CHAPTER V

SUMMARY, CONCLUSIONS AND SUGGESTIONS

Adoption of an innovation is the function of the individual as well as the interaction of the many socio-psychological, economic, cultural and personal variables. In India as well as in foregin countries numerous studies have been made to determine the effect of such variables on the adoption pattern of different innovations. The characteristics of an innovation are also important determinants of the rate and extent of adoption of that innovation. Kelkar and Sohoni (1965), Mulay and Roy (1965), Selvi and Pawar (1966) and Momi and Sohal (1971) are some of the Indian scientists who initiated studies on this aspect in Nagpur (Maharastra), Delhi, Maharastra and Punjab respectively. Most of the researches in the field of social sciences are locale specific and their general validity and reliability are limited. No such study, highlighting the effect of characteristics on rate and extent of adoption of an innovation has ever been attempted in Uttar Pradesh and looking to the dearth of such studies a study entitled," Characteristics of improved farm practices as related to rate and extent of adoption", was conducted in eight villages of the community development blocks of Kalyanpur (Kanpur) and Mahewa (Etawah), U.P. during 1970-1972 with a view to:-

I. measuring the rate and extent of adoption of selected improved farm practices. These practices included the following:-

1. Dwarf varieties of wheat.
2. Potato (vegetable crop).
3. Nitrogenous fertiliser.
4. Diammonium-phosphate.
5. Compost or farm yard manure.
6. Seed treatment
7. Thresher.

II. establishing relationship between the characteristics of improved farm practices and the rate and extent of adoption. Characteristics selected were cost of the innovation, simplicity-complexity, physical compatibility, profitability, communicability, cultural compatibility, durability and divisibility.

For the present investigation two progressive and the same number of non-progressive villages were selected from each block, namely, Kalyanpur (Kanpur) and Mahewa (Etawah) on the basis of the Q-values which are given as under:-

2.02, 2.17, 2.30 and 2.78 for progressive villages

2.11, 2.34, 1.47 and 1.92 for non-progressive villages.

The data were collected with the help of structured schedule and the sophisticated techniques, namely, Adoption Quotient (A.Q.), Coefficient of correlation, Zero-order intercorrelation, partial regression and multiple determination, socio-economic status scale, and paired comparison techniques were employed to analyse the data. The period of about three years was spent in the completion of this project.

This investigation had six objectives and the summary of results is described objectivewise.

A. Rate and Extent of Adoption:

The adoption behaviour of dwarf wheat, potato, nitrogenous fertiliser, diamophos, compost or farm yard manure, seed treatment and thresher was worked-outwith the help of Adoption Quotient (A.Q.) developed by Chattopadhyaya (1963) and Mulay and Roy (1965). The summary of the results is given as under:

I. Dwarf wheat:

Out of 200 respondents, 126 (63 per cent) belonged to the category of low adopters, 53 (27.50 per cent) were medium adopters and 10 (5 per cent) of the respondents were under high degree of adopters (Table 4). This indicates that the existing full potential of adoption of dwarf wheat is not being utilised by the farmers (Table 4).

II. Potato:

Out of 200 respondents, 113 (56.5 per cent) respondents belonged to low adopters category, 44 (22 per cent) and 3 (1.50 per cent) respondents fell under category of medium and high respectively (Table 4). This indicates that majority of the farmers have so far adopted potato partially and it may be ascribed to the perishable characteristics of innovation (Table 4).

III. Nitrogenous fertiliser:

Out of 200 respondents, 133 (66.50 per cent) respondents were under low adopter's category, 60 (30 per cent) belonged to medium adopter's category and only 2 (1 per cent) respondents were under high adopter's category (Table 4). This indicates that majority of the farmers adopted nitrogenous fertiliser partially (Table 4).

IV. Diammonium-phosphate:

Out of 200 respondents, 123 (61.5 per cent) respondents were under category of low-adopters, 23 (11.50 per cent) and 2 (1 per cent) farmers were under medium and high categories respectively (Table 4). The adoption trend indicates that majority of respondents adopted the diamophos partially (Table 4).

V. Compost or Farm Yard Manure:

Out of 200 respondents, 104 (52 per cent) respondents were under medium adopter's category and 73 (36.50 per cent) and 23 (11.50 per cent) respondents belonged to high and low adopter's categories respectively (Table 4). These results clearly indicate that majority of the farmers were under the category of medium adopters.

