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Kufri Jamunia

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Kufri Jamunia is a biofortified purple potato variety developed by the ICAR–Central Potato Research Institute (ICAR–CPRI) to improve the nutritional quality of potatoes and contribute to India's fight against hidden hunger. With its distinctive purple flesh, antioxidant-rich pigments and promising agricultural performance, this variety offers new opportunities for farmers, food processors and consumers.

Unlike conventional potatoes, Kufri Jamunia is notable for its enhanced nutritional profile, including anthocyanins, vitamin C, carotenoids, iron and zinc. It combines nutritional potential with commercial cultivation prospects, making it an important development in agricultural research and food security.

The variety was highlighted in October 2026 for its potential to strengthen nutritional security and promote dietary diversity. It is particularly relevant to discussions on agricultural biotechnology, crop improvement, biofortification and sustainable agriculture.

Why Is Kufri Jamunia in the News?

Recently, the Indian Council of Agricultural Research's Central Potato Research Institute (ICAR–CPRI) highlighted Kufri Jamunia, a biofortified purple potato variety, for its potential to address hidden hunger and improve nutritional security.

The variety was officially released in 2024. It has attracted attention because of its distinctive colour, enhanced nutritional characteristics, promising yield and suitability for several culinary applications.

Its development reflects the growing importance of agricultural research in producing crops that offer both economic value to farmers and nutritional benefits to consumers.

What Is Kufri Jamunia?

Kufri Jamunia is a medium-maturing, biofortified purple potato variety developed by ICAR–CPRI, an institute working under the Indian Council of Agricultural Research (ICAR).

It is distinguished by its dark purple skin and purple flesh. The variety contains anthocyanins, natural plant pigments responsible for its purple colour, along with other nutrients of nutritional interest.

Its major objective is to combine the familiar role of potatoes as a staple food with an improved nutritional profile.

Key Facts About Kufri Jamunia

Particular	Details
Variety name	Kufri Jamunia
Crop	Potato
Scientific name	<i>Solanum tuberosum</i>
Developed by	ICAR–Central Potato Research Institute
Parent organisation	Indian Council of Agricultural Research
Release year	2024
Type	Biofortified purple potato

"The page you skip today is the question you miss tomorrow."

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Maturity	Medium-maturing
Skin and flesh	Dark purple skin and purple flesh
Recommended region	North Indian plains, according to the supplied report
Typical reported yield	32–35 tonnes per hectare
Reported station-trial yield	Up to 49 tonnes per hectare under trial conditions
Major nutritional features	Anthocyanins, vitamin C, carotenoids, iron and zinc
Main significance	Potential contribution to nutritional security and dietary diversity

What Is Biofortification?

Biofortification is the process of improving the nutritional content of crops through methods such as conventional plant breeding and, in some cases, other crop-improvement techniques.

Its main objective is to increase the concentration or availability of essential nutrients in the food people regularly consume.

For example, biofortified crops may contain higher levels of iron, zinc, provitamin A or other nutritionally important compounds, depending on the crop and the breeding programme.

Biofortification differs from conventional food fortification in an important way.

- **Biofortification:** Nutritional traits are improved while the crop is being developed or grown.
- **Food fortification:** Nutrients are added to food during processing or manufacturing.

Kufri Jamunia is an example of a crop variety developed with an emphasis on nutritional quality alongside agricultural performance.

Why Is Biofortification Important for India?

India has made substantial progress in foodgrain production, but food availability alone does not guarantee adequate nutrition.

People may consume sufficient calories while still lacking essential vitamins and minerals. This problem is commonly described as hidden hunger.

Biofortification can help address this challenge by improving the nutritional quality of commonly consumed foods.

Its potential benefits include:

1. Improving the nutrient content of everyday diets.
2. Supporting efforts to reduce micronutrient deficiencies.
3. Increasing the nutritional value of locally grown crops.
4. Providing farmers with opportunities to cultivate differentiated, higher-value varieties.
5. Supporting food and nutritional security alongside conventional agricultural production.

However, biofortified crops are only one part of the solution. A balanced diet, access to diverse foods, appropriate healthcare and effective nutrition programmes remain essential.

What Makes Kufri Jamunia Special?

