

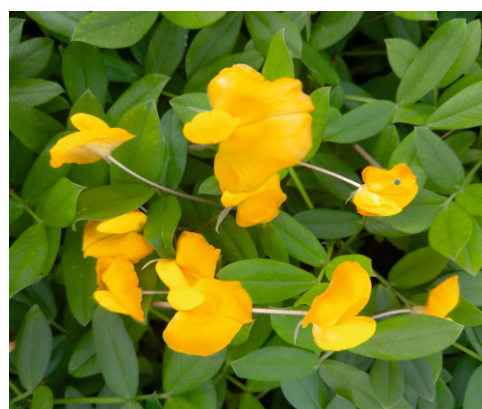


ICAR-DGR

Volume XXII (2) July to Dec. 2023

News Letter

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ICAR-Directorate of Groundnut Research
(An ISO 9001: 2015 Certified Institute)

Quinquennial Review Team (QRT) reviewed ICAR-DGR

The ICAR constituted the QRT on Groundnut for the period of 2017-21 on 15th June, 2022. The QRT had its inception meeting on 9th December, 2022 followed by meeting on 1st-2nd March, 2023 (both in virtual mode) where deliberations were made about ICAR-DGR and AICRPG centers, respectively. Since then, seven other meetings were held at different locations across the AICRPG centers where hon'ble QRT Members visited the ICAR-DGR and its AICRPG Centers to assess the development/progress made in R & D of groundnut crop. The team suggested to operationalize the National Crossing Programs, to continue developing trait specific varieties (short duration, higher vitamin E, micronutrient-dense, fresh seed dormancy and tolerant to heat/drought/salinity) and to explore other important physiological traits supporting the yield enhancement. Other suggestions include non-human pathogenicity tests of strains in bio-fertilizers, studies on VAM fungi and non-pathogenic *Aspergillus* and *Sclerotium* fungi for bio control, use of *Trichoderma viride* with Tebuconazole instead of *T. harzianum* (due to compatibility issue), bio control of white grub using *Bacillus subtilis*, developing tiny/small devices for post-harvest pest monitoring/management, and use of pheromone traps for monitoring/control of *Spodoptera* and *Helicoverpa*. Further, monitoring/control of pests, registration of varieties under PPV&FRA, policy for yield-gap reduction through technology adoption and case studies, and above all, recruitment of specifically required scientist(s) in AICRPG Centers along with strengthening scientific, technical & administrative cadre strength of ICAR-DGR were also suggested.



QRT Meeting at ICAR-DGR and JAU, Junagadh during 4th- 6th November, 2023

Dr. P.N. Sharma, Member, RAC visited ICAR-DGR, RRS, Bikaner

Dr. P.N. Sharma, RAC member of ICAR-DGR, visited RRS, Bikaner during 1st-2nd September, 2023 to discuss the research programme on groundnut collar rot which is a major soil borne disease in Bikaner and causes about 30-50% seedling mortality in farmers' field. He also visited Fusarium leaf blight experiment conducted at CSWRI-ARC farm and collar rot sick plot developed at AICRP-G centre, SKRAU, Bikaner, and reviewed the different research experiments being conducted and gave his inputs to develop systematic research strategies for collar rot management in groundnut. He thoroughly discussed the screening methodology and approaches to sick the soil for collar rot. On 02.09.2023, Dr. P.N. Sharma, Dr. Narendra Kumar, Dr. Raja Ram Choudhary and Dr. B.D.S. Nathawat visited farmers' fields to investigate the incidence of diseases in groundnut and crop management practices being followed by the farmers for the management of collar rot in the region. Farmers were advised to adopt improved groundnut production technologies for getting higher crop yield.



