



# How to Grow UBI (FERTILIZATION, PEST AND DISEASES MANAGEMENT)

Volume 1, Series 2



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## AGRICULTURAL TRAINING INSTITUTE REGIONAL TRAINING CENTER 7

Cabawan District,  
Tagbilaran City 6300 Bohol  
Email: aticv.7@gmail.com;  
ati\_7cv@yahoo.com  
Mobile: 09173218524  
URL: [www.ati.da.gov.ph/ati-7](http://www.ati.da.gov.ph/ati-7)



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ILLUSTRATIONS courtesy from M.B. Cerna

# PEST AND DISEASES

Ubi or Yam is beset by pest and disease problems both in the field (anthracnose disease infection) and in storage (insect infestations are more serious than diseases).

They are the most limiting factors in yam production which becomes more serious as population and area under cultivation increase.

## FOLIAR DISEASES

### 1. Anthracnose - (*Colletotrichum gloeosporioides*) and Leaf Spot - (*Cercospora spp.*, *Phyllosticta spp.*, *Curvularia sp.*, *Pestalotiopsis sp.*)

This group of diseases can cause very serious damage to plants in the field. Usually starting in July or August, they appear as angular or circular dark brown spots.

In severe cases, stems are also affected, thereby causing the entire foliage to dry up prematurely.

To control these diseases, plants can be sprayed with recommended fungicides or with compost tea as a preventive measure.

Compost tea is prepared by soaking 1/2 sack (15kg) of mature compost in 3/4 drum (200-L capacity) of water for 5-7 days.

Dilute the tea to 20 parts water and spray on the plants.



### 2. Rust - *Uredo dioscoreicola* or *Gopalan dioscoreae*



**A**ppear as thickened orange specks on the leaves.

Like leaf spot and anthracnose diseases, it is usually observed during the rainy season.

Control measures for this disease are similar to those for leaf spot and anthracnose.

### 3. Tuber Rots

**T**hese diseases may be observed in the field or during storage, but are usually more common and serious in the latter.

They can be observed as dark brown or decayed black portions of the tuber. The diseased part may either be dry or moist.

To control these diseases cut away the rotten portions of diseased tubers.

Treat the cuts with wood ash or fungicide.



## INTEGRATED CONTROL

### 1) SANITATION

- Store healthy tubers
- mechanical trimming of infected portion and dipping cut portion in ash
- clean storage area before storing tubers

### 2) SELECTION OF TUBERS PRIOR TO STORAGE

- Botanicals such as lantana or neem leaves to cover the stored tuber

### 3) PROPER AGRONOMIC PRACTICES

- Sanitation
- Use of healthy planting materials
- Early planting, April
- Cropping system (legumes)
- Cropping rotation
- Staking
- Spacing
- Timing of planting





**U**bi (*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.

## NUTRIENT MANAGEMENT

### Fertilization

**A** hectare of ubi can remove about 128 kg nitrogen, 17 kg phosphorus and 162 kg potassium from the soil.

Collect soil samples from the field first before applying fertilizer. Request the assistance of the local Farm Management Technician regarding this.

Submit the soil samples to the Bureau of Soils for analysis. Get the results.

### APPLICATION OF FERTILIZER



**T**he recommended amount of fertilizer should be split into two, one half to be applied about 1 month after emergence (or 1 month after planting in the case of presprouted sets) 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. Cover the fertilizer with soil.

# APPLICATION OF COMPOST

**U**bi responds well to organic fertilizer like compost, a mixture of decayed organic matter from plant parts and animal feces.

Mix the compost with the soil during land preparation or, place the compost just below the setts during planting.

## Did you know?



**V**ermicompost is also nutrient rich.

It contains: nitrogen, phosphorous, potassium, calcium, sodium, magnesium, iron, zinc, manganese, copper, boron, and aluminum.

The most important of these being the nitrogen, phosphorous, and potassium that they add to the soil.

Vermicomposting tweaks the benefits of traditional composting with the help of some unlikely facilitators -- earthworms. Advantages of vermicompost include enriching soil, increasing harvest yields and suppressing plant disease.

## COVERING EXPOSED TUBERS



**A**s tubers elongate rapidly towards the end of the growing period of the plant, some of them tend to heave, thereby causing them to be exposed to the sun.

Heavy rains also expose tubers.

Cover exposed tubers with soil to prevent them from greening.

# STORAGE PESTS

## 1. Root Knot Nematodes - *Meloidogyne incognita*)

**R**oot-knot nematodes are microscopic, plant-parasitic roundworms in the genus, *Meloidogyne*. Normally they exist in sandy soil in hot climates or short winters.

Avoid using tubers infested with nematodes as planting materials.

The symptoms of root knot caused by root knot nematode include bumps and excess hairiness that are not typical of the cultivar.

Dipping the infested tubers in hot water at 50-55 degrees celcius for 40 minutes can suppress the nematode without adverse effect on the storage life, germination, growth, and yield of the tubers. The use of animal manure can suppress nematode build-up thereby resulting in high yield.

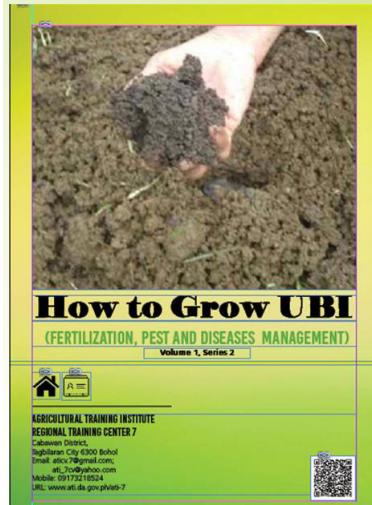


## 2. Ubi beetles



**U**bi beetles can be controlled with hot pepper spray (100g macerated hot pepper/16L water).

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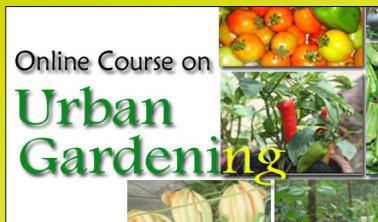
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**AGRICULTURAL TRAINING INSTITUTE-RTC7**  
INFORMATION SERVICES SECTION (ISS)  
Cabawan District, Tagbilaran City 6300 Bohol  
[www.ati.da.gov.ph/rtc7](http://www.ati.da.gov.ph/rtc7)  
Email: aticv.7@gmail.com  
Mobile: 0906.334.5519

