5. SUMMARY AND CONCLUSION

The productivity of mango is very low in Uttar Pradesh with 6.42 tonnes much lower than the national average of 7.14 tonnes, 9.50 tonnes of Karnataka and nearly half of the productivity level of Andhra Pradesh and Bihar. The data of Table 1 reveals that Uttar Pradesh has the great potential in mango production and low productivity is definitely a matter of great concern for the horticultural experts, orchardists and exporters in this region. There appears to be a strong need for a concrete effort to improve mango production and productivity through cultivation practices in Uttar Pradesh (plain region).

Great efforts are needed for augmenting mango production in the country both in quantity and quality if India has to meet the worlds mango demand and mango fruits standards in world market. In order to increase the fruit crop yields the level of adoption of improved package of practices ought to be increased. Adequate knowledge of recommended technologies is a pre-requisite for adoption of any new innovation. There may also be many factors that need to be taken care of when promoting the adoption of improved mango cultivation practices among the orchardists.

The proposed study is excepted to explore the problems coming in the way of adoption of improved mango cultivation practices and export quality standards by the mango grower. An attempts will be made to study the adoption process of improved cultivation practices
in very comprehensive manner along with the present knowledge level of farmers and constraints being faced by them regarding the adoption process.

The importance of promotion of improved mango cultivation practices in enhancing mango production in the study area Western Uttar Pradesh can not be over emphasized. The low productivity levels, lack of concern for export quality standards need to be ameliorated soon for bringing prosperity among the mango growers of the region. This study aims to find out the factors affecting the adoption of improved mango cultivation and processing practices.

It is essential that a scientific investigation, as proposed needs to be done to systematically analyze the present knowledge level of farmers regarding mango cultivation, adoption of improved recommended cultivation practices and the constraints being faced during adoption so that mango production in the region can be accelerated.

The critical inputs required like high yielding mango varieties, proper propagation methods, balance fertilizer management, irrigation practices, plant protection measures, proper harvesting, grading, packing and marketing practices etc. need to be provided with farmers for increased mango production in the region. The present study is planned with an overall objective of finding the adoption of improved mango cultivation practices among orchardists of Western Uttar Pradesh.
One of the major goals of extension is to get new and profitable technologies adopted by the rural community. Adoption is a decision to make full use of an innovation as the best course of action available. An INNOVATION is an idea, practice or object that is received as new by an individual or other unit of adoption. Acceptance is an activity through which an individual becomes aware of events through research and observation.

The present study is planned with an overall objective of studying the extent of adoption of improved mango cultivation practices among orchardists of Western Uttar Pradesh.

The study has following specific objectives:
- To study the background characteristics of mango farmers of the area of study.
- To measure the knowledge level and extent of adoption of orchardists regarding mango cultivation.
- To find out the post harvest processing and marketing practices followed among the orchardists.
- To find out the constraints faced by orchardists regarding adoption of improved cultivation practices.
- To develop a suitable extension strategy for promotion of quality mango cultivation.

This study was conducted to study the adoption of improved mango cultivation practices among orchardists of Western Uttar
Pradesh. A descriptive research design was adopted for the study. In the study, the extent of adoption and knowledge of improved mango cultivation practices along with the constrains faced by orchardists in adoption were measured with help of dependent and independent variables.

SAMPLE SELECTION

The four stage random sampling design was used to select the sample orchardists. At the first stage two mango zones namely Behat and Siyana were selected purposively. At the second stage one community development block from each zone was selected. From Behat zone district Saharanpur and from Siyana zone district Bulandshahr were selected. At the third stage villages from each district and at fourth stage respondents were selected. Ten per cent household of each of the selected village were selected for the study. Thus the sample size was 188 respondents.

