

COTTON Innovate



Weekly Newsletter from Central Institute for Cotton Research, Nagpur

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ICAR-CICR awarded ISO 9001-2008 certificate

ICAR-CICR was formally awarded the ISO 9001-2008 certificate on 2nd December 2014 at CICR, Nagpur. Dr. K. R. Kranthi, Director, CICR, received the certificate from Dr. Ramesh Lakhe, Director, Shreyas Quality Management System, Nagpur. Mr. Sachin Agnihotri, Senior Administrative Officer, Dr. Sandhya Kranthi, Head, Crop Protection Division, Dr. D. Blaise, Head, Crop Production Division, Dr. Suman Bala Singh, Head i/c, Crop Improvement Division, Dr. Rokde, FACO, i/c and all the Scientists were present.



Certificate of Registration

This certificate has been awarded to

ICAR-Central Institute for Cotton Research

Near Indian Oil Depot, Panjari, Wardha Road, Nagpur, Maharashtra, 441108, India

in recognition of the organization's Quality Management System which complies with

ISO 9001:2008

The scope of activities covered by this certificate is defined below

Please refer to the Appendix

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CICR participation in Agrovision-2014

Sixth Agrovision 2014 was held at Reshimbag ground, Nagpur from December 4-9 in which workshops, exhibitions and symposiums on agricultural issues were conducted. Chief Minister of Maharashtra, Shri. Devendra Fadnavis inaugurated the Agrovision-2014 as Dr. C. D. Mayee, Chairman of Advisory Council of Agrovision and other dignitaries looked on. The event hosted free workshops for farmers to create awareness and to inform them about new technologies in the farm sector. The technologies developed at CICR were showcased in a stall as a part of technology dissemination. The event also showcased a wide range of agricultural equipment and products from public and private sectors.

Expert Panel Discussion on GM crops was held on 5th December, 2014. Dr. K. R. Kranthi, Director, CICR, Nagpur and Advisory Council Member, Agrovision, participated in the 'Expert Panel Discussion' on "Modern tools for Crop Productivity Improvement and Environment Concern" at 'Agrovision' on 5th December 2014. The issue of Genetically Modified Crops was discussed in the session.

Dr. Kranthi said that every concern about GM crops must be addressed, but let the science not be stopped. He added that experiments and field trials are needed and opined that no country has progressed without science. Dr. C. D. Mayee, Chairman of Advisory Council of Agrovision and Dr. Swapan Kumar Datta, Deputy Director General, Crop Science, ICAR, were among the expert participants in the discussion. Dr Mayee said 65% of the Indian agriculture is rainfed and Indian scientists have the potential of solving agriculture related problems. He suggested that guidelines should be formed for environmental and health tests. Dr. Datta suggested that there should be clear vision on policy making. He added that agriculture has to progress and it can not remain in nostalgia. Shri Narayan Suresh, Group editor of BioSpectrum (India and Asia) moderated the session.



Lighting of the Lamp by Inaugural Dignitaries



World Soil Day

On December 20, 2013, the 68th UN General Assembly recognized December 5th, 2014 as “World Soil Day” and “2015” as the International Year of Soils to emphasize the importance of soils beyond the soil science community.
 “The nation that destroys the soil destroys itself” – Franklin D. Roosevelt.
 “While it is relatively easy to recognize the perennial grasses and seed-eating sparrows as characteristic of meadows, the ecosystems exist in their fullest sense underground. What we see aboveground is only the outer margin of an ecosystem that explodes in intricacy and life below.” - Amy Seidl, Early Spring.



Soil Spectroscopy

Soil Spectroscopy is an electromagnetic spectrum study of the soil properties (Table.1) in which Proximal Soil Sensing (PSS) – [looking, touching, Feeling] and hyperspectral sensing are utilized. PSS is based on the active or passive sensors to collect soil information from close by (within 2 meter) of soil body. It measures soil properties directly or indirectly and develops “pedotransfer functions”. Hyperspectrum is a portion of electromagnetic spectrum. The hyperspectral sensors measure the soil properties by breaking the hyperspectra into pieces.

Table1. Different spectral region and soil property

S.No.	Spectral region	Soil Property
1	0.4 to 1 μ m	Colour, Iron content, Water, Organic matter
2	1 to 2.5 μ m	Phyllosilicates, Sorosilicates, Hydroxides, Sulphates, Amphiboles, Carbonates
3	2.5 to 25 μ m	Quartz, Feldspars, Silicate minerals, Mafic, Clay, Carbonate -mineral, Organic Compounds

Soil properties and its spectral signature library depend on the mineral composition, iron oxides, organic matter, water (hydration, hygroscopic, free), carbonates, soluble salts and particle size distribution. Different spectroscopic methods are used in laboratory (diffuse reflectance) and field (bidirectional reflectance) conditions. Quantitative soil spectroscopy is improved by the availability of multivariate statistics and chemometrics. Soil spectroscopy relates and attributes the soil water, carbon and mineral composition. It assesses soil properties as a direct, rapid, accurate, and non-destructive on real time and in-situ. It requires nil or minimum sample preparation. It will be an alternative to traditional soil chemical analysis (Table 2).

Table 2. Traditional Vs Novel methods for soil property determination

S.No.	Characteristics	Traditional	Novel
1	Colour	Munshell Colour Chart	Camera
2	pH	pH meter	Ion selective field effective transistors
3	EC	EC meter	Electromagnetic induction -resistivity
4	N	UV spectrophotometer	X-ray photoelectron spectroscopy
5	P	UV spectrophotometer	iron oxide- impregnated papers
5	K	Flame photometer	Passive -? -ray spectrometry
6	Heavy metals	Atomic Absorption Spectrophotometer	Magnetic susceptibility
7	Soil water	Moisture meters	Ground penetrating radar
8	Soil Strength	Physical	Mechanical draft
9	Biological	Microbial Count	Diffuse reflectance

Reference:

Sabine Chabrilat, Eyal Ben-Dor, Raphael A. Viscarra Rossel and Jose A.M. Dematte (2013) Quantitative Soil Spectroscopy. *Applied and Environmental Soil Science*. 1-3

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