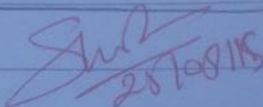
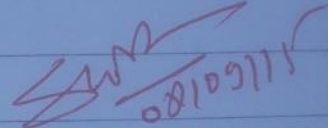



Practical:

Identification and description of potato and tropical, sub-tropical and temperate tuber crops; planting systems and practices; field preparation and sowing/planting. Top dressing of fertilizers and interculture and use of herbicides and growth regulators; identification of nutrient deficiencies, physiological disorders; harvest indices and maturity standards, post-harvest handling and storage, marketing. Seed collection, working out cost of cultivation, project preparation of commercial cultivation.

S.No	Name of Experiment	Date	Signature
1.	Identification of Tuber Crops	18/08/15	 25/08/15
2.	To study the different Varieties of Sweet potato	28/08/15	 08/09/15
3.	To study the description of Cassava & their Varieties	7/09/15	
4.	To study the description of Elephant Root yam	8/09/15	
5.	To Calculate Cost of Cultivation and Benefit Cost Ratio of Potato per ha	11/11/15	
6.	To study the Varieties of Potato in India	22/11/15	
7.	To study the Varieties of Yam	24/11/15	

Exercise. 1

MBD WRITEWELL

Date 18/08/15

Page

Object : Identification of Tuber Crops.

Name	Botanical Name	Family	C.N	Origin
Potato	<u>Solanum tuberosum</u>	Solanaceae	$2n=4x=48$	Peru
Sweet potato	<u>Ipomea batatas</u>	Convolvulaceae	$2n=90(6x)$	South America
Cassava	<u>Manihot esculenta</u>	Euphorbiaceae	$2n=36$	Brazil
Colocasia	<u>Colocasia esculenta</u>	Araceae	$2n=28$	Sri Lanka
Yam Bean	<u>Pachyrrhizus erosus</u>	Fabaceae		Mexico
Elephant footyam	<u>Amorphophylleus</u> <u>complanatus</u>	Araceae	$2n=16$	
Chinese potato	<u>Solenostemon</u> <u>rotundifolium</u>	Labiatae	$2n=56,64$	Africa
Queens-Land Arrow Root	<u>Maranta</u> <u>arundinacea</u>	Marantaceae	$2n=36$	Tropical America

Water Yam Dioscorea alata Dioscoreaceae Rh=20
lh=30
Rh=40 ✓ Indo-Burma

Lesser Yam Dioscorea esulenta ~~Dioscoreaceae~~ Rh=40, 60 Indo-Burma

Horse Radish Armoracia rusticana Brassicaceae Rh=4x=32 South
Eastern Europe

White Yam Dioscorea rotundata Dioscoreaceae Rh=40 ✓ Indo-Burma

~~25700115~~

Exercise - 2

Object : To study different varieties of Sweet potato.

There are many varieties which are differentiated mainly by the shape, size, color of tuber, flavor color and leaves.

A no. of local varieties like Badrakali, Chusale, Kottaram Chusale etc are grown in Kerala.

The Central Tuber Crop Research Institute (CTCRI) Tiruvananthapuram (Kerala) developed quite a good no. of varieties and a brief description of them are given below.

(1) Varsha : A Semi-spreading hybrid with reddish purple skin, light yellow flesh excellent cooking quality yield 20-22 t/ha in 100-105 days.

(2) Sreenandini : A Spreading variety with light cream skin, white flesh good cooking quality yield 20-25 t/ha in 100-105 days.

3) Sree vardhini : A semi spreading variety with purple skin, light orange flesh & High carotene content yield 20-25 t/ha. in 100-105 days tolerant to feathery mottle virus.

4) Sree Rakna : A spreading variety with purple skin orange flesh excellent cooking quality,

5) Sree Bhadra : A spreading variety with light purple skin and cream flesh Resistant to root knot nematodes yield 20-27 t/ha in 90-95 days.

6) Sree Anura : A spreading variety with pink skin, Cream flesh & good cooking quality yield 20-28 t/ha in 90-100 days.

