JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

RESEARCH RECOMMENDATIONS FOR SCIENTIFIC COMMUNITY

VII. SOCIAL SCIENCE

Fourteen scientific recommendations developed by social science disciplines are described below.

Year: 2005-06

Bajra (Optimum plot size)

A plot of 10.8 m^2 size having shape of 4.5 m (length) x 2.4 m (cross width) (4 rows) is optimum size (net) and shape for *bajra* experiment at Main Dry Farming Research Station, Junagadh Agricultural University, Targhadia.

(*Department of Agricultural Statistics, CoA, JAU, Junagadh*)

Sesame (Optimum plot size)

A plot of 9.45 m^2 size having shape of 5.25 m (length) x 1.80 m (cross width) (4 rows) is optimum size (net) and shape for sesame experiment at Dry Farming Research Station, Junagadh Agricultural University, Vallabhipur.

(*Department of Agricultural Statistics, CoA, JAU, Junagadh*)

Groundnut (Optimum plot size)

A plot of 10.8 m^2 size having shape of 4.0 m (length) x 2.7 m (cross width) (6 rows) is optimum size (net) and shape for groundnut experiment at Dry Farming Research Station, Junagadh Agricultural University, Nanakandhasar.

(*Department of Agricultural Statistics, CoA, JAU, Junagadh*)

Cotton (Optimum plot size)

A plot of 12.96 m^2 size having shape of 4.8 m (length) x 2.7 m (cross width) (3 rows) is optimum size (net) and shape for cotton experiment at Dry Farming Research Station, Junagadh Agricultural University, Nanakandhasar.

(*Department of Agricultural Statistics, CoA, JAU, Junagadh*)

***Bajra* (Optimum plot size)**

A plot of 12.96 m^2 size having shape of 3.6 m (length) x 3.6 m (cross width) (6 rows) is optimum size (net) and shape for *bajra* experiment at Dry Farming Research Station, Junagadh Agricultural University, Jamkhambhalia.

(*Department of Agricultural Statistics, CoA, JAU, Junagadh*)

Castor (Optimum plot size)

A plot of 9.72 m^2 size having shape of 3.6 m (length) x 2.7 m (cross width) (3 rows) is optimum size (net) and shape for castor experiment at Dry Farming Research Station, Junagadh Agricultural University, Jamkhambhalia.

(*Department of Agricultural Statistics, CoA, JAU, Junagadh*)

Year: 2012-13

Optimum plot size in field experiment on wheat crop

It is recommended for the scientists to conduct the research on wheat keeping a plot of 10.80 sq.m. (4.0 m length x 2.7 m. width) as optimum plot size having 12 rows of wheat in South Saurashtra Agro climatic zone.

(*Department of Agricultural Statistics, CoA, JAU, Junagadh*)

Year: 2015-16

An economic analysis of groundnut productivity differentials in Saurashtra region of Gujarat

Increase in the frequency of contact of extension functionaries with farmers throughout the crop season for crop specific information would reduce the productivity differences in groundnut crop. Increase in provision of incentives is needed for mechanization, micro irrigation system and to develop the assured irrigation sources to boost up the productivity. The availability of institutional credit should increase adequately to adjust the prevailing inflation level to enhance the productivity level.

(Department of Agricultural Economics, CoA, JAU, Junagadh)

Effective number of replications for field experiment on wheat crop in Sourasthra *Triticum aestivum* L.)

For effective control of soil variation, an experiment plot having 12 basic units each of 0.90 m^2 with size 4.0 m x 2.7 m (4 x 3 units) were found optimum with minimum two replications are recommended for scientific community to conduct field experiment on wheat crop at Junagadh.

(*Department of Agricultural Statistics, CoA, JAU, Junagadh*)

Year: 2016-17

Path coefficient analysis tools for selection of genotype in wheat

It is advised to scientific community, that the productive tillers per 3 meter, grain weight per spike and days to anthesis are the important biometric characters for selecting genotype for improving grain yield of timely shown wheat under South Saurashtra Agro-climatic Zone.

(*Department of Agricultural Statistics, CoA, JAU, Junagadh*)

Total factor productivity of major crops and contribution of research investment to agricultural growth in Gujarat

The major crops of Gujarat have experienced a strong technological growth during last two decades, except bajra and sesamum. The internal rate of return to public investment in agricultural research ranged from 26.80 % in case of mustard to about 74.90 % (*i.e.* 75 %) for cumin with the overall average of 42 % for major crops of Gujarat. Sesamum needs more efficient technological breakthrough to increase productivity by evolving varieties which sustain in adverse monsoon conditions. Proper management of agronomical practices to keep low production cost and proper price incentive to keep pace with other crops in the state are equally important.

To attain targeted agricultural growth, investments on agricultural research and extension education need to be increased at the rate of 5 per cent per annum to achieve an additional one per cent growth in TFP.

(Department of Agril. Economies, CoA, JAU, Junagadh)

Year: 2017-18

Export performance of marine products from India

To overcome price risk and instability the export stabilization fund needs to be created in the marine sector. Sustained focus need to be given on value added marine products, which in turn can lead to diversification in products as well as of markets. For expanding growth and reducing instability in marine products, the exporters may be facilitated to enter into long term contracts with the international buyers. India's maritime export policy needs to be focused big on multilateral negotiations to check the disproportionate or biased use of SPS or TBT measures.

(*Department of Agril. Economics, CoA, JAU, Junagadh*)

Utilization pattern and trends in non-performing assets of crop loan in Junagadh district

Farmers should be encouraged to adopt modern farm technology, mixed farming and micro irrigation system to enhance their repayment capacity. The banks should strongly consider farmers' characteristics such as literacy index, size of farm, irrigation facilities and sources of other income for determining creditworthiness of farmers.

(*PG Institute of ABM, JAU, Junagadh*)

Weather based forecasting of wheat productivity in Junagadh district

It is advised that to forecast wheat productivity in the Junagadh district before 6 weeks of harvest, the model based on week wise approach using original weather variables can be used with 12 weeks and 23 years data to have 93.00 % accuracy.

The variables affecting the productivity are X_{1W48}, X_{1W49}, X_{1W5} (Maximum Temperature) of 48th week, 49th week and 5th week, respectively, X_{2W49} (Minimum Temperature) of 49th week, X_{5W50}, X_{5W52}, X_{5W3} (Bright Sun Shine Hours) of 50th week, 52nd week and 3rd week.

Recommended model is:

Model with 12 weeks and 23 years data

$Y = 12800.97 - 104.92\ X_{1W48} - 84.98\ X_{1W49} - 104.94\ X_{1W5} + 53.92\ X_{2W49} + 361.10\ X_{5W50} + 139.47\ X_{5W52} - 547.67\ X_{5W3}$

($\bar{R}^2 = 0.93$)

(*Department of Agril. Statistics, CoA, JAU, Junagadh*)