

Review Article

BABY CORN: A WONDERFUL VEGETABLE

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Abstract: Maize (*Zea mays* L.) is the third most important cereal crop after rice and wheat and has the highest production potential among the cereals. Baby corn is good option for crop diversification and the value addition of maize as well as growth of food processing industries. Baby corn being preferred in different forms is a rich nutritive vegetable from the viewpoint of nutrition. Being a short duration crop, it can be included in multiple cropping systems also.

Keywords: Baby corn, value-addition and nutrition.

Introduction

Baby corn (also known as young corn, mini corn or candle corn) is the ear of maize (*Zea mays* L.) plant harvested young, when the silks have either not emerged or just emerged and no fertilization has taken place. Baby corn is one of the most important dual purpose crops grown round the year in India (Singh *et al.*, 2015). Baby corn is becoming popular in domestic and foreign markets and has enormous processing and export potential. An interesting recent development is of growing maize for vegetable purpose (Dass *et al.*, 2008). Currently, Thailand and China are the world leaders in baby corn production. In India, baby corn is being cultivated in Meghalaya, Western Uttar Pradesh, Haryana, Maharashtra, Karnataka and Andhra Pradesh.

Nutritional value of baby corn

Baby corn is a delicious, decorative and nutritious vegetable, without cholesterol. It is a low caloric vegetable which is rich in fibre content. One Baby corn can be compared with an 'egg' in terms of minerals. Probably it is the only vegetable without any pesticide residues. Baby corn is free from insect-pests and diseases and its nutritional value is comparable with other several high priced vegetables (Pandey *et al.*, 2000). Due to its high succulence, palatability and digestibility, it is considered to be an ideal fodder crop and it can be used at

any stage of its growth (Singh *et al.*, 2006). Its green fodder is specially suited for milch cattle as it has lactogenic properties.

Components	Amount
Protein	15-18%
Sugar	0.016-0.020%
Phosphorus	0.6 - 0.9%
Potassium	2-3%
Fibre	3-5%
Calcium	0.3-0.5%
Ascorbic acid	75-80 mg/100g

Uses

The entire miniature ear of baby corn is edible. Baby corn can be eaten raw or cooked. It is used in variety of traditional and continental dishes besides being canned. It is used as decorative, crispy vegetable in salad, soup, pickles, pakodas, vegetable biryani, mixed vegetable, pasta, chutney, cutlets chat, dry vegetable, kofta curry, manchurian, raita, candy, jam, murabba, burfi, halwa, kheer, deep fried baby corn with meat and rice and other favourite dishes (Asaduzzaman *et al.*, 2014). It can also be used after boiling and blanching. Besides corn, its plant can also be used as fodder for cattles, which is also nutritious. Moreover stover, dry leaves and cob covering can be used as good fuel.

Production methods

Baby corn can be grown throughout the year but its growth and yield potential vary across the growing season. There are two methods for producing baby corn, either as a primary crop or as a secondary crop in a planting of sweet corn or field corn. In the first method, a seed variety is chosen and planted to produce only baby corn. In the second production method, the variety is selected to produce sweet or field corn (Galinat, 1985). In this method, the top ear is allowed to mature for sweet corn or field corn while rest of the ears of the plant are harvested for baby corn.

Variety selection

Many common sweet corn and field corn cultivars can be used for baby corn production. There is no taste advantage in growing a sweet corn variety over field corn, since the ears are harvested before the sugars have an opportunity to accumulate. Sweet corn cultivars tend to be easier to hand-harvest whereas field corn involves lower seed cost. Additionally, field corn

stalks tend to have stronger resistance to lodging. Ear quality, more than yield, should be the primary objective when selecting a variety (Chutkaew and Paroda, 1994). Small kernel size, straight row kernel alignment, and tapered tips are preferred characteristics for high quality baby corn. Baby ear production is further enhanced by the silkless condition because all of the energy becomes devoted to producing more cobs instead of going first into silk growth and then into kernel development. The first baby corn variety, VL-78, was released in 2004. The single cross hybrid, HM 4, released by Chaudhary Charan Singh Haryana Agricultural University, Hisar is the best baby corn hybrid of the country. Now varieties specially bred for baby corn purpose are available in both public and private sectors.

