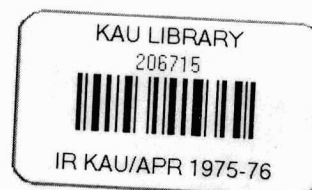


DR. L. 260

206715

Annual Report Of The Associate Professor In Charge
Of The Sub Centre At Mannuthy(Kerala) under
The All India Co-Ordinated Spices And
Cashewnut Improvement Project
For The Year 1975-1976.



KERALA AGRICULTURAL UNIVERSITY.
MANNUTHY-680651
TRICHUR.

206715



KAU/APR 1975-76

ANNUAL REPORT OF THE ASSOCIATE PROFESSOR IN CHARGE OF
THE SUB CENTRE AT MANNUTHY (KERALA) UNDER THE ALL
INDIA CO-ORDINATED SPICES AND CASHEWNUT IMPROVEMENT
PROJECT FOR THE YEAR 1975-76

:::

1. Report Period : From 1st July 1975 to
30th June 1976
2. Project Code No. : 176
3. Report No. : 5
4. Location:-

The Project was originally started at the Cashew Research Station, Anakkayam in Malappuram Dist. on 18.2.1972 and continued to function there till 30.4.1973. Since there was not enough area at Anakkayam for laying out all the field trials under the project, the headquarters of the project was subsequently shifted to the Vellanikkara Campus of the Kerala Agricultural University with effect from 1.5.1973.

5. Project Title: : All India Co-ordinated Spices
and Cashewnut Improvement
Project.

6. Objectives:-

One of the major objectives of the Scheme is to bring about overall increase in production of Cashewnut in the state by evolving high-yielding varieties and to work out the optimum manurial and cultural schedules to increase the yield in existing gardens. The scheme also aims to standardise suitable vegetative propagation methods in Cashew for quick multiplication of types

identified as high-yielding and also to recommend suitable remedial measures for the control of major pests and diseases attacking the crop.

The project envisages the collection and maintenance of germ-plasm for Cashew consisting of both indigenous and exotic types for utilisation in the breeding programmes.

7. Present staff Position:

Name of sanctioned Post	Names of Personnel	Date of joining	Recruitment position of Vacant posts.
(1)	(2)	(3)	(4)
1. Agronomist (Hort)/ Assoc. Professor	V.K.Damodaran	1.6.72 to 18.9.75	No post is vacant.
	K.K.Vidyadharan	19-9-75	
2. Senior Research Asst/ Junior Instructor	V.K.Mallika	8-4-75	
3. Jr. Technical Asst/Agricultural Demonstrator	V.M.Mathew	7-7-74	

8. Total sanctioned grant for the Centre

Year	Recurring	Non-recurring
upto		
1973-74	1,01,598	20,000
1974-75	48,420	20,000

Year	Recurring	Non-recurring
1975-76	49,892	17,000
1976-77	51,364	20,000
1977-78	52,836	--
1978-79	54,308	--

9) Total Amount Spent

Year	Recurring	Non-recurring
upto 1973-74	61,384.47	1,700.00
1974-75	51,320.05	NIL
1975-76	48,857.93	NIL

10) Approved Technical Programme:-

a) For the Whole Period:-

The following items of work have been included in the technical programme for the whole period.

- i) Collection of germ-plasm and breeding.
- ii) Studies on vegetative propagation with emphasis on standardisation of technique for air-layering and budding.
- iii) Nutritional studies.
- iv) Physiological and Plant Growth regulator studies with emphasis on securing increased fruit set and minimising post set drop.
- v) Investigations on Agro-techniques such as spacing, inter-cropping etc.

- vi) Research on Plant Protection with emphasis on "Flower Scorch", "Die back" etc:
 - vii) Technological research on extraction of Vitamin C quality studies on shell oil, processing etc: (At Vittal and Bapatla Centres only)
- b) Programme for 1975-76 as approved in the last workshop meeting.
- i) Germ-plasm collection and description of types of collected.
 - ii) Standardisation of seedling selection (Vittal Vridhachalam and Bapatla)
 - iii) Comparative yield trial with existing high-yielders.
 - iv) Hybridization and selection.
 - v) Propagation trial
 - vi) Studies on nutrient removal by the crop (Vittal and Bapatla)
 - vii) NPK fertilizer experiment.
 - viii) Pruning trial (Vridhachalam and Vittal)
 - ix) Hormonal application to increase fruit-set in Cashew.

11. Results:

Seasonal Conditions-

The rainfall received during the year under report was highly erratic. Heavy showers were received during September October and November 1975. From December to March there was no rainfall. During this long dry spell, the Vegetative propagation trial was suspended due to

very limited success. However budding was continued. The flowering, in general, started late due to late showers received during October and November. The dry period from December to March had naturally very adverse effect on the growth of cashew. During April May and June the rainfall received was again very limited and below normal. Stray flowering was observed during July. When there was continued dry periods. The rainfall data are presented in Appendix-I.

Work done during the year:

The progress achieved under the various trials, during the year, are briefly given below:

Experiment-1. Germplasm Collection and description of types and varieties.

A good germplasm collection is being maintained at the Cashew Research Station, Anakkayam. There are 46 clonal types and 42 seedling types in this collection. This includes indigenous types collected from the Cashew-growing tracts of the state and also from the Cashew Research Stations at Uljal, Vengurla and Bapattia. A few exotic types from Brazil, Tanzania, Malayasia, Nigeria and Tanganyika are also there in the collection. The yield data and other ancillary characters of these types were recorded. Among the types maintained, the highest yield was recorded by one seedling type, BLA-139-1 (43.084 Kg) followed by BLA-273-1 (19.050 Kg) also another seedling type. Among the clonal types the highest yield was obtained for NDR-2-1 (17.500 Kg) followed by K-19-1 (15.965 Kg). In the trials, s,

H.3-17 gave the maximum yield of 15.425 Kg. followed by H-3-12 (13.99 Kg) Both these trees are the F1 Progenies of a cross between Tree No.30 of Kottarakkara Station (A Mangalore type) and Brazil.18. The yield data of promising types which yielded above 10 Kg. nuts during 1975-76 are given below:

TABLE-1

Type No.	Year of Planting	Yield in 1975-76 Kg	Mean yield for last 5 Yrs. (Kg)	Highest yield recorded so far	Remarks
1	2	3	4	5	6
1)K-3-1	1963	12.935	6.828	12.935	Clonal progeny
2)K-4-1	"	13.135	6.535	13.135	"
3)K-11-1	"	13.325	10.693	13.325	"
4)K-16-1	"	12.800	9.229	12.800	"
5)K-22-1	"	11.675	11.819	16.350	"
6)K-22-2	"	10.502	7.322	10.052	"
7)K-25-2	"	14.290	11.005	14.290	"
8)K-27-1	"	11.645	9.485	11.645	"
9)K-28-2	"	11.980	11.069	13.510	"
10)K-1-2	"64	11.930	10.099	13.876	"
11)K-10-1	"	11.730	8.365	14.820	"
12)K-10-2	"	14.470	9.821	14.470	"
13)K-12-1	"	11.870	7.069	11.870	"
14)K-19-1	"	15.965	11.256	15.965	"
15)K-28-1	"	11.910	8.004	11.910	"
16)NDR-2-1	"	11.330	12.692	15.630	"
17)BRZ-17-2	'65	10.135	8.830	10.135	"
18)BRZ-10-2	'65	11.520	9.990	12.160	"
19)UL-27-1	"	14.473	15.312	19.939	"
20)NDR-2-1	1966	17.590	14.278	18.615	"

