



Chapter - Seven

Linkages for Mutual Survival, Stability and Development

Actual and Desired Linkages among the Various Sub-systems of Agriculture

*Sabarathnam, V.E.**

Absence of linkage of any sub-system with any other sub-system leads to isolation, which in turn, leads to low production. The isolated system also gets the criticism of not meeting the needs of the society. A sub-system having no linkage with the any other sub-system will be in jeopardy for it's own survival itself. Linkage with the other sub-system is a must for increased agricultural productivity as every system learns from the other system by linkage. There are studies, which have indicated non-existence of the linkage among the various sub-systems. There are 4 types of linkages that are essential for agricultural prosperity viz. Enabling linkages, functional linkages, normative linkages and diffused linkages. There should also be internal linkages within a sub-system itself. Lack of linkage among the various sub-systems is due to negative attitude of the various sub-systems towards the other sub-systems, lack of perception, lack of funding for money, for transport, travel, support, the nature of the job of certain sub-systems and frequent transfer policy being operated in some of the sub-systems, lack of perception, lack of funding for money, for transport, travel, support, the nature of the job of certain sub-systems and frequent transfer policy being operated in some of the sub-systems. There are ways and means of increasing the linkage by having right perception of the various system members about other sub-systems treatment of technological findings before transferring to other sub-systems, training and incentives for the extension staff, doing research only on field-based problems, provision for informal, direct and person to person communication among the various sub-systems, proper research climate in the concerned sub-system, implementation

* Principal Scientist (Agricultural Extension) N.A.A.R.M, Rajendranagar, Hyderabad-500 030. (A.P)

of policy and approval of research, extension and teaching and training proposals only when they are based on field problems identified. If these are sincerely followed by all the sub-systems definitely, there will be better linkage among the various sub-systems, which will ultimately lead to increased agricultural productivity.

The talk of the day of most of the discussions on agricultural research, education and extension in many seminars, symposia and conferences is the linkage among these three vital sub-systems of the total agricultural system. The need for effective linkages among research, education and extension sub-systems for development and dissemination of farm technologies to increase the adoption rate of technologies at farmers' level in village situation under actual farming condition is crystal clear. This has been emphasized repeatedly in many textbooks related to agriculture in India and elsewhere. A recently published book (Mathiyalagan, 1997) has indicated that there are three agencies which play a vital role in the process of rural development viz. Research agency, teaching agency and extension agency. According to him, while research agency is manned by highly trained people in research work to evolve efficient and profitable production technologies, teaching agency refers to agriculture and veterinary colleges which teach latest and modern technologies to students so that they are better equipped to perform the job of researchers, extension workers has the dual responsibility of passing of practical and useful information to the farmers, and passing back the problems of farmers to the research workers for answers (Mathiyalagan, 1997).

Three level and Two level linkages

Strictly speaking, research, education and extension, obviously, have the common ultimate objective of serving the farming community. But, in many symposia, seminars and workshops, the discussion about linkage is limited only to research and extension, education being conveniently omitted due to the reasons best known to the people concerned. Here are some examples. Agricultural research must be relevant to the producer's needs, and its results, including

the necessary inputs and infrastructure, must be made available to the producers. This usually requires specific efforts to extend the new technology, even though that may not necessarily be accomplished by a traditional general public extension service (Stephen and David, 1990). Thus, Stephen and David (1990) have indicated the relation between research and extension only. The primary objective of both research and extension should be to increase farm productivity and to enhance farm incomes, to the farmer. To achieve this objective in ways consistent with national priorities, the extension system must feed research workers information about the constraints farmers have experienced in adopting research recommendations. The research system must have the capacity and readiness to respond with problem-specific recommendations. Research should also obtain direct feedback from the field itself, through field visits undertaken by research scientists, preferably accompanied by extension workers. Quite often farmers, on their own, also pose specific problems to both research and extension personnel (Venkatesan, 1980). Through the former TV system, and the present broad based extension system, there are ample opportunities for farmers and extension workers to pass on the field problems and extension workers to pass on the field problems to researchers e.g., Sunflower cultivation has increased many fold in many states. In a monthly workshop in Maharashtra, question posed to research scientists was: Does growing of sunflower on light and medium soils under rainfed conditions affect soil fertility?

