

Mechanized Irrigation Systems Market – Global Industry Size, Share, Trends, Opportunity, & Forecast 2018-2028 Segmented By Type (Drip Irrigation System, Sprinkler Irrigation System, Others), By Crop Type (Cereals Grains, Pulses Oilseeds, Fruits & Vegetables, Others), By Region, Competition

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Abstracts

Global Mechanized Irrigation Systems Market has valued at USD 6.25 billion in 2022 and is anticipated to project robust growth in the forecast period with a CAGR of 8.09% through 2028. The Global Mechanized Irrigation Systems Market comprises the sale and adoption of advanced irrigation technologies designed to automate and optimize the process of delivering water to crops.

This market includes various mechanized irrigation systems such as drip irrigation, sprinkler systems, and center pivot irrigation. It encompasses both hardware components (irrigation machinery) and software solutions (smart technologies) that enhance water efficiency and agricultural productivity. The Global Mechanized Irrigation Systems Market is a dynamic and evolving sector driven by the critical need for efficient water management, technological advancements, and the imperative to meet the growing demand for food. Overcoming challenges and capitalizing on opportunities will be crucial for stakeholders as they navigate the evolving landscape of modern agriculture.

Key Market Drivers

Water Scarcity and Resource Optimization

Water scarcity refers to the situation where the demand for water exceeds the available supply or when poor quality restricts its use. This is a critical global challenge affecting various sectors, including agriculture. Agriculture is a major consumer of water, and inefficient irrigation practices can exacerbate water scarcity issues. Traditional irrigation methods often lead to wastage through runoff and evaporation, contributing to the overall strain on water resources. The necessity to address water scarcity is a significant driver for the adoption of mechanized irrigation systems. These systems, such as drip and sprinkler irrigation, are designed to optimize water usage by delivering water directly to the roots of plants, minimizing losses due to runoff and evaporation. Mechanized irrigation technologies ensure that every drop of water is used efficiently, reducing the overall water footprint of agriculture. This efficiency is critical not only for sustainable water management but also for ensuring consistent crop yields in regions facing water scarcity challenges.

Resource optimization in the context of agriculture involves maximizing the use of available resources, such as water, energy, and fertilizers, to achieve higher productivity while minimizing waste. Traditional farming practices often involve manual or less precise irrigation methods, leading to suboptimal use of resources. This can result in over-irrigation, under-irrigation, or uneven distribution of water. Mechanized irrigation systems are designed to optimize the use of resources. Smart irrigation technologies, equipped with sensors and automation, enable farmers to precisely control irrigation processes based on real-time data. This ensures that crops receive the right amount of water at the right time, leading to improved resource utilization. The integration of mechanized irrigation with precision agriculture practices allows farmers to tailor their irrigation strategies to the specific needs of each crop and field. This targeted approach enhances overall resource efficiency, reduces waste, and contributes to sustainable agriculture.

Rising Global Population and Food Demand

The world's population continues to grow, and estimates suggest that it will reach over 9 billion by 2050. This demographic expansion puts substantial pressure on global food production. As the population rises, so does the demand for food. Traditional agricultural practices may struggle to keep pace with this increasing demand, making it imperative to enhance agricultural efficiency and productivity. The adoption of mechanized irrigation systems is a strategic response to the challenge of meeting growing food demand. These systems provide a means to significantly improve agricultural productivity by ensuring optimal water distribution to crops. Mechanized irrigation, including technologies like drip and sprinkler systems, facilitates precise

control over water application. This precision results in stable crop yields, reducing the risk of yield fluctuations due to inconsistent or inadequate irrigation.

The demand for increased food production necessitates scalable solutions, and mechanized irrigation systems offer a scalable approach to agriculture. These systems can be implemented on varying scales, from small farms to large agricultural enterprises. Farmers are increasingly recognizing the role of technology in meeting the challenges posed by rising food demand. Mechanized irrigation systems represent a technological advancement that aligns with the need for efficient and effective agricultural practices. While the initial investment in mechanized irrigation systems may be significant, the potential for increased yields and improved crop quality often translates into a favorable return on investment for farmers. This economic incentive further drives the adoption of these systems.

In regions with rapidly growing populations, particularly in Asia, Africa, and parts of South America, there is a heightened focus on increasing food production. Mechanized irrigation systems are gaining traction in these emerging markets as essential tools for achieving food security goals. Governments in many countries are recognizing the importance of modernizing agriculture to meet the food demands of their growing populations. Incentive programs, subsidies, and policy support for the adoption of advanced agricultural technologies, including mechanized irrigation, contribute to market growth. The rising global demand for food has prompted collaboration between governments, agricultural organizations, and technology providers. This collaboration fosters research and development efforts to enhance the capabilities of mechanized irrigation systems, ensuring they remain effective in addressing the evolving challenges of food production.