1.	2.	3.	4.	5.	6.
21) LGD-1-1	1967	13.820	8.641	13.820	Colonial Progeny
22) CHKD-1-1	..	10.525	7.397	10.560	..
23) BR -11-2	..	10.465	6.331	10.465	..
24) BLA-256-1	1963	11.065	9.531	14.498	Seedling Progeny
25) BLA-256-4	..	11.355	6.766	11.355	..
26) BLA-139-1	..	43.084	17.853	43.084	..
27) BLA-139-4	..	10.030	5.518	10.030	..
28) BLA-121-4	..	12.312	6.959	12.312	..
29) BLA-176-1	..	16.205	7.064	16.255	..
30) BLA-39-4	..	16.853	12.651	18.410	..
31) BLA-273-1	..	19.053	16.187	20.523	..
32) UL-15-1	1964	10.935	7.856	10.935	..
33) H-3-9		10.604	7.613	10.604	..
34) H-3-12		13.990	9.071	13.990	Hybrid progeny of a cross be- tween T.30X Bra- zil 18
35) H-3-13		11.385	7.446	11.495	..
36) H-3-17		15.425	14.33	15.800	..
37) H-4-7		13.725	9.116	13.725	Hybrid progeny from a cross between T. No. 30 and Bra- zil 18.

The Yield of individual trees of the germplasm collection obtained during 1975-76 along with their performance during last five years are furnished in appendix II.

An extensive survey and screening of the Government Cashew Plantation at Kesragod was conducted by visiting plantations at Muliyar, Adhur, Periya and private gardens at Nileswar and Panniyur to select promising types for the germplasm collection for the Mannuthy Centre. As a result of this Survey 69 types were collected during March 1976. The number of types collected from each centre are given below:

Muliyar	-	29	Types
Adhur	-	26	"
Periya	-	9	"
Nileswar	-	4	"
Panniyur	-	1	"

69 These types have been raised in the
----- nursery.

Experiment No:2 Standardisation of seedling selection in cashew:-

This item of work is not included in the Technical programme of this station.

Experiment No.3 Comparative yield trial with existing high-yielders.

In this trial seedlings of 16 types selected from four Cashew Research Stations of Bapatla Vengurla, Vridhachalam and Anakayam based on yield performance, have been included for comparison. The following are the types included in the study.

- | | | |
|--------------|---|------------------------------------|
| 1) H-4-7 | } | Cashew Research Station, Anakayam. |
| 2) K-10-2 | | |
| 3) BLA-256-1 | | |
| 4) BLA-139-1 | | |
| 5) K-27-2 | | |

- | | | |
|----------------|---|--|
| 6) T.No. 1 | } | Cashew Research Station, Bapatla |
| 7) T.No.40 | | |
| 8) T.No.56 | | |
| 9) T.No.273 | | |
| 10) M-10/4 | } | Cashew Research Station,
Vridhachalam |
| 11) M- 6/1 | | |
| 12) M-76/1 | | |
| 13) Sawantwadi | } | Cashew Research Station,
Vengurla |
| 14) Ansur - 1 | | |
| 15) Veng.36-3 | | |
| 16) Veng.37-3 | | |

Design : R.B.D
Treatments : 16
No. of plants/
Plot : 9
Replications 3
Spacing : 8 x 8 meters
Date of
Planting : September 1973

The height, girth spread and number of branches of all these trees were recorded. The number of nuts harvested, the yield in grams recorded from individual trees, treatment wise and the shel ing percentage etc: are given in Appendix III. The maximum yield of 1.650 Kg. raw nuts was collected from tree No.1213 which is a selection from Vridhachalam. This was the third year of orchard life of these trees. The mean yield and other ancillary data of these 16 types are presented in Table II given below:

TABLE-II

Serial Number.	Name of the type	Number of trees flowered out of 27.	No. of trees yielded out of 27	Mean yield per tree		Maximum yield obtained from a single tree (gm)	Mean Wt. of a single nut (Gram)	Mean Shelling percentage.
				No. of Nuts.	Wt. of nuts in grams.			
1	ANSUR - 1	19	8	24	115	515	4.6	25.5
2	VENGURLA-36-3	23	17	50	344	627	4.8	27.8
3	SAWANTWADI	24	19	35	156	692	4.4	29.7
4	VENGURLA-37-3	25	21	32	149	437	4.6	28.3
5	E1 - BLA	20	12	12	70	272	5.8	31.0
6	T40- BLA	24	16	24	110	393	4.6	28.4
7	T56- BLA	19	14	33	184	839	5.6	29.0
8	T.273-BLA	17	5	8	43	127	5.1	20.0
9	M/10-4	26	16	24	124	283	5.2	31.0
10	M/6-1	22	13	91	474	1650	5.2	28.1
11	K-27-1	18	14	55	293	1170	4.5	29.2
12	M-76-1	23	16	48	226	945	4.7	29.1
13	H-4-7	23	19	22	118	990	5.3	28.3
14	K-10-2	22	17	45	282	1607	6.3	29.2
15	BLA-139-1	22	11	17	92	659	5.4	29.0
16	BLA-256-1	23	12	17	74	175	4.3	27.7

Among the 16 types studied, Vengurla-37-3 had the maximum number of yielding trees ie.21 out of 27 trees, while T-273 of BLA had the least number of yielding trees ie. only five trees out of 27 Ncs. Sex ratio of all these sixteen types was studied by selecting one tree from each replication. Four panicles

from four sides of the trees were selected and daily counts of male and perfect flowers were recorded. The study showed that among the 16 types compared Vengurla-37-3 had the highest percentage of perfect flowers ie (37.29), followed by K-27-1 (33.15). The type K-10-2 of Anakkayam had the lowest percentage of Sex ratio (1.78). The data are presented in Appendix-IV.

Another comparative yield trial, using the 16 best yielders of the Cashew Research Station, Anakkayam, based on the yield performance for five years, was laid out at Anakkayam during August 75. In this trial, only clonal progenies have been used. In order to test the performance of these varieties in more than one location, a similar trial has been laid out at the Mannuthy Campus on 18-7-1975 using clonal progenies. The details of the trial are given below:

Design	:	R.B.D
Treatments	:	Sixteen
Replications		Three
No.of plants/ treatment		Four
spacing		7.5 x 7.5 metres
Date of planting		18-7-75.

Treatments (16)

- 1) K-19-1
- 2) K-22-1
- 3) UL-28-1
- 4) K-18-2

- 5) K-28-2
- 6) K-25-2
- 7) K-16-1
- 8) NDR-2-1
- 9) BLA-273-1
- 10) K-10-2
- 11) BLA-39-4
- 12) BLA-139-1
- 13) H-4-7
- 14) H-3-17
- 15) H-3-13
- 16) Local

A count taken during March 1976 showed that there is only 50% survival of the layers planted. The gaps will be filled up during this season when fresh layers will be brought from Anakkayam.

Experiment 4. Hybridization and Selection

The hybridization work in Cashew was started in 1963 at the Cashew Research Station, Anakkayam. Crosses were effected mainly with the object of increasing nut size, and overall yield performance with short-flowering phase. The selections were made from the F₁ progenies. The yield data of the hybrid progenies show that H-3-17 has maintained its lead over other progenies, in respect of yield during 1975-76, followed by H-3-12 and H-4-17.

The following fresh crosses were made during 1975-76 at Mannathy.