Knowledge of Indigenous Technology

Farmers (on their own), follow many age-old practices, which are called indigenous technologies. Several such technologies have been identified. Eg. The farmers of Kallakurchi village, in Kariapatti Panchyat Samithi near Arupukottai, in Tamil Nadu reported that the salt in well water could be minimized by gooseberry twigs and classic auricula leaf powder. The scientists of the nearby research station of TNAU were not aware of this technology (Sabarathnam, 1996). Thus, researchers, extensionists and teachers can learn a lot from farmers, if there is proper linkage with the farmers and among themselves.

Linkage between research and extension - All is not well

The linkage between research and extension has been the status of “easier said than done”. There are many instances, which have indicated that all is not well with regard to research and extension linkages. Number of studies has indicated that the linkage between research and extension is poor.

Weak linkage in many countries

In 16 out of 20 research projects evaluated by the USAID and in all 12 projects evaluated by the F.A.O. (1984), communication between research and extension was weak (Stepen and David, 1990).

Bridging the gap-serious problems

The World Bank (1985) has opined that bridging the gap between research and extension is the most serious institutional problem in developing an effective research and extension system.

Ivory tower research

Many scholars have reported that extension workers see researchers as working in ‘ivory towers’ and producing technologies that are not applicable to the farmers with whom they work (FAO 1984, Samy, 1986).

Incapable extension workers

Researchers look down on extension workers and question extension agents’ capacity to perform their job (Quimsum, 1984).

Both avoid gap-bridging activities

Both researchers and extension agents avoid the tasks that bridge the two activities such as adaptive field trials and treatment of technological findings for extension agents (Mc Dermott, 1987).

Limited Communication

Communication between the two groups is limited. These problems are caused by differences in background, training, experience, responsibilities,

status, institutional setting and physical location, which promote competition between the two groups and hinder their ability to understand each other (Bennell, 1989).

Extension-not the source for research ideas

Many studies have indicated that the source of idea for the research in agriculture, in majority of the cases is neither the extension worker nor the farmer, but something else. Research journals (Lionberger and Chang 1970) and Reddy (1984), literature (Gannorkar and Khonde, 1979), Workshops meetings and Conferences (Agble et. al 1977). Only 9 per cent of researchers admitted that the source of idea of their research was extension agency while 33 percent of researchers reported that journals and books were their sources of idea for research (Sabarathnam, 1987).

Non-existent linkage

The linkage between agricultural research and extension is often weak or non-existent. Rather than operating as a continuum, these services often act in ways that reinforce their separation rather their mutual support. (Cernea et. al 1985).

Out of touch with farmers' problems

Researchers are often out of touch with farmers' problems. Research Programmes tend to be in isolation of farmers' problems. Extension workers are poorly served by, or ignorant of, the output of research systems. There is ample evidence for these weaknesses in many research programmes. It is obvious to the critical observer that much research, even when carried through to an apparently successful conclusion, is unlikely to have the expected impact on farmers; agricultural practices (Cernea, Coulter and Russell, 1985).

There is evidence that extension workers are often out of touch with farmers' problems and do not attempt to understand the research process. They often lack an analytical approach in defining how farmers' problems might

be susceptible to solution through the research process (Cernea, Coulter and Russell, 1983). Similar view of researchers and extension workers blaming each other has been reported by (Stephen and David, 1990).

Present status

Extension is often picturized as the intermediary between the research system and the farmer. Information from research is passed on to extension for transfer to the farmers and farmers' problems are fed back by extension to help shape research priorities. In practice, the first linkage is usually not well developed and the second is almost non-existent. Although on farm problem solving approach offers an opportunity for rectifying the situation there is much that remains to be done (Baerlee and Tripp, 1958).

While an elaborate research extension linkage mechanism has been established in India for the past one and a half decades, actual functioning and quality of interactions in these fora leaves much to be desired. The Zonal Research Extension Advisory Committee meetings, are found wanting in assessing the real problems of agro-climatic zone and, consequently, research programmes do not get re-oriented to generate location specific technologies. The monthly workshops are the places where scientists and extension functionaries meet to work out technology packages relevant for the coming months. But, these workshops have become so routinized and repetitive, without adequate pre-planning which has resulted in little time being devoted for documenting and analyzing field level situations and constraints (DOE, 1992).

Now, researcher, farmer linkage through Institutional village linkage programme (IVLP) and FIELD EXPERIENCE TRAINING (FET) OF NAARM have come into vogue. Teacher and farmer linkage through village work stay programmes is also there.

