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Introduction

Conservation agriculture production system (CAPS) promotes food security while improving input efficiency, protect and improve soils while sustaining crop yields. Adlai is a tropical crop valued for its many uses: cereal for food, feed for animals and beads for making rosaries, necklace and other objects. It also has many medicinal uses, although some claims need scientific evidences. Thus, adlai can be a potential crop to achieve full benefits in CAPS.

Objective

Identify Adlai variety with high biomass and grain yield suitable for conservation agriculture production systems (CAPS).

Methodology

Tapol, Kiboa and Ginampay varieties of Adlai were evaluated during the wet season of 2011, and Gulian variety was added during the wet season 2012 evaluation. These 4 Adlai varieties were also evaluated on their performance as ratoon crop in dry season of 2012. Adlai varieties were laid-out in randomized complete block design (RCBD) with 4 replications. The field was sprayed with Round Up (Glyphosate) two weeks before planting at the rate of 1.5 L ha⁻¹ to kill the weeds. It was furrowed spaced at 90 cm using animal drawn moldboard plow. Basal application of 30 P₂O₅ and 30 K₂O ha⁻¹ before sowing two seeds in each hill spaced at 30 cm. Nitrogen was applied in the form of Urea at 15 and 30 DAE with rate of 60 N kg ha⁻¹. After each application of Urea the field was hand weeded. No pests and disease control were made. Adlai was harvested at 120 days after planting.

Results and Discussions

In 2011, Kiboa performed well in an acid upland condition. Kiboa's total biomass and grain yield was significantly higher as compared to Ginampay and Tapol (Figures 3). In 2012, Gulian outyielded Kiboa as first crop, but Ginampay yielded better as ratoon crop, but not significantly better than Kiboa and Tapol (Figure 4). The results implied Kiboa and Gulian are promising varieties as good source of organic matter for the soil, as well as higher yield and income for farmers in an integrated conservation agriculture production system.

Conclusion

Kiboa and Gulian are promising Adlai varieties for CAPS due to its high biomass and grain yield. Further studies are needed to maximize the potential of Adlai in the context of conservation agriculture production systems.



Figure 2. Adlai has the potential for bio-nutrient pump as it has extensive root system reaching deeper than 200 cm into the subsoil. Claveria, Misamis Oriental, Philippines.

