supply 75 and 25 per cent inorganic N respectively (4653 kg ha\(^{-1}\)). It was observed that fine grain rice, Ponni registered higher yield of 3769 kg ha\(^{-1}\) with the combination of organic alone while variety IR20 yielded more (5710 kg ha\(^{-1}\)) with the application of inorganics alone (Table 2).

Hence, it is imperative that variety Ponni is highly suitable for organic farming situation. Increased population of 66 hills/m\(^2\) did not give any yield advantage than 50 hills/m\(^2\). Green manuring and neemcake can be used as an alternative source to chemical fertilizer.

References

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Research Notes

Influence of sulphur on yield and economics in irrigated sunflower (Helianthus annuus L.)

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Sulphur (S) is recognized as important secondary nutrient under the macro elements. It is essential for the growth and development of plant besides it stimulates seed formation and increase the oil content in oil seed crops. It's deficiency has been reported from several states of India and importance of sulphur application for increasing crop yield and quality is being increasingly recognized (Tandon, 1989). Poor seed setting has been one of the most commonly encountered problem in sunflower. The average seed setting in India is around 60 per cent and it may be reduced to 20 per cent in certain seasons and locations (Seetharam, 1976). Hence this problem demands greater attention due to its adverse effect on seed yield. There is very little information available regarding the effect of sulphur on sunflower. Therefore, the present investigation was undertaken with a view to study the effect of different levels of sulphur on yield and economics and to fix the optimum dose of sulphur application for irrigated sunflower.

A field experiment was conducted in red sandy loam soils at Regional Research Station, Paiyur under irrigated condition during Rabi 2001 (Dec-Feb). Five levels of sulphur viz. 0, 15, 30, 45 and 60 kg/ha combined with the recommended dose of NPK were tried in randomized block design with four replications. The recommended dose of NPK for irrigated sunflower was 40:20:20 kg/ha and the test variety was CO.3. The DAP and urea was used to supply N and P for treatment 1. The single super phosphate (16% 'P' and 12% 'S') @ 125 kg ha\(^{-1}\) was applied to supply the recommended dose of P (20 kg ha\(^{-1}\)) and sulphur (15 kg ha\(^{-1}\)) for treatments 2 to 5. The additional dose of sulphur for treatments 3 to 5 was supplied through gypsum (15% 'S') as per the treatments. A common dose of potassium (20 kg ha\(^{-1}\)) was applied through muriate of potash to all treatments.

The plant height and diameter of capitulum were not significantly influenced by the application of different levels of sulphur. However, the yield attributes viz. number of grains/capitulum and test weight were significantly influenced by the levels of sulphur application. The number of grains and test weight were significantly
Table 1. Effect of levels of sulphur on yield and economics in irrigated sunflower

<table>
<thead>
<tr>
<th>Tr. No.</th>
<th>Treatments</th>
<th>Plant height (cm)</th>
<th>Capitulum diameter (cm)</th>
<th>Grains/capitulum (g)</th>
<th>Test weight (kg ha(^{-1}))</th>
<th>Grain yield (kg ha(^{-1}))</th>
<th>Net income (Rs ha(^{-1}))</th>
<th>BC ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>Control (No S)</td>
<td>171.7</td>
<td>11.15</td>
<td>31.25</td>
<td>5.88</td>
<td>1202</td>
<td>3403</td>
<td>1.55</td>
</tr>
<tr>
<td>T2</td>
<td>15 kg ’S’ ha(^{-1}) (as SSP)</td>
<td>155.0</td>
<td>10.33</td>
<td>31.70</td>
<td>5.85</td>
<td>1254</td>
<td>3682</td>
<td>1.58</td>
</tr>
<tr>
<td>T3</td>
<td>30 kg ’S’ ha(^{-1}) (15 kg ’S’ as SSP + 15 kg ’S’ as gypsum)</td>
<td>156.0</td>
<td>11.83</td>
<td>33.95</td>
<td>6.68</td>
<td>1303</td>
<td>3924</td>
<td>1.60</td>
</tr>
<tr>
<td>T4</td>
<td>45 kg ’S’ ha(^{-1}) (15 kg ’S’ as SSP + 30 kg ’S’ as gypsum)</td>
<td>156.7</td>
<td>11.48</td>
<td>35.40</td>
<td>6.73</td>
<td>1414</td>
<td>4512</td>
<td>1.70</td>
</tr>
<tr>
<td>T5</td>
<td>60 kg ’S’ ha(^{-1}) (15 kg ’S’ as SSP + 45 kg ’S’ as gypsum)</td>
<td>164.3</td>
<td>11.50</td>
<td>35.40</td>
<td>6.73</td>
<td>1441</td>
<td>4728</td>
<td>1.70</td>
</tr>
<tr>
<td></td>
<td>CD at 5%</td>
<td>NS</td>
<td>NS</td>
<td>3.00</td>
<td>0.24</td>
<td>44</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

Higher at 45 and 60 kg ’S’ ha\(^{-1}\). Similarly, application of graded levels of sulphur significantly increased the grain yield linearly and the increase was 4, 8, 17 and 20 per cent over no sulphur application. The grain yield was significantly maximum (1441 kg ha\(^{-1}\)) at 60 kg ’S’ ha\(^{-1}\) and it was on par with 45 kg ’S’ha\(^{-1}\) (1414 kg ha\(^{-1}\)). Bansal (1991) found increased seed yield of soybean at increased levels of sulphur from 0 to 80 kg ha\(^{-1}\) and the yield difference was not significant at 40 to 80 kg ha\(^{-1}\). The highest net income was obtained at 60 kg ’S’ ha\(^{-1}\) (Rs.4728 ha\(^{-1}\)) and the increase was not much appreciable as compared to 45 kg ’S’ ha\(^{-1}\) (Rs.4512 ha\(^{-1}\)) and the benefit cost ratio was equal at 45 and 60 kg ’S’ ha\(^{-1}\). Hence it could be concluded that the sulphur 45 kg ha\(^{-1}\) may be applied to irrigated sunflower for higher yield and net income.

References


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Research Notes

Effect of growth regulators on yield, nutrient uptake, economics and energy out-put of pigeon pea (Cajanus cajan (L.) Millsp) genotypes

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Pigeonpea (Cajanus cajan (L.) Millsp) cultivation in Chhattisgarh state occupies a distinct position in the pulse map of India occupying an area of 0.27m ha with a production of 0.118m t and productivity of 445 kg/ha and productivity of pigeonpea can be ascribed to the constraints associated with its agro-ecological and physio-morphological traits. Pigeonpea...