TOOL CONSTRUCTION

The precoded structured interview schedule was constructed. It comprised of two section. Section I contained census of Western Uttar Predesh region pertaining to the background characteristics of the orchardists. Section II deals with the detailed information regarding present practices of mango cultivation, knowledge of orchardists regarding orchard management, adoption level of new techniques and constraints faced in adoption of new practices.
CONTENT VALIDITY OF THE TOOL

The instrument was validated prior to its use by seeking the opinions of experts of the field concerned. It was modified in the light of suggestions received.

METHOD OF DATA COLLECTION

Data was collected personally from the orchardists using interview schedule from January, 2002 to July 2002.

ANALYSIS OF DATA

The data was computed by using both descriptive including frequency, percentage and mean as well as relation statistics including X and coefficient correlation. The entire analysis was done on the basis of various variables selected.

BACKGROUND CHARACTERISTICS OF MANGO ORCHARDISTS

The background characteristics of respondents include the personal profile of respondents in terms of their age, marital status and occupation of the respondents, social factors and economic factors.

The results revealed that most of the respondents were middle age group having the age more than 60 years of age. The data depicted that an increasing trend of mango orchardists activity had been observed. As the age group increased numbers of respondents in the category increased. This showed that the experience of age matters a lot in establishing the orchard and its management. The
mean age of the respondents of the study was observed as 58.00 years.

Most of the respondents were married. Out of the total sample 97.34 per cent respondents were married. The description data also revealed that as per the cultural norms of the society every person have to get married. It was also observed as the age increased the risk taking ability of the person also increased. With the support of other family members the extent of adoption of improved practices also increased. Family members also provide the mental support during the period when there were adverse condition like loose in business etc. That was the reason why married persons were more ready to take the initiation and adopt the improved cultivation practices.

All sample respondents were engaged in the activities related to mango orchard management. The type of work was unpaid. All of them were managing their own orchards. They did not work for others. The paid work of orchard management like pruning of trees, application of insecticide and manuring, harvesting, collection of ripe fruits, packaging of fruits etc. were done by labours who did not have their own orchards. These labours were perform the work under the supervision of orchard, owner, on the basis of payment. Unpaid work related to orchard management included only the management part of work like engaging the labours for work.
assigning the work to labours, supervision of labours work, making the payment to labours etc.

In the area of study most of the respondents were belonging to general caste category. Out of the total sample 73.94 per cent respondents were of general caste. The descriptive data revealed that the general class person were having dominance in all type of activities of the village because of being more in number. The low caste category persons did not come together on one platform. This was also observed as one of the main reason due to which the rate of participation of all classes of person is low in training and developmental activities. It was also observed that caste categories were also an important factor affecting the adoption of new and improved techniques of mango cultivation. Higher caste respondents being more in number have a sense of unity and have more assets to new and modified resources.

An approximate equal ratio of nuclear and joint family set up was observed in the locale of study. The descriptive data regarding type of family setup revealed that both type of family sets up were having their own advantages and disadvantages.

In the joint family set up, respondent reported that there was more sense of security. Capacity of respondents of joint family set up increases, which empower them to adopt new and improved mango cultivation techniques. In contrast to this in nuclear family set up the head of the family was more ready to accept the new and
improved technologies. But due to lack of experiences and a small family size the risk taking and bearing capacity was also reported to be low. These respondents reported their full command over decisions regarding mango orchard management but they took more time to take the decision.

In most of the family, 5-8 members were there. The data revealed that more than 80 per cent of families were having the family size more than 4 members in the family. One of the reason for such scenario was that the presence of one male child was considered as essential in the locale of study which ultimately give rise in size of the family. It was also reported by the respondents that it is the mentality of villagers that more the number of persons the family have, more the working hands will be available to earn in the family.

Agriculture was reported as the main occupation by all the respondents of the study. All of them were engaged in agricultural activities as the main source of their income. Subsidiary occupations were mainly found in joint families where other family member were having their own occupation through which they also supplement the family income. Mostly poultry keeping, livestock management, service, business, arts man or crafts man were induced as subsidiary occupation. The descriptive data showed that along with mango orchard management, respondents also do mixed cropping in which poultry and livestock is one component. They also reported that
managing the family demands only with the earning from orchard was not possible so adoption of supplementary occupation was felt as a need of family. It was also observed and reported by respondent that among the respondents who were having additional subsidiary occupation the extent of adoption of improved mango cultivation practices was higher.

