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DOGR news

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From Director's Desk

I assumed the charge of Director, Directorate of Onion and Garlic Research (DOGR), Rajgurungar, Pune only recently i.e. 9th January 2012. Having served the council for more than 33 years, I feel confident of discharging my new responsibilities. I thank the Almighty for giving me this opportunity.

I appreciate the work done by my predecessor and the founder Director Dr. K.E. Lavande for bringing the DOGR to its current level and that too with the limited staff, which this center has. I would describe DOGR as a beautiful compact research center with all basic facilities and well maintained fields and laboratories. It has three farms, the main center at Rajgurunagar has 55 acres, the seed production farm at Kalus located about 20 km from the main campus has 52 acres and another 10 acres of seed farm taken from NRC on grapes, Manjari is near Pune city, which is about 45 km from Rajgurunagar. An area of 1.5 acres on the Baner farm of IARI regional station, Pune is also with DOGR.

After joining DOGR, the one of the important tasks I had at hand was to finalize the XII plan EFC document. I along with my colleagues have revisited our mandate and the future R & D activities important to onion and garlic. We organized a stake holders meeting on 30th January, 2012 in which representative from state government, private sector as well farmers actively participated. The proceedings of this meeting are included in this issue. Based on collective wisdom, we have proposed a plan of Rs. 108.54 crores. The highlights of the plan are three flagships programmes which we feel are very important for future R&D of onion and garlic. These are high quality breeder seed production in garlic, development of durable resistance against major biotic stresses in onion (*Allium cepa*) and impact of climate change on onion and garlic production and its mitigation

The Quinquannial Review Team (QRT) of DOGR has been constituted by the council in October 2011. We had pre-QRT meeting with the review team on 2nd February, 2012 in the chairmanship of Dr. HP Singh, DDG (Hort) at Krishi Ansandhan Bhavan - II. The tentative programme for the visit of the QRT to DOGR and its affiliated centers has been finalized. We look forward to the recommendations of this august body for the benefit of DOGR.

There are a number of other important events being organized by DOGR in near future including the Agriculture Education Day on 18th February, 2012, IRC meeting in the last week of March, 2012 and the annual review meeting of the All India Network Research Project on Onion and Garlic (AINRPOG) in April end. These interactive meetings will definitely help broaden our vision of DOGR. My major objective at DOGR will be to have focused research on few but well thought problems so as to improve productivity and quality of onion and garlic