<u>Female Parent</u>		<u>Male Parent</u>	<u>No. of F1 seeds harvested</u>
1) T.20 No.112	x	M.76-1	6 Nos.
2) "	x	M.10-4	1
3) "	x	K-10-2	2
4) "	x	Veng.37-3	4
5) "	x	T.151 of T.20	3
6) "	x	H-4-7	10
7) T.20 No.103	x	T17 of T.20	1
8) "	x	409 of T.20	2
9) "	x	151 of T.20	1
10) "	x	Vengurla -37-3	3
11) T.20 No.62	x	112 of T.20	3
12) "	x	K-10-2	7
13) "	x	T.56-BLA	5
14) T.20 No.151	x	409 of T.20	3
15) "	x	H-4-7	1
16) T.20 No.409	x	BLA-139-1	1
17) "	x	M-6-1	3
18) T.20 No.112	x	T40 BLA	5
19) T.20 No.60	x	Vengurla 63-3	4

seeds

The F1/ have already been raised in the nursery and some of them have failed to germinate. The F1 progenies will be planted during this season.

Experiment.5

Propagation studies.

To standardise the technique for budding, Veneer-grafting and side-grafting in Cashew, monthly trials were conducted during the year 1975-76. In general, the

percentage of success was found to be higher during the monsoon periods both for Veneer-grafting and side-grafting. The percentage of success was much less in the case of budding. Precuring the twings, one week before was found to be beneficial than selecting fresh twigs. The results are presented in table 3 given below:-

TABLE III

	<u>Month</u>	<u>No.of grafted</u>	<u>No.sprouted</u>	<u>% of success</u>
Side grafting	July 75	50	40	80
Veneer grafting	"	50	41	82
Budding	"	50	6	12
Side-grafting	Aug. 75	50	44	88
Veneer-grafting	"	50	32	64
Budding	"	50	13	26
Side-grafting	Sept.75	50	32	64
Veneer-grafting	"	50	44	88
Budding	"	50	13	26
Side-grafting	Oct. 75	50	28	56
Veneer-grafting	"	50	11	22
Budding	"	50	18	36
Side grafting	Nov. 75	50	10	20
Veneer-grafting	"	50	nil	nil
Budding	"	50	5	10
Side-grafting	Dec. 75	50	2	4
Veneer grafting	"	50	nil	nil
Budding	"	50	8	16
Side-grafting	June 76	50	2	4
Veneer-grafting	"	50	1	2
Budding	"	50	20	40

During the period from January to May no side-grafting and Veneer-grafting were done due to the dry weather prevailed. Even during the month of June the percentage of success was very poor in the case of both Veneer and side-grafting due to the dry weather conditions. However, budding was found to be successful to some extent during summer months as shown in the table given below:

<u>Month</u>	<u>No. of plants budded.</u>	<u>No. sprouted</u>	<u>Percentage established</u>
February 76	50	14	28
March 76	50	8	16
April 76	50	10	20
May 76	50	11	22

Experiment.6 Studies on nutrient removal

This experiment is not included in the programme of work of this Station.

Experiment.7 N.P.K. Trial on Cashew.

This trial was laid out at Mamathy, during October, 1973 using the seedlings of a single tree of the Cashew Research Station, Anakkayam. In this experiment three levels of Nitrogen, Phosphoric acid and Potash are tried in a confounded factorial design.

Design	:	3 ³ confounded factorial
Treatments	:	27 Nos.
Spacing	:	8x8 metres. with border rows for each treatment.
No. of trees/treatment:	:	9
No. of Replications	:	2
Seedlings used	:	T20
Date of Planting	:	30-10-1973.

At present the trees in this trial are given a uniform doze of fertilizers until the trees start bearing. This is according to a decision taken in a previous workshop meeting. During the first four years, a uniform doze of fertilizers will be applied. The differential doze of fertilizers is to be applied from the 5th year onwards. The fertilizers are now applied in two split dozes, one during June-July and the other during August-September. The trees were protected from tea-mosquitos by spraying endosulfan. Some of the trees have already started bearing and the yield from individual trees has been recorded. Growth measurements such as girth, height, spread and the number of branches of all the trees have also been recorded once in every year.

Experiment No.8 Pruning trial.

This experiment is not included in the technical programme of this centre.

Experiment 22. Application of hormones to increase Fruit-set.

This trial was continued for the th rd year in succession, using three plant hormones in diflerent concentrations. The object of the study was to examine whether aqueo's sprays of plant regulators on panicles can increase the fruit-set in Cashew by controlling the premature fruit-fall. The following plant-regulators were used in the trial.

- (1) Indol Acetic Acid 50 p.p.m.
- (2) Naphthalene Acetic Acid 10 p.p.m.
- (3) ,, ,, 20 p.p.m.
- (4) 2,4-D 5 p.p.m
- (5) ,, 10 p.p.m
- (6) Water spray
- (7) No.spray

Aqueous solutions of the above chemicals were sprayed on the whole trees, when the trees were in full bloom and the nuts were just started setting. There were two trees under each treatment with three replications. The spray was repeated 15 days after the first spray. Twentyfive panicles were tagged at random on four sides of each tree immediately after the first spray. The visible number of nuts already set on each panicle at the time of the first spray, the number of nuts set subsequently the no. of nuts dropped and the final number of nuts harvested from each panicle are recorded. The data are presented in table IV given below:

TABLE IV

Treat- ment No.	Treatment	Mean No. of fruits set	Mean No. of fruits dropped	Mean No. of Nuts harvest- ed	of harvest- ed nuts to total set.
1	IA.A.50 ppm	255.6	186.3	69.3	27.17
2	NAA. 10 ppm	151.0	116.3	34.6	22.91
3	N.A. 20 ppm	185.3	119.3	66.0	28.04
4	2,4-D 5 ppm	183.6	137.3	46.3	25.21
5	2,4-D 10ppm	167.3	112.0	55.3	33.04
6	Water spray	231.3	149.3	82.0	35.45
7	Control(No spray)	244.3	147.3	67.0	31.20
	<u>CD at 5%</u>	<u>Not sig- nificant</u>	<u>Not sig- nificant</u>	<u>Not-sig- nificant</u>	

There was no significant yield difference among the treatments. However, the maximum percentage of nuts harvested was from trees received water sprays. This trial was first started during 1973-74. During 1973-74 significant yield increase was recorded in treatments receiving Indol Acetic Acid (50 ppm) and Naphthalene acetic acid (10 p.p.m). However when the trial was repeated during 1974-75 and during 1975-76 no significant yield difference was noticed. Another trial using still higher concentrations of the same growth regulators was conducted at Mamuthy. In this case only selected panicles were sprayed instead of the whole tree. Further all the 12 treatments were tried in different panicles of the same tree. In all, there were 12 treatments and six replications.

Treatments:

- | | |
|--------------------|-------------------------|
| 1) N.A.A 10 p.p.m | (2) N.A.A. 20 p.p.m. |
| 3) N.A.A 30 p.p.m | (4) N.A.A. 40 p.p.m. |
| 5) I.A.A 50 p.p.m | (6) I.A.A.100 p.p.m. |
| 7) I.A.A 150 p.p.m | (8) 2,4-D. 5 p.p.m. |
| 9) 2,4-D 10 p.p.m | (10) 2,4-D. 15 p.p.m. |
| 11) Water spray | (12) No spray (control) |

The study showed that the difference in setting percentage was mainly due to variation between trees. There was scorching effect when higher concentrations were tried especially in I.A.A.150 p.p.m. The results are given in Appendix V.

12. Technical Summary:

Besides maintaining the already existing collection of germplasm at the Cashew Research Station, Anakkayam, 69 new types were added by conducting extensive survey of the Cashew growing tracts of Cannanore District including the Government plantations at Kasragod. Among the types maintained at Anakkayam an indigenous seedling selection from Bapatla (BLA-139-1) continued to give the highest yield of 43^{kg} nuts. followed by another Bapatla type BLA-273-1 (19 Kg).

