CHAPTER V

DISCUSSION
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The findings of the study entitled "A study on socio-economic upliftment of tribal farmers through adoption of recommended rice technology in Bastar district of Chhattisgarh" have been presented in the earlier chapter. In continuation with this, an effort has been made to interpret and discuss the results with figure and facts from the various aspects of the study along with the views of national and international Agricultural Extension Scientists. The findings have been discussed under the following sub-heads:

5.1 Socio-personal and socio-economic characteristics of the respondents
5.2 Socio- psychological and communicational characteristics of the respondents
5.3 Extent of knowledge and knowledge gap of the respondents about recommended rice production technology
5.4 Extent of adoption and adoption gap among the respondents about recommended rice production technology
5.5 Level of productivity of rice crop
5.6 Relationship between socio-personal, socio-psychological characteristics with adoption of recommended rice production technology
5.7 Constraints and suggestions of contact and non-contact tribal farmers to reduce the technological gap
5.1 Socio-personal and socio-economic characteristics of the respondents

In the study area of Bastar district, the majority of the contact (50.00%) and non-contact (45.83%) tribal farmers belonged to middle age group (36-50 years). Whereas, least percentage of contact group belonged to old age (above 50 years) and in non-contact group, minimum number of the respondents belonged to young age category (up to 35 years) (Table 4.1). The results of Bhatt (1990), Sengar (2003) and Prakash et al. (2004) confirm the present findings. The majority of the contact and non-contact tribal respondents (52.08% contact tribal farmers, 55.42% non-contact tribal farmers) in the study area were illiterate, whereas, least number of respondents were educated upto graduate or above level (Table 4.1). This finding is in confirmation with the investigation of Bhatt (1990) and Sengar (2003).

In the study area, the majority of the contact and non-contact tribal respondents (70.00% contact tribal farmers, 75.00% non-contact tribal farmers) had nuclear type of family. The works of Khare et al. (1998), Rajput (2003) and Khan et al. (2004) support these findings. Most of the contact (69.17%) and non-contact (62.92%) tribal farmers had medium size of family (5-10 members). However, percentage of contact tribal farmers (69.17%) was higher than the non-contact tribal farmers (62.92%) (Table 4.1). The work of Sengar (2003), Prakash et al. (2004) and Khan et al. (2004) is in the line of present finding. A major bulk of the respondents (70.00% contact tribal farmers, 77.08% non-contact tribal farmers) had low level of material possession,
followed by medium level. The level of material possession with contact tribal farmers was better than non-contact tribal farmers. Under both the categories of respondents, more than 56 per cent of the respondents had kachha house under their possession followed by pakka cemented house and hut system of house (Table 4.1). This finding is in confirmation with the investigations of Rai and Srivastava (2001), Bandgar et al. (2002) and Kirar (2003).

In the study area of Bastar district, majority of the contact and non-contact tribal farmers (67.92% contact tribal farmers, 61.67% non-contact tribal farmers) were of no migration habit. The male migratory were in majority (17.08% each) in migration habit. The maximum of the respondent farmers (14.16% contact tribal farmers, 13.33% non-contact tribal farmers) migrated out of state for one season particularly **rabi** season. It means in the study area, majority of the respondents are not migrating. Due to lack of work in the **rabi** season, some of the respondents migrated outside the state for earning income for their livelihood. In **kharif** season, monocropping of rice in practiced by the respondents, however, in **rabi** season majority of the area in lying vacant, so there is scarcity of job in the **rabi** season and hence some population migrate to other state (Table 4.2). More or less similar trend of the finding was reported by Ton et al. (2000.)

In the study area of Bastar district, the majority of the farmers (40.00% contact tribal farmers, 41.25% non-contact tribal farmers) belonged to low level of social participation followed by medium and high level of social
participation. However, social participation among contact tribal farmers was higher than non-contact tribal farmers. The results of Bhatt (1990) and Rao (2004) also support the present findings. The larger percentage of respondents of both the categories (48.75% contact tribal farmers, 42.50% non-contact tribal farmers) had small land holding (1-2 ha). This was followed by medium size (2-5 ha), marginal size (< 1 ha) and large size of land holding (> 5 ha) (Table 4.3). The works of Patel (1988), Bhatt (1990), Sharma (1998), Sengar (2003) and Prakash et al. (2004) are similar to the present findings. The most of the respondents in both categories (81.76% contact tribal farmers, 71.67% non-contact tribal farmers) were involved in 2-4 occupation. The majority of the population were engaged in farming followed by collection and selling of forest produce, labour work and preparation and selling of liquor etc. (Table 4.3). The works of Patel (1988), Bhatt (1990) and Sengar (2003) confirm the finding. However, Raje (1991), Das Gupta (1993) and Pandey (2000) found that the occupation of farming alone was adopted by the most of the respondent.

