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INDIAN ORGANIC AGRICULTURE: THE CURRENT SITUATION

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Abstract

India has emerged as one of the top three countries in the world where the area under organic agriculture expanded the maximum in 2020, according to latest data.Natural farming is not a new concept in India, with farmers having tilled their land without the use of chemicals - largely relying on organic residues, cow dung, composts, etc. since time immemorial.Food quality and safety are the primary concerns of Indian consumers today. The growing environmental and food safety concerns have created a significant demand for yield from green and sustainable cultivation methods. Modern farming methods often lead to biodiversity loss and monoculture, which are huge factors in the environment's decline. Pesticides and chemical usage are rampant in Indian agriculture, causing water and soil contamination.

One of the topics of discussion surrounding organic farming in recent years has been its l ongterm sustainability, both for the environment and in terms of output and productivity.in truth, there has been a considerable transformation in the organic agricultural industry during the last fe w decaes.research and scientific implications in this field have shown an astonishing rise at all levels worldwide.nearly 200 nations around the world are currently engaged in organic activities, according to a recent research from organic industry heavy weights fibs and foamOrganic internationals. These numbers imply that farmers are now aware of the advantagesProvided by organic farming.Using fewer synthetic substances not only saves producersMoney, but it's also better for the environment. Having access to safe food and environment is also beneficial to the customer. Therefore, maintaining system productivity and resource quality is urgently needed. Given that our economy is predominately agrarian and that over half of the population works in this field, organic farming in India may significantly contribute to environmental sustainability. It would therefore be fascinating to research the state and future of organic farming in India organic agriculture.

Keywords: Organic Farming, Agriculture, Sustainability, Health, Green Revolution, Food and Environment.

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Introduction

Food quality and safety are two critical aspects that have captured the attention of people all around the world. Growing environmental consciousness and multiple food risks have resulted in a significant reduction in customer trust in food quality in recent decades. Since the nineteenth century, the agricultural industry has grown dramatically over the world. This expansion, largely driven by green revolution technology, has made a significant contribution to aggregate supply of food grains, assuring adequate food security for the rising population. The green revolution has resulted in a slew of technological breakthroughs in agricultural output, particularly in Asia. Worldwide cereal harvests tripled between 1950 and 2000, allowing enough nutritional calories to be provided for a world population of six billion by the end of the twentieth century (Trewavas, 2002).

Agricultural growth has thus far been concentrated on improving productivity and self-sufficiency in food grain production rather than on more holistic natural resource management for food security and sovereignty. Increased food production through intense farming has not only been followed by a slew of obstacles and challenges, such as the deterioration and exploitation of natural resources, but it has also had an impact on human health. More comprehensive system-oriented techniques are currently gaining traction and are expected to better address the difficult difficulties connected with the complexity of farming systems in many locales and cultures (IAASTD, 2009). As a result, the following step of development has a significant hurdle in terms of sustainability, both in terms of the environment and food grains. As a result, the preservation of human health and the environment, as well as the sustainability of production, is now a key concern at the global level.

These issues have raised public awareness and a perceived need to transition from the input-intensive agriculture practiced during the green revolution period to sustainable agriculture in various parts of the world. While the necessity for a paradigm shift in growth strategy is widely acknowledged, the transition from input intensive to sustainable farming is fraught with obstacles (Babar, 2012). Intensive traditional farming can pollute the food chain. For these reasons, customers are looking for safer and better foods that are produced in more environmentally friendly and authentic ways by local systems. These demands are thought to be met by organically farmed food and food products (Rembialkowska, 2007).

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Review of Literature

According to Nourthbourne, (2003), "the farm itself should have biological completeness;"It must be a living organism; it must be a unit with a balanced organic life within it' He also characterized organic farming as 'an ecological production management method that fosters and enhances biodiversity, biological cycles, and soil biological activity'.

Organic farming as a growing method has grown in popularity in recent years Organic foods have emerged as one of the finest options for both consumers and farmers. Organically farmed foods are an important aspect of living a green lifestyle. However, what exactly is meant by organic farming? The term "organic" refers to "plant or animal origin." It also refers to the organisational structure of an organism. Northbourne created the phrase 'organic' in his book 'Look to the Land' in 1940.

