

Adoption of organic farming practices and marketing behaviour of pigeonpea growers in Gulbarga district of Karnataka

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ABSTRACT

Organic farming practice in India is an age old practice. Organic farming systems rely on large scale application of animal waste or FYM, compost, crop rotation, crop residues, green manuring, vermicompost biofertilizers, and biological control of pest and diseases. The present study conducted in pulse bowl district called Gulbarga involving 120 farmers growing pigeonpea, with the objective to know their extent of adoption of organic farming practices and marketing behaviour. The results indicated that, majority of respondents (69.17%) had medium level of adoption with respect to individual practice, majority have adopted variety, sowing time, vermicompost, application of FYM, use of Jeevamruth sowing within 15th July and application of NSKE, Most of the respondents sold the produce through commission agent, at regulated market when the price was reasonable.

INTRODUCTION

Krishi to naasti dhurbhiksham” (famine vanishes through farming) thus said the Vedas, India has the golden history of ancient agriculture and has the credit of having contributed ancient agriculture practices to other parts of the world over the years. This has led to a number of changes at various production levels of agriculture from sowing to harvest.

Pigeonpea ranks sixth among pulses production in the world and a major legume crop. Average world production of pigeonpea is 3.00 million tones in last six years. At present the area under cultivation (4.5 million hectares) is stagnant, pigeonpea accounts for 20 per cent of the total output of all pulses. India accounts for 90 percent of world output with an area of 3.23 million hectares and production of 2.37 million tones of grains. In Karnataka it is grown in an area of 5.83 lakh hectares with production of 2.57 lakh tones. It is largely grown in the northern party of the state especially in Gulbarga and it occupies an area of 349894 ha. and production of 136616 tonnes (Karnataka at a glance 2004-05), but productivity is 359kg/ha which is very low compared to the state average productively of 453 kg/ha (Anonymous, 2005). In terms of productivity the yields of principal crops are lesser than the state average. The variation in

rainfall, depleting soil productivity and endemic pest outbreak have affected the productivity of pigeonpea. Consumption of NPK nutrient is 39kg/ha in the district as against the overall India average of 36.2kg/ha in pigeonpea crop. Consumption of nitrogenous and phosphatic nutrient has steadily increased due to increase in the area of pulses, where as potash consumption has become stagnant ever last three years. In most of the pigeonpea growing areas, yields are either stagnant or declined due to decrease in organic matter content of soils. Efforts are also made to evolve organic farming practices for field and horticulture crops and also farmers are following their own methods of organic farming practices. Keeping this in view, the present study was taken up with the objectives to document the adoption of organic farming practices by pigeonpea farmers and know the marketing behaviour of organic pigeonpea growers.

METHODOLOGY

The study was conducted in two Talukas namely, Gulbarga and Jeargi. They were selected based on the highest area under pigeonpea. From each Taluka, five villages were randomly selected and in each selected village, a list of farmers who had grown organic pigeonpea was prepared with the help of Agriculture Assistants of State Department of

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Agricultural and DBT and Project Scientists. From this list, 12 farmers were selected using simple random sampling procedure from each village and thus the total sample for the study constituted 120 farmers. The adoption level of respondents with reference to organic farming practices in pigeonpea cultivation was measured taking into consideration the practices recommended and also after discussing with subject matter specialties and experts in the field. A score "one" was given to practice adopted and a score "zero" was given to the practices with have not being adopted. The test constituted seven adoption practices. The answers to the questions were quantified by giving one score to adoption answer and multiplied by weightage score given to individual practices. Zero score to non-adoption practice, the summation of scores for the adoption of practices by particular respondent indicates adoption score of organic pigeonpea farming practices by the respondent. The data were collected by personal interview method with the help of structured, pre-tested interview schedule. Then the information was analyzed using appropriate statistical tools.

