Strategy for improving farm mechanization in groundnut

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Groundnut is an important oil seed crop in India cultivated in an area of 6.7 million hectares with a production of 7.0 million tonnes annually. Andhra Pradesh state shares about 1/3rd of groundnut area of the country and occupies 3rd place in production contributing 18.81 percent of production in the country. In Andhra Pradesh, Chittoor district ranks second in the area and production of groundnut with 1,89,000 hectares and 1,31,000 tonnes respectively. The productivity of groundnut in the district was 2696 kgs per hectare under irrigation while it was 611 kgs per hectare under rainfed conditions. (2008-09).

Traditional methods of field operations require huge number of labour and more time, ultimately lead to increase in cost of cultivation. Acute shortage of labour is experienced now-a-days during field operations due to increased industrialization and other opportunities for labour like migration of labour to urban areas for better-paid employment coupled with policy changes like implementation of MGNREGA has made a profound impact on labour availability in the rural areas (Gupta and Sidhartha, 2011).

To overcome the shortage of labour and to perform the field operations at right time and to take the advantage of favorable climatic conditions, the farmers can go for farm mechanization by the use of efficient and improved tools, equipment and machines suitable to the soil conditions for groundnut crop cultivation. ‘Farm mechanization’ implies the use of various power sources and improved farm tools and equipment, with a view to reduce the drudgery of the human beings and draught animals, enhance the cropping intensity, precision and timelines of efficiency of utilization of various crop inputs and reduce the losses at different stages of crop production.

Therefore there is a greater need to adopt new farm machinery or to improve the existing farm machinery in groundnut cultivation. For every cultural operation under groundnut, the scientists have developed different farm implements but their reach into the farming communities was found to be very sparse.

Hence, the present study gives insight into the profile characteristics, extent of awareness, knowledge and adoption of different farm machinery by the farming community in groundnut cultivation. This study proposes a strategy in which the roles of stakeholders were vividly defined for the promotion of farm mechanization among the farming community.

The present study was conducted in Chittoor district of Andhra pradesh and sample was pooled from twelve villages in four mandals selected purposively. From each mandal a total of 10 respondents were selected randomly who were cultivating...
groundnut for past three seasons. In this manner a total of 120 groundnut farmers were selected and interviewed through a well-structured interview schedule developed for the study in consultation with the experts of ANGRAU.

Average percentage of extent of awareness in groundnut:

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<tr>
<th>Total Percentage of Extent of Awareness</th>
<th>Total Number of Recommended Implements</th>
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Average percentage of extent of knowledge in groundnut:

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Average percentage of extent of adoption in groundnut:

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The present study revealed that more than half of the groundnut farmers belonged to middle age category, middle school to college level education, small farmers with 2.5 to 5 acres of dry land or 1 to 2 acres of wet land with medium levels of material possession, mass media consumption, risk orientation, social contact, scientific orientation and with medium to high level of extension contact with regard to profile characteristics. In relation to dependent variables levels average percentage of extent of awareness, knowledge and adoption of farm mechanization in groundnut were 54.59, 32.43 and 15.02 respectively.

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<tr>
<th>Average Percentage of Farm Mechanization In Groundnut</th>
<th>Extent of Awareness</th>
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Role of stakeholders in effective improvement and implementation of farm mechanization in groundnut

RESEARCHERS

Need for refinement of existing implements

Great contributions were made by the researchers to design suitable implements for different operations in groundnut cultivation. Even though there were thirty three implements recommended for groundnut, as per the perception of the farmers, there is a need for slight modification in terms of refinement for effective utilization of some of the implements. They should be thoroughly analyzed with the integrated involvement of researchers, extension functionaries and farmers. The practicability of the implement under field situation can also be studied for its effective adoption.

Designing low cost implements
Due to intensified efforts on mechanization during the recent past, the cost of implements also became very high. This obviates the farmers to adopt the same implement due to its high cost. The implement was not in the reach of the majority of the farmers in terms of its cost. Hence, it is also equally important to design the low cost implements which will facilitate the majority of the farmers to purchase the implements. Through which the number of implements can also be increased among the groundnut farmers. This facilitates in getting spare parts at low cost and less service charges towards the repairs to the implements. This also results in reducing the maintenance charges of the implement.

