

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523

DATE: 8/27/87

MEMORANDUM

TO: AID/PPC/CDIE/DI, room 209 SA-18
FROM: AID/SCI, Victoria Ose *VO*
SUBJECT: Transmittal of AID/SCI Progress Report(s)

Attached for permanent retention/proper disposition is the following:

AID/SCI Progress Report No 3. A- 48
June 87

Attachment

3 ep

3. A-48

Progress Report Jan. - June 1987

Title of Project - collection, classification and evaluation of
Dioscoreas, Aroids and Plectreathus Spp.

Professor H.P.M.Gunasena

Following research activities were in progress during the reporting period at the University Experimental Station, Dodangolla, Kundasale.

- 1. Germplasm conservation
- 2. Germplasm evaluation experiment for Innala (Coleus rotundifolius)
- 3. Vegetative propagation experiments (Dioscorea - spp.)
- 4. Multiplication of Yam cultivars.

1. Germplasm conservation

All accessions collected are being conserved at the above experimental station.

2. Germplasm Evaluation, Innala (Coleus rotundifolius). A field experiment has been designed to evaluate yield and vegetative characters of 18 Innala accessions.

For the evaluation, following measurements were taken.

- 1. Number of shoots per cutting.
- 2. Length of the longest shoot (every two weeks)
- 3. Number of leaves (")
- 4. Leaf area per plant (per plant, monthly)
- 5. Leaf dry weight (")
- 6. Stem dry weight (")
- 7. Root dry weight (")
- 8. Tuber fresh weight (")
- 9. Number of tubers (")

Experimental design-

Randomized Complete Block Design with three replicates. Cuttings are planted on ridges. For the details and experimental plan, see Annex I.

Rec'd in SCI: AUG 27 1987

The tubers have been planted in the nursery to obtain vine cuttings for the experiment. The experiment will be started at the end of July, 1987 and final harvest will be taken in December, 1987.

3. Vegetative propagation experiments - Dioscorea Yams (Dioscorea Spp)
Experiments on rapid multiplication techniques are in their second stage now.

a. Mini sett technique, and

b. Rooted vine cuttings are the two methods under investigation.

3.1 Mini sett technique

3.1.1. The five groups of seed tubers from each of the 10 cultivars obtained from experiments last year are under investigation in a field experiment to evaluate their yield and vegetative performance.

For the evaluation, following measurements were planned.

1. Number of shoots per plant.
2. Length of the longest vine (every two weeks)
3. Number of leaves (")
4. Leaf area per plant (monthly)
5. Leaf dry weight (per plant, monthly)
6. Stem dry weight (")
7. Root dry weight (")
8. Tuber fresh weight (")
9. Number of tubers (")
10. Final yield (")

The tubers have been planted in the field and measurements are being taken regularly.

Experimental design -

Randomized complete block design with three replicates

(Factorial Experiment)

- 3.1.2 Mini sett technique is again evaluated in a field experiment with three weights of tuber pieces from each of the 10 cultivars to confirm the results of the last years' experiment. For details see Annex II. For the evaluation measurements mentioned in section 3.1.1. are being taken.

Experimental Design:

Factorial experiment in Randomized Complete Block Design with three replicates.

The tuber pieces were sprouted in sand beds in the plant house. Plants will be established in the field at the end of July, 1987 and final yield will be taken in December, 1987. The prevailing drought may cause problems in field planting.

3.2 Rooted vine cuttings

- 3.2.1 The tubers obtained from the last years' vine cutting experiment are investigated for their yield and vegetative performance in a field experiment.

For the evaluation, measurements mentioned in section 3.1.1. are being taken.

Experimental Design:

Randomized Complete Block Design with three replicates.

The tubers have been planted in the field and measurements are taken at regular intervals.

- 3.2.2 Attempts have been made to repeat the rooted vine cutting experiment this year. Yam vines have raised in separate plots from the ten cultivars to obtain vine cuttings. After rooting the vine cuttings under high humidity conditions they were transferred to polythene pots containing soil for hardening before establishment in the field.

