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### Training needs of chickpea growers in Panchmahals district

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#### Abstract

Chickpea (*Cicer arietinum* L.) is the most important pulse crop in India. India is a major producer of chickpea which contributes 46.2 percent of national agriculture production. Training is an important educational tool, which may effectively be used to improve skills and update knowledge. Training only can bridge the enormous gap between remarkable yields achieved by the scientists and those obtained by the farmers. The first and most important step in training is to find out the training needs. The present study was conducted in the Panchmahals district of Gujarat. Panchmahals district comprises 7 talukas out of these 5 talukas Godhra, Shahera, Ghoghmba, Halol, and Kalol were selected purposively. The statistical sample of the research was 300 chickpea growers. The majority (77.00 percent) of the chickpea growers were found in the middle age group to old age group, more than half (53.66 percent) of the chickpea growers had secondary to the primary level of education, more than two-thirds (69.00 percent) of the chickpea growers had most need of training in integrated disease management, followed by integrated pest management (66.33 percent) and damage of root rot, wilt, and stunt (64.00 percent) in plant protection measures, More than two-fifth (64.00 percent) of the chickpea growers had most need of training in high yielding varieties and characteristics of high yielding varieties (62.33 percent). Three-fifth (60.00 percent) of chickpea growers had the most need of training in the recommended dose of fertilizer in fertilizer management, Age, education, experience in farming, social participation and mass media exposure had negative and significant correlation with training needs of chickpea growers.

**Keywords:** Training needs assessment, chickpea growers

#### Introduction

Chickpea is an important pulse crop and a steady source of human nutrition, as it is an important component of production systems that are resilient to climate change. Asia and Africa contribute around 80 percent of world production. Among pulses, chickpea (*Cicer arietinum*) is preferred to food legumes because of its multiple uses for the growing population across the world. During 2017-18, globally it was grown in 149.66 lakh ha area, with a total production of 162.25 lakh tonnes (FAOSTAT, 2019) and an average productivity of 1252 kg/ha. The present production of chickpeas could be increased considerably if the available technology is effectively transferred to the farmer. Training programmes need to focus training needs of chickpea growers in the Panchmahals district of Gujarat more on transferring new production technology Profitability needs to be enhanced further, but still, profitability of chickpea growing is beset with many constraints faced by chickpea growers due to production and marketing. Therefore, the chickpea growers need to be properly trained in the latest improved cultivation practices to realize more productivity and production of crops. Keeping all these views, the research study "Training Needs of Chickpea Growers in Panchmahals District" was taken.

#### Objectives

1. To study the profile of chickpea growers
2. To find out the training needs of chickpea growers regarding chickpea production technology
3. To study the relationship between profile of chickpea growers and their training needs

#### Methodology

Gujarat state has 33 districts and out of these Panchmahals district was purposively selected for this study. Panchmahals district comprises 7 talukas out of these 5 talukas Godhra, Shahera, Ghoghmba, Halol, and Kalol were selected purposively. Multistage random sampling technique, followed for selection of District, Taluka, Villages and chickpea growers. There are 6 villages selected randomly. After the selection of villages 10 chickpea growers from each village were selected randomly. Hence, a total of 300 chickpea growers were selected and interviewed. The data was collected through the personal interview method. The data was analyzed and interpreted with Frequency, Percentage and Correlation Coefficient (r).

#### Results and Discussion

Table 1 indicated that less than half (47.00 percent) of the chickpea growers were found in the middle age group

followed by 30.00 percent in the old age group. The rest 23.00 percent of the chickpea growers belonged to the young age group.

**Table 1:** Distribution of chickpea growers according to their age, (n=300)

Sr. No.	Age group	Frequency	Percent
1.	Young Age (up to 35 years)	69	23.00
2.	Middle Age (36 to 50 years)	141	47.00
3.	Old age (above 50 years)	90	30.00
Total		300	100.00

Table 1 indicated that less than half (47.00 percent) of the chickpea growers were found in the middle age group followed by 30.00 percent in the old age group. The rest 23.00 percent of the chickpea growers belonged to the young age group.

**Table 2:** Distribution of chickpea growers according to their level of education (n=300)

Sr. No.	Education	Frequency	Percent
1.	Illiterate	50	16.67
2.	Primary Education (up to 7 <sup>std</sup> )	73	24.33
3.	Secondary Education (8 to 10 <sup>std</sup> )	88	29.33
4.	Higher Secondary (11 to 12 <sup>std</sup> )	60	20.00
5.	Graduate or post graduate	29	09.67
Total		300	100.00

Table 2 revealed that more than half (53.66 percent) of the chickpea growers had secondary to primary level of education, followed by 20.00 and 16.67 percent of them had higher secondary level of education and illiterate, respectively. Only 09.67 percent of them were found to be graduate or post-graduate.

