

TEKNO GIYA NO. 3-2017  
Corn Program



# CASSAVA DISEASE RATING SCALE





## **INTRODUCTION**

Cassava is one of the most important crops grown in the Philippines. Aside from being food source for human, it is also an important ingredients for animal feeds.

It can also be processed into various food products for a higher price or the so called value adding products. Cassava is also used for industrial purposes as raw materials such as bio-ethanol.

The demand for cassava continued to rise due to ever increasing need for human food, animal feeds and industrial uses.

But one of the factors that limits for higher production of cassava in the country is disease.

Thus this rating scale brochure had been conceptualized and published to serve as a tool guide for the agricultural extension workers and for farmers as well on various diseases affecting cassava.

## A. THE CPD INDEX

Cassava Phytoplasma Disease (CPD)/Witches' Broom caused by "Candidatus Phytoplasma"

Cassava phytoplasma disease (CPD) is one of the most destructive diseases of cassava. Infected plants display several types of symptoms. Asymptomatic infected plants are often observed. The disease reduces root yield and starch content significantly. Total yield loss may occur if the symptoms appear on the onset of crop establishment.



**RATING 1**

**DESCRIPTION**

No symptoms observed and plants appear healthy.



**RATING 3**

**DESCRIPTION**

Onset of mild chlorosis or anthocyanescence on the apical portion of the plant mainly on the younger leaves. The leaves become stiff but most appear healthy.

**RATING 5****DESCRIPTION**

Pronounced symptoms of witches' broom, excessive anthocyanin pigmentation or yellowing of leaves, stiff leaves, shortening of the internodes and onset of multiple axillary bud growth are observed.

**RATING 7****DESCRIPTION**

Advanced symptoms of infection including yellowing of leaves, extreme shortening of internodes, bunchy top, profuse axillary bud formation and distortion of leaf deformation

**RATING 9****DESCRIPTION**

Advanced symptoms of infection including yellowing of leaves, extreme shortening of internodes, bunchy top, profuse axillary bud formation and distortion of leaf deformation

## B. THE RSM INDEX

Cassava Red Spider Mites (RSM)

*Tetranychus kanzawai* Kishida

Red spider mites initially attack the mature leaves of the lower part of the plant before transferring to the upper leaves of the plant. They suck sap on leaf surface causing yellow dots to appear on puncture wounds. Damaged leaves turn brown and eventually fall off the stem leaving only the shoot intact. Plants recovering after heavy defoliation show axillary bud regrowth that could be mistaken as cassava witches' broom disease. Infestation during the first 4 months after planting reduces yield by 30-50% and starch content by 10-20%.



### RATING 1

#### DESCRIPTION

No visible damage and no mites observed.



### RATING 3

#### DESCRIPTION

Basal or middle leaves have noticeable whitish yellow specks of about 50-100 per leaf.

**RATING 5****DESCRIPTION**

Basal and middle mature leaves become infested. Leaves turn yellow and become necrotic.

**RATING 7****DESCRIPTION**

Extensive damage on basal and middle leaves. Webbing is present on some leaves. Defoliation starts.

**RATING 9****DESCRIPTION**

Plants are severely defoliated and mites are abundant on all parts of the plant. Leaves become necrotic and plant may die.

## C. THE SCALE INSECT INDEX

### White Peach Scale

*Pseudaulascaspis pentagona* Targioni-Tozzetti

Infestation of the scales starts at the base of the stem and progresses upwards. Delayed and reduced germination happen when infested planting materials are used. Infestation can cause 10-20% yield reduction depending on variety and stage of plant growth. Loss of planting materials is expected during severe infestation.



#### RATING 1

#### DESCRIPTION

No scale insects seen around the lateral buds.



#### RATING 3

#### DESCRIPTION

Few scales are around lateral buds and internodes.



**MODERATE INFESTATION****5****RATING 5****DESCRIPTION**

Scales completely cover the growing points and 50% of the internodes.

**SEVERE INFESTATION****7****RATING 7****DESCRIPTION**

Approximately 75% of the stem and branches are covered with scales.

**VERY SEVERE INFESTATION****9****RATING 9****DESCRIPTION**

Scales completely cover the whole stem and terminal shoots desiccate.

## D. THE MEALYBUG INDEX

Cassava Pink Mealybug

*Phenacoccus manihoti* Matile-Ferrero

The pest damages the crop directly by sucking the sap and injecting the plant with its toxic saliva that causes stunting, leaf deformation, dieback, distortion and weakening of stems used for propagation. It also indirectly damage the plant by favoring the development of sooty molds that reduces photosynthetic rate of the plant compromising tuber production and quality. It can reduce yield and starch content at high infestation level.



**RATING 1**

### DESCRIPTION

Healthy plant with no mealybugs or cottony masses observed.



**RATING 3**

### DESCRIPTION

Presence of mealybugs on leaves and young stems without causing distortion.

**MODERATE INFESTATION****RATING 5****DESCRIPTION**

Mealybugs are found on leaves and internodes. Noticeable shortening of leaf petioles and internodes.

**SEVERE INFESTATION****RATING 7****DESCRIPTION**

Leaves on the growing tips become distorted resulting to a bunched top appearance. Plants become stunted.

**VERY SEVERE INFESTATION****RATING 9****DESCRIPTION**

Induced shoot branches are stunted resulting to severe bunched top appearance and stunted growth. Leaves become necrotic that leads to defoliation and occasional death of plant top. Sooty molds are present on leaves.





Source:



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