Number of tubers and tuber yield per plant are to be recorded in the field experiment.

Experimental Design:

Randomized Complete Block Design will be used with three replicates. Due to severe drought conditions prevailing at present this experiment will be carried out in the plant house.

4. Palatability test

Palatability tests have been completed.

5. Distribution of Germplasm

The availability of complete duplicate sets of germplasm of Dioscoreas have been informed to the Department of Agriculture, and other research institutions and to all international yam research centers.

The following institutions were supplied with duplicate samples.

1. Department of Agriculture

- a. Regional Research Station, Makandura
- b. Regional research Station, Girandurukotte
- c. Regional Research Station, Bombuwela
- d. Central Agricultural Research Station, Gannoruwa.

2. Rubber Research Institute, Agalawatta

3. Tea Research Institute, Hantane

International Institutes

International Institute of Tropical Agriculture, Nigeria

6. Involvement of Postgraduate Students

Mrs. N. Harischandra completed the M.Phil Examination in June.

Mr. D.A.P. Dissanayake has completed a major proportion of research. However, he will have to continue with the Present set of experiments, until February, 88 and writing up of the thesis may take another 4 - 6 months.

7. Plan of work

1. Experiments in the field will be continued

2. The analytical work on saponins will be continued.

Annex I.

Experimental Plan - Innala Experiment

Plot No.	Block 1	Block 2	Block 3
1.	Acc. 4	Acc. 3	Acc. 3
2.	18	15	13
3.	10	2	10
4.	5	1	12
5.	15	9	4
6.	6	17	8
7.	8	13	11
8.	13	11	9
9.	7	8	14
10.	11	4	16
11.	9	5	6
12.	2	7	7
13.	16	10	17
14.	12	6	15
15.	17	16	1
16.	1	14	5
17.	3	18	18
18.	14	12	2

Annex II.

Mini sett experiment 3.1.2

Ten cultivars are used in the experiment

1. Innala (IN)
2. Nigerian (NI)
3. Raja ala (RA)
4. Thambala (TH)
5. Kahata ala (KA)
6. Rata ala (RT)
7. Ley- danta (LE)
8. Angili ala (AN)
9. Hingurala (HI)
10. Kombuwalli (KO)

Three sett weights - 15g. / 25g. /35g.

Experimental Plan

<u>Plot No.</u>	<u>Block 1</u>	<u>Block 2</u>	<u>Block 3</u>
1.	TH 15	NI 15	KA 15
2.	HI 25	RA 35	AN 35
3.	AN 15	KA 15	IN 15
4.	LE 25	HI 15	RT 25
5.	NI 35	RA 15	HI 25
6.	NI 15	TH 15	KO 35
7.	IN 25	In 25	HI 15
8.	LE 15	KO 15	KO 15
9.	IN 15	IN 35	KA 35
10.	KA 35	NI 25	HI 35
11.	HI 35	RT 15	RA 25
12.	HI 15	LE 15	RA 15
13.	RA 35	AN 35	NI 35
14.	KA 25	LE 35	TH 15
15.	RA 25	TH 35	IN 35
16.	RT 15	RT 25	TH 35
17.	IN 35	KA 25	AN 15
18.	KO 25	AN 15	TH 25
19.	RT 25	IN 15	KA 25
20.	KA 15	TH 25	AN 25
21.	LE 35	AN 25	KO 25
22.	KO 15	LE 25	LE 15
23.	KO 35	HI 25	RT 35
24.	NI 25	KO 25	LE 25
25.	AN 25	NI 35	NI 25
26.	TH 35	KO 35	RT 15
27.	AN 35	RT 35	LE 35
28.	TH 25	KA 35	IN 25
29.	RT 35	AN 15	RA 35
30.	RA 15	RA 25	NI 15