



Visit us at <http://nrcog.mah.nic.in>

DOGR

news



Volume 14 | No.2 | Jul-Dec, 2010

From Director's Desk

June to December is the production period for *kharif* onion, planting of seedlings of late *kharif* crop, raising of nursery for *rabi* season and planting of garlic cloves all over the country. Last year, onion was planted over 7.56 lakh ha, while garlic over 1.94 lakh ha area and the production was to the tune of 121.67 lakh tons and 10.09 lakh tons, respectively. Due to prevailing high temperature from Feb to April 2010, garlic bulb development was affected. Bulb size was small and storability was affected which lead to short supply and prices went up more than Rs.150/kg. There was high demand for garlic seed in Sept-Oct 2010. This year, monsoon was delayed by one month and afterwards there was continuous rainfall till Nov and 200-300 mm rainfall was recorded in all onion and garlic growing states in the month of Oct-Nov which was unusual. The *kharif* onion ready for harvest was affected by 30-40%. Late *kharif* which was planted in Sept-Oct got affected by 15-20% and *rabi* nursery damaged by 15-20%. Stored onion continued up to October. *Kharif* onion which was expected to arrive in these months got damaged. Quality was poor and as a result prices went up. Sowing of *rabi* nursery and garlic planting also got delayed in Maharashtra, Gujarat and Madhya Pradesh. DOGR has always emphasized the importance of *kharif* onion playing critical role in supply chain management from Oct-Dec, as this is the period when there is short supply and if *kharif* crop fails the prices rise. It has been observed that the *kharif* crop planted in flat beds, which is a regular practice by farmers gets affected by *Colletotrichum* disease due to water stagnation. Bulb development is affected due to soil borne diseases like bulb rot, besides foliage damage by *Colletotrichum*. Knowing this critical production gap, DOGR developed technique of planting seedlings on raised bed (BBF) and irrigation through drip or sprinkler. Many farmers are adapting this practice and enhancing their onion productivity. During current season itself, there were cases of 10-12 tons/ha yield in flat bed, while 20-25 tons/ha was observed in the farmers field who planted seedlings on raised beds and used micro-irrigation as per DOGR recommendations under same rainfall pattern. There is need for mass demonstrations of this technology by development departments. This technique will help in enhancing *kharif* productivity and ensure supply in critical period of shortage. Availability of good quality seed of recommended varieties of garlic seed in ample quantity in main production area is highly essential to maintain consistency in area and production with higher productivity. Basic seed will be available from DOGR, Rajgurunagar and NHRDF, Nashik if booked at least one year before planting programme. Onion being cross pollinated, requires 1500 mtrs isolation among two varieties. Getting proper isolation is always a problem in onion seed production when seeds of multiple varieties are to be produced by a single agency. DOGR has linked up onion seed production programme under, "Seed village concept" with six KVKs in Maharashtra. This arrangement ensures us quality seed production of 4-5 varieties which can be supplied to multiplying agencies. There is a need for enhancing "seed village" concept by seed multiplying agencies for maintaining genetic purity of recommended varieties for different seasons.



Research

Onion thrips no longer susceptible to Cypermethrin

Thrips tabaci is a major and serious pest that causes damage, directly and indirectly, to onion crop. Use of insecticides has been a primary as well as reliable strategy for controlling thrips. To ward off this pest, onion growers are using many insecticides belonging to organo- phosphates and carbamates regularly. Later, use of pyrethroids revolutionized pest control resulting in to overuse irrespective of crops. This kind of extensive use often results in to problems like insecticide resistance. Therefore monitoring insecticide resistance in *T. tabaci* attacking onion assumes importance. Susceptibility of thrips to common and widely used insecticides in onion was studied through a series of bioassays. Thrips from different locations of major onion growing areas in Maharashtra were sampled and tested under laboratory conditions for their susceptibility to common insecticides. All the organo-phosphate insecticides tested were found very effective even after many years of continuous usage. Large variations were observed across locations for their susceptibility to cypermethrin applied at field doses. Susceptibility of onion thrips to cypermethrin was found as low as 39% in Otur area and as high as 98% in Bhose area. In only three locations, cypermethrin has caused >90% mortality while in other locations susceptibility has gone down tremendously. A survey conducted in these areas revealed that farmers in many of these areas are extensively and continuously applying cypermethrin either solely or in combination with other insecticides mostly as ready mix formulations to onion crop. The study showed that cypermethrin is no longer effective on onion thrips in many locations. There is an urgent need to spread awareness among the farmers to discourage cypermethrin usage on onion.