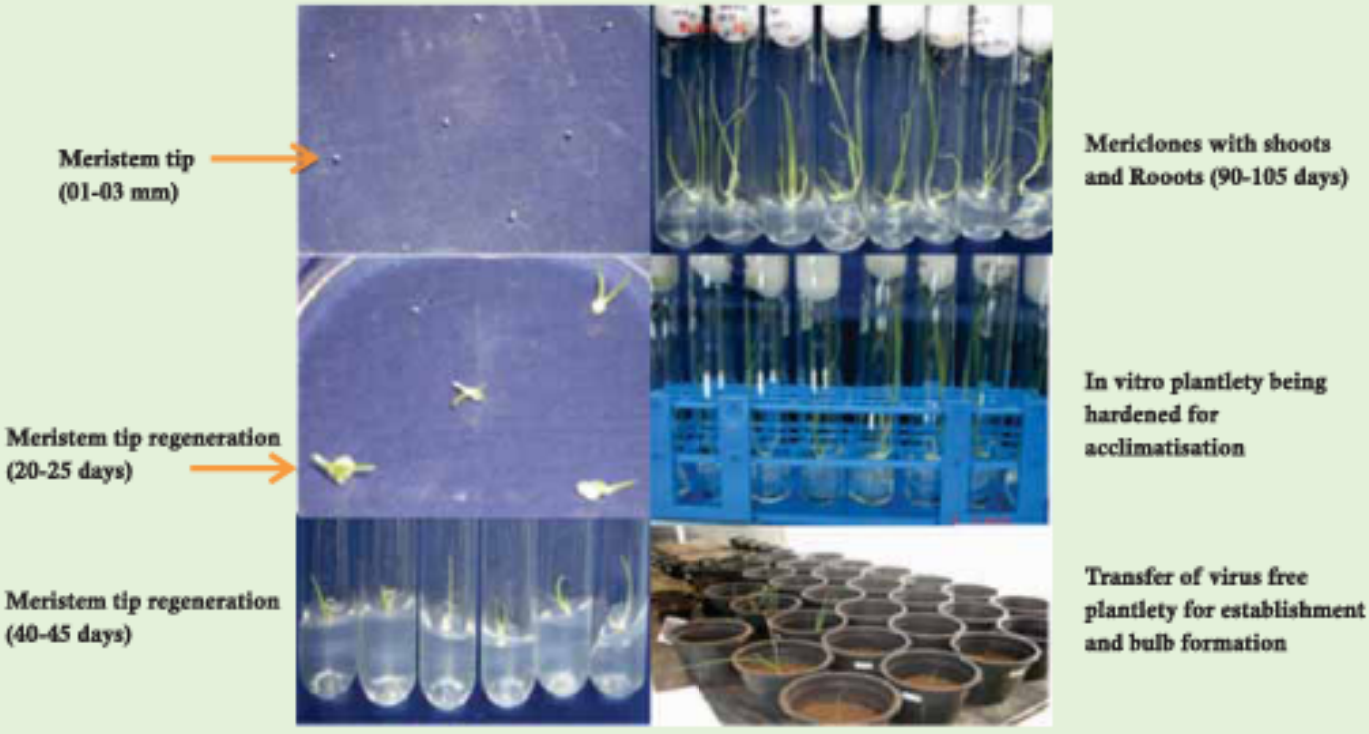
Possibilities of Garlic Breeder Seed Production through *In Vitro* Approaches

Garlic (*Allium sativum* L.) is one of the most important *Allium* crops cultivated widely throughout the world. Globally, India ranks at second position and accounts for 12% of total area having 3.9% production with a productivity of 6.1 t/ha as compared to lead country China which accounts for 57% area, 76.6% production with a productivity of 18.1 t/ha. Productivity wise, India stands at 76th position among the 231 garlic producing countries of the world. The main reason behind low productivity in our country is that garlic is cultivated mostly in tropical and subtropical India as a short duration crop as compared to the long duration crop in other countries. The other reason behind low productivity could be that the farmers are predominantly using their own seed material or local land-races which are infected with viruses.

Being vegetatively propagated, traditional methods of breeding are limited to clonal selection and mutation breeding which is a long duration strategy and often the yield is not very high to justify the input for varietal development. Garlic plants are usually infected by a mixture of viruses e.g., Onion yellow dwarf virus (OYDV, Potyvirus), Leek yellow stripe virus (LYSV, Potyvirus), Garlic common latent virus (GarCLV, Carlavirus), Shallot latent virus (SLV, Carlavirus), Iris yellow spot virus (Tospovirus) and mite-borne mosaic viruses (allexiviruses) which are collectively called as the garlic viral complex. At Directorate of Onion and Garlic Research (DOGR), Rajgurunagar, Pune, we observed up to 100% incidence of OYDV on local and cultivated varieties and indigenous germplasm. Research studies at Asian Vegetable Research and Development Centre (AVRDC), Taiwan, suggest that use of virus free seeds leads to a yield increase of 30-70% as compared to its virus infested mother plants. Hence, development of virus free garlic breeder seed of commercially cultivated varieties will be a good means to increase our productivity.