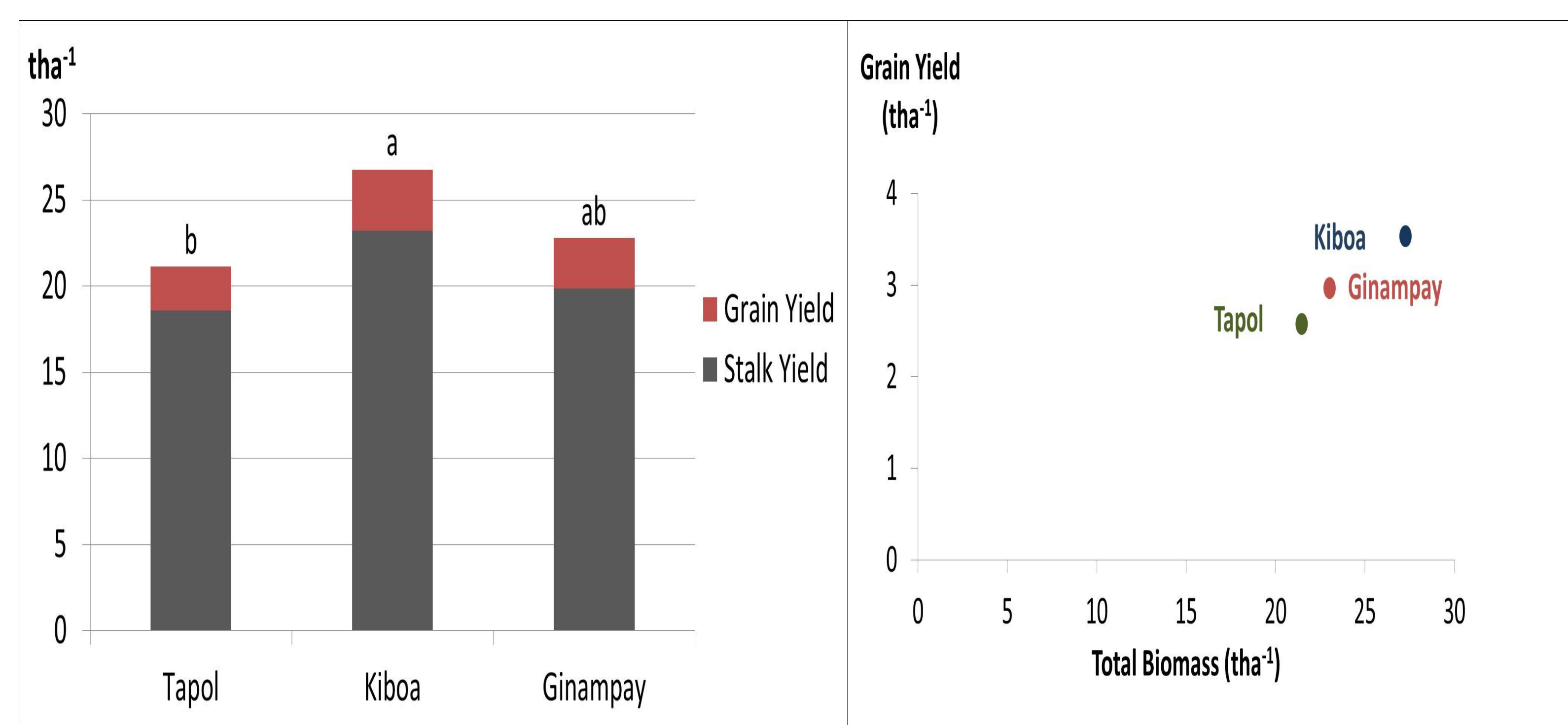


Figure 3. Total biomass (a) and relationship between grain yield and total biomass (b) of Adlai evaluated for CAPS. Wet season 2011.



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

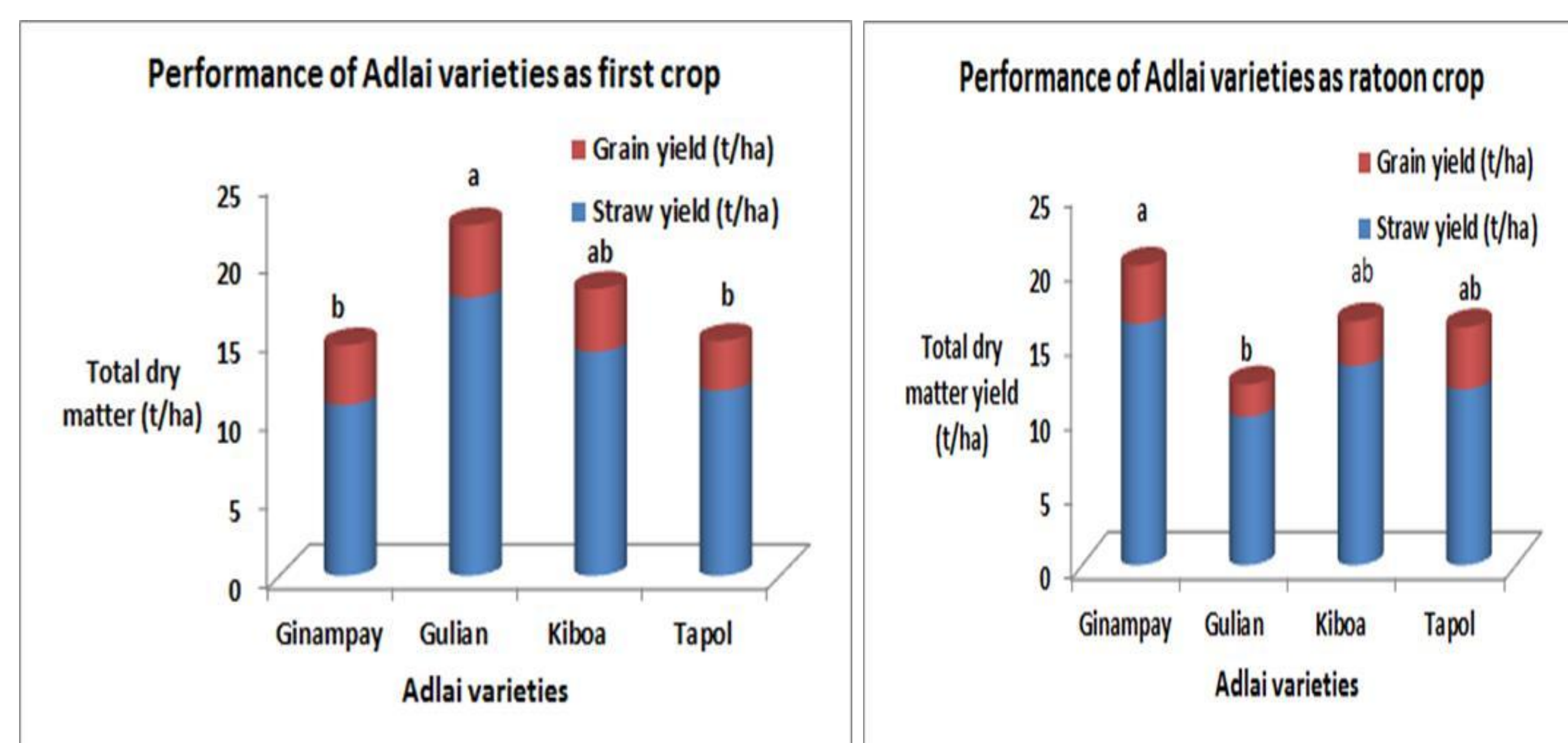


Figure 4. Total dry matter yield (stalk + grain) of different varieties of Adlai as first crop and as ratoon crop. Wet and dry season 2012