It is interesting to note that 100 per cent respondents used compost or F.Y.M. as an improved practice.

VI. Seed treatment:

Out of 200 respondents, 107 (53.5 per cent) respondents fell in the category of low adopters, 74 (37 per cent) in the category of medium adopters and only 5 (2.50 per cent) respondents were rated under category of high adopters (Table 4). The adoption trend of seed treatment indicates that majority of respondents applied seed treatment partially.

VII. Thresher:

Out of 200 respondents, maximum 76 (38 per cent) respondents belonged to medium adopter's category, 67 (33.50 per cent) fell in the category of low adopters and 22 (11 per cent) respondents were under the category of high adopters (Table 4). This indicates that most of the respondents were in the medium and low categories of adopters.

The adoption behaviour of the farmers in respect of the seven practices were identified and found that majority of respondents were under the category of low adopters except in case of compost or farm yard manure and thresher, where the majority fell under medium adopter's category.

B. Distribution of characteristics scores of selected improved farm practices:

The perception of farmers regarding each one of the selected characteristics for different improved farm

practices was rated on 5 categories of response. Therefore, the characteristicwise analysis of scores was made and is summarised here under:

Cost of the innovation:

The cost of the dwarf wheat was rated neither low nor high by majority of the respondents (41.50 per cent) followed by 32.50 per cent of the respondents who were under the category of 'high cost'. Similarly, in respect of nitrogenous fertiliser and thresher, 55.50 per cent and 58.50 per cent respondents were rated 'neither low nor high cost' followed by 26 per cent and 19 per cent respondents who were rated 'high cost' and 'low cost', respectively (Table 5). For potato and dimephos, maximum (36 per cent) and (46 per cent) respondents were rated 'high cost' followed by 31 per cent and 40 per cent 'neither low nor high cost' respectively (Table 5). The 'very low cost' was rated by majority (58 per cent) followed by 'low cost' (31 per cent) and for seed treatment majority of respondents (54 per cent) were perceived 'low cost ' followed by 23 per cent 'very low cost' (Table 5).

Simplicity-complexity:

The 'easy to use' category of response in simplicity-complexity characteristic was rated by majority of respondents in relation to several practices, namely, potato (40.50 per cent) nitrogenous fertiliser (43 per cent), dimephos

(42 per cent), compost or F.Y.M. (47 per cent), seed treatment (45.50 per cent) and thresher (49.50 per cent) (Table 6). However, still 36 per cent, 45.50 per cent , 38.50 per cent and 40 per cent respondents respectively were feeling 'very easy to use' in case of nitrogenous fertiliser, compost or F.Y.M., seed treatment and thresher and in respect of potato and diamophos, 26.50 per cent and 28 per cent respondents perceived ' neither easy nor difficult to use' of these practices, and only in case of dwarf wheat 53 per cent respondents perceived 'very easy to use' followed by 29.50 per cent ' easy to use' (Table 6).

Physical compatibility:

The majority of respondents were perceived 'suitable' category of response of cultural compatibility in respect of potato (42 per cent), nitrogenous fertiliser (43 per cent), compost or F.Y.M. (53 per cent) and seed treatment (55 per cent) followed by 23 per cent, 38.50 per cent, 39.50 per cent and 32.50 per cent respectively were perceived 'most suitable' for first three practices and 'some what suitable' for seed treatment only (Table 7). Similarly, the 'most suitable' was rated by majority in respect of dwarf wheat (70.50 per cent) diamophoe (42 per cent) and thresher (55 per cent). However, still 17.50 per cent and 38 per cent respondents were feeling 'least suitable','suitable'and 'suitable' categories respectively (Table 7).

Profitability:

The ' most profitable' response of profitability characteristic was perceived by majority of respondents with regard to dwarf wheat (70.50 per cent), nitrogenous fertiliser (47.50 per cent), diamophos (38 per cent), compost or F.Y.M. (67.50 per cent) and thresher (49 per cent). However, still 13.50 per cent respondents were feeling somewhat profitable in relation to dwarf wheat, 44.50 per cent, 30 per cent, 29 per cent and 42 per cent respondents respectively were feeling 'profitable' category of response in relation to nitrogenous fertiliser, diamophos, compost or F.Y.M. and thresher (Table8). Similarly, 'profitable' response was rated by majority of respondents with regard to potato (43.50 per cent) and seed treatment (56.50 per cent) followed by 24.50 per cent and 32 per cent respondents were rated 'most profitable' and ' somewhat profitable' categories respectively (Table 8).