In the study area of Bastar district, most of the respondents (75.00% contact tribal farmers, 80.41% non-contact tribal farmers) were engaged in collecting and selling of the forest products, followed by the labour occupation, preparation and selling of liquor, animal husbandry, service and business as their subsidiary occupation (Table 4.3). The findings are in confirmation with the investigation of Das Gupta (1993) and Khan (1996). The
majority of the contact (39.16%) and non-contact tribal farmers (48.33%) had very low income level, whereas, the contact (32.08%) and non-contact tribal farmers (30.42%) had low level of income. The income level of majority of the respondents (39.16% contact tribal farmers, 48.33% non-contact tribal farmers) was between low (Rs. 12000–24000) to very low (< Rs. 12000) categories. The income level of contact tribal farmer was higher than the non-contact tribal farmers. The results of Sharma (1993), Kalaskar et al. (1999) and Chauhan (2003) also confirm the findings.

A higher percentage of the respondents (66.67% contact tribal farmers, 71.25% non-contact tribal farmers) had nil availability of irrigation followed by partial and full availability. Most of the contact and non-contact tribal farmers had no irrigation facilities and only dependent on rains for their farming, whereas, least number of respondents had full irrigation facilities. The level of irrigation availability of the contact tribal farmers was higher than the non-contact tribal farmers. The majority of the respondents (70.42% contact tribal farmers, 76.25% non-contact tribal farmers) had low level of irrigation sources, followed by medium level and high level of sources of irrigation. The level of availability of irrigation sources of contact tribal farmers was higher than the non-contact tribal farmers. In both the categories of respondents, majority had low level of sources of irrigation. Most of the farmers are using open well with dheki system of lifting of water for irrigating vegetables and high value crops in the badi system and adjoining areas of river. Other
important sources of irrigation are pond, river and tubewells (Table 4.3). These findings get the support with the results of Khan (1996), Sharma (1998) and Pandey (2002).

As regards to the availability of resources (Table 4.3), the majority of the contact tribal farmers (48.33%) had partial availability of resources, followed by no (nil) resources (45.00%) and only 6.67 per cent of farmers had full availability of resources. The majority of the non-contact tribal farmers (56.25%) had no (nil) resources followed by 40.83 per cent had partial availability of resources and 2.92 per cent and full availability of resources. Availability of resources of contact tribal farmers was higher than the non-contact tribal farmers. It is apparent that in case of contact tribal farmers, majority had partial availability of resources, whereas, in case of non-contact tribal farmers, majority had no (nil) resources. The available resources of farming like seed, fertilizer, insecticides, animals, implements and equipments etc., the majority of the respondents had nil to partial availability of resources. It means the farmers under both the categories are still far behind than the progress made in the other parts of the Chhattisgarh state. The results of Sengar (2003) support the present finding.

The majority of the contact and non-contact tribal respondents (55.42% contact tribal farmers, 51.67% non-contact tribal farmers) utilized institutional sources for credit facility followed by non-institutional sources and no utilization of credit facility. The contact tribal farmers utilized more
institutional sources in comparison to non-contact tribal farmers for credit facility (Table 4.3). In the study area, the findings indicate that majority of both the categories of farmers utilized the institutional sources like cooperative societies and other nationalized banks for getting credit to perform agricultural activities. This was followed by non-institutional sources like money lenders, friends and relatives etc. Very least number of respondents under both the categories of farmers had not taken any credit facilities. The results of Sharma (1993) and Sharma (2003) support the above findings. The maximum number of the contact tribal respondents had medium socio-economic status, whereas, non-contact tribals had low socio economic status. The socio-economic status of contact tribal farmers (61.67% to 27.50%) was superior in comparison to non-contact tribal farmers (24.58% to 67.50%) (Table 4.3). The finding is in resemblance with the findings of Pandey (2002) and Sengar (2003). However, Sharma (1998), Rai and Srivastava (2001), Bandgar et al. (2002) and Prakash et al. (2004) investigated that the majority of respondents were found under medium socio-economic status.

5.2 Psychological and communication characteristics of the contact and non-contact tribal farmers

The maximum number of respondents (53.75% contact tribal farmers, 51.25% non-contact tribal farmers) had moderate attitude towards Recommended Modern Agricultural Technology (RMAT) followed by the respondents of less favourable attitude and more favourable attitude towards RMAT. However, the contact tribal farmers had positive attitude in comparison
to non-contact tribal farmers towards the recommended rice production technology (Table 4.4). This finding is in confirmation with the works of Singh and Isael (1989), Khan (1996), Mahapatra *et al.* (1997) and Sengar (2003). The majority of both the group of respondents (42.50% contact tribal farmers, 50.42% non-contact tribal farmers) had low cosmopoliteness followed by medium and high cosmopoliteness. The contact tribal farmers showed better cosmopoliteness in comparison to non-contact tribal farmers (Table 4.4). The works of Khan (1996) and Kushwaha and Pandey (1998) confirms this finding. The most of the contact and non-contact tribal respondents (51.67% contact tribal farmers, 49.58% non-contact tribal farmers) had medium risk level in adopting recommended rice production technology followed by low and high risk level. The risk capability was higher in contact tribal farmers than the non-contact tribal farmers (Table 4.4). The works of Gupta *et al.* (1998), Gogoi *et al.* (2000), Sengar (2003) and Prakash *et al.* (2004) support the present findings.