Aeolothrips mongolicus- a new predator of onion thrips

Apart from *Thrips tabaci*, presence of other thrips species like *Frankliniella* was reported in many parts of the world. In a study under out reach programme on sucking pests, thrips from different locations were collected and all belong to the species, *T. tabaci* only. While collecting thrips, occurrence of predatory thrips *A. mongolicus* was noticed on onion crop in Parner area in Maharashtra. Both nymphs and adults were bigger in size and found actively feeding.



DOGR-1203 a promising germplasm



A germplasm line DOGR-1203, was collected from Hoogly district, West Bengal. It is grown mainly in the villages of Barail, Hamjanpur, Tona and Balagarh in West Bengal. This particular genotype is being cultivated since 3000 years and origin is not known. It is assumed that Egyptian and Mediterranean traders must have introduced this onion via sea route first in Balagarh block of Hooghly district. The bulbs are ovate shaped with tapering towards neck. Neck is thin and bulb colour is shiny red. The bulb formation is possible only during *rabi* season in Maharashtra with complete and uniform neck fall. This line is early in maturity and harvested within 90 days after transplanting. Storage of bulbs is very good. Dark red colour with good storage for *rabi* season is the need of the day as *rabi* production is dominated by light red varieties. Dark red varieties fetch higher prices than light red. Further improvement and multiplication test is going on.

Evaluation of Biochemical properties of onion bulbs

Pungency level, phenol and total soluble solids are important quality attributes of onion bulbs. Soluble carbohydrates content contribute to onion sweetness. All the above parameters are important in processing and storage quality of bulbs. Assessment of these quality parameters in onion bulbs has become necessary as there is no comprehensive report available for different cultivars. Hence, an attempt was made to evaluate the biochemical characteristics viz., dry matter, pyruvic acid, total soluble solids, total phenol, reducing sugars, non-reducing sugars and total sugars in twenty five onion cultivars (Five light red, six medium red, four dark red, nine white and a yellow varieties). Variation was observed between the cultivars for all the biochemical parameters analyzed. Dry matter varied from 6.53 to 9.61 g 100 g⁻¹. Total sugars, reducing sugars, non reducing sugars and total phenols ranged from 12.00 to 18.90 g 100 g⁻¹, 2.59 to 7.45 g 100 g⁻¹, 7.52 to 13.90 g 100 g⁻¹ and 0.41 to 1.64 mg g⁻¹ (on fresh weight basis) respectively. Whereas, pyruvic acid content ranged from 1.32 to 4.48 µmoles g⁻¹ on a fresh weight basis. Among the cultivars, yellow variety, Phule Swarna registered higher TSS (13.26 %), total sugar (18.90 g 100 g⁻¹), non reducing sugar (13.90 g 100 g⁻¹) and phenol content (1.64 mg g⁻¹) followed by white, dark red, light red and medium red varieties. Higher phenol content was associated with higher antioxidant capacity. Dry matter and non reducing sugar content was higher in light red varieties. The present study revealed that the varieties having more dry matter and non reducing sugars are suitable for storage. In general, the light red varieties such as Arka Niketan, N-2-4-1, Agrifound Light red and Bhima kiran are having more dry matter and non reducing sugar content and possess good storage life than other varieties. Highest pyruvic acid content was registered in Bhima Shubra (4.48 µmole g⁻¹) whereas lowest was recorded in Bhima Super (1.68 µmole g⁻¹). Among the red onion, N-2-4-1 (3.90 µmole g⁻¹) was found to be more pungent than other varieties.

