NRCOG NEWS

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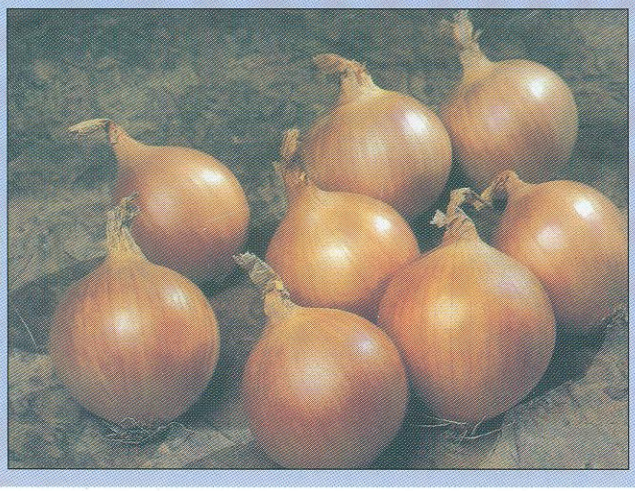
From the Director's desk

Potential Of Brown Onion For Export To European Countries

European Union produces onions to the tune of 7.4 million ton from 0.42 million ha area. The Netherlands is a major onion producer in Europe and biggest exporter of onion to other European countries. Besides Netherlands, New Zealand, Tasmania, Australia supply brown onion to European countries. The countries like Germany, Russian Federation, Belgium, France etc. import brown and yellow onion to the tune of 1.5 million tons annually. European farmers grow onion by direct seeding using precision planter in the month of March-April and harvest the bulbs in the month of September-October. After artificial curing the bulbs are stored under controlled temperature (30°C) and humidity (60-70%) till next harvest. During winter season the bulbs are graded and packed in consumer packs and supplied through a chain of super markets. There is a critical gap in domestic supply during June to September. During this period onions are shipped from New Zealand, Tasmania and some South American countries in refrigerated as well as electrically ventilated containers and reach to either Rotterdam or Hamburg port within 30 - 35 days.

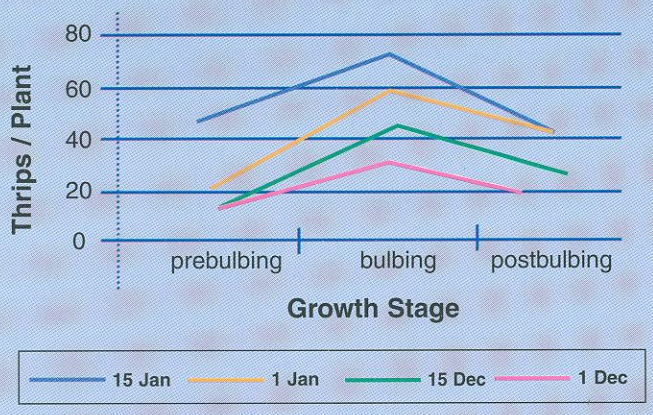


With this background, India can be at advantage to export onion to Europe due to geographical proximity and seasonal suitability. Late *kharif* crop, which has high yield potential, is transplanted in the month of October and harvested in the month of Jan-Feb. The season being most congenial in Maharashtra, Gujrat, Rajasthan, Punjab, Haryana and U.P., the intermediate long day type brown and yellow varieties can be grown in this period. Management of late *Kharif* harvest sale of red onion is becoming a problem in Maharashtra. The area under red onion can be diverted for production of yellow and brown onions and export to these countries.

For streamlining the export, the trial production needs to be taken up through contract farming. This includes varietal evaluation and identification of specific type; suitable post harvest handling techniques, standardization of bulk packing, mode of transportation and shipment at least through electrically ventilated containers. The trials conducted at this centre on exotic varieties/ hybrid's in the past indicated very good yield potential (40 - 50 t/ha) of yellow types during late *kharif* season. The brown types collected this year will also be evaluated. The organizations likes NAFED, NHRDF, NRCOG, Marketing Boards and APEDA should join hands together with farmers and importers to make this endeavor successful for opening a new avenue in onion export.