Communicability:

The maximum visibility of results in communicability characteristic was felt by majority of respondents with respect to dwarf wheat (66.30 per cent), nitrogenous fertiliser (45.50 per cent), diamophos (46 per cent) and thresher (54 per cent) (Table 9). However, still 17 per cent, 44 per cent, 26.50 per cent and 39 per cent respondents respectively were feeling 'results visible

(second category of response). Similarly, in the case of potato, compost or F.Y.M. and seed treatment, the majority was found under 'results visible' category of response i.e. 42.50 per cent, 52.50 per cent and 53.50 per cent. However, still 23.50 per cent, 28 per cent and 33.50 per cent respondents respectively were feeling 'results most visible' in the case of potato and compost or F.Y.M. and 'results somewhat visible' in case of seed treatment (Table 9).

Cultural compatibility:

The majority of respondents were rated 'most compatible' in cultural compatibility characteristic with respect to dwarf wheat (73 per cent), diamophos (35 per cent), compost or F.Y.M. (43 per cent) and thresher (58 per cent) followed by 10.50 per cent, 34.00 per cent, 42 per cent and 37 per cent were under category of 'results visible' (Table 10). Similarly, the majority of respondents fell under the category of 'quite compatible' with regard to potato (36 per cent) and seed treatment (46.50 per cent) followed by 26 per cent and 43 per cent in the third category of response i.e. 'compatible'. In case of nitrogenous fertiliser, the majority of respondents (35 per cent) were perceived 'compatible' followed by 34.50 per cent 'quite compatible' (Table 10).

Durability:

The 'somewhat durable' category of response was perceived by majority of respondents in case of nitrogenous

fertilizer (46.50 per cent), diamophos (40.50 per cent), compost or F.Y.M. (44 per cent) and seed treatment (48 per cent) followed by 29 per cent and 24 per cent under the category of 'least durable', 20.50 per cent under the 'most durable' and 35 per cent under the 'least durable' category of response respectively (Table 11). Similarly, majority of respondents were perceived 'most durable' in case of dwarf wheat (54 per cent), 'durable' in case of thresher (55.50 per cent) and 'least durable' in case of potato (49.50 per cent) followed by 'durable' (18.50 per cent) for dwarf wheat, ' most durable' (27 per cent) in case of thresher and 'not durable' (40.50 per cent) in case of potato (Table 11).

Relationship between adoption of improved farm practices and their characteristics

The coefficient of correlation (r) was worked out to find out the relationship between characteristics of innovation and adoption score of selected practices.

Significant and positive coefficient of correlation was observed between adoption of each one of the selected practices, with their respective individual characteristics except in case of compost or F.Y.M. and seed treatment, where X_3Y (physical compatibility and adoption score) and X_6Y (cultural compatibility and adoption score) were found non-significant even at 5 per cent level of significance (Table 12).

Statistically the cost of a practice was found to be an important determinant of adoption in the case of dwarf wheat, potato, nitrogenous fertiliser, diamophos, compost or F.Y.M., seed treatment and thresher (Table 12). Similarly, simplicity-complexity of a practice was positively related (statistically) with the rate and extent of adoption of dwarf wheat, potato, nitrogenous fertiliser, diamophos, compost or F.Y.M., seed treatment and thresher (Table 12). Physical compatibility of an innovation was positively related with the rate and extent of adoption of dwarf wheat, potato, nitrogenous fertiliser, diamophos, seed treatment and thresher, and did not do so in case of compost or F.Y.M. (Table 12). Statistically economic gains (profitability) of an innovation were judged as indicators of the adoption in case of dwarf wheat, potato, nitrogenous fertiliser, diamophos, compost or F.Y.M., seed treatment and thresher (Table 12). Visibility (communicability) promoted adoption of dwarf wheat, potato, nitrogenous fertiliser, diamophos, compost or F.Y.M., seed treatment and thresher (Table 12). Cultural compatibility of the practice was found to be positively related with the rate and extent of adoption of dwarf wheat, potato, nitrogenous fertiliser, diamophos, compost or F.Y.M., and thresher and not in case of seed treatment (Table 12). Durability of the innovation affected the rate and extent of adoption of dwarf wheat, potato, nitrogenous fertiliser, diamophos, compost or F.Y.M., seed treatment and thresher (Table 12).