Various types of linkages (External for research or teaching organizations)

Esman (1969) identified four categories of linkages in institution building, namely and teaching.

1. Enabling linkages

There are connections with those elements in the environment which provide the institution with legal authority to operate and which give it access to essential resources.

2. Functional linkages

These are tie-ups or relationships with elements in society on which the institution depends for its operation and for its contribution to society. Connections with inputs supply agencies, processing agencies, farmers, markets, educational institutions, other research stations, planning and policy bodies and rural organizations come under this category.

3. Normative linkages

These are contracts with elements that establish standards, that dictate terms, that dictates and propagate society's values. They are not always operative through specific organizations. They can arise from beliefs, customs and practices that prevail generally in society. For instance, piggery is not received well by a particular group of people in the society. Some trees are not grown in the backyard of the house (Coconut, Jambulana).

4. Diffused linkages

These are relationships with those in the general public that are not easily categorized. They represent individuals or groups that are not formerly or directly related to any institution or agency.

5. Primary products of a research or educational institution

The outputs of a research or educational institution are:

6. Current service outputs

This consists of technologies developed by the research organization and quality of students who come out of the educational institutions.

7. Institutional reinvestments

It recycles some of the output within the institution - students as teachers and research workers of the same college or university.

8. Influence

It refers to deliberate or accidental efforts of research organizations or educational institution to improve its external relations or image and impact on society. Through influence, the institution hopes to ensure its survival and increase its chance to obtain support and to promote the adoption or use of new information by larger segments of people it serves.

Internal and external linkages

All these primary products of a research/educational institution require both external and internal relationship or linkages.

Internal linkages

The improvement of internal linkages is as important as external linkages for the overall performance of the total agricultural system whatever be the system - be it research, education or extension. Madamba (1973) has emphasized this point.

Arron (1989) conceived the received (education and extension) organization as a social system in which various types of personnel are working - scientists, professors, extensionists administrators, technicians, clerical staff, supporting staff and labourers . Each type of personnel has its own characteristic attitudes, interests, values, and behaviour, it is the relationship between these groups and between the groups and the organization itself, which transform the organization or institution into a social system. At times, attitudes, interests and values run in conflict between groups, giving rise to stress and strains among the members of the institution. The perception of the personnel, the reputation, or the research, educational or extension climate in the organization,

the facilities, pattern of influence, monitoring and devaluation systems, persistence nature of staff affect the research, extension and teaching efficiency of the personnel (Sabarathnam 1987 and Sabarathnam 1990).

The main sources of stress are the organizations' fundamental policies, authority relationships, rules and procedures, time and pressure, workload, rewards and incentives and conflicts between the sub-groups. Remedial measures must be taken both at personal and organizational level to get rid of the stressors in order to increase the linkages, which in turn will improve the efficiency of the personnel in the organization.

Integration of external linkages

The four kinds of external linkages viz. (1) enabling linkages (2) functional linkages (3) normative linkages and (4) diffused linkages should be integrated for the ultimate benefit of the farmer for whom the various sub-systems of the agricultural systems are functioning. In the words of Axinn (1972) "the crucial input which converts the farmer from peasant to scientific business manager, which converts the nation from food deficit to food exporter and which brings dignity to farm life is the systematic integration of research and education with governance and with supply, production and marketing."

Benardo (1977) identified eight functional components of linkages in the operation and management of agricultural research. The various kinds of linkages should be understood by all concerned for effective and efficient linkages among all the subsystems of the overall agricultural system.

Why, the lack of linkage?

The negative attitude they have about each other is the major reason. Researchers doubt whether extension agents are competent and motivated to work, Extension agents question the relevance of research projects. (Stephen and David, 1990). There is insufficient cooperation between extension and research, despite their common ultimate goals, due to lack of built-in complementarities

(Cernea, et al 1985). Lack of consistent funding, money for transportation and travel and support for library services.

Researchers have contact with their counterparts in other countries by visits to foreign countries interaction in Conferences etc. for providing exchanges of information and experience. With the result, the researchers look to their research colleagues rather than their extension colleagues for ideas and support. On the other hand, extension staffs have scarcely any opportunity to meet colleagues from other countries through training programmes. By the very nature of their job, extension staff is more isolated, only the senior extension officials are stationed in large towns. In research, junior staff in daily contact with their senior colleagues. Extension staff has only infrequent contact with their colleagues. Extension workers suffer the greatest degree of intellectual isolation where agriculture is at subsistence level.