**Table 3:** Distribution of chickpea growers according to their land holding (n=300)

Sr. No.	Land holding	Frequency	Percent
1.	Marginal (Up to 1.00 ha)	108	36.00
2.	Small (1.1 to 2.0 ha)	101	33.67
3.	Medium (2.1 to 4.0 ha)	54	18.00
4.	Large (Above 4.0 ha)	37	12.33
Total		300	100.00

Table 3 showed that more than two-third (69.67 percent) of the chickpea growers possessed marginal to small-size of land holding, whereas 18.00 and 12.33 percent of them had medium and large size of land holding, respectively.

**Table 4:** Distribution of the chickpea growers according to their experience in farming (n=300)

Sr. No.	Experience in Farming	Frequency	Percent
1.	Very low (Up to 5 years)	29	09.67
2.	Low (6 to 10 years)	52	17.33
3.	Medium (11 to 15 years)	91	30.33
4.	High (16 to 20 years)	69	23.00
5.	Very high (21 and more)	59	19.67
Total		300	100.00

Table 4 observed that slightly more than half (53.33 percent) of chickpea growers had a medium to high level of farming experience, followed by (19.67 percent) had very high, (17.33 percent) had a low and a very few (09.67 percent) of them had a very low level of experience in farming.

**Table 5:** Distribution of the chickpea growers according to their social participation (n=300)

Sr. No.	Social Participation	Frequency	Percent
1.	No membership	111	37.00
2.	Membership in one organization	123	41.00
3.	Membership in two organizations	40	13.33
4.	Membership in more than two organizations	23	07.67
5.	Membership along with position holding	03	01.00
Total		300	100.00

Table 5 indicated that a majority (78.00 percent) of chickpea growers had membership in one organization and no membership in any organizations, followed by membership in two organizations (13.33 percent), membership in more than two organizations (07.67 percent), very few of them (01.00 percent) had a membership along with position in any of the organizations.

**Table 6:** Distribution of chickpea growers according to their extension contact (n=300)

Sr. No.	Extension contact	Frequency	Percent
1.	Very low (Up to 3.2 score)	13	04.33
2.	Low (3.3 to 6.4 score)	74	24.67
3.	Medium (6.5 to 9.6 score)	114	38.00
4.	High (9.7 to 12.8 score)	64	21.33
5.	Very high (12.9 to 16 score)	35	11.67
Total		300	100.00

Table 6 showed that more than three-fifth (62.67 percent) of chickpea growers had medium to low level of extension contact, followed by 21.33, 11.67 and 04.33 percent of FIGs members had high, very high and very low level of extension contact, respectively.

**Table 7:** Distribution of chickpea growers according to their mass media exposure (n=300)

Sr. No.	Mass media exposure	Frequency	Percent
1.	Very low (up to 3.2 score)	17	05.66
2.	Low (3.3 to 6.4 score)	66	22.00
3.	Medium (6.5 to 9.6 score)	134	44.67
4.	High (9.7 to 12.8 score)	62	20.67
5.	Very high (12.9 to 16 score)	21	07.00
Total		300	100.00

Table 7 indicated that two-third (66.67 percent) of the chickpea growers had medium to low level of mass media exposure, followed by 20.67, 07.00 and 05.67 percent of them had high, very high and very low level of mass media exposure, respectively.

**Table 8:** Distribution of the chickpea growers according to their annual income

(n=300)			
Sr. No.	Annual Income	Frequency	Percent
1.	Very low (Up to ₹ 50,000)	49	16.33
2.	Low (₹ 50,001 to 1,00,000)	100	33.33
3.	Medium (₹ 1,00,001 to 1,50,000)	93	31.00
4.	High (₹ 1,50,001 to 2,00,000)	39	13.00
5.	Very high (₹ 2,00,001 and above)	19	06.33
Total		300	100.00

Table 8 showed that slightly less than two-third (64.33 percent) of the chickpea growers having low to medium annual income, followed by 16.33, 13.00 and 06.33 percent

of them had very low, high and very high level of annual income, respectively.

