

# Varietal Trial of Sorghum (*Sorghum bicolor* L.)

## for Conservation Agriculture

## Production Systems



World Agroforestry Centre  
TRANSFORMING LIVES AND LANDSCAPES



SANREM INNOVATION LAB  
Feed the Future Innovation Lab for Collaborative Research  
on Sustainable Agriculture and Natural Resource Management

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### Introduction

Sorghum belongs to cereal family. This crop is being cultivated all over the world mainly as feed for animals and in some areas it is used for human consumption. In addition, it is also used in a variety of industrial application like paper making and used as adhesives. This crop is of great help in conservation agriculture production system, promoting food security, minimizing input costs for farmers and protecting the soil. To fully maximize its potential in CAPS, it is essential to select sorghum varieties that are high yielding both in biomass and grain yield.

### Objective

Identify sorghum variety with high biomass and grain yield as a substitute to hybrid maize and potential inclusion in conservation agriculture production systems (CAPS).

### Methodology

Five selections from Northern Mindanao Integrated Agricultural Research Center (NOMIARC) were provided for evaluation of grain and biomass yield. These sorghum varieties were ICSV 93046, ICSV 700, ICSV 93034, SPV 422 and NJT 2. These varieties were laid out in randomized complete block design (RCBD) with 3 replications on an approximately 40% slope with a 5m x 10m plot size in each entry. Sorghum seeds were drilled in 60 cm between rows and 10-12cm between plants and applied with 60N-30P<sub>2</sub>O<sub>5</sub>-30K<sub>2</sub>O levels of fertilizers with 3 tons lime per hectare applied as basal. Weeds were controlled through hand weeding twice during the cropping.

### Results

Figure 2 shows the relationship of between grain yield and total aboveground dry matter yield. This relationship was used to determine the appropriate sorghum varieties that would be included in the CAPS which would have high in both grains and stalks so that farmers will be able get better economic returns in their farming as well as providing benefits to soil through rehabilitation of soil organic matter. ICSU 93034 and IC93046 showed better adaptation in acid soils as opposed to other entries. We currently using these two cultivars in our farmer's-managed plots.

### Conclusion

ICSU 93034 and IC93046 were sorghum varieties suited for CAPS and could be used as an alternative to maize.

