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ANNUAL REPORT OF THE COCONUT STATIONS IN THE KASARAGOD TALUK OF SOUTH KANARA DISTRICT FOR THE YEAR 1924-25.

An account of the local agriculture in the neighbourhood of the coconut stations with special reference to coconuts is printed as an appendix to this report.

2. *The season.*—The season was almost similar to that of last year. In April and May 8·81 inches of rain were recorded at Nileshwar and 5·91 inches at Kasaragod. This rainfall was quite refreshing to the coconuts young and old after a long drought due to the failure of the north-east monsoon of the previous year.

The south-west monsoon fall was the heaviest on record. The concentrated and heavy down pour kept the soil too wet to allow any growth and encouraged leaf-rot disease and surface wash. The former was controlled by spraying with Bordeaux mixture and the latter to some extent by deep ploughing and bunding. The north-east monsoon rains again failed. The subsequent hot weather was severe and the heat was increased considerably by the cloudy weather that prevailed during February and March. The resultant ill-effects were greatly minimized by repeated cultural operations. The season was on the whole abnormal and far from conducive to the welfare of coconuts in general. For further details vide the rainfall statement below :—

TABLE I.

Statement of rainfall.

Month.	Average rainfall at Kasaragod for 40 years.	Rainfall for 1923-24.		Rainfall for 1924-25.	
		Kasaragod.	Nileshwar.	Kasaragod.	Nileshwar.
April	1·64	0·12	1·29	2·70	4·42
May	6·78	3·18	0·94	3·21	4·39
June	38·03	35·50	32·95	38·73	48·85
July	38·70	39·05	45·93	45·76	50·10
August	24·00	37·15	46·62	31·47	33·13
September ...	9·85	8·81	7·81	9·67	12·50
October	6·82	0·95	0·84	1·43	1·43
November ...	2·78	1·80	1·83	1·50	0·89
December ...	0·53	0·60	0·88	...	0·12
January	0·23	...	0·15	...	...
February	0·04	...	...	...	...
March	0·13	2·44	0·27	1·20	...
Total ...	129·53	129·60	139·50	135·67	155·82

3. *Pilicode No. I Station.*—The station was further extended by 7·70 acres.

(i) *Planting.*—On account of the fact that the red laterite soil which this station represents constitutes the largest area available for coconuts in the West Coast districts, a plot has been set apart for the trial of the world varieties of coconuts. Planting was done one foot deep with five world varieties—122 seedlings in all—with a manuring of 2 lb. fish-guano, 1½ lb. lime and 7½ lb. ashes per tree in twelve rows in Block H as detailed below :—

Fiji variety.	Damy Dina	13 plants.	These 52 plants were planted in three rows of 10 and two rows of 11 each.
	Niu Damu	11 do.	
	Medium dwarf ...	12 do.	
	Ringed nut... ...	3 do.	
	Rotuma nut	4 do.	
	Long Tongan green ...	3 do.	
	Round long pointed ...	4 do.	
	Variety marked X ...	2 do.	
Straits Settlements.	Apricot	10 do.	31 plants in three rows.
	Green	11 do.	
	Ivory	10 do.	

Laccadives ... ... 21 plants in two rows.
Andamans marked GH and BH ... ... 9 plants in one row.
Bengal Barisal ... ... 8 plants in one row.

Blanks were filled up with Nanminda seedlings as follows :—
12 in surface planting plot.
8 one foot deep planting plot.
1 two feet deep do.
4 three feet deep do.
1 each in Chingleput and Indupalli lines.
1 in Block C.
2 in D and 3 in E of the general planting.

The last set alone from the trial plot with seedlings of the same age.

(ii) *Cultivation.*—Before the monsoon, the guntaka or cultivator was worked in all the blocks followed by the Monsoon plough during rains to aid the soaking in of as much of the rain water as possible and to minimize surface wash. Subsequently either the cultivator or the guntaka was again worked once in every month in all the blocks during the dry months and the surface was kept perfectly loose to conserve moisture.

(iii) *Depth of planting.*—The death-rate in different sets of this experiment started in 1923–24 was as below :—

Description of planting.	Date of planting.	Number of seedlings planted.	Death observed in 1923-24.	Death observed in 1924-25.
Surface planting	4th June 1923.	31	12	...
1 foot deep planting ...	Do.	32	8	1
2 feet do. do. ...	Do.	31	1	...
3 feet do. do. ...	Do.	32	4	...
Total ...		126	25	1

The death-rate in the surface planting was the highest. The plants in 2 and 3 feet deep pits look healthier. As the seedling trees have advanced in growth the death-rate in general is low. One in each died in the following varieties: Laccadives, Andamans BH, Fiji, Kasaragod irregular, Barisal and Nanminda.

(iv) *Flowering.*—The following statement shows the rate at which the seedling trees are flowering:—

TABLE II.

Date of planting.	Number planted.	Treatment.	Number of flowers.		Remarks.
			1923–24.	1924–25.	
May 1918 .	356†	Manured with fish-guano ashes and lime as detailed in Appendix A.	2*	23	* In the trial plot. † Including 20 in the trial plots.

(v) *Manuring.*—All the manurial experiments started last year and as detailed below were continued:—

TABLE III.

Plot.	Treatment.	Manures.
I	Mineral nitrogen	2 lb. ammonium sulphate per tree.
II	Organic nitrogen	5 lb. fish-guano per tree.
III	Mineral nitrogen plus phosphoric acid (Total P_2O_5 content equal to plot II.)	2 lb. ammonium sulphate plus 2½ lb. superphosphate per tree.
IV	Mineral nitrogen plus potash.	2 lb. ammonium sulphate plus 1 lb. potassium sulphate per tree.
V	Common salt plus ashes ...	2 lb. sodium chloride plus 10 lb. coconut ash per tree (salt applied in 2 doses, May and November 1 lb. each time).
VI	Mineral nitrogen plus ashes ...	2 lb. ammonium sulphate plus 10 lb. coconut ash per tree.
VII	Organic nitrogen plus ashes ...	5 lb. fish-guano plus 10 lb. ashes per tree.
VIII	No manure	
IX	Complete mineral manure ...	1 lb. potassium sulphate plus 2 lb. ammonium sulphate plus 2½ lb. superphosphate per tree
X	Ashes	10 lb. coconut ash per tree.
XI	Cattle manure	100 lb. of cattle manure per tree.

As it is not time yet, no appreciable difference is noticeable among plants under different treatments. Further all the remaining trees were manured with the usual dose of 3 lb. fish-guano and 10 lb. ashes per tree.