Ways and means of increasing the linkage

In order to improve the relations between research and extension, researchers have to perceive extension agents as competent. Technological findings must be treated properly in simple understandable words with short sentences in such a way that anybody can understand and published in popular newspapers and magazines. Researchers should not limit their publications only as research papers in research journals.

There should be more training and greater incentives for extension staff. Research projects should be taken up based on the field problems identified jointly by researchers, extension workers, teachers and farmers. Incentives should be given to researchers and teachers for treatment of technological findings in cash and promotion. Informal direct, person-to-person communication is essential for effective linkages among research, extension, education and client systems with adequate help. Proper research climate and extension climate and teaching climate should exist in the concerned subsystem for better linkages.

No research project, should be approved any research organizations unless it is based on problems of farmers. Ex-ante evaluation of research projects must be taken up by a joint teams consisting of representatives from all the systems (research, teaching, extension, client and input supply system). No new course in agricultural universities should be taken up without the approval of joint team (consisting representatives from all the systems). It should have been developed after careful discussion with farmers, extension workers, input agencies and researcher system before goes for approval. No new extension scheme should be approved and started with out the involvement of other systems. Problems should be identified in a scientific way for any project using Rank Based Quotient techniques (Sabarathnam and Vennila, 1996).

References

- AGBLE, W.K. Oppong, E.N.W. and Spare Seno, D.K., 1977. Agricultural Systems in Ghana. Proceedings of the Workshop on Agricultural Research Administration, Nairobi, Kenya, 27 - 30 June, 1977. Association for the advancement of agricultural sciences in (AAASA) and International Development Research Centre (IDRC), pp. 10 - 14.
- Arnon, I., 1989. Organization and administration of agricultural research, 1st Ed.; Elsevier Publishing Co. Ltd. Amsterdam.
- Axinn, George H., 1972. Delivering rural development through an integrated system of agricultural functions. Seminar on Institutional Cooperation, Suweon, Korea.
- Bennel, P., 1989. Intergroup relationships in institutional agricultural technology systems. Linkages Theme Paper No. 2. The Hague : International Service for National Agricultural Research.
- Bayerbe, D. Tripp and Coffinson, M., 1988. Planning technologies appropriate to farmers : concepts and procedures, CIMMYT, Mexico.

- Bernardo, F.A., 1977. Linkages in the operation and management of agricultural research, agricultural research management. Vol. II, South-East Asian Regional Centre for Graduate study on Research in Agriculture College, Laguna, Philippines, pp 217 - 227.
- Cernea, Michael M. Coulter John, K. and Russell John F.A., 1985. Research extension, farmers, a two-way continuum for agricultural development, the World Bank, Washington D.C., U.S.A.
- Cernea, Michael M., John K. Coulter, and John F.A. Russell, eds., 1983. Agricultural Extension by Training and Visit : The Asian Experience (Washington, D.C., WORLD Bank).
- Directorate of Extension., 1992. Agenda Notes for National Seminar on Agricultural Extension, Directorate of Extension, Ministry of Agriculture, Dept. of Agriculture and Cooperation, Government of India, New Delhi, p. 30.
- Esman., 1969. Food and Agricultural Organization (1984) Agricultural Extension : A reference manual, 2nd edition, Rome : FAO.
- Ganorkar, P.L. and Khonde, S.R., 1979. Information Transfer Process. An Evaluation Study. Agricultural Situation in India. 33 (2) : 699 - 703.
- Lionberger, H.P. and Chang, H.C., 1970. Flow of farm information for modernising agriculture. The Taiwan system as an organisational alternative to Land Grant Universities - U.S. Style - Extension Education and Rural Development, Vol. - 1, Ed. Bruce, R.C. Crouch and Shankaraiah Chamla, pp. 155 - 183.
- Madamba, Joseph C., 1973. Institutional, national and regional research relations in Institutionalizing Research Management in Asia.
- Mathiyalagan, Peua., 1997. Animal husbandry Extension Education, Dept. of Extension, VC & RE, Namakkal, pp. 29 - 30.
- McDermott., 1997. Making extension effective : The role of extension / research linkages. In W. Rivera and S. Schram, eds., Agricultural Extension worldwide. New York : Croom Helm.

