

Next Generation Sequencing (NGS) in Agrigenomics Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Product (Kits & Consumables, Instruments, Others), By Technique (DNA Extraction & Purification, DNA/RNA Sequencing, Genotyping, Marker Assistance Selection, Others), By Application (Crops and Livestock), By Region and Competition, 2020-2030F

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Report description:

Global Next Generation Sequencing (NGS) in Agrigenomics Market was valued at USD 2.97 Billion in 2024 and is expected to reach USD 4.52 Billion by 2030 with a CAGR of 7.25% during the forecast period. Next Generation Sequencing (NGS) is a groundbreaking technology revolutionizing the field of Agrigenomics. It encompasses high-throughput sequencing methods that enable rapid and efficient sequencing of base pairs in DNA or RNA samples. By allowing large-scale genotyping and genome-wide association studies, NGS has transformed Agrigenomics by facilitating the discovery of gene traits and variances.

This cutting-edge technology plays a pivotal role in unraveling the genetic diversity of crops. Through in-depth analysis of crop genomes, researchers can identify valuable genetic markers associated with desirable traits such as disease resistance, drought tolerance, and enhanced yield potential. By understanding the genetic makeup of crops at such a detailed level, scientists can develop more resilient, adaptable, and high-yielding crop varieties. The implications of NGS in Agrigenomics extend beyond crop improvement. This technology also contributes to bolstering global food security in the face of changing climatic conditions. By harnessing the power of NGS, scientists can gain valuable insights into the genetic factors that influence crop performance under different environmental stresses. This knowledge allows for the development of crop varieties that can thrive in challenging conditions, ensuring a stable food supply for the growing population.

Furthermore, millions of genomes are being sequenced by government groups to progress research and discover better ways to identify and cure cancer, uncommon disorders, and other ailments. Efforts are being undertaken by the EU to improve the region's large-scale genomic data with projects such as France's French Plan for Genomic Medicine 2025 and the UK's 100,000 Genomes

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Project. Such initiatives have resulted in the growth of NGS informatics services in the region.

Key Market Drivers

Rising Demand for Improved Crop Varieties

The global agricultural industry is witnessing an escalating demand for improved crop varieties, which in turn, is predicted to bolster the demand for Next-Generation Sequencing (NGS) in Agrigenomics. NGS technologies offer a robust, cost-effective, and high-throughput approach to gene sequencing that substantially enhances the ability to identify beneficial genetic traits - a critical aspect of developing improved crop varieties. As the world's population burgeons, and the impact of climate change intensifies, the pressure on agricultural productivity is growing exponentially. Farmers and agriculturists are hence seeking high-yield, disease-resistant, and climate-tolerant crop varieties to maintain food security. Leveraging NGS in Agrigenomics facilitates the faster and more efficient development of such crops. Furthermore, the continuous advancements in NGS technology, such as the advent of long-read sequencing, is enabling even more precise and detailed genetic analyses. Consequently, these factors are expected to contribute significantly to the rising global demand for NGS in Agrigenomics. As countries across the globe strive for sustainable agriculture, the reliance on advanced technologies like NGS is set to increase, fostering a positive growth trajectory for NGS in the global Agrigenomics market.

Key Market Challenges

High Costs of Initial Investment for NGS Technology

A significant challenge in the adoption of Next Generation Sequencing (NGS) in the field of Agrigenomics is the high initial investment required. The cost of acquiring and maintaining NGS equipment, as well as the need for skilled professionals to interpret the data, can be prohibitive for many potential users globally. This financial barrier is particularly apparent in resource-limited settings where the potential benefits of NGS - such as improved crop yield and disease resistance - could have a significant impact. As such, the high upfront cost of NGS technology is expected to decrease its global demand in Agrigenomics. Despite the promising capabilities of this advanced sequencing technology, its extensive adoption is hindered by these financial considerations. This issue underscores the need for cost-effective innovations and funding strategies to make NGS technology more accessible and affordable, thereby enabling more widespread use in Agrigenomics globally.

Key Market Trends

Integration of Big Data & AI In Agricultural Research

The integration of Big Data and Artificial Intelligence (AI) in agricultural research is anticipated to globally drive the demand for Next Generation Sequencing (NGS) in Agrigenomics. With the increasing challenge of feeding a growing population under climate change conditions, agriculture is turning to technology for solutions. Big Data and AI are providing predictive modeling and data analysis capabilities to optimize crop production and management strategies. These technologies process large volumes of data, including genetic information, to understand plant behavior and design gene-editing strategies. This is where NGS comes into play. NGS, by providing high-throughput, cost-effective sequencing, facilitates the decoding of complex plant genomes and the identification of agriculturally significant genetic traits. This can, in turn, fuel the development of enhanced crop varieties. Therefore, the synthesis of these three technologies - Big Data, AI, and NGS - is poised to revolutionize Agrigenomics, paving the way for more productive and sustainable agricultural practices worldwide. The global demand for NGS in Agrigenomics is, therefore, expected to see significant growth in the coming years.

Key Market Players

- 10x Genomics, Inc.
- Nucleics
- Agrigenomics Inc.
- Daicel Arbor Biosciences
- Biogenetic Services Inc.
- Eurofins Scientific SE
- GALSEQ S.r.l.
- Illumina, Inc.
- Genome Life Sciences Private Limited
- NuGen Technologies Inc.

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Report Scope:

In this report, the Global Next Generation Sequencing (NGS) in Agrigenomics Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

-□ Next Generation Sequencing (NGS) in Agrigenomics Market, By Product:

- o Kits & Consumables
- o Instruments
- o Others

-□ Next Generation Sequencing (NGS) in Agrigenomics Market, By Technique:

- o DNA Extraction & Purification
- o DNA/RNA Sequencing
- o Genotyping
- o Marker Assistance Selection
- o Others

-□ Next Generation Sequencing (NGS) in Agrigenomics Market, By Application:

- o Crops
- o Livestock

-□ Next Generation Sequencing (NGS) in Agrigenomics Market, By Region:

- o North America
 - United States
 - Canada
 - Mexico
- o Europe
 - France
 - United Kingdom
 - Italy
 - Germany
 - Spain
- o Asia-Pacific
 - China
 - India
 - Japan
 - Australia
 - South Korea
- o South America
 - Brazil
 - Argentina
 - Colombia
- o Middle East & Africa
 - South Africa
 - Saudi Arabia
 - UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Next Generation Sequencing (NGS) in Agrigenomics Market.

Available Customizations:

Global Next Generation Sequencing (NGS) in Agrigenomics market report with the given market data, Tech Sci Research offers

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customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

- [] Detailed analysis and profiling of additional market players (up to five).

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