The education status of the respondents of study was not good. Though the number of illiterate person was found low, the status of education was also observed low. The reason behind such a scenario was reported by respondents was the mental status of the respondents. Most of the respondents were not able to justify the significance of higher education in mango cultivation. They reported that it was not the educational qualification, but the experience and hard work in field which matters a lot in mango cultivation.

It was also observed that those respondents who were having the higher educational status upto a intermediate wanted to do the job in the offices they were reported that because they had not got the job in urban areas, they have to engage themselves in orchard management.

Organizational membership was taken as a social factor affecting the orchard management. It links to an individual to the larger society and emposes one to a variety of ideas. The overall picture showed very poor social organizational participation of the respondents. Among the total sample, 135 respondents (71.81%)
were not having any type of membership of any formal or informal organization.

Land holding of the respondents was studied as an economic factor affecting to the orchard management. The data showed that most of the respondents were having more than one acre of land.

Type of house is one of the indicators of level of living standard. It is therefore, this had been included as an economic factor in the study. The data of Table 11, regarding this showed that most of the respondents (90.96%) possessed pucca house of concrete.

It was observed that though quantitatively there was no shortage of houses but qualitatively the houses were not adequately planned as per the house planning principles. The reason for this was reported by respondents that there annual income profile did not permit them to plan the whole house construction at one time. As the income comes in the family, the required modification and construction of house in steps took place.

Animal herd ownership was observed to have positive association with the adoption of improved technology for dairy and mixed farming. Due to large herd size, animals rearing was also an extra sources of family income. As the financial back bone of these orchardists were strong, they were easily ready to take risk for adopting new and improved practices of mango cultivation along with dairying.
Most of the respondents (120) were having a pucca dwelling for animals. The descriptive data related with the ownership of farm assets revealed that more than 90 per cent of orchardists were having low category of farm assets. High category of farm assets were owned by 23.40 per cent orchardists. Most of the respondents were use to get heavy implements like tractor and tiller, thresher, winnower, zero tillage and seed drill etc. on rent when and where they required it. The data also showed that very few respondents were having their own farm assets. They also reported that such owned farm assets were also given on rent by them for the use of others.

Most commonly the respondents were having the ownership of tractor, tiller, patella, engine and pumping set, but the percentage of respondents owning these farm assets on the whole was very low ranging between 23 to 29 per cent respondents only other farm assets like zero tillage/seed drill, winnower, sprayer, thresher etc. were possessed by one to 20 respondents only. Getting the farm assets on rent basis for use was the common trend observed in the area of study. Most of the respondents were having all the household assets included in the study. More than 83 per cent respondents were having the ownership of sanitary latrin, improved grain storage facilities, hand pump, water tap and modern furniture. The use of bio gas plants was observed very less.
Means of communications included newspapers, magazines, radio, television etc. These were the things through which people get information about the new things happening in the society. It was also found to be associated with the adoption practices of the respondents because adoption of new practices was reported to be dependent on mass media exposure of respondents.

Cycle was most common means of transportation possessed by 79.26 per cent of orchardists. Two wheelers were possessed by 99 respondents constituting 52.66 per cent of the sample.

It was observed that as the size of land holding increases, the possession of means of transportation moves from simple to heavier one. It was also reported by respondents that possession of any kind of means of transportation make the respondent mobility. Due to this case in mobility respondents got wider exposure in the society which motivated them to adopt new changes of technologies very easily.

