

UBE

Ubi (*Dioscorea alata* L.) or yam is a vine which produces both aerial tubers called bulbils and underground tubers or roots. The bulbils weighing a few grams and to over a kilogram come out from the leaf axils three (3) months after planting. The underground tubers weighing one to six kilograms can be harvested six months after planting.

The ubi roots has 70 percent moisture and 28 percent starch. It also contains traces of fats, crude protein, sugar, crude fiber, ash and Vitamin C, B1 and B2.

Ubi is grown primarily for its roots or tubers. The tubers can be eaten boiled, baked, roasted, flakes, chips and can be processed into powder form. Dehydrated yam slices are used for the preparation of food such as ice cream, cakes, pastries and other dessert. The ubi skin or peeling can be used as a raw material for the manufacture of food coloring.

RECOMMENDED VARIETIES

VU-1 (BASCO UBI)

Yield : 18-20 tons/ha
Dry Matter : 28.80%
Starch: 21.25% (wet basis)
Protein : 1.55% (wet basis)
Maturity : 29 weeks
Skin color : brown
Cortex color : white with purplish flesh/tinge
Growth habit: green with purplish leaf veins, nodes and petiole ends

VU-2 (ZAMBALES UBI)-LA 167

Yield : 16.08 tons/ha
Dry Matter : 30.49%
Protein : 1.33%
Maturity : 29 weeks
Skin color : brown
Cortex color : purple
Growth habit : twinning
Foliage color : green with purplish leaf veins, nodes and petiole ends
Reaction to disease : Resistant to foliar fungal disease

VU-3 (LEYTE)-LA 100

Yield : 21.26 tons/ha
Dry Matter : 30.10%
Starch 20.96%
Protein : 1.52%
Maturity : 31 weeks
Skin color : brown with blackish tinge
Cortex color : cream to pink
Flesh color : white
Growth habit: twinning
Foliage color : green with light green veins, petiole ends

KINAMPAY VARIETY

Kinampay Variety is known for its sweet aroma and good taste and dubbed as the “Queen of Philippine Yams” which has smooth and round roots. Ubing Kinampay is classified into five (5) varieties namely;

Original Kinampay: reddish purple flesh

Kabus-ok:white flesh with large roots

Tamisan: reddish white flesh and sweeter in taste

Binanag : creamy-white flesh and elongated

Binato: big and hard root with whitish flesh color

Other local cultivars are Binalog, Ubsah, Appari, Negro, Alabat, Kameral I and Kameral II.

SOIL AND CLIMATIC REQUIREMENT

Ubi thrives anywhere in the Philippines and in a wide range of soil types and elevation because it can tolerate adverse conditions such as droughts and pest infestations. However, it thrives best in sandy loam or silt loam fertile, well-drained soil and temperature ranging from 25°C to 30°C. Ubi needs ample moisture throughout the growing season.

The crop can be grown anytime of the year but for best results, planting should be done at the beginning or just after the rainy season when it can obtain all the moisture it needs for growth.

CULTURAL MANAGEMENT

LAND PREPARATION

TILLAGE

Two plowings and two harrowings are usually enough for ubi for a field that has been previously cultivated. Plow deeply. Ubi needs a deep loose soil. Harrow along and across the length of the field to pulverize the soil.

SEEDBED

Plant ubi on flat or ridged seedbeds. These are preferable to other types of seedbeds; If flat beds are used, plant after the last harrowing. On sloping or rolling fields, contour the ridges to minimize soil erosion.

CROP ESTABLISHMENT

SETTS PREPARATION

About 20,000 to 27,778 setts are needed for a hectare of land. There are four types of setts: head, middle, tail and whole. The first three are prepared by cutting large tubers into pieces. The fourth type refers to the whole small tuber. Setts should be obtained from healthy tubers of healthy plants.

Slice large tubers into setts weighing from 60g to 250g. Do not slice tubers weighing less than 60g. Be sure that each setts has enough skin area. Treat cut sides of setts with ash or fungicide. Air or sun-dry the setts until cuts are dry. After drying, setts maybe pre-sprouted or planted directly.

PRE-SPROUTING SETTS

Sprouts emerge from setts about 2-3 weeks after planting. Pre-sprouting the setts before planting is recommended to minimize weeding expenses before sprout emergence.

For a pre-sprouting bed, dig a shallow ditch in a shady area or clear the ground in a shady area by removing stones, weeds and debris.

Plant setts cut from large tubers either skin up or skin sideways. Whole tubers measuring 60 to 250g either crown up or crown sideways should be planted. Then

cover the setts with a thin layer of soil. Water the pre-sprouting bed at least one a week until most of the setts have sprouted.

PREPARING PRE-SPROUTED SETTS FOR PLANTING

With pre-sprouted setts, planting may either be staggered or done at one time.

STAGGERED PLANTING

The following activities must be performed in all batches of planting:

- a.** Remove from pre-sprouting bed setts that have emerged to prevent sprouts from growing too long.
- b.** Place the sprouted setts on a platform in a shady area.
- c.** Repeat the process every week or every two weeks until the desired number of sprouted setts for one batch of planting is obtained. Plant before the sprouts become too long to transport or before sprouts start wilting.