Among the clonal types NDR-2-1 recorded the highest yield (17.59 Kg) followed by a Kottarakkara type, K-19-1 (15.96). In the case of hybrid progenies, H-3-17 (15.42) Kg. and H-3-12 (13.99Kg) were the top yielders of the year. Both these plants are selections from a cross between Tree No.30 of Kottarakkara and Brazil-18.

The trees in the comparative yield trial planted in September 1973 using seedlings of 16 promising types selected from four Research Stations of Anakkayam, Vridhachalam Vengurla and Bapatla have started bearing. Yield data of these trees were recorded and their seedling percentage worked out. The growth measurements of all these trees were also recorded. The type T₁-BLA and M/10-4 recorded the highest shelling percentage viz. 51%. Among the 16 types compared, Vengurla-37-3 had the maximum number of bearing trees 16.21 out of 27 trees while the lowest number of bearing trees were found in BLA-273 with only 5 trees, out of 27 Nos. The maximum yield was recorded by a Vridhachalam type M/6-1. The study of the

16

sex-ratio of these/types showed that Vengurla-37-3 had the highest percentage of perfect flowers (37.29) followed by K-27-1 (33-15). It varied from 1.78 in the case of K-10-2 (a Kottarakkara type) to 37.29 in the case of Vengurla 37-3 (a Maharashtra type).

In the case of Comparative yield Trial No.2, planted in July 1975 using clonal progenies of 16 best yielders of Anakayam Station, more than 50% of the plants had failed to establish. Action has been taken to fill up the gaps with fresh layers.

Amongst the several sets of crosses made at Anakayam from 1963 onwards, the hybrid H-3-17 (T.30 Kottarakkara x Brazil 18) has maintained its superiority in yield over other cross progenies during the period under report. This was followed by H-3-12 and H-4-7. Fresh hybridization programme was also taken up at Mannuthy centre during February 1976 and 19 sets of crosses were made during 1975-76. The F_1 seeds from these crosses have been raised in the nursery.

In the Vegetative propagation trial conducted to standardise the technique, monthly trials were done from May 1975 onwards to December 1975. In the summer months, only budding was continued. The percentage of establishment was more in the case of side-grafting and Veneer-grafting during monsoon periods. In the case of budding the establishment was comparatively lower. A good number of trees in the N.P.K trial planted during October 1973 had started bearing. The growth measurements of all the trees coming under N.P.K trial were



-:21:-

recorded along with individual tree-yield. All the trees in this trial were given a uniform doze of fertilizers in two split dozes, one during June 1975 and the second doze during September 1975.

In the hormone trial conducted to study the effect of IAA, NAA, and 2,4-D in different concentrations on the fruit-set of cashew, there was no significant yield difference among the treatments. This confirms the results obtained during the previous year for the same trial. This study has now completed three years. Only during the first year of trial increased fruit-set and total yield was obtained when IAA 50 p.p.m and NAA 10 p.p.m were sprayed. During the subsequent two years there was no significant yield difference among the treatments.

13. Remarks of the workshop on the last year's report and the action taken thereon:-

NIL

14. Additional Information, if any.

Even though intercropping in cashew is not included in the Technical programme for this station, the whole are has been put under tapioca, leaving 2 metre radius from the base of the trees.

Date and Signature of the
Head of the Institution.

A P P E N D I X - I

Statement of Rainfall received at Manmity during the period
under report.

<u>M o n t h</u>	<u>Rainfall received in mm.</u>
July 1975	562.4
August 1975	768.9
September 1975	553.4
October 1975	361.9
November 1975	245.4
December 1975	Nil
January 1976	Nil
February 1976	Nil
March 1976	4.6
April 1976	104.8
May 1976	75.9
June 1976	203.4
	<hr/>
T o t a l	2880.7
	<hr/> <hr/>

APPENDIX - II

Yield obtained in 1975-76 and the mean yield during the last 5 years and the shelling percentage of types in the jera-plasm collection.

Sl.No.	Type No.	Yield obtained in kg.		Shelling Percentage
		1975-76	Mean yield for the last 5 years.	
<u>1963 Plantings (Clonal)</u>				
1	K-3-1	12.935	6.823	
2	K-3-2	8.760	5.650	27.38
3	K-4-1	13.135	6.535	24.14
4	K-4-2			23.33
5	K-7-2	7.815	5.764	23.39
6	K-11-2	13.325	10.693	25.47
7	K-16-1	12.800	9.229	21.08
8	K-20-1	9.225	6.572	26.62
9	K-21-2	3.635	3.932	20.28
10	K-22-1	11.675	11.819	22.71
11	K-22-2	10.052	7.322	25.10
12	K-25-1	6.620	5.903	
13	K-25-2	14.290	11.005	25.78
14	K-26-1	9.780	7.571	26.42
15	K-27-1	11.645	9.483	26.50
16	K-28-2	11.980	11.069	26.29
17	BRZ-17-1	8.955	8.635	
<u>1964 Plantings (Clonal)</u>				
18	K-1-1	9.010	6.622	27.59
19	K-1-2	11.930	10.099	29.20

Sl.No.	Type No.	Yield obtained in kg.		Shelling percentage
		1975-76	Mean yield for the last 5 years.	
20	K-9-2	1.995	3.017	27.12
21	K-10-1	11.730	8.365	24.40
22	K-11-1	1.775	1.814	
23	K-10-2	14.470	9.821	26.96
24	K-12-1	11.870	7.069	24.67
25	K-12-2	3.150	2.147	23.45
26	K-13-1	4.730	2.035	31.66
27	K-13-2	7.635	4.049	11.71
28	K-16-2	6.370	7.340	18.44
29	K-17-1	2.650	2.176	26.48
30	K-17-2	1.865	2.487	
31	K-19-1	15.965	11.256	26.18
32	K-19-2	5.340	4.012	24.90
33	K-28-1	11.910	8.004	23.94
34	NIR-1-1	6.840	4.407	27.47
35	NIR-1-2	4.405	3.276	26.64
36	NIR-2-1	11.330	12.692	26.08
37	NIR-2-2	7.570	7.311	24.36
38	NIR-4-1	2.280	2.839	26.64
39	NIR-4-2	1.745	2.489	23.51
40	NIR-5-1	1.320	1.884	26.30
41	NIR-5-2	1.180	4.331	25.70
42	TGKA-3-2	7.607	5.535	24.51
43	BRZ-9-1	6.685	3.777	27.64
44	BRZ-9-2	7.810	5.832	25.63

Sl.No.	Type No.	Yield obtained in kg.		Shelling percentage
		1975-76	Mean yield for the last 3 years.	
45	BRZ-16-1	1.560	1.302	20.16
46	BRZ-16-2	0.900	0.646	26.46
47	BRZ-17-2	10.185	8.830	
<u>1965 Plantings - Clonal.</u>				
48	K-6-1	3.500	4.774	26.67
49	K-20-2	7.830	6.067	
50	K-30-1	4.635	4.258	21.46
51	BRZ-10-2	11.520	9.990	20.07
52	UL-2-1	3.890	3.900	24.29
53	UL-22-1	8.260	5.450	30.32
54	UL-27-1	14.475	15.312	28.19
55	UL-28-1	6.880	14.398	22.37
<u>1966 Plantings - Clonal</u>				
56	K-18-2	8.915	10.509	28.70
57	K-23-1	4.955	3.545	22.31
58	K-23-2	7.265	7.491	24.77
59	K-27-2	7.370	5.900	
60	KTD4-2-1	3.620	1.904	29.50
61	NDR-2-1	17.590	14.208	26.19
62	CHCD-1-2	8.345	8.637	30.07
63	FNKLA-1-1	5.635	4.708	3.99
64	BRZ-10-1	5.470	2.491	23.27
65	BRZ-11-1	8.415	4.928	20.09
<u>1967 Plantings (Clonal)</u>				
66	K-5-1	3.860	3.241	
67	K-5-2	7.715	6.488	