DGR-RRS field visit



SKRAU, Bikaner sick plot visit



Farmers' field visit

Independence Day celebration at ICAR-DGR

On August 15, 2023, ICAR-DGR marked 77th Independence Day with celebrations across its campuses in Junagadh (Gujarat), Bikaner (Rajasthan), Medinipur (West Bengal), and Anantapur (Andhra Pradesh). Dr. SK Bera, the Director, hoisted the National Flag at the main campus, addressing the staff and children present. He emphasized ICAR-DGR's achievements and outlined future goals for enhancing groundnut area, production, and overall productivity in the country. Similarly, at the Regional Research Stations, the heads hoisted the National Flag in their respective centres.



Foundation Day celebration and Kisan Mela at ICAR-DGR

ICAR-Directorate of Groundnut Research, Junagadh celebrated its 45th Foundation Day on 1st October, 2023. Kisan Mela was organised on this occasion which was chaired by Dr. V. P. Chovatia, Hon'ble Vice Chancellor, Junagadh Agricultural University, Junagadh. Sh. Sanjay Koradia, Hon'ble Member, Gujarat Legislative Assembly, Junagadh was the Chief Guest of the Function. Dr. R. B. Madariya, Director of Research, Junagadh Agricultural University, Junagadh, as the special guest and



Inauguration of 45th Foundation Day and Kisan Mela at ICAR-DGR



Farmers visiting stalls in the exhibition



Exhibition committee at ICAR-DGR stall

Dr. Ajit Kumar Shasany, Director, CSIR-National Botanical Research Institute, Lucknow as the Guest of Honour graced the occasion on this auspicious day. Dr. Manjunatha P Paled, Scientist, ICAR-DGR, Junagadh was the chairman of exhibition committee of Kisan Mela including press, publicity & reporting committee. More than 600 farmers from various districts of Gujarat actively participated in the Kisan Mela and about 19 agro-based companies showcased their products in the stalls. Five progressive farmers were awarded by the Directorate for their significant contribution in groundnut production and for adopting advanced groundnut technologies that are developed by ICAR-DGR. Farmers expressed positive response on Directorate's high oleic groundnut varieties, Girnar-4 & Girnar-5, and other technologies of ICAR-DGR.

Vigilance Awareness organized at ICAR-DGR

Vigilance awareness campaigns on the theme of PIDPI (Public Interest Disclosure & Protection of Informer Resolution, 2004) was organized for three-months (16th August to 15th November, 2023) at ICAR-DGR, Junagadh, its RRSs at Bikaner, Anantapur and Medinipur, and at the adopted village of Mithapur through knowledge based/awareness talks, Kisan Diwas, public discourse /interactions, and Gram Savas. The provisions of PIDPI resolution, the correct procedure of filing a PIDPI complaint and common pitfalls/ mistakes made while filing PIDPI complaints were explained. In all, 23 programmes were organized (having duration of an hour to one day) under the main theme of PIDPI where >3000 farmers participated. Several pertinent topics involving procurement, Ethics and Governance, Systems and Procedures of the Organization and Cyber Hygiene and Security were covered where >200 stakeholders were trained. The vigilance awareness-based functions were held under the supervision of Dr CS Praharaj, PS & Head and Vigilance Officer, ICAR-DGR, Junagadh.



Training program for UG Students of Shree Sardar Patel Mahila B.Ed. College

UG Students of Shree Sardar Patel Mahila B.Ed. College attended one day training program organized at ICAR- Directorate of Groundnut Research, Junagadh as per the request letter dated 18.10.2023. Around 58 students were given training on groundnut production technologies and nutrient management strategies in groundnut. Training program was organized by Dr. Harish G, Coordinator and Dr. Sushmita Singh, Co-Coordinator on 08.11.2023. The students also visited Museum, and Laboratory of Plant Physiology, Biochemistry and Biotechnology.