- Quimsumbing, E., 1984. New direction in research-extension linkages. In D. Elz., ed., Planning and management of agricultural research, A World Bank and ISNAR Symposium. Washington D.C. : World Bank.
- Reddy, K. Pandarinatha., 1984. Analysis of information flow and communication linkages in transfer of dairy management practices - a system perspective, Ph.D. Thesis, Andhra Pradesh Agricultural University, Rajendranagar, Hyderabad - 30, India.
- Sabarathnam, VE., 1987. A study on the process of development and dissemination of dryland agricultural technology. Ph.D. thesis submitted at APAU, Hyderabad - 30.
- Sabarathnam, VE. and Vennila, S., 1996. Estimation of technological needs and identification of farmers problems to formulate research and extension programmes in agricultural entomology. *Experimental Agriculture*, Vol. 32 pp. 87-90, Cambridge University, UK.
- Sabarathnam, VE., 1990. Research climate and its impact on the efficiency of Indian dryland research system. *Indian Journal of Applied Psychology*. Vol. 27 (2) pp. 84 - 91.
- Sabarathnam, VE., 1996. *Indigenous technology in Indian Agriculture*, Vamsaravath Publishers, 5-12-210, Moulali, Hyderabad - 40.
- Samy, M.M., 1986. Linking agricultural research and extension in developing countries. Paper presented at the Annual Meeting of the Rural Sociological Society, Salt Lake City, Utah, and August 26 - 30.
- Stephen Seegers & David Kaimowitz., 1990. Relations between agricultural research and extension workers; the survey evidence, *Journal for farming systems research and extension*, Vol. I (2) pp. 29 - 46.
- Venkatesam, V., 1985. Policy and Institutional Issues in Improving Research - Extension Linkage in India in (Ed) Cernea Michael M; Coulter John, K. and Russell John F. *Research - Extension Farmer*, World Bank, Washington D.C.

Issues of Research Extension Linkage of Privatised Extension System : A Case of the Seed Industry

Jayaraghavendra Rao, V.

Private vegetable seed industries are major partners to boost agricultural production with production of hybrid, open pollinated seeds. They concentrate on market needs rather farmer's needs. Own research institutions do basic research or released varieties from the various ICAR / SAU's are purchased and mass-produced. They are marketed to various locations. Results of NARP trials have proved that private seed industries are highly competitive. Their varieties have performed on par with government research institutes varieties in farmer's fields. The participation of government extension agencies is poor or totally lacking in the testing done by private seed companies. The survey conducted in areas of Hoskote, Kolar, Malur, Chikballapur, and Devenahalli using 150 farmers stratified random sampled of 30 farmers 30 farmers in each of the 5 taluks, with 10 each big, small and marginal farmers to study the Linkage issues of the private seed companies reveal that the testing is normally on research farms of seed companies. Trials in farmer's fields are selective. The Horticulture department is not involved or not aware of the trials going on in their jurisdiction / service area. The issues are discussed under the following heads:

- Technology Integration
- Technology Production
- Technology Dissemination
- Mechanisms For Technology Delivery

Senior Scientist, National Academy of Agricultural Research Management, Rajendranagar, Hyderabad

- Technology Targeting
- Participation In Technology Validation
- Information Material Design And Production Lack Of Focus
- Communication Between Government Agencies And Seed Companies

Technology Integration

Technology integration to fine tune and pack the technologies into specific recommendations is neglected, like seed rate, time of planting, pest and disease management tips using a particular variety etc. Emphasis is on market related information like germination percentage, purity, date of packing, and the price, & using before a particular date.

Technology Production

Technology production is only the production of the input (the seed). Designing of relevant target oriented information to specific clients like big, small, and marginal farmers situation is lacking. Technologies are promoted as scale neutral. Training programmes for using the improved seed their package of practice is not given. Farmers are at the mercy of distributors for input and source of information. Farmers are not inclined to be trained by the seed companies. Yield, market price, and consumer preferences, are the highly expressed indicators for preference to seeds of a particular company and brand. Many companies have failed due to the inability of the company's seeds to reproduce the results of their earlier performance. Seed impurity, mixing, inability to process feed back from farmers are expressed as the reasons for failure of the seed companies.

Technology Dissemination

Technology dissemination by seed companies ends at the delivery of the seed to the distributor. Extension efforts are carried out till the market is

developed. After establishing the market, their extension & service support is reduced to increase returns for a rupee of investment. Technology delivery is limited to input, the information part of the technology is rarely delivered.