**KNOWLEDGE LEVEL AND EXTENT OF ADOPTION OF IMPROVED MANGO CULTIVATION PRACTICES**

**Knowledge level of orchardists regarding improved mango cultivation practices**

Adequate knowledge of recommended new and improved technologies is a pre-requisite for adoption of any new innovation. Most of respondents partially know about the high yielding varieties of mango. It was concluded with the help of descriptive data of block Siyana that Dashahari, Langra, Chausa, Fazali, Ratoli and Ramkela etc. were the more commonly used varieties of mango. The
respondents of this village reported that they did not replace the tree unless and until it dies. When the new tree was planted the attention was also given on the new varieties. But only those varieties were planted which had already been tested for its productivity.

In contrast to this the respondents of block Sadauli Kadeem, only planted Dashehari, Langra and Chausa. Some of the respondents had also planted Gulab Jamun, Maldah and some other local varieties in their orchards.

The respondents of this block reported that they did not prefer to plant a new and improved variety of mango for orchard planting without testing of its productivity.

The descriptive data showed that throughout the area of study Langra, Dashahari and Chausa varieties were the commonly grown varieties of mango for plantation. These varieties were also called as high yielding varieties in these areas, it is therefore they did not enquire for other new varieties. That was the reason due to which most of the orchardists were partially aware of other high yielding varieties.

In the area of study the actual method of nursery production was not known to most of the orchardists (73.93%). These respondents follow the second method of nursery procurement. They purchase the plants of the mango from the professional nursery growers as and when needed. Some orchardists also reported that even the method of nursery growing is fully known to them, they still
purchase the nursery plants from the market. The reason for this as they reported was that preparation of nursery at their own field need much time and cost as compare to the cost of nursery plant from the market. Along with this nursery preparation also took much time and engages the land for more time. So it becomes economically more costly than the cost of nursery plant in the market.

The correct method of land preparation for orchard growing was only fully known to 9.57 per cent respondents. On the other hand 6.38 per cent respondents reported that they did not know the method of land preparation for orchard plantation.

Most of the respondents just dig the pit in the field, do the plantation and irrigate the plant as per the traditional method. There were very less respondents (9.57%) who were following the correct method of land preparation. All those respondents who fully know the correct method of land preparation for orchard plantation, follow the method carefully. That as the group only who showed their interest in learning the improved techniques of land preparation. The reason for this positive attitude towards learning as reported by respondents was the proper knowledge of merits regarding the improved techniques of land preparation.

The overall knowledge level of respondents regarding the land preparation was poor. The knowledge level regarding proper propagation method was also observed very low. These respondents even did not know that there were other new and improved
techniques for propagation of plants in orchard. These respondents were following the days old traditional propagation method under which they do the planting according to their own experience and estimates.

The knowledge level regarding the plant to plant distance was quite satisfactory. Most of the respondents reported that plant to plant distance varies according to the variety of plant. In the old orchards the trees of Dashahari variety were planted at a distant of 8-10 meters from plant to plant. The distant between plant to plant in new orchards had been increased and orchardists were now doing plantation at an average plant to plant distance of 12 Mt. The plant to plant distance was observed different for other varieties of mango trees in orchards. Most of the respondents reported that they just replace the tree when it died. So there was no need to consider the plant to plant distance. The descriptive data regarding knowledge level of respondents concerning plant to plant distance showed that most of the respondents who were planting new orchards were giving proper consideration on this distance and following the new techniques of proper plantation. Regarding row to row distance in mango orchards, the data showed the similar results as regarding plant to plant distance.

The knowledge level of orchardists regarding fertilizer management was observed and analyzed as low. Fertilizer management practices were different in different blocks under study.
In the block Sadouli Kadeem 10-15% orchardists apply 1-2 quintal of dung manure per second or third year per tree. Some of the orchardists used to apply about 30-50 kg dung manure or compost per third year per tree in the month of September-October.