(vi) The general condition of trees is on the whole satisfactory. The two-year old seedlings of the Presidency varieties planted one foot deep during the previous year are in very good condition.

4. *Nileshwar No. II Station*—(i) *Planting.*—There was no fresh planting in the year except filling up blanks as below :—

1	in	Block I.
14	do.	VII.
17	do.	VIII.
32		

Seedling trees planted on the surface in 1918 and 1919 in Blocks I to VI have mostly formed stems and there is a prominent bulging of the bole just above surface. They are all leaning to one side in the direction of the wind. They seem to require more anchorage. As a trial, therefore, one row of 11 trees in Block I, 1918 planting, was lowered this year by 2 feet. Their growth was checked but no tree has died

Depth of planting.—In this station also surface planting is compared with one foot deep planting. Pit planted seedlings look slightly better than the others.

(ii) *Early and late germinated* seedlings planted during last year for comparison have not shown any marked difference.

(iii) Cultivation and manuring were given as in Station No. I described above.

(iv) The manuring experiment giving 100 lb. cattle manure per tree started last year was repeated.

(v) The flowering statement is appended.

TABLE IV.

Date of planting.	Number planted.	Treatment.	Number of flowers.		Remarks.
			1923–24.	1924–25.	
May 1918 ...	516	Manured with fish-guano, ash and lime as detailed in Appendix D.	16	145	
June 1919 ...	237		...	18	

(vi) The general condition of the trees in the station continues to be the best of all the three stations and a larger number of trees have flowered, as will be seen from the flowering statement above.

(vii) The study of the green-manure crops was continued and the following varieties were tried in the outskirts : "*Tephrosia* from Cocraft's Estate," *Tephrosia candida, Tephrosia pumpure, Centrosema plumieri* and *Crotalaria striata.* Seeds of these have been collected for further trial.

5. *Nileshwar Station No. III (Sands)*—(i) *Planting.*—No fresh planting was done except filling up four blanks in Block IV.

(ii) *General manuring.*—As the soil is a barren sand, double the dose of manure applied in other stations is given here.

Cattle manure experiment.—The first three rows of Block I was treated with 100 lb. cattle manure per tree.

(iii) Cultural treatments were the same as in other stations. The condition of seedlings is generally good but they have not grown as fast as in the first two stations. Very few trees have formed stems and none has flowered so far though they were planted at the same time.

(iv) *Nursery.*—2,225 seed nuts from selected trees of Nanminda village and 950 from Kasaragod farm were planted in the nursery in addition to the following world varieties and also 145 nuts from Kasaragod from trees of different ages for comparative study :—

Nanminda	2,225
Kasaragod...	950
Bombay	132
Mysore RH 3 .. .. }	6
GH 3 ... ... }	
Philippine 1st set	23
Chowghat dwarf	16
Kasaragod different aged trees	145
Andamans...	36
Cochin-China	40
Philippines 2nd set	24
Siam	23
Java	49
Total ...	3,669

Out of these the following were discarded as they failed to germinate :—

Nanminda	83
Kasaragod...	72
Bombay	123
Chowghat	8
Philippines 1st set	21
Total ...	307

6. *Coconut Station No. IV, Kasaragod.*—(i) *The general condition* of trees continues to be good. There has been beetle attack as usual but attention paid to kill beetles every month during harvest has

greatly reduced the damage. Thirteen young trees planted in 1917 started flowering, as shown in the flowering statement below :—

TABLE V.

Year of planting.	Number planted.	Treatment given.	Number flowered.		Remarks.
			1923-24.	1924-25.	
1917 ...	341	(1) Ploughing and hoeing round.	6	13	(1) Main planting.
1918 ...	156	(2) General manuring at 2½ lb. fish-guano + 3 lb. lime + 10 lb. ashes.	...	...	(2) Under planting.
1919 ...	139		...	...	Do.

The growth of under-plantings has not improved. They remain shaky and are lodging. To prevent this a few of them were lowered last year and they do well now. Encouraged by this all the seedlings of Block I except those of alternate rows in the west-end plot were lowered. The lowered ones had a depression of growth but none have died so far.

(ii) *Yield.*—The harvest was done regularly every month and Table VI shows the monthly outturn of nuts of various blocks and the average yield for the past six years :—

TABLE VI.

Yield statement.

Block No.	Monthly harvests.												Average for the past six years.			Total for 1924–25.	No. of trees harvested, 1924–25.	Average per tree 1924–25.
	April.	May.	June.	July.	August.	September.	October.	November.	December.	January.	February.	March.	No. of trees harvested.	Total yield.	Average per tree harvested.			
I	952	1,370	1,369	691	667	423	501	285	245	310	347	672	133	7,771	58·42	7,832	142	55·15
II	1,212	1,607	1,275	992	677	441	487	345	270	287	532	936	193	7,965	41·26	9,061	181	50·06
III	378	397	224	77	42	58	60	34	19	45	94	257	61	1,502	24·62	1,685	75	22·46
IV	1,100	1,547	773	570	161	335	332	321	284	275	272	675	93	4,833	51·96	6,645	100	66·45
V	463	564	347	227	155	148	122	113	100	41	324	460	75	2,962	39·36	3,064	86	35·50
VI	1,082	1,488	906	583	452	368	246	224	217	161	576	806	121	6,961	57·52	7,109	123	56·79
VII	412	418	324	275	165	187	127	78	60	74	271	401	89	2,789	31·34	2,792	101	27·64
Office compound.	544	466	327	245	183	167	143	119	116	93	322	252	...	...	...	2,977	35	85·06
VIII	1,267	1,660	1,145	932	604	568	418	398	187	240	666	1,008	162	9,143	56·43	9,093	141	64·49
IX	1,087	1,310	765	389	270	324	330	133	141	271	561	874	126	5,569	44·20	6,455	140	46·11
X	423	315	142	91	117	150	118	33	104	109	179	337	34	2,243	65·97	2,118	35	60·51
Total ...	8,920	11,142	7,597	5,072	3,493	3,169	2,884	2,083	1,743	1,906	4,144	6,678	1087	51735	..	58,831	1,159	50·76

The total number of nuts obtained during the year was 58,831 against 61,054 of last year. The decrease in the yield might probably due to the failure of the north-east monsoon of 1923–24 and to the depression of trees on account of the heaviest crop yielded in the preceding year.

(iii) The experiment started in 1918 for the purpose of determining the influence of manure application to adjacent rows of trees gives the following results (vide statement below) :—

TABLE VII.

