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Comparative Study on Adoption of Improved Chickpea Varieties in Indore District of M.P.

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Abstract: *Chickpea (Cicer arietinum) is also known as gram, Bengal gram and Chana in Hindi. It belongs to family Leguminosae. It is the major pulse crop used in the diet of vegetarians in India and it is a good source of protein. Dal and Besan (flour) are the important forms in which people consume it.). In this area different improved varieties of chickpea like JG-412, JG-16, IG-130, Dollar (local) are mostly adopted by farmers at a time. Therefore it is essential to determine the adoption level of improved chickpea varieties, their profitability among farmers and the variety which is most suitable for the area and suggesting farmers to adopt the most appropriate variety. The major consideration for choosing study area was due to important area under chickpea cultivation using different improved varieties. Multi stage sampling design has been adopted for selection of sample for study. Indore district is comprised of 4 blocks namely Indore, Mhow, Depalpur and Sanwer, out of which the Indore block was selected randomly. A list of major chickpea growing villages was prepared with the help of Office of the block level personnel. From this list 2 villages was selected randomly. Again, a list of chickpea growers of each selected villages was prepared with the help of RAEO. From these lists, 30 chickpea growers for each variety were selected on the basis of simple random sampling method. Thus, in this manner, a total sample comprising of 120 chickpea growers as respondents from 2 villages in Indore block of district Indore which was true representative of the study. The data showed that higher number of "chickpea variety JG-412 growers" 50.00 per cent adopted medium level followed by higher number of "chickpea variety JG-16 growers" 43.34 per cent adopted medium level, higher number of "chickpea variety JG-130 growers" 43.33 per cent adopted medium level and higher number of "chickpea variety Dollar (local)growers" 46.66 per cent adopted medium level. In nut shell it is concluded that the higher number of chickpea growers 45.83 per cent adopted overall technology in chickpea cultivation by medium level*

I. Introduction

Madhya Pradesh is one of the important pulses growing State in India. The common pulses growing in Madhya Pradesh are pigeonpea, moong bean, urad bean during kharif season and chickpea, lentil, pea and rajma during rabi season. The split data on these pulse crops' statistics shows that 60 per cent of pulses are grown in rabi and 40 per cent in kharif season respectively. Madhya Pradesh is one of the leading pulses producing state (having first position among other sates of India) contributing about 20.00 and 25.00 per cent pulse area and production of the country. Area, production and productivity of total pulses were more than 4500 thousand hectares with more than 3500 thousands tonnes production and more than 780 kg per hectare in the year 2011-12, against 3023.00 thousand hectare area, 1446.60 thousand tonnes production and 479 Kg per hectare productivity in the year 1969-70 respectively at the time of green revolution in India. These figures show that substantial change in area, production and productivity under pulses during these periods of time was due to innovation of improved pulse production technology including innovation in varietals development.

Chickpea is commonly known as gram which is one of the important pulse crops of the India. Chickpea is an important pulse crop in India. About 65% of global area with 68% of global production of chickpea is contributed by India. However, chickpea production in India is slow in post green revolution years due to strong competition from wheat, rice and mustard, as expansion in irrigation and rapid technological change has favoured the latter crops at the cost of chickpea. The recent liberalization has expanded the demand for chickpea from international markets in addition to the growing domestic demand.

It is observed that the productivity of chickpea is found to be low in comparison to their potential yield existing in the area. It showed improvement in chickpea production is needed through conservation, diversification of agriculture and to enhance adoption level of improved chickpea production technology. So to increase the productivity, particularly under rainfed chickpea growing regions is one of the major challenges and concern which need to be addressed on priority basis. Variety of seed is one of the important factors for increasing productivity among the other yield attributing input available in chickpea cultivation. The genetic potential of grain yield of chickpea is still under estimated as a result of strong and dominating effects of economy. The fact is that the ultimate aim of chickpea growers is to get higher remunerative income through use of superior varieties existing once in yielding ability, disease and insect resistance and other characteristics. The

agricultural scientist also recommended a variety for local specific on the basis of its economic superiority over the best existing varieties. Among other improved varieties of chickpea the varieties JG-412, JG-16, JG-130 and Dollar (local) are the common found in study area. Keeping the importance of these varieties of chickpea cultivation in study area the present study was concerned with following specific objective:

II. Objective

To study the adoption level of four improved chickpea varieties (JG-412, JG-16, Dollar (Local), JG-130) among chickpea growers.

