

DETERMINATION OF ADOPTION CONSTRAINTS REGARDING PLANT PROTECTION MEASURES AGAINST INSECTS, PESTS AND DISEASES OF GRAM CROP

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Though the importance of gram in terms of its nutritive and economic value is unquestionable yet we have still not been able to exploit its potential yield mainly due to the non-adoption of plant protection measures against the attack of insects/pests and diseases of gram crop. In order to explore the real causal factors and suggest suitable recommendations, this study was conducted in Layyah District. The analysis of data collected from the area of universe by contacting 150 respondents, revealed that the diseases like gram blight and wilt caused the most serious loss to the crop and the factors such as education, size of landholding had positive relationship with the adoption of plant protection measures. The respondents also pointed out a number of difficulties like non-awareness, poor financial position etc. which hindered the adoption of plant protection measures for the control of diseases and insects/pests.

INTRODUCTION

Gram being one the most important leguminous crops of barani areas, is sown all over the world in view of its importance as food requirement both for the animals and human beings. The total area under gram in Pakistan is 979.4 thousand hectares with an annual production of 456 thousand tonnes and the average yield as 365 kg/hectare (Govt. of Pakistan, 1989) which of course, is very low as compared to the potential yield of 2500 kg/hectare. In the light of above mentioned facts, it is clear that in spite of so much importance laid on this crop and hectic efforts made by public and private agencies, our farmers are still not able to get consistently improved yield per hectare. This low yield of gram may be attributed to a number of factors like non-awareness of the latest gram growing practises, poor financial

position of farmers, non-availability of inputs, defective marketing system, lack of timely and sufficient rains, non-adoption of plant protection measures etc. Though all these aspects are important yet the non-adoption of the latest recommendations regarding plant protection measures plays a vital and significant role in its low productivity. During the previous years, the attack of insects/pests and diseases has caused immense loss to the gram crop. According to Reddy *et al.* (1983), the diseases like gram blight and wilt cause serious loss mainly due to the sowing of such varieties by the farmers which are susceptible to the gram diseases. In order to rectify the situation, it was considered necessary to determine the factors associated with the non-adoption of plant protection practices and suggest measures to control the attack of insects/pests and diseases.

MATERIALS AND METHODS

This study is based on descriptive survey methodology. Tehsil Chaubara of Layyah District served as the universe for the study. Tehsil Chaubara consists of 237 villages, but the study was restricted to 10 randomly selected villages. From each village, 15 gram growers were selected at random. In this way, 150 respondents were taken through simple random sampling technique. The data collected with the help of a pretested interview schedule were analysed and interpreted to draw conclusions.

RESULTS AND DISCUSSION

Different factors such as insect pests, diseases, rodents and weeds are causal factors for the low productivity of gram crop. The data concerning the perceptions of farmers regarding causal factors for low productivity of gram crop are presented in Table 1.

Table 1. View of respondents regarding the harmfulness of different causal factors

Causal factor	Number of respondents	Percentage
Insect pests	27	18.00
Diseases	111	74.00
Rodents	2	1.33
Weeds	10	6.67

Table 1 shows that according to 74.00% of respondents, the most harmful factor was the diseases, whereas 18.00% of the respondents reported insect pests and only 6.67 and 1.33% of the respondents considered weeds and rodents, respectively as the other harmful causal factors. During this study it was intended to know farmer's

views regarding diseases which cause severe damage to gram crop. The data regarding this aspect are presented in Table 2.

Table 2. Farmer's perceptions regarding diseases which cause severe damage to gram crop

Disease	Number of respondents	Percentage
Gram blight	121	80.66
Gram wilt	29	19.33
Root rot	-	-

Table 2 shows that a large majority (80.66%) of the respondents reported that severe damage was caused by gram blight, while 19.33% were of the view that gram wilt also caused severe damage. However, the severity of root rot was not reported by any respondent. The present research findings are in consonance with those of Reddy et al. (1983) who described that gram blight caused 70 - 80% crop losses during the last three years in Pakistan and caused 30% damage in Syria. Laha and Grewal (1986) also reported that gram blight destroyed 20,000 hectares of the crop in various parts of Bihar during the year 1978-79,

Table 3 depicts that major difficulties being faced by the large majority of the respondents were lack of awareness about plant protection measures (96.00%), poor financial position (86.66%), non-availability of certified seed (75.33%) and untimely rainfall (64.67%). The other difficulties pointed out by the respondents were non-cooperation of extension field staff, high cost of insecticides and their non-availability, adulteration of chemicals, non-availability of spraying machinery on hired basis and defective marketing system.

Table 3. Difficulties being faced by the respondents in the adoption of plant protection measures

Difficulty	Number of respondents	Percentage
Lack of awareness about plant protection measures	144	96.00
Poor financial position	130	86.66
Non-cooperation of extension field staff	39	26.00
High cost of insecticides and pesticides	21	14.00
Non-availability of insecticides and pesticides	13	8.67
Non-availability of certified seed	113	75.33
Untimely rainfall and shortage of irrigation water	97	64.67
Inadequacy of manual labour	38	25.33
Adulteration of chemicals	14	9.33
Non-availability of spraying machinery on hired basis	27	18.00
Lack of better marketing facilities	12	8.00

Table 4 indicates a positive association between education of the respondents and the adoption of disease resistant varieties of gram crop. The above observations are in line with Ahmad (1990) who concluded that the relationship between adoption of new wheat and sunflower varieties and education was highly positive.

Table 4. Relationship between education and the adoption of disease resistant varieties of gram crop

Education	Adopter	Non-adopter	Total
Illiterate	28	76	104
Upto primary	6	16	22
Upto matric	10	6	16
Above matric	4	4	8

The above observations are in line with Ahmad (1990) who concluded that the relationship between adoption of new wheat and sunflower varieties and education was highly positive.

Table 5. Relationship of the size of landholding with the adoption of disease resistant varieties of gram crop

Size of landholding	Adopter	Non-adopter	Total
Upto 12½ acres	12	30	42
12½ to 25 acres	10	38	48
Above 25 acres	26	34	60

These results show that there was a positive significant relationship between the size of land holding and the adoption of disease resistant varieties of gram.

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