

Potato: A Promising Crop for Chhattisgarh – Scope and Future Prospects

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Abstract

Potato (*Solanum tuberosum* L.) has emerged as a strategic crop for enhancing agricultural diversification, nutritional security and farm income in non-traditional growing regions such as Chhattisgarh. The present article critically examines the expanding role of potato cultivation in the state by integrating production trends with emerging dimensions of value chain development, technological interventions and market opportunities. It highlights the suitability of potato within rice-based cropping systems and its potential as a short-duration, high-return crop under varying agro-climatic conditions. The discussion further incorporates aspects of resource-use efficiency, climate-resilient production practices and the role of improved varieties in overcoming regional constraints. The article also emphasizes the importance of strengthening institutional mechanisms, including seed systems, farmer collectives and agro-processing linkages, to ensure sustainable growth. Special attention is given to post-harvest management, cold chain development and processing potential as key drivers of value addition. By adopting a systems-based approach, the study identifies critical pathways for scaling potato cultivation in Chhattisgarh, positioning it as a viable component of climate-smart agriculture and rural economic development

Keywords: Agro-climatic adaptation, Potato, Nutritional security, Yield improvement, Crop diversification

Introduction

Potato (*Solanum tuberosum* L.), commonly referred to as the ‘King of Vegetables’ is a globally cultivated, nutritionally rich and versatile food crop. Originating from the Andean regions of South America, it has emerged as the fourth most important food crop worldwide after rice, wheat and maize (FAOSTAT, 2022). Today, potatoes occupy 16.49 million hectares globally with a production of over 403 million tonnes, highlighting its major contribution to food systems. India is one of the leading potato producers, with Uttar Pradesh, West Bengal, Bihar, Gujarat, Madhya

Pradesh and Punjab contributing significantly to national output (ICAR, 2021). In recent years, Chhattisgarh has also shown growing prominence in potato cultivation, covering 42,584 hectares and producing 6.52 lakh tonnes annually. Farmers across districts such as Sarguja, Raigarh, Jashpur, Bilaspur, Balrampur, Surajpur and Raipur increasingly prefer potato due to its profitability, adaptability and rising consumer demand (Government of Chhattisgarh, 2023).

Potato offers multiple advantages rich nutritional composition, high caloric productivity, short growing period and suitability for diverse agro-climatic regions. However, challenges like warm climatic conditions, limited availability of suitable varieties and disease susceptibility call for region-specific scientific solutions. Understanding genetic variability and the relationship between agronomic traits is essential for developing improved cultivars tailored to Chhattisgarh's conditions.

A Global Crop with Local Significance

Globally, potatoes occupy about 16.49 million hectares with a production of 403.5 million tonnes (FAO, 2022). China, India and Russia are among the top producers. In India alone, potatoes cover around 2.25 million hectares with a production of 43.3 million tonnes, making it one of the country's most widely cultivated crops (ICAR, 2021). Chhattisgarh, though not traditionally known as a major potato-producing state, has shown rapid growth in both area and productivity. Potatoes are mostly grown in districts such as Sarguja, Raigarh, Jashpur, Bilaspur, Balrampur, Surajpur and Raipur. The state produces about 6.52 lakh tonnes annually from 42,584 hectares and farmers are increasingly adopting the crop due to its reliable market value and adaptability.

Why Potato Matters Today

The importance of potato cultivation has increased globally for several reasons:

- **High Nutritional Value:** Potatoes are rich in carbohydrates, vitamin C, vitamin B6, fibre (especially in the skin), potassium and antioxidants (Camire et al., 2009). A medium-sized potato provides more potassium than a banana and is almost fat-free.
- **Food Security:** The UN declared 2008 as the *International Year of Potato* in recognition of the crop's ability to fight hunger and support poor communities in developing countries (UN, 2008).
- **Adaptability:** Potatoes grow well in diverse environments from cool hills to warm plains and fit easily into multiple cropping systems (FAO, 2022).
- **High Productivity:** Potatoes produce more food per unit area and time compared to most major crops, making them ideal for regions with small landholdings.

Potato in Chhattisgarh: Opportunities and Challenges

In Chhattisgarh, potato cultivation is expanding due to improving awareness, market demand and the suitability of certain agro-climatic zones (Government of Chhattisgarh, 2023).

However, the region faces unique challenges:

- The climate of the plains is warmer, which affects vegetative growth and tuberization.
- Variety suitability remains an issue, as many cultivars have been developed for cooler regions.
- Farmers require location-specific, high-yielding, disease-resistant potato varieties.