**Table 9:** To find out the training needs of chickpea growers regarding chickpea, production technology

(n=300)				
Sr. No.	Package of practices	Need of training		
		Most needed	Needed	Not needed
<b>Soil Preparation</b>				
1.	Suitability of soil for chickpea cultivation	0 (00.00)	0 (00.00)	300 (100.00)
	Land preparation	0 (00.00)	41 (13.67)	259 (86.33)
<b>Varieties</b>				
2.	High yielding varieties suited to the area	192 (64.00)	88 (29.33)	20 (06.67)
	Characteristics of high yielding varieties	187 (62.33)	70 (23.34)	43 (14.33)
<b>Seed Treatment</b>				
3.	Name of insecticide/ fungicide for seed treatment	113 (37.67)	104 (34.67)	83 (27.67)
	Recommended dose of insecticide/ fungicide for seed treatment	124 (41.33)	97 (32.33)	79 (26.34)
<b>Sowing Information</b>				
4.	Seed rate	140 (46.67)	88 (29.33)	72 (24.00)
	Time of sowing	44 (14.67)	129 (43.00)	127 (42.33)
	Spacing	153 (51.00)	89 (29.67)	58 (19.33)
<b>Fertilizer Management</b>				
5.	Selection of fertilizer	47 (15.67)	83 (27.67)	170 (56.66)
	FYM	94 (31.33)	124 (41.33)	82 (27.34)
	Recommended dose of fertilizer	180 (60.00)	88 (29.33)	32 (10.67)
	Proper timing of fertilizer	8 (02.67)	44 (14.66)	248 (82.67)
<b>Irrigation Management</b>				
6.	Proper time of irrigation	19 (06.33)	44 (14.67)	237 (79.00)
	Drainage of stagnant water	12 (04.00)	43 (14.33)	245 (81.67)
<b>Weedicide &amp; interculturing</b>				
7.	Hand weeding	0 (00.00)	32 (10.67)	268 (89.33)
	Inter culturing	90 (30.00)	128 (42.67)	82 (27.33)
	<b>Chemical control</b>			
	Name of herbicide	157 (52.33)	106 (35.34)	37 (12.33)
Dose of herbicide	178 (59.33)	90 (30.00)	32 (10.67)	

<b>Plant Protection</b>				
8.	Identification of pod borer	47 (15.67)	83 (27.66)	170 (56.67)
	Damage of pod borer	45 (15.00)	86 (28.67)	169 (56.33)
	Integrated pest management	199 (66.33)	80 (26.67)	21 (07.00)
	Identification of root rot, wilt, stunt	179 (59.67)	97 (32.33)	24 (08.00)
	Damage of root rot, wilt, stunt	192 (64.00)	87 (29.00)	21 (07.00)
	Integrated disease management	207 (69.00)	73 (24.33)	20 (06.67)
	<b>Harvesting and threshing</b>			
9.	Harvest time	16 (05.33)	28 (09.34)	256 (85.33)
	Post harvest care	18 (06.00)	28 (09.33)	254 (84.67)
	Proper way of threshing	16 (05.33)	28 (09.34)	256 (85.33)
	Cleaning and drying of grain	47 (15.67)	83 (27.66)	170 (56.67)
	<b>Storage</b>			
10.	Seed moisture content for storage	177 (59.00)	99 (33.00)	24 (08.00)
	Seed storage structure	146 (48.67)	95 (31.66)	59 (19.67)
	Relative temperature at storage location	146 (48.67)	97 (32.33)	57 (19.00)
<b>Market Information</b>				
11.	Market place	67 (22.33)	50 (16.67)	183 (61.00)
	Quality factors affecting market price	178 (59.33)	98 (32.67)	24 (08.00)
	Market price /App	160 (53.33)	89 (29.67)	51 (17.00)
<b>General information</b>				
12.	Weather information	136 (45.33)	97 (32.33)	67 (22.33)
	Government scheme	132 (44.00)	88 (29.33)	80 (26.67)
	Credit facility	163 (54.33)	80 (26.67)	57 (18.33)
	Insurance scheme	158 (52.67)	86 (28.66)	56 (18.67)

The data presented in Table 9 found that more than two-third (69.00 percent) of the chickpea growers had the most need of training in integrated disease management, followed by integrated pest management (66.33 percent) and damage of root rot, wilt, and stunt (64.00 percent) in plant protection measures. More than two-fifth (64.00 percent) of the chickpea growers had the most need of training in high-

yielding varieties and characteristics of high-yielding varieties (62.33 percent). Three-fifth (60.00 percent) of chickpea growers had the most need of training in the recommended dose of fertilizer in fertilizer management. Nearly two-fifth (59.33 percent) of chickpea growers had the most need of training in recommended doses of herbicide in weed management and storage management.