III. Review Of Literature:

Annual project report, RVSKV, College of Agriculture, Indore (2012-13) reported that the highest average yield of 1575.9 kg/ha was recorded by JG-130 with net return of Rs.38328.5/ha and 1:4.16 B:C ratio; followed by JG-16 (1325.8kg/ha, net return of Rs.30325.6/ha and 1:3.50 B:C ratio); JG-412 (1272.0kg/ha, net return of Rs.28604/ha and 1:3.36 B:C ratio).

Badodiya and Gautam (2007) revealed that majority of farmers were having medium level of adoption of recommended package of chickpea production technology.

Shakya (2007) reported in his study "a study on adoption behaviour of chickpea growers in Indore District of M.P." that majority of the chickpea growers had medium adoption level of overall chickpea improved production technology.

Taram (2011) reported in his study "A study on technological gap of recommended chickpea production technology among grower of Indore district of Madhya Pradesh." that the higher percentage of chickpea growers (69.16%) had medium to high technological gap of chickpea cultivation practices cultivation practices. This may be due to non availability of technical information and various constraints in adoption of the practices

IV. Material & Methods:

The study was conducted in Indore district, Madhya Pradesh. The major consideration for choosing study area was due to important area under chickpea cultivation using different improved varieties. Multi stage sampling design has been adopted for selection of sample for study. Indore district is comprised of 4 blocks namely Indore, Mhow, Depalpur and Sanwer, out of which the Indore block was selected randomly. A list of major chickpea growing villages was prepared with the help of Office of the block level personnel. From this list 2 villages was selected randomly. Again, a list of chickpea growers of each selected villages was prepared with the help of RAEO. From these lists, 30 chickpea growers for each variety were selected on the basis of simple random sampling method. Thus, in this manner, a total sample comprising of 120 chickpea growers as respondents from 2 villages in Indore block of district Indore which was true representative of the study.

Adoption level of improved chickpea varieties (JG-412, JG-16, JG-130, Dollar) among chickpea growers:

It is well known fact that the productivity per unit of area and total production of crops may be increased by application of improved agricultural technologies. The improved agricultural technology is mainly based on high yielding variety seeds of crop with other production factors. The study is concerned with improved chickpea varieties as adopted by chickpea growers observed that farmer produces a good crop or a bad one with the help of all the inputs at his command largely depends on the variety of chickpea he has chosen and its quality (purity) for cultivation. Superior variety would mean a good crop harvest, while unsuitable varieties for area or contaminated (un-replaced seed) may lead to crop failure. The crop failure may cause quantitative as well as qualitative loss of marketable surplus which ultimately causes low market price and low net income of chickpea growers.

Adoption is a decision to continue full use of an innovation. It may be defined as the integration of an innovation into a farmer's normal farming activity over an extended period of time. Thus, adoption can be termed as a behaviour response. In concern with chickpea cultivation it is the overt behaviour of a chickpea grower expressed in terms of aggregate adoption scores obtained by him with respect to recommended technologies of particular chickpea cultivation. Adoption level of production technology of selected varieties of chickpea was assessed and presented in following tables.

1. Adoption level of improved chickpea variety (JG-412):

The distribution of chickpea growers according to their level of adoption of improved technology for chickpea variety (JG-412) is discussed as in Table 4.21.

Table: 4.22 Distribution of chickpea growers according to their level of adoption of improved technology for chickpea variety (JG-412)

(n=30)

S.No.	Technology practices (Variety JG-412)	Level of adoption			Mean Score
		Low	Medium	High	
1.	Ploughing and land preparation	6 (20.00)	18 (60.00)	6 (20.00)	2.00
2.	Improved varieties of chickpea	9 (30.00)	15 (50.00)	6 (20.00)	1.90
3.	Sowing of seed	4 (13.33)	19 (63.34)	7 (23.33)	2.10
4.	Fertilizer and manure application	8 (26.67)	14 (46.66)	8 (26.67)	2.00
5.	Application of weedicide and weeding	10 (33.33)	14 (46.67)	6 (20.00)	1.87
6.	Application of plant protection measure	7 (23.33)	14 (46.67)	9 (30.00)	2.07
7.	Proper stages of irrigation	6 (20.00)	12 (40.00)	12 (40.00)	2.20
8.	Overall average	7 (23.33)	15 (50.00)	8 (26.67)	2.03