RESULTS AND DISCUSSION

The findings of the present study as well as relevant discussion have been summarized under following heads:

Mean adoption scores of selected organic pigeonpea cultivation:

Determination of weightage to different organic pigeonpea farming practices are presented in Table 1,

Sr. No.	Practices	Mean weightage (average of 36 experts)
1.	Variety	10.57
2.	Seed rate	7.57
3.	Seed treatment	12.57
4.	Sowing time	8.86
5.	Spacing	8.00
6.	Nutrient management	28.14
7.	Pest management	24.29

which reveal that, in fact all the practices did not demand equal competence and contribute equally to the yield. A list of practices which have impact on yield were short listed and sent to the experts in the concerned field for obtaining the weightage pertaining to the selected practices. The mean score of individual practice is considered as weightage of that practices. The nutrient management scored highest with the mean score of 28.14 followed by pest management (24.29), seed treatment (12.57) and variety (10.27), where as seed rate scored the least mean score of 7.57. There were no studies to either support or contradict these results.

Overall adoption of respondents:

Table 2 reveals the overall adoption of organic pigeonpea growers. Majority (69.17%) had medium adoption followed by high and low adoption 20.00 and 10.83 per cent, respectively. The possible reason for these findings could be that, those practices which are easy to adopt and involve less skills and commonly know to them viz., varieties, seed rate, seed treatment, application of FYM, vermicompost, Jeevamruth, summer ploughing, use of pheromone traps, application of NPV and NSKE were adopted by majority of the farmers. While the practices which demand higher knowledge and skill like spacing, light traps and use of *Trichoderma* were adopted by less number of farmers. This finding is in conformity with the results of Kanavi (2000) and Nagaraj (2002), who revealed that majority of farmers belonged to medium adoption category.

Adoption of individual organic farming practices by respondents:

Majority of respondents had adopted the practices (Table 3) like recommended varieties Maruti (81.83%) and BSMR (65.00%), recommended seed rate (78.83%) seed treatment with rhizobium (80.83%) and PSB (68.33%) followed by sowing time (92.50%). Here, suitable seeds for organic farming and seed treatments (*Rhizobium*, *Trichoderma* and PSB) were easily available for the farmers from KVK, RSK Gulbarga and also these were provided to the farmers under the project DBT Bio resource complex for women also getting the guidance

Category	Frequency	Percentage	Mean score	Mean yield (q/acre)
Low (Mean-0.425*SD)	13	10.83	29.05	3.34
Medium (Mean±0.425*SD)	83	69.17	33.34	3.86
High (Mean-0.425*SD)	24	20.00	37.31	4.29
Mean			33.36	
S.D.			2.91	

Table 3: Distribution of respondents according to individual organic farming practices adopted (n=120)

Variety adoption	Frequency	Percentage
Maruti	97	80.83
BSMR	78	65.00
Seed rate		
Recommended seed rate (3-4kg/acre)	94	78.33
Seed Treatments		
<i>Rhizibium</i>	97	80.83
<i>Trichoderma</i>	54	45.00
PSB	82	68.33
Sowing time		
Before 15th July	111	92.50
After 15th July	9	7.50
Nutrient management practices		
FYM	107	89.17
Green manure	6	5.00
Sheep manure	24	20.00
Poultry manure	0	0.00
Jeevamruth	109	90.83
Vermicompost	118	98.33
Cultural practices		
Crop rotation	61	50.83
Summer ploughing	120	100.00
Sowing within 15 July	111	92.50
Mixed cropping	39	32.50
Mechanical practices		
Light traps	0	0.00
Bird perches	76	63.33
Pheromone trap	98	81.67
Biological practices		
NPV	116	96.67
NSKE	120	100.00
Pachagavya	34	28.33
Biodigester	38	31.67
<i>Trichoderma</i>	54	45.00

on how to adopt the organic farming practice in pigeonpea.

Regarding adoption of nutrient management practices, 98.33, 90.83 and 89.17 per cent of respondents adopted the application of vermicompost, Jeevamruth and FYM, respectively. While only 20.00 and 5.00 per cent of respondents adopted the practices like sheep manuring and green manuring, and no farmer adopted the application of poultry manure. The reasons attributed to this might be that farmers are not much aware of green manure, poultry and sheep manure and non-availability of the same

in that area .

