Effective Extension Approach - Front Line Demonstration on Transfer of Groundnut production Technologies in Vellore District of Tamil Nadu.

P. Sumathi, Professor (Agrl. Extension), Department of Agrl. Extension and Rural Sociology, TNAU, Coimbatore, India.

Abstract

In Vellore district, Groundnut is a major oilseed crop cultivated under rainfed areas. KVK, Vellore had centrally sponsored scheme on oilseeds production and conducted 45 demotions in the farmers fields on the Groundnut production technologies to transfer the latest technologies among the farmers of Vellore district. The findings in respect of groundnut over all yield trend of demonstrations ranged from 10.5 q/ha to 15.5 q/ha and yield increase ranged from 21.73% to 44.44% over the local practices yield. Obviously, this can be attributed to improved technology as well as improved varieties. The yield levels were considerably low under local practices because of considerable variations in the adoption of recommended package of practices depending upon the amount of risk involved in terms of cost, convenience, skill and knowledge about the concerned practice. The yield was before over practice under demonstrations.

Key words: Groundnut production technologies, participatory rural appraisal, field day, socio economic status, knowledge, front line demonstration, yield, perception and adoption.
1. Introduction

Indian agriculture is being described even today as a gamble in the monsoon; centre 30 years ago, India’s agricultural destiny was linked closely to the annual precipitation pattern. It is only after the emphasis given post-independence to developing red irrigation facilities that same degree of stability came to food security. Drought is a natural recurring climatic feature which originated from lack of rainfall over an extended period of time. In a large country like India, drought cannot be prevented totally but its impact on the community at large can be minimized. In India, drought essentially occurs due to failure of SWM (June-September). Due to the continuous drift in a monsoon and poor water table much of the farming has turned into rainfed in India over years. In these rainfed zones, groundnut and pulses are the main crops under cultivation. Groundnut being a introduced crop into India during mid nineteenth century has been part of life of the rain fed farmers inception its inception. Due to traditional way of farming its yield is reducing at a faster rate and the monsoon failure also accounts for it.

2. Details of the Operational Area

Vellore district is one among the 31 district in Tamil Nadu but with rich nurturing historical background since time past and lies between 12°15’ to 13°15 North latitudes and 78° 20’ to 79°50’ East longitude. The is primarily agrarian with majority of its population involved in Agriculture and Agriculture based enterprises. The total geographical area of this district is 6.077 sq.Km and the predominant soil type is Sandy loam. The climate is typical semi and tropical and the average rainfall is 971.10 m.m. The district consists of nine taluk. The chief food grains cultivated are paddy, groundnut, redgram, greengram, blackgram, chom and Ragi. “Groundnut and pulse farms the principal crop of Vellore district. Out of the total cropping area of 2, 21,869 hectares, groundnut alone is cultivated in an area 59,79 hectares mainly under reinfed condition. Groundnut is cultivated during khaif Rabi Season. The productivity of groundnut in Vellore district is meager (2475 kg per hector) and mostly local and outdated Varieties are cultivated. The important groundnut cultivation grown in Vellore district are TMV-7 and JL-24.

The chief constraint identified cultivation at Vellore district is non-availability of short duration, high yielding groundnut cultivars. Farmers access to procure drought tolerant, short duration and HYV seed materials particularly during the peak sowing season remains always scarce and majority of the farmers procure seed materials from local merchants and whole sale traders that exhibits poor germination, poor establishment rate (field stand), increased impurity and ultimate reduction. Hence, timely supply of improved, quality seed material (TMV 13 and CO (Gn) 5) particularly during cropping period will be of paramount importance. In Vellore district, resurgence of available soil moisture is a very serious
constraint during the cropping period due to the frequent monsoon failure/delayed monsoon set.

In Vellore district, farmers undertake shelling operation manually and this practice is highly labour intense, costlier, time consuming and cumbersome process. Due to the paucity of labourers particularly during the peak sowing season (May-June). Soon after the receipt of monsoon, most of the farmers are unable to execute the shelling operation manually in time. Hence, the farmers are forced to procure seed materials as groundnut kernels from unauthorized merchants, trades which attenuates poor germination, poor establishment, impure crop stand and low yield. Hence, introduction and popularization of groundnut decorticator for easy shelling operation becomes a thrust factor in Vellore district. Usually groundnut and pulses are sown manually either by broadcasting, line sowing or by sowing behind country plough in Vellore district. This method consumes excess of seed material and promotes non-uniformity in plant density and creates difficulty in utilizing improved intercultural accessories (tools) for weeding. Therefore, introduction and popularization of efficient and inexpensive implements for line sowing in groundnut becomes essential. Utilization of seed drill in groundnut cultivation against hand dibbling method will ensure uniformity in plant population maintenance.

### Table 1: Crop wise area and demonstrations (2005-2010)

<table>
<thead>
<tr>
<th>Year</th>
<th>Crop</th>
<th>District</th>
<th>No. of demos</th>
<th>Total no. of farmers benefited</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-2010</td>
<td>Groundnut</td>
<td>Vellore</td>
<td>50</td>
<td>120</td>
</tr>
</tbody>
</table>

Fifty demonstrations on groundnut were conducted in Vellore district during the year 2005 – 2010. One hundred and twenty farmers were benefited.