At DOGR, Rajgurunagar, Pune, research on *Allium* virus diagnostics and production of virus garlic planting material through meristem tip cultures has actively been taken up. Explants viz., mersitem tip and shoot tip obtained from conventionally stored and cold treated bulbs of varieties

Meristem tip culture in cv. G41



(G41, Phule Baswant and Bhima Purple) were used. It was observed that use of meristems as explants coupled with cold treatment (4°C) lead to successful generation of more virus free plants as compared to the use of shoot tip as explants. Screening of the virus free plants was done against potyviruses. The plants so obtained were transferred to the greenhouse for acclimatisation and hardening. Further protocol of their establishment under field conditions is under progress.

The work on development of indigenous diagnostic kits for disease free planting material production and screening for viral disease resistance has been initiated. Serological and molecular techniques for the detection of major symptom producing viruses i.e. IYSV and OYDV have been developed. Our aim is to develop a complete process for the production of breeder seed of garlic.

Mechanization for Direct Sowing of Onion

Seed drill from Pune

Seed drill from Latur

Onion is commonly grown in India through seedling transplants. Thus, raising nursery is a pre-requisite. It consumes a lot of time, labour and cost. Higher production with lower input cost is one of the success keys in harnessing benefits of vegetables production. In Europe and USA precision seed planters are used, which cut down the input cost. However, these precision planters are very expensive and may not suit to the budget of our Indian farmers. Further, these are usually preferred for large scale cultivation and may not be convenient and economical for small holdings in India. No specialized equipments are available in India for direct planting. Some prototypes for direct sowing of onion have been developed by farmers with the help of local artisans, but there is lack in precision and accuracy and

Pneumatic seed drill imported from Italy

performance is largely dependent on the skill of person who is performing sowing operation. Locally developed seed drills tested earlier at DOGR revealed that these indigenous, manually operated drills do not help in labour saving and precision particularly because of sowing depth and spacing is not satisfactory. To overcome these problems, CIAE, Bhopal imported pneumatic seed drill from Italy. This seed drill is useful for direct sowing of all types of vegetables particularly onion, okra, carrot etc. This versatile and multipurpose machine can be fitted with as many seeding units as needed to meet the specific requirements of the farmers. It is equipped with everything that is necessary to handle all the different types of seed.

For the first time, a pilot experiment was taken up at DOGR farm, Rajgurunagar during *rabi* season. Direct seeding of onion was successfully completed at our centre with the help of pneumatic seed drill along with other available indigenous seed drills in comparison with manual sowing. Observations were recorded on precision, seed germination, crop stand, bulb yield *etc.*. The performance of the machine will be studied under different seasons.

Research Advisory Committee Meeting

The fourteenth RAC meeting of DOGR was held on November 21-22, 2011. Dr. B.S. Dhankhar, Former Assistant Director General (ADG) chaired the meeting. Other RAC members were Prof. M. Udayakumar, UAS, Bangalore, Prof. A.N. Maurya, Emeritus Scientist, BHU, Varanasi, Dr. Hari Har Ram, Vice President (R&D) Krishidhan Seeds Pvt. Ltd., Dr. S.J. Singh, Former Head, IARI Regional Station, Pune. Dr. Umesh Srivastava, ADG (Vegetable Crops) ICAR, New Delhi, Dr. R.P. Gupta, Director, NHRDF, Nashik, Mr. Dilip Mohite Patil, MLA, Khed. Mr. Vikram T. Awachat was present as Non-Official Member, and Dr. S. R. Bhat Principal Scientist, NRCPB, New Delhi and Dr. Anil Kush, CEO, VMSRI, Bangalore attended the meeting as Invited Experts. All the scientists of DOGR were also present in the meeting. Dr. C.R. Ramesh, Director (Actg) gave brief overview of research activities of DOGR. The achievements of the different programmes were presented by respective scientists, which were followed by discussion at length. The interaction between RAC members and group of scientists evolved the recommendations for streamlining the research programmes. It was thought that the research activity on issues like impact of climate change on onion and garlic production, flower induction in garlic and identification of photo-insensitive garlic should be initiated during course. A unique feature of RAC meeting was that the RAC members and invited experts delivered lectures on the topic of interest in present context. Prof M. Udayakumar elaborated on "Approaches to improve stress adaptation of crops", while Dr S.R. Bhat delivered lecture on "Biotechnological interventions in onion and garlic improvement". Similarly, Dr Hari Har Ram delivered talk on "Onion Breeding and Seed Production in India-Perception and Facts". A visit to farmers' field was also organized for RAC members.