With regard to pest management practices, there are three categories *viz.*, cultural practices, mechanical practices and biological practices. In cultural practices cent per cent of respondents adopted the summer ploughing practice, while 92.50 and 50.83 per cent of respondents adopted the practices like sowing within 15th July, crop rotation and only 32.50 per cent of respondents adopted mixed cropping. This finding is in conformity with the observation of Moulasab (2004) who revealed that majority of mango growers were of medium adaptors. In case of mechanical practices, majority of farmers adopted the practices like pheromone traps (81.67%) and bird perches (63.35%) and no farmer used the light traps.

About the biological practices, majority of the farmers adopted the practices like application of NSKE (100%), NPV (96.67%) and *Trichoderma* (45.00%), while only 31.67 and 28.33 per cent of respondents adopted biodigester and Panchyagavya, respectively. This study gets the support of the results of Raghunandhan (2004).

It is a well known fact that all improved practices cannot be adopted by all the growers simultaneously. The adoption of farm practices or farm innovations is a complex process which needs mental thinking and executive power, responsibility as well as risk bearing ability. The probable reason for the more adoption of practice like application of FYM, vermicompost, jeevamruth, sowing with 15th July, summer ploughing, use of pheromone traps, bird perches, NSKE, NPV and *Trichoderma* could be that, easy availability, relatively low cost, compatibility and local availability. However, the poor adoptions of practices like sheep manuring, green manuring, poultry manuring, light traps, biodigester and Panchagavya might be that, complexity of process and non-availability of materials like poultry manure, light traps and lack of awareness about these practices.

Marketing behaviour of respondents:

Table 4 reveals that, majority of respondents (71.67%) sold their produce at times when price was attractive, while only 28.33 per cent of them sold immediately after the harvest. The farmers with higher holdings and having better space at home to store the produce, sold the produce at good price. A great majority of growers (90.00%) have sold the produce in regulated market. Majority marketed through commission agents (77.50%). The probable reason might be that regulated market provides good price. As the commission agents are having good exposure to the markets and having contact with large number of buyers, hence they sold the produce through commission agents for a good price and

Table 4: Marketing behaviour of the respondents (N=120)		
Marketing behaviour	Frequency	Percentage
When marketed		
Immediately after harvest	34	28.33
Later when price suitable	86	71.67
Where marketed		
Village itself	12	10
Regulated market	108	90
Cooperative society	0	0
Marketed through whom		
Local traders	6	5.00
Commission agent	93	77.5
Cooperative society	0	0
APMC	4	3.33
Processing mill	17	14.17
Price information for selling		
News paper	16	13.33
Radio	7	5.83
Personal visit/ phone to regulated market	98	81.67
Others who visited regulated market	82	68.33
APMC	5	4.17
Price to which produce sold		
Premium price	0	0
Normal price prevailed at regulated market	120	100

more demand in the market. Nearly 81.67 per cent of farmers got the market price information through personal visit to market or by over a phone followed by other farmers who had visited the market (68.33%). Because it is very easy and economical to get information and majority were illiterates and less educated to use other sources. No farmers sold the produce at premium price, it might be due to that, there was no platform to sell the organic produce, non-availability of organic buyers and lack of awareness of respondents about organic markets.

Conclusion:

The study on adoption of organic farming practices in pigeonpea revealed that, nutrient management scored the highest score where as seed rate scored the least score. The study also indicated that a good majority of growers had medium to high adoption. The adoption of organic practices is a quite complex process which calls for greater risk bearing ability and individual responsibility.

The practices like application of FYM, vermicompost, Jeevamruth, sowing with 15th July summer ploughing, use of pheromone traps NSK and NPV and *Trichoderma* easily available locally with relatively low cost were adopted. Where as the practices which require more skill, cost, and investment were not adopted by all the farmers. The extension efforts need to be strengthened to import the knowledge on practices namely, use of green manure, sheep and poultry manure, mixed cropping and light traps. There is need to conduct method demonstrations to teach skill of complex method of pest control, preparation of biodegester, Panchagavya and Jeevamruth etc. The farmers, are following the practices with variation, still there is need to standardize the practices on participatory basis and evolve package of practice.

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