### Table 2: Major farming situations of demonstrations

<table>
<thead>
<tr>
<th>S.No</th>
<th>Crop</th>
<th>Variety</th>
<th>Local check</th>
<th>Source of irrigation</th>
<th>Soil type</th>
<th>Previous crop grown</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Groundnut</td>
<td>TMV-7</td>
<td>JL-24</td>
<td>Irrigated / Rainfed</td>
<td>Red loamy</td>
<td>Green gram and blackgram</td>
</tr>
</tbody>
</table>

### 3. Materials and Methods

Under centrally sponsored scheme on oilseeds production technology, KVK, Vellore has conducted front line demonstrations on farmers field. During the period from 2005 to 2010 in all 50 demonstrations were conducted on the Groundnut production technology to transfer the latest technologies among the farmers of Vellore district. The management technologies for groundnut intimation were introduced and demonstrated to the farmers on various as pacts
viz., varietals, seed treatment with trichoderma viridi and rhizobium, gypsum and other fertilizer application resulted in increasing the overall performance of the yield. And also nutrient management, integrated pest and disease management including high yielding and improved varieties with recommended practices. The technologies to be demonstrated for groundnut were identified based on participatory rural appraisal technique [PRA]. Compact demonstration plot involving holding of different categories of farmers in a single village were identified based on their participation and feedback received during the preliminary survey and interactive meeting. A total area of 5-10 hectare in every year (both the season Kharif and Rabi) was fixed for the demonstrations of technologies in groundnut. Control plots in an area of 2.2 ha each for the crops were fixed in the holdings of demonstration led farmers. Pre sowing trainings were organized involving the selected farmers in their Village for the crops and local extension functionaries. Critical inputs for the technologies to be demonstrated were procured and distributed to the farmers after the training. Subsequently demonstrations were conducted during different crop growth phases by the KVK scientist and local extension functionaries. Finally, the field day was conducted involving demonstration holding farmers, after farmers in the Village and local extension functionaries to demonstrate the superiority of the technology. Crop yield was recorded from the demonstration and control plots at the time of harvest.

4. Results and Discussion

In Vellore district, farmers were cultivating ground variety JL-24, mainly due to availability of seeds in the Agricultural departments. Pulses grown as intercrop in cotton and groundnut.

Table: 3 Year wise result of demonstrations on Groundnut

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of FLD’S</th>
<th>No. of farm families</th>
<th>Average demo</th>
<th>Yield local check</th>
<th>Percentage increase (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rabi</td>
<td>Khnif</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005-06</td>
<td>10</td>
<td>5</td>
<td>24</td>
<td>11.0</td>
<td>8.5</td>
</tr>
<tr>
<td>2006-07</td>
<td>10</td>
<td>5</td>
<td>24</td>
<td>15.5</td>
<td>12.5</td>
</tr>
<tr>
<td>2007-08</td>
<td>10</td>
<td>5</td>
<td>24</td>
<td>14.0</td>
<td>11.5</td>
</tr>
<tr>
<td>2008-09</td>
<td>10</td>
<td>0</td>
<td>24</td>
<td>13.0</td>
<td>9.0</td>
</tr>
<tr>
<td>2009-10</td>
<td>10</td>
<td>5</td>
<td>24</td>
<td>10.5</td>
<td>8.0</td>
</tr>
<tr>
<td>2010-11</td>
<td>10</td>
<td>5</td>
<td>24</td>
<td>12.8</td>
<td>9.9</td>
</tr>
</tbody>
</table>

The findings in respect of groundnut overall yield trend of demonstrations ranged from 10.5 to 15.5 q/ha and yield increase ranged from 21.73% to 44.44% over the
local practices yield. This is mainly due to attribution of improved technology as well as improved varieties. The yield levels were considerably low under local practices because of considerable variations in the extent of adoption of recommended package of practices depending upon the amount of risk involved in terms of cost, convenience, skill and knowledge about the concerned practice. The productivity was better over local practice under demonstrations. Hence, groundnut production technology has a broad scope for increasing the area and productivity of groundnut at each and every level i.e. Farmers, State and National level.

It indicates that groundnut grown with low yield are identified by low knowledge, unfavorable attitude towards high yielding varieties, low risk bearers with negative perception of groundnut production technology. In other wards, it may be also due to then socio-economic status, lower holdings and unavailability of inputs and credit facilities and to some extent supply and marketing problems.

4.1 Final recommendation for micro level situation

- TMV-7 is an improved variety
- Seed treatment with pseudomonas @10g/kg of seed, rhizobium @ 600g/ha and phosphobacteria @ 600g/ha
- Application of recommended dose of fertilizers(10:10:45kg NPK/ha)
- Application of micronutrient mixture @ 12.5kg/ha
- Application of gypsum @ 400kg/ha on 40-70 days after sowing
- Spraying of DAP 2.5kg +Zinc sulphate 625g+ boric acid 0.75kg+ ferrous sulphate 625g+ 140 ml planofix / ha in 500 litres of water at flowering and 10 days later.

4.2 Constraints identified and feedback for research

- The lack of rains during the critical stages of growth affects the yield.

4.3 Process of farmers participation and their reaction

- Farmers participation is positive
- TMV-7 performs well in this tract
- The bio-control agents and bio-fertilizers are easy to use, cost effective and the returns are good
- Timely application of Gypsum helps in pod formation and increases the yield

5. Conclusion

The adoption of improved package of practices of groundnut may result in higher productivity per unit area. Considering the yield potential of the groundnut, there is need to
popularize the improved production technology of groundnut in the area with the co-
ordination of Department of Agriculture and KVK’s through single forum.

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