Kufri Jamunia combines distinctive physical characteristics with nutritional and agricultural potential.

1. Purple Skin and Flesh

The most noticeable feature of Kufri Jamunia is its dark purple colour, which extends beyond the skin into the flesh of the tuber.

This colouring is primarily associated with anthocyanins, a group of naturally occurring pigments found in several fruits, vegetables and other plant foods.

Unlike varieties in which the coloured pigment is largely concentrated in the skin, the purple flesh of Kufri Jamunia makes it suitable for a range of visually distinctive food products.

2. Rich in Anthocyanins

Anthocyanins are water-soluble plant pigments responsible for red, purple and blue colours in many foods.

They also have antioxidant activity, meaning they can help neutralise certain reactive molecules under appropriate conditions.

Their presence makes coloured potatoes interesting from a nutritional and food-science perspective. However, the health effects of eating Kufri Jamunia specifically depend on its measured nutrient composition, preparation method, serving size and overall dietary context.

3. Contains Important Nutrients

Kufri Jamunia has been reported to contain vitamin C, carotenoids, iron and zinc, in addition to anthocyanins.

These nutrients perform different functions in the human body.

- **Vitamin C:** Supports normal immune function, collagen formation and iron absorption.
- **Iron:** Is essential for haemoglobin formation and oxygen transport.
- **Zinc:** Supports normal immune function, growth and tissue repair.
- **Carotenoids:** A group of plant pigments, some of which can be converted into vitamin A.
- **Anthocyanins:** Plant pigments with antioxidant properties.

The exact nutritional contribution of a serving depends on measured nutrient concentrations and how the potato is stored and prepared.

4. Promising Agricultural Performance

According to the reported figures, Kufri Jamunia produces approximately 32–35 tonnes per hectare under recommended cultivation practices.

In station trials, yields reportedly reached up to 49 tonnes per hectare over a 90-day period. Nearly 90% of the total yield was marketable in the reported trials.

These figures suggest commercial potential, but station-trial yields should not be treated as guaranteed farm yields. Actual performance varies with climate, soil, seed quality, irrigation, crop management and disease pressure.

5. Suitable for Different Food Products

The variety's purple flesh and mealy texture offer opportunities for both household cooking and food processing.

Potential uses include:

- Parathas and puris.
- Potato-based snacks.
- Bakery products.

- Speciality potato dishes.
- Purple potato flour and other processed products.

The colour can also provide visual differentiation in value-added food products, although the retention of pigments depends on processing and cooking conditions.

Nutritional Benefits of Kufri Jamunia

Kufri Jamunia is important because it brings together the familiar dietary role of potatoes and the potential benefits of a more diverse nutritional profile.

1. Potential to Support Better Micronutrient Intake

Iron and zinc deficiencies are important public health concerns in many populations.

A potato variety containing these minerals can contribute to dietary intake, although the amount supplied by an ordinary serving must be assessed using reliable composition data.

Kufri Jamunia should therefore be considered a potentially useful component of a diverse diet rather than a standalone treatment for micronutrient deficiency.

2. Antioxidant Properties

Anthocyanins and certain other plant compounds have antioxidant activity.

Consuming a variety of colourful fruits and vegetables can contribute to a diet rich in beneficial plant compounds. Nevertheless, antioxidant activity measured in laboratory conditions does not automatically establish a particular health outcome in humans.

3. Contribution of Vitamin C

Vitamin C is an essential nutrient involved in collagen formation, normal immune function and the absorption of non-haem iron from plant foods.

Potatoes can contribute to vitamin C intake, although the amount retained depends on storage, cooking time and preparation method.

4. Encouraging Dietary Diversity

Purple potatoes can introduce greater variety into meals and food products.

Dietary diversity is important because no single food provides every nutrient needed for good health.

Consuming a range of vegetables, fruits, pulses, whole grains and other nutritious foods is a more effective approach to meeting overall dietary needs.

Yield, Maturity and Storage Characteristics

Kufri Jamunia has several characteristics relevant to farmers and the potato-processing industry.

Yield Potential

The reported yield under recommended cultivation practices is around 32–35 tonnes per hectare. Higher yields of up to 49 tonnes per hectare have been reported in station trials.

The difference highlights the importance of distinguishing experimental performance from typical field results.