In the study area, the majority of the contact and non-contact tribal farmers utilized friends (67.50% contact tribal farmers, 73.75% non-contact tribal farmers) as source of information followed by progressive farmers (63.33% contact tribal farmers, 52.50% non-contact tribal farmers), RAEOs (81.67% contact tribal farmers, 40.41% non-contact tribal farmers), Kisan mela (69.58% contact tribal farmers, 56.25% non-contact tribal farmers) and radio (70.83% contact tribal farmers, 63.33% non-contact tribal farmers) to receive the
information of recommended rice production technology (Table 4.5). This result corroborate with the findings of Bhatt (1990), Girase et al. (1992), Patel et al. (1995), Waghdhare et al. (1998), Kadian and Kumar (2002), Manohari (2002) and Gupta et al. (2003). The majority of the contact and non-contact tribal respondents (69.58% contact tribal farmers, 76.25% non-contact tribal farmers) had low level of extension contact with extension agent followed by medium and high level of extension contact (Table 4.5). The findings of Jassi et al. (1998) and Sengar (2003) also support the present results. However, Bhosle et al. (2002) reported that majority of the respondents were associated with medium level of extension contact. The most of the contact and non-contact tribal respondents (59.58% contact tribal farmers, 54.58% non-contact tribal farmers) had medium level of exchange of information regarding recommended rice production technology followed by low, never and high level of exchange of information (Table 4.5). The findings of Kanungo et al. (1994) and Sengar (2003) are similar to the present finding.

5.3 Extent of knowledge and knowledge gap of the respondents about recommended rice production technology

The majority of the contact and non-contact tribal farmers had medium knowledge level of recommended rice production technology. This was followed by low level of knowledge and high level of knowledge. It has been observed that approximately half of the respondents had medium knowledge level of rice production technology. The knowledge level of contact tribal farmers was higher than non-contact tribal farmers (Table 4.6). This
finding is in confirmation with the works of Bhatt (1990), Patel (1990), Thakker (1993), Vedpathak (2001) and Pandey (2002). The majority of the respondents in relation to complete knowledge category were observed only in one practice namely time of sowing (52.92% contact tribal farmers, 31.67% non-contact tribal farmers). The practices of higher percentages of the respondents under partial knowledge category were irrigation application (59.17% contact tribal farmers, 56.25% non-contact tribal farmers), improved variety (58.33% contact tribal farmers, 55.42% non-contact tribal farmers), seed treatment (46.67% contact tribal farmers, 43.75% non-contact tribal farmers), seed rate (55.83% contact tribal farmers, 53.75% non-contact tribal farmers), improved nursery (55.42% contact tribal farmers, 55.83% non-contact tribal farmers), fertilizer application (55.42% contact tribal farmers, 44.17% non-contact tribal farmers), improved sowing method of rice (55.00% contact tribal farmers, 51.67% non-contact tribal farmers) and major insect and their control (47.08% contact tribal farmers, 43.75% non-contact tribal farmers), whereas, the practices of higher percentages under no knowledge category were use of weedicides (49.67% contact tribal farmers, 55.42% non-contact tribal farmers) and major diseases and their control (47.08% contact tribal farmers, 52.92% non-contact tribal farmers).

The percentage of contact tribal farmers under complete knowledge and partial knowledge categories was higher in comparison to non-contact tribal farmers (Table 4.7 and 4.8). That is why, knowledge gap of contact tribal
farmers (47.99%) in relation to the selected practices of recommended rice production technology was low in comparison to non-contact tribal farmers (57.67%). The t-test proves that there was significant difference between the knowledge gaps of the contact tribal farmers and the non-contact tribal farmers (Table 4.9). Pandey (2002) reported almost similar findings regarding extent of knowledge. Khan (1996) and Prakash et al. (2004) found more or less same finding as in the present investigation in relation to knowledge gap.