Particulars.	No. of bearing trees	1918.	1919.		1920.		1921.		1922.		1923.		1924.	
		Nuts.	Nuts.	Percentage of increase.	Nuts.	Percentage of increase.	Nuts.	Percentage of increase.	Nuts.	Percentage of increase.	Nuts	Percentage of increase.	Nuts.	Percentage of increase.
Manured rows ..	6	88	177	101	248	282	285	289	339	385	291	331	317	360
Two adjacent rows	14	256	501	196	497	194	590	230	711	274	582	227	542	212
Two rows, one next adjacent row	13	293	380	129	412	161	565	186	642	219	566	190	436	149

The manurial experiments started in 1922–23 and 1923–24 as detailed below were continued :—

Series I—Blocks IV and VI.

				LB. PER TREE
Block IV.	Plot I.	Nitrogen	= Ammonium sulphate ...	3
		P_2O_5	= Superphosphate	5
		K_2O	= Potassium sulphate ...	1
	„ II.	Nitrogen	= Ammonium sulphate ...	3
		P_2O_5	= Superphosphate	5
	„ III.	No manure.		
Block VI.	Plot IV.	Nitrogen	= Ammonium sulphate ...	3
		P_2O_5	= Superphosphate	5
		K_2O	= Potassium sulphate ...	1
		CaO	= Lime	3
	„ V.	P_2O_5	= Superphosphate	5
		K_2O	= Potassium sulphate ...	1
		CaO	= Lime	3
	Plot VI.	Nitrogen	= Ammonium sulphate ...	3

Series II—Block IX.

Plot I ... 20 lb. coconut ash per tree.
„ II ... 20 lb. ash. and 3 lb. ammonium sulphate per tree.
„ III ... 100 lb. farm yard manure.
„ IV ... No manure.

Series III—Block V.

Plot I ... Fish-guano 10 lb. per tree.
„ II ... Fish-guano 10 lb. and 20 lb. ashes per tree
„ III ... Copra cake (20 lb.) per tree.

Series IV—Block VII.

Plot I ... Salt 5 lb. plus 10 lb. ash per tree.
Plot II ... 10 lb. ash alone per tree.

Series V—Block II.

Plot (1) ... 10 lb. lime per tree plus green manure.
Plot (2) ... 10 lb lime per tree.
Plot (3) ... No manure.

The yields of the middle row of trees under manurial trials were recorded in the statement below :—

TABLE VIII.

Block and plot numbers.	Nature of treatment.	Number of trees in the plot.	Bearing summary.														Remarks.
			1918.		1919.		1920.		1921.		1922.		1923.		1924.		
			Number of nuts.	Average per tree.	Number of nuts.	Average per tree.	Number of nuts.	Average per tree.	Number of nuts.	Average per tree.	Number of nuts.	Average per tree.	Number of nuts.	Average per tree.	Number of trees in the plot.	Number of nuts.	Average per tree.	
Block IV.	*Series I.*																
Plot (1) ...	N + P_2O_5 + K_2O ...	8	115	14	189	24	526	66	500	63	561	70	443	55	10	647	65
„ (2) ...	N + P_2O_5	9	80	10	232	26	489	54	460	51	651	72	480	53	9	746	83
„ (3) ...	No manure	10	290	29	488	49	558	56	578	58	630	63	622	62	10	454	45
Block VI.																	
Plot (4) ...	N + P_2O_5 + K_2O + Cao.	8	401	50	342	43	472	59	454	57	497	62	459	57	10	493	49
„ (5) ...	P_2O_5 + K_2O + Cao.	11	265	24	306	28	654	59	410	37	618	56	559	51	12	550	46
„ (6) ...	Nitrogen (Ammonium sulphate).	11	322	29	527	48	645	59	785	71	601	55	852	77	12	510	43
Block V.																	
Plot (7) ...	N + K_2O	4	60	15	86	22	143	36	124	31	181	45	172	43	5	126	21
Block IX.	*Series II.*																
Plot (1) ...	Ash alone	6	60	10	159	26	184	31	222	37	242	40	228	38	6	119	19
„ (2) ...	Farm yard manure ..	8	181	23	283	35	248	31	293	37	359	45	278	35	8	389	49
„ (3) ...	Ash + Ammonium sulphate.	8	95	12	147	18	171	21	232	29	386	48	261	33	8	294	37
„ (4) ..	No manure	6	165	28	195	33	232	39	319	53	267	45	290	48	6	224	37
Block V.	*Series III.*																
Plot (1) ..	Fish-guano	4	53	13	130	33	73	18	127	32	104	26	141	35	5	105	21
„ (2) ...	Fish-guano + coconut ash.	4	8	2	58	15	120	30	85	21	132	33	126	32	5	87	17
„ (3) ..	Copra cake alone ...	7	60	9	157	22	156	22	193	28	244	35	223	32	9	180	20
Block VII.	*Series IV.*																
Plot (1) ...	Salt + ash	5	46	9	87	17	136	27	184	37	129	26	180	36	8	113	14
„ (2) ..	Coconut ash alone ...	5	19	4	125	25	142	28	146	29	149	30	187	37	6	142	24
Block II.	*Series V.*																
Plot (1) ...	Green manure + lime.	19	108	6	428	23	751	40	892	47	1,022	54	1,254	66	19	812	43
„ (2) ...	Lime alone	11	60	5	167	15	285	26	318	29	458	42	491	45	11	286	26
„ (3) ...	No manure	13	316	24	542	49	534	41	659	51	720	55	668	51	13	326	25

Started in 1922-23.

Started in 1923-24.

It is too early to draw any conclusions. The nuts of the trees of the middle row of manurial plots were stored and milled separately in the iron mills at Kasaragod, and the following statement shows the results of milling :—

TABLE IX.

Series No.	Block No.	Plot No.	Nature of treatment.	Percentage of Copra to 100 nuts.	Oil to copra.	Cake to copra.
I ...	IV	1	$N + P_2O_5 + K_2O$	39·25	61·11	37·07
		2	$N + P_2O_5$	34·48	58·91	35·59
		3	No manure	32·33	62·09	38·47
	VI	4	$N + P_2O_5 + K_2O + CaO$	32·77	61·69	37·84
		5	$P_2O_5 + K_2O + CaO$	34·21	55·20	40·49
		6	Nitrogen	34·50	62·00	34·76
	V	7	$N + K_2O$	36·20	57·25	36·87
II ...	IX	1	Coconut ash	34·72	58·33	37·05
		2	Coconut ash + nitrogen	35·38	60·74	37·85
		3	Farmyard manure	35·21	59·34	35·68
		4	No manure	34·72	59·77	34·64
III ...	V	1	Fish-guano	30·87	54·28	40·12
		2	Fish-guano + ash	37·52	55·05	38·64
		3	Copra cake	33·06	53·06	37·14
IV ...	VII	1	Coconut ash + salt	26·97	55·44	36·27
		2	Ash alone	32·78	56·63	35·29
V ...	II	1	Green manure + lime	36·30	61·64	35·31
		2	Lime alone	34·82	62·68	35·31
		3	No manure	32·72	55·18	43·06

Samples of copra and oil are being analysed by the Government Agricultural Chemist from each of the monthly harvests from each manurial tree and the results will be compared in the next report. The three sets of experiments started in Block III were continued. The results with the economic aspect are given below :—

TABLE X.

