ADOPTION OF GROUNDNUT-PIGEONPEA INTER RELAY CROPPING SYSTEM IN RELATION TO TECHNOLOGICAL GAP

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ABSTRACT

A study was conducted in South Saurashtra agro climatic zone of Gujarat state, to identify the technological gaps in adoption of groundnut-pigeonpea inter relay cropping production technology. The ex-post-facto research design was used for the study.The size of the sample was 120 respondents, which were purposively selected from four villages namely Motimarad andPipliya from Dhorajitaluka of Rajkot district, and Datrana andNagalpur from Mendradataluka of Junagadh district. The result of study revealed that in case of overall technological gap, 65 per cent of farmers had medium technological gap followed by 18.33 per cent and 16.67 per centhad high and low technological gap about groundnut-pigeonpeacultivation technology, respectively. Practices wise technology gap among various recommended technologies,there were high technological gap in plant protection (63.25%) followed by seed rate (47.73%), weed management (45.43%), irrigation (42.12%), sowing distance (35.38%), chemical fertilizers (32.50%), inter-culture (31.15%),gap filling (24.86%) and improved variety (23.33%). Further, limited of knowledge, lack of technical knowhow, non-availabilityof good quality of inputs at right time, sub-standard and costly chemical fertilizers and pesticides,lack of purchasing power, fear of crop loss, etc. were expressed as reasons for technological gap in adoptionof groundnut- pigeonpeacultivation practices.

KEY WORDS: Groundnut, pigeonpea, relay cropping,

INTRODUCTION

Agriculture has been a part of human life since the beginning of the human race and the need for agricultural information is probably almost as old as agriculture itself. Production of new technology is not the major problem now a day in our country. The agricultural scientists are capable of producing appropriate technology. The main problems as it exist today is that of diffusion and adoption of new farm technology among the farmers. Diffusion of knowledge is relatively an easy task, but getting people to understand,

accept and apply is the difficult one.Pulses have its characteristics like soil ameliorative properties and nitrogen fixing ability play an important role in sustaining soil health and water management. Its neglect in the cropping system has not only lead to soil sickness and break down in the sustainability of the production system, but also lead to progressive decline in the productivity. Efforts are, therefore, needed to reintroduce pulses in cropping system to maintain sustainability of production system.Relay cropping system is a common practice in the low level equilibrium farmers to insulate their investments against adversities of nature. The groundnut-pigeonpea inter-relay cropping system has been introduced through front line demonstration programmes from 1991-1992.This system proved that the relay pigeonpea did not reduce the yield of groundnut. Encouraging results have popularized this system among the farmers of Saurashtra region, where the main *kharif* crop is groundnut. The South Saurashtraagro climatic zone of Gujarat is characterized by the drought prone area, where the monsoon is irregular, uneven and erratic in nature. The sole crops are not always secure so far as the production is concerned.Hence, the study was undertaken with specific objectives, to study the overall extent of technological gap in groundnut-pigeonpea inter-relay cropping system and to study the practice wise technological gap in groundnut-pigeonpea inter-relay cropping system.

RESEARCH METHODOLOGY

The study was conducted in South Saurashtra agro climatic zone of Gujarat stateduring the year 2005-06with ex-post facto research design.The South Saurashtra agro climatic zone is consisted of 25 talukas of 4 districts of the state having common agro-climatic conditions. Out of four districts, Rajkot and Junagadh were selected purposively,where the groundnut-pigeonpea inter-relay cropping system has already been adopted by the farmers. From the two districts, one taluka from each district was selected for the study. From each selected taluka, two villages Motimarad andPipliya from Dhorajitaluka of Rajkot district, and Datrana and Nagalpur from Mendradataluka of Junagadh districtwere selected by random sampling method. Thus, the total numbers of 4 villages were selected for the study.Totalnumbers of 120 farmers, 30 farmers from each selected village were selected by using purposive random sampling technique with a condition that the farmers have adopted this cropping system at least since last two years.The data were collected through specially developed interview schedules.