Sl.No.	Type No.	Yield obtained in kg.		Shelling percentage
		1975-76	Mean yield for the last 5 years.	
68	K-6-2	4.945	2.487	
69	K-7-1	7.630	5.524	20.91
70	K-18-1	0.830	1.092	
71	K-21-1	5.525	1.995	26.38
72	K-26-2	4.895	3.471	
73	K-29-1	0.800	1.509	33.58
74	NIR-3-1	3.360	2.004	27.96
75	GRIT-1-1	7.620	5.934	27.45
76	ALGD-1-1	13.820	8.641	
77	NIR-2-2	4.900	6.495	22.53
78	CHKD-1-1	10.525	7.397	28.00
79	PIR-1-1	1.210	2.890	
80	PIR-1-2	1.940	6.530	27.87
81	PIR-1-3	1.770	2.359	24.50
82	BIZ-11-2	10.465	6.331	
83	PKA-1-2	5.520	4.311	6.36
84	UL-2-2	2.050	2.198	

1963 Plantings (Seedling Types)

1	BIA-256-1	11.065	9.531
2	BIA-256-2	1.265	1.284
3	BIA-256-4	11.355	6.766
4	BIA-56-2	1.840	0.827
5	BIA-56-3	0.370	0.988
6	BIA-56-4	2.760	2.109
7	BIA-139-1	43.084	27.853

Sl.No.	Type No.	Yield obtained in kg.		Shelling percentage.
		1975-76	Mean yield for the last 5 years.	
8	BLA-139-2	4.561	3.173	
9	BLA-139-3	5.730	5.684	
10	BLA-139-4	10.030	5.518	
11	BLA-121-2	4.805	7.401	
12	BLA-121-4	12.312	6.959	
13	BLA-176-1	16.255	7.064	27.75
14	BLA-176-2	0.750	0.558	
15	BLA-176-3	3.642	1.919	
16	BLA-176-4	0.950	1.300	
17	BLA-1-1	2.177	3.077	28.21
18	BLA-1-2	7.888	7.132	
19	BLA-39-1	3.844	3.226	
20	BLA-39-2	6.690	3.316	
21	BLA-39-3	4.801	2.021	
22	BLA-39-4	16.853	12.651	26.80
23	BLA-273-1	19.050	16.187	
24	BLA-273-2	0.692	2.166	
25	BLA-273-3	0.100	0.426	
26	BLA-273-4	1.675	4.583	
27	ABD-1-1	0.680	1.009	27.29
28	ABD-1-2	0.240	0.408	22.95
29	ABD-1-3	0.999	1.223	
30	ABD-1-4	1.880	2.170	29.10
31	ABD-2-1	8.055	6.187	27.76
32	ABD-2-2	0.950	1.769	22.79
33	ABD-3-1	2.582	2.962	20.91

Sl.No.	Type No.	Yield obtained in kg.		Shelling percentage.
		1975-76	Mean yield for the last 5 years.	
<u>1964 Plantings (Seedlings)</u>				
34	UL-1-1	5.325	2.306	29.96
35	UL-1-2	1.830	1.452	
36	UL-2-1	3.000	2.952	26.20
37	UL-2-2	1.990	2.017	24.97
38	UL-3-1	4.089	3.894	27.79
39	UL-3-2	5.975	4.661	
40	UL-4-1	0.385	0.629	27.84
41	UL-4-2	1.720	1.558	
42	UL-5-1	1.480	2.056	30.20
43	UL-5-2	1.980	3.709	
44	UL-6-1	2.535	2.234	
45	UL-6-2	1.395	1.134	
46	UL-7-1	4.495	2.919	
47	UL-7-2	0.340	0.837	
48	UL-8-1	1.190	2.007	25.55
49	UL-8-2	5.120	4.926	22.00
50	UL-9-1	-	0.526	
51	UL-9-2	0.270	0.599	
52	UL-10-1	0.415	0.910	33.23
53	UL-10-2	1.240	1.522	
54	UL-14-1	2.092	3.435	27.85
55	UL-15-1	10.935	7.856	26.70
56	UL-15-2	2.590	2.924	
57	UL-18-1	0.140	1.643	
58	UL-18-2	0.520	1.743	22.76
59	UL-19-1	0.995	1.707	25.80
60	UL-19-2			

Sl.No.	Type No.	Yield obtained in kg.		Shelling percentage.
		1975-76	Mean yield for the last 5 years.	
61	UL-20-1	0.250	1.174	
62	UL-21-2	8.293	8.303	
63	UL-22-1	1.300	2.332	
64	UL-22-2	4.350	1.438	
65	MAL-1-1	3.835	2.121	
66	MAL-1-2			
67	MAL-1-3	3.860	1.603	
68	MAL-1-5	3.430	2.033	
69	MAL-2-1	7.645	2.803	
70	MAL-2-3	3.475	2.703	
71	MAL-2-4	7.735	3.062	19.96
72	MAL-2-5	1.725	0.934	
73	MAL-3-1	6.820	2.942	
74	MAL-3-2	3.320	6.694	
75	MAL-3-3	9.395	3.823	16.89
76	PTR-1-1			
77	PTR-1-2	6.780	3.327	24.07
78	PTR-1-3	1.280	1.245	25.87
79	PTR-1-4	2.520	3.454	
80	PTR-1-5	0.050	0.044	
81	LOC-1-2	3.610	2.266	
82	LOC-1-3	4.440	2.532	
83	LOC-1-4	8.480	4.530	20.05
84	LOC-1-5	7.650	3.344	

1965 Plantings Seedlings

85	TZA-1-1	0.270	0.054	
86	TZA-1-3	5.895	2.089	
87	TZA-1-4	0.730	0.659	

Sl.No.	Type No.	Yield obtained in kg.		Shelling percentage
		1975-76	Mean yield for the last 5 years.	
88	TZA-1-5	4.625	3.241	23.12
89	TZA-1-7	6.087	2.504	
90	TZA-1-10	8.615	4.137	24.72

1966 Planting Seedlings

91	NIR-1-1	1.635	1.342
92	NIR-2-2	0.630	2.740
93	KYGM-1-1	5.475	3.034
94	KYGM-1-2	2.500	1.275
95	ANSR-1-1	3.020	2.475
96	NGRA-1-1	0.150	0.666
97	NGRA-1-2	0.495	0.387
98	NGRA-1-3	1.195	0.579
99	NGRA-1-4	0.270	0.175
100	NGRA-1-5	1.750	0.719
101	NGRA-1-6	0.800	0.800
102	NGRA-1-7	4.820	2.143
103	NGRA-1-8	0.180	0.180
104	NGRA-2-1	4.051	3.165
105	NGRA-2-3	1.901	1.500
106	NGRA-2-4	2.765	2.237

Yield obtained in 1975-76 from the F₁ Hybrid progenies of the
cross made in 1963.