	Nature of treatment.	Cost of harvest and cleaning crowns per tree.	Cost of cultivation per tree.	Cost of manure per tree.	Total expenses per tree.	Average value of produce per tree.	Net income per tree.
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1.	10 One head-load of green leaves plus 40 lb. of ash, 5 lb. of fish-guano in pits 4 feet round.	0 2 9	...	0 9 2	0 11 11	2 3 0	1 7 1
2.	7 Digging to a depth of 6 inches and to a radius of 4 feet.	0 2 9	0 0 4	...	0 3 1	0 10 0	0 6 11
3.	7 No treatment	0 2 9	...	...	0 2 9	0 7 0	0 4 3

Comparative results of milling 1/50 nuts of the various harvests are given below.

TABLE XI.

Months.	Number of nuts.	Weight of copra.	Percentage of copra to nuts.	Weight of oil, lb.	Percentage of oil to copra.	Weight of cake, lb.	Percentage of cake to copra.	
March ...	89	31·50	35 39	17·13	54·36	12·75	40·48	The country mill was used.
April ...	171	65·75	38·46	36·75	55 89	27·50	41·82	
May	218	85·25	39·10	44·00	51·61	39·50	46·33	
June . ..	149	50·00	33·56	27·00	54·00	20·75	41·05	
July ...	100	30·00	30 00	14·88	49·58	14·00	46·66	
August ...	69	19·00	27·53	9·69	50·98	9·00	47·38	
September .	68	18·50	29·36	9·69	52·36	7·63	41·10	
October ...	58	17 50	30·17	9·56	54·64	7·63	43 56	
November	42	12·75	30·03	7·38	57·04	5·38	42·15	
December ...	35	11·31	32 32	6·31	55·80	4·81	42·54	
January ...	40	13 25	33 15	7·19	54·25	6·06	45·75	
February ...	83	27·50	33·13	16·50	60·00	10·75	39·10	

The copra was milled in the country mill immediately after harvest. In addition to this the produce of every month was separately stored to determine the wastage of nuts and the percentage of oil, etc., of the preserved nuts. The results are as tabulated below:—

TABLE XII.

Month.	Number of nuts cut.	Barren and spoilt.	Good nuts obtained.	Weight of copra in lb.	Percentage of copra to 100 nuts.	Percentage of Oil to copra.	Percentage of Cake to copra.
March ...	4,127	78	4,049	1,526	37·69	54·50	43·00
April	6,077	128	5,949	2,172	36·51	54·50	41·00
May	7,635	165	7,470	2,890	38·69	52·00	46·50
June	5,539	157	5,382	1,812	33·67	55·25	44·25
July ...	3,968	321	3,647	1,072½	29·41	54·00	46·00
August	2,659	168	2,491	717¾	28·81	55·25	44·00
September ...	2,387	82	2,305	676½	29·36	55·50	42·00
October	2,051	42	2,009	599¼	29·82	54·75	42·25
November	1,370	17	1,553	407	30·16	57·50	41·50
December	867	20	847	255	30·10	57·50	39·50
January	685	14	671	213	31·74	56·50	38·50
February	2,700	8	2,692	904	33·59	52·50	39·50

This indicates that there appears to be a higher percentage of wastage when the nuts are stored for a longer period and that nuts harvested in the rainy months from May to August suffer wastage most. In this case the copra was milled in the iron mill which expressed the oil better. The samples of oil cakes obtained are being analysed by the Government Agricultural Chemist, and the above figures have to be corrected to the same standard of oil content in cakes before any inference can be drawn.

(iv) *Shedding of buttons.*—As a matter of fact a comparatively small number of matured nuts are harvested from any coconut tree irrespective of the fact that the inflorescence contains a very large number of female flowers. The percentage of female flowers to nuts harvested from each bunch has been actually counted and recorded ever since the work on the farm was started. But it is not known at what stage buttons are shed most, and why. To obtain some data of the latter for further investigation, the number of buttons shed every month by 18 marked trees is recorded from 1923. Details are as given in Table XIII

TABLE XIII.

Block No.	Tree No.	1924. May. Female flowers shed.	May. Nuts harvested.	June. Female flowers shed.	June. Nuts harvested.	July. Female flowers shed.	July. Nuts harvested.	August. Female flowers shed.	August. Nuts harvested.	September. Female flowers shed.	September. Nuts harvested.	October. Female flowers shed.	October. Nuts harvested.	November. Female flowers shed.	November. Nuts harvested.	December. Female flowers shed.	December. Nuts harvested.	1925. January. Female flowers shed.	January. Nuts harvested.	February. Female flowers shed.	February. Nuts harvested.	March. Female flowers shed.	March. Nuts harvested.	April. Female flowers shed.	April. Nuts harvested.
I ...	182	...	31	2	46	5	14	9	19	5	...	2	9	2	...	3	...	2	...	1	...	2	...	17	12
II ...	27	22	18	16	18	46	17	18	10	15	8	20	7	10	...	14	9	23	...	4	22	6	20	20	13
	114	24	23	12	24	34	16	29	7	27	...	15	11	29	...	12	8	11	...	8	27	5	10	23	11
III ...	8	46	15	63	22	71	4	34	6	16	1	11	2	10	...	6	...	12	5	8	...	5	7	38	24
	50	9	4	9	6	30	5	12	4	14	...	25	2	9	1	17	2	14	7	8	...	10	14	2	14
	73	...	2	...	1	...	3	...	...	...	...	2	...	...	...	1	...	..	...	..	...	...	...	...	24
IV ...	34	10	50	32	15	16	8	21	6	11	...	10	6	6	5	4	5	3	...	2	8	10	27	36	37
	70	4	39	5	11	5	7	11	...	6	8	2	6	1	7	3	7	1	8	...	9	1	15	...	13
V ...	18	27	11	14	17	10	8	...	...	19	10	9	...	13	7	8	12	1	...	...	18	13	...	36	7
	58	65	4	73	6	108	12	27	...	23	4	16	1	15	8	7	8	10	...	22	28	30	12	47	...
VI ...	19	6	13	7	9	14	2	24	4	7	...	22	4	4	6	4	2	12	3	5	7	13	7	5	..
VII ...	35	21	8	27	6	27	3	26	11	12	1	17	...	14	...	13	..	9	...	20	8	47	8	34	...
	44	13	1	32	15	28	14	34	...	10	6	12	5	10	5	1	...	6	3	1	4	1	8	18	...
IX ...	48	...	4	...	7	...	3	19	...	25	...	11	...	17	...	2	...	2	...	5	10	...	9	...	...
	83	...	10	...	11	2	9	1	...	4	5	4	...	11	...	3	...	3	...	4	...	3	8	29	...
	137	2	20	2	22	11	28	18	13	6	11	7	15	5	.	3	...	2	...	2	...	1	...	8	...
X ...	55	2	14	1	...	9	5	1	...	4	...	12	8	9	...	19	...	3	6	6	6	6	14	10	...
	76	14	28	4	15	22	5	16	...	18	2	23	7	12	...	7	8	8	1	9	4	9	5	28	...

