



and e-market to the various stakeholders such as farmers, researchers, developmental agencies and processors at one place.

- Farmer/User can upload and store his own cashew images and videos in “My cashew” sub-section of ‘Cultivation’ section. It is also possible to record the expenditure, observations and data of the cashew farm.
- It is possible to order cashew grafts online from the research stations in a particular state in ‘Planting Material’ section.
- Farmers can give their buy/sell requirements in ‘Market info’ section.
- This app is developed for 10 states in India i.e. Gujarat, Maharastra, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Chattisgarh, Odisha, West Bengal and Meghalaya.

- This app is exclusively developed in 11 languages, i.e. Hindi, English, Gujarati, Marathi, Kannada, Malayalam, Tamil, Telugu, Oria, Garo and Bengali.
- Farmer/User can contact experts through ‘Ask Expert’ section.
- Real time chatting is possible in ‘Chat Room’ with the users who are using app at a given point of time.
- ‘E-speak’ button enables the app to read text for the user in different sections.

### Technology Stack

The following latest technologies in IT were deployed for developing this app.

1. Native Android Software Development Kit.
2. PHP Laravel Framework to develop the web admin panel and REST API for the application.
3. Linux Based / Windows Based Server which will run Apache2 server instance to host the web REST and Admin application.
4. Google Playstore to host app.

### Mode of development

Design and technical content for the app is developed by ICAR- DCR, Puttur in collaboration with AICRP-Cashew centres spread across the country.

\*The app will be made available through Google Play Store soon for public use.

## 2. Offline software on Soil health card generator

**S. Mangalassery, M.G. Nayak, J.D. Adiga, P. Preethi, and B.M. Muralidhara**

Soil testing is carried out to assess the soil fertility levels and it helps the growers in applying manures, fertilisers and soil amendments. The data obtained after undertaking soil analysis in the laboratory are interpreted and made available

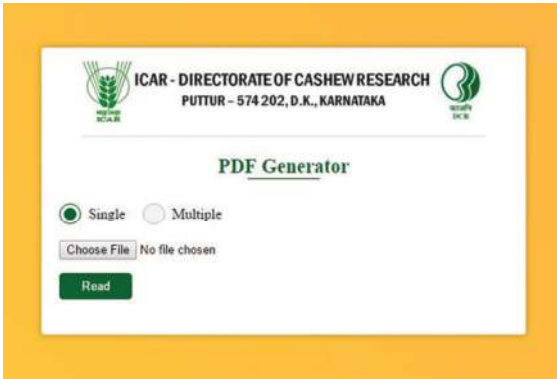
in the form of a soil health card. A soil health card is a report on soil nutrient status provided by soil testing laboratories to the farmers and other stakeholders. It also contains the advisory on the quantity of fertilizers and other amendments to

be applied to the field. It helps farmers, extension officials, scientists and decision makers to monitor and improve soil health. The soil health cards need to be periodically updated. The soil are prepared by transferring the soil test data obtained by laboratory analysis into the format prescribed by the laboratory, Institute or the government. When dealing with a large number of samples, making the interpretation and transferring the data to the format manually become tedious, time consuming and prone to errors.

To avoid manual error in transferring laboratory data while preparing soil health card and errors in interpretation with respect to assigning the soil test rating, an offline software has been developed to generate the soil health card both in English and

Kannada. It enables to generate error-free soil health card from the analytical results as single and multiple pdf files. For using the software, the laboratory staff need to upload the analytical data in specified excel sheet format and choose single or multiple pdf option available in the software. The single pdf files can be issued as an electronic copy to the individual farmer or can be uploaded the website. This can be downloaded by the farmer by providing information such as Adhaar card number of the farmers and the year. The multiple pdf option can be used when the soil health cards are to be printed for distribution to the farmers. The software was developed with funding support from RKVY-RAFTAAR, Govt. of Karnataka.