Marketable Produce

The reported trials indicated that nearly 90% of the total yield was marketable.

A high marketable share can improve the commercial attractiveness of a crop, provided that the tubers meet the size, quality and appearance requirements of buyers.

Dormancy and Storage

Kufri Jamunia has a reported dormancy period of approximately six to eight weeks and is described as having good storage quality.

Dormancy refers to a period after harvest during which a tuber does not readily sprout, even when conditions may otherwise be suitable.

Storage performance remains influenced by temperature, humidity, ventilation, handling and disease control.

For commercial cultivation, farmers should follow locally recommended storage practices and guidance from agricultural experts.

Where Can Kufri Jamunia Be Cultivated?

Kufri Jamunia has demonstrated stable performance in multi-location trials and has been recommended for cultivation in the North Indian plains, according to the supplied report.

Potato cultivation in this region depends on suitable seasonal temperatures, well-drained soil, healthy planting material and appropriate water management.

However, the performance of a new variety can differ from one location to another. Farmers should consult regional agricultural universities, Krishi Vigyan Kendras and ICAR-CPRI recommendations before selecting it for commercial cultivation.

Important Factors for Successful Cultivation

- **Suitable climate:** Potatoes generally perform well under cool growing conditions, with excessive heat potentially affecting tuber development.
- **Soil quality:** Well-drained, suitable soils help support healthy root growth and tuber formation.
- **Quality planting material:** Healthy seed tubers reduce the risk of introducing certain diseases and support crop establishment.
- **Irrigation management:** Adequate soil moisture is important, but waterlogging can damage the crop.
- **Pest and disease management:** Monitoring and timely, locally appropriate management measures help reduce crop losses.
- **Market access:** Farmers should assess demand, buyer preferences and transport arrangements before investing in speciality potato production.

Role of ICAR-CPRI in Potato Research

- The Indian Council of Agricultural Research–Central Potato Research Institute is an important institution for potato research and crop improvement in India.
- Its work supports the development of improved potato varieties and the advancement of cultivation practices, disease management, seed production and post-harvest technologies.
- Developing varieties such as Kufri Jamunia involves more than creating an unusual colour. Researchers must consider a combination of traits, including yield, maturity, tuber characteristics, nutritional composition, adaptation and market suitability.

- This type of crop research can help farmers respond to changing consumer preferences while contributing to national food and nutritional security.

Other Coloured Potato Varieties Developed by ICAR-CPRI

Kufri Jamunia is part of a wider effort to develop potato varieties with distinctive colours and nutritional characteristics.

Two other varieties mentioned in the supplied report are Kufri Neelkanth and Kufri Manik.

Kufri Neelkanth

Kufri Neelkanth is a purple-skinned speciality potato variety developed by ICAR-CPRI and released in 2018.

According to the supplied information, it is suitable for cultivation in states including Punjab, Haryana, Uttar Pradesh, Uttarakhand, Bihar, Madhya Pradesh and Chhattisgarh.

It is known for its antioxidant-related characteristics.

Kufri Manik

Kufri Manik was released in 2021. It produces deep red, round tubers with yellow flesh and has been described as containing anthocyanins, zinc and iron.

Its appearance differs from Kufri Jamunia, which has purple flesh as well as purple skin.

Comparison of the Three Varieties

Feature	Kufri Jamunia	Kufri Neelkanth	Kufri Manik
Release year	2024	2018	2021
Colour	Purple skin and flesh	Purple skin	Deep red skin with yellow flesh
Notable feature	Biofortified purple potato	Purple-skinned speciality potato	Red, round tubers
Nutritional interest	Anthocyanins, vitamin C, carotenoids, iron and zinc	Antioxidant-related characteristics	Anthocyanins, iron and zinc
Main relevance	Nutritional security and speciality food products	Coloured potato cultivation	Coloured potato cultivation

The varieties differ in their physical features and nutritional characteristics. Their actual nutrient concentrations and suitability for particular locations should be assessed using official variety descriptions and reliable analytical data.

How Can Kufri Jamunia Help Address Hidden Hunger?

Hidden hunger occurs when a person's diet supplies enough energy but does not provide adequate amounts of essential vitamins and minerals.

It can affect people across different income groups and age groups, depending on their dietary quality, health and living conditions.