7) Sree Varun : A spreading variety with Cream flesh & good quality yield 20-25 t/ha in 90-100 days.

(8) Pusa sajed (IARI): Introduced from Taiwan
High yielding, table
Variety wide adaptability.

Tuber Medium sized with good quality yield
250 - 270 g/haet.

(9) Pusa Lal → yield about 220 - 240 g/haet.
It is selection from Norin,
Variety of Japan. Tubers medium sized
Skin colored flesh white

(10) CO-1 → Released from TNAU Coimbatore
is about 180 - 220 g/haet.
Vines are medium long three tubers
per vine. Tuber skin is light pink flesh
is white crop duration is 150 days.

(11) CO-2 → yield 200 - 280 g/haet. flesh
is white & takes 110 - 120 days
to harvest.

(12) Kalmegh → yields 265 - 325 g/haet.
Very early variety. Tubers
round light brown in color.

Exercise 3.

Aim : To study description of Cassava and its varieties

B.N : Manihot esculenta

Family : Euphorbiaceae

Origin : Brazil

Edible part : Tuberosus root Chr. no. 2n = 36

About Cassava

- Major starchy root crop of tropics
- The plant is perennial shrub
- It is drought tolerant crop
- Cassava is photo insensitive crop

- It is mainly cultivated in Kerala and T.N and other North-Eastern Hilly Regions.

- Being a rich source of starch it is used to prepare a important food product known as Sago.

- Vascular blue lining or "Vascular Streaking" is present in Cassava.

- Cassava is also known as Tapioca.

About Varieties of Cassava

- 1) CO-1 : Tubers are brown coloured with white flesh
- 2) CO-2 : yellow flesh
- 3) Sreevisakam : Released from CTCRI
 - Skin creamy with white yellow flesh
 - flesh contains 4-6 I.U carotene and 25-27% starch.
- 4) Sree Sahya : Tuber Medium size contain 29-31% starch and resistant to Cassava Mosaic Virus (C.M.V).
- 5) Sree Prakash : Early Variety resistant to Cercospora leaf spot.

About Varieties of Cassava

6. Sree Harsha : triploid clone from sree sahya
contains maximum starch
(39.05%) or (38-41%)

Suitable for industrial purposes

7. Sree Jaya : Short duration variety
starch content is 24-27%

8. Sree Vijaya : Flesh colour is light yellow
After cooking the starch content
is 27-30%

~~MBD~~
07/09/15

S.N. : Amorphophellus campanulatus

C-N/Local Name : Suran, Zamikond

Family : Araceae

dhz 28

Ex. No. 4

Aim: To study the description of Elephant foot Yam.

Introduction: It is a tropical tuber crop. It is a perennial herbaceous plant and mainly grown in the states of A.P., Gujarat, Bihar, W.B., U.P.

✓ Corms are used as a vegetable and preparation of pickles. It is also a rich source of Vitamin and Minerals.

✓ They also contain Calcium oxalates which impart and cause irritation in Mouth and Throat.

✓ The Genus Amorphophallus complanatus
A. variabilis, A. ontophyllus, A. rivieri

✓ Elephant foot Yam is popularly known as 'Suren' or 'Jimikand'.

✓ Economic yield of Suren is obtained from corm and cormels.

✓ Smooth corm type have more acidity.

✓ Elephant foot Yam is recommended for file disease

① Gajendra → Corms are large, black in colour and easily cooked and low in acidity.

Yield is about 500-800 q/hect

② Kover → It is widely cultivated in south India and yield about 10 tonne/hect

③ Samragochi → Corm rough, small and have more tubers yield is about 500-700 q/hect

④ Sree Padma → Developed by CTCRI Mettur in 8.9 months and yield about 420 q/hect

⑤ Sree Atrira → It is a hybrid cultivar. It is a cross between

(Sree Padma x AM-45)

⑥ Bidhan Kusum

⑦ Narendra Asha

~~AM-45~~
01/12/11

Exercise 5.