Bulbing stage in onion is crucial for thrips management

Present insecticide schedule for thrips management in onion comprises of granule application at transplanting followed 3-4 foliar sprays with different insecticides. In order to



reduce the insecticide load as well as the cost of plant protection in onion, it is important to optimize the number of insecticide sprays. Onion is attacked by thrips at all the stages. Therefore the most critical growth stage of onion that is more vulnerable to thrips attack that result in drastic reduction of yield, is to be identified. Insecticide spray can be taken up only during that growth stage so that yield should not be effected.

Three year study on thrips preference during *rabi* season showed that the thrips prefer bulbing stage *i.e.* 45-75 days after planting. From another study carried for two years it was found that the cost benefit ratio was highest when insecticide was sprayed at 60 and 75 days (1: 3.59); and 45,60 and 75 (1: 3.54) days after onion planting. This study suggests that the insecticide sprays can be minimized considerably if proper control measures are taken against thrips at bulbing stage in onion.

Sulphur Application Improves Keeping Quality of Onion and Garlic Bulbs

Sulphur, the fourth major plant nutrient has gained importance in today's fertilizer schedule of most of the crops in improving their yield and quality. Intensive agriculture and use of complex fertilizers alone as the source of NPK made this nutrient deficit in most arable soils. Sulphur plays an essential role in onion and garlic crops. It is the constituent of many bio-chemical compounds that influences the flavour, pungency and keeping quality of the bulbs. Studies were carried to know the effect of sulphur levels on the storage losses of onion and garlic bulbs.

The response to Sulphur application in low S status soils was reflected prominently on the keeping quality of onion bulbs (var. B-780) grown in late *kharif* and garlic (var. G-41) in rabi during the years 2000-02. There was a gradual decrease in the storage losses of onion and garlic bulbs (stored for 6 months) with increasing dose of sulphur. In onion, application of 45 Kg S/ha minimized storage losses to 50% compared to 60.5% losses where no S was applied. Significant negative correlation (r=–0.70*) was established between the S content of the bulbs and storage losses.

In garlic, storage losses of 19% were recorded due to application of NPK+ 60Kg S/ha compared to 29% losses where only NPK were applied. Application of S established a significant negative correlation (r =-0.71*)with storage losses.

Intercropping onion and garlic with sugarcane

The concept of intercropping sugarcane with vegetables is gaining popularity among the farmers as this practice gives additional income during initial months and maximizes the use of all available resources. The crops like onion and garlic are well suited for intercropping with sugarcane (Nov.-Dec planting) due to their shallow roots, low canopy and do not compete with deep-rooted, long duration crop like sugarcane. In sugarcane, the emphasis is now being given on the paired row planting for better cane thickness, more number of millieable canes and sugar recovery. Further, the use of micro irrigation particularly drip irrigation is becoming essential to save water and to increase the water use efficiency. These factors provide opportunities for intercropping of short duration vegetable crops in sugarcane during initial months.

Intercropping of vegetables with sugarcane planted in paired row system

Keeping these points in view, an experiment was planned and laid out on intercropping onion and other vegetables with sugarcane under three irrigation systems *viz.*, surface, drip and sprinkler and planted in two methods - ridge & furrow; and paired row planting. The results showed that irrespective of irrigation methods, marketable yields of intercrops were higher in paired row planting than in ridge and furrows. Onion and garlic bulb yields were four and two times higher in paired row than ridges and furrows, respectively. Sugarcane yield was not influenced by method of planting. There was 23% and 38% water saving in paired row under surface and drip irrigation respectively, compared to ridges and furrows. Intercropping onion with sugarcane planted in paired rows under drip was found to be the most profitable combination, which recorded 202 tons of sugarcane, and 23 tons of onions per hectare.