The results of this study indicate that adoption is a relative function of the characteristics of an innovation. Very low cost (cost of the innovation), very easy to use (simplicity-complexity) most suitable (physical compatibility), most profitable (profitability), results most visible (communicability), most compatible (cultural compatibility) and most durable (durability) of a practice were perceived by the farmers of the most important characteristics leading to higher adoption of an innovation.

Intercorrelation between various characteristics of improved farm practices affecting adoption

The technique of zero-order intercorrelation was used to work out the relationship between two characteristics of selected practices taken together at a time. The results are summarised below:

The coefficient of correlations (intercorrelations) between two traits taken together at a time were significant and positive in relation to dwarf wheat, potato, nitrogenous fertiliser and diammonium-phosphate (Tables 13, 14, 15 and 16). This indicates that all the possible pairs of the characteristics used in inter-correlation for an individual practice were dependent on each other. With regards to compost or farm yard manure, the coefficient of correlations between two characteristics at a time were found significant and positive except in the case of cost and simplicity,

cost and communicability, cost and durability, physical compatibility and cultural compatibility, physical compatibility and durability, profitability and cultural compatibility and profitability and durability (Table 17). In case of seed treatment, all the coefficient of correlations were observed significant except in the case of cost and physical compatibility, cost and profitability and cost and communicability. These inter-correlations were non-significant in the case of simplicity and cultural compatibility and simplicity and durability (Table 18). For the thresher significant and positive correlations were found between all the possible pairs taken two characteristics at a time except in the case of cost and profitability and cost and durability (Table 19). The highest significant values of coefficient of correlations were observed between profitability and communicability in respect of dwarf wheat, potato, nitrogenous fertiliser, diamophos and thresher. Similarly the highest significant value was also found between communicability and durability with regards to compost or F.Y.M. Similarly, the highest significant value was found between communicability and physical compatibility in relation to seed treatment.

The significant values of intercorrelations between characteristics themselves indicate that a single characteristic perceived by the farmers as most favourable in its response, the others will also be perceived by the farmers

in the same way and this favourable attitude of the farmers towards all the characteristics will lead to the greater adoption of the selected practices.

Prediction analysis by multiple correlation

Techniques of the partial regression and multiple correlation were applied to estimate the combined effect of characteristics influencing rate and extent of adoption with regard to seven improved farm practices.

Combined effects of characteristics on adoption:

The adoption behaviour of farmers with regards to dwarf wheat depended significantly and positively on its three important characteristics, namely, cost of dwarf wheat, physical compatibility and durability which combinedly served to account for 51.49 per cent of the variability in the adoption of dwarf wheat (Table 21A).

In the case of potato, the adoption behaviour of the farmers depended significantly and positively on the three characteristics, namely, physical compatibility, profitability and durability which jointly served to account for 69.47 per cent of the variability in the adoption of potato (Table 23A).

With regards to nitrogenous fertilizer, the adoption behaviour of the farmers depended significantly and

positively on the two characteristics, namely, cost of the innovation and physical compatibility which jointly served to account for 48.53 per cent of the variability in the adoption of nitrogenous fertiliser (Table 25A).

For the diemophos, the adoption behaviour of the farmers depended significantly and positively on the two characteristics, namely, cost of the innovation and profitability which jointly served to account for 22.52 per cent of the variability in the adoption of diemophos (Table 27A).

In respect of compost or F.Y.M. the adoption behaviour of the farmers depended significantly and positively on the three characteristics, namely, cost of the innovation, profitability and durability which jointly served to account for 40.82 per cent of the variability in the adoption of compost or F.Y.M. (Table 29A).

In case of seed treatment, the adoption behaviour of the farmers depended significantly and positively on its two characteristics, viz., cost of the innovation and profitability which jointly served to account for 97.11 per cent of the variability in the adoption of seed treatment (Table 31 A).

With regards to thresher, the adoption behaviour of the farmers depended significantly and positively on the

three characteristics, namely, cost of the innovation, simplicity-complexity and communicability, which combinedly influenced its rate and extent of adoption and jointly served to account for 25.37 per cent of the variability in the adoption of thresher (Table 33 A).

