Bull. 20.

Further notes on the use of Schleichera trijuga (Kusum) in lac cultivation

By

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In the previous notes on this subject published in 1933, Bulletin No. 15 Indian Lac Research Institute, it was pointed out that the villagers' methods of utilising Kusum as a lac host were extremely wasteful.

They neither use it to the best advantage from the crop yielding point of view, nor do their methods of pruning allow the tree gradually to increase in frame and size with the object of obtaining enhanced crops in the future.

It was shown in the publication referred to above that a very great improvement both in pruning and cropping was easily obtainable.

As a result of the experiments carried out between February 1930 and February 1933, it was found possible to obtain two full crops from the one block of trees, during the period, the original pruning being carried out in February 1930 and the first infection being made in February 1931.

The actual details may be shown as follows :—

February 1930 Pruned	February 1931 Infected	July 1931 Cropped and also pruned where necessary
July 1932 Infected	February 1933 Cropped and also pruned where necessary	

The brood yield ratio was in one case, July 1931, 1 : 3·1 and in the other, February 1933, 1 : 3·7.

As stated in the earlier publication, it was intended to continue these experiments in order to prove whether the pruning and cropping system advocated could be successfully applied during a further period of years without a longer resting time being necessary.

Results obtained during 1934 amply confirm those arrived at in 1933 as will be seen from the following facts :—

The trees which had been cropped in February 1933 were in excellent condition for reinfection in February 1934.

Kusum x Khair *(Acacia Catechu)* brood was used for infection. The trees were inspected in the middle of May when it was perfectly obvious that swarming and settlement had been extremely satisfactory and that a normal crop could be expected. The actual brood yield ratio obtained in July 1934 was 1 : 3·2 as will be seen from the table given below :—

Type of brood used and amount	Yield obtained	Brood yield ratio.
Kusum x Khair 458 lbs.	1469 lbs.	1 : 3·2

These results are of particular value as the hot weather of 1934 was one of the worst experienced in Ranchi District for many years.

The meteorological data given below are from 1931 when the first infection under the present scheme was made.

Rainfall inches.	January.	February.	March.	April.	May.	June.
1931 ...	Nil.	8·33	0·66	0·40	1·01	5·23
1932 ...	Nil.	1·46	0·02	1·03	1·78	1·78
1933 ...	2·60	2·57	0·18	1·26	2·57	7·33
1934 ...	0·15	0·07	Nil.	1·44	Nil.	9·16
Humidity %						
1931 ...	*77	79·8	62·4	†54	66·8	67·3
1932 ...	75	66·5	58	‡46	57·7	60
1933 ...	57	68	52	50	59·6	73·3
1934 ...	67	63	46	46	42	72

*Average of 24 days.
†Average of 26 days.
‡Average of 25 days.

Average Maximum Temperature.	January.	February.	March.	April.	May.	June.
1931 ...	79·3	75·6	86·3	96·6	95·1	95·1
1932 ...	80·0	78·3	89·0	97·4	99·4	98·2
1933 ...	69·5	77·9	87·5	94·7	97·5	92·2
1934 ...	70·5	79·2	89.5	99·2	105·3	94·7
Highest Maximum Temperature.						
1931 ...	84	86	98	103	105	104
1932 ...	84	84	94	I02	106	109
1933 ...	78	80	95	101	105	104
1934 ...	81	89	100	104	109	106

As it will be seen rainfall up to June was in large defect, humidity was also low and the average maximum temperature and the highest maximum temperature were higher than in the previous years.

As regards the type of implements necessary for the light pruning, illustrations were given in the previous publication and it may be mentioned here that the long pruner shown on page 8 of the Bulletin is quite simple in construction and could be made by any village black-smith provided he had a sample one to copy.

10 foot pruners were made at Sabaya, Ranchi District with scrap material available for Rs. 2-8-0 each, and 7 foot ones for approximately Rs. 2-0-0.

Should materials have to be purchased about Rs. 2-0-0 should be added to the above costs.

Summary.

The results published in 1933 have been confirmed over a further season, that is to say using the type of pruning advocated a full crop may be obtained from Kusum once every eighteen months.

An infection made in February 1934 gave a brood yield ratio of 1 : 3·2 in July 1934 although climatic conditions were adverse.

References.

Norris, D. Notes on the use of *Schleichera trijuga* (Kusum) in lac cultivation. Pruning and Cropping. Bulletin No. 15. Indian Lac Research Institute.

APPENDIX.

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Entomological Examination Results.

Samples of the following strains of *Laccifer lacca*, Kerr. *(Coccidae)* were examined between 29-5-34 and 31-5-34. Crop. Jethwi 1934.

Strain. Khair progeny Kusum × Kusum. *Locality*, Khudia, Sabaya, Chotanagpur.

Strain. Kusum × Kusum. *Locality*. Namkum, Ranchi, Chotanagpur.

Examination results are summarised in the following table.

Factor under examination.	Strain Khair (Kusum) × Kusum, Khudia.	Strain Kusum × Kusum, Namkum.
1. General condition	Excellent. Encrustation continuous.	Rather poor. Encrustation rather sparse.
2. *Eublemma amabilis* damage.	Nil in 3″.	3 hatched eggs 1 larva in 3″
3. *Holcocera pulverea* damage.	1 larva, 1 pupa in 3″	2 larvae in 3″.
4. *Chalcidoidea* (parasite) damage.	1·2%	4·8%-7·1% average 6·6%.
5. Number living *L. lacca* per 1 inch.	62	28
6. Brood to yield ratio on* cutting in July 1934.	1 to 3·1	1 to 1·8.

* In the case of Khair (Kusum) × Kusum, the brood yield ratio is the ratio of brood stick to yield stick. In the case of Kusum × Kusum, the brood to yield ratio, is the ratio of scraped lac from the brood to scraped lac from the yield ; this figure is given, as the comparative figure is not significant, due to the sparse encrustation of the yield and the consequent excess of stick.