ANALYSIS OF SOCIO-ECONOMIC CHARACTERISTICS AND TECHNOLOGY ADOPTION BY CHICKPEA CULTIVATORS IN UTTAR PRADESH

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Abstract

The current study was conducted in the central plain zone of Uttar Pradesh to find out the socio-economic characteristics of chickpea production technology. There are nine agro-climate zones in the state. In this region there are sixteen districts, out of which Kanpur Dehat and Unnao was randomly selected for the present study. From each of the selected districts three blocks were randomly selected. From each of these selected blocks three villages were selected randomly and from each of the selected villages, 12 respondents were selected randomly so as to a total of two hundred sixteen respondents were selected for present study. The finding revealed that the majority (20%) of the respondents were illiterate, 6 per cent of them were functional literate, 17 per cent of them had education up to high school, 8% had education up to primary school, 13% had education up to middle school, 13% had education up to intermediate school, 13% had education up to middle school, 13% had education up to primary school, whereas only 13 per cent of them had post graduate qualification. Further majority (72.222%) of the respondents had marginal size of land holding followed by small size (13.888%), medium size (8.333%), and large size only (5.557 %) respectively and majority (60.648%) of the respondents had low annual income (Rs 83086) followed by the medium income category (29.166%) and only (10.186%) of them had high annual income (Rs 380116). Most (55.57%) of the respondents had low extension contact which limited them to get the latest technical know how about the recommended practices of chickpea.

Keyword: Socio-economic characteristics, chickpea, technology adoption.

Introduction

One of India's most popular pulse crops is chickpea, commonly known as 'Gram' or Bengal gram (Kumar and Dwivedi, 2018a; Kumar et al., 2018b; Kumar et al., 2018c; Kumar and Dwivedi, 2018d; Kumar and Purnima et al., 2018e; Kumar and Pathak, 2019f). In India, chickpea is a major pulse that contributed about 35% of the pulse production area. Chickpea's area production, and productivity have fluctuated widely over the past four decades. Some of the states like Punjab, Haryana, Uttar Pradesh, and Bihar have lost significant chickpea ground, while other states like Andhra Pradesh, Maharashtra, and Karnataka have brought extra area (Siddique and Kumar, 2018h; Siddique et al., 2018i; Pathak et al., 2017j; Prakash et al., 2017k; Kumar and Mandal, 2014L; Kumar et al., 2014m; Kumar et al., 2014n; Kumar, 2013o; Kumar and Dwivedi, 2015p; Gogia et al., 2014q). Chickpea is a significant and valuable source of protein in the diets of poor people. Chickpea is grown in the subcontinent of India, Australia, the Mediterranean, Western Asia and the Palouse region. India is the world leader in chickpea (Bengal gram) production of 8,832,500 metric tonnes, the second-largest producer, Australia 813,300 metric tonnes stands at second position (Kumar, 2014r; Kumar et al., 2012s; Mishra et al., 2012t; Kumar et al., 2011u; Kumar et al., 2011v). Other key producers are Pakistan (751,000 metric tonnes) at third position. Other chickpea producers include Turkey, Burma, Ethiopia, Iran, Mexico, Canada, and United States of America. (Anonymous, 2015). India ranks first in area 99.27 Lakh ha with a total of 71.95 percent of global production (98.80 Lakh tones). Followed by Israel, the Republic of Modova and Bosnia & Herzegovina, China has the highest productivity (3759 kg/ha). India has 995 kg/ha chickpea production (GOI, 2017). Madhya Pradesh is the country's largest single producer with more than 40% of total output, while Rajasthan, Maharashtra, Uttar Pradesh and Andhra Pradesh contribute about 14%, 10%, 9% and 7% respectively. Andhra Pradesh and Karnataka's share has gradually increased over the past ten years. In addition, states such as Jharkhand and Chhattisgarh are increasing their region and chickpea production (Dixit, 2014-15).

Material and Methods

The current study was conducted in Uttar Pradesh in Central Plain Zone. There are nine agro-climate zones in the state. Out of sixteen districts in this region, Kanpur Dehat and Unnao was randomly selected for the present study. Three blocks were randomly selected from each of the selected districts and three villages were selected at random from each of the selected blocks. Finally, 12 respondents were selected randomly from each of the selected villages, so that a total of 216 respondents were selected for this study. The extent of socio-economic characteristics of chickpea cultivators was studied. The data was obtained by conducting a personal interview through a pre-tested schedule of interviews (Kumar and Pathak, 2016w; Pathak et al. 2016x; Kumar et al., 2018y; Kumar et al., 2018z; Kumar et al., 2018aa; Kumar et al., 2018bb; Kumar et al., 2018cc).

