Authors: PARIK, NEETU
Advisor: SINGH, DILIP
Title: Performance of Sweet Corn (Zea mays L. Ssp saccharata) under Varying Plant Densities and Fertility Levels
Publisher: MPUAT, Udaipur
Citation: Parik, N. and Singh, D.
Language: en
Type: Thesis
Pages: 110
Agrotags: null
Keywords: Performance, Sweet Corn, Under Varying Plant Densities, Fertility levels
Abstract: A field experiment entitled “Performance of Sweet Corn (Zea mays L. Ssp saccharata) under Varying Plant Densities and Fertility Levels” was conducted during Kharif 2018 at Instructional Farm, Rajasthan College of Agriculture, MPUAT, Udaipur on clay loam soils having medium fertility status (285.6 kg N, 21.6 kg P2O5 and 301.6 kg K2O ha-1). The objectives of experimentation were to standardize economically viable plant density and fertility level for sweet corn. The treatment consisted combinations of four plant densities (55,555, 66,666, 83,333 and 1,11,111 plants ha-1) and four fertility levels (80 kg N + 30 kg P2O5 + 20 kg K2O, 100 kg N + 40 kg P2O5 + 30 kg K2O, 120 kg N + 50 kg P2O5 + 40 kg K2O and 140 kg N + 60 kg P2O5 + 50 kg K2O ha-1). These 16 treatments combinations were evaluated under factorial RBD with three replications. The results of present experiment revealed that advancing plant densities from 55,555 to 1,11,111 significantly increased plant population at successive stages. Increasing plant density from 55,555 to 66,666 plants ha-1 failed to record significant variation in plant height, however, further increase in plant densities significantly increased plant height at successive stages. Days to 50 per cent tasseling and silking failed to record perceptible variation under increasing plant densities. The maximum dry matter plant-1 and LAI were recorded under 55,555 plant ha-1. Advancing plant density from 55,555 to 1,11,111 plants ha-1 decreased dry matter plant-1 and LAI at successive stages. Increasing plant densities from 55,555 to 66,666, 66,666 to 83,333, 83,333 to 1,11,111 plants ha-1 significantly increased the crop growth rate between 45-60 DAS and 60 DAS to harvest of crop. However, increasing densities failed to record perceptible variation in RGR at early duration. At later duration between 60 DAS-harvest of crop increase in plant density from 55,555 to 66,666, 66,666 to 83,333 failed to record significant variation in RGR, however, further increase in plant density from 83,333 to 1,11,111 plants ha-1 significantly increased RGR. The results of present experiment revealed that the highest values of most of yield attributing parameters were recorded under 55,555 plants ha-1. Advancing plant density from * M.Sc. Scholar, Department of Agronomy, Rajasthan College of Agriculture, MPUAT, Udaipur ** Professor & Head, Department of Agronomy, Rajasthan College of Agriculture, MPUAT, Udaipur. 55,555 to 1,11,111 plants ha-1 reduced the value of these yield parameters to varying extents. Cob plant-1 and grain rows cob-1 did not influenced under varying plant densities. The minimum green cobs, fodder and biological yield were recorded under 55,555 plants ha-1. Advancing plant densities from 55,555 to 66,666, 66,666 to 83,333 and 83,333 to 1,11,111 plants ha-1 significantly increased green cobs, fodder and biological yield. However, the green cobs yield recorded 83,333 to 1,11,111 was statistically at par. The maximum nutrient content and minimum uptake were recorded under 55,555 plants ha-1. Advancing plant densities from 55,555 to 1,11,111 plants ha-1 decreased nutrient content in grain and stover, however, improved uptake of nutrient by grain, stover as well as total uptake. Advancing plant density from 55,555 to 1,11,111 plants ha-1 increased PFSR incidence on sweet corn crop. Advancing plant density from 55,555 to 66,666, 66,666 to 83,333 and 83,333 to 1,11,111 plants ha-1 significantly increased net return over preceding plant density. Whereas maintaining 66,666 plants ha-1 recorded significantly higher B C ratio over 55,555 plants ha-1 and proved economically profitable compared to rest of densities The fertility levels failed to record perceptible variation in plant population recorded at 15 DAS and at harvest. Increasing fertility level significantly enhanced plant height at 45, 60 DAS and at harvest, dry matter and LAI at successive stages and CGR at initial and at later durations. At the same time increasing fertility levels significantly reduce days to 50 per cent tasseling and silking. The fertility levels failed to record significant variation in RGR at both the durations. Advancing fertility levels from 80 kg N + 30 kg P2O5 + 20 kg K2O ha-1 to 140 kg N + 60 kg P2O5 + 50 kg K2O ha-1 increase various yield attributing parameters consequently green cobs, green fodder and biological yield significantly. However, cobs plant-1, grains cob-1 and grain row cob-1 did not vary significantly under increasing fertility levels. Increasing fertility levels from 80 kg N + 30 kg P2O5 + 20 kg K2O ha-1 to 140 kg N + 60 kg P2O5 + 50 kg K2O ha-1 brought about significant increase in nitrogen, phosphorus and potassium content and uptake of the sweet corn grain and stover at varying extents. However, potassium content of sweet corn did not vary significantly under different fertility levels. There was no significant variation in the TSS content of grain. However, the protein content increases with increasing fertility levels. Application of 100 kg N + 40 kg P2O5 + 30 kg K2O ha-1 significantly increased net return and B C ratio and proved economically beneficial over 80 kg N + 30 kg P2O5 + 20 kg K2O ha-1. Further increase in fertility level from 100 kg N + 40 kg P2O5 + 30 kg K2O ha-1 to 140 kg N + 60 kg P2O5 + 50 kg K2O ha-1 significantly increased net return, however failed to record significant variation in B C ratio
Description: Performance of Sweet Corn (Zea mays L. Ssp saccharata) Under Varying Plant Densities and Fertility levels

Subject: Agronomy

Theme: Performance, Sweet Corn, Under Varying Plant Densities, Fertility levels

Research Problem: Performance, Sweet Corn, Under Varying Plant Densities, Fertility levels

These Type: M.Sc

Issue Date: 2019-06

Appears in Collections: Thesis (/handle/1/5810006648)

Files in This Item:

<table>
<thead>
<tr>
<th>File</th>
<th>Description</th>
<th>Size</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neetu Pareek.pdf</td>
<td>M.Sc</td>
<td>819.3 kB</td>
<td>Adobe PDF</td>
</tr>
</tbody>
</table>

View/Open (/displaybitstream?handle=1/5810115410)

Show full item record (/handle/1/5810115410?mode=full) (handle/1/5810115410/statistics)

Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.