ONE-TIME PLANTING

The procedure of sett preparation is essentially the same as that for staggered planting. One-time planting is done only after most of the viable setts have produced sprouts. At this time, sprouts of some setts are already very long. Cut along sprouts before transporting setts to the field for planting.

PLANTING

Planting is done from March to June. However, planting time for ubi depends upon the time tuber dormancy is broken and the start of rain in the area.

NON-SPROUTED SETTS

Plant setts in the seedbed at a distance of 1m x 50cm or 60cm x 60cm. Plant the setts 10cm deep during the rainy season and 15cm during dry season, especially if the field will not be mulched. Setts can be planted in any position

PRE-SPROUTED SETTS

Plant the setts at the start of rain if it is not possible to irrigate or mulch the field. Plant the setts in the seedbed at a depth of 10cm and a distance of 1m x 50cm or 60cm x 60cm. Be sure to orient the sprout upward in planting.

Divide the field into four to six section and if staggered planting is applied. Each section is intended for one planting batch. The size and the time to prepare each section depend upon the rate of sett sprouting.

MULCHING

Mulch the field to reduce soil temperature, conserve soil moisture, increase organic matter content of the soil and suppress weed growth.

Use dry coconut fronds, corn stalks, rice straw and other similar materials in mulching. See to it that these materials are free from weed seeds.

Mulch the field just after planting. Make the mulch thick if rice straw or any material that rot easily are used.

WEEDING

With non-sprouted setts and without mulching, 3-5 weedings are needed. With pre-sprouted setts and with mulching, only two weedings at 2-month intervals are needed.

While plants are still short and unstaked or if the stake set-up allows, use animal-drawn implements to control weeds in an unmulched fields. Vines crossing the path of the animal should be lifted and placed along the rows before plowing.

Use handtools to weed the field once plants are already staked and the stake set-up does not allow the use of animal-drawn implement or if the field is mulched.

With non-presprouted setts and without mulching pre-emergence herbicides applied within one week after planting, maybe used to control weeds.

STAKING

Place a stake for each plant before vines start crawling on the ground. Stakes should be 1-2m long. Bamboo, wood, cassava stalks, talahib stalks, or any similar materials that can support the ubi vines which can be used as stakes for at least seven months. If cassava stalk is used, it should be set up in an inverted position (young end down) to prevent the stalk from producing new shoots.

TRAINING VINES

Ubi vines twines to the right. When vines start trailing on the ground, train the vines climb their respective stakes. Also, train the vines again when branches start crossing the rows, especially when weeding and hilling-up operations by using animal-drawn implements.

NUTRIENT MANAGEMENT

A hectare of ubi can remove about 128 kg nitrogen, 17kg phosphorus and 162 kg potassium from the soil. Collect soil samples from the field first before applying fertilizer and submit for soil analysis to the Bureau of Soils and Water Management.

Inorganic Fertilization – The recommended amount of fertilizer should be split into two, one half to be applied about one month after emergence (or one month after planting of pre-sprouted setts) and the other half about 2 months after the first application. Apply the fertilizer following the band method and placing the fertilizer about 10 cm away from the plants.

Organic Fertilization – Use of compost which is a mixture of decayed organic matter from plant parts and animal manure. Mix the compost with the soil during land preparation or place the compost just below the setts during the planting.

HARVEST MANAGEMENT

Ubi is ready for harvest when its foliage is already yellowing or drying up. For most varieties, the drying up period of the foliage starts in late November and lasts until January the following year. Tubers intended for sett production should be harvested at the later part of the drying up period. However, tubers for consumption or for selling in the market should be harvested earlier, even before foliages dries up.

Harvesting ubi in sandy soil, use sturdy sticks sharpened at one end to dig out the tuber, remove soil particles that cling to the tuber and cut the vine at the base. For

clayey and varieties with deeply buried tubers, use ubi harvester developed by the Philippine Rootcrops Research Training Center.

Prior to transporting, separate healthy tubers from diseased ones. Tubers should be arranged in a container in such a way that rubbing of tubers inside the container can be prevented. Place tubers in rattan baskets or in bamboo or wooden crates lined with soft material such as paper, banana leaves or straw. Arrange 2-4 layers of tubers in the container, the bigger the tubers the fewer the number of layers. Place soft material between layers and between tubers in a layer to serve as cushion.

STORAGE

Tubers need to be stored in a bam while they are not yet marketed nor consumed whereas tubers intended for setts need to be stored until planting or replanting time. Storage structure for ubi should be shaded and adequately ventilated.

THERE ARE THREE METHODS OF STORAGE:

Barn storage – tubers are tied to vertically arranged poles held together by sturdy horizontal poles. Durable tying materials like rope are use din tying the tubers to the poles. The vertical poles are arranged about 50cm apart.

Platform storage – large tubers are placed in one layer on raised platforms constructed in the shed. Small tubers are arranged in 2-3 layers.

Shelf Storage – Tubers are placed on several decks of platforms instead of just one deck.