ministry of Agriculture, Livestock and Irrigation

Department of Agriculture

New silkworm strain is suitable or not to rear in rainy season at Myitkyina, Kachin State

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1. Introduction

- The rainy season of Kachin State is wet and hot
- The high temperature is not suitable for silkworm rearing
- The weather is good for high yield of mulberry leaves
- We observed this experiment during the rainy season

2. Objectives

- To study the adaption and fitness of the new silkworm strain during the rainy season of Kachin State
- To compare the cocoon yield and quality of silkworm strains
- To rear the new silkworm strain in rainy season
- To substitude the control silkworm strain when it will be depressed.

3. Materials and Methods

1.	New Strain	-	KO8 X M 12 (sanite)
2.	Control	-	INO6 X N24 (Kachin)
3.	other Material	-	Rearing House and instruments, digital balance
4.	Experimental Design	-	Simple Trial
5.	Experimental Date	-	June , 2020
6.	Experimental Place	-	No(7),Rearing House , Myitkyina Sericulture Farm
7.	Township / District	-	Myitkyina / Myitkyina
8.	Region	-	Kachin State

4. Materials and Methods

4.1 Description of the experiment

1. Experimental unit - New Strain (10g)and Control strain (10g)
2. Source of silkworm strain - Sericulture Research and Development Center, Pyin Oo Lwin
3. Forecasted hatching date - 13.6.2020
4. Actual hatching date - 9.6.2020 (Control) 13.6.2020(new strain)
5. Hatchting percentage - Each 90%

5. Results and Discussions

5.1 Comparison of favourable climatic condition for silkworm and during the rearing period

No	Larval Stages	Favourable climatic condition		During the period			
		Temperature	Humidity	Temperature		Humidity	
				The Lowest	The Highest	The Lowest	The Highest
1	First instar	27°C	90%	24°C	35°C	90%	96%
2	Second instar	26°C	85%	25°C	33°C	92%	96%
3	Third instar	25°C	80%	24°C	32°C	92%	99%
4	Fourth instar	24°C	75%	24°C	32°C	90%	97%
5	Fifth instar	23°C	70%	24°C	31°C	90%	100%

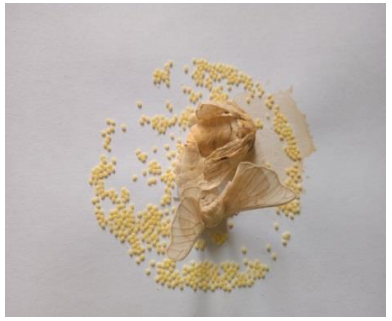
5. Results and Discussions

5.2 Description of the silkworm life cycle

Egg (5 Days) → First instar (2-3 Days) → Second instar (2-3 Days) → Third instar (2-3 Days) →

Fourth instar → Fifth instar → Cocoon → Mating & egg laying

(3-4 Days) (5-6 Days) (6-7 Days) (12-14 Days)



5. Results and Discussions

5.3 Comparison of eating, molting duration

No.	Larval Stages	eating period		molting period	
		New strain	control	New strain	control
1.	First instar	3.0	3.25	1.0	1.25
2.	Second instar	2.25	2.25	1.0	1.0
3.	Third instar	3.0	2.50	1.0	1.25
4.	Fourth instar	3.0	2.75	1.25	1.50
5.	Fifth instar	6.0	6.0	mature	mature
	Total days	**17.25**	**16.75**	**4.25**	**5**

5. Results and Discussions

5.4 Description of larval feeding rate throughout the life cycle

N0	Larval stages	New Strain (lb)	Control (lb)
1.	First instar	4.1	2.4
2.	Second instar	8.3	5.8
3.	Third instar	51.5	27.8
4.	Fourth instar	96	87
5.	Fifth instar	310	262.5
	Total	**469.9**	**385.5**

5. Results and Discussions

5.5 Comparison of larval weight and length

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)	0.14	0.14	2.23	2.1
4.	Fourth instar (2 Days)	1.1	0.51	3.8	3.8
5.	Fifth instar (2 Days)	2.51	2.4	5.8	4.92

5. Results and Discussions
5.6 Comparison of characteristics of cocoon

No	Particular	New strain	Control
1	Single cocoon average length(cm)	3.63	3.36
2	Single cocoon average girth(cm)	6.3	6.0
3	Single fersh cocoon average weight (with pupa)(g)	1.93	1.80
4	Single dry cocoon average weight (with pupa)(g)	0.77	0.72
5	Single fresh pupa average weight (g)	1.60	1.50
6	Single shell average weight (g)	0.33	0.30
7	Average silk percentage(%)	17.61	16.66