Organic farming, according to the United States Department of Agriculture, is "a system that avoids or largely excludes the use of synthetic inputs such as feed additives, fertilizer, pesticide, hormone and, to the greatest extent possible, and biological system of nutrient mobilization and plant protection." Organic farming, according to the Food and Agriculture Organization (FAO), is a type of production management that uses on-farm agronomic, biological, and mechanical approaches rather than any artificial off-farm inputs to support and improve the health of agro-ecosystems, including biodiversity, biological cycles, and soil biological activities.

According to Shukla et al., (2011). Organic farming is a crop production system that does not use synthetic compounds, growth regulators, or livestock food additives, instead using organic inputs and recycling farm waste for nutrient supply, emphasizing crop rotation and soil biological processes for pest management, and thus significantly reducing the negative effects associated with conventional farming. Because it combines crop management and animal husbandry in agro-ecosystems that are socially acceptable and environmentally sustainable, it can sustain the health of soils, ecosystems, and people by integrating tradition, innovation, and science. As a result, this approach minimizes the use of external inputs and expertise and focuses at crop yield optimization rather than maximization by renewing and strengthening biological processes and functions of farm ecosystems.

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According to Bhardwaj and Dhiman, (2019). Because of more pesticide residue, heavy metals, more nitrate, antibiotic residue, hormones, and genetically engineered organisms, conventionally farmed foods have huge negative health impacts. Furthermore, conventionally farmed foods lack essential nutrients and contain lower levels of beneficial antioxidants. Even in developing nations such as India, demand for organically grown product is increasing as people become more conscious of the safety and quality of food and the organic method has a significant impact on soil health as well as the environment, which is free of chemical pesticides. The soil in India is rich in naturally available organic nutrient supplies that help with organic farming (Adolph and Butterworth, 2002; Reddy, 2010; Deshmukh and Babar, 2015).

The Environmental Impact of Organic Agriculture

Organic farming contributes significantly to environmental conservation. The environmental impact of organic and conventional agriculture has been thoroughly researched throughout the years. Organic farming is thought to be less hazardous to the environment since it prohibits the use of synthetic pesticides, the majority of which are potentially harmful to water, soil, and local terrestrial and aquatic fauna (Oquist et al., 2007). Furthermore, organic farms are better than conventional farms at sustaining biodiversity due to crop rotation practises. When compared to conventional farming, organic farming enhances soil physio-biological features such as greater organic matter, biomass, higher enzyme, better soil stability, improved water percolation, holding capacity, less water, and wind erosion (Fliessbach & Mäder, 2000). Organic farming consumes less energy and generates less waste per unit area or yield (Hansen et al., 2001). Furthermore, organically managed soils have increased water retention capacity, resulting in higher output in organic farms even during drought years (Pimentel et al., 2005).

Objectives:

The current study intends to:

1. Analyse the structure of organic farming on a global scale.
2. Investigate the state of organic farming in India.
3. Assess and analyse the aspects that may facilitate the country's adoption of organic farming.

Methodology

The paper is based on secondary data sources during a nearly ten-year period. Information about organic farming and its practices in India and other developed countries is gathered from a variety of published sources, including FiBL Statistics - European and global

