

Effect of plant density, nitrogen fertilization rate and furrowing on foraged soybean production

ABSTRACT

A field experiment was carried out at the research farm, Gorgan University of Agricultural Sciences and Natural Resources, Iran, in 2013. The main objective of the present study was to determine the effect of plant densities, fertilization rates on yield and some morphological characteristics of soybean plant. The other objective of this study was, if pod-packaging phenomena did not happen, studying the morphological characteristics of the plant could be used to identify industrial ways in either a direct feed production or extract oil. Therefore, an experimental design was laid out in a randomized complete block design arranged in a split plot factorial with three replications. The main plots attributed to planting density at three levels (100000, 150000 and 200000 bush ha⁻¹). The sub plots attributed to fertilization rate, Urea 46% at three levels (100, 200 and 300 kg ha⁻¹). The sub-sub plots attributed to land aeration (creating gutter and hillock with furrower) between the rows, during crop protection at two levels (furrowed and non-furrowed only as control). The results showed that with increasing number of plants per plot, dry matter weight and plants height increased to 508.7 kg ha⁻¹ and 68.8 cm, respectively. However, stems diameter, number of leaves and number of branches per plant decreased to 5.79 mm, 37.1, and 6.4, respectively. Fertilization rate, furrowing and interaction of plant density × fertilizer rate × furrowing showed that dry matter weight, stems diameter, number of leaves, plants height and number of branches per plant were highest with increasing plant density. The urea fertilizer (46%) and furrowing between the rows indicated that the quantity increase of triple interaction for the afore-mentioned traits were 631.6 kg ha⁻¹, 12 mm, 73, 78.7 cm and 10.33, respectively. Overall, findings demonstrated that using fertilizer and furrowing between the foraged soybeans rows may create more bushes efficient via absorption of urea followed by furrowing. Therefore, it caused the greater morphological yield.

Keyword: Fertilizer; Furrower; Soybean (Glycin Max); Seeding rate