



ORGANIC BLACK CUMIN FARMING

A Pathway to Higher Profits and Sustainable Agriculture



INTRODUCTION

Black cumin, scientifically known as **Nigella sativa**, is a plant belonging to the Ranunculaceae family. It is known for its small black seeds, used as a spice, and in traditional medicine. Black cumin seeds contain essential nutrients, including proteins, fats, carbohydrates, vitamins, and minerals. The seeds are rich in essential nutrients, and antioxidants like thymoquinone, and have potent anti-inflammatory properties (National Library of Medicine, 2019).

Black cumin has been shown to alleviate symptoms of respiratory conditions like asthma and COPD by improving lung function and reducing wheezing and coughing.

It also exhibits strong antimicrobial effects against a variety of pathogens, including drug-resistant bacteria like MRSA. Black cumin may help regulate blood sugar levels and improve insulin sensitivity, making it beneficial for individuals with type II diabetes. Additionally, it has antiulcer properties and can help combat infections caused by Helicobacter pylori, a bacterium linked to stomach ulcers (National Library of Medicine, 2019).





METHODOLOGY

This study was conducted in the Nadia district of West Bengal to promote organic farming of black cumin through training programs. The research compared the socio-economic impact on organic farmers versus conventional black cumin (Kalonji) farming during the Rabi season of 2022-23.

A multi-stage sampling technique was followed, with Hanshkhali and Krishnagar-1 blocks selected for having the highest area under black cumin cultivation. Five villages—Gopalpur, Itabaria, Hijuli, Mahishnengra, and Goalpara —were chosen, and a sample of 10 organic and 10 inorganic black cumin growers was selected from these areas.

Data was collected through in-depth interviews using a pre-tested questionnaire, covering various aspects of farm operations such as the socioeconomic profile, input-output records, and cost of cultivation for both organic and inorganic farmers.



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COST-EFFECTIVENESS OF ORGANIC FARMING

Organic farming offers distinct cost advantages, especially when considering long-term sustainability and resource efficiency. A comparison between organic and inorganic black cumin cultivation highlights the following key points:

3.1 LOWER INPUT COSTS FOR FERTILIZERS AND PLANT PROTECTION:

- Organic farmers incur ₹0 on *chemical fertilizers*, while inorganic farmers spend ₹5,060.02 per acre.
- Plant protection costs for organic farmers are only ₹333.43, compared to ₹2,200.01 for inorganic farmers, reflecting significant savings on synthetic pesticides.

3.2 LONG-TERM COST BENEFITS:

 Though initial costs, like machine labor (₹2,745.60 for organic vs. ₹2,227.50 for inorganic), are slightly higher, the elimination of recurring expenses for fertilizers and chemicals makes organic farming more cost-effective in the long run.

3.3 FERTILIZER COST:

- Inorganic black cumin farmers spend ₹5,060.02 per acre on 153.98 kg of *mix fertilizers*, adding significantly to their production costs. In contrast, organic farming avoids such chemical inputs, resulting in zero cost for fertilizers while promoting sustainable soil management practices through the use of natural compost and manures.
- Inorganic black cumin cultivation incurs 10.83% of total costs on chemical fertilizers, which is nearly double the 5.62% spent on *organic manure* in organic farming, making organic cultivation more costefficient for input expenses.

3.4 ENVIRONMENTAL AND ECONOMIC SUSTAINABILITY:

• Organic farming *improves soil fertility, reduces chemical residues, and preserves biodiversity,* which can enhance crop yields over time and decrease dependency on costly synthetic inputs, contributing to better long-term economic outcomes for farmers.



KEYNOTES

Animal husbandry is key to organic farming, providing natural manure that enriches the soil and reduces production costs. Livestock like cows, poultry, and goats create a sustainable cycle, supporting both crop growth and farm profitability.

ECONOMIC COMPARISON OF ORGANIC AND INORGANIC BLACK CUMIN PRODUCTION

A. Gross Income: Organic black cumin production earned ₹59,839.79 per acre, significantly higher than inorganic production's ₹46,992.00.

B. Total Cost (Cost-C): The total cost of organic black cumin cultivation was ₹45,316.66 per acre, slightly lower than the inorganic cost of ₹46,737.21.

C. Net Returns: Organic farming generated a net return of ₹14,523.14 per acre, which is 98.25% higher than the ₹254.79 per acre from inorganic farming.

D. Per kg Cost of Production: Organic black cumin had a lower production cost of ₹137.83 per kg, compared to ₹149.19 per kg for inorganic farming.







The study demonstrates the **clear advantages of organic black cumin (Kalonji) farming over inorganic practices in terms of both economic and environmental sustainability**. Organic farmers benefit from significantly lower input costs, particularly with regard to fertilizers and plant protection, which leads to higher net returns. Organic cultivation also enhances long-term soil health, reduces dependency on costly synthetic chemicals, and fosters a more sustainable agricultural system through the use of natural manure.

With a higher gross income (₹59,839.79 per acre) and net returns nearly double those of inorganic farming, organic farming proves to be more profitable. Additionally, the lower per kg production cost further strengthens the economic viability of organic black cumin cultivation. The integration of animal husbandry into organic systems promotes resource efficiency and reinforces the environmental sustainability of farming operations. Thus, **organic black cumin farming presents a more cost-effective, eco-friendly, and financially rewarding alternative for farmers.**

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