State Level High Power Committee visits NRCOG

The high level committee appointed by the Honorable Speaker of Maharashtra State Legislative Assembly, headed by Shri Harshavardhan Patil, Hon. Minister for Cooperation & Marketing, Shri. Ramraje Naik Nimbalkar, Hon. Minister of State for Revenue and Shri Prashant Hire, Hon. Minister of State for Transport, seven MLAs and officials from State Government, State Agricultural Universities, Finance Institutions, NHRDF and NABARD visited the National Research Centre for Onion and Garlic on 30.06.2003 to review the problems pertaining to onion and garlic faced by Maharashtra farmers and to suggest appropriate measures. Dr. K.E. Lawande, Director, NRCOG presented the present status, problems related to production, export and the future prospects of onion and garlic both at national in general and Maharashtra in particular before the committee. He also explained about the progress made by the centre in the fields of crop improvement, increasing and stabilizing production potential of onion and garlic through INM and IPM approaches, post harvest handling and storage, farmers training etc.

Various issues like crop planning, availability of quality seed, creation of export infrastructure facilities, identification of export zones, training of farmers on technological know-how and promotion of processing industries were discussed at length in the meeting. The chairman and members of the committee lauded the efforts made by NRCOG for setting up the modest NRC for commodity research and its effective transfer of technology to the farmers. The committee felt that, NRCOG must come forward as centre of excellence for training the farmers in the field of onion and garlic cultivation, so that export potentiality can be fully exploited for the benefit of farming community and in turn nation as a whole.

High level Committee meeting at NRCOG

Human Resource Development

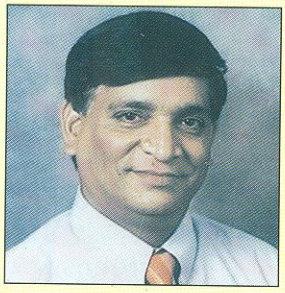
Training

Dr. A. Aziz Qureshi attended a short training programme on 'Recent trends in organic farming and crop production of horticultural crops' organized by CISH, Lucknow held from 26 May-4 June, 2003.

Dr. Vijay Mahajan attended winter school on "Recent techniques in plant genetic engineering and molecular breeding" organized by NRC on Plant Biotechnology, IARI, New Delhi from 15 January-4 February, 2003.

Mr. N. Gopal, Assistant Administrative Officer participated in "National convention on reservation policy for SCs/STs/OBCs conducted by National Institute of Public Administration, Bangalore from 9-11 Jan. 2003.

Our New Colleague



Dr. V. S. R. Krishna Prasad joined at this National centre as Principal Scientist (Horticulture) on 27 March, 2003. Prior to this he worked for two decades in IIHR, Bangalore and its regional station at Central Horticultural Experiment Station (IIHR) Ranchi. He has the credit of developing 16 improved varieties/ hybrids in vegetables such as pointed gourd, cucumber, ridge gourd, brinjal, tomato and French bean. Of which 8 varieties each were identified by Central Varietal Release Committee and State Varietal Release Committee of Bihar and Jharkhand. He published 152 research papers in various national and international journals. At this centre he is working on improvement of red and light red onion.

Distinguished Guests

Mr. Ben Wight, and Mr. Visut Chompradit, Seminis Woodland, CA, USA visited the centre on 07.04.2003.

Dr. R. N. Pal, Ex-DDG(H), ICAR, New Delhi visited on 30.04.2003.

Training to the Officers

NRCOG offers training to the officers of state agriculture, horticulture departments, extension personnel and Onion & Garlic growers. The training comprises of the following module.

1. Onion and Garlic production technology.
2. Integrated nutrient and water management.
3. Integrated Pest and Disease management.
4. Post harvest handling and storage.

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सब पढ़ें सब बढ़ें

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spreading on both bulb and seed crop of onion. Monocropping of onion and garlic and unusual rise in temperature than the normal during this period might have created favourable conditions for development and spread of the disease on large scale. In India, this disease was first recorded in 1973. It can cause about 60% losses in seed yield.

The symptoms appear at 3-4-leaf stage, only on the dorsal side of leaf / stalk. Small yellow to orange flecks or streaks appear on the middle of the leaf, which later elongate in to spindle shaped spots surrounded by characteristic pinkish margin. Lesions turn light brown to tan and blacken. In seed crop the flower stalk may break at the blight patches resulting complete seed loss. 3-4 sprays of 0.25% mancozeb, 0.25% chlorothalonil at 10 days interval is effective in controlling this disease.

