



## Kharif Onion (*Allium cepa* L.) Production in West Bengal: A Boon to the Farming Society

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Onion is one of the most important commercial crops in India which is used as a vegetable, spice and rich in medicinal properties. In India major onion producing states are Maharashtra, Karnataka, Madhya Pradesh, Gujrat, Bihar, Andhra Pradesh and Rajasthan. In South India onion is cultivated three times in a year as rabi, kharif and late kharif crop whereas, in North India it is generally cultivated as rabi crop. Major portion (60%) of onion produce comes from rabi season while kharif and late kharif crops contributes to a little extent (40%) in some parts of country. Maharashtra, Gujarat, Karnataka and Rajasthan are major kharif onion producing states. Rabi onion is generally harvested in April-May whereas kharif onion and late kharif is harvested in the month of October-November and January-February, respectively. Major portion of rabi season produce is stored upto October month for domestic consumption. There is a critical gap in supply of onion from the months of October to December.

India is the second largest onion producer in the World after China. In India, the share of Maharashtra in the total onion production is around 31.19% in contrast to West Bengal contributing only 2.6% (Department of Agriculture, Cooperation & Farmers Welfare, 2017). In West Bengal major produce comes from Hooghly, Murshidabad, Burdwan, Nadia, North 24 Parganas district during the month of March-April mostly as Rabi crop (Directorate of Horticulture, 2017). The production seasons and arrivals of onion in India lead to a typical situation where in the prices tend to peak during September to November and reduces from January to March-April every year. Generally the onion storage filled by Rabi onion gets emptied by around August to September beyond which storage loss rises to 30% and above (Samra et al., 2006). In West Bengal, production of onion in Kharif and Late Kharif season is a new strategy to have continuous supply of onion round the year and thus to minimize dependency on supply of onion from other States (Dhar et al., 2016). Importance of Kharif cultivation of onion to stabilize the prices is well accepted (DOGR, 2013). Exploitation of scope of Kharif onion in uplands of West Bengal particularly in the western Red & Laterite Zone is a good option as the average productivity of Upland Paddy in this region is very poor which is comparatively less remunerative than Kharif onion. Such area having good drainage system is much suitable for the Kharif onion crop. Study showed that the overall performance of kharif onion under Red and Laterite Zone of West Bengal was highly satisfactory (Mohanta and Mandal, 2014, Mandal et al., 2015 and Meher et al., 2016).

### Potential

Kharif crop (rainy season) is now being adopted by many farmers in the north and eastern parts of the country which has revolutionized the onion production and marketing in the country. Kharif season produce can bridge the gap between demand and supply of onion during lean period (October-March) in our country. Besides price stabilization onion

production in kharif season (Pandita, 1994) offers a good alternative to the farmers for obtaining higher returns. It can help in foreign exchange earnings by increasing the export of onion from main crop (rabi) most of which is generally utilized for domestic consumption. Maharashtra, Karnataka and Madhya Pradesh are major kharif onion producing states in India.

### Challenges and bottlenecks

Kharif crop of onion is often affected severely by cloudy atmosphere, late rains and incidence of various pests and diseases. Therefore, at present its cultivation is restricted to certain area with low yield potential and poor keeping quality. Successful nursery production during summer season is the main problem for growing of kharif season crop. However, to avoid these problems, kharif onion crop can be raised successfully through onion sets. Sets are small onion bulblets which are harvested before scorching summer prevails and then stored for replanting in kharif season. Seed rate, set planting time and sets size (Mohanta et al., 2017) are the most important factors which may influence the growth and yield of onion bulbs. It is important to increase the yields for enhancing the export level, so that it helps in foreign exchange earning to the country.

### Problems faced in kharif onion production are

- Lack of standardized/ recommended varieties for specific
- agro-ecological situations.
- Lack or unavailability of planting material (seed or sets) in time.
- Water stress/high temperature during the time of seedling/nursery production.
- High disease incidence during monsoon.
- Problems in curing and drying of onions after harvest.
- Low shelf life due to sprouting in storage.
- Severe weed problem in rainy season.
- Lack of fertilization/ fertigation schedule.
- Lack of awareness among farmer.

For getting benefit of high prices farmers need to enhance their productivity. Poor yield, more disease and pest incidence, weeds and poor storage life due to more moisture content in bulbs are major problems in kharif onion production. Due to these lacunas farmers prefer to grow *rabi* crop and avoid kharif onion production. Efforts have been made to solve these problems by various research organizations in the past. Therefore, standardization of *kharif* onion cultivars, raising healthy nursery or sets, plant protection, growth regulation and curing, chemical treatments for prevention of post-harvest losses are some important aspects towards the successful cultivation of kharif onion.

### Scope in West Bengal

In India, the production seasons and arrivals of onion in market lead to a typical situation where prices tend to peak during September to November and reduces from January to March/April every year. The three main seasons of Kharif (monsoon), Late Kharif and Rabi (winter) contribute 20%, 20% and 60% respectively, to the total onion production in India (Tripathy *et al.* 2013). Generally the onion storage filled by *Rabi* onion gets emptied by around August to September beyond which storage loss rises to 30% and above (Samra *et al.* 2006). There is a scarcity period during October – November. The deficit in market supply during the period after September is responsible for the higher prices that prevail during September to November.

