

Biochar Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2023-2028

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Abstracts

Market Overview 2023-2028:

The global biochar market size reached US\$ 1.8 Billion in 2022. Looking forward, IMARC Group expects the market to reach US\$ 3.5 Billion by 2028, exhibiting a growth rate (CAGR) of 12% during 2023-2028. The increasing prevalence of soil-borne diseases, rising food security concerns, and the growing demand for high-quality food grains represent some of the key factors driving the market.

Easy Availability of Cost-Effective Feedstock Augmenting the Market Growth

The rising production of biochar by using different types of biomasses as a feedstock represents one of the major factors strengthening the market growth around the world. They involve agriculture and forestry waste, industrial byproducts, residential waste, animal waste, and municipal sewage.

Competitive analysis such as market structure, market share by key players, player positioning, top winning strategies, competitive dashboard, and company evaluation quadrant has been covered in the report. Also, detailed profiles of all major companies have been provided. The market structure is moderately fragmented due to the presence of a moderate number of global and regional players. The volume of new entrants is high in the biochar industry due to high market growth, low product differentiation, and switching costs.

What is Biochar?

Biochar is manufactured from organic matter like wood, agricultural waste, and animal manure. It is produced through the pyrolysis process, which involves heating the organic matter in the absence of oxygen. It is a fine-grained material considered to be a cleaner and more efficient alternative than other types of charcoal for converting carbon into a stable form. It aids in increasing soil fertility by improving soil structure, water-holding capacity, and nutrient retention. It can also eliminate greenhouse gas emissions by sequestering carbon in the soil and improving crop yields by minimizing the amount of fertilizer and water needed.

COVID-19 Impact:

The COVID-19 pandemic outbreak caused a significant impact on the biochar industry and imposed unprecedented challenges on numerous countries. Many biochar producers faced significant supply chain disruptions due to border closures, quarantine measures, and travel restrictions. This caused delays in the delivery of equipment and raw materials, which, in turn, affected production and profitability. In addition, some biochar facilities had to shut down temporarily on account of health concerns. Moreover, several workers were unable to work due to illness, quarantine requirements, or other restrictions. This led to a shortage of skilled labor and a decrease in productivity. However, the pandemic also created new opportunities for the biochar industry. With the increased emphasis on sustainable agriculture and the need for carbon sequestration, biochar has emerged as an attractive option for soil improvement and carbon capture. As a result, some biochar producers have experienced increased demand for their products from the agricultural and forestry sectors.

Biochar Market Trends:

Significant growth in the agriculture sector and the increasing prevalence of soil-borne diseases represent one of the major factors driving the demand for biochar around the world. Moreover, rapid urbanization, rising global population, declining arable land, and the growing food security concerns are catalyzing the demand for biochar to improve crop yield. This, coupled with the surging demand for high-quality food grains, is favoring the growth of the market. In addition, initiatives undertaken by governing agencies of numerous countries to promote sustainable agriculture practices on account of the increasing environmental concerns are contributing to the market growth. Apart from this, there is a rise in the use of biochar in the construction industry as a building material for producing concrete, green roof, insulation, and other products. This, along with the growing construction activities in residential and commercial areas, is influencing the market positively. Furthermore, the increasing usage of biochar in aquaculture systems to reduce the environmental impact of fish farming is favoring the

growth of the market.

Key Market Segmentation:

IMARC Group provides an analysis of the key trends in each sub-segment of the global biochar market report, along with forecasts at the global and regional level from 2023-2028. Our report has categorized the market based on feedstock type, technology type, product form and application.

Feedstock Type Insights:

- Woody Biomass
- Agricultural Waste
- Animal Manure
- Others

The report has provided a detailed breakup and analysis of the biochar market based on the feedstock type. This includes woody biomass, agricultural waste, animal manure, and others. According to the report, woody biomass represented the largest segment as it helps protect the groundwater quality and agricultural wastewater. It also reduces floods during the wet season and maintains water supply during dry seasons.

Technology Type Insights:

- Slow Pyrolysis
- Fast Pyrolysis
- Gasification
- Hydrothermal Carbonization
- Others

A detailed breakup and analysis of the biochar market based on the technology type has also been provided in the report. This includes slow pyrolysis, fast pyrolysis, gasification, hydrothermal carbonization, and others. According to the report, slow pyrolysis accounted for the largest market share as it is highly efficient in producing biochar from biomass. Its process is characterized by slow heating rate, long vapor residence time, and low temperature as compared to fast pyrolysis.

Product Form Insights:

- Coarse and Fine Chips

Fine Powder
Pellets, Granules and Prills
Liquid Suspension

A detailed breakup and analysis of the biochar market based on the product form has also been provided in the report. This includes coarse and fine chips, fine powder, pellets, granules and prills, and liquid suspension.

Application Insights:

Farming
Gardening
Livestock Feed
Soil, Water and Air Treatment
Others

A detailed breakup and analysis of the biochar market based on the application has also been provided in the report. This includes farming, gardening, livestock feed, soil, water and air treatment, and others. According to the report, farming accounted for the largest market share as biochar is considered as an effective component to retain and increase the soil nutrients. It has a large surface area and complex porous structure that are excellent sites for bacterial and fungi growth. Its high moisture retaining capacity, aeration of soil, and improved soil pH value will enhance the application of biochar for farming purposes.

Regional Insights:

North America
Europe
Asia Pacific
Middle East and Africa
Latin America

The report has also provided a comprehensive analysis of all the major regional markets, which include North America, Asia Pacific, Europe, Middle East and Africa, and Latin America. According to the report, North America was the largest market for biochar. The increasing use of biochar in livestock farming on account of its ability to provide essential nutrients for the health of livestock represents one of the major factors bolstering the market growth in the North American region. Moreover, the rising

consumption of meat is favoring the growth of the market in the region. Apart from this, the growing adoption of biochar in the agricultural sector due to its ability to maintain soil stability and water holding capacity for a long duration, which improves the productivity of crops and organic chemicals, is creating a positive outlook for the market in the region.

Competitive Landscape:

The report has also provided a comprehensive analysis of the competitive landscape in the global biochar market. Some of the companies covered in the report include:

Agri-tech Producers
Diacarbon Energy Inc
Cool Planet
Pacific Biochar
Phoenix Energy
Biomacon GmbH
Vega Biofuels
Terra Char
Avello Bioenergy
Genesis Industries
Interra Energy Services
Element C6,
Carbon Gold Ltd
Biochar Solution Ltd

Please note that this only represents a partial list of companies, and the complete list has been provided in the report.

Key Questions Answered in This Report

1. What was the size of the global biochar market in 2022?
2. What is the expected growth rate of the global biochar market during 2023-2028?
3. What are the key factors driving the global biochar market?
4. What has been the impact of COVID-19 on the global biochar market?
5. What is the breakup of the global biochar market based on the feedstock type?
6. What is the breakup of the global biochar market based on the technology type?
7. What is the breakup of the global biochar market based on the application?
8. What are the key regions in the global biochar market?
9. Who are the key players/companies in the global biochar market?

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