V. Figure in parentheses shows percentage to total

The above table describes the distribution of chickpea growers as per their adoption level of improved chickpea production technology in cultivation of chickpea variety "JG-412".

i. Adoption of ploughing and land preparation:

The data showed that higher number of "chickpea variety JG-412 growers" 60.00 per cent adopted medium level followed by 20.00 per cent adopted high level and 20.00 per cent adopted low level of "ploughing and land preparation".

ii. Adoption of improved varieties of chickpea:

The data showed that higher number of "chickpea variety JG-412 growers" 50.00 per cent adopted medium level followed by 30.00 per cent adopted low level and 20.00 per cent adopted high level of "improved varieties of chickpea".

iii. Adoption of sowing of seed:

The data showed that higher number of "chickpea variety JG-412 growers" 63.34 per cent adopted medium level followed by 23.33 per cent adopted high level and 13.33 per cent adopted low level of "improved varieties of chickpea".

iv. Adoption of fertilizer and manure application:

The data showed that higher number of "chickpea variety JG-412 growers" 46.66 per cent adopted medium level followed by 26.67 per cent adopted high level and 26.67 per cent adopted low level of "fertilizer and manure application".

v. Adoption of weedicide and weeding:

The data showed that higher number of "chickpea variety JG-412 growers" 46.67 per cent adopted medium level followed by 33.33 per cent adopted low level and 20.00 per cent adopted high level of "weedicide and weeding".

vi. Adoption of plant protection measure:

The data showed that higher number of "chickpea variety JG-412 growers" 46.67 per cent adopted medium level followed by 30.00 per cent adopted high level and 23.33 per cent adopted low level of "plant protection measure".

vii. Adoption of proper stages of irrigation:

The data showed that higher number of "chickpea variety JG-412 growers" 40.00 per cent adopted medium level followed by 40.00 per cent adopted high level and 20.00 per cent adopted low level of "plant protection measure".

viii. Adoption of overall technology in cultivation of chickpea variety (JG-412):

The data showed that higher number of "chickpea variety JG-412 growers" 50.00 per cent adopted medium level followed by 26.67 per cent adopted high level and 23.33 per cent adopted low level of "overall technology in cultivation of chickpea variety (JG-412)

2. Adoption level of improved chickpea variety (JG-16):

The distribution of chickpea growers according to their level of adoption of improved technology for chickpea variety (JG-16) is discussed as in Table.

Table: Distribution of chickpea growers according to their level of adoption of improved technology for chickpea variety (JG-16)

(n=30)

S.No.	Technology practices (Variety JG-16)	Level of adoption			Mean Score
		Low	Medium	High	
1.	Ploughing and land preparation	12 (40.00)	13 (43.33)	5 (16.67)	1.77
2.	Improved varieties of chickpea	10 (33.33)	12 (40.00)	8 (26.67)	1.93
3.	Sowing of seed	9 (30.00)	15 (50.00)	6 (20.00)	1.90
4.	Fertilizer and manure application	8 (26.67)	17 (56.66)	5 (16.67)	1.90
5.	Application of weedicide and weeding	8 (26.67)	16 (53.33)	6 (20.00)	1.93
6.	Application of plant protection measure	10 (33.33)	8 (26.67)	12 (40.00)	2.07
7.	Proper stages of irrigation	14 (46.67)	9 (30.00)	7 (23.33)	1.77
8.	Overall average	10 (33.33)	13 (43.34)	7 (23.33)	1.90

VI. Figure in parentheses shows percentage to total

The above table describes the distribution of chickpea growers as per their adoption level of improved chickpea production technology in cultivation of chickpea variety "JG-16".

i. Adoption of ploughing and land preparation:

The data showed that higher number of "chickpea variety JG-16 growers" 43.33 per cent adopted medium level followed by 40.00 per cent adopted low level and 16.67 per cent adopted high level of "ploughing and land preparation".