Statistically, the cost of the practice has been found to be an important determinant of adoption in the case of dwarf wheat, nitrogenous fertiliser, diamophos, compost or F.Y.M., seed treatment and thresher. Similarly, the profitability characteristic was found the second important determinant which effects the rate and extent of adoption of potato, diamophos, compost or F.Y.M. and seed treatment. The physical compatibility influenced the rate and extent of adoption of dwarf wheat, potato and nitrogenous fertiliser, the durability effects the adoption of dwarf wheat, potato and compost or F.Y.M. and simplicity-complexity and communicability characteristics influenced the adoption of thresher (Table 34).

Socio-economic status and perception of characteristics of practices.

The socio-economic status scale developed by Trivedi (1963) was modified and used for categories of different groups and their perceptions. Out of 200 respondents (farmers) selected for the present investigation, the maximum number (37.50 per cent) belongs to upper middle class followed

in the order by middle class (35.50 per cent) and 14.50 per cent and 12.50 per cent respondents were under categories of lower middle class and upper class respectively (Table 35).

The practicewise variability in perception among four groups with reference to each of the selected characteristics is given below:

Dwarf wheat:

There were significant variations in perception among different socio-economic status groups in relation to characteristics of dwarf wheat, namely, cost of the innovation ($F= 3.8542^{**}$), simplicity-complexity (6.4882^{**}), physical compatibility (5.6773^{**}), profitability (10.1178^{**}), communicability (8.1303^{**}), cultural compatibility(9.5136^{**}) and durability (8.4567^{**}) (Table 36A). These results indicate that different socio-economic status groups perceived these characteristics of the dwarf wheat differently.

The mean score differences between socio-economic status groups between each one of the characteristics of dwarf wheat were worked out and found that there was no significant difference between the upper middle class and the middle class in relation to cost of dwarf wheat. Similarly, in the case of simplicity-complexity, physical compatibility, profitability, communicability, cultural compatibility and durability, there was no significant

different between the upper class and the upper middle. class but both of these two groups had significantly better perception than the remaining two groups viz., middle class and lower middle class. The socio-economic status group 'middle class ' in turn, had significantly higher perception than the lower middle class which had the lowest perception (Table 36B).

The above results indicate that the adoption of dwarf wheat by different socio-economic status groups differed due to variation in perception among groups in relation to different characteristics of dwarf wheat, Thus, the upper class people adopted dwarf wheat more than the lower class people owing to the better perception of the characteristics of the dwarf wheat.

Potato:

There were significant variations in perception among groups with respect to characteristics of potato, namely, simplicity-complexity (F= 4.6105**), physical compatibility (7.1310**) , profitability (2.7379*), communicability (7.7353**), cultural compatibility (4.9625**) and durability (2.7318*). The perception among groups in relation to cost of potato was found non-significant even at 5 per cent level of significance (Table 37A). These results indicate that different groups perceived these characteristics of potato differently.

The mean score differences between groups regarding each one of the characteristics of potato were worked out and it was found that there was no significant variation with regards to cost of potato between each one of the upper three classes, namely, upper class, upper middle class and middle class. However, each one of these three classes significantly differed in perception from the lower middle class. With regard to physical compatibility, communicability and cultural compatibility, there were significant differences among each one of the three classes. In respect of simplicity-complexity and profitability, the upper two classes, viz. upper class and upper middle class significantly differed from the lower two classes viz. middle class and lower middle class, but each of these two groups significantly differed from each other and the upper classes did not differ significantly. With regards to durability, the upper class and lower middle class significantly differed from any of the remaining two groups, but no significant difference was observed between upper middle class and middle class (Table 37B).

The above results indicate that the adoption of potato by different socio-economic status groups differed due to variation in perception among groups in relation to different characteristics of potato. Thus, the upper class people adopted potato more than the lower class people.

Nitrogenous fertiliser:

There were significant variations in perception among groups with regard to simplicity-complexity (F=4.9507**), physical compatibility (3.8835**), profitability (2.8353*), communicability (2.9149*), cultural compatibility (4.2350**) and durability (4.0384*), cultural compatibility (4.2350**) and durability (4.0384**) (Table 38A). These results clearly indicate that different groups perceived these characteristics of nitrogenous fertiliser differently. Out of seven characteristics of nitrogenous fertiliser, only cost of the innovation did not vary significantly in the perception of different groups. The mean score differences between socio-economic status groups regarding each one of the characteristics of nitrogenous fertiliser were worked out and it was found that there was no significant difference between middle class and lower middle class but each of the upper two groups, namely, upper class and upper middle class significantly differed from each of the lower two groups viz., middle class and lower middle class in relation to cost of nitrogenous fertiliser, simplicity-complexity, profitability, communicability, cultural compatibility and durability. In relation to physical compatibility, the upper two groups, namely, upper class and upper middle class differed significantly from each other (Table 38B).

