

JUNAGADH AGRICULTURAL UNIVERSITY

RESEARCH RECOMMENDATIONS FOR SCIENTIFIC COMMUNITY

IX. SOCIAL SCIENCE

Total 17 scientific recommendations developed by social science disciplines are described below.

Year: 2005-06

1. Bajra (Optimum plot size)

A plot of 10.8 m² 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)

2. Sesame (Optimum plot size)

A plot of 9.45 m² 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)

3. Groundnut (Optimum plot size)

A plot of 10.8 m² 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)

4. Cotton (Optimum plot size)

A plot of 12.96 m² 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)

5. Bajra (Optimum plot size)

A plot of 12.96 m² 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)

6. Castor (Optimum plot size)

A plot of 9.72 m² 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

7. 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

8. 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)

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

For effective control of soil variation, an experiment plot having 12 basic units each of 0.90 m² 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

10. 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)

11. 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. Economics, CoA, JAU, Junagadh)

Year: 2017-18

12. 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)

13. 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)

14. 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)

Year: 2018-19

15. Performance and price discovery of Cotton in spot and futures markets in India

The efficiency of futures markets of cotton and cotton oilseed cake can be improved by increasing the participation of various stakeholders including farmers. This can be tackled with the help of a three pronged strategy: (i) Creating large scale awareness among various stakeholders, including farmers by focusing on market oriented extension services. (ii) Mobilizing farmers under groups to pool their resources. (iii) Decreasing the current lot size of cotton based future contract which is a prime reason behind nonparticipation of farmers.

(Dept. of Agril. Economics, CoA, Junagadh)

16. Comparison of various methods of stability analysis to identify stable genotypes in Sesame

The Desirability Index (D_i) of parametric method and Mean of absolute Rank Difference of genotype over environments ($S_i^{(3)}$), Variance among the ranks over environments ($S_i^{(6)}$) of non-parametric methods found useful for stability analysis of genotypes in sesame. These non-parametric methods need not require to fulfill strong assumptions as in case of Eberhult & Russel.

(Dept. of Agril. Statistics, CoA, JAU, Junagadh)

17. Scope and opportunities of Agro-tourism in Saurashtra region

There is an ample potential for development of agro-tourism in four identified routes; route-I (Junagadh - Amreli - SasanGir - Junagadh), II (Junagadh - Jamnagar – Porbandar – Junagadh), III (Junagadh– Rajkot- Surendranagar- Junagadh) and route - IV (Junagadh- Veravel – Junagadh) of Saurashtra region.

(PG Institute of Agri. Business Management, JAU, Junagadh)

Year: 2019-20

18. A comparative study on groundnut yield forecasting models for Junagadh district

The groundnut productivity can be forecasted at the 10th week after sowing and use multiple linear regression models having generated weather variables with correlation coefficient between groundnut productivity and weather variables as weight and original weather variables using week wise approach with higher predictability and lower deviations between forecasted and observed productivity.

(Action: Professor & Head, Dept. of Agril. Statistics, CoA, JAU, Junagadh)

19. Financial inclusion of farmers in Saurashtra region

To promote financial inclusion in Saurashtra region, the farmers with land holding up to 4 ha need to be provided with lesser used financial services viz. medium and long term credit, personal health insurance and pension within 14 km radius of their households.

(Action: Principal & Dean, Post Graduate Institute of ABM, JAU, Junagadh)

20. Assessment of hygienic milk production practices adapted by dairy farmers for quality milk production

To improve the adoption of clean milk production practices among dairy farmers, targeted training programmes need to be organized giving priority to the farmer's age, education level, extension participation and source of information.

(Action: HoD, Dept. of VAE, College of Vet. Sci. & A.H., JAU, Junagadh)

21. Training needs of rural women in home science related activities

It is recommended to extension personnel of the Amreli district that trainings of bakery, papad and vadi making, jam making, value-added products of pearl millets as well as awareness about the government schemes for girl child is most needed for women empowerment. Extension personnel should prefer demonstrations, field visits and study tours for such trainings.

(Action: Senior Scientist & Head, KVK, JAU, Amreli)