In the block Siyana the fertilizer management was different some of the respondents used to apply 15-20 kg to 50-60 kg dung manure or compost per third year to those trees which were expected to provide fruits. The fertilizer was applied during the months of August to October. In this block 50 per cent of the orchardists did the fertilizer management with the help of only mixed crops. They did not apply any extra fertilizer. In the area of study the good irrigation facilities were available. Most of the orchardists were having their own water pumps. But the knowledge regarding the time of irrigation, quantity of water to be applied and the procedure of irrigation was not known to most of the respondents. One irrigation in orchard was done in the month of November and the other was done once in every month from February to May. Irrigation was also done in the months of December-January in the orchards with small trees to save them from cold and frost. Most of the respondents reported that they apply the water on the orchards according to their experience only. They were not having any scientific knowledge about time of irrigation, quantity needed and way of irrigation.

Plant protection measures was not known to most of the respondents (48.40%). Most of the orchardists follow traditional
methods to protect the plants. To protect the small plants of mango orchardists did irrigation during the month of December-January. They also made the shed of dry grass and straws over the small plants during the winter season. Boundary of thorny wood was also made around the plant to protect it from the animals and cattles.

It was observed and also reported by two orchardists that most of the orchards had been given on contract for the year of their fruiting. This contract had been finalized in the starting of the fruiting year so all the care of the orchards had been done by the contractor themselves. This way of orchard management had been followed by about 99 per cent orchardists. The contractors were illiterate or low educated. Due to this they were not having any scientific knowledge regarding pesticides to be used for plant protection.

Most of the time the contractor had to wait for the presence of the disease than they applied the cure. Due to low knowledge level regarding plant protection measures contractors and orchardists were not able to make the plan of pesticide management. They were also not able to apply the protective measures rather they had to depend upon the measures to cure the disease.

The knowledge level regarding proper harvesting time of mangoes were observed as excellent. The proper harvesting time for different varieties of mangoes were fully known to 76.60 per cent.
orchardists whereas it was partially known to 14.36 per cent orchardists.

The harvesting time of mango had been decided by the orchardists in various ways. Most of the orchardists had been standardized the method based on their long years experiences. They reported that after the first rain when one or two fruits fall itself on the ground it indicated that fruits had ripen and it was the proper time of harvesting. Most of the orchardists used to do the harvesting by hand or by a wooden stick only. They did not use any harvester to pluck the ripen/unripen fruits from the mango trees. Orchardists reported to use ‘Patangi/Dangi’ to also pluck the mangoes. This Patangi/Dangi was prepared by weaving sutli or thread on the wooden stick. This Patangi/Dangi was the most commonly used equipment for harvesting of ripen mangoes.

The knowledge level of orchardists regarding weeding and hoeing time was quite satisfactory. Weeding and hoeing in mango orchards had been done from the month of July to December-January by the orchardists thrice or four times. The average depth of weeding and hoeing was 5-6 inches and it was mostly done by harrow, cultivators and tractors.

The knowledge level regarding inter cropping in mango orchards was very low. Most of the orchardists even did not know that mixed/inter cropping can be done in mango orchards.
Some of the orchardists reported that they used to take the crops of paddy, wheat, chari, sugarcane, potato and barseem only when the mango trees were small. Because of these inter crops various pest problems occurred in the mango orchards which harm to mango trees. Due to low level of scientific knowledge regarding mixed cropping and proper pest management, most of the orchardists did not follow any inter cropping pattern in mango orchards.

The time of cutting and shaping of plant was fully known to only 26.60 per cent orchardists whereas it was partially known to 63.30 per cent orchardists. The knowledge level of orchardists regarding procedure level of cutting and shaping the plant was also very low.

Orchardists also did not apply any anti bacterial/fungicide solution over the cutten parts of the branches. Most of the work of cutting and shaping of branches had been done manually only and it was done during the months of July-August only. Some of the orchardists also reported that they do top-cutting of the mango trees. On the whole it was reported that the proper scientific knowledge of cutting and shaping was not with the orchardists. They did not cut the branches of tree in any specific shape.

