ICAR - Central Coastal Agricultural Research Institute
Old Goa, North Goa - 403402, Goa

ICAR-NRM-CCARI-Product-2023-025
CCARI/Certified Technologies/2023-4

MODELS FOR YIELD PREDICTION OF CASHEW

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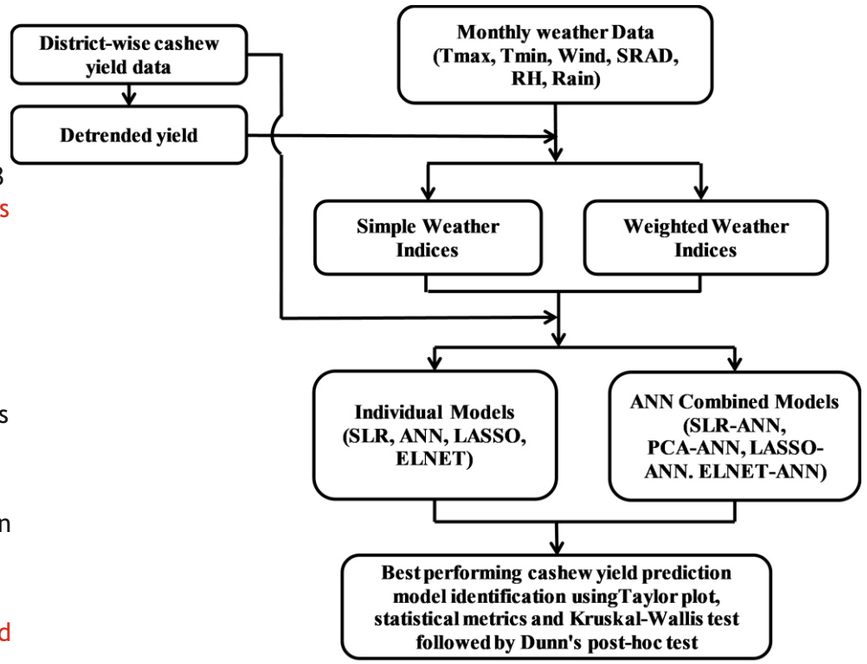
TECHNOLOGY DETAILS

- Annual cashew yield and monthly weather data of maximum and minimum temperature, relative humidity, wind speed, solar radiation for 2000 to 2018 (19 years) were compiled for fourteen coastal districts of India.
- Various models like stepwise linear regression (SLR), least absolute shrinkage and selection operator (LASSO), elastic net and artificial neural network (ANN) individually against the ANN model combined with SLR, LASSO, elastic net and principal components analysis (PCA) were tested.
- LASSO model provided the best performance with R2 ranging from 0.717 to 0.997 and normalized root mean square error ranging from 1.619 to 58.167%.
- Timely and reliable estimate of crop yield estimation using the best performing model helps to develop food policies, economic plans and food security programs for a country. The model predicted the cashew yield for Goa with 13.66% error.



Overall flowchart for cashew yield prediction

PUBLICATION

- **Das, B.***, Murgaonkar, D., Navyashree, S., Kumar, P.*, 2022. Novel combination artificial neural network models could not outperform individual models for weather-based cashew yield prediction. Int. J. Biometeorol. 66, 1627–1638. https://doi.org/10.1007/s00484-022-02306-1 (NAAS Rating: 9.45)

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INDIAN COUNCIL OF AGRICULTURAL RESEARCH

Certified that

Bappa Das
(Lead Developer)

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of

ICAR-Central Coastal Agricultural Research Institute
Old Goa

has developed the technology

Models for yield prediction of cashew

16th July, 2023
New Delhi

(Rajbir Singh)
Assistant Director General (A&AF)

(S.K. Chaudhari)
Deputy Director General (NRM)