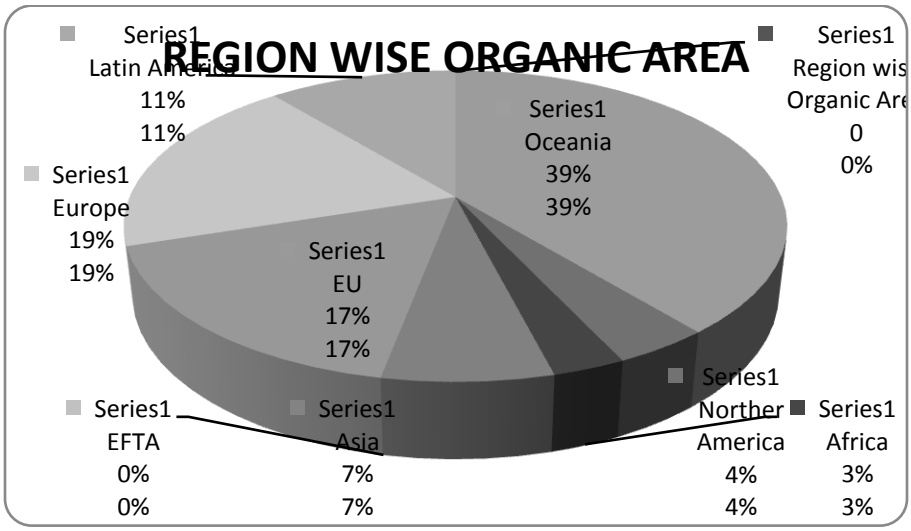
organic farming statistics, APEDA (Agricultural processed food products and export development Authority), PGS-India Web Portal, NCOF annual reports, journals, periodicals, and newspapers, among others.The current study examines the region, production, commodity type, and export of organic products. To investigate the size and direction of performance of organic farming in India, the compound average growth rate was employed to quantify growth performance over various time periods. India's comparative comparison with other countries and at the regional level has been published in tabular and graph form.

Empirical Analysis

World Scenario of Organic Agriculture:

According to the most recent FiBL survey (The World of Organic Agriculture 2023) of 191 countries on organic agriculture worldwide, organic cropland and organic retail sales have been steadily increasing and have now achieved an all-time high.

Figure 1 : World : Distribution of organic agricultural land by region (%), 2021



At the end of 2021, a little more than 76.4 million hectares were organically managed, representing a 1.7 percent or 1.3 million hectare increase over 2020. Organic agricultural acreage has risen fivefold (2021) from 2001, when 15 million hectares were organic. Over 76.4 million hectares of organic agricultural land, including in-conversion areas, were documented in 2021.Oceania has the most organic agricultural land (36.0 million hectares - nearly half of the world's organic agricultural land, 47 percent) while Europe has the least (17.8 million hectares, 23 percent). Latin America had 9.9 million hectares (13%), Asia had 6.5 million hectares (8.5%), Northern America had 3.5 million hectares (4.6%), and Africa had 2.7 million hectares (3.5%).

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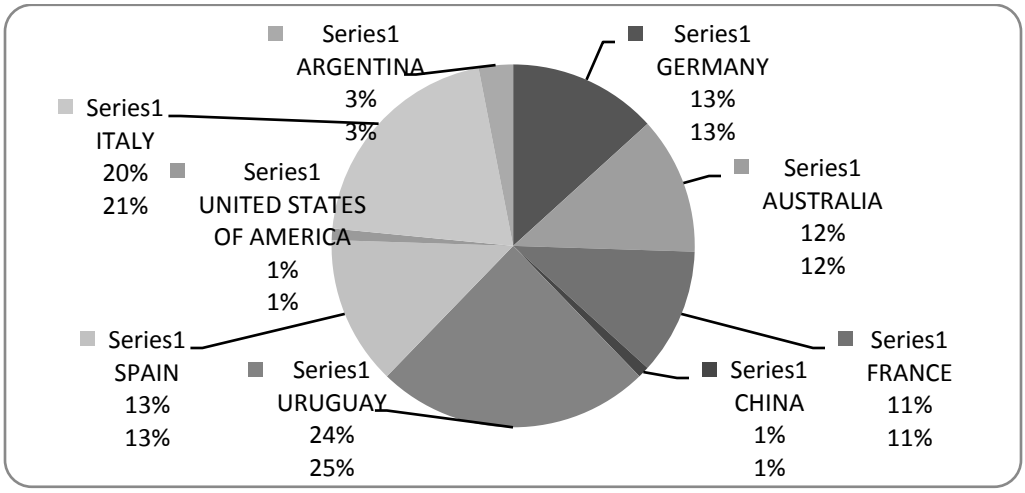
Figure 2: Largest 10 countries in Organic Area: 2021



Spain and France. Organic agriculture increased by approximately 320,000 hectares (+13.1%) in China, nearly 228,000 hectares (+8.9%) in France, and about 198,000 hectares (+8.1%) in Spain. But several nations also experienced declines. Argentina recorded a reduction of about 0.38 million hectares (mostly grazing lands), which was the largest drop.