The estimated per capita consumption of onion in India is about 9.37 kg/year (Samra *et al.* 2006). Considering post harvest losses as 15 – 30% (Chadha and Pareek, 1993), about 2.91 to 2.40 lakh metric tons may be available for domestic consumption in West Bengal. So,

there is an estimated gap of 5.65 to 6.16 lakh metric tons per year between actual onion production and consumption in West Bengal. As West Bengal produce mostly *Rabi* crop, the State extremely depends upon supply from other States like Maharashtra and Karnataka particularly during the offseason of West Bengal i.e., July to February. This situation leads to explore the scope of onion cultivation during kharif and late kharif season and storage of rabi onion.

### Initiatives

Production of onion in Kharif and Late Kharif season is a new strategy to have supply of onion during November onwards in West Bengal and to minimize dependency on supply of onion from other States. Feeling its necessity, FPI& Horticulture Department, Government of West Bengal launched a scheme of cultivation of Kharif onion through free distribution of Agrifound Dark Red onion seed during 2013 in eight districts viz. Murshidabad, Nadia, North 24 Parganas, Hooghly, Birbhum, Bankura, Purulia and Paschim Medinipur. The Scheme was formulated to exploit the scope of Kharif onion in uplands of West Bengal particularly in the western Red & Laterite Zone as the average productivity of Upland Paddy in this region is very poor which is comparatively less remunerative than Kharif onion. Such area having good drainage system is also very much suitable for the Kharif onion crop.

### Conclusion

In the present scenario, it may be concluded that there is huge scope for augmentation of onion production in West Bengal. Managing the crop scientifically and professionally by strengthening production and handling techniques, enhancing productivity, penetrating in foreign markets helps the farmers to increase economic returns. There is need for survey and diagnosis of lands suitable for onion and development of area specific farming system model in cluster approach. The government may formulate an appropriate policy to invest in research and development for enhancing the yield of this crop. Popularization of *Kharif* onion in uplands of West Bengal particularly in the western Red and Lateritic Zone is one of the best options towards minimizing the deficit of onion in the State as well as dependency on supply of onion from other States and price stabilization. Adequate research on proper agro techniques for all the season and development of high yielding and hybrid varieties suitable for West Bengal particularly for *Kharif* and *Late Kharif* season is strongly needed.

### References

1. Department of Agriculture, Cooperation & Farmers Welfare. Monthly Report of Onion for September 2017- Horticulture Statistics Division, Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India, New Delhi, 2017. ([www.agricoop.nic.in/](http://www.agricoop.nic.in/))
2. Directorate of Horticulture. Directorate of Horticulture, Government of West Bengal, 2017.
3. Dhar M, Mandal J, Mohanta S. Prospects of onion cultivation (*Allium cepa* L.) in West Bengal. In: Rural Health Women empowerment and Agriculture Issue and Challenges: Chattopadhyay, P.K. and Kushwaha, D.S. (Eds), New Delhi Publishers, New Delhi, 2016, 257-275.
4. DOGR. IVth Annual Workshop of All India Network Research Project on Onion and Garlic at Bidhan Chandra Krishi Vishwavidyalaya (BCKV), Kalyani on 18-19 April, 2013. ([www.dogr.res.in](http://www.dogr.res.in))
5. Mandal J, Sharma A, Mandal S. Growth attributes of *Kharif* onion (*Allium cepa* L.) as influenced by combination of organic and inorganic nutrients. HortFlora Research Spectrum. 2015; 4(3):288-290.

6. Meher R, Mandal J, Saha D, Mohanta S. Effect of sulphur application in onion (*Allium cepa* L.). Journal of Crop and Weed. 2016; 12(3):86-90.
7. Mohanta S, Mandal J. Growth and yield of *Kharif* onion (*Allium cepa* L.) as influenced by dates of planting and cultivars in Red and Laterite Zone of West Bengal. HortFlora Research Spectrum. 2014; 3(4):334-338.
8. Mohanta, S., Mandal, J. and Dhakre, D. S. (2017). Growth of *kharif* onion (*Allium cepa* L.) in response to planting dates and cultivars. Hort Flora Research Spectrum. 6(4): 262-267.
9. Samra, J.S., Ramakrishna, Y.S., Desai, S., Subba Rao, A.V.M., Rama Rao, C.A., Reddy, Y. V.R., Rao, G.G.S.N., Victor, U.S., Vijaya Kumar, P., Lawande K.E., Srivastava K.L., Krishna Prasad, V.S.R. 2006. Impact of excess rains on yield, market availability and prices of onion. Information Bulletin - Hyderabad: Central Research Institute for Dryland Agriculture (ICAR), 7: 22-24, 31.
10. Tripathy, P., Sahoo, B.B., Priyadarshini, A., Das, S.K. and Dash, D.K. 2013. Effect of sources and levels of sulphur on growth, yield and bulb quality in onion (*Allium cepa* L.). *International Journal of Bio-resource and Stress Management*. 4(4): 641-644.
11. Chadha, K.L. and Pareek, O.P. (Eds.). 1993. *Advances in Horticulture*, Vol 1-14, Malhotra Publishing House, New Delhi.