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ICAR-DGR intervenes in the Revival of Groundnut in Sitapur - A success story

Before two and half decades from now, area in Sitapur for groundnut cultivation is around 30,000 hectares, which drastically reduced to about 1600 hectares. This alarming decrease in groundnut cultivation is reported by honorable MP of Sitapur. So, ICAR-Directorate of groundnut research (ICAR-DGR) in consultation with KVK's and government officials has attributed the causes to menace of wild animals, upscale in sugarcane cultivation, changing cropping pattern and non-availability of appropriate price.

ICAR-DGR's Efforts to Revive Groundnut Cultivation

After an initial round of discussions with the State Agriculture & Rural Development officials and KVK functionaries and considering the gravity of the situation, ICAR-DGR constituted a team consisting of scientists and Govt. officials (Dr. Radhakrishnan T., Director, ICAR-DGR as team leader; Sh. V.K. Yadav, Deputy Director (Agriculture), Sitapur; Sh. Dharendra Singh, District Agriculture Officer, Sitapur; Dr. Narendra Kumar, Scientist (Plant breeding), DGR; Dr. Ram Dutta, PS & Head (Crop Protection), PI-Crop Protection (AICRP-G), DGR, Junagadh. The team visited Sitapur area during 4-6th May 2016 and convened series of meeting and discussions with various stakeholders and officials including the Director Agriculture, Directorate of Agriculture, Uttar Pradesh and other officials; Deputy Director (Agriculture), Sitapur and other officials of state agricultural departments; functionaries of KVKs of Sitapur; progressive farmers and peanuts processors; officials of State Institute of Rural Development, Uttar Pradesh; and Director, ICAR-Indian Institute of Sugarcane Research, Lucknow to assess the ground situation and prepare "Rejuvenation plan for groundnut in Sitapur district and adjoining areas".

Ascertaining Causes/Problems

After a series of discussions and meetings with various stakeholders, it was understood that the groundnuts from Sitapur area has distinct sweet and nutty flavor, which are characteristically distinguished from groundnuts of other places, and processors are interested in such peanut qualities for processing and export, as specified for Saurashtra. It was noted that by and large the issues of soil fertility; non-availability of good varieties of groundnut; lack of demonstrations/training of the packages and non-availability of assured irrigation, were the reasons which contributed to the reduction in the groundnut area. Non-remunerative prices, losses due to white grub, termite and collar rot were understood to be major problems. The non-availability of quality seed has also contributed to reduction of area of groundnut. Wild animals particularly blue bulls spoiled the crop, hence farmers slowly drifted away from groundnut cultivation switching towards sugarcane cultivation, as there were several sugar mills, which were catering the need and farmers were paid good amount for their produce.

Restoration of groundnut cultivation

During the deliberation for rejuvenation of groundnut, it was opined that groundnut might be promoted for its cultivation during summer (spring or zaid) as white grub problem is negligible during this season. Organizations like Hariyali, Khushhali which sell seed and other inputs may help to strengthen groundnut program, if approached. Seed production could be taken up in the farms of DDU State Institute of Rural Development, Uttar Pradesh at different locations. SIRD was requested to conduct demonstration and training programme at their stations suitable for groundnut. KVKs were requested to conduct large scale demonstrations of Girnar 2 / TG 37A, the varieties suitable for region. Director, IISR, Lucknow was requested to put experiments, which includes groundnut in sugarcane intercropping from kharif 2016 onwards. The DGR pursued various agencies for cooperation and support for the programme with intention to begin from summer (Spring) 2017. The Sitapur KVK-II came forward to take up the programme.

DGR also requested to conduct cluster demonstrations and seed production program in areas where previously there was no groundnut during spring season and utilize seed from summer-2017 season to kharif 2017 season to penetrate more areas coverage.



