ICAR

NRCOG News

Volume 11 No.2 July-December, 2007

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DG visits NRCOG

Dr. Mangala Rai, Secretary, DARE and DG ICAR visited NRCOG on 13 December 2007. Dr. K.E.Lawande, Director and Scientists welcomed him to the centre. Later Dr. Rai visited the exhibition hall, research farm and storage structures. Dr. Lawande has briefed him about the on going research programmes and the developmental activities taking place at the centre. Dr. Rai appreciated the efforts made by the centre in releasing the new varieties of onion and the other technologies developed. Later participated in general staff meeting and discussed various aspects.

Congratulations to Dr.K.E.Lawande

Dr.K.E.Lawande has been appointed as Director of this centre for the term i.e. 2007-2011 in succession for the third time. Ever since 1997, being the founder Director of the NRCOG he established the centre with meticulous planning by creating all research facilities, construction of lab cum administrative building and shaping of farm and acquiring new farm land for seed production and all necessary infrastructure facilities. He succeeded in winning laurels from farmers, researchers and administrators. We wish him great success in his III term and hope the centre will be taken to new heights.

Micro Irrigation : A Success Story on Government Farm

Micro-irrigation in the form of drip and sprinkler has unique advantages over conventional methods. The phenomenon is well exploited in fruit crops as well as spacely-planted vegetables. Besides saving irrigation water (40-50%), a vital and precious input, it helps in saving on fertilizers (30%), labour (20-30%) and increase in yield (15-30%). There has been always an apprehension about these systems in closely spaced crops like onion and garlic. Over last seven years, this centre has proved beyond doubt that drip and sprinkler irrigation help accruing its benefits and passed on valuable recommendations.

It is not the end of the story of recommendations, which seldom followed on the government farms continuously where they are originated. NRC for Onion and Garlic has made an example of following its own recommendations for commercialization of the mandate crops.

A revolving fund of Rs.22.00 lakh was received through AP Cess Fund from ICAR for the production of onion and garlic seed during the year 2000. Under this project seed is being produced at Manjri farm under drip irrigation system. Ten acres farm is well equipped with drip irrigation outlets connected with bore well which is just sufficient for 2-3 acres of irrigation if done through surface. However, through drip, in a given season *i.e. rabi*, we are able to irrigate ten acres of area very successfully. The data on yield and net profit is summarized in table for garlic and onion seed crops. Economics Of Seed Production Under Drip Irrigation

Economics of Seed Production Under Drip Irrigation

Year	Total Area (Acres)	Cost of Cultivation (Rs./acre) *	Seed yield (kg/acre)	Rate (Rs./kg)	Total Income (Rs./acre)	Net Profit (Rs./acre)	C:B ratio
GARLIC (variety G-41)							
2002-03	4.00	41446	1500	50	75000	33554	
2003-04	3.75	36659	1290	50	64500	27841	
2004-05	3.50	39578	2000	50	100000	60422	
2005-06	5.00	33461	880	70	61600	28139	
2006-07	2.50	48076	1728	80	138240	90164	
Average	**1.0**	**39844**	**1480**	**60**	**87868**	**48024**	**1:2.20**
ONION (variety N-2-4-1)							
2001-02	3.00	35913	244	300	73200	37286	
2005-06	3.15	40520	178	500	89000	48480	
2006-07	6.10	43657	393	600	235800	192143	
Average	**1.0**	**40030**	**272**	**466**	**132667**	**92637**	**1:3.30**

** Depreciation cost of drip system is included.*

In garlic, Rs.48000/- and in onion Rs.90000/- can be earned as net profit per acre with drip irrigation.

Onion haploids

Haploids in short day onion have been developed at the Centre through *in vitro* gynogenesis for the first time in India using unopened flower bud explants. The explants upon culture in direct shoot induction media resulted in the formation of plants directly from the ovary (Fig. 1).

These plants were initially multiplied in shoot multiplication medium and the resultant multiple shoots were subjected individually to ploidy analysis using a Partec Ploidy Analyser (PA II, Partec GmbH, Germany). The results confirmed that about 80% of the regenerants were haploids (Fig. 2). Efforts are on to convert these into dihaploids, which can be used as inbred parents for heterosis breeding programmes.