Use of chemicals/fertilizers for proper fruiting and controlled growth of the plant was the phenomenon which was fully known to only 6.38 per cent respondents. It was observed that in the
Saharanpur zone of mango production, urea was not used but most of the orchardists of Bulandshahr zone reported to use urea for regulating the plant growth. Regarding the use of urea as growth regulator/fertilizer, the orchardists of Bulandshahr told that more diseases and more pests were there due to use of urea on the trees. It was also reported by the orchardists of Bulandshahr zone that due to use of Nitrogen in form of urea, a disease named Gammosis was observed, the quality of fruit was deteriorated and the colour of fruit remains green. Because of all these the prices of such fruits become low in market.

On the whole it was observed that the scientific knowledge regarding the use of chemicals/fertilizer for proper fruiting and controlled growth of the plant was very low in the area of study. More than 90 per cent of the orchardists use one or more chemicals/fertilizer as plant growth regulator but they did not know

The correct proportion of mixing various chemical to make the good solution, proper time of applying it, correct way of applying it and appropriate quantity in which it has to be applied were not known to the orchardists. These were the main reasons as reported by most of the orchardists, responsible for low productivity of high quality fruit in these zones.

**Extant of adoption of improved mango cultivation technologies by orchardists**

The adoption of new and improved techniques of mango cultivation was very less in the whole of study area. Most of the respondents reported that all the work of orchard management was
done in the traditional style only. Due to lack of knowledge and awareness regarding new practices of orchard management, no orchardists was following them. Most of the respondent leases out their orchards for two fruiting year and after than the management of orchard was done by the contractors only. Once the orchardists gave the orchard to the contractor, they did not have any further say in the decision making regarding orchard management.

**POST HARVEST PROCESSING AND MARKETING PRACTICES FOLLOWED AMONG ORCHARDISTS**

Post harvest care of plant included all the care and maintenance of mango tree after the harvesting of the fruit. The knowledge level of the orchardists regarding appropriate scientific post harvest care of mango trees was very low.

Most of the orchardists cut the long branches those were turned towards the ground and create problem in the movement of the tractor as the post harvest work of orchard management. After the harvesting of ripen fruit, orchardists did the ploughing of the ground. Use of chemical and fertilizer was done at a small scale in the Bulandshahr zone. Some of the orchardists also did top cutting of mango trees as a post harvest activity of orchard management.

Another reason for the poor post harvest care of mango orchard was that most of the care of mango orchard were leased out for two fruiting year to the contractor. After harvesting the fruits the contractor became least bothered about the post harvest care of the
orchard. They did not apply any post harvest measures. Most of the contractors are illiterate. They even did not know that some kind of post harvest care is essential for the proper maintenance of the mango orchard.

The knowledge level of mango orchardists regarding storage of fruit just after harvesting was very poor. The packing of fruits for short distance was different as that of for the long distances. As for the knowledge level of the orchardists was concerned, the data revealed that only 2.13 per cent respondents were reported to the fully known regarding the knowledge of packing the fruits. The knowledge of packing the fruits for short as well as long distances was completely lacking in 60.64 per cent of the respondents.

After harvesting mangoes were graded as A grade, B grade or C grade etc. the procedure of grading is a physical procedure which was found to be known to only 1.60 per cent respondents whereas 51.06 per cent respondents were reported to be partially known with this procedure.

Open/loose packing was mostly done for the ripen fruit and these were sent to local short distance markets only. For loose packing ripen fruits were graded according to their size, colour, odor and shape. Graded fruits were then packed separately in the wooden carton called peti. Waste news paper was first placed in the peti then fruits were kept in it and packed loosely. After this these peties were sent to local market or mango mandies for sale.
Semi-ripe hard fruits were sorted and these were packed tightly for exporting in long distances. These fruits were also graded on the basis of their qualities like colour, shape, size and appearance. Then graded groups of fruits were packed separately for export. The packing was done in the new wooden peties. Now papers were used to pack the fruits. Some time when the fruit had to export to a very long distance, each fruit was first rapped in paper than it was placed in the peti. After this the peti was packed tightly and exported to far away places.