Revival of Groundnut in Sitapur and adjoining districts of Uttar Pradesh

The KVK-II of Sitapur was asked to submit a proposal for cluster demonstration and seed production. The proposal was to produce seed locally during spring season of 2017 and distribute among farmers for production during kharif 2017. The ICAR-DGR provided quality seed and inputs for supporting the program. Seed of TG 37A was provided to the KVK-II which distributed it to selected farmers for sowing during spring season. The program was launched on 7th March 2017 with pre-spring season training program and on farm demonstration in the farmers' field. The farmers were satisfied with their queries and replies by us and agreed to multiply seed during spring season and utilize seed during kharif season with added acreage as well as distributing among fellow farmers for further area expansion of groundnut. This trend is expected to be continued till the total groundnut areas is covered and groundnut is revived in the district of Sitapur.

Inputs: Ram Dutta, Narendra Kumar and Radhakrishman T

Calcareous Soils and their Management

The soils which contain free calcium carbonate (CaCO_3) and gives effervescence by releasing CO_2 gas visibly when treated with 0.1N HCl. Calcareous soils can contain from 3% to >25% CaCO_3 by weight with pH values with a range of 7.6 to 8.3 (Basic). They are generally formed by basic parent materials such as limestone or by continuous irrigation of water having dissolved CaCO_3 . The estimated calcareous area of country is 22.8 million hectares (69.4% TGA).

Problems associated with calcareous soils

Plants will have impaired nutrition and stunted growth due to imbalanced nutrient supply
 N volatilization, P fixation, Fe chlorosis and limitation of Zn, Cu and Mn nutrients
 Fe chlorosis can result in yield reduction of 32% of pods and 18% of fodder

Remedy

- Band placement of P fertilizers rather than broadcasting is recommended
- Use slow release or granular N fertilizers with placement in the root zone
- Ensure K:Ca:Mg ration in soil is 4:4:2, for higher groundnut production
- Apply acid-forming fertilizers such as ammonium sulphate and urea fertilizers, organic manures and green manures to reduce the pH of soil
- Apply phosphate solubilizing bacteria and Vascular arbuscular mycorrhizae @ 2kg/ha to enhance P availability
- Apply 25 kg ZnSO_4 /ha as basal dose
- Foliar spray of K @ 0.5%, Fe @ 0.5%, Zn @ 0.5% and B @ 0.2% at 40 DAS for maximizing groundnut yield
- Grow P-efficient genotypes such as GG 5, ICGV 92188
- Grow genotypes resistant to Fe-chlorosis such as ICGV 86031, ICGV 06146



A calcareous soil block

Inputs: Kiran Reddy

Conservation Agriculture improves Earthworm Population in Soil



Intensive tillage led cultivation practices disturb beneficial organisms like earthworms and their activities in the soil. The populations of soil organisms have been reported to decline consistently worldwide under intensive crop production systems due to factor like continuous cropping, no or less application of organic manures like FYM, application of agro-chemicals, and removal or burning of crop residues etc. Earthworms feed on soil organic matter and, therefore, retention of crop residues on soil surface under Conservation Agriculture has been found to support activities of earthworms in the soil due to ample availability of food. The increased population and activities of earthworms in the soil improve soil aeration, moisture content due to higher rate of infiltration, and also lead to improved soil quality.

We measured earthworm population under different tillage and residue management practices in an experimental field under groundnut-wheat cropping system. In each plot an area of 1 x1 feet size was identified and earthworm population was counted in 0-15 and 15-30 cm depth during 2nd and 4th year of experimentation. The mean data indicated that under minimum tillage and zero tillage population of juvenile earthworms increased in 15-30 cm depth while that of adult earthworms increased in both 0-15 and 15-30 cm depth as compared to conventional tillage.