In 2021, there were just under 3.7 million organic growers worldwide. More than 91% of producers, according to the FiBL survey from 2023, were located in Asia, Africa, and Europe. India (1599010) has the most producers of organic products, followed by Uganda (404246) and Ethiopia (218175).

Indian organic farming

Among the 191 nations that practise organic agriculture, India occupies a special place. In 2021, 2.66 million hectares of farmland were being farmed organically. As of 2021 data (Source: FIBL,2023), India ranks first in terms of the overall number of producers and sixth in terms of the world's organic agricultural land. However, the area used for organic farming is quite little when compared to the total net seeded area of the nation, indicating that the nation still has a long way to go.

Table 1 : Organic Agriculture Statistics at a Glance in India (2021-22)

	Cultivated Area (Organic + In Conversion)	4726714. 74 Ha

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	Wild Harvest Collection Area	4393151.17 Ha
	Total Area (Cultivated + Wild Harvest)	9119865.91 Ha
Production	Farm Production	3410195.02MT
	Wild Harvest Production	20540.63 MT
	Total Production	3430735.65 MT
Total Farmers	Total Farmers	2480859
Organic Exports	Total exports quantity	460320.40 MT
	Total export value (INR)	5249.32
	Total export value (US$)	771.96 Milion

Table -1 gives the details on several organic agricultural factors in India. The entire area in the National Programme for Organic Production's organic certification process as of March 31, 2022, was 9119865.91 ha. This consists of a cultivable area of 4726714.74 ha and a wild harvest gathering area of 4393151.17 ha. Around 3430735.65 MT of certified organic products were produced in the nation in 2021–2022, including all types of food products such as oil seeds, fibre, sugar cane, cereals and millets, cotton, pulses, aromatic and medicinal plants, tea, coffee, fruits, spices, dry fruits, vegetables, processed foods, etc. Producing organic cotton fibre, functional foods, and other items is also done in addition to the edible industry.

460320.40 MT worth of goods were exported in total between 2021 and 2022. The export of organic food brought in about INR 5249.32 Crore (771.96 million USD). USA, EU, Canada, UK, Switzerland, Turkey, Australia, Ecuador, Korea Republic, Vietnam, Japan, etc. are among the countries that import organic products.

Figure 3 : Area under Organic Cultivation in India (ha) : 2012-2022

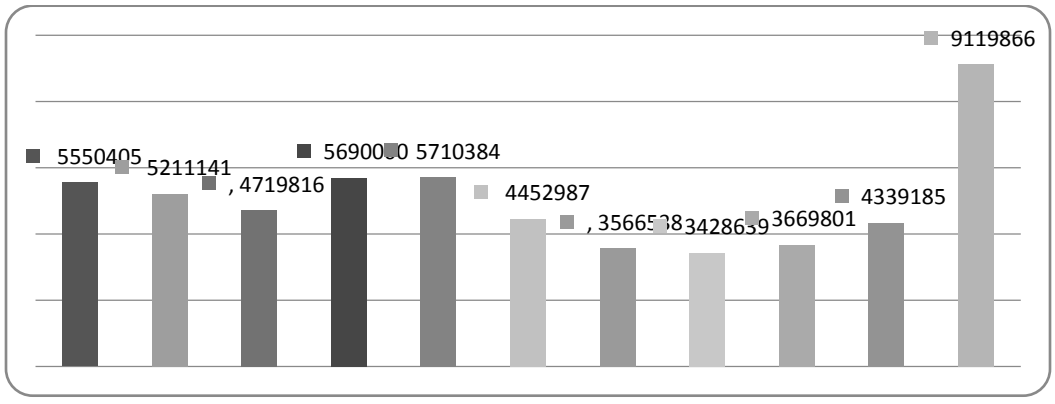

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Figure -3 also shows the area in India used for organic farming between 2011 and 2012. The area used for certified organic farming has significantly increased during the past ten years. The area used for certified organic farming increased by over 1.5 times over a ten-year period, reaching 5550405 ha in 2011–12. The area used for organic farming, however, has experienced changes over the course of the entire study period. At the moment, 9119866 acres of land are being certified organically farmed, and India is one of the top 10 countries in the world in terms of the overall area under organic farming.