It would be worth while to study whether any manurial or other treatment will reduce the shedding. The trees have been for this reason selected from plots receiving different manurial treatments and situated in different parts of the farm.

(v) *Pollination.*—As recorded in the last year's annual report eight good yielders and three poor yielders were artificially selfed. Out of 958 flowers so pollinated 196 developed into nuts and they are growing. These nuts when fully ripe will be planted out to learn whether the yielding characters are inherent. Further cross pollination work was started with the following 6 trees :—

(1) Tree No. 109 of Block I having green round nuts crossed with 158 of Block I red round nuts.

(2) Tree No. 58 of Block I green round nuts crossed with 146 of Block VIII green long nuts.

(3) Tree No. 138 of Block I long flower stalk crossed with 129 of Block I short flower stalk and *vice versa.* Besides one or two of the bunches of each of the above trees are artificially selfed also. This is done with a view to fix certain desirable characters which must ultimately lead to the breeding of the best type of heavy yielders.

Moisture determination.—Soils were tested by the Government Agricultural Chemist to determine the moisture contents at the different coconut stations. The results so far available were printed in the last year's report They indicate that proper intercultivation goes a good way in preserving moisture during the hot weather. The work is being continued on a more elaborate scale in the following plots :—

(1) Uncultivated and unmanured plot of Block III.
(2) Green-manure plot of Block II.
(3) No manure plot of Block II.
(4) Complete manure plot of Block IV.
(5) No manure plot of Block IV.
(6) Complete manure plot of Block IX.
(7) No manure plot of Block IX.

The moisture contents are being determined in every foot depth of soil from the surface up to six feet by an assistant kindly deputed by the Government Agricultural Chemist.

(vi) *Study of the root system of coconuts.*—Detailed investigations have been carried on tc study the root system of coconuts, and the results are published in the *Madras Year Book* of 1924–25.

(vii) *Diseases and pests.*—Leaf-rot disease was much in evidence in Nos. I and II Stations where it did some damage, while its appearance in Station No. III for the first time this year was checked completely by spraying. Bordeaux mixture 1 per cent strong was used in No. I Station and the spraying was done twice. Trees in Nos. II and III Stations were sprayed with 2 per cent solution. In Station II, one tree each in Blocks III and IV and two in Block V succumbed to the disease.

Beetle attack was more in evidence in Station No. II which is very near the village wherein there are numerous manure and other rubbish heaps for them to breed in. It has also been kept under

control by constant attention. Root disease appeared in Station No. IV and was checked by isolation and heavy manuring with fish-guano, lime and ashes.

(viii) *Subsidiary crops.*—Tapioca and pine apples are grown in all the stations. They are thriving specially well in No. II Station where pine apples were manured with 2 lb. ash, 1 lb. fish-guano and 5 lb. well-dried cattle manure per plant; the plants responded very well to the treatment. There is local demand for tapioca cuttings and roots and for the pine apple suckers from outside.

7. Plans of the first three stations showing the details of planting and expenditure up-to-date per tree are printed as Appendices A, C and D. Appendix B is a plan showing the details of manurial experiments conducted in Pilicode No. I Station. Appendix E is a plan showing the experiments conducted in Blocks VII and VIII of Nileshwar No. II Station.

M. GOVINDA KIDAVU,
Offg. Deputy Director of Agriculture.

APPENDIX A.

Pilicode No. I.

Block G.

Area 4·62 acres. Number of trees. Rows 1 to 11—Presidency varieties 115. Rows 12 to 23—Trial planting 126.

Date of planting.
Rows 1 to 11—21st June to 16th July 1923. Rows 12 to 23—14th June 1923.

Manures applied to each plant.

	1923.	1924.	
Fish-guano	1 lb.	1·5 lb.	
Lime	2 lb.	3 lb.	
Ash	5 lb.	10 lb.	
Cost of cultivation per plant	0 12 3	0 12 3	Presi. variety.
	0 11 6	1 0 1	Trial planting.

Trial plot.

Block C.

Area 2·97 acres. 168 trees.
Date of planting—23rd to 25th May 1918.
Manure applied to each tree.

	1918.	1919.	1920.	1921.	1922.	1923.	1924.
	LB.	LB.	LB.	LB.	LB.	Manurial experiment.	
Fish-guano.	1·5	1·5	1·5	3	3		
Lime ...	...	3	3	...	...		
Ash ...	30 burnt earth.	7	10	10	10		
	RS. A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.
Cost of cultivation ...	1 0 8	11 7	11 6	11 3	13 8	14 5	14 11

Block E.

Area 3·55 acres. 198 trees.
Date of planting—6th to 9th September 1919.
Manure applied to each tree.

	1919.	1920.	1921.	1922.	1923.	1924.
	LB.	LB.	LB.	LB.	LB.	LB.
Fish-guano.	1	1	3	3	3	3
Lime ...	2	2	...	...	...	...
Ash ...	3½	5	10	10	10	10
	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.
Cost of cultivation per tree.	15 7	10 6	11 1	12 1	13 2	11 4

Block H.

53 trees.
Rows 1 to 5—Presidency varities.
Date of planting—18th to 28th July 1923.
(Other details are same as in the Presi. Vy. plot in Block G.)