Inputs: Ram A Jat, Nataraja MV and Rahul Solanki

International Day of Yoga

The ICAR-DGR, Junagadh celebrated International Day of Yoga during 20-21 June 2017. On 20th June 2017 an essay writing competition on “Yoga and Meditation in Agrarian Society” was organized at 10:00 AM onwards. Then, the rehearsal for yoga session as per Common Yoga Protocol was organized on 20th June 2017 at 4:00 PM onwards as per expert advice and training of Ms Jaishriben Lashkari and her team from Patanjali Yogpeeth branch, Junagadh, Gujarat followed by Physical Yoga Session on 21st June 2017 by the employees at 6:00 AM onwards as per the instructions of Ms. Jaishriben Lashkari and her team. Followed by Physical Yoga Session, a workshop on meditation was organized on 21st June 2017 at 10:30 onwards as per advice and instructions of Ms. Brahm Kumari Meenaben from Brahm Kumari's branch, Junagadh, Gujarat and her team from Baroda. Dr. Ram Dutta, Principal Scientist & Nodal Officer, International Day of Yoga at ICAR-DGR, Junagadh coordinated the event.

Earlier, Dr. Radhakrishnan, T. Director, ICAR-DGR, Junagadh welcomed the participating employees and instructors from various organizations.



नगर राजभाषा कार्यान्वयन समिति की वर्ष 2017 की प्रथम छमाही बैठक

दिनांक 17 अप्रैल, 2017 को 'नगर राजभाषा कार्यान्वयन समिति' (नराकास)-जूनागढ़ की वर्ष 2017 की प्रथम छमाही बैठक भाकृअनुप-मूंगफली अनुसंधान निदेशालय, जूनागढ़ में आयोजित की गयी। बैठक में इस निदेशालय सहित कुल 13 सदस्य-कार्यालयों ने भाग लिया। इस बैठक में डॉ. सुनीता यादव उप-निदेशक (कार्यान्वयन), गृह मंत्रालय, राजभाषा विभाग (पश्चिम), नवी मुंबई, विशेष अतिथि के रूप में उपस्थित रहीं। यह बैठक डॉ. राधाकृष्णन टी, निदेशक, भाकृअनुप-मूंगफली अनुसंधान निदेशालय, जूनागढ़ एवं अध्यक्ष, नगर राजभाषा कार्यान्वयन समिति, जूनागढ़ की अध्यक्षता में आयोजित की गयी। इस बैठक में भाकृअनुप-मूंगफली अनुसंधान निदेशालय के अलावा 12 सदस्य कार्यालयों के कुल 20 प्रतिनिधियों ने हिस्सा लिया। डॉ. सुनीता यादव, उप-निदेशक (कार्यान्वयन), गृह मंत्रालय, राजभाषा विभाग (पश्चिम), नवी मुंबई ने नगर राजभाषा कार्यान्वयन समिति में उपस्थित सभी सदस्य-कार्यालयों से हिंदी में अधिक से अधिक कार्य करने की अपील की एवं सभी कार्यालयों में हिंदी में कार्यों को बढ़ावा देने हेतु सुझाव भी दिए।



Industries Interface Meeting

To provide a common platform to all the stakeholders in groundnut cultivation and related industries for deliberations on issues of mutual interest and for formulating future strategies for research, extension, mechanization, sensitization about latest development, and trade, ICAR-DGR conveyed an Industries Interface meeting on 31st January, 2017. Dr Radhakrishnan T., Director, ICAR-DGR welcomed the participants. Shri Sanjiv Sawla, Chairman, IOPEPC was the chief guest. The other dignitaries attending the meeting were Dr I.U. Dhruj, Associate Director of Research, JAU, Junagadh; Shri Sanjay Shah, Vice-Chairman, IOPEPC; Dr J.B. Misra, Technical Adviser, IOPEPC. Groundnut researchers also attended the meeting from ICRISAT and DGR. Representatives from local export houses, seed industries, major food industries, progressive farmers, manufacturers of biofertilizer and biocontrol agents, and manufacturers of farm implements participated in the meeting. Director, DGR, Junagadh emphasized the need for producing export-worthy and confectionary groundnut and also the need for joint venture between DGR and industries in achieving the goal. During this meet, the key challenges in the groundnut production across India with particular emphasis on export-worthy groundnut cultivation, which needs to be addressed together with industries, were discussed thoroughly.



