Biochar Market Assessment, By Technology [Pyrolysis, Gasification, Others], By Application, [Agriculture, Animal Farming, Industrial Uses, Other], By Region, Opportunities and Forecast, 2017-2031F

Market Report | 2024-11-27 | 231 pages | Market Xcel - Markets and Data

AVAILABLE LICENSES:

- Single User License $4500.00
- Muti-User/Corporate Licence $5700.00
- Custom Research License $8200.00

Report description:

Global biochar market is expected to observe a CAGR of 13.62% during the forecast period 2024-2031, rising from USD 335.12 million in 2023 to USD 930.60 million in 2031. Environmental awareness, lower cost of raw materials, and cohesive government policies for waste management are the key drivers for the growth of the global biochar market. The industry includes large-scale manufacturers and a growing number of small and medium-scale manufacturers in North America and Europe.
In rural areas of countries such as China, Japan, Brazil, and Mexico, biochar is produced in collaboration with research groups and institutions. A number of organized players in the industry are manufacturing high-quality biochar to fulfill the demand from the organic food sector. The full potential of biochar has not been tapped in sectors other than agriculture. Biochar is used as a fabric additive in the textile industry, as a raw material in building materials, and as a shield against electromagnetic radiation in the electronics industry. Demand for the agricultural sector will be a major driver of growth. Raw materials such as wood waste, forest waste, agricultural waste, and animal manure are used in the production of biochar.
Biochar is widely recognized for enhancing soil fertility by improving water retention, aeration, and nutrition, which drives the demand for biochar in agricultural applications. Biochar promotes the growth of beneficial soil microorganisms to improve plant health and crop yields, which boosts the biochar market size globally. Biochar acts as a carbon sequestration tool as it helps to reduce greenhouse gas emissions, which helps to maintain the sustainability of the environment. In the context of rising global concerns over climate change, biochar offers a sustainable solution to lower the carbon footprint of agricultural practices.
For instance, in September 2024, Samunnati decided to launch Carbon Incubator Facility Biochar to empower FPOs and farmers to integrate carbon projects into farming operations.
Environmental Benefits of Biochar to Drive the Market Growth
The biochar market is growing fast due to the environmental benefits of carbon sequestration, soil improvement, and pollution reduction. Biochar from biomass is getting attention for its climate change mitigation and soil health benefits. Biochar is produced

by pyrolysis, gasification, or hydrothermal carbonization of organic materials such as forestry waste and agricultural residues. Biochar's ability to sequester atmospheric carbon in the soil, reduce greenhouse gas emissions, improve soil fertility, increase agricultural productivity, and reduce environmental contaminants will support the growing demand for biochar in the agriculture industry. Technology, regulations, and sustainability goals are driving the biochar market size in the forecast period.

In January 2024, the biochar material acts as a stable carbon sink by sequestering the CO2 contained in the biomass. The European Biochar Industry Consortium (EBI) estimates that biochar produced in the European Union could accumulate to 6 million tons of CO2 by 2030 and over 100 Mt by 2040.

Rise in Sustainable Livestock Farming and Waste Management to Boost Market Demand

Biochar offers multiple benefits to livestock farming and waste management sectors by improving environmental sustainability, enhancing animal health, and managing waste effectively. Currently, biochar is being adopted as a feed additive in sustainable livestock farming to help improve animal health. Biochar enhances digestion, reduces the production of enteric methane, and improves nutrient absorption in livestock when mixed with animal feed.

Livestock farming generates large amounts of organic waste, including manure and other by-products, which may cause significant environmental issues. Biochar may be used to overcome the problem related to Traditional waste disposal methods. As biochar aligns with zero-waste and circular economy goals, biochar technologies can be produced from organic waste and agricultural residues, which becomes a valuable technology for managing farm waste sustainably.

For instance, NetZero has secured USD 19.5 million from government-backed impact investor STOA Infra & Energy. The capital infusion aims to support the expansion of establishing new biochar plants in Brazil.

Government Policies for Environment Protection to Boost Market Growth

Industrialization has led to a massive increase in carbon emissions and climate change. Production of biochar may reduce land clearing for agriculture and wood gathering from shrinking forests. Governments around the world are promoting the adoption of renewable technology through tax incentives such as state sales tax exemptions, state income tax credits, corporate income tax deductions, and local property tax exemptions to produce biochar. Federal-level incentives such as modified accelerated cost recovery system (MACRS), tax subsidies, and business tax incentives are available for biochar manufacturers. Government schemes such as the Renewable Heat Incentive (RHI) are gaining traction in developing countries are driving the growth of the biochar market.

