Research

YEAR: 2012-13
Experiment-1: Optimum Plot Size in Field Experiment on Wheat G.W.-366 Variety at Junagadh.
Findings:
The plot with dimension 4 m x 2.7 m having 12 basic units each of which has 0.9 m x 1.00 m size was suggested as an optimum plot size for further experimentation in GW-366 variety of the wheat crop at Junagadh centre.

Experiment-2: Testing the validity of crop yield forecasting model in wheat.
Findings:
The prediction equation that explained 90 & more than 90 per cent variation of the dependent variable and which developed based on the weekly weather data of year 1970-71 to 1997-98 for cropping season of wheat. i.e., 46th MSW(Meteorological Standard Week) to 11th MSW of the succeeding year for Junagadh & Rajkot Dist. were tested for its validity by using the observed & predicted yield data of wheat for the period i.e. 1995-96 to 2010-11 and it found valid.

YEAR: 2013-14
Experiment-1: Development of prediction model for yield of pearl millet (Kharif) crop using original weather variables in Junagadh district.
Findings:
It could be observed from the results, that all the four models fitted under this approach. Model IV was the best fitted and use as a prediction model, because the value of R^2 (66.88) is higher and value of standard error is low (84.90) as compare to others.

YEAR: 2014-15
Experiment-1: A Comparison of mathematical models to describe the lactation curve in Gir cow.
Findings:
The model proposed by Morant and Gnanasakthy ($Y_t = e^{(a+bt+ct2-d/t)}$) was found best fit among all as it gives maximum co-efficient of multiple determination (R^2) i.e. 0.8914, 0.9020, 0.9018, 0.9102, 0.9071, 0.9098 and minimum deviation from regression sum of squares (DSS) 13.70, 12.10, 11.88, 10.98, 11.05, 11.12 in first to six lactations respectively.

YEAR: 2015-16
Experiment-1: Effective number of replications for field experiment on wheat (*Triticum aestivum* L.) crop
Findings:
For effective control of soil variation an experimental plot having 12 basic units each of 0.90 m^2 with size 4.0 X 2.7 m (4 X 3 units) were found optimum with minimum 2 replications to conduct wheat experiment.

YEAR: 2016-17
Experiment-1:Path coefficient analysis tools for selection of genotype in wheat.
Findings:
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 Saurastra Agro climatic zone.

YEAR: 2017-18
Experiment-1: Weather based forecasting of wheat productivity in Junagadh district.
Findings:

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

$$Y = 12800.97 - 104.92\, X_{1w48} - 84.98\, X_{1w49} - 104.94\, X_{1w5} + 53.92\, X_{2w49} + 361.10\, X_{5w50} + 139.47\, X_{5w52} - 547.67\, X_{5w3}$$

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

New Technical Programme 2018-19

Experiment-1: Comparison of various methods of stability analysis to identify stable genotypes in Sesame.
Objectives :
(1) To compare parametric and non-parametric stability methods.
(2) To estimate association between various stability statistics.
(3) To compare adaptability of genotypes by various methods.