Transfer of Technology

Bahirwadi Turns into Garlic Seed Village



Cloves of elite garlic lines viz., NRC-316, NRC-38, NRC-50, Bhima Omkar, Jamnagar local, Gujarat 1-2 and commercial varieties viz., Godavari and Phule Baswant were given to eight farmers of Bahirwadi, Dist. Ahmednagar in 2007 for cultivation in their field to observe the performance. Farmers multiplied their seed and cultivated garlic in larger plots as an experiment in the year 2009. A broad based furrow bed with drip irrigation method was used by the farmers as per advise of DOGR scientists to minimise

water and labour costs also. Farmers were able to get 9.63 tons of garlic seed in 1.15 ha area. DOGR released variety Bhima Omkar yielded 10.1 tonnes/ha seed and was the highest among the other varieties cultivated by the farmers. According to the farmer Vishnu Zare, farmers from Maharashtra and other states like Karnataka, M.P. and Gujarat have purchased garlic seed from them. And they have earned about Rs. 13.42 lakh from garlic production from 1.15 ha area.

Due to adoption of new varieties and advance technology suggested by DOGR scientists, cost of cultivation was decreased and an increase in productivity (10.1 t/ha) was achieved. It is notable to mention that the average productivity of garlic is 4 t/ha as per the FAO estimates. By noticing the success of farmers involved in garlic seed production, other farmers of Bahirwadi are also motivated to produce garlic. Farmers believe that Bahirwadi is going to turn into a Garlic seed village in the near future. Garlic growers from other areas should also get motivated and follow this success story for enhancing their productivity and income.

A Success Story of Kharif onion Production in Vidarbha in a Paradoxical Situation of Excess Rainfall in Kharif 2010

Kharif onion production is not a tradition in Vidarbha region of Maharashtra. The farmers of Vidarbha generally cultivate *rabi* onion. But due to the factors like shortage of water, irregular electric supply, high temperature, etc. *rabi* onion production is also becoming less profitable. Keeping these constraints in view, Shri. Namdeorao Adhau, a progressive farmer of Deulgaon village of Vidarbha, decided to cultivate *kharif* onion in his field. He visited DOGR and discussed with scientists



for planning the cultivation of *kharif* onion in Vidarbha. He was advised on *kharif* onion production technology developed by DOGR on BBF (Broad Based Furrow) with micro irrigation and provided with technical bulletins and CDs published by DOGR. He planned for 4 acre programme and used variety Bhima Super developed by DOGR and raised his nursery on raised beds and transplanted seedlings on broad based furrows with sprinkler irrigation in the first week of August. He followed fertilizer doses and plant protection recommendations as per DOGR guidelines. He has harvested onion after 95 days and got 10 ton marketable onion per acre and sold right at the field @ Rs.30 per kg which gave him total income of Rs. 3 lakh per acre. Cost of cultivation for onion was Rs.40,

000 per acre. Thus, he received a net profit of Rs. 2.60 lakh per acre. In this way, he earned total profit of Rs. 10.4 lakh from his 4 acre land through *kharif* onion production.

Paradoxically in the *kharif* season of 2010 in Maharashtra, there were yield losses to the tune of 30-60 %. Yield level was 2-4 tons/acre planted in flat beds while raised bed planted crop recorded higher yield of 10t/acre. DOGR is trying hard to demonstrate “*Kharif* Onion Production Technology” for enhancing *kharif* onion productivity from 4 to 10 t/acre. *Kharif* onion plays an important role in supply chain management from October to January all over the country. If *kharif* crop fails, prices rise up as it happened in 1998 and again this year. This technology needs large scale demonstrations by the development departments.

Prestigious ASPEE Foundation Award to our IMC and RAC Member

Our IMC and RAC member, Mr. Vikram Tryambak Awachat, a farmer from village Otur, Dist. Pune has won a prestigious, “ASPEE Foundation Award” having cash prize of Rs. one lakh for enhancing onion productivity by adopting innovative technologies and guiding farmers in his village. Mr. V. T. Awachat and his colleagues have a farmers club called, “Chaitanya Farmers Club” having more than 100 members. This club is in regular contact with DOGR and they exchange their problems and solutions about enhancing onion productivity, quality and storage. DOGR has arranged kisan mela and series of discussions in Otur and emphasized for, (i) production of nursery on raised beds with drip or sprinkler instead of sowing seed in flat beds with flow irrigation, (ii) planting of seedlings on raised beds (BBF) with drip irrigation, (iii) fertigation and plant protection as per DOGR recommendations, (iv) curing and use of DOGR developed storage structures. Mr. V. T. Awachat and other two members of the club adopted the technology in 2007. Apart from higher yields they were benefitted by water saving up to 40%, labour and nitrogenous fertilizers