Sl.No.	Cross No.	<u>Yield obtained in kg.</u>		Shelling percentage.
		1975-76	Mean yield for the last 5 years.	
I. <u>Cross No.1: Tree No.12.A x Tree No.27</u>				
1	H-1-1	3.190	2.955	27.70
2	H-1-2	1.700	1.634	23.91
3	H-1-3	3.180	2.394	28.58
4	H-1-4	7.060	10.356	27.59
5	H-1-5	1.540	3.465	26.69
6	H-1-6	2.820	2.843	29.67
7	H-1-7	4.740	3.874	27.30
8	H-1-8			
9	H-1-9	3.430	4.335	26.16
10	H-1-10	3.620	3.880	22.39
11	H-1-11	4.865	4.466	28.18
12	H-1-12	6.370	5.089	27.79
<u>Cross No.2 Tree No.12A x Tree No.8A.</u>				
13	H-2-1	0.050	0.866	26.92
14	H-2-2	0.490	1.767	29.57
15	H-2-3	0.095	0.457	25.26
16	H-2-5	2.745	3.548	28.54
17	H-2-6	1.220	1.870	26.05
18	H-2-7	1.500	2.707	23.93
19	H-2-8	0.250	1.776	28.01
<u>Cross No.3 Tree No.30 x Brazil 18.</u>				
20	H-3-1	1.770	2.071	23.23
21	H-3-2	0.990	3.340	27.98
22	H-3-3	3.855	2.568	27.54

Sl.No.	Cross No.	Yield obtained in kg.		Shelling percentage.
		1975-76	Mean yield for the last 5 years.	
23	H-3-4	7.230	2.895	
24	H-3-5	7.520	4.651	
25	H-3-6	6.877	4.945	
26	H-3-7	3.760	7.079	27.11
27	H-3-9	10.604	7.613	
28	H-3-10	3.445	5.269	21.36
29	H-3-11	7.065	5.685	23.02
30	H-3-12	13.990	9.071	23.78
31	H-3-13	11.385	7.446	24.88
32	H-3-14	5.050	5.894	
33	H-3-15	7.940	5.023	23.26
34	H-3-16	0.620	1.077	26.17
35	H-3-17	15.425	1.433	26.19
36	H-3-18	9.315	6.141	24.96
37	H-3-19	3.530	7.908	21.32
<u>Cross No.4 (Tree No.30A x Brazil 18)</u>				
38	H-4-1	8.026	5.784	24.51
39	H-4-2	1.300	1.019	23.30
40	H-4-4	4.467	3.935	22.39
41	H-4-5	6.555	3.490	25.01
42	H-4-6	6.495	4.254	29.31
43	H-4-7	13.725	9.116	25.25
44	H-4-8	1.545	1.498	22.88
45	H-4-9	6.545	3.739	24.80
46	H-4-10	5.600	4.075	22.25
47	H-4-11	5.180	4.603	
48	H-4-12	0.850	1.841	20.86
49	H-5-1	6.140	2.699	
50	H-6-2	10.220	5.003	

APPENDIX IIITable showing yield of plants under Comparative Yield Trial during their third year of orchard life.

Sl. No.	Plant No.	Treat-ment	Variety	No. of panicles	Yield		Shelling percentage
					No. of nuts	Wt. in gms	
1	2	3	4	5	6	7	8
1	1545	T ₁ R ₁	Ansur-1	..	..	..	..
2	1546	"	"	..	..	..	..
3	1547	"	"	2	..	..	..
4	1540	"	"	..	..	..	..
5	1541	"	"	..	..	..	..
6	1542	"	"	..	..	..	..
7	1505	"	"	6	..	..	..
8	1506	"	"	1	..	..	..
9	1507	"	"	1	..	..	..
10	1374	T ₁ R ₂	"	9	..	..	..
11	1375	"	"	40	31	134	22
12	1376	"	"	3	..	..	..
13	1352	"	"	35	..	..	..
14	1353	"	"	7	..	..	..
15	1354	"	"	66	115	515	29
16	1335	"	"	44	3	17	..
17	1336	"	"	58	22	79	..
18	1337	"	"	2	..	..	..
19	1201	T ₁ R ₃	"	8	..	..	..
20	1202	"	"	1	..	..	..
21	1203	"	"	..	..	..	..
22	1166	"	"	9	20	125	..
23	1167	"	"	3	4	30	..
24	1168	"	"	4	1	9	..
25	1161	"	"	..	..	..	..

1	2	3	4	5	6	7	8
26	1162	T ₁ R ₃	Ansur-1	5	2	12	..
27	1163	"	"	..	..	..	..
28	1497	T ₂ R ₁	Veng-36-3	..	..	..	..
29	1498	"	"	13	19	124	28
30	1499	"	"	44	124	627	..
31	1468	"	"	9	..	..	..
32	1469	"	"	6	..	..	..
33	1470	"	"	35	67	301	..
34	1457	"	"	27	5	25	..
35	1458	"	"	98	122	515	..
36	1459	"	"	20	22	114	..
37	1494	T ₂ R ₂	"	..	..	..	..
38	1495	"	"	70	55	264	..
39	1496	"	"	..	..	..	..
40	1471	"	"	64	116	610	..
41	1472	"	"	67	2	14	..
42	1473	"	"	35	38	217	..
43	1454	"	"	128	141	602	..
44	1455	"	"	23	15	69	..
45	1456	"	"	63	74	332	..
46	1246	T ₂ R ₃	"	15	52	287	..
47	1247	"	"	3	9	42	..
48	1248	"	"	12	..	..	..
49	1241	"	"	5	1	7	..
50	1242	"	"	11	..	..	..
51	1243	"	"	..	..	..	..
52	1206	"	"	3	..	..	..
53	1207	"	"	1	..	..	..
54	1208	"	"	6	1	5	..
55	1377	T ₃ R ₁	Sawantwadi	7	..	..	..
56	1378	"	"	32	27	105	..
57	1379	"	"	7	..	..	..
58	1349	"	"	74	..	..	..

1	2	3	4	5	6	7	8
59	1350	T ₃ R ₁	Sawantwadi	60	..	..	..
60	1351	"	"	14	13	52	..
61	1338	"	"	22	15	73	..
62	1339	"	"	13	7	27	..
63	1340	"	"	..	..	..	..
64	1554	T ₃ R ₂	"	..	..	..	..
65	1555	"	"	25	6	32	..
66	1556	"	"	3	..	..	..
67	1531	"	"	14	3	15	..
68	1532	"	"	93	85	345	26
69	1533	"	"	61	63	286	26
70	1514	"	"	87	171	592	28
71	1515	"	"	25	4	20	..
72	1516	"	"	70	8	43	..
73	1129	T ₃ R ₃	"	25	1	7	..
74	1130	"	"	9	6	32	..
75	1131	"	"	52	101	535	28
76	1118	"	"	..	..	..	..
77	1119	"	"	48	27	170	26
78	1120	"	"	14	50	220	23
79	1089	"	"	75	45	224	20
80	1090	"	"	24	33	178	29
81	1091	"	"	37	4	15	..
82	1189	T ₄ R ₁	Veng-37-3	17	29	124	..
83	1190	"	"	33	55	255	34
84	1191	"	"	57	89	385	..
85	1178	"	"	53	18	74	..
86	1179	"	"	25	12	65	..
87	1180	"	"	61	72	288	29
88	1149	"	"	2	..	..	..
89	1150	"	"	12	16	60	..
90	1151	"	"	5	3	17	..

1	2	3	4	5	6	7	8
91	1135	T ₄ R ₂	Veng-37-3	50	21	90	..
92	1136	"	"	133	82	409	29
93	1137	"	"	63	89	437	29
94	1112	"	"	96	66	332	..
95	1113	"	"	40	11	50	..
96	1114	"	"	25	47	265	..
97	1095	"	"	40	1	5	..
98	1096	"	"	5	6	25	..
99	1097	"	"	..	..	..	..
100	1318	T ₄ R ₃	"	21	..	..	..
101	1319	"	"	48	15	65	..
102	1320	"	"	80	15	67	..
103	1289	"	"	17	3	15	..
104	1290	"	"	1	..	..	..
105	1291	"	"	3	..	..	..
106	1278	"	"	3	2	9	..
107	1279	"	"	..	..	..	..
108	1280	"	"	19	25	100	..
109	1360	T ₅ R ₁	T ₁ BLA	..	..	..	..
110	1307	"	"	5	2	15	..
111	1308	"	"	29	45	272	30
112	1301	"	"	10	2	15	..
113	1302	"	"	10	..	..	..
114	1303	"	"	..	..	..	..
115	1266	"	"	.5	..	..	..
116	1267	"	"	3	..	..	..
117	1268	"	"	39	4	25	..
118	1192	T ₅ R ₂	"	4	..	..	..
119	1193	"	"	4	4	20	..
120	1194	"	"	4	4	20	..
121	1175	"	"	11	8	55	..
122	1176	"	"	59	12	84	..

