

Response of Roselle (*Hibiscus sabdariffa* L.) and Soybean (*Glycine max* L. Merr.) grown as intercropping and sole crop to inter-row spacing under rain-fed conditions in the Blue Nile Region, Sudan

Adlan M. A. Adlan¹, Ali E. Eljak², Yasmin A. Aburigal², Eisa Y. A³ and Amin AA Ibrahim¹

¹ Agricultural research corporation, Damazin Research station, Damazin Sudan.

² Gazira university, faculty of Agricultural sciences, horticultural department, wad medani Sudan.

³ Agricultural research corporation, integrated pest control research center, wad medani Sudan.

Correspondent author: adlanma2019@gmail.com

Received : 24. Jul. 2025

Accepted :29. Sep. 2025

Published : 23. Nov. 2025

Abstract

The experiment was conducted at Damazin Research Station Farm during the autumn seasons of 2019 and 2020, to evaluate the effect of inter-row spacing on Roselle and Soybean grown as intercropping and a sole under rain-fed conditions. A 2x2 factorial experiment arrangement in a randomized complete block design (RCBD) was used. The two factors were two inter-row spacing (60 and 80 cm) and planting methods (intercropping and sole cropping). Data collected included growth parameters (plant height and number of branches and yield components. Yield parameters at harvest included Roselle calyces yield, Roselle seed yield and soybean seed yield, all measured in tons per hectare (t ha⁻¹). The Land Equivalent Ratio (LER) was calculated to assess the yield advantage of intercropping. Data were subjected to analysis of variance (ANOVA) using the GenStat computer statistical package. Intercropping resulted in a yield reduction of less than 50% for Roselle calyces, Roselle seed yield and soybean seed yield. The LER values consistently exceeded 1.0, indicating that intercropping was more efficient than sole cropping in resources utilization.

Keywords: *Roselle, Soybean, inter-row spacing, intercropping, sole, Calyces.*