Kufri Jamunia may contribute to addressing this challenge in several ways.

- **Improving the nutritional quality of a familiar food:** Potatoes are widely consumed, so improved varieties may offer a practical way to diversify the nutritional characteristics of an everyday crop.
- **Supporting food innovation:** Purple flesh creates opportunities for new products, including speciality

snacks, flour and prepared foods.

- **Encouraging crop diversification:** Coloured varieties can expand the range of crops available to farmers and consumers.
- **Supporting agricultural research:** Biofortified crops demonstrate how plant breeding can contribute to objectives beyond yield alone.

However, the effectiveness of biofortification depends on adoption, affordability, nutrient retention during cooking and the amount of the food consumed. It must complement broader nutrition interventions rather than replace them.

Challenges in the Adoption of Biofortified Potato Varieties

Despite their potential, new varieties may face several challenges before becoming widely adopted.

Consumer Awareness

Consumers accustomed to white or yellow potatoes may be unfamiliar with purple varieties. Awareness campaigns, demonstrations and suitable recipes can help explain their characteristics and uses.

Availability of Planting Material

Commercial expansion requires reliable access to healthy, quality planting material. Inadequate availability can limit adoption even when a variety performs well in trials.

Market Demand

Farmers need sufficient demand and dependable buyers to justify producing a speciality variety. Processors and retailers can help develop markets for differentiated potato products.

Regional Adaptation

A variety that performs well under one set of conditions may not produce the same results elsewhere. Local testing and expert recommendations are important.

Maintaining Nutritional Quality

Storage, cooking and processing can influence nutrient retention. Research into suitable handling and preparation methods can help preserve the desired characteristics of coloured potatoes.

Conclusion

Kufri Jamunia represents an important development in India's efforts to combine agricultural productivity with improved nutritional quality. Developed by ICAR-CPRI and released in 2024, this biofortified purple potato stands out for its anthocyanin-rich colouring, reported nutrient profile, promising yield and potential uses in household cooking and food processing.

Its significance extends beyond the development of a new potato variety. It demonstrates how crop improvement can contribute to dietary diversity, speciality food markets and broader nutritional objectives.

However, its long-term success will depend on reliable planting material, regional suitability, farmer adoption, market demand and accurate information about its nutritional composition.

The key takeaway is that biofortification can help improve the nutritional quality of everyday foods, but it works best alongside dietary diversity, public health measures and sustainable agricultural practices.

Frequently Asked Questions (FAQs)

1. What is Kufri Jamunia?

Kufri Jamunia is a biofortified purple potato variety developed by ICAR–CPRI and officially released in 2024.

2. Which organisation developed Kufri Jamunia?

It was developed by the ICAR–Central Potato Research Institute, which operates under the Indian Council of Agricultural Research.

3. Why is Kufri Jamunia purple?

Its purple colour is primarily associated with anthocyanins, natural pigments found in various plant foods.

4. What nutrients are found in Kufri Jamunia?

The reported nutritional profile includes vitamin C, anthocyanins, carotenoids, iron and zinc. Exact quantities depend on the variety's measured composition and growing conditions.

5. What is the yield of Kufri Jamunia?

The reported yield is around 32–35 tonnes per hectare under recommended cultivation practices. Station trials have reportedly achieved yields of up to 49 tonnes per hectare.

6. What is biofortification?

Biofortification is the improvement of a crop's nutritional content through breeding and other crop-improvement methods.

7. How can Kufri Jamunia help address hidden hunger?

Its nutritional characteristics may contribute to improving dietary quality, particularly when the variety is incorporated into a diverse diet. It is not a substitute for medical treatment or comprehensive nutrition programmes.

8. Where is Kufri Jamunia recommended for cultivation?

The supplied report identifies the North Indian plains as a recommended region. Farmers should consult current regional recommendations before cultivation.

9. What is the role of anthocyanins in purple potatoes?

Anthocyanins are natural pigments responsible for purple, blue and red colours in plant foods. They also exhibit antioxidant activity.

10. What are some other coloured potato varieties developed by ICAR–CPRI?

Kufri Neelkanth, a purple-skinned variety released in 2018, and Kufri Manik, a red-skinned variety released in 2021, are two examples.

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