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To
The Editor,
Sir,

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I request that the following message may kindly be published in your esteemed daily:

**TNAU hands with German to secure the farmers with
Innovative Climate Risk Insurance**

Accurate and consistent information on the area and production is necessary for national and state planning for ensuring food security in India. This information is for making policy decisions related to imports, exports and prices, which directly influence food security. Remote sensing has the scope for cost effective precise estimates of crop area. But the technical challenges viz. cloud cover during cropping season, wide range of environments, small land holdings and diverse and mixed cropping systems limits the use of remote sensing as a tool for crop monitoring.

TNAU with its experiences in these areas of advanced earth monitoring, plays a vital role on crop monitoring and disaster management to support the State and the Central government. The efficiency of Remote sensing technology in mapping rice area and yield estimation has been successfully demonstrated by Tamil Nadu Agricultural University through the annual rice area maps, seasonality maps, rice phenology maps and finally yield maps at district and block level with high accuracies of 89-94% for rice area and 87-96% for rice yield obtained.

Tamil Nadu is traditionally vulnerable to natural disasters on account of its geo-climatic conditions. Floods, droughts and cyclone have been recurrent phenomena which affect most of the agricultural crop lands. Continuous monitoring and timely damage assessment will enable the decision makers for effective planning. The Department of Remote Sensing and GIS, Tamil Nadu Agricultural University is actively engaged in monitoring of agricultural drought, flood and cyclone using Meteorological, Remote Sensing and hydrological data. This project aims at creating and maintaining dynamic digital database to monitor these events in Tamil Nadu in near-real time using remote sensing in turn for

effective implementation of Prime Minister Fasal Bima Yojana (PMFBY), said Dr.V.Geethalakshmi, Vice-Chancellor, TNAU.

The outcome viz., Annual crop area maps, seasonality maps, phenology maps and finally yield maps of Tamil Nadu and crop loss assessment if any during flood and drought will be helpful to the state government of Tamil Nadu in fulfilling the mandate of crop insurance programme under PMFBY and in making policy decisions to ensure food security and reduce vulnerability of farmers.

TNAU has generated village wise rice area statistics with 12 days interval for 8250 village across Tamil Nadu and shared it with Department of Agriculture, Tamil Nadu and Insurance Companies for working out prevented sowing. Besides, TNAU has developed an innovative technology for identifying the villages under failed sowing through generation of spectral signature curves and supported the Government in checking crop failure status in 1820 villages. Further, the technologies to develop crop information for other crops viz., maize and cotton were fine tuned in addition to rice to strengthen the implementation of PMFBY in Tamil Nadu, she added

Creating spatial platform and mobile apps to transfer knowledge on crop, soil, water and climate for effective decision making.

- a. Designing and demonstration of mitigation strategies to manage climate risk
- b. Capacity building to acquire knowledge, empower decision making and sustain rural livelihood of small holding farmers of Tamil Nadu.

Spatial Data platform:

- a. Data acquisition from Satellite and Drone imageries for crop information, collection of farm data, soil, climate.
- b. Capturing in-situ field data from proximal sensors, devices and equipment.
- c. Real time image processing, data analytics, data storage, cloud processing and big data analytics.
- d. Crop advisories and notifications.
- e. Automated field operations based on digital information.

Developing TNAgri Spatial Information Platform to provide insight on crop condition using Geo-spatial analytics

- Crop Acreage Estimation
- Crop condition monitoring
- Soil Moisture

- Crop Yield
- Weather Projections
- Credit Score for Farms
- Agricultural Water availability and irrigation decisions
- Agriculture disasters: Drought, flood and cyclone

Drought affects virtually all climatic regions and more than one half of the earth is susceptible to drought every year. Drought causes changes in the external appearance of vegetation, which can clearly be identified (by their changed spectral response) using satellite sensors through the use of vegetation indices. Agricultural vulnerability is determined based on Standardized Precipitation Index (SPI), Normalized Difference Vegetation Index (NDVI), and Normalized Difference Water Index (NDWI). NDVI is a powerful indicator to monitor the vegetation cover of wide areas, and to detect the frequent occurrence and persistence of droughts.

- Developing alternate crop plan and demonstration of climate resilient varieties and technologies and Case studies on alternate livelihood - Integrated Farming System
- Digital Soil Mapping and strengthening soil information system
- Water Resource Information System and Case studies on Automated irrigation
- Drone spraying and Pollen dusting
- Mapping nutritious crops for Community Nutrition Garden and uncultivated food crops for nutritive value as part of SENU programme

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