Stakeholders' Meeting

A stakeholders' meeting was convened on 30th Jan. 2012 to prioritize research programmes for finalization of XII plan. It was attended by representatives from KVKs, private companies, SAUs, state department officials and farmers. Dr CR Ramesh, Principal Scientist, DOGR, stressed upon the importance of stakeholders meet for finalization of XII plan. Dr Jai Gopal, Director, DOGR briefed about the ongoing research activities of DOGR. Dr UB Pandey, Principal Scientist, JISL, Jalgaon gave overall account of researchable issues in onion and garlic from industries point of view. Mr DM Sable, Project manager, MSAMB, Pune talked on problems and prospects in onion and garlic marketing. Mr J. Jadhav, Joint Director (Horticulture) talked on Prospects and Problem of Onion and Garlic cultivation in Maharashtra State. Dr Ulmek, Assoc. Dean, MPKV, Pune, stressed upon the need of conserving indigenous germplasm and landraces. Onion farmers, Mr SD Padekar and Mr Uddhav Khedkar gave overall accounts of researchable issues in Onion and Garlic from farmers' point of view. After detailed discussions and deliberations, qualitative salient recommendations emerged, which were comprehensively added in XII plan activities of DOGR.

Dr K.E. Lawande-past director of DOGR, joins as Vice-Chancellor of Dr. BSKKV, Dapoli

The founder Director of DOGR, Dr. K.E. Lawande, has joined as Vice-Chancellor of Dr. BSKKV, Dapoli. A distinguished aluminous of IARI, New Delhi and a renowned vegetable breeder of MPKV Rahuri, Prof. Lawande was bestowed with the charge of founder Director of the then National Research Centre for Onion and Garlic Research in May 1997. The exclusive and zealous endeavors of Dr Lawande for more than a decade culminated into the transformation of National Research Centre to a Directorate with 12 co-ordinating and 15 voluntary centres across the country. During the tenure at DOGR, Dr Lawande released seven onion varieties and 2 garlic varieties apart from 17 other vegetable varieties released from MPKV Rahuri, which are popular among Maharashtra, Gujarat and Karnataka farmers. He also played a crucial role in the development of a number of valuable production and storage technologies which have helped in enhancing the productivity of onion and garlic and net availability for domestic as well as export market. Dr Lawande has published several scientific papers in the journals of national and international repute and authored several policy papers. He is a recipient of various prestigious awards and honors, and fellow of scientific societies. DOGR congratulates Dr K.E. Lawande for his selection to a prestigious position and wishes him a great success.

