SUMMARY, CONCLUSIONS AND SUGGESTIONS
CHAPTER - V

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5.1 Summary

A study entitled, 'Impact of Agricultural Extension System in changing socio-economic status of the farmers of Chhattisgarh' was conducted in the state of Chhattisgarh covering four districts, namely Raipur, Durg, Dhamtari and Mahasamund. The sample of the study consisted of 144 respondents selected at random taking 48 each from the farmer's categories of marginal, small and big farmers. The selection of type of farmers was based on the criteria fixed by the state Government. The respondents were personally interviewed through a structured interview schedule developed on the basis of objectives like (i) on-going important agricultural programmes and participation of the farmers, (ii) Participation in programmes, (iii) Transfer of technology and adoption behaviour (iv) Change in socio-economic status and (v) Constraints and interrelated variables. The hypothesis formulated for verification in this study is 'present agricultural extension system in Chhattisgarh plains is not working upto the mark, resulting in poor rate of adoption and diffusion of modern agricultural technologies specially agricultural technologies related to rice, oil seed, pulses, sugarcane, Integrated Pest Management (IPM) and farm machinery' which is found quite correct.
The secured data were statistically processed to reveal the relevant findings. The findings of the study are summarized and stated herewith.

1. For the purpose of the study, out of many programmes the important programmes like (i) rice development programmes, (ii) Sugarcane improvement programmes, (iii) Oilseeds and pulses, (iv) Integrated Pest Management and (v) Farm mechanization were selected for investigation.

2. Farmers were found to be aware of these programmes on varying degree. Majority followed by oil seeds and pulses, sugarcane, IPM and farm mechanization knew the programmes on rice improvement. Of the three categories, marginal farmers were least aware next to small farmers and big farmers.

3. Level of participation of farmers reveals that 'very much' were up to 43.75% followed by 'involved', 'not much involved' and 'not at all involved'. The participation of marginal farmers was least and highest with big farmers.

4. Frequency of contact of the respondents with Extension personnel was found to be highest in case of RAEO, followed by ADO, SADO and Scientists. Again the intensity of contact was least in case of marginal farmers and highest with big farmers. However, the role by scientists is not found to be significant.
5. The score value of intensity of contact reveal the same trend indicating that a wide gap exists between extension personnel and programme audience. The farmers have not been persuaded as per expectation to take active part in the programmes.

6. Knowledge level of the sample respondents about these five programmes was measured. The results reveal that farmers possess comparatively more knowledge about components of rice programmes followed by oil seeds and pulses, sugarcane, IPM and farm mechanization in order. Category wise marginal farmers possessed lower level of knowledge compared to small farmers and big farmers.

7. Reaction of the sample respondents towards these programmes was ascertained in the various aspects. The result reveals that there is great variation among the sample for different five programmes.

8. The general reactions of the sample farmers towards rice development programme are that programmes has been able to include all categories of farmers, encourage to adopt new packages, the recommendations are locally acceptable and help to increase production and profits.

9. In case of sugarcane, the programme has helped to introduce new varieties, increase yield level, control of
diseases followed by area expansion. The sugarcane, being cash crop and cost intensive has limited impact on the farmers.

The high priority programmes on oil seeds and pulses has yielded in more production, less problems of pest incidence, easily adoptable and relatively more profit than past.

The study of IPM reveals that farmers feel the packages are not difficult to adopt, there is reduction in cost of cultivation, involvement of more of traditional methods and sustainable to continue. However, the farmers have yet to fully realize the usefulness of IPM.

Farm mechanization has least impact in the minds of the sample. The programme has not created any significant impact. However, there is good response for attributes like, competency to use, availability of credit and favourable trend to use new implements.

The overall reactions of the sample reveal that rice tops the appreciation followed by oil seeds and pulses, IPM, sugar cane and farm mechanization taking all the dimensions into account.

The participation of sample farmers consisted the aspects like, reactions, activity wise participation and perceptions about benefits of the programmes at micro-level.
15. In case of rice development programmes, the areas of participation is found in case of using new varieties, attending meetings, increase in production, contact with extension agencies, good harvesting, technical training and demonstration.