To ascertain the practice wise technological gap in improved groundnut-pigeonpea inter relay crop production technology by the respondents, the improved practices were grouped under 13 major practices namely, improved varieties, seed treatment, organic manure, inorganic fertilizer, seed rate, sowing time, thinning and gap filling, spacing, method of sowing, inter culturing, weed management,plant protection, irrigation, harvesting and threshing and practice wise score was assigned, making a total of 100. On the basis of the practice wise scores obtained by the respondents in adopting a particular practice, the mean score were worked out for all the practices. These mean scores were again converted into percentage for all the 13 practices and then difference between adoption and the recommended score for each

practice in percentage were considered as technological gap of the recommended technology. On the basis of percent technological gap ranks were assigned to each practice. The formula used for measuring the overall and practice wise technological gap was as follows:

$$T.G. = \frac{(R-A)}{R} X 100$$

Where,

T.G. = Technological gap for each practice for each respondents

R = Recommended score for each practice

A = Adoption score of relative practice

RESULTS AND DISCUSSION

Overall technological gap

The results presented in Table 1 stated that nearly two third (65.00 %) of respondents possessed medium level of technological gap in groundnut-pigeonpea crop production technology followed by high (18.33 %) and low (16.67 %) technological gap in groundnut-pigeonpea crop production technology, respectively.The probable reason might be due to fact that majority of the respondents belonged to medium level of knowledge, medium income and medium extension participation also might have kept them in this circumstance.Similar trend was observed by Kalsaria (1993), Patil (1995) and Verma*et al.* (2003).

Practice wise technological gap

The results presented in Table 2 showed that highest technological gap were found in plant protection measures (63.35 %) followed by seed rate (47.73 %), weed management (45.43 %), irrigation (42.12 %), sowing distance (35.38 %) and chemical fertilizers (32.50 %) got first, second, third, fourth, fifth and sixth ranked, respectively. More or less similar findings are also reported by Kalasaria(1993), Nikhade*et al.* (1991), Kosambi*et al.*(2000) and Verma*et al.* (2003).

The probable reason for these finding might be that they had poor technical guidance as well as lack of proper knowledge about importance of plant protection measuresin groundnut-pigeonpea inter relay cultivation for higher production. Besides, the high cost of insecticides might be one of the reasons for high technological gap. In case of seed rate, about half of the respondents used seed rate as per the recommendation. The fear of poor seed germination may cause to use high seed rate as compared to recommendations. It might be also one of the reasons that according to the availability of irrigation facility, they were keeping such type of the seed rate. Farmers were also very cautious about weed free field. Almost all the respondents' preferred hand weeding only as compared to weedicide application. The hand weeding was also a cheaper as well as an effective operation in the area of study as compared to chemical weed control. The village co-operative/banks finance awareness about chemical fertilizers and high price of chemical fertilizers, as a result they could use the same fertilizers as per the recommendations.The respondents had poor knowledge about importance of irrigation schedule in groundnut-pigeonpea inter relay cultivation for higher production. Besides this, the farmers did not have sufficient irrigation facility.

CONCLUSION

It is clearly evident from the findings of this study that skill required technologies are less adopted by the farmers, however adoption of easy and low cost technologies is higher, which

might be the proper reason of observed findings.

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Table 1: Distribution of respondents according to their overall technological gap

Sr. No.	Category	Frequency	Percentage
1	Low technological gap (up to 17.81)	20	16.67
2	Medium technological gap (17.82 to 47.03)	78	65.00
3	High technological gap (above 47.03)	22	18.33
	$\overline{X}$ = 32.42	S.D. = 14.61	

Table 2: Groundnut Pigeon pea inter relay grower practice wise extent of technological gap

n=120

Sr. No.	Name of the Practices	Total Score (100)	Mean Score Obtained	Per Cent Adoption	Technological Gap	Rank
1	Improved variety	15.00	11.5	76.67	23.33	IX
2	Seed treatment	4.64	3.65	78.66	21.34	X
3	Organic manure(FYM)	5.57	4.40	78.99	21.11	XI
4	Chemical fertilizers	7.60	5.13	67.50	32.50	VI
5	Seed rate	6.93	3.83	52.27	47.73	II
6	Sowing time	10.40	8.42	80.96	19.04	XII
7	Gap filling	5.27	3.96	75.14	24.86	VIII
8	Sowing distance	6.87	4.44	64.62	35.38	V
9	Inter-culture	5.33	3.67	68.85	31.15	VII
10	Weed management	7.33	4.00	54.57	45.43	III
11	Irrigation	11.23	6.50	57.88	42.12	IV
12	Plant protection	8.73	3.20	36.65	63.35	I
13	Harvesting/Threshing	5.07	4.88	96.25	3.75	XIII

[MS received: December 04, 2014] *[MS accepted: December 19, 2014]*