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### Applications of remote sensing in GIS as one of the integrated pest management for nematode management

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Remote sensing (RS) is a method of observing and acquiring information about the target's properties without physically coming in contact with the target. The hyperspectral data are collected over a range from 350-2500 nm and represent hundreds of discrete measurements of a target's reflected energy as a function of wavelength. RS in Geographical Information System (GIS) is becoming an integral part of many nematological practices today as they are an integral part of far management practices and are used to help making the farms more profitable. Early examples from research include use of CIR film to evaluate effect of crop rotation and soil fumigation on a nematode *Rotylenchulus reniformis* occurring in Texas cotton fields. The multitemporal NIR videography is also used to monitor the seasonal progression of the *Meloidogyne incognita* and its associated soil-borne fungi complex in kenaf. Typically, this approach works much better in monocultural field crops than in mixed cropping or natural ecosystems. The use of remotely-sensed hyperspectral data with SOM (self-organised maps) that proved to be extremely time efficient in detecting nematode numbers present in the soil. Use of these new technologies in nematology has been limited to infrared remote sensing and they are used to detect plant injury due to nematodes in cotton. RS is coupled with GIS technologies that may provide new tools to detect and quantify soyabean cyst nematode population densities and their impacts on the quantity and quality of soybean yield. The future brings tremendous prospects for integrating the spatially and temporally rich information provided through remotely sensed multi- and hyperspectral imagery with the capabilities of management-oriented crop simulation models.

#### Biography

K V V S Kranti is currently pursuing her Ph.D. from Chaudhary Agricultural University, Hisar (final year student). She did her undergraduate program from Anand Agricultural University and got merit scholarship during the four year period. She completed her post graduation in Nematology discipline from CCSAU, Hisar and awarded ASPEE Fellowship during the two year period. In PG program, she worked on the gnathobiology and screening of wheat varieties against root lesion nematodes. She is currently pursuing Inspire Fellowship since 2012. She has been awarded prizes regarding debate and elocution inter college contests. Also she had been awarded prizes regarding essay writing inter college contests during UG and PG program. Presently, she is working on the taxonomy and mass multiplication methods of entomopathogenic nematodes.

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### Estimation of genetic diversity of rice (*Oryza sativa* L.) in north east plain zone

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Mahalanobis D<sup>2</sup> analysis revealed considerable amount of diversity in the material. The field experiment was conducted with forty rice genotypes during *kharif* 2011 at the Field Experimentation Centre, Department of Genetics and Plant Breeding, Allahabad School of Agriculture, SHIATS, Allahabad in Randomized Block Design (RBD) with three replications. The forty genotypes were grouped into seven heterogeneous clusters. Among these clusters, Cluster VII had maximum number of 13 genotypes. On the basis of mean performance genotypes CN 1446-5-8-17-1-MLD4 and CR 2706 were found to be the best genotypes in Allahabad agro-climatic conditions. The characters such as grain yield per hill, number of tillers per hill, harvest index, biological yield, number of spikelets per panicle, plant height, test weight and number of panicles per hill which should be given top priority for effective selection. The present investigation revealed that cluster II and VII are most diverse to each other and the genotypes constituted in these clusters may be used as parents for future hybridization.

#### Biography

G Eswara Reddy completed his M.Sc. (Ag) at the age of 25 years from Sam Higginbottom Institute of Agriculture, Technology and Sciences, Allahabad and now doing his doctoral program in Banaras Hindu University, Varanasi in the Genetics and Plant Breeding.

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