**Priority to small and marginal farmers**

Greater the size of the implement, had less scope to operate under limited land holding. Under the small holding situations, heavy machinery may not be compatible due to improper coverage at the field margins. Under Indian conditions, more than 85 per cent of the farmers were small and marginal with poor socio-economic status and small land holding; hence it is imperative to concentrate on designing implements suitable to small holdings which will facilitate the small and marginal farmers to utilize the farm machinery in their fields.

**Concentration on tractor / Power tiller drawn implements**

In the present mechanized world, the usage of tractors and power tiller is burgeoning. Due to high horse power, the work is getting more rapid and qualitative. This will encourage the towards farm mechanization due to its significant difference over the manual or bullock drawn implements. Hence, there is every need to design more of tractor / power tiller drawn implements so as to take up agricultural operations more effectively.

**Concept of seed to seed farm mechanization**

The present agricultural scenario oriented towards reducing the man power at different farm operation with the limited skilled labour. Each operation can be taken up with suitable machinery. Hence, the necessary efforts should be made by focusing on seed to seed mechanism in groundnut. This strategy facilitates the farmer in taking up his farm operation quickly with high quality and less labour requirement. The implements need to be designed in such a way that they can be utilized for multipurpose operations.

**EXTENSION FUNCTIONARIES**

**Identification of priority areas**

The extension functionaries must throw light on identification of priority areas for designing suitable implements to different farming operations in groundnut. With the help of participatory rural appraisal techniques, brain storming sessions, group discussions etc. the requirement of different farm machinery needs to be assessed. The SWOT analysis of the existing implements will explore the scope for invention of suitable implements. The same analysis has to be fed to the researchers for taking up need based research on farm mechanization.

**Creating awareness**

Some of the existing farm implements were not been popular among the farming community. Lack of awareness was found to be major setback for the implements. Hence there is every need to create awareness among the farming community with regard to recommended farm machinery in groundnut. The extension activities like
campaigns and exhibitions need to be organized regularly so as to reach the farmers. This facilitates in effective adoption of farm machinery in groundnut.

**Capacity building programmes**

Improving knowledge is the prime role of any extension functionary to achieve success in transfer of technology. The proper method and combination of different extension teaching methods leads to effective transfer of technology. Capacity building is the critical area for farm mechanization as it involves skill component. Hence, the extension functionaries must concentrate on conducting skill teaching, method demonstrations, result demonstrations and exposure visits, so that the farmer can get acquaintance and confidence with the implement.

**Establishing service centers**

Regular wear and tear is the major problem for any implement it requires service and repair at appropriate time, so as to continue the usage of the implement by the farmers. Establishing service centers at village level will become the best solution for the above problem. To establish these centers for different farm machinery, rural youth needs to be encouraged. The rural youth needs to be properly trained by imparting knowledge and skills about different farm machinery in groundnut. This will also serve as a self-employment opportunity for un-employed rural youth.

**Documentation and publication of promotional activities**

The extension activities organized for the promotion of farm mechanization needs to be documented properly and the same activity must be published through different mass media sources such as radio, television, newspapers and also farm magazine. This activity will help in speedy dissemination of technologies among the groundnut farmers. The documentation and publication will help in building confidence about the performance of the implement among the farmers and also the extension functionaries. Hence priority must be given for proper documentation and effective publicity of different promotional activities.

**POLICY MAKERS**

**Proportionate subsidies**

Majority of the farmers expressed that the government should support the farming community by providing subsidies for implements. Priority should be given to the costly equipment which requires lot of investment by the farmers. Maximum subsidy may be provided to the different implements depending on the importance of the operation and its extent of spread among the farmers. Subsidies may also be extended to the spare parts, as they are going to continue the usage of implement for long period by the farmers.