16. In case of sugar cane, the participation is observed for the activities like, meeting, contact with extension agencies, more production, training, demonstration, technical guidance and harvesting.

17. Oil seeds and pulses are favorite crops. The programmes of these crops secured more participation for the events like, meeting, demonstration, production, training, harvesting, technical guidance and contact with extension agencies.

18. The areas of participation in case of IPM were found to be contact with extension agencies, technical guidance, meeting, training and demonstration.

19. Farm mechanization failed to ensure participation of many sample respondents. However, the limited participation was found for the activities of meeting, demonstration, exhibition and visit of sole centers.

20. Participation of sample respondents in all the cases was highest with big farmers followed by small farmers and marginal farmers. The poor resource farmers were found to be at the end of the activities.
21. Taking into account of participation on programme wise, IPM topped the list followed by oil seeds and pulses, sugar cane, rice and farm mechanization.

22. Correlation values reveal that in case of big farmers, rice, sugar cane, oil seeds and pulses and IPM were found to be closely associated. Likewise oil seeds and sugar cane, marginal farmers were found to be with rice, sugar cane, oil seeds and small farmers with same trend. However, farm mechanization and IPM have not been able to establish favourable relation with sample as a whole.

23. Benefits of any programme decide its popularity and participation of people. The present study made an attempt to enlist the benefits as expressed by the sample. The findings reveal that farmers from rice development programmes derive benefits in terms of new varieties, high rate of production, and exposure to new technology, training and more profit. However, there is difference among the categories of farmers in expressing the benefits.

24. In case of sugar cane, the benefits are expressed in terms of exposure to new technology, training, new varieties, production and profits in order.

25. Programmes on oil seeds and pulses bring a variety of benefits for the farmers. These are training, profit per unit
area, exposure to new package and new strains. The benefits of oil seeds and pulses are significantly spectacular.

26. IPM has given benefits in terms of less use of chemicals, decrease in involvement per unit of area, reduction in labour cost and controlling of pest. These benefits again vary among categories of farmers.

27. Farm mechanization is yet to catch up the minds of the people. The benefits are expressed by limited sample in terms of new many implement, time saving, training and cost effective ness. The farmers of marginal, small and big expressed benefits in varying manners indicating that benefits are not equidistributed. The marginal and small farmers remained at the end of the scale of benefits.

28. Taking all the programmes in to consideration, it is revealed that benefits are more in rice, oil seeds and pulses, IPM, sugar cane and farm mechanization in order.

29. Opinion of sample respondents were measured about five programmes, problem associated with each programmes, extent of adoption and perception about sustainability of these programmes.

30. The analysis of programmes in terms of benefits, affordability, simple to adopt and market demand for produce reveals that rice tops the list followed by sugar
cane, oil seeds, IPM and implements. On attribute wise, market demand tops the list followed by affordability, simple to adopt and benefits.

31. The means and ways of transfer of technologies reveal that mass meeting; mass media coverage, group discussion, field demonstration and farm literatures are used in order.

32. In case of rice packages, varieties, plant protection measures, cultural practices, fertilizers, water management and post-harvest packages were found to be adopted in order.

33. In case of sugar cane, adoption rate was highest for timely crossing of cane followed by fertilizers, water management and varieties in order.

34. Varieties, fertilizer use, post harvest care; pest control and irrigation practices were adopted in order in case of oil seeds and pulses.

35. IPM achieved the adoption rate in case of cultural practices, time of occurrence of pests, identification of pest, materials to be used in order.

36. Farm mechanization was studied in terms of purpose of use, cost, name of equipments, after care and repair in order. All the five programmes were studied in terms of adoption by respondents to gain an over all insight of the situation.
37. Perception of respondents about the sustainability of the programmes is very important. Investigation relating to this aspect reveals that rice technology is viewed to be very much sustainable by 64.55% of the sample followed by sustainable (19.44%) and not sustainable (15.18%).

38. The sustainability of sugar cane programmes is perceived as very much sustainable by 22.91%, sustainable 36.80% and not sustainable 40.29%.

39. Sustainability of oil seeds and pulses programme is viewed very favourable up to 49.30%, favourable 31.25% and not favourable 19.45%.