Students' interaction during Lab visit



One day training program for UG Students of Shree Sardar Patel Mahila B.Ed. College

World Soil Day celebrated at ICAR-DGR

The World Soil Day was celebrated on 5th December 2023 and the theme was “*Soil and Water: a source of life*”. This event was celebrated at ICAR-DGR along with about 70 farmers from the neighbouring villages under Junagadh district in Gujarat. The Chief Guest, Mr. M. C. Kataria, former DDA (Training), FTC Amreli stressed on the education of farmers' and their awareness on the importance of soil and water in our every day's life. In his inaugural address, Chairman, Dr. CS Praharaj, explained on how the healthy soil could be soul of sustained life over the earth. Balanced nutrition is thus important in bridging the yield gaps and restoring food & nutritional security. He advised farmers for judicious use of agrochemicals, use of innovative technologies such as ICM practice, drone use in pesticide-foliar spray, drip/sprinkler-based fertigation, precision agriculture and



Glimpses of the WSD celebrated at ICAR-DGR, Junagadh on Dec 5, 2023

laser levelling, and post-harvest management and value addition for achieving higher total factor productivity and improved soil quality. He urged for a *Jana Andolan* towards creation of awareness on both soil & water - *the source of life on the earth*. Farm kits were also distributed to the farmers under Tribal Sub Plan (TSP) during the programme.

Parthenium Awareness Day celebrated at ICAR-DGR

ICAR-DGR, Junagadh celebrated Parthenium Awareness Day as a part of Parthenium Awareness Week (16-22, August 2023) on 22nd August 2023 at Model Peanut Village “Mithapur”. About 50 farmers attended the event. Dr. C. S. Praharaj, Co-convenor gave detailed information about Parthenium weed including its history and its adverse effects on soil, animal, and human health. Dr. Kiran K Reddy, Convenor and Sh. R. D. Padvi, Co-convenor briefed about preparation of compost from Parthenium biomass. Dr. Kiran K Reddy also explained in detail about integrated weed management practices of Parthenium and created awareness among farmers about agri-startups under Agri-Business Incubator. In addition to this, Dr. Manjunatha P Paled highlighted the extent of economic loss across crops due to Parthenium weed.



Dr. Kiran Reddy explaining about integrated management approaches of Parthenium



Uprooting of Parthenium in the farmer's field

ICAR-DGR-RRS, Bikaner organized Field Day

ICAR-DGR, RRS, Bikaner organized a Groundnut Field Day on August 12, 2023 in which thirty-three groundnut farmers from Bhadrasar, Sattasar and Surpura villages of Bikaner district participated. Dr. Narendra Kumar, Convener of the programme suggested the groundnut farmers to use good quality seed of the latest high yielding groundnut varieties recommended for Rajasthan. Dr Sudhir Kumar, Head, ICAR-IIPR, RRC, Bikaner explained the importance of crop diversification with legume crops to the farmers. Groundnut literature related to weed management, recommended varieties and disease management and insect management were also distributed. Dr. Rajaram Choudhary and Dr. BDS Nathawat discussed about cultivation practices and disease management in groundnut. Dr. SK Bera, Director, ICAR-DGR, also attended the programme and suggested farmers to use insecticides, pesticide and fertilizers judiciously. He also encouraged farmers to adopt improved groundnut varieties (Girnar 4, Girnar 5 and RG 638) to increase benefits in groundnut cultivation.



Groundnut Field Day at ICAR-DGR-RRS, Bikaner



Incidence of *Spodoptera litura* in *Kharif* groundnut

During *Kharif*-2023, incidence of *Spodoptera* was observed in the first week of September. Three male moths were trapped in a single pheromone trap and two egg masses were collected from the groundnut sown in Entomology experimental plots of ICAR-DGR, Junagadh. *Spodoptera* is a polyphagous pest infesting many economically important crops. Female moth lays eggs on surface of the leaves in batches of around 200 to 300 eggs which are often covered by white scales of female moth for protecting the eggs from direct sunlight, parasitoids and predators. After hatching, the first instar larvae feeds by scrapping under the surface of the leaves leaving only veins and veinlets. Affected leaves appear skeletonized. A full-grown larva completely defoliates plants. Incidence of *Spodoptera* usually coincides with vegetative/flowering stages of groundnut and more than 65% of the foliage damage is done during the night time. In groundnut, the damage by *Spodoptera* is more during *Kharif* compared to *rabi*-summer. These observations help the farmers in judicious adoption of available management practices.