The knowledge level of the orchardists regarding marketing procedure was very low. The reason behind it was that before fruiting, in the beginning of the year i.e. just after flowering of the trees, the orchards had been sold to contractor. After this all the care and orchard management had been done by the contractor.

The marketing facilities were not very good in the zone. Big merchants and contractors cheat the smaller orchardists. Due to the more production and poor storage facilities along with low level of knowledge regarding mango orchard management, the smaller orchardists were not getting a good price of their product. The prices were mostly finalized by big merchants of mango because there was no Government rate of mangoes. As well as no Government purchase centre had been made for mangoes like other crops of wheat, sugarcane, paddy etc. They also told that there was no open prices of
mango in the market due to which orchardists did not able to know the prevailing rates in the market.

The knowledge level of orchardists regarding the assessment of maturity of fruits for harvesting was quite satisfactory.

The post harvest processing of ripen fruits had not been done in the area of study at commercial level. Ripen fruits were only sold at local market on the prevailing prices. At the house hold level some traditional processing of ripen fruits were done. Some of the area puri of mango had been prepared and dried in sun. In this way the ripen fruits which could not be stored for longer period can be used.

Raw fruits were used to make different pickles at commercial level also. These pickles were exported to other parts of the country. Along with this raw mango fruits were also used to make mango powder and thus also used as a commercial way.

Other than these processing and preparation, respondents were not having any other knowledge regarding to use the excess production. The scientific skill of preparing mango squash, mango jam, jelly etc. were not known to local people so they were not able to use the production of fruits in a better way.

**CONSIDRANTS FACED BY MANGO ORCHARDISTS IN ADOPTION OF IMPROVED CULTIVATION PRACTICES**

On the basis of data gathered regarding extent of adoption of improved mango cultivation practices by mango orchardists low level of educational status was reported to be major problems being faced
various soil constituent. All the respondents apply the fertilizers without soil testing. Due to this the accurate and good results were not obtained by their. Fruit quality testing laboratories were also not there at the village level. Due to this orchardists faces difficulties in analyzing the deficiency of micronutrient in the soil because of which the quality of fruit becomes low.

Poor information technology was also reported as another problem being faced by more than 60 per cent of the orchardists. In the area of study, their was no place like Farmer’s information centre or other from where the orchardists can get the information about new innovations in the field of improved farm management and clarify their doubts. Orchardists also reported that there was no group of extension work’s or any other qualified persons who can provide the scientific knowledge regarding new and improved high yielding varieties, proper ways and means to do better crop management, knowledge regarding disease and pests identification and their control measures etc.

Another major problem as reported by more than 53 per cent respondents was the lack of confidence to accept the new practices of mango cultivation. It was reported by the orchardists that the proper and systematic information along with advantages and disadvantages of any new practice was not told to them.

The orchardists reported that due to involvement of more risk in the adoption of new techniques the adoption level was reported to
be low. Some of the orchardists (16.49%) reported that non
availability of tools was also among one of the constraints which were
being faced by orchardists.

Respondents reported that lack of confidence to accept the new
practice was one of the constraint which lead to low level of adoption.
Lack of awareness regarding improved mango cultivation practices
was also one of the reason for low adoption of new techniques.
Because of low awareness about improved practices, orchardists
would not be able to get sufficient information and built the
confidence to adopt new techniques. Lack of awareness was reported
by more than three fourth of the total orchardists.

Poor marketing channel was reported to be one of major
constraint by 78.19 per cent respondents. They reported that the
marketing channel in the area for mangoes was very poor. Mango
markets were also not under the control of any marketing union.
Government do not take any step to improve the marketing channel
of mangoes. Rates of the mangoes were not given by Government like
other cash crops i.e. wheat, paddy, sugarcane etc. Due to this the
middle man or the big contractors of mango control and regulate the
rates of mango. There were no fixed norms of mango markets in the
area. Rates were not decided by open pricing and most of the small
orchardists have to accepts the rates decided by big orchardists.