Absence of clear directions to research and extension personnel of private seed companies regarding their roles and a responsibility to farmer's needs and problems has created an unhealthy competition at the cost of the farmers. Emphasis is to build the market. The terminator gene type of harmful demonstrations and promotion intended to increase dependency and profits of private seed companies have been successfully stopped by farmers groups in Karnataka. The government departments do not have guidelines to monitor the seed industry regarding social utilities and consequences of technologies.

Mechanisms for Technology Delivery

Government and research management institutes like NAARM, and extension management institutes like MANAGE should evolve suitable mechanism for healthy research extension linkage to assess the feedback on environment and resource constraints under which farmers operate. The feedback should be the basis on which seed companies should make recommendations and technology delivery.

Technology Targeting

Technology targeting to small, marginal farmers should be a consideration of seed companies. Their focus is only on the quantity of seeds sold in a year to earn profits. This linkage problem in the private seed industry has caused disruption in technology flow. Adoption rates of technologies of government research institutions are lower compared to their private counterparts.

Reduced efficiency in the use of resources of both government and private research institutions are due to unnecessary competitions from fellow seed companies and government departments and research institutes of ICAR / SAU.

Duplication of the efforts of government and private seed company research, has led to increased cost of seeds that is as high as 40 percent of the total cost of cultivation. Contrary to this higher yield in vegetables resulting from hybrids results in glut and the payoff of resource poor farmers are reduced.

Farmers express that premium pricing of seed brands is an indicator of credibility of the seed company increases the cost of cultivation, and unhealthy competition from seed companies to capture a higher share of the market, and distributors role in promoting or demoting brands of seeds must be monitored through policy interventions.

In vegetable based production system seed companies do not have technology targeting this has resulted in over production of vegetables in the sample area by competition from the big farmers and the steep fall in prices due to glut. By this resource poor farmers are displaced from vegetable production, as it is not sustainable. This could be achieved through better government policies aimed at monitoring a laissez faire technology market.

Participation in Technology Validation

Seed companies purposefully and tactfully avoid government departments from participation in adaptive field trials and large scale testing because the contradictory opinion by stakeholders on the technology may cause marketing problems.

Information material design and production lack of focus

Preparations of extension bulletins like leaflets, folders, and extension oriented publications by seed companies and government departments lack of unity and focus on the problems faced by the farmers of the area. They are contradictory, or lacking or such an extension material is not available for the service area concerned. This could be achieved by better co-ordination and linkage between the seed companies and the government departments of the area, and must be made mandatory.

Communication between government agencies and seed companies

The communication between government departments and seed companies are poor due to the perception by the seed companies that functional hierarchy of the government departments hinder their goal achievement. Contrary to this government agencies are of the opinion that private seed companies by pass them in promotion of their technologies and not on local and problems of farmers.

Conclusion

It may be concluded that private vegetable seed industry are partners in progress to boost agricultural production and productivity. The research – extension linkage between the companies and government research institutions is weak and neglected. Areas like adaptive field-testing, technology validation is poor. Technology delivery is only input component and not the information component. Targeting technologies is absent. Companies do not remain in the market for a long time due to competition between the companies and between newer varieties of their own company. Competition is unhealthy and severe. Extension and service support is only till market establishment. There are not clear directions to research and extension personnel of private seed companies regarding social utilities, their responsibilities and consequences of their technologies. Research management institutes like NAARM and extension management institutes like MANAGE should evolve suitable mechanisms to base the recommendations and technology delivery of private seed companies on the feedback of environment and resource constraints under which farmers operate. Presently they base it on their product availability and marketing for profits. Duplication and unnecessary competition between seed companies and government research institutions, and premium pricing of seed companies as an indicator good a seed has led to increased cost of seeds and thereby increased cost of cultivation. Avoidance of government departments from participation in field trials and lack of unity of focus in preparation of extension literature by seed companies and government departments focusing the problems faced by farmers of the area can be improved

through better co-ordination and linkage between government departments and seed companies. Communication between government extension agencies and seed companies is lacking due to the fear of marketing as contradictory opinions may emerge. There is an urgent need to bring the stake holders and partners of the seed industry and government departments for focusing their attention on needs and problems of farmers rather than achieving their individual goals of their respective organizations.