The above results indicate that the adoption of nitrogenous fertiliser by almost all the socio-economic status

groups differed due to variation in perception among groups in relation to different characteristics of nitrogenous fertilizer, thus, the upper class people adopted more nitrogenous fertiliser than the lower class people.

Diamophos:

There were significant variations in perception among groups with respect to all the selected characteristics, namely, cost of diamophos (F= 4.3922**), simplicity-complexity (7.0619**), physical compatibility (3.7519**), profitability (5.7448**), communicability (5.6658**), cultural compatibility (4.9837**) and durability (7.3230**) (Table 39A). These results indicate that different groups perceived these characteristics of the diamophos differently.

The mean score differences between socio-economic status groups regarding each one of the characteristics of diamophos were worked out and it was found that there was significant variation in perception among all the socio-economic groups in relation to cost of the innovation, simplicity-complexity, cultural compatibility and durability. In respect of physical compatibility, there was no variation among the upper three groups such as upper class, upper middle class and middle class. However, each one of these three classes significantly differed in perception from the lower middle class. With regards to communicability, there was no significant variation among the upper two groups,

but each one of the upper groups significantly differed from the lower two groups, These lower groups also significantly differed from each other (Table 39B).

The above results indicate that the adoption of dismophos by almost all the socio-economic status groups differed due to variation in perception among groups in relation to different characteristics of dismophos. Thus, the upper class people adopted dismophos more than the lower class people.

Compost or F.Y.M.:

There were no significant variations in perception among all the socio-economic status groups with respect to all the characteristics of compost or F.Y.M., namely, cost of the innovation ($F=0.5322^{NS}$), simplicity-complexity (0.4383^{NS}), physical compatibility (0.4221^{NS}), profitability (1.5639^{NS}), communicability (2.0425^{NS}), cultural compatibility (1.9781^{NS}) and durability (0.5443^{NS}) (Table 40A). These results indicate that different groups perceived these characteristics of the compost or F.Y.M. equally.

The mean score differences between socio-economic status groups regarding each one of the characteristics of compost or F.Y.M. were worked out and it was found that there was no variation in perception among each group with regard to simplicity-complexity and durability characteristics

(Table 40B). In respect of profitability and cultural compatibility, there was no significant variation between two groups, namely, upper middle class and middle class and the significant variation was found between the upper class and each one of the last three classes. With regards to communicability, the significant variation was observed among each group. In respect of cost of compost or F.Y.M., there was significant variation between each one of the upper three groups and the lower middle class and non-significant variation was rated between each one of the upper three groups. With regards to physical compatibility, there was no significant variation between the upper middle class and the middle class, the middle class and the lower middle class and the upper middle class and the lower middle class, the significant variation was found between upper class and each one of the remaining classes (Table 40B).

The above results indicate that the adoption of compost or F.Y.M. by different socio-economic status groups did not differ in perception among groups in relation to different characteristics of compost or F.Y.M. Thus, the people of different socio-economic status groups adopted compost or F.Y.M. equally.

Seed treatment:

There were significant variations in perception among groups with respect to cost of seed treatment ($F=3.3710^{**}$),

and its simplicity-complexity (5.3438^{**}) and non-significant variations were observed in relation to physical compatibility (0.4233^{NS}), profitability (0.9444^{NS}), communicability (0.0555^{NS}), cultural compatibility (1.0894^{NS}) and durability (0.6270^{NS}) (Table 41 A). The significant results indicate that different groups perceived these characteristics of the seed treatment differently and the non-significant results were contrary to these results.

The mean score differences between socio-economic status groups regarding each one of the characteristics of seed treatment were worked out and it was found that there was no variation in perception among groups in relation to physical compatibility and durability characteristics of seed treatment. With regards to cost of seed treatment, there was no significant difference between the upper two classes, namely, upper class and upper middle class and between middle class and lower middle class, but each one of the upper two groups significantly differed from each of the lower two groups . In respect of simplicity-complexity, there was no significant difference between each one of the upper two groups and these two groups significantly differed from the lower two groups. The lower two groups also significantly differed from each other. In relation to profitability and cultural compatibility, there were no significant differences in the perception of each one of the upper three classes but these three groups

significantly differed from the lower middle class (Table 41B).

