

## Pran: Endemic Edible Allium of Kashmir

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The Alliums are a large genus containing about 700 species, including economically important vegetables and flowering ornamentals as well as wild species from Europe, Asia, and the Americas (Fenwick and Hanley, 1985). The majority grow as biennials, producing an underground storage bulb at the end of the first growing season, which flowers in the next the culinary value of flavours and odours (Jones *et al.*, 2004).



Pran Field

The triploid viviparous onion *Allium × cornutum* is a rather widespread garden crop in South-East Asia, Europe and other parts of the world. Based on several morphological, cytogenetic and molecular studies, it is now recognized as a separate *Allium* crop and a new taxonomic unit. Pran (*Allium x cornutum* Clementi ex Visiani) is a triploid viviparous species of genus *Allium*, extensively grown in Kashmir from times immemorial (Singh *et al.*, 1967, Klaas and Friesen 2002). In Alliums natural triploidy was first reported by Singh *et al.* (1967) who described the morphological and cytogenetic characteristics of the Indian viviparous onion Pran,  $2n = 3x = 24$ .

The bulbs of pran are longer than broad and rather weakly developed. Pran has 4 to 12 bulbs



Unrooted Pran plant

attached to a common parental disc. Each bulb bears 4 to 12 buds which develop into separate bulbs on planting. The plant height ranges from 30-65 cms and each plant bears 20-60 leaves of 20-50 cms length. It blooms, like the majority of other *Allium* species, but plants are sterile and do not produce seeds. They propagate vegetatively by underground bulbs and bulbils from inflorescence. Phenotypically, pran closely resemble *Allium cepa* and sometimes it is difficult to distinguish them if they are planted both in the soil, before developing their inflorescences. Inflorescences of the triploid pran initially contain only the flowers, which are by their dimensions slightly larger than the flowers of *Allium cepa* and generally less numerous in the inflorescence than in *Allium cepa*. During the maturation of inflorescences, small reproductive bulbils begin to appear and flowers gradually disappear. At the

end, the mature inflorescence is composed only of the bulbils (up to 5-12 bulbils per inflorescence). These small reproductive bulbils, which regularly develop among sterile flowers in



Pran Bulbs

the inflorescence of the triploid pran are a reliable sign for its recognition, as they never develop in the diploid *Allium cepa*.

Pran is a cool season spice crop which grows well in mild climatic conditions. Being a long duration, rainfed and less labour intensive, this crop is cultivated on lofty hills where irrigation facilities seldom exist. This year-long crop thrives best in well drained and organic matter rich soils under mild climatic conditions. In Kashmir valley Pran is cultivated over an area of 350ha with a production of 5150 metric tonnes. It is a high value crop and at times it can fetch very high price in the market as compared to other vegetable crops.

Pran has its own distinctive flavour and is widely used as a condiment in the preparation of soups, meat and salads. Pran is highly relished in Kashmiri kitchens and the world famous Kashmiri cuisine “wazwan” is incomplete without the use of pran. It is an important ingredient of chilli cakes commonly known as ‘Wari’. These chilli cakes are sold at exorbitant prices and even exported to Middle Eastern countries by certain private companies and can be stored up to a period of two to three years under ordinary conditions (Jabeen et al., 2012).

### Production Technology

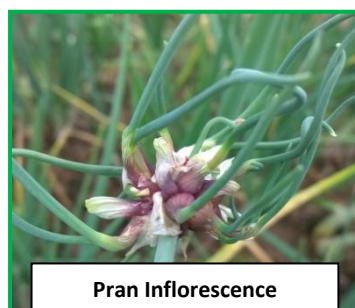
Pran is basically a crop of temperate region and thrives well in mild climatic conditions. It is more cold-hardy than onion and tolerates frost to a greater extent. Long days and cool temperatures favour vegetative growth. Traditionally it is a rainfed crop and grown on hill slopes where drainage is not a problem. Well-drained loamy soils, rich in organic matter are ideal for pran cultivation. Since bulbs develop inside the soil, heavy soils are detrimental because they hinder bulb development. In Kashmir, the bulbs are planted in the months of July and August in hills and in September and October in plains.