Damy Dina
N i u D a m u
Rotuma Nut Ringed Nut Damy Dina
M e d i u m D w a r f Med
Marked* Round Long Pointed Long Jongan Green. Dwar
G r e e n
A p r i c o t
I v o r y
G r e e n
Orange
p i n k
B. H. G. H.
B a r i s a l

Non-planted.

Block D.

Area 2·97 acres. 168 trees.
Date of planting—23rd to 25th May 1918.
Manure applied to each tree.

	1918.	1919.	1920.	1921.	1922.	1923.	1924.
	LB.	LB.	LB.	LB.	LB.	Manurial Experiments.	
Fish-guano.	1·5	1·5	1·5	3	3		
Lime ...	...	3	3	...	...		
Ash ...	30 burnt earth.	7	10	10	10		
	RS. A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.
Cost of cultivation ...	1 0 8	11 7	11 2	11 2	12 10	13 10	14 4

Block F.

Area 3·55 acres. 200 plants.
Date of planting—24th and 25th October 1922.
Manure applied to each plant.

	1922.	1923.	1924.
	LB.	LB.	LB.
Fishu-guano ...	1	1	1·5
Lime	2	2	3
Ash	5	5	10
	A. P.	A. P.	A. P.
Cost of cultivation per tree	13 8	10 6	8 7

Row Nos. 6 7 8 9 10 11 12 13 14 15 16 17
Suva Fiji V. Straits Settlements Laccadives Andamans. Bengal.

Planted on 27th June 1924
Manure applied in 1924 F.G. CaO. Ashes 2 lb. 1·5 lb. 7·5 lb.
Cost of cultivation per tree Rs. 1-1-4.

E x t e n s i o n

* Rows 12 to 14—3 ft. deep planting.
,, 15 to 17—2 ft. ,,
,, 18 to 20—1 ft. ,,

Gate.

Rows 21 to 23—Surface planting.

APPENDIX B.

Plan showing the details of manurial experiments at Pilicode No. I.

Block C.

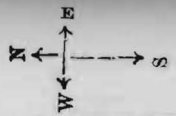
Block G.	1	Unmanured.	
	2	Plot 1.	
	3	Mineral nitrogen.	
	4	(2 lb. of Amm. sulp. per tree).	
	5	Plot 2.	
	6	Organic nitrogen.	
	7	(5 lb. of Fish-guano per tree.)	
	8	Plot 3.	
	9	Mineral N. + P_2O_5.	
	10	(2 lb. of Amm. sulp. + 2½ lb. of Superphosphate per tree.)	
Block H.	11	Plot 4.	**Block E.**
	12	Mineral N. + K_2O.	
	13	(2 lb. of Amm. sulp. + 1 lb. of Pot. sulp. per tree.)	
	14	Plot 5.	
	15	Common salt and ashes.	
	16	2 lb. of common salt + 10 lb. of ashes per tree.	
	17	Plot 11.	
	18	Cattle manure.	
	19	100 lb. of cattle manure per tree.	

Block D. **Block F.**

1	Unmanured.	
2	Plot 6.	
3	Mineral N. + ash.	
4	2 lb. of Amm. sulp. + 10 lb. of ash per tree.	
5	Plot 7.	
6	Organic nitrogen + ash.	
7	5 lb. of Fish-guano + 10 lb. of ashes per tree.	
8	Plot 8.	
9	No manure.	
10		
11	Plot 9.	
12	Complete mineral manure.	
13	1 lb. of Pot. sulp. 2 lb. of Amm. sulp. 2½ lb. of Superphos. } per tree.	
14	Plot 10.	
15	Ashes alone.	
16	10 lb. of ashes per tree.	
17	Plot 11.	
18	Cattle manure.	
19	100 lb. of cattle manure per tree.	

APPENDIX C.

Nileshwar No. II.



Blocks V and VI.

110 plants. Area 2·02 acres. Manures applied to each plant.

	1918.	1919.	1920.
	LB.	LB.	LB.
Fish Guano	1·5	1·5	1·5
Lime	3	3	3
Ashes	30	7	10
Burnt earth			

Cost of cultivation per tree.	A.	P.	A.	P.	A.	P.
V	12	9	8	6	9	4
VI	12	9	8	6	9	3

105 plants. Area 1·94 acres. Manures applied to each plant.

	1921.	1922.	1923.	1924.
	LB.	LB.	LB.	LB.
Fish Guano	3	3	3	3
Lime	...	..	...	...
Ashes	10	10	10	10

Cost of cultivation per tree.	A.	P.	A.	P.	A.	P.
V	8	6	11	1	10	8
VI	8	8	11	0	8	11

Cost of cultivation per tree.	A.	P.
V	9	7
VI	9	9

Blocks I and II.

154 plants. Area 2·86 acres. Date of planting—

	1918.	1919.	1920.
	LB.	LB.	LB.
Fish Guano	1·5	1·5	1·5
Lime	3		3
Ashes	30	7	10
Burnt earth			

Cost of cultivation per tree.	A.	P.	A.	P.	A.	P.
I	12	9	8	6	9	1
II	12	9	8	6	9	7

147 plants. Area 2·74 acres. 18th to 20th May 1918. Manures applied to each plant.

	1921.	1922.	1923.	1924.
	LB.	LB.	LB.	LB.
Fish Guano	3	3	3	3
Lime	...	...	...	...
Ashes	10	10	10	10

Cost of cultivation per tree.	A.	P.	A.	P.	A.	P.
I	8	5	10	6	9	7
II	8	10	10	1	9	5

Cost of cultivation per tree.	A.	P.
I	9	11
II	9	1

Blocks VII and VIII.

110 plants. Area 2·02 acres. Date of planting— Manures applied to

	1922.
	LB.
Fish Guano	1
Lime	2
Ashes	5

Cost of cultivation.	A.	P.
VII	10	11
VIII	10	11

105 plants. Area 1·94 acres. 27th October 1922. Manures applied to each plant.

	1923.	1924.
	LB.	LB.
Fish Guano	1	1·5
Lime	2	3
Ashes	5	10

Cost of cultivation.	A.	P.	A.	P.
VII	10	3	10	10
VIII	10	7	10	0

Blocks III and IV.

132 plants. Area 2·31 acres. Date of planting— Manures applied

	1919	1920.	1921.
	L.B.	LB.	LB.
Fish Guano	1	1	3
Lime	2	2	...
Ashes	3·5	5	10

Cost of cultivation per tree.	A.	P.	A.	P.	A.	P.
III	12	0	7	5	8	4
IV	12	0	8	5	8	9

105 plants. Area 1·94 acres. 1st and 2nd June 1919. Manures applied to each plant.