During 2021–2022, Chhattisgarh covered the most ground for organic certification among all the states, followed by Madhya Pradesh and Maharashtra. The top three states represent approximately.

Table 2 : State wise CAGR of total area under organic certification process (cultivated + Wild –Harvest) (in ha) : 2016-7 to 2021-22

State	2016-17	2021-22	CAGR
Andaman & Nicobar Islands	0	155	-
Andhra Pradesh	172783.03	49638.42	-0.22
Arunchal Pradesh	72311.27	12636.64	-0.29
Assam	23930.4	18102.94	-0.05
Bihar	679.2	30941.01	1.15
Chhattisgarh	179752.14	3008606.33	0.76
Goa	15762.43	18259.72	0.03
Gujarat	70495.05	602248.5	0.54
Haryana	5031.76	3198.95	-0.09
Himachal Pradesh	14376.72	203043.2	0.70
Jammu & Kashmir	181608.32	59825.58	-0.20
Jharkhand	36813.95	58970.14	0.10
Karnataka	81948.81	110703.45	0.06
Kerala	43701.88	43681.54	0.00
Ladakh	0	7817.85	-
Lakshadweep	895.52	895.51	0.00
Madhya Pradesh	2292697.39	2370593.41	0.01
Mahashtra	292391.78	1133668.57	0.31
Manipur	241.4	14628.42	1.27

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Meghalaya	9629.6	27508.74	0.23
Mizoram	210	19038.89	1.46
Nagaland	4699.93	14269,27	0.25
New Delhi	9.23	12.95	0.07
Odisha	99736.17	184034.35	0.13
Pondicherry	2.84	21.51	0.50
Punjab	17648.58	24180.6	0.07
Rajasthan	539522.12	686420.61	0.05
Sikkim	75218.28	7547.28	0.00
Tamilnadu	10775.69	53388.22	0.38
Tripura	203.56	12081.63	1.26
Uttarpradesh	101459.95	115590.47	0.03
Uttarakhand	93586.42	113747.54	0.04
West Bengal	5176.03	7280.37	0.07
India	4452987.24	9119865.91	0.15

Half of the land is under organic farming. In 2021-22, the top ten states will account for around 80% of the total area under organic farming.

During the previous five years, from 2016 to 2017, the country saw a 0.15 percent CAGR. Bihar, Manipur, Mizoram, and Tripura experienced considerable increases in growth rates throughout this period. Sikkim earned the amazing distinction of converting its whole cultivable land (more than 75000 acres) to organic certification in 2016. According to the data, there is a growing public awareness of the benefits of organic farming in the country.

Table 3 : State wise Organic Farm Production for the year 2021-22

State	Organic Production (In MT)	Conversion Production (In MT)	Total Production (In MT)
Andhra Pradesh	18.751.55	907.71.	19.659.26
Arunchal Pradesh	81.55	0	81.55
Assam	15,897.00	0	15,897.00
Bihar	12.11	0	12.11
Chhattisgarh	21.841.22	518.1	22.359.32
Goa	2.652.76	9.39	2.662.15

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Gujarat	1,22,155,19	1,36,518,84	2,58,674,03
Haryana	4,547,48	0	4,547,48
Himachal Pradesh	3,486,48	0	3,486,48
Jammu & Kashmir	38,640,64	0	38,40,64
Karnataka	1,50,640,95	12.1	1,50,653,05
Kerala	31,965,48	0	31,965,48
Madhya Pradesh	12,62,966,52	1,47,927,97	14,10,894,49
Mahashtra	5,81,64,52	1,10,255,67	9,91,419,72
Manipur	121,67	0	121,67
Meghalaya	10,192,01	0	10,192,01
Nagaland	1,192,87	0	1,192,87
Odisha	1,35,999,21	47,604,82	1,83,604,02
Punjab	443.35	0	443.35
Rajasthan	3,31,900,65	15,060,67	3,46,961,32
Sikkim	20,17	0	20.17
Tamilnadu	31,005,87	458.99	31,464,86
Tripura	339,83	0	33983
Uttarpradesh	1,31,812,92	0	1,31,812,92
Uttarakhand	31,719,74	0	31,719,74
West Bengal	17,497,89	0	17,497,89
India	2950920.79	459275.24	34,10,195,02

