Available online at
http://currentagriculturetrends.vitalbiotech.org/

ISSN (E): 2583 – 1933

Curr. Agri.Tren.:e- Newsletter, (2025) *4*(8), 22-24

Current Agriculture Trends: e-Newsletter

Article ID: 440

Significance of Indigenous Types in Vegetable Crops

Samsher Bahadur Singh[1]*, Juhi Paravin[2], Abhinay[3]

[1 &3] ICAR-IIVR VARANASI
[2]Chhatrapati Shahu Ji Maharaj University Kanpur

*Corresponding Author
Samsher Bahadur Singh*

Article History
Received: 27. 07.2025
Revised: 31. 07.2025
Accepted: 04. 08.2025

INTRODUCTION

India, which is one of the most richest pools of plant genetic diversity, has been home to a vast range of indigenous vegetable varieties for centuries. Such varieties have been developed naturally or by traditional selection by farmers and thus are well-suited to local agro-climatic situations. But with the emergence of hybrid and high-yielding cultivars, many traditional cultivars have been pushed to the periphery or lost. Of late, the significance of indigenous vegetable varieties has come under renewed focus due to their adaptability, tolerance, nutritional value, and application in sustainable agriculture.

Major Characteristics of Indigenous Vegetable Varieties

Adaptability to Conditions

Indigenous varieties are physically adapted to a particular soil type, rain fall regime, and climatic conditions of the region. Due to this, they are more tolerant to abiotic stresses such as drought, salinity, and temperature stress.

Resistance to Pests and Diseases

Most conventional cultivars have their own natural resistance or tolerance to local pests and diseases, and their use reduces the application of chemical pesticides, hence supporting environmental-friendly agriculture.

Low Input Requirements

Such varieties perform very well under low input conditions and are consequently well suited for marginal and poor farmers involved in low-external-input sustainable agriculture (LEISA).

Superior Taste and Nutritional Quality

Local vegetables tend to have better flavor, odor, and nutritional value than the modern hybrids. For example, indigenous varieties of brinjal, tomato, and cucumber have their own characteristic flavor and antioxidant value.

Genetic Reservoir for Crop Improvement

Native varieties are a rich source of genes for contemporary plant breeding schemes. They provide characteristics like resistance to drought, pests, and quality attributes that are necessary for the development of climate-tolerant and nutritionally superior cultivars.

Examples of Indigenous Vegetable Varieties

India has a rich diversity of indigenous vegetable varieties specially evolved and adapting to local agro-climatic conditions and cultural choice. These older cultivars are generally more tolerant, tasty, and nutritionally better than most commercial hybrids.

Brinjal (*Solanum melongena*): Native cultivars like Kale Baingan (dark purple and long), Mattu Gulla (a much-admired green cultivar from Karnataka), and Vankaya (well-liked in Andhra Pradesh) are distinctive by shape, color, and rich flavor. They are innately part of regional cuisines and agriculture practices.

Tomato (*Solanum lycopersicum*): Desi tomatoes produced locally, usually in small farms and backyards, are preferred because they have good taste, moderate acidity, and a longer shelf life. They are particularly demanded in rural and peri-urban markets.

Cucumber (*Cucumis sativus*): The older landraces such as Desi kheera are usually cultivated under rainfed conditions. The varieties are not only drought-resistant but also employed in traditional medicine for their cooling and digestive values.

Amaranth (*Amaranthus* spp.): Tribal leafy greens such as red and green amaranth are good sources of iron, calcium, and antioxidants. They are extensively eaten in tribal and rural areas, adding immensely to the nutritional value of diets.

Bottle Gourd (*Lagenaria siceraria*): Indigenous bottle gourds are adapted to dryland farming systems and are considered useful because of their medicinal value in traditional practices. They are also a part of many local foods.

Benefits to Farmers and Society

The cultivation and preservation of traditional vegetable varieties offer a broad range of ecological, economic, and social advantages:

1. Assures Agrobiodiversity Conservation

Production of traditional vegetable varieties ensures the conservation of the rich crop genetic diversity, which is important for future breeding plans as well as sustainable agriculture. Conservation of these varieties on farms protects against genetic erosion and encourages ecological balance.

2. Ensures Food and Nutritional Security

Native vegetables tend to be rich in micronutrients like vitamins A, C, and iron. They are an essential component of the traditional diets among rural and tribal communities, where they fight malnutrition and food deprivation through diversified and nutritious meals.