up to 30%, ease in watering and harvesting, better storage, etc. Next year 100 farmers got motivated and adopted micro-irrigation. Mr. V. T. Awachat, being leader of the group and staunch follower of DOGR technologies, his nomination was sent to ASPEE Foundation. The award has been conferred to him. We congratulate him and his family for leading onion growers through their experience in right direction with the help of DOGR.

Participation in exhibition



DOGR participated in agricultural exhibition "Baramati Agri Expo-Haritranti 2010" during 1st-4th November at Baramati, Dist. Pune organized by Agricultural Produce Market Committee, Baramati and also participated in agricultural exhibition "KISAN 2010" during 15th -19th December at Moshi, Pune organized by Kisan Forum Pvt Ltd, Pune. DOGR stall invoked great response from farmers and large numbers of publications were sold out.

There was huge demand for marathi publications especially for "Kanda Lagwad" written by Dr. K. E. Lawande, Director, DOGR.

हिन्दी सप्ताह

प्याज एवं लहसून अनुसंधान निदेशालय, राजगुरुनगर में दिनांक 12/09/2010 से 18/09/2010 तक हिन्दी सप्ताह मनाया गया। इस दौरान (1) शुलेखन (2) वैज्ञानिक शोधनिबन्ध की हिन्दी में अभिव्यक्ति (3) निबन्ध: मौसम परिवर्तन से जीवन सृष्टी पर प्रभाव (वैज्ञानिक एवं तकनीकी कार्मिकों के लिए) (4) निबन्ध: दैनिक जीवन में मंहगाई का प्रभाव। (प्रशासनिक एवं सहायक श्रेणी कार्मिकों के लिए) (5) वाद-विवाद: 21 वीं सदी में आरक्षण नीति कितनी आवश्यक? (वैज्ञानिक एवं तकनीकी कार्मिकों के लिए) (6) वाद-विवाद: वर्तमान परिवेश में मोबाईल सेवा कितनी आवश्यक? (प्रशासनिक एवं सहायक श्रेणी कार्मिकों के लिए) (7) प्रश्न मंजूषा (8) कविता पाठ का आयोजन किया गया था। समापन कार्यक्रम दिनांक 18/09/2010 को मुख्य अतिथि डॉ. तुकाराम पाटील, प्रोफेसर, हिन्दी प्रभाग, पुणे विश्वविद्यालय, गणेश खिण्ड, पुणे एवं निदेशक, प्याज एवं लहसून अनुसंधान निदेशालय, राजगुरुनगर की अध्यक्षता में सम्पन्न किया गया। निदेशक महोदय ने मुख्य अतिथि महोदय का मोमेन्टो, मानधन, शाल, श्रीफल एवं पुष्प गुच्छ भेंट दे कर स्वागत किया। निदेशक महोदय ने स्वागत भाषण में अपने उद्गार प्रगट किये उसके पश्चात् मुख्य अतिथि महोदय ने अपने अध्यक्षीय भाषण में हिन्दी भाषा को ज्ञानार्जन, विश्व के अनेक देशों में बोली जाने वाली एवं विश्व व्यापार को बढ़ावा देने में प्रमुख भाषा की संज्ञा दी एवं हिन्दी को बोलचाल में अधिक से अधिक उपयोग में लाने पर बल दिया। अन्त में विजेता प्रतियोगियों को पुरस्कार प्रदान किये गये एवं डॉ. वी. महाजन, प्रधान वैज्ञानिक ने आभार प्रगट किया।

Distinguished visitors

The Secretary (DARE) and Director General, ICAR Dr. S. Ayyappan visited DOGR : 28-10-10

Dr. S. Ayyappan visited DOGR on 28th Oct, 2010 and made facility visit inside the institute. Our Director Dr. K. E. Lawande explained the past and current scenario in onion and garlic production and productivity. He also explained different varieties released by DOGR and the main problems of onion growing farmers. Dr. S. Ayyappan was impressed by the storage structures developed by DOGR. Later the DG addressed all the staff at DOGR.