Results and Discussion

The chickpea growers socio-economic characteristics Age

Table 1 It was shown that the majority of respondents (69.444%) were 36-50 years of age. Followed by 16.203% and 14.353% belonging to the over 50 age group and the under 18-35 age group, respectively. It was found that 36-50-year-old respondents were the single largest group. This may be attributed to the fact that most of the respondents in this age group were quite active and experienced in chickpea cultivation.
Education

Table 1 showed that the majority of respondents (20 percent) were illiterate, 6 per cent of them were functional literate, 8 per cent had education up to primary school, 13% of them had education up to middle school, 17% of them had education up to high school education, and 13% of them had education up to intermediate, 13% were also graduate, whereas only 13% of them had post graduate qualification.

Family size

Table 1 showed that the majority of respondents (64.815 per cent) had small family family size followed by medium family size (22.685 per cent) and large family size (12.5 per cent) of respondents. It was observed that respondents belonging to small sized families were more involved in chickpea cultivation.

Social participation

Table 1 showed that only 1.388% of respondents had a high level of social participation, while only 21.296% had a medium level of social involvement and a majority (77.316%) had a low level of social involvement. This result was consistent with Shakya's (2007) results, which indicated that the majority of gram growers (44.17 percent) had low social participation. Consequently, it can be assumed that most respondents are not interested in social involvement.

Size of land holding

Table 1 shows that the majority of respondents (72.222%) had large land holdings followed by small holdings (13.888%), medium size (8.333%) and large size (5.557%) collectively. It was observed that majority of the respondents were marginal chick pea farmers who had less than one ha size of land holding.

Annual income from other sources

Table 1 showed that the majority (60.648%) of respondents had low annual income (Rs. 83086) supported by medium income (29.166%) and only (10.186%) had high annual income (Rs. 380116). It was found that the mean annual income was Rs148514. These results are consistent with the findings of Prajapati (2006), which showed that a greater percentage of respondents (51.66%) belonged to the low-income group.

Income from the agriculture

Table 1 showed that the greater part of respondents (87.962%) had medium agricultural income levels followed by low agricultural income levels (6.944%) and only 5.092% had high agricultural income levels. It can be inferred that most respondents had medium income from agriculture (Rs. 24325 to 204095).

Attitude

Table 1 showed that the majority (68.055 percent) of respondents had a favorable attitude, followed by the most favorable (30.094 percent) and the least favorable (1.851 percent) attitude. In implementing the recommended chick pea production technology, it can be concluded that a favorable attitude of farmers can be beneficial. This observation was consistent with Prodhan et al. (2017) findings.

<p>| Table 1: Distribution of chickpea cultivators according to their socio-economic characteristics (N=216) |</p>
<table>
<thead>
<tr>
<th>SN</th>
<th>Variable</th>
<th>Category</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age</td>
<td>18-35 years</td>
<td>31</td>
<td>14.535</td>
<td>50.995</td>
<td>13.564</td>
</tr>
<tr>
<td></td>
<td></td>
<td>36-50 years</td>
<td>150</td>
<td>69.444</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 50 years</td>
<td>35</td>
<td>16.203</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Education</td>
<td>Illiterate</td>
<td>44</td>
<td>20.370</td>
<td>3.143</td>
<td>2.276</td>
</tr>
<tr>
<td></td>
<td>Functional literate</td>
<td>15</td>
<td>6.944</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Primary school</td>
<td>18</td>
<td>8.338</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Middle school</td>
<td>30</td>
<td>13.888</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High school</td>
<td>37</td>
<td>17.129</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intermediate</td>
<td>30</td>
<td>13.888</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Graduation</td>
<td>29</td>
<td>13.425</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Family size</td>
<td>Post-graduation</td>
<td>13</td>
<td>6.018</td>
<td>10.990</td>
<td>5.636</td>
</tr>
<tr>
<td></td>
<td>Small (up to 4)</td>
<td>140</td>
<td>64.815</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medium (5-8)</td>
<td>49</td>
<td>22.685</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Large (&gt; 8)</td>
<td>2</td>
<td>12.500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Social Participation</td>
<td>Low (01)</td>
<td>167</td>
<td>77.316</td>
<td>0.236</td>
<td>0.457</td>
</tr>
<tr>
<td></td>
<td>Medium (2)</td>
<td>46</td>
<td>21.296</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High (above 3)</td>
<td>3</td>
<td>1.388</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Size of land holding</td>
<td>Marginal (&lt; 1 ha)</td>
<td>156</td>
<td>72.222</td>
<td>4.096</td>
<td>5.224</td>
</tr>
<tr>
<td></td>
<td>Small (1-2 ha)</td>
<td>30</td>
<td>13.888</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medium (2-4 ha)</td>
<td>18</td>
<td>8.333</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Annual income from all the sources</td>
<td>Large (&gt; 4 ha)</td>
<td>12</td>
<td>5.557</td>
<td>148514</td>
<td>121200</td>
</tr>
<tr>
<td></td>
<td>Low (&lt;Rs 83086)</td>
<td>131</td>
<td>60.648</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medium (Rs 83086-380116)</td>
<td>63</td>
<td>29.166</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High (&gt;Rs 380116)</td>
<td>22</td>
<td>10.186</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Income from agriculture</td>
<td>(&lt; Rs 24325)</td>
<td>15</td>
<td>6.944</td>
<td>89885</td>
<td>71421</td>
</tr>
<tr>
<td></td>
<td>(Rs 24325-204095)</td>
<td>190</td>
<td>87.964</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(&gt;Rs 204095)</td>
<td>11</td>
<td>5.092</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 1 shows that most respondents (55.557 percent) were followed by low extension contact by moderate extension contact (31.481%) and only 12.96% had high extension contact categories. Mohanty et al. (2013) in their study also had similar findings and indicated that most (46.67%) of respondents had low extension agency contact.