40. IPM appeared to be very sustainable to an extent of 30.55%, sustainable 40.27% and not sustainable 29.18%.

41. The sustainability of farm mechanization received very poor response indicating the programmes have yet to come to farming communities for acceptance.

42. Programme wise, the sustainability is found to be highest in case of rice followed by oil seeds and pulses, IPM, sugar cane and farm mechanization.

43. The sustainability score is found to be highest with big farmers followed by small and marginal farmers. In short, the programmes like, rice, oil seed and pulses, sugar cane is viewed as sustainable while poor response is expressed in case of farm mechanization and IPM.
44. The change in socio-economic status due to Agricultural Extension System was the core question of the study. The present study selected some parameters to find out the changes. These parameters were level of participation, income level, land possession, livestock, health status, diversification in occupation, labour use, use of electricity, use of mass media, contact with extension agencies, membership in formal organizations, total annual investment in farm and education of children. Analysis of these variables reveals the change due to participation in programmes.

45. In analyzing social capital the changes were found in case of educational attainment, contact at official level, leadership pattern, group activities and membership in formal organizations providing services.

46. The change in economic dimensions was observed in case of labour use, level of production, annual income per households, use of electricity, diversification of crop, house structure, livestock possession.

47. Change in information capital is observed in case of use of mass media, contact with extension agencies, training for capacity building, attending demonstrations, visiting exhibition and becoming member of service providing organization.
48. There have been more changes in social capital followed by information and economic capital. Of the three categories of farmers, big farmers have gained more changes followed by small and marginal farmers.

49. The study attempted to investigate into constraints associated with programmes under study. The major problems encountered in rice development project are, high cost of cultivation inputs and their availability, training support at village level, pest and disease occurrence, marketing and post-harvest cases.

50. Sugar cane improvement programme is limited by the factors of land preparation, use of high dose of fertilizers, water management, harvesting, seed treatment, value addition and marketing.

51. Oil seeds and pulses face the constraints of availability of good varieties, plant protection, and post harvest care, use of fertilizers and treatment of seeds.

52. IPM fails to be popular due to non-availability of herbal products, timely cultural operations, non-effective control of pests, more use of labour and sticking of pests, more use of labour and sticking to time of sowing.

53. The farm mechanization is inhibited by cost of maintenance, high cost of equipments, lack of operating skill and repair,
rise of fuel cost, non-location of workshop in proximity an non-availability of credits.

54. Opinion about over all programmes reveal that cost-effectiveness, simplicity, socially desirability, labour usability, income stability, sustainability, group dynamics, eco-friendliness and market demand ability are the good attributes to keep programmes going.

55. For motivation of the farmers, simple presentation, convincing message, reliable recommendation, timely availability of services, scope for training, basing on solutions, result oriented demonstration and good rapport are necessary.

56. To support these programmes, the government policy can take care of posting of technical people, looking to equal treatments to all types of farmers, regulation of market, provision of subsidy and inputs of low cost and development of required infrastructures.

57. Three aspects like, programme components, Extension Approach and administrative policy should act keeping perfect co-ordination to serve the farm families.
5.2 Conclusions

Research study on impact of extension agriculture system in changing socio-economic status of farmers of Chhattisgarh leads to conclude that the programmes like, rice development project, sugar cane improvement project, oil seed and pulses, IPM and farm mechanization are quite important for agricultural growth of the state. The findings on the objectives of ongoing agriculture extension programmes, participation of farmers, technology transfer and adoption behaviour, and change in socio-economic status and constraints associated with programmes unfold very interesting and fruitful results.

The programmes, which carry components subscribing to benefit, affordability, simple to operate and marketability are quickly adopted by the farmers. But the extent of awareness created in the state about these programmes are neither adequate not permissive in nature. This is evidenced by the fact of extent of awareness of the programme, contact with extension agencies and knowledge about subsidies on benefits extended by the government. This shows that why farmers are not involved actively in the programmes. The extension agencies may be of different workers of the hierarchy like, RAEO and ADO have not taken committed steps to help the resource poor farmers who are mostly small and marginal farmers. The existence of wider gap between
farmers and extension workers has proved the poor pursuance of state agriculture department to the farmers for the development programmes. The sample represents the farmers' communities and carry differential perception about the programmes, rice, sugar cane, oil seeds, pulses, IPM and farm mechanization.