He suggested the scientific staff to give more focus on breeding, biotechnology and crop protection areas and also expressed his views on having collaboration with overseas institutes working on onion and garlic.



Dr. S. B. Dandlin : 6-10-2010
Vice-Chancellor,
UHS, Bagalkot, Karnataka



Field officers of BASF : 21-12-2010
Delegation from Afghanistan

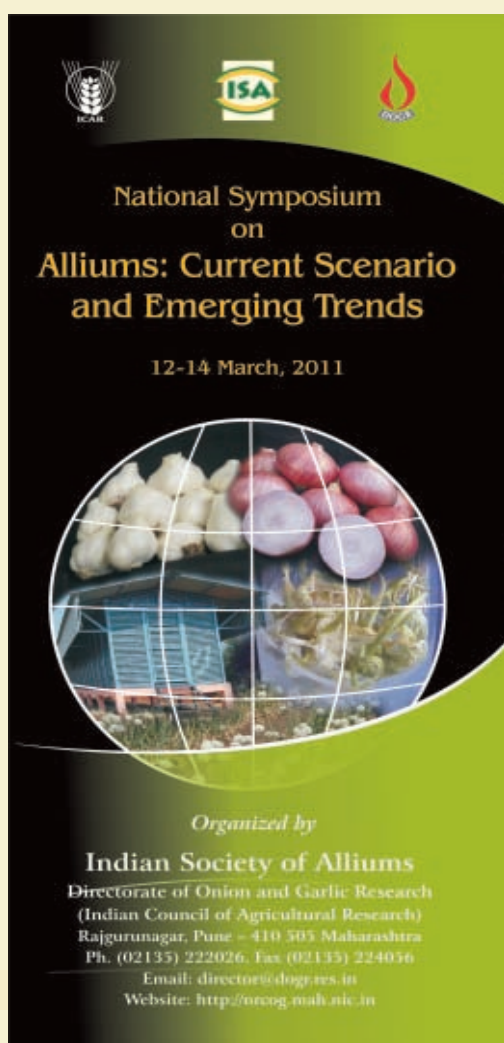
Our New colleagues

Ms. Jayanthi Mala B. R.,
joined as Scientist (Entomology)
on 17th Sep 2010



National Symposium on Alliums: Current Scenario and Emerging Trends

Indian Society of Alliums has great pleasure to announce the organisation of First **National symposium on Alliums: Current scenario and emerging trends** during 12-14 March 2011 at the Vaikunth Mehta National Institute of Co-Operative Management, University Road, Pune – 411 007, Maharashtra. The symposium is designed to provide a common forum for discussion to researchers, including partners from private sector and traders and to share their experience and expertise in areas of crop technologies and marketing.



Theme areas

- * **Genetics and Breeding** : Botany, taxonomy, Genetic resources, breeding for desirable traits, molecular and biotechnological approaches etc
- * **Production Technology** : Input management, organic cultivation, cropping systems, seed production, production constraints etc
- * **Stress management** : Biotic stresses including weeds, insect pests, diseases and nematodes, abiotic stresses and their management, impact of climate change etc
- * **Post harvest management**: Post harvest management practices, storage, grading, packaging, seed storage and seed technology etc
- * **Processing and value addition**: New methods, products, market potential, scope for small scale industries etc
- * **Trade related issues**: Marketing, export, import and other policy related issues, interface with farmers and private seed companies, exporters etc
- * **Health and nutraceutical issues**: Medicinal properties, folk medicine, ayurveda, pharma and nutritional value etc



Published by: Dr. K.E. Lawande, Director. Compiled and Edited by: Jayanthi Mala B.R., Scientist

Directorate of Onion and Garlic Research

Rajgurunagar – 410 505, Dist. Pune, Maharashtra

Phone: 02135-222026, 222697 Fax: 02135-224056 E-mail: director@dogr.res.in / aris@dogr.res.in

Website : <http://nrcog.mah.nic.in>

Designed & Printed by: Anson Advertising & Marketing, Pune. Tel.: 24213244 Fax: 24210013 Email: ansonorama@gmail.com