 <p>Department of Agriculture &amp; Cooperation Ministry of Agriculture &amp; Farmers Welfare Government of India</p> <p>ICAR- Directorate of Cashew Research, Puttur, Karnataka</p> <p>Soil Health Card No.: DCR Date of issue of card: Validity: 1</p>	<p>Name of Laboratory: Soil Science Laboratory, ICAR-DCR, Puttur</p> <p>SOIL TEST RESULTS</p> <table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Parameter</th> <th>Test value</th> <th>Unit</th> <th>Rating</th> </tr> </thead> <tbody> <tr><td>1</td><td>pH</td><td></td><td></td><td></td></tr> <tr><td>2</td><td>EC</td><td></td><td>dS/m</td><td></td></tr> <tr><td>3</td><td>Organic carbon (OC)</td><td></td><td>%</td><td></td></tr> <tr><td>4</td><td>Available N</td><td></td><td>kg/ha</td><td></td></tr> <tr><td>5</td><td>Available Phosphorus (P<sub>2</sub>O<sub>5</sub>)</td><td></td><td>kg/ha</td><td></td></tr> <tr><td>6</td><td>Available Potassium (K<sub>2</sub>O)</td><td></td><td>kg/ha</td><td></td></tr> <tr><td>7</td><td>Iron (Fe)</td><td></td><td>ppm</td><td></td></tr> <tr><td>8</td><td>Manganese (Mn)</td><td></td><td>ppm</td><td></td></tr> <tr><td>9</td><td>Zinc (Zn)</td><td></td><td>ppm</td><td></td></tr> <tr><td>10</td><td>Copper (Cu)</td><td></td><td>ppm</td><td></td></tr> <tr><td>11</td><td>Boron (B)</td><td></td><td>ppm</td><td></td></tr> <tr><td>12</td><td>Molybdenum (Mo)</td><td></td><td>ppm</td><td></td></tr> </tbody> </table>				Sl. No.	Parameter	Test value	Unit	Rating	1	pH				2	EC		dS/m		3	Organic carbon (OC)		%		4	Available N		kg/ha		5	Available Phosphorus (P <sub>2</sub> O <sub>5</sub> )		kg/ha		6	Available Potassium (K <sub>2</sub> O)		kg/ha		7	Iron (Fe)		ppm		8	Manganese (Mn)		ppm		9	Zinc (Zn)		ppm		10	Copper (Cu)		ppm		11	Boron (B)		ppm		12	Molybdenum (Mo)		ppm	
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<p>Name</p> <p>Address</p> <p>Aadhaar card No.</p> <p>Mobile Number</p> <p>Latitude</p> <p>Longitude</p> <p> <b>Healthy Soils for a Healthy Life</b></p>	<p>For exact quantity of fertilizer to use for cashew, please use Fertilizer calculator available at: 1. <a href="http://www.cashewresearch.com">www.cashewresearch.com</a> 2. Download the App from Google play store</p>																																																																				



## PROGRAMMES ORGANIZED

### राजभाषा हिन्दी कार्यान्वयन

इस छः माही में काजू अनुसंधान निदेशालय में हिन्दी कार्यान्वयन समिति की दो बैठकों को आयोजन किया गया। बैठकों में कार्यालय में हो रही हिन्दी गतिविधियों के बारे में विचार – विमर्श कर आवश्यक सूचना समिति की सदस्यों को दी गई। वार्षिक कार्यक्रम के अनुसार आवश्यक लक्ष्य प्राप्ति के लिए जरूरी कदम उठाने के बारे में चर्चा की गयी। जुलाई महीने में पुत्तूर नगर राजभाषा कार्यान्वयन समिति की 34वीं अर्ध वार्षिक बैठक का आयोजन किया गया, जिसमें पुत्तूर में स्थित विभिन्न सदस्य

कार्यालय के प्रधान उपस्थित थे। उसी दिन सुबह से दोपहर तक सदस्यों के लिए हिन्दी कार्यशाला का आयोजन किया गया था। कार्यशाला में निदेशालय के सभी कर्मचारियों सहित विभिन्न सदस्य कार्यालयों से 45 कर्मचारियों ने भाग लिया।

निदेशालय में सितंबर 14-22 तक हिन्दी सप्ताह का आयोजन किया गया। इस अवसर पर कर्मचारियों और विद्यार्थियों के लिए विभिन्न प्रतियोगिता का आयोजन किया गया। श्रीमती कुसुमा