Inputs: Dr. Harish G and Dr. Nataraja Maheshala



Spodoptera moth caught in pheromone trap



Spodoptera egg mass

Efficient season-long weed control in groundnut

Depending on weed flora, specific herbicides(s) and their suitable combination could be efficient and useful for near perfect weed control and superior crop performance in terms of higher yield with better economics. In the existing agro-climate (Saurashtra region of Gujarat), dominant weed species include grasses (*Dactyloctenium*, *Echinochloa* and *Diachanthium* spp.), sedges (*Cyperus* sp.) and few broad-leaved weeds (*Digera arvensis*, *Vernonia cinerea*, *Phyllanthus* spp., *Physalis minima*, *Vigna* sp., *Euphorbia hirta*, and *Commelina benghalensis*). The herbicide combination of “diclosulam 26 g/ha as PRE followed by Fenoxaprop-p-ethyl 78 g/ha as PoE (25 days after emergence)” was observed to be superior in terms of yield, weed control, and application cost as confirmed in groundnut ('TG 37A' of Spanish Bunch) during both *kharif* and spring-summer in this region. Thus, this could be a cost-saving proposition compared to normally practiced costly manual weed control through twice hand weeding followed by interculture (up to 45 DAS).

Inputs: CS Praharaj, Kiran Reddy, Keval Hirapara, Aaradhana Chilwal

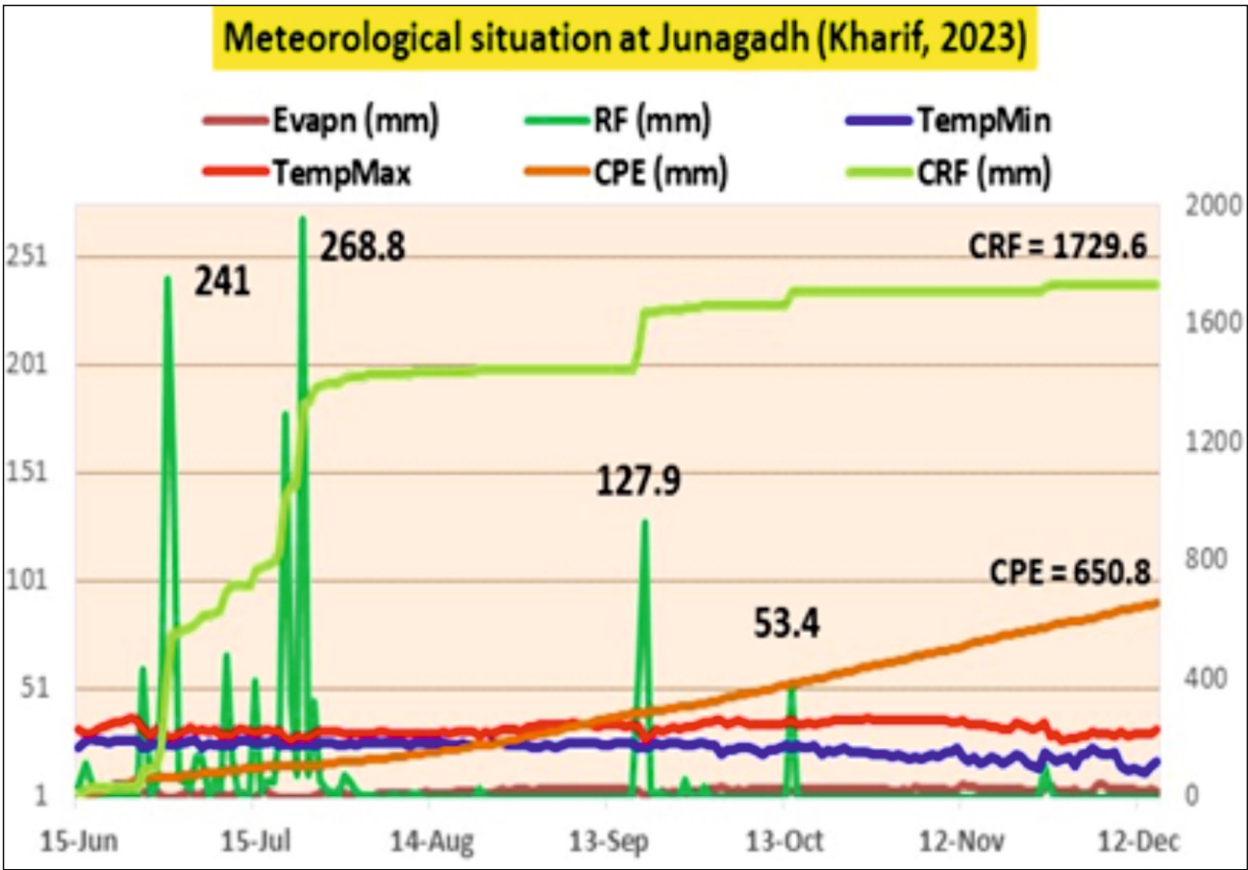


Best weed control treatment (left) versus weedy check (right)

Delayed sowing of groundnut during *Kharif* 2023

SW Monsoon India during 2023 was normal over NW India (101%) covering Gujarat and adjoining region and below normal only over East & NE India (82%). However, the 2023 seasonal (SW monsoon) rainfall over the country (94% of LPA) was less than the long period average (LPA of 88.0 cm) while monthly rainfall over the country was less than LPA during two months of the season and were more than LPA during the months of the July and September. Thus, among the four monsoon months, rainfall deficiency was highest during August and was excess during July and September. Under the given situation, high rainfall during *kharif* (especially in July) resulted in flooding which delayed the sowing of groundnut crop under Gujarat conditions.

Inputs: Dr. C.S. Praharaj



Natural farming yields less than integrated crop management practices