1	2	3	4	5	6	7	8
123	1177	T ₅ R ₂	T1 BLA	..	..	..	..
124	1152	"	"	5	..	..	..
125	1153	"	"	6	23	129	..
126	1154	"	"	7	13	71	..
127	1209	T ₅ R ₃	"	18	14	67	..
128	1210	"	"	21	14	75	..
129	1211	"	"	6	..	..	..
130	1238	"	"	23	14	67	..
131	1239	"	"	..	..	..	..
132	1240	"	"	29	14	75	..
133	1249	"	"	..	..	..	..
134	1250	"	"	..	..	..	..
135	1251	"	"	..	..	..	..
136	1425	T ₆ R ₁	T40-BLA	..	..	..	..
137	1426	"	"	2	..	..	..
138	1427	"	"	12	..	..	..
139	1420	"	"	3	..	..	..
140	1421	"	"	22	6	24	..
141	1422	"	"	1	..	..	..
142	1385	"	"	37	..	..	..
143	1386	"	"	47	83	393	..
144	1387	"	"	15	4	27	..
145	1155	T ₆ R ₂	"	■ ■ ■ ..	■ ■ ■ ..	..	..
146	1156	"	"	73	17	77	..
147	1157	"	"	44	66	298	24
148	1172	"	"	29	15	60	..
149	1173	"	"	28	69	269	..
150	1174	"	"	10	12	52	..
151	1195	"	"	22	15	64	..
152	1196	"	"	40	25	115	31

1	2	3	4	5	6	7	8
153	1197	T ₆ R ₂	T.40 BLA	2	..	..	..
154	1321	T ₆ R ₃	"	11	9	52	..
155	1322	"	"	11	3	19	..
156	1323	"	"	39	23	134	30
157	1286	"	"	36	32	160	33
158	1287	"	"	15	1	5	..
159	1288	"	"	27	..	..	..
160	1281	"	"	16	4	17	..
161	1282	"	"	30	..	..	..
162	1283	"	"	..	..	..	..
163	1258	T ₇ R ₁	T56 BLA	2	..	..	..
164	1259	"	"	..	..	..	..
165	1260	"	"	62	25	167	27
166	1229	"	"	25	106	575	..
167	1230	"	"	29	1	7	..
168	1231	"	"	9	3	17	..
169	1218	"	"	3	2	17	..
170	1219	"	"	..	..	..	..
171	1220	"	"	116	144	839	29
172	1132	T ₇ R ₂	"	66	66	465	29
173	1133	"	"	9	7	45	..
174	1134	"	"	34	21	125	..
175	1115	"	"	9	5	35	..
176	1116	"	"	..	..	..	..
177	1117	"	"	4	..	..	..
178	1092	"	"	21	20	100	..
179	1093	"	"	55	61	275	29
180	1094	"	"	7	1	7	..
181	1520	T ₇ R ₃	"	..	..	..	..
182	1521	"	"	..	..	..	..
183	1522	"	"	6	..	..	..
184	1525	"	"	12	..	..	..
185	1526	"	"	..	..	..	..

1	2	3	4	5	6	7	8
186	1527	T ₇ R ₃	T.56 BGA	..	..	..	..
187	1560	"	"	13	2	10	..
188	1561	"	"	..	..	..	..
189	1562	"	"	1	..	..	..
190	1380	T ₈ R ₁	T273.BLA	2	..	..	..
191	1381	"	"	16	..	..	..
192	1382	"	"	15	..	..	..
193	1346	"	"	1	..	..	..
194	1347	"	"	..	..	..	..
195	1348	"	"	..	..	..	..
196	1341	"	"	..	..	..	..
197	1342	"	"	14	..	..	..
198	1343	"	"	..	..	..	..
199	1315	T ₈ R ₂	"	6	..	..	..
200	1316	"	"	37	2	10	..
201	1317	"	"	26	9	50	..
202	1292	"	"	6	..	..	..
203	1293	"	"	..	..	..	..
204	1294	"	"	4	..	..	..
205	1275	"	"	3	..	..	..
206	1276	"	"	10	..	..	..
207	1277	"	"	9	25	127	20
208	1557	T ₈ R ₃	"	11	2	10	..
209	1558	"	"	..	..	..	..
210	1559	"	"	5	..	..	..
211	1528	"	"	..	..	..	..
212	1529	"	"	10	..	..	..
213	1530	"	"	..	..	..	..
214	1517	"	"	4	5	22	..
215	1518	"	"	..	..	..	..

1	2	3	4	5	6	7	8
216	1519	T ₈ R ₃	T273-BLA	..	..	..	..
217	1141	T ₉ R ₁	M-10/4	23	..	..	..
218	1142	"	"	16	..	..	..
219	1143	"	"	32	..	..	..
220	1106	"	"	3	..	..	..
221	1107	"	"	22	1	5	..
222	1108	"	"	28	55	283	29
223	1101	"	"	66	6	32	..
224	1102	"	"	62	169	870	..
225	1103	"	"	16	..	..	..
226	1434	T ₉ R ₂	"	55	10	62	..
227	1435	"	"	86	15	73	..
228	1436	"	"	42	36	205	33
229	1411	"	"	74	..	..	..
230	1412	"	"	86	23	123	..
231	1413	"	"	72	2	12	..
232	1394	"	"	177	30	120	..
233	1395	"	"	125	10	46	..
234	1396	"	"	11	6	34	..
235	1397	T ₉ R ₃	"	28	1	5	..
236	1398	"	"	79	5	32	..
237	1399	"	"	..	..	..	..
238	1408	"	"	53	..	..	..
239	1409	"	"	6	1	5	..
240	1410	"	"	76	13	72	..
241	1437	"	"	40	..	..	..
242	1438	"	"	36	..	..	..
243	1439	"	"	9	..	..	..
244	1261	T ₁₀ R ₁	M-6/1	..	..	..	..
245	1262	"	"	..	..	..	..
246	1263	"	"	20	..	..	..
247	1226	"	"	12	26	145	26

1	2	3	4	5	6	7	8
248	1227	T ₁₀ ^{R₁}	M-6/1	67	116	505	..
249	1228	"	"	127	190	1362	31
250	1221	"	"	2	2	10	..
251	1222	"	"	26	8	42	..
252	1223	"	"	..	..	..	..
253	1212	T ₁₀ ^{R₂}	"	82	150	905	29
254	1213	"	"	169	355	1650	29
255	1214	"	"	227	66	382	26
256	1235	"	"	4	1	5	..
257	1236	"	"	3	..	..	..
258	1237	"	"	..	..	..	..
259	1252	"	"	79	253	1088	33
260	1253	"	"	59	..	..	..
261	1254	"	"	..	..	..	..
262	1445	T ₁₀ ^{R₃}	"	20	1	10	..
263	1446	"	"	10	15	57	..
264	1447	"	"	10	..	..	..
265	1480	"	"	37	..	..	..
266	1481	"	"	1	..	..	..
267	1482	"	"	4	..	..	..
268	1485	"	"	5	..	..	..
269	1486	"	"	66	..	..	..
270	1487	"	"	3	1	5	..
271	1548	T ₁₁ ^{R₁}	K.27-1	..	..	..	..
272	1549	"	"	..	..	..	..
273	1550	"	"	14	9	43	..
274	1537	"	"	4	..	..	..
275	1538	"	"	..	..	..	..
276	1539	"	"	..	..	..	..
277	1508	"	"	7	1	5	..
278	1509	"	"	..	..	..	..