On hill slopes, 2-3 deep ploughings are carried out followed by leveling. The crop is raised mostly on organic farming provisions in hills with simply the application of farm yard manure. Raised beds are prepared 15-20cm above ground surface in plains so that rain water does not stagnate in the beds. Nutrients are applied in the form of farmyard manure 25-30 tons per hectare and 100:80:60 Kg/ha of NPK.

Pran is propagated through bulbs and bulbils which are formed on inflorescence. Usually the bulbs formed from bulbils are smaller in size so these bulbils are planted at closer spacing to form small bulbs which are planted at proper spacing next year to raise the crop. Bulbs weighing 5-10g are usually planted for raising the crop and bulb requirement for planting one hectare of land is 15-20 quintals. The bulbs are sown at depth of 3-4 cm at spacing of 20 x 15cms.



Water is one of the essential components required for growth and development of crop. Being predominantly a rainfed crop, irrigation is seldom supplied. Pre-planting irrigation is advantageous for uniform germination and 2-3 irrigations may be required during summer months. Irrigation is stopped about 15-20 days before harvesting of crop to allow firming of bulb skin. Weeds compete for nutrients, moisture, light and space and cause considerable loss in bulb yields. Generally weeds are controlled by hand weeding and hoeing. Two to three weeding are done, one before commencement of frost and rest in the month of April and May.



The crop starts maturing by the end of June. Time of harvesting is an important factor which determines the overall yield and quality of bulbs. Being a perennial crop it starts new

growth if it is not harvested in time and utilizes bulb reserves for new leaf growth. If bulbs are not harvested in proper time, yield and storage quality of bulbs is reduced. The crop is ready when leaf tops dry up and is harvested on a sunny day when soil is dry, otherwise bulbs harvested from wet soils in humid conditions do not store well. Harvesting is done manually with the help of spade or hoe. A single bulb produces 5-10 bulbs on an average whereas a single bulb is usually produced from planting a bulbil. The yield potential of pran varies from 250-300 quintals per hectare.

After harvesting, pran bulbs are field cured and then dried in shade so that moisture is completely removed from bulbs and roots. Moisture is an important factor which reduces the shelf life of bulbs during storage. All the cut, damaged and rotted bulbs are removed. The bulbs are graded and spread on wooden floor or shelves in cool well ventilated rooms.

Physiological weight loss, sprouting and rotting are main factors incurring heavy losses during storage contributing 50 to 60 percent loss in weight. Proper drying and storage reduces the postharvest losses in pran to a considerable extent. Substantial loss in marketable weight of bulbs occurs during storage; however the loss is compensated by price of pran bulbs which increases as the storage period advances. The price of pran bulbs at the time of harvest lies between Rs 40-50 per Kg, the same bulb weight may fetch Rs 100 after one month and Rs 500-600 after few months of harvest. The hike in price of bulbs after storage which is a clear indicator of its demand encourages farmers to cultivate this valuable spice crop despite considerable weight loss during storage.

Considering the fact that there is variability in pran species in Kashmir, there is a need to evaluate pran clones (bulbs) from all parts of the valley and evaluate their performance. As there is no standard variety of pran, a possibility may arise that many pran clones may perform better in terms of yield and quality and released as varieties. Quality evaluation in terms of its medicinal properties and health promoting phyto-chemicals also needs due attention. Physiological weight loss is a main factor incurring heavy losses during storage other factors being sprouting and rotting. Proper drying and storage reduces the postharvest losses in pran to a considerable extent. There is a need for developing a comprehensive technology to reduce postharvest losses in this much valued spice crop. Pran is being cultivated generally in a traditional way wherein the use of synthetic compounds i.e; fertilizers and pesticides is largely excluded. Day by day people are becoming conscious about food safety. If pran is labeled organic, the growers can get premium price for their produce. The fact is that pran is precious spice native to Kashmir and it needs due attention to enhance its production potential and to benefit those farmers who cultivate it.

## References

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