Natural Farming (NF) is considered as an alternative to chemical-based high input agriculture. It has four pillars as 1) Jeevamrutha and Ghanjeevamrutha (cowdung based crop nutrition), 2) Bijamrita (seed treatment), 3) Acchadana (mulching), and 4) Whapasa (efficient and less irrigation) which are integrated into it. To confirm its viability and productivity sustenance, an experiment was conducted in groundnut-wheat cropping system during 2022-23 and 2023-24 at ICAR-DGR, Junagadh. Although *kharif* groundnut responded to NF yet it had 19% reduction in yield compared to Integrated Crop Management Practice (ICM) during 2022-23 (1st year). The same was the trend for rabi-wheat yield (40% lower) and the system (groundnut-wheat) yield as a whole (30% lower) realized under NF compared to ICM. Organic farming (OF) occupied in between the above two practices. Despite following the latest updates in NF (including Ghan Jeevamrita, mulch and higher N of >2% analyzed in both Bijamrita and Jivamrita compared to FYM/ Vermicompost), similar yield responses were observed for *kharif* groundnut grown during the 2nd year, 2023-24 (with 8% lower yield under NF over ICM). Our study showed the superiority of ICM over others (ICM > OF > NF) across the habit groups (Spanish 'TG 37A' and Virginia bunch 'GJG 22').



Natural farming Experiment in Groundnut-wheat at ICAR-DGR

Inputs: CS Praharaj, Kiran Reddy, Keval Hirapara, Harmisha Sojitra

Innovative method for bulk storage of groundnut pods

During survey in farmers field to document various storage, drying and other post-harvest practices contributing to infestation of groundnut bruchid and further contamination by aflatoxin, Dr. Harish G documented an innovative storage method followed by Umesh Parmar farmer belonging to Dhandhwada Village, Mendrada Taluka Junagadh District. The farmer used polythene sheet to cover the groundnut pods from all the sides. He has inserted five hallow PVC pipes for aeration and application of fumigants for management of storage insects. He told that the pods can be stored up to six months without any damage and he sells the pods only when market prices are profitable. Loading and unloading is very easy and bulk storage also requires less space in this storage method as compared to stack storage using bags.

