The effects of spacing on growth rate and yield of sugar beans

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ABSTRACT
Sugar bean (*Phaseolus vulgaris*), is one of the major grain legumes in Africa. Though there is recommended spacing for sugar beans small scale farmers plant it at any convenient spacing. They do not purposely vary the spacing to evaluate any changes in yield. This investigation was conducted in Zimbabwe at ADAR Nijo Farm Estate (latitude: -17° 42' 49" Longitude: 31° 08' 42") in 2013-2014 cropping season, to determine the effect of spacing variations on growth rate and seed yield. Knowledge of sugar beans plant population might suggest new ways of establishing higher yields. Five plant spacing’s (50cm inter-row * 5.0cm in-row--400 000plants/ha, 50cm*10cm-- 200 000plants/ha, 50cm*15cm--133 333plants/ha, 45cm*7.5cm--296 296plants/ha and a broadcasted treatments were investigated in a randomized complete block design, replicated three times. The 400 000 plants /hectare had a significantly (p= 0.001) higher seed yield than the recommended plant population of 200 000plants /hectare. Sugar bean population significantly decrease weed scores, the number of weed species decreased as the increased in plant population. Also weed species decreased as the canopy closed from three to six weeks after planting. However greater number of weed species invaded the less dense plant population. The increase in the plant population, despite of not affecting the majority of the agronomic characteristics of the plant, resulted in a reduction of the percentage of plants with pods touching the soil and did not cause any alteration in the grain yield. Therefore small scale farmers are advised to plant sugar beans at spacing of 50cm*5.0cm with a population of 400 000 plants per hectare.