Attributes of maize genotypes for baby corn production

The important attributes relevant to baby corn are early maturity, prolificacy, synchronized ear emergence and yellow kernels (Kumar and Kalloo, 1998).

- Early maturity (<55 days) provides opportunity to take baby corn as a catch crop and helps the crop to escape from many of those biotic and abiotic stresses which appear after the flowering stage.
- Prolificacy- An ideal plant should bear at least three ears per plant without losing quality, size and shape of young ears.
- Synchronized ear emergence reduces the harvesting and storage cost of ears drastically.
- Yellow immature kernel with uniform row arrangement is one of the criterion for baby corn cultivars.

Cultivation Practices-

The cultivation practices for baby corn production are same as recommended for normal corn production. Among the other cultural practices, detasseling is an essential operation for baby corn production to ensure better quality (Moreira *et al.*, 2010). Detasseling has to be done as and when tassels start emerging (usually around 40-45 days). The detasseling operation should be done on a daily basis till tassels from all the plants are removed. Removal of tassel just after its emergence gave 18% higher marketable baby corn yield than no detasseling. Although many studies have demonstrated beneficial effects of detasseling on baby corn and grain yield, negative detasseling effects on baby corn and grain yield were also found (Sangoi *et al.*, 2006).

Harvesting

Baby corn is hand-harvested 1 to 2 days after silk emergence, while the ears are still immature (Bairagi *et al.*, 2015). Baby corn ears which are 10 to 12 cm long and having a diameter of 1.0 to 1.5 cm arrangement are preferred in the market (Golada *et al.*, 2013). Because ears can quickly become too large and tough to be sold as baby corn, frequent harvests of every 2 to 3 days are necessary (Chutkaew and Paroda, 1994). The harvest period can last 2 to 4 weeks. For baby corn as a primary crop, harvest all ears. A single planting may be harvested 9–12 times over a period of 3–4 weeks (Miles and Shaffner, 1999 and Bar-Zur and Saadi, 1990).

Marketing and economics of baby corn-

Fresh baby corn sold in the husk can be marketed directly at farmers markets and to ethnic markets. Restaurants, particularly those specializing in vegetarian dishes, may also be interested in purchasing fresh baby corn. Health food stores are a potential marketing avenue for organically grown ears. Baby corn is a high value crop which gives good returns in short period of time (About 60-63 days) with bonus of 50-60 tons/ha green fodder. Hence, it is best suited for multiple cropping. It also acts as a contingent crop at the time of crop failure. Baby corn is not only a cash crop but also a catch crop. Towards diversification and value addition through cultivation of baby corn for vegetable purpose is emerging as a highly profitable activity.

Conclusion-

Baby corn is expected to catch the attention of more and more consumers and farmers because of its superior taste, texture and nutritional value. The baby corn industry generates employment for the rural poor, provides opportunities for higher income and has potential for export. In order to harness the benefits of baby corn, research and development support and appropriate policies at the national level are required. Hence, the Governments should concentrate on framing policies that should encompass motivating young farmers and finding creative ways to sustain baby corn industry by involving both private and public sectors.

Future Perspectives -

In India very few cultivars have been exclusively bred for baby corn purpose. By the utilization of heterosis breeding and biotechnology, single cross yellow flint early maturing and regular row arrangement hybrid suited to the agro climatic zones should be developed for baby corn purpose as it fetches better market price. Keeping in mind the nutritive value of baby corn, there is a need to popularize it further in rural areas also. There is a need to

develop appropriate entrepreneurship and establishment of appropriate storage and marketing facilities. Genotypes suited to the canning should be developed where baby corn is being grown for further market and export.

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