Despite these challenges, the state has shown impressive growth: the annual increase in area, production and productivity stands at 9.01 per cent, 10.93 per cent and 1.76 per cent, respectively.

Scope of Potato Cultivation in Chhattisgarh

The scope of potato cultivation in Chhattisgarh is expanding rapidly due to its increasing suitability as a high-value, short-duration crop within the state's diverse agro-climatic conditions. The crop fits well into existing rice-based cropping systems, particularly during the rabi season, allowing efficient utilization of residual soil moisture and available irrigation resources. There is considerable potential to increase area under potato in districts such as Sarguja, Jashpur, Balrampur and Raigarh, where relatively cooler climatic conditions are favourable for tuber development. Additionally, the scope includes enhancing productivity through adoption of improved varieties, scientific nutrient management and integrated pest and disease management practices tailored to local conditions.

Beyond production, significant opportunities exist in strengthening the potato value chain within the state. The development of cold storage infrastructure, grading, packaging and processing units can reduce post-harvest losses and enhance farmer profitability. Farmer Producer Organisations (FPOs) and cooperative models can play a critical role in aggregation, input supply and market linkage. Furthermore, the promotion of processing-grade varieties, seed production systems and mechanization suitable for smallholders can improve overall efficiency. With appropriate policy support, technological interventions and market integration, potato cultivation in Chhattisgarh has strong potential to contribute to income generation, employment creation and agricultural diversification.



Figure 1. Potato cultivation and value chain development in Chhattisgarh. (Source: AI-generated image created using DALL·E (OpenAI), 2026)

Future Prospects of Potato Cultivation in Chhattisgarh

The future prospects of potato cultivation in Chhattisgarh are highly promising, driven by increasing demand, technological advancements and opportunities for crop diversification. With rising urbanization and changing dietary patterns, the demand for potatoes, both for fresh consumption and processing, is expected to grow steadily. This creates a favourable market environment for farmers to expand cultivation. The state’s agro-climatic diversity, particularly in northern districts with relatively cooler temperatures, provides a suitable niche for enhancing productivity through the adoption of improved, region-specific and climate-resilient varieties.

A major area of future growth lies in strengthening the seed system and promoting the availability of quality planting material. Development of disease-free, high-yielding and heat-tolerant varieties will be critical to overcoming climatic constraints. In addition, advancements in precision agriculture, such as weather-based advisories, drip irrigation and fertigation, can significantly enhance input-use efficiency and stabilize yields. Integration of potato into climate-smart and diversified cropping systems will further improve resource utilization and farm sustainability.

Post-harvest management and value addition present substantial untapped potential. Investment in cold storage infrastructure, processing units (chips and fries) and efficient supply chains can reduce losses and increase farmer income. Chhattisgarh can emerge as a regional hub for potato processing if supported by public-private partnerships and agro-industrial linkages. Strengthening Farmer Producer Organizations (FPOs) will also enable better aggregation, bargaining power and direct market access.

Policy support and institutional interventions will play a decisive role in realizing these prospects. Targeted extension services, capacity building and access to credit and insurance can encourage farmers to adopt improved practices. Moreover, linking potato cultivation with government schemes on horticulture development, agri-infrastructure and rural entrepreneurship can accelerate growth. Overall, with strategic planning, technological integration and market-oriented development, potato cultivation in Chhattisgarh has the potential to become a key driver of agricultural transformation, income enhancement and nutritional security in the state.

Conclusion

Potato cultivation in Chhattisgarh represents a significant opportunity for transforming the state's agricultural landscape through diversification, intensification and market orientation. While the crop has already demonstrated encouraging growth in area and productivity, its long-term sustainability will depend on addressing region-specific challenges such as heat stress, varietal adaptability and limited access to quality inputs. A strategic shift towards climate-resilient varieties, precision farming practices and integrated crop management is essential to enhance productivity and reduce production risks. Equally important is the development of a robust value chain encompassing efficient storage, processing and marketing systems. Strengthening farmer institutions, improving access to credit and promoting public-private partnerships can accelerate the adoption of innovative technologies and enhance market competitiveness. With coordinated efforts from research organizations, policymakers and extension agencies, potato cultivation can evolve into a high-value, employment-generating enterprise. Ultimately, it holds strong potential to contribute to nutritional security, income enhancement and sustainable agricultural development in Chhattisgarh

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