19th Meeting of Research Advisory Committee

The nineteenth meeting of the Research Advisory Committee was held at ICAR-DGR, Junagadh from 3 - 4 March, 2017. The meeting was chaired by Dr A. Padmaraju, Former VC, ANGRAU, Hyderabad. Other members participated in the meeting were Dr S.N. Nigam, Retd. Principal Scientist, ICRISAT; Dr I.U. Dhruj, Assistant Director of Research, Junagadh Agricultural University, Junagadh; Dr K.P. Patel, Dean, Anand Agricultural University, Anand; Dr Radhakrishnan T., Director, ICAR-DGR, Junagadh and Dr S.K. Bera, Principal Scientist, ICAR-DGR and Member Secretary, RAC. Presentations on ongoing research projects were made by the PIs and Co-PIs which were discussed meticulously and the work plan was customized as per the remarks of the research advisory committee. In their concluding remarks, Chairman and members of RAC appreciated the research work being done at ICAR-DGR and pointed out the need for further improvements/modifications as per need of the hour.



Institute Seminars

Speaker	Topic
Dr. S.K. Bera	Peanut genotypes with high oleic acid content bred by introgression of <i>ahFAD2A</i> and <i>ahFAD2B</i> mutant alleles using MAS and MABC approaches
	Fresh source of resistance to LLS and rust diseases identified in interspecific groundnut
Ms. S.V. Kasundra	Effect of heat and cold pre-treatment on microspore culture in groundnut
Dr. M.K. Mahatma	Changes in polyamines and ethylene expression genes in contrasting groundnut (<i>Arachis hypogaea</i> L.) genotypes during stem rot disease
	Metabolic profiling of groundnut genotypes during <i>alternaria</i> leaf blight disease
Dr. D.M. Hedge, Ex-Director, ICAR-IIOR, Hyderabad	Good agricultural practices for sustainable agriculture

Swachchhta Pakhwada

The Swachhhta Pakhwada was organized at ICAR-DGR during 15-31 May, 2017. The fortnight long cleaning drive was coordinated by an institutional committee under the chairmanship of Dr. Sujit K Bishi. The programme started on 16th May, 2017 and the staff members assembled in the conference hall of the directorate. The programme was initiated with pledge taking by all the staffs, followed by a brief explanation about the fortnight long Swachchhta pakhawada drive by the committee members. Posters/banners were displayed at various places within the campus. The group then moved to start cleaning in front and nearby areas of the office premises. Thorough cleaning was done which was accompanied with photo-session. The committee had prepared date wise detail work plan to be under taken from 16th to 31st October, 2017 which was smoothly followed during the cleaning drive programme in/out the Directorate. All the staff of this Directorate actively participated in the cleaning drive. A



massive cleaning drive was under taken around the premises and the staff quarters of ICAR-DGR. During those days, all the staff of this Directorate participated in uprooting of weeds, grasses and un-decomposed wastes etc. All waste materials were later disposed of to the waste pit/area of the campus. Digging of compost pits in the experimental plots was under taken. People from nearby villages appreciated the cleaning drive under taken by this Directorate. As a part of this programme, Yoga was organized in ICAR-DGR which was conducted by a Yoga instructor trained from Patanjali Yogapeeth. Besides that competitions on essay writing, and slogan writing pertaining to cleanliness were organized among the staff members. A lecture on "Positive thinking" was held where all the staffs participated and expressed their views on positive thinking. The active participation of the all staff members of this Directorate made this programme a great success.



New Joining

Ms. Sushmita has joined the ICAR-DGR on 3rd April, 2017 in Department of Plant Physiology as a Scientist upon transfer from ICAR-National Bureau of Plant Genetic Resources, New Delhi.

Superannuation

Shri H. S. Mistry (UDC) retired from their service on 31st May 2017 after serving the institute over three decades.



Photo Credit : A.M. Vakhariya

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