5.4 Extent of adoption and adoption gap among the respondents about recommended rice production technology

The majority of the contact tribal farmers had medium level of adoption quotient followed by low level and high level of adoption quotient with regards to recommended rice production technology. While, majority of the non-contact tribal farmers had low level of adoption quotient followed by medium and high level of adoption quotient (Table 4.10). The adoption index of the respondents (49.17% contact tribal farmers, 38.33% non-contact tribal farmers) was medium to low. The level of adoption of contact tribal farmers was higher than non-contact tribal farmers. The findings of Khan (1996), Maraty and Reddy (1998) Ladebo (1999), Shriram and Chauhan (2000) and Chauhan (2003) support this result. However, Gajbhiye (1998) investigated low adoption level of recommended rice production technology by the majority of rice growers.
Most of the contact tribal farmers regarding complete adoption were observed in one practice i.e. time of sowing (51.67% contact tribal farmers, 25.00% non-contact tribal farmers). The practices of higher percentages of the respondents under partial adoption category were-major diseases & their control (58.75% contact tribal farmers, 41.25% non-contact tribal farmers), major insect & their control (57.92% contact tribal farmers, 45.00% non-contact tribal farmers), irrigation application (55.83% contact tribal farmers, 56.67% non-contact tribal farmers), improved nursery (55.00% contact tribal farmers, 55.42% non-contact tribal farmers), fertilizer application (55.33% contact tribal farmers, 55.42% non-contact tribal farmers), improved sowing method of rice (52.92% contact tribal farmers, 47.92% non-contact tribal farmers), seed rate (49.58% contact tribal farmers, 52.92% non-contact tribal farmers), improved variety (49.17% contact tribal farmers, 45.00% non-contact tribal farmers) and seed treatment (44.17% contact tribal farmers, 47.50% non-contact tribal farmers). The practice of higher percentage of the contact tribal farmers under no adoption category was use of weedicides (58.33% contact tribal farmers, 80.83% non-contact tribal farmers). Whereas, no practice of higher percentage of non-contact tribal farmers in complete adoption category was observed. The practices of higher percentage in partial adoption category were irrigation application, time of sowing, improved nursery, fertilizer application, seed rate, seed treatment, improved sowing method of rice and improved variety. The practices of higher percentage in non adoption category
were-use of weedicides, major diseases & their control and major insect & their control (Table 4.11 and 4.12).

The percentage of contact tribal farmers under complete and partial adoption categories was higher than non-contact tribal farmers, that is why, adoption gap of contact tribal farmers (52.54%) in relation to recommended rice production technology was low in comparison to non-contact tribal farmers (61.93%). Application of t-test shows highly significant difference between the adoption gaps of the contact (52.54%) and the non-contact tribal farmers (61.93%) (Table 4.13). The results of Raje (1991), Khan et al. (1997), Shriram and Chauhan (2000) and Korram (2002), confirm the finding of extent of adoption. The investigations of Patil (1995), Hedau (2000) and Pandey (2002) support the finding regarding adoption gap.

The Z-value (0.278) proves highly significant difference between the adoption levels of the contact (0.9114 mean) and non-contact tribal farmers (0.7614 mean) (Table 4.14). Various factors may influence the extent of adoption viz., level of education, socio-economic status, level of knowledge of recommended rice production technology, availability of resources, availability of irrigation, credit facility and annual income.

5.5 Level of productivity of rice crop

The majority of the contact and non-contact tribal farmers obtained medium level of productivity (10-20 q ha⁻¹) followed by low level of productivity (< 10 q ha⁻¹) and high level of productivity (> 20 q ha⁻¹). Thus, it
may be inferred that most of the respondents obtained medium level of productivity of rice crop, however, level of productivity of contact tribal farmers was higher than the non-contact tribal farmers (Table 4.15).

5.6 Relationship between socio-personal, socio-psychological characteristics with adoption of recommended rice production technology

The education, contact with extension agents, availability of resources, credit facility, level of knowledge, availability of irrigation, socio-economic status and land holding of the respondents were positive and highly significant with their extent of adoption. The risk preference, material possession, sources of information, exchange of information and annual income of the respondents had positive and significant relationship with their extent of adoption (Table 4.16).

5.7 Constraints and suggestions of contact and non-contact tribal farmers to reduce the technological gap

The most serious constraints faced by the respondents in reducing technological gap were small size of land holding, lack of education, grazing problem, requirement of more investment, lack of credit facility, lack of irrigation facility, non availability of labours in peak time, non availability of improved seed at proper time, erratic rainfall and high rate of incidence of pest and diseases (Table 4.17). Almost similar constraints were reported by Dubey and Swarnkar (1992), Singh *et al.* (1992), Deshmukh and Borulkar (1993), Desai *et al.* (1997b), Thakur *et al.* (1998), Gogoi and Phukan (2000), Gogoi *et al.* (2000), Pandey (2002) and Sengar (2003).

The most important suggestions as perceived by the respondents were availability of adequate irrigation facility, availability of seed and fertilizer at subsidized rate, proper marketing facility and credit facility at proper time (Table 4.18). The results of Tantray and Nanda (1991), Thakker (1993), Pandey (2002) and Sengar (2003) support the present findings of suggestions.