These programmes have different components. The different components have a differential impact on the farmers. The farmers do not equally receive the priority of government on different programmes. However, the results are indicative of facts that the variation in participation is due to expected benefits and seriousness of the government agencies. The programme designers and planners need to understand the reaction of the farmers and accordingly the programme should be designed. The extension methods use to transfer of technology are not effective as evidence from the study. The rate of transfer of technology is conditional to the attributes of packages. The technology transfer system is yet to geared up to present technical message in an understandable manner through different means to farmers. Again, adoption of the recommended packages varies according to resource of the participants. The strategy to introduce packages requires considerable examination of socio-economic conditions of small and marginal farmers. The sustainability of this programme has opined by the respondents is not very much encouraging.
There is need to have consorted efforts on the part of agencies to look into the matter. That promotes adoption of packages. The programmes like, IPM and farm mechanization have failed to attract the farmers into its fold. On the whole the transfer of technology system of the state is not much appreciable.

Innovations create impact and impact creates consequences. The investigation examines changes at three important levels. These are changes in social capital, economic capital and information capital. The changes have been marked in the dimension of educational attainment, contact with officials, leadership pattern and service providers. The changes are to come as principle of time factor. But the impact of extension programmes has added dimension to it as evident by the direction of movement of people through group activities to official level.

The economic capital input a variety of variable. Changes in level of production, labour use, uses of power, annual income, and house structure and livestock position have been found to be change. Again, these dimensions are expressed in relative terms. With change of time the economic capital changes. As has been discussed these five programmes have contributed significantly to the economic status. The study provides facts to believe that the impact in economic front although appreciable but not to the level of satisfaction.
Information capital reveals the change and intensity of using information sources for the farm enterprise. Use of mass media, contact with extension agencies, availability of training, visit of demonstration and exhibition although have increased considerably but have not been wisely used to boost up production and productivity. In the process of development, big farmers are more gainers than the small and marginal farmers. This phenomenon again creates gap between rich and poor.

The state department of agriculture of the state Chhattisgarh is fully associated with different kinds of constraints. The constraints have been analyzed in terms of concern projects, extension approach and administrative policy.

The programmes under study reveal that there is need to reorient the planning process to fit in to the situation and extension methods to be used as per requirement of different locations. The government policy has to be reorganized to meet the growing aspiration of the farm families. In short, the study concludes that the programme extension strategy and government policy need to be re-examined to make the programmes on rice, sugar cane, oil seeds, pulses, IPM and farm implements popular.
5.3 Suggestions

In the light of the findings of this investigations it is suggested that:

1. The emphasis of extension functionary should be more on marginal and small farmers rather than the resource rich farmers. This may be very useful while implementing participatory extension module. Increased participation by all the category of farmers in the developmental programmes will be more effective for speedy technology dissemination and adoption as well.

2. Participation of stakeholders in five selected agricultural programmes is very poor which is to be increased rapidly.

3. The benefits acquired by the farmers from most of the existing technologies are quite less. By introducing latest technologies in the agriculture sector the crude benefit can be increased significantly. This can be achieved by providing demand driven and market led extension system according to the need and requirement of the consumer and producer.

4. The existing means and ways of transfer of technology needs drastic revision, so that latest ‘e’ technology be incorporated in the extension system for efficiency, low cost and accurate technology diffusion and adoption to the end users of the technologies.
5. The sustainability of existing programmes specially for sugarcane, IPM and farm mechanization is quite low hence by involving modern recommendations and latest research findings in the programme, the sustainably can be increased upto optimum level.

6. Most of the technologies/programmes make profitable to the big farmers, hence the share of small and marginal farmers is to be increased by more cooperative and intensive efforts.

7. Economic constraints are the most popular, specially amongst the marginal and small farmers, hence integrated credit policy is to be implemented for these mass to provide need based loan to them in time and on minimum interest basis.