Table-3 shows the state-by-state organic agriculture productivity for 2021-22. Madhya Pradesh is the top producer, followed by Maharashtra, Rajasthan, Karnataka, and Odisha. In Fibre crops are the most important commodity group, followed by Oil Seeds, Sugar crops, Cereals and Millets, Medicinal/Herbal and Aromatic plants, Spices & Condiments, Fresh Fruit Vegetable, Pulses, Tea & Coffee. This demonstrates the country's broad coverage of organic crops.

The country has made major contributions to organic commodity exports. The export value of organic products from India was around 771.96 million US dollars in fiscal year 2022. This is a huge increase above the 327 million US dollar export value in 2015. Madhya Pradesh, Maharashtra, Gujarat, Haryana, New Delhi, and Karnataka would account for the majority of organic commodity exports in 2021-22.

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Recommendations

The growth of the organic food market is driven by health awareness among consumers, changes in lifestyle, and a rise in income levels. Organic agriculture has the potential to contribute significantly to the Indian economy.

The sector positively impacts GDP growth, employment generation, and export earnings. It also promotes sustainable development. The agricultural industry contributes around 14% of GDP and employs 42% of the workforce. The country has the potential to become a global leader in organic agriculture and can contribute significantly to GDP growth.

People want to know where their food is coming from and how it is being grown. Falling immunities, hazardous diseases like cancer, food allergies, hormonal imbalances, PCOS, and much more can be attributed to chemical and pesticide residues in modern production, which can be tackled with organic food.

Organic food is often considered healthier because it is free from harmful chemicals and pesticides. The rise in healthy eating habits like consuming more fruits and vegetables, whole grains, and plant-based proteins has increased the demand and sale of organic products.

Organic farming is a set of agricultural production practices that maintain and enhance the health of ecosystems and soil biodiversity. It is done by using diverse species, incorporating crop rotations, and using natural pest management techniques. The use of chemical pesticides and fertilizers is prohibited in organic farming. Organic agriculture helps in reducing greenhouse gas emissions and has a positive impact on climate change.

It is estimated that on a global scale, organic farming can benefit biodiversity by 34% and abundance by 50%. Organic farming has a protective role to play in environmental conservation. Instead of synthetic inputs, it relies on ecological processes, biodiversity, and cycles adapted to local conditions. This system often integrates three main objectives: environmental health, economic profitability, and social and economic equity.

Summary and Conclusions

The Green Revolution technology, which was introduced in 1960, revolutionized the entire landscape in the field of agriculture by introducing farmers to high yielding plants and fertilizers in order to preserve food security. Increased production provided profit and food supply, but it progressively turned the land barren due to the excessive use of chemicals and

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fertilizers, which rendered the soil infertile and pesticides, which rendered the product unsafe to consume.

With a growing population and dwindling resources, there is a pressing need to address food security and safety. As a result, we must boost production while remaining feasible and sustainable. The preservation of a clean and green environment is critical, and hence environmental sustainability must be maintained, which can be accomplished through organic farming. Because of its diverse agro-climatic conditions, India has enormous potential and a wealth of natural resources to create a wide range of organic products.

There is a lot of opportunity for organic producers to get into a market that is gradually developing in the domestic, global, and export sectors. The lack of government policies for making a solid decision to support organic agriculture is the most significant impediment identified in the growth of organic agriculture in India.

Natural farming may not be a substitute for conventional farming for large scale food production. Rather it may be promoted in low-input region for smallholders, Organic farming is not the paradigm for sustainable agriculture and food security, but smart combinations of organic and conventional methods could contribute toward sustainable productivity increases in global agriculture."

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