	1922.	1923.	1924.
	LB.	LB.	LB.
Fish Guano	3	3	3
Lime	...	...	..
Ashes	10	10	10

Cost of cultivation per tree.	A.	P.	A.	P.	A.	P.
III	10	1	9	7	10	10
IV	10	5	9	10	11	9

Green manure plot.

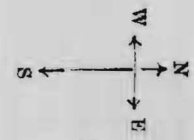
Gate.

Pineapple plot.

Gate.

APPENDIX D.

Nileshwar No. III.



Extension

Block III.

Area 5·00 acres. No. of trees 275.

Date of planting.—4th and 5th June 1919.

Manure applied to each tree.

	1919. LB.	1920. LB.	1921. LB.	1922. LB.	1923. LB.	1924. LB
F. Guano ...	1	1	6	6	6	6
Lime	2	2	...	...	...	...
Ashes	3½	5	20	20	20	20
	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.
Cost of cultivation per tree	7 3	5 7	9 9	14 1	9 3	8 11

Block I.

Area 5·00 acres. No. of trees 275.

Date of planting—30th and 31st May 1918.

Manure applied to each tree.

	1918. LB.	1919. LB.	1920. LB.	1921. LB.	1922. LB.	1923. LB.	1924. LB.
F. Guano ...	2	1½	1½	6	6	6	6
Lime	...	3	3	...	...	...	...
Ashes ...	30B.E.	7	10	20	20	20	20
	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.
Cost of cultivation per tree.	8 5	5 3	6 0	9 5	12 7	8 4	8 4

Block IV.

Area 5·00 acres. No. of trees 275.

Date of planting—25th and 26th October 1922.

Manure applied to each tree.

	1922. LB.	1923. LB.	1924. L.B.
F. Guano	1	1	1½
Lime	2	2	3
Ashes	5	5	10
	A. P.	A. P.	A. P.
Cost of cultivation per tree	6 0	4 6	7 9

Block II.

Area 5·00 acres. No. of trees 275.

Date of planting—1st and 2nd June 1918.

Manure applied to each tree.

	1918. LB.	1919. LB.	1920. LB.	1921. LB.	1922. LB.	1923. LB.	1924. LB.
F. Guano ...	2	1½	1½	6	6	6	6
Lime	...	3	3	...	...	...	...
Ashes ...	30	7	10	20	20	20	20
	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.
Cost of cultivation per tree.	8 5	6 3	6 4	10 7	11 1	8 11	8 11

○ Nursery plots.

Extension

Gate. Footpath. Gate way.

APPENDIX E.

Plan showing the experiments conducted in Blocks VII and VIII of Nileshwar No. II station.

APPENDIX F.

English, Vernacular and Botanical names of crops referred to in the report.

English.	Vernacular.	Botanical.
Paddy.	Wari.	Oryza sativa.
Sugarcane.	Cheruku.	Saccharum officinarum.
Groundnut.	Veru Senaga.	Arachis hypogæa.

An account of the local agriculture in the neighbourhood of the coconut stations of the Kasaragod taluk in the South Kanara district.

These coconut stations were opened in 1916 when it was finally decided by Government that a detailed study of the coconut crop in all its aspects should be undertaken without any more delay on the West Coast where this crop is cultivated on a very large scale and the income derived from the trade in its bye-products is considerable. The South Kanara District was preferred because the scope for development of the crop is greater in the district in having extensive areas quite suitable for the crop and the people being ignorant of the right system of coconut cultivation. After protracted tours and extensive inspection all along the coconut belt, three vacant sites and one garden in bearing were selected for starting investigations about the crop. The following lines appearing in the first report about the stations indicate clearly the reasons for selecting these particular spots :—

" In order to obtain representative soils on which coconuts are generally grown on the West Coast, three separate blocks of land were selected in 1916 and three sub-stations have been started near the village of Nileshwar Sub-station No. I is a laterite soil, i.e., a fairly heavy loam containing laterite sand or gravel. Sub-station No. II is about $1\frac{1}{2}$ miles from the sea-coast and is a well-drained red sandy loam of great depth. Sub-station No. III is about three-fourths of a mile from the sea-coast and is a coarse sandy loam such as being continually formed along the littoral. This station though of marine sand is now actually separated from the coast by land depressions some of which form water courses during rains and others of which have been converted into paddy soils. These sub-stations were all vacant land when acquired and are now being planted up. No. IV Sub-station which is situated in the village of 'Kudlu' some $2\frac{1}{4}$ miles north of Kasaragod and which consists of existing gardens was acquired for preliminary investigation and experiment. This is some 25 acres in extent and consists of gardens from 20 to 40 years old. This Sub-station is about half a mile from the sea being separated from it by a shallow tidal back-water. The soil is a deep well-drained red sandy loam very similar to that of Sub-station No. II. All these four stations lie between latitudes 13° and 12°."

2. *Local agriculture*—(i) *Rainfall.*—At Nileshwar the average rainfall is about 140 inches and at Kasaragod it is about 10 inches less. The major portion of this is received during the south-west monsoon period, i. e., from June to September. Very little rain is received during the north-east monsoon as compared to the south-west, the usual fall being about 10 inches.

(ii) *Crops.*—Paddy is cultivated all round the four stations, and the system of cultivation is more or less similar.

Nileshwar.—The soil is mostly sandy and of very poor quality. Single crop is the common rule but in low-lying lands two crops are also taken. A third crop also is sometimes taken in lands which can be irrigated from wells or small ponds near by. The first crop "Viripu" is broad-casted dry, but the second crop "Punja" is usually sown in puddle after sprouting the seeds. The third crop "Kolaka" is also sown in the same way as the second. The cultivation is generally of a very low order. The land is kept ploughed in summer and the clods are crushed and a fairly good tilth is produced. Seeds are sown broad-cast in the latter half of April. Some ashes are sprinkled just before sowing. To facilitate weeding which consumes a large amount of labour, the seeds are sometimes sown in the plough furrows either in lumps or in singles the soil of the succeeding furrow covering the preceding one. The space between the lines is sometimes filled up with plants from the well-grown portions. The second crop is manured with cattle dung and leaves and sown about a month after the harvest of the first crop. The third crop is sown in January and harvested in April. Along the back-water and in very low-lying swamps a long duration variety "Kuttanadan" is sown in March and harvested in December-January. Transplanting is also practised in these tracts for the first crop in very limited areas where the soil is heavier. In the majority of cases manuring and ploughing are done only in name.