Fig. 1:
Plant forming directly from the ovary

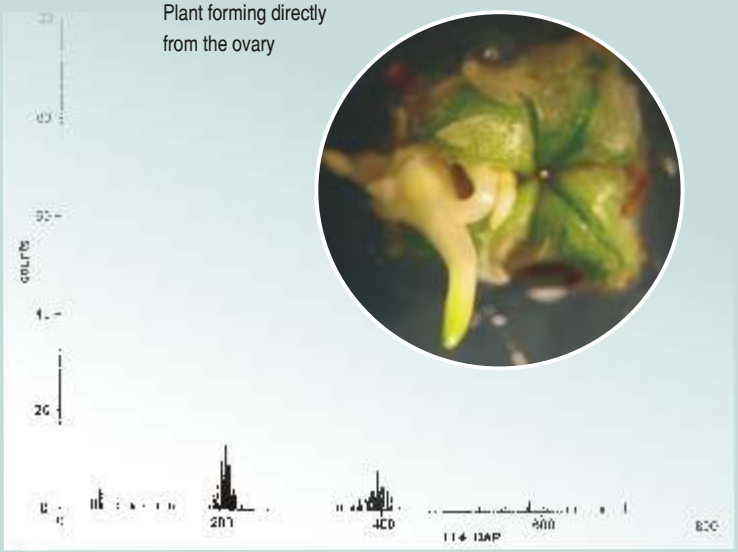


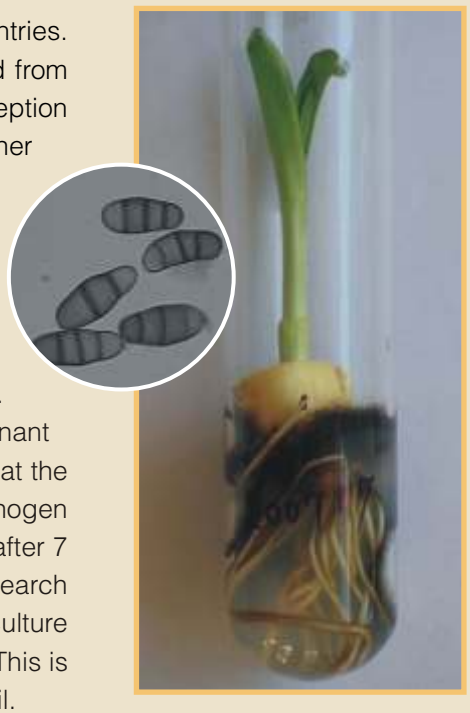
Fig. 2: Histogram of sample A (haploid); standard B (mother plant)

New Record of Curvularia spp. on Onion

Damping-off is commonly associated with nursery of many transplanted crops. Tissue near collar region of younger seedlings gets affected and become soft that leads to plant collapse. *Pythium spp., Fusarium spp., Sclerotium spp.* are the major fungal pathogens responsible for this disease. Several isolations were made from onion seedlings showing damping-off in *kharif* nursery at NRCOG (Fig. 3).

Among other fungi recovered, invariably *Curvularia sp.* was found associated with most of the isolations (Fig.4). Fungus Identification Services, Agharkar Research Institute, Pune confirmed the fungus as *Curvularia sp.* and culture has been deposited at culture collection of the same Institute (ARIFCC No.-1258). This fungus is reported to be associated with damping-off of onion from other parts of the world, but available literature revealed that this is the first report from India.

First Report of *Embellisia allii* from Garlic



Embellisia allii is known to cause bulb canker of garlic in many countries. This pathogen is not known to occur in India. Garlic is imported from China to meet partial domestic consumption. Based on the interception of this pathogen in Chinese consignments, in April 2005, further import of garlic from China was temporarily withheld by the Government of India. Later on this pathogen was notified as quarantine pest.

Garlic germplasm collected from Lahaul and Spiti, were obtained from NBPGR, Shimla. These collected samples were subjected to *in vitro* standardization of tissue culture protocol. During this process, *Embellisia allii* was encountered as contaminant along with other fungi (Fig. 5). Records of the survey revealed that the material was collected from farmers field. On purification, this pathogen produced greyish black colony with profuse sporulation in PDA after 7 days (Fig.6). Fungus Identification Services, Agharkar Research Institute, Pune confirmed the identification as *Embellisia allii* and culture has been deposited in its culture collection (ARIFCC No.-1259). This is the first report of *Embellisia allii* from garlic collected from Indian soil.

New record of White leaf spot of Onion

During a survey in *kharif* 2007, in few onion fields of Pune and Nasik districts an uncommon symptom was noticed. Small white lesions/blotches are developing on the upper portion of the leaves.

