

Genotype and Environment Effect of Soybean Production and Biogas

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Introduction

Glycine max L. Merrill is important legumes, because is high protein and oil plants. Biomass i.e. soybean straw can be used and for the production of liquid biofuels (ethanol) because it has large amounts of carbohydrates (Popović *et al.* 2019; Milanović *et al.*, 2020).



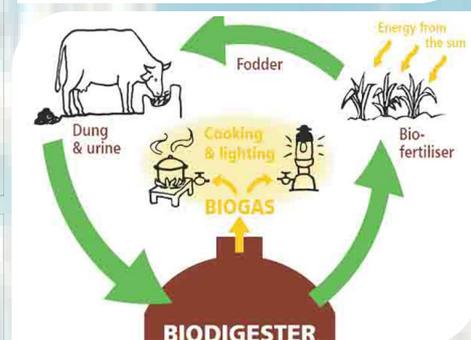
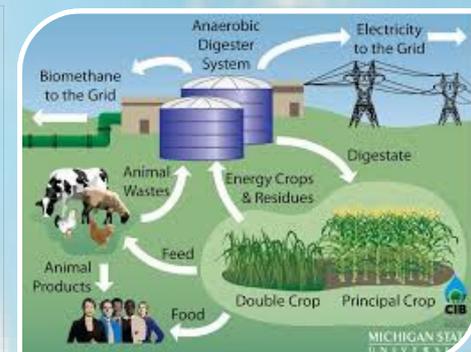
Material and Methods

Field trial was conducted to study the performance of two soybean genotypes, different maturity group, MG: early genotype, G1 - 0 MG and late genotype, G2-II MG, on chernozem soil, at Pancevo, Serbia. They were examined morphological and productive characteristics of soybean genotype: plant height, number of pods, absolute mass, volume mass, yield of grain and biogas yield.

Results and Discussion

Year, genotype, and G x Y interaction they had statistically very significance on the plants height and number of pods per plant. The average value for plant height, it was 89.42 cm. Statistically significantly higher values for plant height had an early genotype, 93 cm, compared to late genotype, 87 cm. In 2018 the plants were statistically significantly higher (93 cm) compared to 2019.

The year had a statistically significant effect on grain yield and biogas yield. In 2018 were realized statistically significantly higher values for grain and biogas yield (3.54 t ha⁻¹; 612 m³ ha⁻¹) compared to 2019. Achieved is a difference of 660 kg ha⁻¹ and 77 m³ ha⁻¹ respectively from 22.50% and 13.44%. Soybean production is the result of the interaction between the genetic potential of a genotype and the biotic and abiotic factors that reduce that genetic potential.



Conclusion

The results showed that soybean can be successfully grown and for biogas production.

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