ii. Adoption of improved varieties of chickpea:

The data showed that higher number of "chickpea variety JG-16 growers" 40.00 per cent adopted medium level followed by 33.33 per cent adopted low level and 26.67 per cent adopted high level of "improved varieties of chickpea".

iii. Adoption of sowing of seed:

The data showed that higher number of "chickpea variety JG-16 growers" 50.00 per cent adopted medium level followed by 30.00 per cent adopted low level and 20.00 per cent adopted high level of "improved varieties of chickpea".

iv. Adoption of fertilizer and manure application:

The data showed that higher number of "chickpea variety JG-16 growers" 56.66 per cent adopted medium level followed by 26.67 per cent adopted low level and 16.67 per cent adopted high level of "fertilizer and manure application".

v. Adoption of weedicide and weeding:

The data showed that higher number of "chickpea variety JG-16 growers" 53.33 per cent adopted medium level followed by 26.67 per cent adopted low level and 20.00 per cent adopted high level of "weedicide and weeding".

vi. Adoption of plant protection measure:

The data showed that higher number of "chickpea variety JG-16 growers" 40.00 per cent adopted high level followed by 33.33 per cent adopted low level and 26.67 per cent adopted medium level of "plant protection measure".

vii. Adoption of proper stages of irrigation:

The data showed that higher number of "chickpea variety JG-16 growers" 46.67 per cent adopted low level followed by 30.00 per cent adopted medium level and 23.33 per cent adopted high level of "plant protection measure".

viii. Adoption of overall technology in cultivation of chickpea variety (JG-16):

The data showed that higher number of "chickpea variety JG-16 growers" 43.34 per cent adopted medium level followed by 33.33 per cent adopted low level and 23.33 per cent adopted high level of "overall technology in cultivation of chickpea variety (JG-16)".

3. Adoption level of improved chickpea variety (JG-130):

The distribution of chickpea growers according to their level of adoption of improved technology for chickpea variety (JG-130) is discussed as in Table.

Table: Distribution of chickpea growers according to their level of adoption of improved technology for chickpea variety (JG-130)

(n=30)

S.No.	Technology practices (Variety JG-130)	Level of adoption			Mean Score
		Low	Medium	High	
1.	Ploughing and land preparation	10 (33.33)	13 (43.34)	7 (23.33)	1.90
2.	Improved varieties of chickpea	9 (30.00)	9 (30.00)	12 (40.00)	2.10
3.	Sowing of seed	8 (26.67)	15 (50.00)	7 (23.33)	1.97
4.	Fertilizer and manure application	8 (26.67)	15 (50.00)	7 (23.33)	1.97
5.	Application of weedicide and weeding	6 (20.00)	14 (46.67)	10 (33.33)	2.13
6.	Application of plant protection measure	9 (30.00)	8 (26.67)	13 (43.33)	2.13
7.	Proper stages of irrigation	10 (33.33)	14 (46.67)	6 (20.00)	1.87
8.	Overall average	8 (26.67)	13 (43.33)	9 (30.00)	2.03

VII. Figure in parentheses shows percentage to total

The above table describes the distribution of chickpea growers as per their adoption level of improved chickpea production technology in cultivation of chickpea variety "JG-130".

i. Adoption of ploughing and land preparation:

The data showed that higher number of "chickpea variety JG-130 growers" 43.34 per cent adopted medium level followed by 33.33 per cent adopted low level and 23.33 per cent adopted high level of "ploughing and land preparation".

ii. Adoption of improved varieties of chickpea:

The data showed that higher number of "chickpea variety JG-130 growers" 40.00 per cent adopted high level followed by 30.00 per cent adopted medium level and 30.00 per cent adopted low level of "improved varieties of chickpea".

iii. Adoption of sowing of seed:

The data showed that higher number of "chickpea variety JG-130 growers" 50.00 per cent adopted medium level followed by 26.67 per cent adopted low level and 23.33 per cent adopted high level of "improved varieties of chickpea".

iv. Adoption of fertilizer and manure application:

The data showed that higher number of "chickpea variety JG-130 growers" 50.00 per cent adopted medium level followed by 26.67 per cent adopted low level and 23.33 per cent adopted high level of "fertilizer and manure application".