These lesions enlarged, became water soaked and the leaf bent from that point (Fig. 7). In some cases, white cottony growth was also observed. It was confined to few fields only. Unlike Pune, severity was more in Nasik. The samples were brought to the laboratory for further studies. Based on the earlier reports, the symptoms were similar to white tip of leek caused by *Phytophthora porri*. Microscopic observations revealed the abundant presence of sporangia of *Phytophthora* (Fig.8).

Purified culture on Oat Meal Agar media had white watery colony. It was identified as *Phytophthora porri* by Fungus Identification Services, Agharkar Research Institute, Pune and culture was deposited in its collection (ARIFCC 1326). Pathogencity test was proved under polyhouse conditions. Based on the "Diseases of Onion (*Allium cepa* L.) and Garlic (*A. sativum* L.)" of American Phytopathological Society (www.apsnet.org), this is the first report of *Phytophthora porri* from onion in the world.

Some uncommon diseases of onion

Powdery mildew of onion

Although this disease was reported earlier, it is not commonly found in the field. During a survey in *kharif* 2007 this disease was found on onion that inter cropped with cluster bean in a farmer's field near Phaltan in Satara district. Leaves of affected plants showed scattered yellow patches covered with white powder (Fig.9). Microscopic investigations showed that powder consisted of mycelium and conidia of asexual stage (*Oidiopsis sicula*) of powdery mildew fungus (Leveillula *taurica*) (Fig 10).

Onion Smudge

This less common disease was recorded at NRCOG farm during *rangda* season. The disease was noticed only on a white onion line W 448 (Fig. 11). Microscopic study of the affected tissues revealed the presence of conidia of *Colletotrichum circinans* and setae (Fig. 12). Pure culture of the fungus has maintained in laboratory.

Training programme

A training programme was organized by this centre under National Horticultural Mission to agricultural officers of Maharashtra state. Under this sponsored programme around 25 officers imparted training on onion and garlic production technology from 26-28 December 2007. The training comprised of a series of lectures in the areas of crop improvement, production, protection, storage, marketing, export and government schemes followed by field visits.

हिन्दी पखवाड़ा का आयोजन

केन्द्र पर 14 सितम्बर से 29 सितम्बर तक हिन्दी पखवाड़ा का आयोजन किया गया । इसके अन्तर्गत हिन्दी प्रश्न मंजूषा, हिन्दी पठन, कविता पाठ, सुलेख प्रतियोगिताएँ आयोजित की गयी ।इस अवसर पर आतंकवाद : समस्या और समाधान विषय पर निबन्ध लेखन तथा वर्तमान परिवेश में संयुक्त परिवार कितना सार्थक विषय पर वाद-विवाद प्रतियोगिता का भी आयोजन किया गया । हिन्दी पखवाड़ा के समापन समारोह के अवसर पर मुख्य अतिथि, डा. सदानन्द शाही, प्राध्यापक, हिन्दी विभाग, काशी हिन्दू विश्वविद्यालय, वाराणसी, ने अपना व्याख्यान दिया । विभिन्न प्रतियोगिताओं में प्रथम, व्दितीय एवं तृतीय स्थान पानेवाले प्रतिभागियों को निदेशक महोद्य व्दारा पुरस्कृत भी किया गया ।

Personnel

- Dr. A. Thangasamy joined NRCOG as a scientist (ARS) in October 2007. He did Ph.D. in Soil Science and Agricultural Chemistry from IARI, New Delhi in the year 2007. His area of specialization is Soil Chemistry/ Soil Fertility/ Soil Microbiology.
- Dr. A. Aziz Qureshi, Senior scientist (Soil science) transferred to DOR, Hyderabad on 9/9/07.
- Dr.V.S.R.Krishna Prasad, Principal Scientist (Horticulture) took voluntary retirement from the services on 5/12/07.

Distinguished visitors

Mr. Vijay Kolte Vice-President, MCAER, Pune	30.11.07
Dr. T.P. Trivedi Project Director (DIPA) & ADG (ARIS), ICAR, New Delhi	01.12.07
Dr. Mangala Rai Director General, ICAR, New Delhi	13.12.07
Number of farmers visited	2663

Published by: Dr. K.E. Lawande, Director. Compiled and Edited by: Dr. P.S. Srinivas, Scientist Sr. Scale

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Designed & Printed at: Anson Advertising & Marketing, Pune. Tel.: 24213244 Fax: 24210093 Email: anson@vsnl.com