1	2	3	4	5	6	7	8
279	1510	T ₁₁ R ₁	K-27-1	..	..	..	..
280	1511	T ₁₁ R ₂	"	39	30	165	32
281	1512	"	"	11	45	215	..
282	1513	"	"	92	169	802	25
283	1534	"	"	1	..	..	..
284	1535	"	"	41	36	175	31
285	1536	"	"	10	1	7	..
286	1551	"	"	..	..	..	..
287	1552	"	"	..	..	..	..
288	1553	"	"	24	18	85	..
289	1488	T ₁₁ R ₃	"	60	56	300	..
290	1489	"	"	12	8	44	..
291	1490	"	"	..	..	..	..
292	1477	"	"	9	..	..	..
293	1478	"	"	43	2	14	..
294	1479	"	"	2	1	5	..
295	1448	"	"	3	..	..	..
296	1449	"	"	34	132	560	..
297	1450	"	"	81	262	1170	29
298	1146	T ₁₂ R ₁	M/76-1	50	103	430	31
299	1147	"	"	32	125	475	33
300	1148	"	"	3	1	7	..
301	1181	"	"	119	144	740	33
302	1182	"	"	17	38	170	26
303	1183	"	"	9	24	107	29
304	1186	"	"	50	41	177	..
305	1187	"	"	38	..	..	..
306	1188	"	"	43	79	367	31
307	1371	T ₁₂ R ₂	"	9	..	..	..
308	1372	"	"	134	3	10	..
309	1373	"	"	6	12	37	..

1	2	3	4	5	6	7	8
310	1355	$T_{12}R_2$	M-76/1	47	..	..	..
311	1356	"	"	60	2	8	..
312	1357	"	"	26	2	8	..
313	1332	"	"	73	171	945	26
314	1333	"	"	10	..	..	..
315	1336	"	"	..	..	..	..
316	1326	$T_{12}R_3$	"	..	..	..	..
317	1327	"	"	..	..	..	..
318	1328	"	"	41	20	120	28
319	1361	"	"	2	..	..	..
320	1362	"	"	..	..	..	..
321	1363	"	"	3	3	19	..
322	1365	"	"	2	1	5	..
323	1366	"	"	5	..	..	..
324	1367	"	"	2	..	..	..
325	1098	$T_{13}R_1$	H-4-7	13	47	213	29
326	1099	"	"	4	1	8	..
327	1100	"	"	21	2	10	..
328	1109	"	"	22	1	5	..
329	1110	"	"	30	23	130	27
330	1111	"	"	60	5	32	..
331	1138	"	"	53	61	328	29
332	1139	"	"	10	..	..	..
333	1140	"	"	7	13	72	..
334	1312	$T_{13}R_2$	"	53	186	990	..
335	1313	"	"	10	9	52	..
336	1314	"	"	4	..	..	..
337	1295	"	"	20	3	15	..
338	1296	"	"	..	..	..	..
339	1297	"	"	2	..	..	..
340	1272	"	"	8	1	7	..

1	2	3	4	5	6	7	8
341	1273	T ₁₃ R ₂	H-4-7	4	14	80	..
342	1274	"	"	8	..	..	..
343	1126	T ₁₃ R ₃	"	3	4	22	..
344	1127	"	"	..	..	..	..
345	1128	"	"	15	4	20	..
346	1121	"	"	..	..	..	..
347	1122	"	"	..	..	..	..
348	1123	"	"	9	3	24	..
349	1086	"	"	8	11	50	..
350	1087	"	"	36	4	16	..
351	1088	"	"	55	36	117	..
352	1309	T ₁₄ R ₁	K-10-2	5	..	..	..
353	1310	"	"	..	..	..	..
354	1311	"	"	22	67	510	31
355	1298	"	"	5	..	..	..
356	1299	"	"	16	3	22	..
357	1300	"	"	12	1	8	..
358	1269	"	"	33	52	360	..
359	1270	"	"	50	2	15	..
360	1271	"	"	12	37	350	..
361	1215	T ₁₄ R ₂	"	78	30	247	31
362	1216	"	"	4	6	43	..
363	1217	"	"	45	1	10	..
364	1232	"	"	23	98	702	26
365	1233	"	"	..	..	..	..
366	1234	"	"	56	87	260	..
367	1255	"	"	7	15	109	..
368	1256	"	"	56	270	1607	31
369	1257	"	"	..	..	..	..
370	1158	T ₁₄ R ₃	"	8	9	50	..
371	1159	"	"	..	..	..	..
372	1160	"	"	..	..	..	..

1	2	3	4	5	6	7	8
373	1169	T ₁₄ R ₃	K-10-2	13	7	39	..
374	1170	"	"	1	..	..	..
375	1171	"	"	21	1	5	..
376	1198	"	"	18	..	..	..
377	1199	"	"	36	75	449	28
378	1200	"	"	14	6	32	..
379	1460	T ₁₅ R ₁	BLA 139-1	37	114	659	29
380	1461	"	"	6	16	64	..
381	1462	"	"	..	4	20	..
382	1465	"	"	..	..	..	..
383	1466	"	"	9	..	..	..
384	1467	"	"	..	..	..	..
385	1500	"	"	14	..	..	..
386	1501	"	"	3	1	5	..
387	1502	"	"	2	..	..	..
388	1391	T ₁₅ R ₂	"	5	..	..	..
389	1392	"	"	6	1	9	..
390	1393	"	"	53	5	25	..
391	1414	"	"	2	..	..	..
392	1415	"	"	13	..	..	..
393	1416	"	"	2	..	..	..
394	1431	"	"	4	..	..	..
395	1432	"	"	10	13	82	..
396	1433	"	"	6	13	73	..
397	1329	T ₁₅ R ₃	"	28	2	12	..
398	1330	"	"	11	..	..	..
399	1331	"	"	17	16	52	..
400	1358	"	"	22	..	..	..
401	1359	"	"	14	1	7	..
402	1360	"	"	..	..	..	..

1	2	3	4	5	6	7	8
403	1368	T ₁₅ R ₃	BLA 139-1	3	..	..	..
404	1369	"	"	..	..	..	..
405	1370	"	"	12	..	..	..
406	1388	T ₁₆ R ₁	BLA-256-1	86	48	175	24
407	1389	"	"	2	..	..	..
408	1390	"	"	1	..	..	..
409	1417	"	"	4	..	..	..
410	1418	"	"	3	..	..	..
411	1419	"	"	13	25	122	28
412	1428	"	"	52	..	..	..
413	1429	"	"	16	24	115	30
414	1430	"	"	2	..	..	..
415	1451	T ₁₆ R ₂	"	11	11	27	..
416	1452	"	"	38	25	142	29
417	1458	"	"	..	5	22	..
418	1474	"	"	62	4	20	..
419	1475	"	"	18	..	..	..
420	1476	"	"	15	..	..	..
421	1491	"	"	15	..	..	..
422	1492	"	"	17	21	79	..
423	1493	"	"	18	..	..	..
424	1400	T ₁₆ R ₃	"	..	..	..	..
425	1401	"	"	..	..	..	..
426	1402	"	"	3	..	..	..
427	1405	"	"	3	..	..	..
428	1406	"	"	6	3	15	..
429	1407	"	"	51	13	55	..
430	1440	"	"	20	7	22	..
431	1441	"	"	..	..	..	..
432	1442	"	"	19	20	88	..