For instance, in March 2023, the American Farmland Trust, National Center for Appropriate Technology, and U.S. Biochar Initiative released a report called Recommendations to Scale Up Sustainable Biochar Research and Commercialization for Agriculture and Conservation. This development help in increasing awareness regarding the use of biochar in agriculture.

Pyrolysis Segment to Dominate the Market Share

Pyrolysis is the most popular production technology due to its affordability, convenience, and ability to handle various feedstocks. Pyrolysis is the process of making charcoal from wood. The method retains more carbon and minimizes emissions, which makes the process eco-friendly. Slow pyrolysis is adaptable to various feedstock types, including woody biomass and agricultural waste, and has applications in soil improvement, carbon sequestration, and environmental remediation. Fast pyrolysis rapidly heats biomass materials to produce bio-oil and biochar. Fast pyrolysis is suitable for certain feedstock types, especially lignocellulosic materials, and it produces biochar and with bio-oil products. The demand for alternative energy sources and biochar technology's ability to convert various biomass materials is boosting the biochar market demand.

Agriculture Accounts for the Majority of the Market Share

Livestock farming is a crucial application for biochar. Government support for organic farming will create a significant opportunity for the biochar market. Emerging markets, such as China and India, are seeing growing demand for organic feed for crop production. Factors such as growing demand for organic food, health awareness, and consumer spending power will support organic farming growth. Conventional farming is popular in rural areas due to higher yields. Biochar is used in mixed farming, zero tillage farming, and biodynamic farming to increase the production of crops.

According to the article published by the UK Center for Ecology & Hydrology in June 2024, small amounts of biochar in soil could increase the amount of nutrients essential for crop growth, which boosts crop yield, leading to the development of the market.

North America to Dominate the Market Share

North America, specifically the United States and Canada, is the biggest producer and consumer of biochar due to its advanced

agricultural sector and interest in soil redemption for soil fertility, water retention, and crop productivity. Biochar is used in agriculture as a soil amendment, which improves soil fertility, water retention, and nutrient efficiency. With North America's significant agricultural sector, particularly in the U.S. and Canada, farmers are increasingly adopting biochar to improve crop yields and reduce the need for chemical fertilizers. Sustainable farming practices are gaining importance, and biochar provides a solution that improves carbon sequestration while enhancing soil health, which derives the biochar market in North America.
In 2021, Wakefield declared to deploy an industrial-scale Bio green system in Georgia, the United States, under a contract signed with Vow ASA. It will meet the rapidly expanding need for high-quality biochar by converting biomass and residue into biochar.
Future Market Scenario (2024 – 2031F)

- The biochar market is expected to grow fast with technological advancements in production methods in the forecast years.
- The farming application segment will continue to have a significant share as biochar benefits soil enhancement and carbon sequestration.
- Environmental regulations and sustainability goals are key drivers as biochar fits into global efforts to reduce carbon emissions and improve soil health, driving the market demand.
- Governments and environmental agencies are promoting biochar production to reduce greenhouse gas emissions and meet global carbon reduction goals.

Key Players Landscape and Outlook
The global biochar market is rapidly expanding, driven by its environmental benefits and applications in agriculture, carbon sequestration, and waste management. Key players are contributing to innovative production and utilization methods.
Increasing government incentives are promoting biochar production, while its ability to enhance soil health and water retention makes it an attractive option for sustainable agriculture. Additionally, biochar's long-term carbon storage capabilities contribute to climate change mitigation efforts. Technological advancements are improving production efficiency and cost-effectiveness, further driving the adoption.
For instance, in November 2023, BIOSORRA opened a biochar production facility in Thika, Kenya. The development will increase the production of biochar in the market.

Table of Contents:

*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work.

Biochar Market Assessment, By Technology [Pyrolysis, Gasification, Others], By Application, [Agriculture, Animal Farming, Industrial Uses, Other], By Region, Opportunities and Forecast, 2017-2031F

Market Report | 2024-11-27 | 231 pages | Market Xcel - Markets and Data

To place an Order with Scotts International:

- - Print this form
- - Complete the relevant blank fields and sign
- - Send as a scanned email to support@scotts-international.com

ORDER FORM:

Select license	License	Price
	Single User License	$4500.00
	Muti-User/Corporate Licence	$5700.00
	Custom Research License	$8200.00
	VAT	
	Total	

*Please circle the relevant license option. For any questions please contact support@scotts-international.com or 0048 603 394 346.

** VAT will be added at 23% for Polish based companies, individuals and EU based companies who are unable to provide a valid EU Vat Numbers.

Email*		Phone*	
First Name*		Last Name*	
Job title*			
Company Name*		EU Vat / Tax ID / NIP number*	
Address*		City*	
Zip Code*		Country*	
		Date	2026-03-05

Signature