v. Adoption of weedicide and weeding:

The data showed that higher number of "chickpea variety JG-130 growers" 46.67 per cent adopted medium level followed by 33.33 per cent adopted high level and 20.00 per cent adopted low level of "weedicide and weeding".

vi. Adoption of plant protection measure:

The data showed that higher number of "chickpea variety JG-130 growers" 43.33 per cent adopted high level followed by 30.00 per cent adopted low level and 26.67 per cent adopted medium level of "plant protection measure".

vii. Adoption of proper stages of irrigation:

The data showed that higher number of "chickpea variety JG-130 growers" 46.67 per cent adopted medium level followed by 33.33 per cent adopted low level and 20.00 per cent adopted high level of "plant protection measure".

viii. Adoption of overall technology in cultivation of chickpea variety (JG-130):

The data showed that higher number of "chickpea variety JG-130 growers" 43.33 per cent adopted medium level followed by 30.00 per cent adopted high level and 26.67 per cent adopted low level of "overall technology in cultivation of chickpea variety (JG-130)

4. Adoption level of improved chickpea variety (Dollar):

The distribution of chickpea growers according to their level of adoption of improved technology for chickpea variety (Dollar) is discussed as in Table.

Table: Distribution of chickpea growers according to their level of adoption of improved technology for chickpea variety (Dollar)

(n=30)

S.No.	Technology practices (Variety Dollar)	Level of adoption			Mean Score
		Low	Medium	High	
1.	Ploughing and land preparation	6 (20.00)	16 (53.33)	8 (26.67)	2.07
2.	Improved varieties of chickpea	10 (33.33)	11 (36.67)	9 (30.00)	1.97
3.	Sowing of seed	8 (26.67)	14 (46.66)	8 (26.67)	2.00
4.	Fertilizer and manure application	5 (16.67)	17 (56.66)	8 (26.67)	2.10
5.	Application of weedicide and weeding	11 (36.67)	10 (33.33)	9 (30.00)	1.93
6.	Application of plant protection measure	5 (16.67)	19 (63.33)	6 (20.00)	2.03
7.	Proper stages of irrigation	8 (26.66)	11 (36.67)	11 (36.67)	2.10
8.	Overall average	8 (26.67)	14 (46.66)	8 (26.67)	2.00

VIII. Figure in parentheses shows percentage to total

The above table describes the distribution of chickpea growers as per their adoption level of improved chickpea production technology in cultivation of chickpea variety "Dollar".

i. Adoption of ploughing and land preparation:

The data showed that higher number of "chickpea variety Dollar growers" 53.33 per cent adopted medium level followed by 26.67 per cent adopted high level and 20.00 per cent adopted low level of "ploughing and land preparation".

ii. Adoption of improved varieties of chickpea:

The data showed that higher number of "chickpea variety Dollar growers" 36.67 per cent adopted medium level followed by 33.33 per cent adopted low level and 30.00 per cent adopted high level of "improved varieties of chickpea".

iii. Adoption of sowing of seed:

The data showed that higher number of "chickpea variety Dollar growers" 46.66 per cent adopted medium level followed by 26.67 per cent adopted low level and 26.67 per cent adopted high level of "improved varieties of chickpea".

iv. Adoption of fertilizer and manure application:

The data showed that higher number of "chickpea variety Dollar growers" 56.66 per cent adopted medium level followed by 26.67 per cent adopted high level and 16.67 per cent adopted low level of "fertilizer and manure application".

v. Adoption of weedicide and weeding:

The data showed that higher number of "chickpea variety Dollar growers" 36.67 per cent adopted low level followed by 33.33 per cent adopted medium level and 30.00 per cent adopted high level of "weedicide and weeding".

vi. Adoption of plant protection measure:

The data showed that higher number of "chickpea variety Dollar growers" 63.33 per cent adopted medium level followed by 20.00 per cent adopted high level and 16.67 per cent adopted low level of "plant protection measure".

vii. Adoption of proper stages of irrigation:

The data showed that higher number of "chickpea variety Dollar growers" 36.67 per cent adopted medium level followed by 36.67 per cent adopted high level and 26.66 per cent adopted low level of "plant protection measure".

viii. Adoption of overall technology in cultivation of chickpea variety (Dollar):

The data showed that higher number of "chickpea variety Dollar growers" 46.66 per cent adopted medium level followed by 26.67 per cent adopted high level and 26.67 per cent adopted low level of "overall technology in cultivation of chickpea variety (Dollar-local)".