**Table 10:** Over all training needs of chickpea growers regarding chickpea, Production technology

(n=300)			
Sr. No.	Training needs	Frequency	Percent
1.	Very low (up to 54 score)	11	03.67
2.	Low (55 to 70 score)	76	25.33
3.	Medium (71 to 85 score)	120	40.00
4.	High (86 to 101 score)	87	29.00
5.	Very high (102 to 117 score)	06	02.00
Total		300	100.00

Table 10 revealed that more than two-third (69.00 percent) of chickpea growers had medium to a high level of training needs whereas, 25.33 and 03.67 percent of them had high and very low level of training needs regarding chickpea production technology. Rest only 02.00 percent of chickpea growers had a very high level of training needs about chickpea production technology.

**Table 11:** Relationship between profile of chickpea growers and their training Needs

(n=300)

Sr. No.	Name of the variables	Correlation with training needs
1.	Age	-0.122*
2.	Education	-0.193*
3.	Land holding	0.181*
4.	Experience in farming	-0.103 <sup>NS</sup>
5.	Social participation	-0.157*
6.	Extension contact	0.139*
7.	Mass media exposure	-0.124*
8.	Annual income	0.116*

(\*Significance at 5 percent level of probability, NS:- Non significant\*\* Significance at 1 percent level of probability)

### Age and training needs

The table 11 findings revealed a significant negative correlation ( $r = -0.122^*$ ) between the age of chickpea growers and their perceived training needs regarding chickpea production technology. This suggests that older individuals tend to express lower levels of need for training in chickpea production technology compared to their younger counterparts. One possible explanation for this correlation is that older growers may be more accustomed to traditional farming practices and less inclined to readily adopt new technologies.

This reluctance could stem from a combination of factors, including a sense of comfort or familiarity with their existing methods, skepticism about the effectiveness of new technologies, and a perceived lack of awareness regarding the latest recommendations and advancements in chickpea production technology. Additionally, older growers may face barriers such as limited access to information or resources, which could further hinder their readiness to embrace new technological innovations. Overall, the negative correlation between age and training needs suggests a potential generational divide in attitudes towards technology adoption among chickpea growers, highlighting the importance of targeted educational initiatives to bridge this gap and promote the uptake of modern agricultural practices across all age groups.

### Education and training needs

The study found table 11 a significant negative correlation ( $r = -0.193$ ) between the education level of chickpea growers and their perceived need for training in chickpea production technology.

This suggests that higher education levels are generally associated with a wider range of knowledge across various fields. As a result, those with more educational achievement may demonstrate less need for further training than people with a lower level of education. This phenomenon may be explained by people being exposed to more ideas and knowledge than is usually the case in higher education,

which could give them a better ability to adopt and apply novel techniques in chickpea production without heavily depending on outside training materials.

### Land holding and training needs

Table 11 observed that land holding had a positive and significant correlation ( $r = 0.181^*$ ) between land holding and chickpea growers and training needs about chickpea production technology, suggests that as farmers possess larger landholdings, there is a corresponding increase in their desire to engage with and incorporate various components or facets of technological advancements into their farming practices. This indicates a trend wherein larger-scale farmers seek to leverage a broader spectrum of technological innovations to enhance their efficiency, productivity, and overall management of chickpea cultivation, reflecting a proactive approach towards adopting and utilizing diverse technological solutions to optimize their agricultural operations and outcomes.

### Experience in farming and training needs

The findings Table 11 revealed a notable negative and significant correlation ( $r = -0.103$ ) between the level of experience in farming among chickpea growers and their perceived training needs regarding chickpea production technology, suggesting that the extent of farming experience does not significantly influence the demand for training.

This indicates that regardless of whether farmers possess low or high levels of experience, they exhibit similar requirements for training to update their knowledge and skills in chickpea production technology. The lack of a substantial influence of experience on training needs may stem from several factors, including the continuous evolution of agricultural practices and technologies, which necessitate ongoing learning and adaptation irrespective of farmers' prior experience levels. Additionally, it may reflect a recognition among growers of the importance of staying abreast of advancements in chickpea production technology to remain competitive and optimize their agricultural practices, regardless of their existing level of experience in farming.

### Social participation and training needs

The findings Table 11 revealed a significant negative correlation ( $r = -0.157^*$ ) between the level of social participation among chickpea growers and their perceived training needs regarding chickpea production technology.