3. Improves Livelihoods

Because of their special taste, cultural significance, and natural production practices, most local vegetable varieties command good prices in specialty markets. This provides livelihood opportunities for marginal and small farmers, particularly those engaged in organic and natural farming.

4. Promotes Climate Resilience

Native crops are generally more tolerant of biotic and abiotic stresses, such as drought, insect pests, and diseases. Their adaptability qualifies them to be cultured under fluctuating climatic conditions, thereby providing stability and sustainability in vegetable production systems.

Challenges of Conservation and Promotion of Indigenous Vegetable Varieties

Though the indigenous vegetable varieties have ecological and nutritional benefits, they are confronted with numerous key challenges that make their conservation and greater uptake difficult:

Loss of Traditional Knowledge and Seed-Saving Techniques

As traditional farming systems are dwindling, indigenous knowledge on seed selection, conservation, and planting techniques is slowly being lost.

Limited Quality Seed Availability

Availability of clean, viable, and type-true seeds of local varieties is still a key constraint for farmers, especially in isolated regions.

Institutional Support and Market Linkage Shortage

Public research stations and extension networks tend to favor hybrid and high-yielding varieties, neglecting native crops in their research and promotion.

Hybrid Seed Company Dominance

Private hybrid and GMO-centered companies dominate commercial seed markets at the expense of traditional seed systems and agro-biodiversity.

Strategies for Conservation and Use

To protect and enhance native vegetable varieties, the following comprehensive strategies are needed:

1. On-Farm Conservation and Community Seed Banks

Promoting on-farm conservation through farmer-led programs enables conservation of genetic diversity in natural ecosystems. Organizing community seed banks can make germplasm exchange, multiplication, and conservation possible.

2. Participatory Varietal Selection (PVS)

Direct involvement of farmers in indigenous cultivar selection, testing, and improvement guarantees that the varieties are appropriate to local tastes and local conditions. PVS further enhances farmers' ownership and know-how.

3. Policy Support and Incentives

The government should implement policies favoring indigenous crops through measures such as:

- ✓ Seed subsidy for traditional varieties
- ✓ Incorporation within public procurement schemes (e.g., mid-day meals, PDS)
- ✓ Biodiversity-friendly and local food system certification schemes

4. Awareness and Promotion Campaigns

Increase consumer, chef, nutritionist, and retailer awareness of the distinctive taste, nutritional value, and environmental benefits of indigenous vegetables to generate demand-based incentives for production.

5. Incorporation in Organic and Natural Farming Systems

Indigenous vegetables are generally pest-resistant, hardy, and low-input, so they are well-suited to organic, permaculture, and natural farming systems. Encouraging their contribution to sustainable agriculture will enhance adoption and environmental impact.

CONCLUSION

Indigenous vegetable crops are not merely seeds but also bearers of cultural heritage, nutrition knowledge, and eco-equilibrium. Encouraging their production not only guarantees food sovereignty and farmer independence but also helps preserve the nation's abundant agrobiodiversity. Institutions, policy, and people's initiatives need to be strengthened for the revitalization and mainstreaming of traditional vegetable crops for the development of a robust and sustainable food system.

REFERENCES

Dweba, T. P., & Mearns, M. A. (2011). Conserving indigenous knowledge as the key to the current and future use of traditional vegetables. *International Journal of Information Management*, *31*(6), 564-571.

Jena, A. K., Deuri, R., Sharma, P., & Singh, S. P. (2018). Underutilized vegetable crops and their importance. *Journal of Pharmacognosy and Phytochemistry*, *7*(5), 402-407.

Pichop, G. N., Abukutsa-Onyango, M., Noorani, A., & Nono-Womdim, R. (2014, August). Importance of indigenous food crops in tropical Africa: Case study. In *XXIX International Horticultural Congress on Horticulture: Sustaining Lives, Livelihoods and Landscapes (IHC2014): 1128* (pp. 315-322).

Wang, J. F., Dinssa, F. F., Ebert, A. W., Hughes, J. D., Stoilova, T., Nenguwo, N., ... & Ravishankar, M. (2014, August). Indigenous vegetables worldwide: their importance and future development. In *XXIX International Horticultural Congress on Horticulture: Sustaining Lives, Livelihoods and Landscapes (IHC2014): 1102* (pp. 1-20).

Weinberger, K., & Msuya, J. M. (2004). *Indigenous vegetables in Tanzania: Significance and prospects* (Vol. 600). AVRDC-WorldVegetableCenter.