



# PROFILE OF AICRP ON TUBER CROPS BHUBANESWAR CENTRE

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**T**ropical tuber crops play a significant role in ensuring food and nutritional security for small and marginal farmers, as well as tribal communities in Eastern and North Eastern India. These crops produce a substantial amount of dietary energy and have stable yields under diverse agro-climatic conditions, including various soil types and high rainfall, with significant regional variations. The major tropical root and tuber crops covered under the All India Coordinated Research Project on Tuber Crops (AICRP TC) include cassava, sweet potato, elephant foot yam, greater yam, lesser yam, aerial yam, taro (eddoe and dasheen), swamp taro, giant taro, arrowroots, winged bean, coleus, and others. In Odisha, sweet potato, yams, aroids, yam bean and arrowroots are the primary tuber crops. Tribal farmers are having a special affinity towards these tropical tuber crops. Odisha ranks first in India for both the area under cultivation and the production of sweet potato. The ICAR-Central Tuber Crops Research Institute (ICAR-CTCRI) Regional Centre has been a part of the AICRP project since its inception in 1968.

## **Mandate**

- Collection of germplasm of root and tuber crops from different regions of the country particularly from the tribal/hilly areas and maintaining them as field gene bank.
- Evaluation of germplasm for economically important traits including high yield, starch, carotene, short duration, tolerance/resistance to biotic and abiotic stress and sharing of promising entries among the centres.
- Carrying out location specific trials to identify improved high yielding and value added varieties suitable to different agro-ecological zones of Odisha.
- Standardization of suitable agro-techniques and cropping systems for improved varieties of root and tuber crops in different agro-ecological zones of Odisha, so as to enhance the productivity.
- Evolve suitable and effective management practices for major pests and diseases of root and tuber crops.
- To popularize and create awareness on the importance and nutritional aspects of major root and tuber crops.
- To organize production and supply of healthy planting materials of major root and tuber crops in liaison with State Agri/Horti. Departments, KVKs and NGOs.

## Mandate Crops

Crop	Scientific name	Family
Cassava	<i>Manihot esculenta</i> Crantz	Euphorbiaceae
Sweet potato	<i>Ipomoea batatas</i> (L.) Lam.	Convolvulaceae
Greater yam	<i>Dioscorea alata</i> L.	Dioscoreaceae
White yam	<i>Dioscorea rotundata</i> Poir.	Dioscoreaceae
Lesser yam	<i>Dioscorea esculenta</i> (Lour.) Burkill	Dioscoreaceae
Aerial yam	<i>Dioscorea bulbifera</i> L.	Dioscoreaceae
Other yams	<i>Dioscorea hispida</i> Dennst.	Dioscoreaceae
	<i>Dioscorea pentaphylla</i> L.	Dioscoreaceae
Arvi/Taro	<i>Colocasia esculenta</i> var. <i>antiquorum</i> (L.) Schott	Araceae
Bunda	<i>Colocasia esculenta</i> var. <i>esculenta</i> (L.) Schott	Araceae
Swamp taro	<i>Colocasia stoloniferum</i> (L.) Schott	Araceae
Tannia	<i>Xanthosoma sagittifolium</i> (L.) Schott	Araceae
Elephant foot yam	<i>Amorphophallus paeoniifolius</i> (Dennst.) Nicolson	Araceae
Giant taro	<i>Alocasia macrorrhizos</i> (L.) G. Don	Araceae
Giant swamp taro	<i>Cyrtosperma chamissionis</i> (Schott) Merr.	Araceae
Country potato	<i>Solenostemon rotundifolius</i> (Poir.) J.K. Morton	Labiatae
Arrowroot	<i>Maranta arundinacea</i> L.	Marantaceae
Canna	<i>Canna edulis</i> Ker-Gawler / <i>Canna indica</i> L.	Cannaceae
Winged bean	<i>Psophocarpus tetragonolobus</i> (L.) DC.	Leguminosae
Yam bean	<i>Pachyrhizus erosus</i> (L.) Urb	Leguminosae
Vigna	<i>Vigna capensis</i> (L.) Walp.	Leguminosae
Typhonium	<i>Typhonium</i> spp.	Araceae
Costus	<i>Costus speciosus</i> (Koenig) Sm. (J. Konig) C. Specht.	Costaceae
Shoti	<i>Curcuma</i> spp.	Zingiberaceae

## Objectives

- To explore the biodiversity in tropical tuber crops from the unexplored areas of different regions.
- To generate region specific varieties for economically important traits.
- To develop agro-techniques and cropping system technologies including pest and disease management
- To create awareness about tropical tuber crops among the farming community through demonstrations, trainings, exhibitions etc.
- To produce and distribute healthy planting materials of improved varieties

