Productivity enhancement through public private and Farmers participation in Gujarat

Situation Analysis

In India groundnut cultivation mostly occurs in *Kharif* season. A good monsoon assures good yield. The triennial average of Indian groundnut productivity is 1241 Kg/ha (2009-12) and for Gujarat it is 1480 Kg/ha. The world average in the year 2012 is 1644 Kg/ha. Just above of world average. Though there are many reasons for this dismal performance, at field level, the wrong dosage of macro and micro nutrients, delayed and improper inputs application and traditional cultivation practices with poor crop managements are the major reasons for low productivity. Thus a productivity enhancement programme by public private and farmers' participatory mode was conducted to assess the impact of site and time specific input and best crop management on yield in comparison with the farmers' traditional approach in groundnut cultivation. The programme was conducted with selected farmers conducting OFTs (On-Farm Trials) under the supervision of scientists from Directorate of Groundnut Research and KVK, Kodinar.

Technology, implementation and support

Ninety OFTs were conducted during Kharif 2012 for assessing the impact of site specific dosage and best crop management practices in farmers' fields. For this purpose farmers were randomly selected from four talukas viz., Kodinar, Una, Sutrapada, Talala, Maliya, Keshod, Menderda, and Veraval. Inputs for an acre farm land were supplied. These included Ammonium phosphate 20 kg, SSP 125Kg, MOP 20 kg, ZnSO4 4 kg (containing 12% Zn), Agricol (11%) 4 kg, Carbendazim (50%) 100g, FYM enriched PGPR 5 Kg, *Trichoderma viride* 600 gm. After harvest for assessing the effect, data were collected on 90 OFT and 90 non-OFT farmers. Discriminant function analysis was done to identify the factors effecting yield differences among the OFT and non-OFT farmers.

The pod yield recorded among OFT was higher by 21 percent than non-OFT farmers and in net returns it was 30 per cent. Among the 8 *talukas*, Kodinar taluka recorded the maximum average pod yield (2980 kg/ha). The adjacent talukas such as Una and Veraval also recorded higher than the average Junagadh district yield (1815 kg/ha. The average net returns due to the supplied input and guided crop management was Rs. 23407/ha as compared to the farmers practice Rs. 19179/ha. Compared to the pods produced by following farmers' practice the pods produced by following OFT farmers fetched a sale price higher by Rs. 3-4/kg due to its quality pod. Further the highest average net returns recorded in Una (Rs. 45048/ha) followed by Kodinar taluka (Rs. 43842/ha). As far as the personal and farm management characteristics is concerned majority of the farmers (67 per cent) using information technology tools viz. mobile, Television and other source of information's such as Shopkeeper, Agro service center, ATMA, KVK, SAU but rarely found using radio, and DGR. The productivity and profitability of OFT and non-OFT farmers has been given in the following Table.

(n-180)

Talukas (Junagadh distict)	OFTs Pod (kg/ha)	Non-OFTs Pod (kg/ha)	OFTs Cost of cultivation (Rs./ha)	Non-OFTs Cost of cultivation (Rs./ha.)	OFTs Net returns (Rs./ha.)	Non-OFTs Net returns (Rs./ha.)
Una	2440	2000	13408	12677	45048	35345
Kodinar	2980	2475	20450	18763	43842	35302
Veraval	2625	2082	26581	18932	31023	30421
Maliya	1355	1307	17697	18283	18590	16562
Keshod	812	750	17732	16002	2842	653
Mendarda	1500	1380	16510	13650	24850	19399
Talala	1156	563	14491	14712	13721	812
Sutrapada	1650	1355	20763	18979	13510	9493
Average	1815	1489	18454	16499	24178	18498

Further, more than two-third (83 per cent) of farmers having their own farm implements such as seed drill, multi tool bar, sprayer but tractor and thresher usage is concerned majority of the farmers hires. Other than GG 20, farmers not aware about newly released varieties. Almost all the farmers used higher seed rate (187.5 Kg/ha). Majority (69 per cent) of farmers undertook 3 hand weeding practices in groundnut crop. Majority (62 per cent) of non-OFT farmers applied only DAP and SSP fertilizers at varied dosages. Further to clearly discriminate the possible variables for variation in average yield the Fishers discriminant function analysis was done and it showed that the variables like 'right dosage of fertilizer application' (0.284) and 'education level of farmers' (0.227) effecting the yield differentiation among the farmers of OFT and non-OFT groups.

Uptake spread and benefits:

Technologies, both input-based and knowledge-based, particularly those impacting efficiency of input use greatly influences the level of productivity. In *Kharif* OFTs, among OFTs "average taluka pod yield (1815 kg/ha) was recorded as compared to 1545 kg/ha in farmers practice plots. The regression analysis showed that factors like prompt plant disease management, weed-free situation and irrigation availability influenced significantly for the

productivity of *Kharif* groundnut. The discriminant analysis established that correct dosage of fertilizer, both macro and micro, and education effected difference in yield among OFT and non-OFT farmers. The *taluka* level variation in pod yield and net returns signifies the need of recommended dosages specific to *taluka* level than at district level. Thus site-specific and knowledge- intensive crop management programmes at *taluka* level is needed for the improvement of groundnut productivity.

Social impact:

The public private and farmers participatory methods boosted the confidence of farmers for adopting new technologies even in the uncertain rainfed situations. The confidence building helped farmers to seek new innovations generated in the ICAR-DGR and KVK for achieving higher yield with low investment. The quality of the produce was good and fetched two rupees above of market price. The higher net returns enhanced the income level of farmers. Farmers are now more ready to practice climate resilient agriculture than ever before.