**Mass - media sources utilization**

Table 1 showed that the majority (69.907%) of respondents had a moderate level of use of mass media sources accompanied by a low level of use (18.518%) and a high level of use of mass media sources (11.575%).

**Formal information source utilization**

From Table 1 it was observed that the majority (63.888%) of respondents had a low category of use of formal information sources, 25.927% had a medium category of formal information sources. Only 10.185% of them had a high category of formal information sources.

**Utilization of Informal information sources**

It was find from Table 1 that the majority (67.129%) of respondents had a medium category of use of informal information sources followed by a high level (18.888%) and only 13.888% had a low category of use of informal sources of information.

**Experience in chickpea cultivation**

Table 1 revealed that majority (84.722%) of the respondents had medium level of experience in chickpea cultivation, 8.333 % and 6.945 percentage of chickpea growers had low and high experience, respectively. The cumulative chickpea cultivation experience of the respondents was found to be 24.134 years.

**Livestock possession**

Table 1 showed that the majority (86.575 per cent) of respondents had medium livestock possession categories followed by small (9.259 per cent) and large (4.166 per cent) livestock possession categories.

**Training exposure**

Table 1 find that majority (63.425%) of the respondents had low training exposure followed by medium exposure (32.407%) and high level (4.629%) of training exposure programme in chickpea production technology.

**Occupation**

Table 1 revealed that majority (52.314%) of the respondents had main occupation of agriculture followed by non-agriculture (24.537%) and labor categories (23.148%) among the chickpea growers.

**Types of house**

Table 1 revealed that majority (46.296%) of the respondents had pakka house followed by kaccha (36.575%) and mixed (17.129%) type of houses among the chickpea growers.

**Level of technology adoption**

Table 2 showed that the majority (72.685 percent) of respondents had a medium adoption rate, followed by 16.204 percent who had a low adoption level and 11.111 percent
who had a high technology adoption level. Prashanth et al. (2018) in their study also reported that majority (50.83%) of the respondents had moderate level of technology adoption.

The medium level of adoption might be attributed to fairly good number of literate farmers having small family, favorable attitude towards adoption; however due to evident low extension contact and low training exposure farmers might have found it difficult to adopt the technology up to the full extent. Periodic training and regular visit of extension agents may be helpful in increasing overall technology adoption by chickpea growers.

Table 2: Distribution of the respondents based on the overall adoption (N=216).

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Level of technology adoption</th>
<th>No of Respondents</th>
<th>%</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Low</td>
<td>35</td>
<td>16.204</td>
<td>38.861</td>
<td>8.398</td>
</tr>
<tr>
<td>2.</td>
<td>Medium</td>
<td>157</td>
<td>72.685</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>High</td>
<td>24</td>
<td>11.111</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>216</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusion

It can be concluded, based on the findings of this study, that most of the respondents were middle aged, literate, had low social participation, low annual income, and favorable attitude, and low extension contact, moderate level of utilization of information sources, very low training exposure and moderate level of livestock possession. So there is a need to focus on enhancing farmer’s knowledge about recommended chickpea cultivation package and practices by conducting periodic training and regular field visit by extension functionaries.

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