This suggests that as the extent of social participation increases, there is a corresponding decrease in the expressed requirement for training in chickpea production technology. One possible explanation for this correlation is that individuals who are more actively involved in social networks within their farming communities may have greater access to informal knowledge-sharing platforms, where they can exchange information, experiences, and best practices related to chickpea cultivation. As a result, they may rely less on formalized training programs to acquire new knowledge or skills, as they are already benefiting from peer-to-peer learning within their social circles. Additionally, high levels of social participation may indicate a strong sense of community support and collective problem-solving, wherein growers feel confident in their

ability to navigate and adapt to technological advancements with the assistance of their peers, thereby reducing their perceived need for external training interventions.

### Extension contact and training needs

The findings Table 11 revealed a significant positive correlation ( $r = 0.139^*$ ) between the frequency of extension contact among chickpea growers and their perceived training needs regarding chickpea production technology. This suggests that growers who have more frequent interactions with extension services tend to exhibit a heightened awareness and consciousness regarding their training requirements. One possible explanation for this correlation is that regular engagement with extension services provides growers with access to updated information, resources, and recommendations pertaining to chickpea production technology. As a result, growers who maintain active communication with extension professionals may develop a better understanding of emerging trends, best practices, and technological advancements within the field of chickpea cultivation, thereby recognizing the importance of ongoing training to enhance their knowledge and skills in this domain. Additionally, extension services play a crucial role in assessing and addressing the specific needs and challenges faced by chickpea growers, which may further underscore the perceived significance of training initiatives among chickpea growers who maintain regular contact with extension agents or programs.

### Mass media exposure and training needs

The findings unveiled a noteworthy negative and significant relationship ( $r = -0.124^*$ ) between the extent of mass media exposure among chickpea growers and their perceived training needs regarding chickpea production technology. This suggests that growers who have greater exposure to mass media, such as television, radio, or online platforms, tend to exhibit lower levels of perceived training needs in relation to chickpea production technology. Mass media platforms often disseminate information, advice, and updates on agricultural practices, including advancements in technology and techniques for chickpea cultivation.

As a result, growers who frequently access such media sources may already feel adequately informed about the latest developments in chickpea production, reducing their perceived necessity for additional training or education in this domain. Alternatively, it's possible that growers with higher levels of mass media exposure may possess a stronger sense of self-efficacy or confidence in their ability to adopt and implement technological innovations based on the information they gather from media sources, thus diminishing their perceived reliance on formalized training programs or interventions.

### Annual income and training needs

The findings Table 11 demonstrated a notable positive and significant correlation ( $r = 0.116^*$ ) between the annual income levels of chickpea growers and their perceived training needs concerning chickpea production technology. This suggests that chickpea growers with higher annual incomes tend to exhibit a heightened awareness and consciousness regarding their training requirements in chickpea production technology. Chickpea growers with

greater financial resources may have the means to invest in training opportunities, such as workshops, seminars, or specialized courses, to enhance their knowledge and skills in chickpea cultivation practices. Additionally, higher-income growers may prioritize professional development and continuous learning as a means to optimize their agricultural operations, increase productivity, and maximize returns on investment. Moreover, growers with higher incomes may perceive training initiatives as strategic investments in their long-term success and sustainability within the agricultural sector, leading to a greater propensity to engage in training activities aimed at improving their proficiency in chickpea production technology.

### Conclusion

Majority of the chickpea growers were found in the middle age group to old age group, more than half of the chickpea growers had secondary to the primary level of education, more than two-third of the chickpea growers possessed marginal to the small size of land holding, majority of chickpea growers had membership in one organization and no membership in any organizations, more than three-fifth of chickpea growers had medium to low level of extension contact, two-third of the chickpea growers had medium to low level of mass media exposure, slightly less than two-third of the chickpea growers having low to medium annual income. More than two-third of the chickpea growers should need training on integrated disease management, followed by integrated pest management and damage of root rot, wilt and stunt in plant protection measures. More than two-fifth of the chickpea growers should need training in high-yielding varieties and characteristics of high-yielding varieties. Three-fifth of chickpea growers had the most need of training in the recommended dose of fertilizer in fertilizer management. Age, education, experience in farming, social participation, and mass media exposure, had a negative and significant correlation with the training needs of chickpea growers. Landholding, extension contact and annual income had a positive and significant correlation with training needs. Whereas, experience in farming had a negative and non-significant relationship with the training needs of chickpea growers.

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