

## Collection and Cultivation of Organic Root Crops in Support to Organic Agriculture Philippines

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### Abstract

This study was conducted at the Department of Agriculture- Nueva Vizcaya Experiment Station (DA-NVES), Tapaya, Bagabag, Nueva Vizcaya, Region 02, Philippines. The aim was to collect, document, conserve and promote the organic cultivation of root crops in Region 02, Philippines with outstanding characteristics. Popular varieties of sweet potato, taro and yam were collected from different municipalities in the region. The varieties were only identified by their local names such as suerte kamote, pitik, lampakan, tugui, and ubi. A technology demonstration cum production area was established at DA-NVES, Tapaya, Villaros, Bagabag, Nueva Vizcaya, Philippines using the organic way of cultivation. Availability of planting materials for root crops year round is undertaken by the station to cope with the demand of farmers in the locality. Field day was conducted to demonstrate the organic technologies used for root crops and at the same time promotion of organic agriculture in the region. It was attended by teachers, students, farmers, businessmen and other stakeholders from the region and from other regions in the country.

Keywords : collect, organic, and root crops

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## Introduction

Root crops is referred to as “famine crops”, and grown widely in several countries in all continents (Pardales et al., 2002). It is claimed to supply more than 20% of daily calorie requirement in sub-Sahara region of Africa (Kenyon et al., 2006). Several studies also reveal that root crops contain several phytochemicals that contribute to health benefit (Burlingame et al., 2009, Navarre et al., 2009, van Jaarsveld et al., 2006, Bhandari et al., 2003, and Chen et al., 2003). They are grown in backyards for consumption as vegetable, “mirienda” and as animal feeds, but there are only a handful that grow these root crops (ube, tugi, gabi, kamote) commercially in the region. Root crop like “tugi”/lesser yam is not known to younger generations because they can only be found on deep rural areas and only few cultivate them.

Ube, Tugi, Gabi and Kamote are not only known as vegetables but they can be processed into flour, flakes, jams and animal feeds. They are good source of carbohydrates, proteins, vitamins and phytochemicals. Studies show that they have medicinal uses such as diuretic, anti-inflammatory and antioxidant. They are also the cheapest source of carbohydrates or food energy for the Filipino next to rice and corn. But besides these great characteristics they are less popular especially to younger generation.

In support to Republic Act No. 10068 or the Philippine Organic Agriculture Act of 2010 this project was conducted to collect existing root crop varieties cultivated in Region 02, Philippines, and conserve it through continuous organic production practices at Nueva Vizcaya Experiment Station, Bagabag, Nueva Vizcaya, Region 02, Philippines. The project promotes organic agriculture with the establishment of

technology demonstration area that showcase the organic production practices and indigenous root crops of the region. A field day was also conducted where students, farmers, teachers, businessman and other stakeholders was invited, in this way the less popular root crops and organic agriculture will be known with its health benefits for future generation.

The technology demonstration area was maintained and the collected root crops varieties were conserved and served as gene bank of indigenous root crops and other root crops of Region 02, Philippines. Planting materials will be readily available to organic farmers in the region.

## Materials and Methods

Project staffs collected planting materials of different root crop varieties from farmers in municipalities of region 02 known to root crop cultivation. Most of which are from upland areas of Nueva Vizcaya and Quirino, Region 02, Philippines. These planting materials of Purple Yam (ubi), Lesser Yam (tugui) Sweet Potato (camote) and Taro(gabi) were purchased. Local names and sources were also recorded.

The collected planting materials were planted on a 1.0 hectare area at the Department of Agriculture - Nueva Vizcaya Experiment Station, Tapaya, Villaros, Bagabag, Nueva Vizcaya. Organic production was based on the Philippine National Standards for Organic Agriculture. The area serves as the technology-demonstration site that showcases the organic production technologies, local names of different root crops and importance of root crops.

A field day was conducted where farmers, students, teachers, businessman and other stakeholders from the region and other

regions of the country were invited to attend. Technical briefing on the technologies used in the production of the root crops was discussed.

### Results and Discussion

Root crop varieties commonly cultivated in the region which was preferred by farmers and consumers were collected. There were two kinds of Purple yam, locally known as *UBI*, two kinds of Lesser yam known as *TUGUI*, two taro varieties were collected and farmers called *PITIK* and *LAMPAKAN*. One sweet potato cultivar was very popular in Ambaguio, Nueva Vizcaya, Philippines and was collected with local name as *SUERTE KAMOTE*.

There are other root crop varieties encountered during the collection process but the project considered only the farmers' preference on the varieties and the current crop status of the root crop variety. To demonstrate the performance of the different collected root crops, a field day was conducted and was attended by farmers, students and other stakeholders. During the field day participants had a field tour to the techno-demo area to witness the different collection of root crops collected. Technical briefing on the organic production technology used was also conducted.

The techno-demo area was maintained to sustain availability of planting materials of the root crop varieties. Planting materials were distributed to known root crop farmers.

### Conclusion

Root crops are resilient to climate change and it is highly recommended for organic cultivation. Region 02, Philippines has a vast track of land where we can find different local root varieties that have good potential in terms of yield and adaptability.

With the existence of the root crops gene bank the emergence of insect pest and diseases shall be controlled or eliminated. It is important to continue collecting cultivars of root crops for diversification and characterization to sustain the needs of quality organic planting materials.

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