5. Overall adoption behavior of chickpea growers in cultivation of different varieties:

A comparative figure was shown in analysis to compare the level of overall adoption behavior of chickpea growers in cultivation of chickpea varieties (JG-412, JG-16, JG-130, Dollar). The distribution of chickpea growers as per they adopted package of practices in cultivation of chickpea varieties (JG-412, JG-16, JG-130, Dollar) is presented in Table.

Table: 4.26 Level of adoption and likelihood of four selected improved chickpea varieties

S.No	Name of Chickpea varieties	Level of Adoption			Mean score	Rank
		Low	Medium	High		
1.	JG-412	7 (23.33)	15 (50.00)	8 (26.67)	2.03	Ist
2.	JG-16	10 (33.33)	13 (43.34)	7 (23.33)	1.90	IIIrd
3.	JG-130	8 (26.67)	13 (43.33)	9 (30.00)	2.03	Ist
4.	Dollar	8 (26.67)	14 (46.66)	8 (26.67)	2.00	IInd
5.	Overall adoption in Chickpea cultivation	33 (27.50)	55 (45.83)	32 (26.67)	1.99	

IX. Figure in parentheses shows percentage to total

The above table describes the distribution of chickpea growers as per their level of adoption in cultivation of chickpea varieties (JG-412, JG-16, JG-130, Dollar) and overall adoption behaviour in chickpea cultivation.

Data depicted that the highest number of chickpea growers adopted technology and package of practices in cultivation of chickpea variety JG-412 and JG-130 (mean score 2.03 each) followed by cultivation

of chickpea variety Dollar (mean score 2.00). The minimum adoption was found in cultivation of chickpea variety JG-16 (mean score 1.90).

It is also concluded that the higher number of chickpea growers 45.83 per cent adopted overall technology in chickpea cultivation by medium level followed by 27.50 per cent adopted overall technology in chickpea cultivation by low level and 26.67 per cent adopted overall technology in chickpea cultivation by high level respectively.

X. Conclusion:

Adoption level of improved chickpea varieties (JG-412, JG-16, JG-130, Dollar) among chickpea growers:

The data showed that higher number of "chickpea variety JG-412 growers" 50.00 per cent adopted medium level followed by higher number of "chickpea variety JG-16 growers" 43.34 per cent adopted medium level, higher number of "chickpea variety JG-130 growers" 43.33 per cent adopted medium level and higher number of "chickpea variety Dollar (local)growers" 46.66 per cent adopted medium level. In nut shell it is concluded that the higher number of chickpea growers 45.83 per cent adopted overall technology in chickpea cultivation by medium level. Apart from this the major observation was found during the collection of data is that JAKI 928, one of the popular varieties is also cultivating in the area by other farmers. The above facts show that the chickpea growers cultivating different varieties are adopting average level of chickpea production technology. The possible reason of the result might be the above four varieties are eqully likely. The finding finds support with the work of Badodiya and Gautam (2007), Shakya (2007), and Varma (2009).

References:

[1]. Annual project report, R.V.S.K.V., College of Agriculture, Indore (2012-13).
[2]. Badodia,S.K.; Shrivastava,K.K. and Lakhera,M.L. (2002). Technological gap in chickpea cultivation technology. Agri.Extn.Review. pp:25-28
[3]. Shakya,M.S. (2007). A study on adoption behaviour of chickpea growers in Indore District of M.P. M.Sc. (Ag.) Thesis submitted to, J.N.K.V.V., Jabalpur.
[4]. Varma,K.L. (2009). A study on extent of adoption of gram cultivation technology in Panagar block of Jabalpur district (M.P.). M.Sc. (Ag) Thesis submitted to J.N.K.V.V., Jabalpur.
[5]. Taram, Ravindra (2011). A study on technological gap of recommended chickpea production technology among grower of Indore district of Madhya Pradesh. M.Sc. (Ag.) Thesis Submitted to the R.V.S.K.V.V. Gwalior.