

# **GABI**

## **INTRODUCTION**

Gabi or taro is one of the most important root crops in the Philippines. Notwithstanding its widespread cultivation, this crop is commonly planted in areas not really suitable for its culture since traditional staples (i.e., rice and corn) and vegetables are given priority to occupy good production areas. Although gabi has the ability to grow in marginal and submarginal areas, it normally grows well and produces high yield when cultivated in more suitable areas favored with the right soil and rainfall needed by the crop.

Apart from the ecological needs of gabi, good growth and yield is better insured when appropriate cultural management is given to the crop, hence this digest has been prepared to give one an insight to the basic requirements in its culture.

## **ECOLOGICAL REQUIREMENTS**

### **SOIL**

Gabi can be grown in a wide range of soil types either as upland (dryland) or lowland (wetland) crop. The term upland refers to gabi production under a non-flooded condition and does not necessarily mean growing in high elevations. Under upland culture best results are obtained on deep, well-drained loam soil. Under lowland cultivation, which is usually in low-lying areas with abundant supply of fresh cool water for irrigation, best results are obtained if the soil is alluvial. In either culture, soil pH ranging from 5.6-6.5 is reported to be best. Although gabi can be grown in water-logged areas, it does not usually grow well in these places because the temperature build-up of the water during hot days causes the plant to respire more.

### **RAINFALL**

Gabi is best adapted to a warm and moist environment. Evenly distributed rainfall is ideal especially for upland gabi. In areas with distinct dry and wet periods, planting upland gabi should be timed in such a way that the first four to five months of growth should receive a good amount of rain. For lowland gabi, as long as there is a continuous supply of fresh and cool water, rainfall pattern is not critical.

### **TEMPERATURE**

A daily average temperature of 27-29C is ideal for gabi. Below 27C, yield is reduced. Likewise, above 29C the plants are stunted and yield is greatly depressed.

## **CULTURAL REQUIREMENTS**

### **LAND PREPARATION**

The method of land preparation generally depends on the culture used, whether upland or lowland. Upland fields for gabi production is prepared in the same manner as that for other crops like corn. The field is plowed and harrowed thoroughly to kill the weeds and pulverize the soil. When labor is scarce, one plowing followed by harrowing is enough as long as existing weeds are properly controlled. After the soil is thoroughly prepared, furrows are set. If flat planting is preferred, setts (planting materials) are planted without making furrows.

For lowland culture, the field is prepared in a manner similar to that of lowland rice. Existing weeds are first removed by cutting mechanically or by hand, then the field is plowed and harrowed both to puddle the soil and to flatten the area to ensure even distribution of irrigation water. When the field is thoroughly prepared, lines are drawn using a lining board or an ordinary string as planting guide.

### **PLANTING MATERIALS**

Planting materials are called setts. A sett is prepared from a plant or daughter plant, i.e., either sucker or rhizome. It consists of the upper 1-2 cm of the corm or cormel plus the lower 20-25 cm of the petioles. Best results are obtained with a sett size of 100-120 g. Smaller-sized setts can be used but maturity is delayed. Planting materials should be uniform in size but if different sizes of setts are used, plant together those that are more or less of the same size.

Cormels can also be used as planting materials but these are easily attacked by disease-causing organisms.

### **PLANTING DISTANCE**

The recommended planting distance is 75 cm between rows and 50 cm between plants in the row. Closer planting at 50 cm x 50 cm may be done but the size of individual corms gets smaller as planting distance becomes closer. Both of the above mentioned planting distances are applicable for upland and lowland culture.

### **PLANTING METHOD**

Under upland culture, gabi can be planted in furrows or in flat beds (without any furrow) with the help of a bolo or a stick. If flat culture is preferred and irrigation is not possible, setts should be planted deeper (8-10 cm) during dry months and shallower (4-5 cm) during wet months. Mulch to conserve moisture and control weeds can be spread around the gabi plants. If labor is not a problem, planting can be made

in holes about 15 cm wide and 20 cm deep. A sett is placed in one hole and is partially covered with soil. As the gabi grows the holes are naturally and slowly filled with soil.

In the lowland, planting is done in flat fields and setts are just inserted about 4-5 cm deep by hand into the puddled soil.

## **FERTILIZER APPLICATION**

It is important to determine first the nutrient status of the soil before planting gabi. If the soil is rich in organic matter, inorganic fertilizer may not be added. If the soil is rather poor, apply 30-30-30 kg/ha N, P<sub>2</sub>O<sub>5</sub>, K<sub>2</sub>O or more if necessary. Apply 1/2 of the total fertilizer requirements upon planting and the other half 2 months after planting. The same should be done for lowland culture but the field should first be drained of water before fertilizer application. Side dressing brings better fertilizer effect in contrast to broadcasting followed under upland culture. Under lowland culture, broadcasting is practical because there is sufficient moisture to dissolve the fertilizer at once.

## **WEEDING AND CULTIVATION**

Gabi is especially sensitive to weed competition. In both lowland and upland cultures, the fields should be rid of weeds particularly during the first 8-10 weeks after planting. However, weed competition after this period should not be tolerated especially if plant canopy has not yet closed.

For upland culture, weeds can be controlled mechanically by hand weeding or by means of plowing the inter-row spaces during off barring and hilling up operations. Chemical weed control is good as long as the plants are thoroughly protected.

For lowland culture, it is enough that weeds are properly controlled. This can be done by regulating the water depth in the paddy.

One good way of controlling weeds in upland gabi is by planting intercrops. Legumes, especially mungo, is a good intercrop because of its short growing period and early maturation before the gabi canopy closes.

## **PEST CONTROL**

Insect pests like aphids, army worms, hornworms and grasshoppers attacking gabi plants can be controlled by spraying appropriate insecticides. For gabi disease like leaf blight, the application of fungicides is an effective control practice. For plants that show symptoms of virus infection, removing and burning the plants are good control measures.

## **HARVESTING**

Time of harvest depends upon the variety used although normally upland gabi matures earlier than lowland gabi. The best indication of maturity in gabi is the size of the corm. A physiologically mature gabi plant has leaves turning yellowish and petioles becoming short but this should not be mistaken for drought effect.