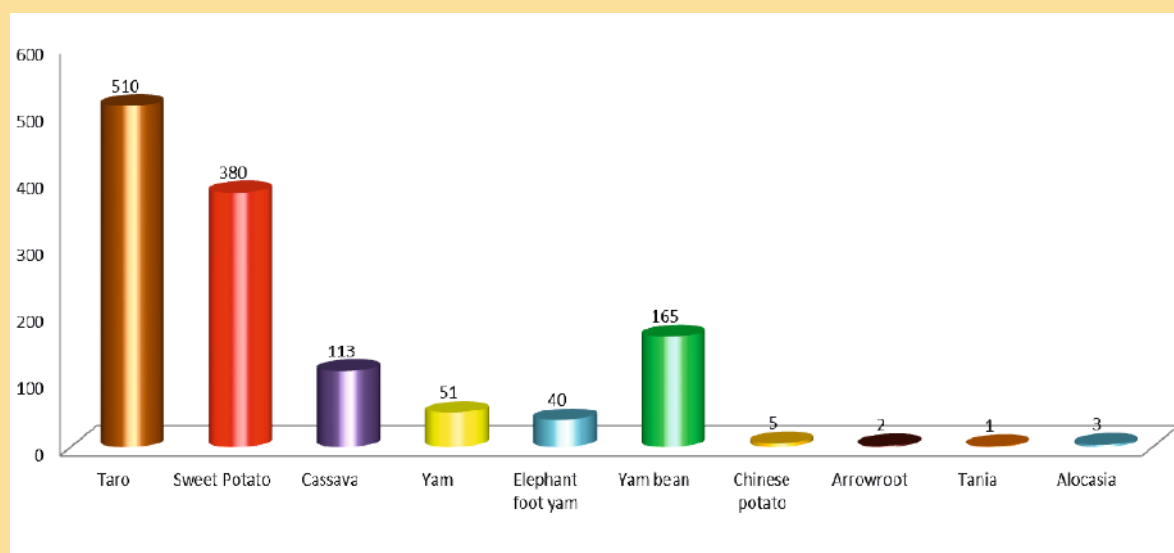




Fig: Field view of germplasm maintenance at Regional Station, Bhubaneswar

### Varieties Released

Sl. No.	Crop	Variety	Year of Release
1	Sweet Potato	Gouri	1998
		Sankar	1998
		Kalinga	2004
		Goutam	2005
		Kishan	2005
		Sourin	2005
		Bhu Kanti	2017
		Bhu Ja	2017
		Bhu Swami	2017
		Bhu Sona	2017
2	Taro	Bhu Krishna	2017
		Muktakeshi	2002
		Pani Saru-I	2005
		Pani Saru-II	2005
		Bhu Kripa	2017
3	Greater Yam	Bhu Sree	2017
		Orissa Elite	2005
		Bhu Swar	2017



**Bhu Swami**



**Bhu Sona**



**Bhu Kanti****Bhu Krishna****Bhu Kripa****Bhu Sree****Bhu Swar**

## **Production and Protection Technologies**

The AICRP on Tuber Crops Bhubaneswar Centre has conducted production technology experiments and identified several adaptive technologies to enhance the production and productivity of tuber crops

- Use of bio fertilizers in sweet potato for increasing nitrogen use efficiency
- Production techniques for sweet potato in rice based cropping system
- Fertilizer best management practices in sweet potato
- Fertilizer best management practices in taro
- Effect of BBF (broad bed and furrow) method, crop geometry and plant population on elephant foot yam productivity
- Organic production practices for elephant foot yam using biofertilizers
- Intercropping systems in elephant foot yam with spice crops

- Integrated weed management in cassava
- Farming system models involving tuber crops
- IPM (Integrated Pest Management) package against sweet potato weevil
- Management of mealybugs in elephant foot yam



## Development Programmes

The centre has undertaken special schemes, such as the Tribal Sub Plan (TSP), Scheduled Caste Sub Plan (SCSP), to improve the food, nutrition, and livelihood security of marginalized segments of society. It regularly conducts extension activities to popularize tuber crop varieties and technologies. These activities include training programs, demonstrations, scientist-farmer interactions, farm advisory visits, and the distribution of farm inputs and implements.





## Development of value-added products

### • Roots & Millet: Nutri-meal (ready to eat)

Instant healthy nutri-meal is a combination of cereals, pulses, millets, tuber crops and dry fruits. This food is prepared with healthy process of baking of ingredients keeping the quality of each ingredients intact, making the final product safe, healthy and gluten free. Nutri-meal is suitable for all age groups and healthy diet plan.

Type -1: Bhu Krishna flour with sugar and elaichi flavour

Type -2: Bhu Krishna flour with jaggery and elaichi flavour

Type -3: Bhu Sona flour with sugar and elaichi flavour

Type -4: Bhu Sona flour with jaggery and elaichi flavour

Type -5: Bhu Krishna flour with sugar and vanilla flavour

Type -6: Bhu Krishna flour with Jaggery and vanilla flavour

Type -7: Bhu Sona flour with sugar and vanilla flavour

Type -8: Bhu Sona flour with Jaggery and vanilla flavour

- **Roots & Millets: Sweet potato cookies and nankhatai**
- **Roots & Millets: Cassava cookies and nankhatai**
- **Sweet potato jam**
- **Cassava jam**



## Awards

- **Best Centre Award – 2021**



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