Input: Dr. Harish G



Innovative method for bulk storage of groundnut pods

Reducing irrigations in spring-summer groundnut

Observation in the farmers' field in Junagadh and adjoining region shows that irrigation at weekly interval or around 12-15 irrigations are applied to spring-summer groundnut of 110 days duration for a profitable production of 2-3 t/ha as winter rainfall is scanty in this area causing moisture stress practically at all its critical growth stages. Therefore, for realizing higher productivity goals, the scope for large widening of irrigation intervals or reducing (frequency of) irrigation levels drastically is minimum. In this context, possibility of reducing irrigation levels based on actual crop needs and its actual supplementation (through measuring actual evaporation from the site/region over a period) is explored for gaining efficiency in irrigation water-use. Our study carried out during Spring-Summer 2023 at ICAR-DGR, Junagadh for assessing/refining irrigation schedules (based on IW/CPE ratio) in Spanish bunch groundnut 'TG 37A' showed that irrigation scheduling at 0.8 IW/CPE coinciding at irrigation scheduling at an interval of about 10-days was optimum for spring-summer groundnut (without application of any mulch or other factors). This has a favorable influence both on pod yield and economics of production in this medium black calcareous soil. In fact, lesser or higher number of irrigations over and above this caused significant yield reduction from the threshold level.

Inputs: CS Praharaj, Kiran Reddy, Keval Hirapara, Manjunath Paled

Reducing the existing yield gap in groundnut

A typical improves cultivation practice (ICP) for groundnut includes a rhizobium inoculation of IGR 6 or IGR 40 at 1.25 kg/ha for BNF, PGPR 'NUTBOOST' at 1.25 kg/ha, FYM at 5 t/ha, NPK at 25:50:50 kg/ha, Gypsum for alkaline soils (at 500 kg/ha in two equal instalments), season-long weed control, and necessary plant protection measures (soil application of *Trichoderma viride* @ 2.5kg/ha amalgamated with 500 kg of FYM/ha). Our studies carried out at ICAR-DGR across the seasons (*Kharif* and spring-summer) and cultivars (Spanish bunch 'TG 37A' and Virginia bunch 'KDG 128') showed that consistently higher yields were realized with ICP compared to that adopted by both progressive farmers and non-progressive farmers in Saurashtra (Gujarat) region due to higher availability of plant nutrients, better growth of plants and higher output/economic returns. ICM practice involving use of PGPR-NUTBOOST as seed treatment tested in our study proved to be a promising alternative for profitable crop production and recovery of poor quality (degraded) soils in a sustainable manner.

Inputs: CS Praharaj, Kiran Reddy, Keval Hirapara, Shanmuka Adupa

Joining/ Transfers/ Superannuation of staff

Joining

- 1 **Dr. Manjunatha P. Paled,**
Scientist (Economics),
joined ICAR-DGR on
18.07.2023



- 2 **Ms. Shanmuka Adupa,**
Scientist (Extension),
joined ICAR-DGR on
28.08.2023



Transfers

- 1 **Sh. Anupam Kumar
Chaubey**
AAO (on deputation),
transferred from
ICAR-DGR on
29.09.2023



- 2 **Dr. Rinku Dey**
Principal Scientist
(Microbiology),
transferred from
ICAR-DGR on
22.12.2023



Superannuation

- 1 **Sh. N. M. Safi,**
Technical officer (Driver),
superannuated from
ICAR-DGR on
31.08.2023



- 2 **Sh. N. G. Vadher,**
SSS, superannuated
from ICAR-DGR on
30.09.2023



Editors:

Dr Sushmita

Dr Rajanna GA

Dr Rajaram Choudhary

Dr Aaradhana Chilwal

Mr. Lokesh Thawait

Published by:

Director, ICAR- DGR

Contact details :

Dr. S.K. Bera,

Director, ICAR- Directorate of Groundnut Research, Junagadh

Email : director.dgr@icar.gov.in

Phn : 0285-2673382

Fax : 0285-2672550