From the Director's desk

Value addition for stabilization of prices in onion and garlic

Export and value addition in the form of processed products are the important factors for stabilizing prices in internal markets and thereby bringing sustainability in production of certain commodities. Onion and garlic offer great scope for value addition in the form of dehydrated flakes, rings, powder, granules, paste, oils, juice and salts. Onion pickles in brine is a novel product popular in European markets. Among all these products, dehydrated flakes and powder of onion and garlic are important from export point of view. Major export is made to Spain, Germany, U.K., Netherlands, France, Poland, Australia, Israel, Japan, *etc.* Recently, the demand for dehydrated onion products is increasing in USA and Australia. The estimated demand for onion dehydrated flakes and powder is to the tune of 10000 ton, however, the present processing units available in Gujarat and Maharashtra are meeting the demand up to 5000 ton only. The stringent conditions of processing with less human interference, utmost sanitation and best quality of product packed in attractive packages is the requirement of export market. Among the various processing units in India, Jain Food & Processing Industries is contributing major share in onion processing and meeting the quality of produce.

Almost all dehydration units are facing problems of continuous supply of white onion with high TSS at a reasonable price. The onion

Value addition through dehydration

processing plants have to run exclusively for onion and no other commodities are processed in it, therefore, for running the unit in profit, it must be operated through out the year and therefore there is a need for year round supply of white onion. Onion production in India is basically dominated by red onion, and white onion is a rare commodity in the markets.

Unless, otherwise, contract farming is not established by way of developing proper relations between processing units and farmers, the industries cannot run. In recent years, Jain Food & Processing Industries have developed a good rapport with the farmers for producing white onion exclusively for processing on contract production basis. Further, the units are also facing problems of availability of

varieties/genotypes having high TSS (>18%). The present day white onion varieties offer TSS range between 13-14%. NRC for Onion and Garlic has initiated breeding programme for the development of white onion varieties with high TSS suitable for *kharif*, late *kharif* and *rabi* seasons. The approaches towards varietal development are selection/mass selection, mutation breeding and biotechnology. The centre has already identified some lines having high TSS ranging 16-20%, which need further testing and stabilization. The lines, which are responding to different seasons, have also been identified. Beside storage of white onion for stability to the processing units on their own, seasonal manipulations are utmost essential for making white onion constantly available to the units. Therefore development of varieties suitable for different seasons is an important programme initiated by the centre.

Garlic processing at present is in very primitive stage and mostly limited to cottage or home scale production units. Recently ready to use garlic-ginger paste prepared and packed in aseptic pouches is finding good place in Indian markets. Sharp fluctuations of prices of both the commodities determine the fate of the processing units. However, once the processing units are established the fluctuation in the market can also be minimized. Integrated approach of Government agencies, research centres and processing industries will make head way in this direction.

Distinguished Guests

Dr. S. K. Bhargava, Member, ICAR Governing Body, Agroman System, Mumbai visited on11-07-2003

Dr. A. S. Jadhav, Associate Dean (LAE), MPKV, Rahuri visited on 23-07-2003

Dr. S. K. Dorge, Ex-Vice Chancellor, MPKV, Rahuri, visited on 16-08-2003

Dr. V. S. Korikanthimath, Director, ICAR Research Complex for Goa, Old Goa. visited on 29-08-2003

Mr. Ashokrao Mohol, Member of Parliament, Khed, Dist. Pune visited on 20-09-2003

Dr. Yogendra S. Nerkar, Director (ARE), Vasantdada Sugar Institute, Pune visited on 02-12-2003

Dr. Mangala Rai, Director General, ICAR, New Delhi visited on 31-12-2003

Dr. G. Kalloo, DDG (Horticulture & Crop Science), ICAR, New Delhi visited on 31-12-2003

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4. Post harvest handling and storage.
5. Marketing and export of Onion of Garlic.

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