The above results indicate that the adoption of seed treatment by almost all the socio-economic status groups did not differ due to similar perception among groups in relation to different characteristics of seed treatment. Thus, the people of all the socio-economic status groups adopted seed treatment more or less equally.

Thresher:

There were significant variations in perception among groups with respect to cost of thresher ($F=5.5128^{**}$), simplicity-complexity (3.5975^{*}), profitability (42.4259^{**}) and communicability (3.2859^{*}) and non-significant variations were observed in respect of physical compatibility (1.2870^{NS})., cultural compatibility (2.0549^{NS}) and durability (1.0349^{NS}) (Table 42A). The significant results indicate that different groups perceived these characteristics of thresher differently and the non-significant results were contrary to these results.

The mean score differences between socio-economic status groups regarding each one of the selected characteristics of thresher were worked out and it was found that in respect of simplicity-complexity, physical compatibility, communicability and durability characteristics, there was no significant difference between each one of the upper

two groups, namely, upper class and upper middle class and between each one of the lower two groups, namely, middle class and lower middle class but upper two classes significantly differed from the lower two classes. With regard to cost of thresher and its profitability there were significant differences between each one of the upper two groups and there were no significant differences between the lower two groups, but each one of the upper two classes significantly differed from the lower two groups. In respect of cultural compatibility there was no significant difference between each one of the upper two classes and the lower two groups significantly differed from each other, but the upper two groups, namely, upper class and upper middle class were significantly different from the lower two groups (Table 42B).

The above results indicate that the adoption of thresher by the upper two socio-economic status groups as well as by the lower two classes of socio-economic status separately were not different in perception among the people in relation to various characteristics of thresher.

Thus, the adoption of thresher was similar in the upper two socio-economic status groups. Similar trend was observed in the lower two socio-economic status groups. No variation was observed in perception among groups in relation to divisibility characteristic of the seven selected practices.

It is also clear that out of the seven practices studied, compost or F.Y.M. was perceived to be the cheapest followed in the order by seed treatment, thresher, dwarf wheat, nitrogenous fertiliser, diammophos and potato.

Simplicity-complexity:

There were significant differences between nitrogenous fertiliser and diammophos and diammophos and potato as related to the perception of the simplicity-complexity. The non-significant differences were observed between compost or F.Y.M. and dwarf wheat, dwarf wheat and thresher, thresher and seed treatment and seed treatment and nitrogenous fertiliser, (Table 44B). These results indicate a different perception of simplicity-complexity as related to different practices.

Out of the seven practices studied, compost or F.Y.M. was perceived to be the easiest to understand followed in the order by dwarf wheat, thresher, seed treatment, nitrogenous fertiliser, diammophos and potato (Table 44B).

Physical compatibility:

There were no significant differences in the perception of physical compatibility between potato and seed treatment, nitrogenous fertiliser and dwarf wheat, dwarf wheat and compost or F.Y.M., and compost or F.Y.M.

and thresher. However, significant differences were observed between seed treatment and diamophos and diamophos and nitrogenous fertiliser (Table 44C). These results indicate a different perception of physical compatibility related to different practices. Thresher was perceived to be the most suitable relating to the physical compatibility followed in order by compost or F.Y.M., dwarf wheat, nitrogenous fertiliser, diamophos, seed treatment and potato (Table 44C).

Profitability:

There were no significant differences in the perception of profitability related to seed treatment and potato, dwarf wheat, and nitrogenous fertilizer, and nitrogenous fertilizer and thresher. The significant differences were, however, found between potato and diamophos, diamophos and dwarf wheat, and thresher and compost or F.Y.M. (Table 44 D). These results indicate a different perception of profitability related to different practices out of the seven practices taken for investigation, compost or F.Y.M. was perceived to be the most profitable in relation to its adoption followed in the order by thresher, nitrogenous fertilizer, dwarf wheat, diamophos, potato and seed treatment (Table 44 D).