**Custom hiring centers**

It is not possible for majority of the farmers to purchase all the implements for groundnut cultivation. On the other side, costly equipment requires heavy investment by the farmers. Hence, custom hiring centers can be established in each village, so that all the farmers can avail the facility of using different implements. It also provides opportunity for providing self-employment to rural youth by establishing custom hiring centers. This strategy helps in increasing the adoption rate of all farm implements by the entire farming community of a village. Hence, priority should be given establishing Custom hiring centers in the villages. Necessary funds should be allotted to the
establishment of these centers for machinery and other infrastructural facilities.

**Linkage between research/extension /farmer/banker**

It is imperative to integrate the researchers/ extension functionaries/ farmers and also bankers to design an effective strategy for farm machinery in groundnut cultivation. From need assessment to final adoption of a specific technology comprises many of the steps which may be influenced by the perception of researchers/ extension functionaries/bankers and ultimately the farming community. If the chain breaks at any point of time, the efforts of the entire will be fulfilled. Hence, there is every need to involve all these stake holders in designing the strategy for innovation and promotion farm machinery in groundnut.

**Encourage entrepreneurship**

The other angle of the designing the strategy for innovation and promotion farm machinery in groundnut is manufacturing of machinery. Even though this sector is completely different from farming, plays vital role for agricultural development. The entrepreneurs of farm machinery needs to be encouraged by way of providing facilities, special packages and other basic amenities required for efficient running of enterprises. Proper tie up needs to be arranged for lucrative business.

**Promotion of bank loans**

Investment is the basic limitation for owning any implement for most of the farmers. Many of the implements were not been popular due to lack of affordability to purchase the implement by the farmer. Hence, there is every need to support the farmer by way of arranging bank loans for purchase of implements. Special packages for implement purchase may be designed to the farmers. The necessary steps towards strengthening the linkage between the manufacturers, distributers, bankers and farmers may be made for proper utilization of bank loans.

**FARMERS**

**Be Innovative in adopting farm machinery**

Innovation is the sprout for growth and development of any discipline. The farmer always be attentive in seeking the latest implement which may change their style of farming. Any implement will have its own way of functioning which will facilitate the farmer in reducing the drudgery, saving time, improves the quality of work and ultimately leading to improved efficiency. Hence, the farmer must be always innovative in seeking latest farm machinery.

**Participation in extension programmes**

Extension is the means for transfer of technology. Every technology will have its own set of characteristic features through which, suitable extension methods will be selected by extension personnel. The primary duty of the farmers is to participate and encourage the participation of fellow farmers in the extension activities/ programmes organized by researchers/ extension functionaries, so as to get aware and acquaint the latest know-how of the different implements.

**Qualitative feedback**

The qualitative feedback paves the way for seed to seed farm mechanization. The farmers are the real performance disclosers of any technology. Hence, all the farmers must observe the performance of each implement in terms of its strengths/
weaknesses/ opportunities/ threats and convey their observations to the scientists. This process helps in creative thinking on part of the farmer and in turn leads to invention of suitable implements. They must also think from the angle of future developments in the light of existing farm machinery.

**Share the success with fellow farmers**

Any technology requires popularization among farming community. It reflects the strength of the technology. The strength of technology can be assessed through its success among the farmers. The responsibility of each farmer is to share the success of innovative implements among the fellow farmers, so that it can be further disseminated in the society. This process can be performed through interactions with fellow farmers, radio talks, Television programmes, print media and the other scientific forums.

**Farm machinery fraternities**

Group dynamics play a vital role in transfer of technology. Any activity can be hastened up through the active participation and encouragement of the members of the society. The farmers must have inclination towards interdependence which strengthens the co-operative spirit among the group members. Hence, the farmers must look forward for formation of fraternities, which helps in improving the positive attitude towards innovation and its adoption. The farm machinery in groundnut can be disseminated effectively among the group members.

**CONCLUSION**

Overall, the farm mechanization was found to be very sparse in each operation and there is ample scope for improving the farm mechanization status in groundnut cultivation. The ultimate goal is to bring out seed to seed farm mechanization so as to enable groundnut cultivation more lucrative. The strategies for different stakeholders as projected in the paper will certainly contribute for the improvement of farm mechanization in groundnut.

**REFERENCES**


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