Kasaragod.—The cropping is almost similar to that of Nileshwar. There is a very large area of double cropped lands towards the south and east of sub-station No. IV where the soil is a fairly heavy loam and consequently transplanting is resorted to for the first crop. The nurseries are sown in April and May and transplanting is done in June. The treatment of the second crop is similar to that in the Nileshwar tract. The third crop is grown along the banks of streams running through these lands. These streams are bunded and the water stored for irrigating the third crop.

Unlike in the Nileshwar tract the paddy cultivation here is of a fairly high order. The lands are in most cases very well manured with the manure taken from the loose-box sheds which are very common in these parts and which are almost unknown round about Nileshwar. Consequently the average yield is higher. On the single crop lands broadcasting in the dry, is the rule here as well. The paddy crop is invariably followed by a pulse crop which in its turn is succeeded by gingelly if the season is favourable.

(iii) *Coconuts.*—In this tract there is a long belt of coconuts, but the care and attention bestowed on the gardens is miserably poor. Seeds nuts are taken in the months of Februray and March from trees set apart for the purpose. These are generally seen near the houses and receive all the sweepings and washings and consequently grow very well. Some of these trees are very heavy bearers. Nuts are allowed to ripen on the tree and are removed when the husk turns slightly brown. These nuts are taken and kept on a platform above the fire place for a couple of weeks and are then removed to a well or a pond where they remain for nearly a month. They are finally taken out and placed in the nursery in the month of April.

The nuts begin to germinate sometimes even within a week due to the good soaking which the husk has received. The seedlings are planted out in Chingan (September) Vinayaka Chathurthi day round about Kasaragod and in Thulam (November) the New Moon day round about Nileshwar. In the red sandy loams which are on a higher level than the adjoining paddy lands the seedlings are planted in pits three feet by three feet long and one foot broad the length is usually east to west. Such pits are made to protect the seedlings from the scorching effects of the so-called Southern Sun when the Sun is nearest the equator during the months of January, February and March. On the hills the pits are dug still deeper, even five feet, being not uncommon sometimes, whereas, in low-lying lands shallow pits are more common. On lands liable to floods or in water-logged places seedlings are generally planted on the surface or on small bunds and the intervening space is gradually filled up by transporting soil every year. The level of the land is also raised in course of time. As regards the distance from plant to plant we find more space between the plants in older plantations on the laterite gravels and in red sandy loams. Even here the gardens which are planted during the last few years are very thickly planted. In the low-lying paddy fields and along the banks of rivers very close planting seems to be the rule. The plants are watered for the first two or three years after planting and even old trees are watered towards the north of Kasaragod though the practice cannot be said to be general to the south of Nileshwar. Very little or generally no care is taken about the plants after they are about four or five years old except the pluckings of nuts when they are ripe or the tapping for toddy when the spathes come out. There is considerable variation as to the age at which seedlings begin to bear. On the sea-coast and river banks well-manured trees begin to yield in the fourth year but even there very many trees do not flower even after ten or twelve years.

The safest guide in determining this factor seems to be the farm itself, where, in the red sandy loam a few trees have flowered exactly four years and eight months after planting and in the next year the flowering was more or less general, so that we can safely put the age of flowering at six years after planting, if the plots are manured and cultivated well. As regards the yielding capacity also the same difficulty is experienced in arriving at correct figures. Here again the farm records are a better guide. The trees in the Kasaragod farm were yielding less than 30 nuts per tree on the average when they were acquried, i.e., when absolutely no care was being bestowed on them. This average has now actually doubled itself in the course of four or five years after the Government took it over. There are many trees yielding more than double the present average.

Above all the most harmful practice is planting foreign trees in the coconut topes, to quote an instance, from the Kasaragod farm of 25 acres 175 such trees had to be up-rooted soon after acquisition.

(iv) *Tobacco.*—This is another important crop grown along the sea-coast from Nileshwar northwards. The major portion of the crop is grown in the low-lying lands lying on both sides of the railway line. It is also grown very extensively in the course sand close to the sea. The first crop in these lands is invariably paddy. After the harvest of paddy in October the land is ploughed and the stubles are removed. Shallow trenches are opened about 3 to $3\frac{1}{2}$ feet apart and these are filled with manure taken from the loose-box sheds and the seedlings are planted in November. They are generally 40 to 45 days old. Fish well-rotted, alone or mixed with the loose-box manure is also applied. Three or four times after planting with an interval of 10 or 15 days between each application.

The plants are copiously watered generally in the mornings. If the seedlings are on the sands they will have to be watered more than once in a day. The plants are topped when they have put forth about 12 to 15 or even sometimes 20 leaves. Suckering is also done whenever new suckers shoot forth from the axils. The crop is cut and cured in January—February and is used both for chewing and for the manufacture of snuff. Leaves from plants grown on the high-lying coarse sand are preferred for the latter to those from the low-lying lands near the railway line.

(*v*) *Bananas.*—There are grown on an extensive scale round about Nileshwar in the single crop wet lands. Suckers, preferably those just below the bunch, are planted in pits about one foot to one and half feet deep, 6 to 8 feet apart in the month of September. Some ashes are applied at the time of planting and subsequently they are manured with green leaves three or four times before they flower. These are regularly watered and hoed at intervals. The suckers which spring up round the plant are removed till the time of flowering after which two or three suckers are left for the succeeding crop. The crop flowers in about nine months and the bunches can be cut in about three months more. Most of the bunches grown in these parts are exported to Mangalore.

(*vi*) *Minor crops.*—Cucumbers are grown extensively in single crop wet lands all over the tract. There are two seasons, the first is from October to January and the other from January to April. The second or summer crop has better keeping qualities. Water-melons are also grown in large numbers near Kasaragod. Chillies and all kinds of vegetables can be seen growing at odd corners in paddy lands throughout the year round about Kasaragod.

3 It is too early to record any improvement in the coconut cultivation of the locality. But even during these few years experiments conducted at Kasaragod and Nileshwar have proved quite conculsively that various improvements can be effected in the local methods of cultivation. Some of these are (*i*) coconuts have been grown quite successfully without watering the plants even in the young stages if the land is properly cultivated; the plants well manured, and the surface soil kept always loose to prevent the loss of soil moisture by evaporation. (*ii*) The yields have been appreciably increased by regular cultivation alone without any manuring and much more so with manuring. (*iii*) Seedlings are supplied from the farm every year. These are grown from nuts gathered from selected trees, trees which have been found to bear well consistently for the last many years, and every year the demand for the farm seedlings is increasing.

The officers stationed at these farms and the district officers are trying to introduce improvements in the cultivation of other crops also and their services and advice are always at the disposal of the local agriculturists.