Object: To calculate Cost of Cultivation and Benefit Cost Ratio of potato per 1 ha area,

Cost of Cultivation

Input	Unit	Rate (₹)
Planted Tuber	20 kg 1 kg = 10 tubers	20,000 × 10 20,000 ₹
FYM	1 kg = 45 250 q	250 × 45 = 11250 ₹
Urea	110 kg N 1 kg Urea = 5.41 ₹ Total 271.8 kg.	1470.2 ₹
DAP	90 kg P ₂ O ₅ 1 kg = 22.7 ₹ Total 195 kg.	4426.5 ₹

MOP 90 kg K_2O

1 kg = 16 ₹
150 kg.

2400 ₹.

Pesticides

(Pendimethalin)

1.5 L

450 ₹ (per 15L)

Operation:

(A) Preparation tillage with 3 ploughing followed
By the → 20 labour
3 ploughings

(B) Application of FYM → 10 labour

(C) Application of fertilizer → 7 labour

(D) Preparation of beds and
sowing of seeds → 35 labour

Yield. 200 t/ha

gain per 1 kg \rightarrow ~~12~~ ₹ 12 \Rightarrow $200 \times 1000 \times 12$ ₹
change to kg
 $= 20000 \times 12$ ₹

Total gain \rightarrow 240,000.

₹ 2,40,000

Benefit Cost = $240,000 - 76,596$
 $=$ 163,404

(e) Interculture with 1 hoeing
and Earthing up. → 40 labour

(f) Irrigation (twice) → 5 labour.

(g) plant protection measure (with 3 spray) → 7 labour

(h) Harvesting → 40 labour

∴ Total labour. → 164

Total charge of labour → ₹ 24,000

Tractor charge → ₹ 4800

Transportation → ₹ 7800

Total charge ⇒ $36,600 + 39,996.7$ (Total cost of Input)
(labour + tractor + transport)
⇒ 76,596.7

Yield → 200 q/ha

Exercise. 6.

Object : To study the varieties of potato

1) Indian Potato Varieties.

Early Variety 70-80 days.

Medium 90-100 days

Late 100-110 days

Early Maturing Varieties :
 kalyani Chandramukhi
 kalyani Jawahar
 kalyani ashoka
 kalyani Surya
 kalyani Larkar

Medium Maturity Varieties :
 kalyani Jyoti
 kalyani Moti
 kalyani Badshah

Late Maturing :
 kalyani Sindhuvi
 kalyani Kishor
 kalyani Sajal
 kalyani Himani

Exercise

Objective: To study the Varieties of Yam.

Varieties & hybrids of *Dioscorea* spp.

(I) *Dioscorea esculenta* (Lesser Yam)

(a) Sree late : Tubers large, spindle shaped,
Skin brown, with fleshy creamy
white flesh contain 18.4% starch

Crop Ready in 220-240 days.

Yield + 220-270 q/ha

(b) Sree kale : Tuber smooth & good cooking quality.

Harvest : 240 days, Yield - 200 q/ha

~~(II) *Dioscorea alata* (Greater Yam)~~

(9) Sree kinthi tubers spindle shaped &
flesh white.
Starch → 20-29%

Harvest - 270-300 days
 yield - 300 q/ha

(b) Sree Rupe - Tubers Medium Sized
 irregular shaped, Starch - 70-90%
 & 1.2% protein, Crop duration - 220-230 days
 yield - 250-300 q/ha

(c) Sree Shilpa - 1st Hybrid of Greater Yam
 and it is crossed between
 DAL-40 x Sree Kirthi

Harvest - 220-240 days

(III) Dioscorea rotundata (white Yam)

(a) Sree Subhra ? Tubers cylindrical
 Starch - 20-21%
 yield - 360-400 q/ha

(b) Sree Priya :

Contain 20-21% starch,

Duration \rightarrow 240-260 days,
Yield \rightarrow 350-400 q/ha

(c) Sree Dhanya : Dwarf variety with
50-60cm in diameter.

Crop duration \rightarrow 240-260 days,
Yield \Rightarrow 200-250 q/ha.