Communicability:

There was no significant difference in the perception of communicability between seed treatment and

potato, compost or F.Y.M. and dismophos, nitrogenous . fertiliser and dwarf wheat, dwarf wheat and thresher. The significant differences were, however, observed between potato and compost or F.Y.M. and dismophos and nitrogenous fertiliser (Table 44 E). These results indicate a different perception of communicability related to different practices.

From the table 44 E, it is clear that thresher was perceived to be the most communicable followed in the order by dwarf wheat, nitrogenous fertiliser, dismophos, compost or F.Y.M., potato and seed treatment.

Cultural compatibility:

The non-significant differences were found in the perception of cultural compatibility between thresher and dwarf wheat, dwarf wheat and compost or F.Y.M., dismophos and nitrogenous fertiliser and seed treatment and potato. Significant differences were also observed between compost or F.Y.M. and dismophos, and nitrogenous fertiliser and seed treatment (Table 44 F). These results indicate a different perception of cultural compatibility related to different practices. The table 44 F further indicates that thresher is the most important practice and was perceived to be the most culturally compatible followed in the order by dwarf wheat, compost or F.Y.M., dismophos, nitrogenous fertiliser , seed treatment and potato.

Durability:

The non-significant differences in the perception of durability were observed between dwarf wheat and thresher, diamophos and nitrogenous fertiliser, and nitrogenous fertiliser and seed treatment. The significant differences were also found between dwarf wheat and compost or F.Y.M., thresher and compost or F.Y.M., compost or F.Y.M. and diamophos, and seed treatment and potato with regards to durability (Table 44G). These results indicate a different perception of durability related to different practices.

Table 44 G further indicates that out of the seven practices, only dwarf wheat and thresher were perceived to be the most durable followed in the order by compost or F.Y.M., diamophos, nitrogenous fertiliser, seed treatment and potato.

Divisibility:

In relation to the divisibility it can be noticed from the mean scores of practices (Table 44 H). that dwarf wheat, potato, nitrogenous fertiliser, diamophos, compost or F.Y.M. and seed treatment were perceived to be divisible and thresher as non-divisible.

Relative importance of characteristics of improved farm practices as related to rate and extent of adoption

The paired comparison technique was used to know the preferences regarding characteristics of innovation. The

scale values for eight characteristics of improved farm practices were worked out to know the preference of subjects towards the rate and extent of adoption of selected improved farm practices. It indicated the relative distance within the characteristics themselves. Judged in terms of relative importance, profitability of the innovation was at the top of the ladder, while communicability, cost of innovation physical compatibility, simplicity-complexity, durability, cultural compatibility and divisibility were occupying successively lower rings of the ladder (Table 47).

The following are the important and specific conclusions emerged out of the present investigation:

A. Out of eight characteristics of innovations studied, only four, namely, profitability, cost of the innovation, communicability and physical compatibility provide better drive towards adoption of innovations and farmer's perceived them more important than the others. The change agents and administrators assigned with the responsibilities of extension education programmes should look for these characteristics while formulating programmes and releasing practices for adoption.

B. The people with higher socio-economic status who form an insignificant part of the society show early acceptance of the innovations. This clientable may be used as an educational media for the people of lower socio-economic status group. The weaker sections need to be given credit,

technical inputs, supplies and other resources required to make them viable units of rapid change. Large scale training programmes have to be arranged to educate them about innovations.

C. Broadly speaking, the role of a change-agent is two folds; firstly, to advocate, persuade and provide stimuli to his client to adopt new farm practices and secondly, to weaken and reduce the hold of outdated practices and of those influences which work for their perception. Therefore, a strategic balance between these two roles is called for.

D. Present study was restricted only to eight characteristics of a practice. It is suggested that the characteristics such as saving of labour, time and risk, may also be included to determine their role in the adoption of improved farm practices. Improved agricultural practices relating to horticulture, dwarf varieties of paddy, hybrid maize, hybrid bajra, plant protection measures, potassic fertilizers and improved agricultural implements etc. should also be included in further investigations.

E. Such studies are location-specific, hence no generalisation of the findings can be made, in addition to the criteria of agro-climatic zones influencing adoption and productivity. A comprehensive delineation of area according to the socio-economic status groups existing

in the State need be formed and their relationship to different agro-techniques be studied.

F. The perception of research workers and Extension workers should be measured in the further study.

G. There is need to extend such type of research in developing settings.

H. Further, research should be based on the different categories of farmers.

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