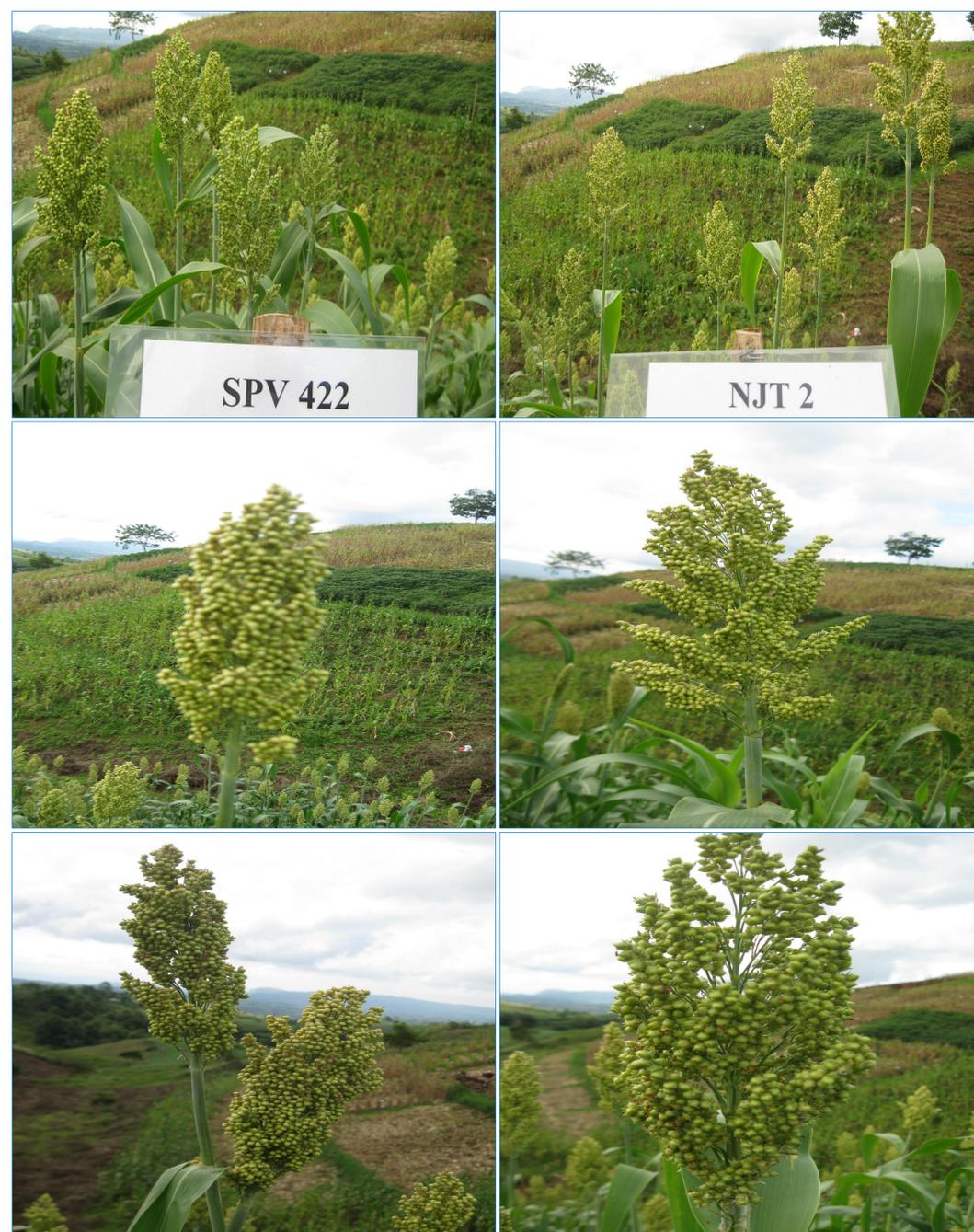


Figure 1. Different photos of sorghum varieties grown in acid sloping land. Claveria, Misamis Oriental, Philippines.

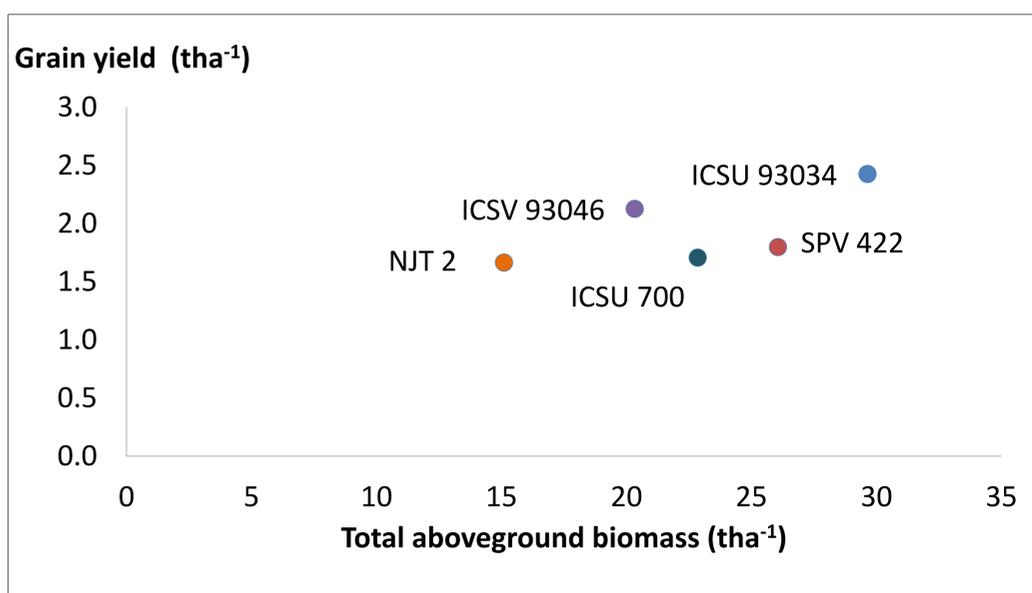


Figure 2. Relationship between grain yield and total biomass of sorghum varieties evaluated for CAPS.



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