Mango orchardists reported that old traditional ways of
packaging of mango fruits was also an constraint being faced by
orchardists. Due to improper packaging of the mango fruits orchardists face a lot of problems in storage and long distance transportation of mango fruits. The fruit losses was high due to poor packing of fruits.

Ripen mango fruit is having a very short shelf life. This was also a constraint, which was reported by 65.96 per cent of respondents. Due to short shelf life, ripen mangoes can not be stored for a longer period of time. Along with this most of the orchardists were not having the knowledge of any scientific measures which can enhance the shelf life of the fruits.

Some of the orchardists also reported that lack of sufficient space for storage of fruits was also one of the constraint being faced by orchardists.

Most of the orchardists reported that they were not having any information centre from where they can get the information regarding the pest control and management. In the area of study the problem of mangoes becoming black was most common. Orchardists were not having clear idea about this problem. They reported that the cure of above problem was done with the common pesticide which most of the time did not control the problem at once and a big losses have to be born by the orchardists.

Along with this orchardists also reported that duplicate chemicals and pesticides were also available in the markets.
Producers of mango fruit also reported that lack of training centre regarding the various uses of ripen mango fruit was a major constraint. There was no information and training centre at village level from where such information could be obtained and used.

Most of the orchardists also reported that along with the problem of training for qualitative production they were also the problem of getting financial aid and for investing at the time adoption of new techniques.

The overall ranking of various constraints as reported by orchardists reveals that lack of information about the intercropping has been perceived the most common constraint and ranked I. The lack of testing laboratory was in the constraint rank II followed by poor marketing channel as constraint which has been ranked as III.

An attempt was made by the researcher to systematically prepare a schedule of information which can be given to farmers through various extension teaching aids. Lack of education was identified as a major constraint in qualitative mango production. It is therefore, suggested that extension workers should organize the orchardists in different groups. They should plan for an education plan for the villages so that they can be motivated towards they education. Extension works through group discussing, exhibiting etc. can motivate the villages for education.

After the education the need was felt for scientific information regarding mango cultivation. Leaflets, information bulletins, charts.
posters containing the required scientific knowledge can be prepared and made available to the orchardists. They can also use various audio visual aids like documentary films, slides for providing the information in a better interesting way.

The whole mango orchard management demands for finance also, orchardists can be informed by extension persons regarding various schemes through which they can get help for financial investment.

To provide the information of getting financial help from the banks and other financing organizations a visit of such organizations can be planned by extension works as a part of their responsibility.

The information and knowledge regarding improved tools and implements can be provided by the running demonstration of such implements. At the time of demonstration orchardists should also be encouraged to participate in it. This will make them to understand that the technology is also suitable for them.

Extension works should plan time to time visit of the orchards of the village and needed information should be provided on the spot to the orchardists. They should tell to orchardists the identification of various diseases of mango and their immediate care. The strategy for providing this information should be “On the spot survey of the orchard”. Extension workers can support this strategy with other aids like photographs of pest causing the disease, life cycle of pest, result of disease on mango etc.
RECOMMENDATIONS OF THE STUDY

Keeping in view the potential possibilities of mango production development in the area of Western Uttar Pradesh, proportionate allocation of funds in different programme/schemes is needed to give impetus to mango cultivation development.

Straightening of database with respect to area, production and productivity of mango crop should be considered as an important thrust area. Transfer of improved technology has been identified as one of the major constraints in improving productivity and quality. Using participating rural appraisal techniques even ITKs developed by experts can be replicated on the orchards of the respondents and simultaneously scientific recommendations can also be amalgamated for the benefit of the farmers.

Post-harvest management and marketing is prime need to minimize the losses. Assistance for creation of post-harvest infrastructure can be helpful in this direction.

Extension agencies need to adopt mass media for creating awareness about improved package of practices of mango cultivation, build confidence among farmers through short duration training courses and group discussions monitored by subject matter specialist.