Dr. Jai Gopal – New Director of DOGR

Dr. Jai Gopal has assumed the duties as Director of Directorate of Onion and Garlic Research, Rajgurunagar on 9th January 2012. Earlier he served as Principal Scientist and Head, Division of Crop Improvement at Central Potato Research Institute, Shimla, Dr. Jai Gopal is well known across the globe for his outstanding contributions in agricultural research in general and in potato breeding in particular. To his credit, Dr Jai Gopal has a dozen of potato varieties suited to a wide range of agro-ecological attributes and his R&D endeavours have been published in national and international journals of repute. The fervour of scientific inquisitiveness, and ingenuity made Dr Jai Gopal to travel extensively and chaired the different sessions in national and international conferences and symposia. The international assignments viz. Visiting Associate, International Potato Centre, Lima, Peru (2001-02) and Visiting Professor, Hokkaido University Japan, 2003, 2005-06, Member, Task Force, GIPB, FAO, Rome, and Panel member, Science Council (CGIAR), FAO for EPMR of CIP, appropriately substantiates his dedication towards the subject and a path breaking contributions. Among different allied activities Dr Jai Gopal shoulders the responsibility of Processing Editor, Potato Research, The Netherlands; Associate Editor, Plant Production Science, Japan; Editor-in-Chief, Potato Journal; and Editor, Global Science Books, UK/Japan. A distinguished aluminous of Punjab Agricultural University, Ludhiana, Dr Jai Gopal has been awarded with MS Randhawa Medal, 1995; Jawahar Lal Nehru Award, 1997, Vasant Rao Naik Memorial Certificate of Merit, 1998; CPRI Merit Award 2004 and Recognition Award (NAAS) 2007-08. He is fellow of National Academy of Agricultural Sciences; Indian Society of Genetics and Plant Breeding; Indian Potato Association; Japan Society for Promotion of Science and had Associateship of Third World Academy of Sciences. The rich and exclusive experience of Dr Jai Gopal will certainly widen the R&D horizon of the DOGR.

हिन्दी सप्ताह

प्याज एवं लहसून अनुसंधान निदेशालय, राजगुरूनगर में दिनांक 12/09/2011 से 17/09/2011 तक हिन्दी सप्ताह मनाया गया। इस दौरान (1) प्रश्न मंजुषा (2) शुध्द लेखन (3) वाद–विवाद: स्वेच्छा मरण उचित या अनुचित? (वैज्ञानिक एवं तकनीकि कार्मिको के लिए) (4) वाद–विवाद: मृत्यु दण्ड उचित या अनुचित (प्रशासनिक एवं सहायक श्रेणी कार्मिको के लिए) (5) कविता पाठ (6) निबन्ध: द्वितीय हरीत क्रांति (वैज्ञानिक एवं तकनीकि कार्मिको के लिए) (7) निबन्ध: प्रसार माध्यम लोक तंत्र का चौथा स्तम्भ। (प्रशासनिक एवं सहायक श्रेणी कार्मिको के लिए) (8) वैज्ञानिक शोध निबन्ध कि हिन्दी में अभिव्यक्ति का आयोजन किया गया था। समापन कार्यक्रम दिनाँक 17/19/2011 को मुख्य अतिथि डॉ. ओमकारनाथ शुक्ल, हिन्दी अधिकारी, भारतीय उष्णदेशीय मौसम विज्ञान संस्थान, डॉ. होमी भाभा रोड, पाषाण, पुणे–411008 एवं निदेशक, प्याज एवं लहसून अनुसंधान निदेशालय, राजगुरूनगर की अध्यक्षता मे समपन्न किया गया। निदेशक महोदय ने मुख्य अतिथि महोदय का मेमेन्टो, शाल, श्रीफल एवं पुष्प गुच्छ भेट दे कर स्वागत भाषण में अपने उदगार प्रगट किये उसके पश्चात् मुख्य अतिथि महोदय ने अपने अध्यक्षीय भाषण में हिन्दी भाषा को बोलचाल में अधिक से अधिक उपयोग में लाने पर बल दिया। अन्त में विजेता प्रतियोगियों को पुरस्कार प्रदान किये गये । डॉ. अमर जीत गुप्ता, विरिष्ठ वैज्ञानिक ने आभार प्रगट किया।