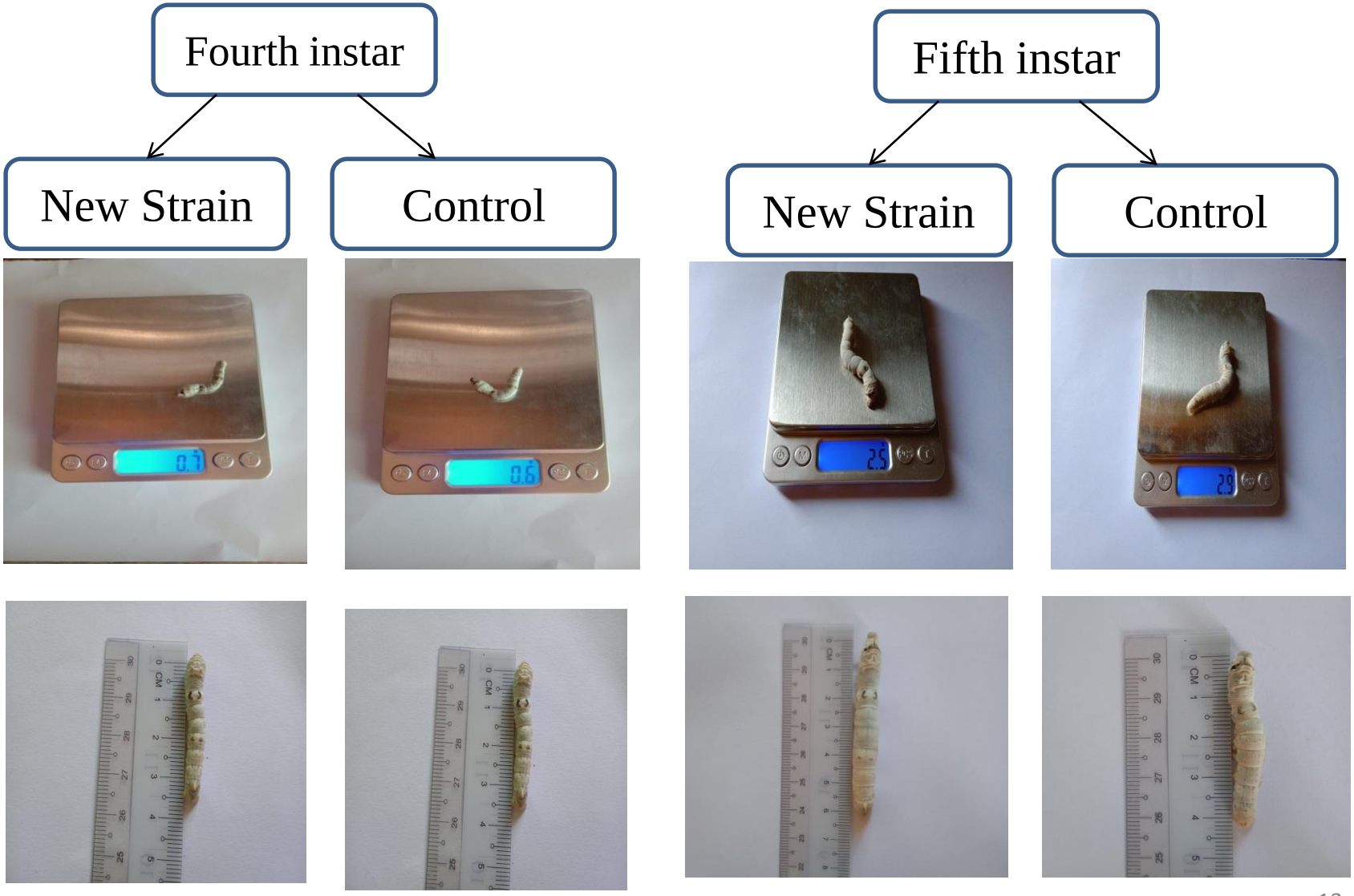
5. Results and Discussions

5.7 Comparison of cocoon yield and quality of strains

No.	Particular	New Strain	Control
1.	**Cocoon yield(lb) /10 g**	**9**	**7.9**
2.	No. of double cocoon	38	22
3.	No. of flimsy, stained cocoon	923	972
4.	No. of cocoon per 1 pound	231	241
5.	(100)Cocoon average weight(lb)	0.43	0.41

5. Results and Discussions

5.8 Comparison of larval weight and length of fourth and fifth instar



5. Results and Discussions

5.9 Measurement of cocoon weight, pupa weight, shell weight, cocoon length and girth

New Strain










Control

5. Results and Discussions

5.10 Comparison of income and losses

No.	Particular	New Strain	Control
1.	Mulberry yield lb/year	5000 lb	5000 lb
2.	egg cards/year can be rear	10 cards	13 cards
3.	Cocoon yield/year	90 lbs	102.7 lbs
4.	Cocoon price/ lb	3000 ks	3000 ks
5.	Income	270000 ks	308100 ks
6.	Labor and material cost/year	700000 ks	910000 ks
7.	Losses	430000 ks	601900 ks

6. Conclusion and Suggestion;

- The new strain and the control strain had high larvae mortality.
- Both Silkworm Strains had been infested disease seriously.
- The cocoon yield and quality of new strain is a bit higher than the control strain.
- Every strains had no profit for commercial production in rainy season
- It is a potential business and this project is being implemented

THANK YOU SO MUCH