डॉ. अय्यप्पन ने निदेशालय का दौरा किया।

सचिव, कृषि अनुसंधान एवं शिक्षा विभाग, कृषि मंत्रालय भारत सरकार तथा महानिदेशक भारतीय कृषि अनुसंधान परिषद, डॉ अय्यप्पन ने प्याज एवं लहसून अनुसंधान निदेशालय का दि. २७ अक्तूबर २०११ को दौरा किया । इस भेट के दौरान उन्होंने निदेशालय के विभिन्न विभागों तथा निदेशालय के प्रक्षेत्र में किए हुए विभिन्न प्रयोंगो का निरिक्षण किया। उसके पश्चात निदेशक डॉ. कि.ए. लवांडे ने उनको संस्थान की विभिन्न गतीविधीयों के बारे में अवगत कराया। इस दौरान प्याज एवं लहसून के वितरण प्रणाली पर उपस्थित विभिन्न कठिनाईयों के बारे में और निदेशालय के प्राथमिक प्रयत्नों के बारे में अवगत कराया। अंत में महानिदेशक ने निदेशालय के कर्मचारियों के साथ वार्तालाप किया और परिषद के नविनतम प्रयासों के प्रति सभी को जानकारी दी । उन्होंने निदेशालय के कार्य के प्रति समाधान व्यक्त करते हुए भविष्य के लिए शुमकामनाए प्रदान की।

डॉ. कि.ए. लवांडे को भावपूर्ण विदाई।

प्याज एवं लहसून अनुसंधान निदेशालय के संस्थापक निदेशक डॉ. कि.ए. लवांडे को निदेशालय ने दि.९ नवंबर २०११ को भावपूर्ण विदाई दी। डॉ. कि.ए. लवांडे ने १९९७ में उस समय के राष्ट्रीय प्याज एवं लहसून केंद्र का पदभार ग्रहण किया था। तत्पश्चात उन्हीके मार्गदर्शन में राष्ट्रीय केंद्र का निदेशालय के रुप में स्थानांतरण हुआ। उन्होंने इस निदेशालय के अनुसंधान एवं विकास कार्यो को नयी दिशा देने का महत्त्वपूर्ण कार्य किया। महाराष्ट्र के महामहिम राज्यपाल महोदय ने इनके कार्य को समझकर उनकी डॉ. बा.सा. कोकण कृषि विद्यापीठ के उपकुलपती पद पर नियुक्ती की। निदेशालय ने उनके कार्य के प्रति अपनी आस्था प्रकट करने हेतू विदाई समारोह का आयोजन किया था। कार्यक्रम के दौरान सभी कर्मचारियोंने अपने भावपूर्ण विचार प्रकट किए। अंत में डॉ. कि.ए. लवांडे ने उनके प्रति दिखाए गए प्यार और सन्मान के प्रति धन्यवाद प्रकट किए तथा भविष्य में हर प्रकार की सहाय्यता करने का भरोसा दिलया।

DOGR Participated in KISAN 2011

DOGR participated in Agricultural exhibition 'Kisan 2011'on 14th December 2011 at Moshi, Pune organized by Kisan Forum Pvt Ltd, Pune. The technologies developed at DOGR were displayed at DOGR stall. DOGR stall invoked great response from farmers and large numbers of publications were sold out.

Visitors

Dr. S. Ayyapan, Secretary, DARE and Director General, ICAR, New Delhi

Dr. Vasudevappa, Sr. Executive Director, National Fisheries Development Board, Hyderabad

Dr. Bharat Dhokane Patil, Chairman, Hindustan Agro Co-op. Ltd., Mumbai

New Appointments

Dr. Jai Gopal, Director, w.e.f. 09/01/2012

Sh. C. M. Wakodkar, AAO, w.e.f. 03/10/2011

Promotions

1. **Sh. Shaikh** H.S.C. promoted to T-6 (Technical Officer) w.e.f. 08/05/2011
2. **Sh. R. Baria,** promoted to T-4 (Field/Farm Technical Assistant) w.e.f. 27/04/2011
3. **Sh. S.P. Yeole,** promoted to T-4 (Driver) w.e.f. 12/08/2011
4. **Sh. P.S. Takle,** promoted to T-3 (Field Farm Technician) w.e.f. 14/05/2011
5. **Sh. D.M. Panchal,** promoted to T-3 (Lab Technician) w.e.f. 23/04/2011
6. **Sh. A.B. Dahale,** promoted to T-3 (Tractor driver) w.e.f. 29/06/2011

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