Technological Advancements in Agriculture

Technological advancements in agriculture refer to the continuous development and integration of innovative technologies and tools to enhance farming practices, improve efficiency, and optimize resource utilization. This encompasses a wide range of technologies, including precision agriculture, sensor-based systems, automation, data analytics, and smart irrigation solutions, all of which contribute to the evolution of modern agricultural practices. Traditional farming methods often rely on manual labor and are less precise in resource management. The introduction of advanced technologies is transforming these practices, making them more efficient, sustainable, and productive. Technological advancements address challenges such as labor shortages, inefficient resource use, and the need for increased productivity to meet the

demands of a growing global population.

Technological advancements enable the integration of mechanized irrigation systems into precision agriculture practices. These systems leverage data from sensors, satellites, and other sources to optimize irrigation decisions. Automated features in mechanized irrigation systems allow for precise control of water distribution, reducing human error and ensuring that crops receive the right amount of water at the right time. Sensors and monitoring devices provide real-time data on soil moisture levels, weather conditions, and crop health. This data empowers farmers to make informed decisions, leading to improved crop yields and resource efficiency.

The fast-paced technological evolution in agriculture drives continuous innovation in mechanized irrigation systems. Companies in the market are motivated to develop and introduce advanced features, ensuring their products remain at the forefront of technological progress. The integration of mechanized irrigation systems with the Internet of Things (IoT) and Artificial Intelligence (AI) technologies enhances their capabilities. Smart irrigation systems, for example, can adjust watering schedules based on weather forecasts, soil conditions, and crop needs, optimizing water usage. The younger generation of farmers, more technologically literate, is driving the adoption of advanced agricultural technologies. The appeal of efficient, data-driven farming practices encourages the uptake of mechanized irrigation systems.

Government Initiatives and Support

Government initiatives refer to policies, programs, and financial support implemented by governments to encourage and facilitate the adoption of specific technologies or practices. In the context of the mechanized irrigation systems market, government initiatives play a crucial role in promoting the adoption of advanced irrigation technologies, ensuring sustainable and efficient agricultural practices. Governments often provide financial incentives to farmers for investing in mechanized irrigation systems. This may include subsidies, grants, or low-interest loans to offset the initial costs of purchasing and implementing these technologies. Governments may initiate educational and training programs to increase awareness among farmers about the benefits of mechanized irrigation. This can include workshops, seminars, and demonstration projects to showcase the advantages of adopting modern irrigation practices. Governments can create regulatory frameworks that encourage the adoption of water-efficient technologies. This may involve setting standards for water usage in agriculture and providing incentives for compliance through the use of mechanized irrigation systems.

Government support significantly contributes to the growth of the mechanized irrigation systems market. Financial incentives reduce the financial burden on farmers, making it more attractive for them to invest in these technologies. Policies that promote water-efficient technologies, including mechanized irrigation systems, encourage farmers to adopt these practices to comply with regulations. This, in turn, drives the demand for advanced irrigation solutions. Government initiatives in support of mechanized irrigation systems contribute to rural development by enhancing agricultural productivity. This, in turn, can lead to economic growth in rural areas, creating a positive feedback loop for the overall economy. The nature and extent of government support can vary across regions. Some countries, particularly those facing water scarcity or aiming for agricultural modernization, may offer more extensive support for the adoption of mechanized irrigation systems. In some cases, international organizations and collaborations may influence government initiatives. Global efforts to address climate change and promote sustainable agriculture can drive governments to support technologies that enhance water efficiency, such as mechanized irrigation systems.

Key Market Challenges

Cost of Implementation

One of the primary challenges facing the widespread adoption of mechanized irrigation systems is the high initial cost of implementation. The purchase and installation of advanced irrigation technologies, such as drip and sprinkler systems, can be a significant financial burden for farmers, especially those in developing regions with limited access to capital.

Farmers may be hesitant to invest in mechanized irrigation systems due to uncertainties about the return on investment. It can take time for farmers to realize the economic benefits of improved crop yields and resource efficiency, making the upfront costs a barrier to adoption. Small-scale and marginal farmers, in particular, may find it challenging to afford the initial investment. The lack of financial resources and access to credit can slow down the adoption of mechanized irrigation systems among this crucial segment of the agricultural community.

Lack of Awareness and Education

Another challenge is the limited awareness and knowledge among farmers about the benefits and proper use of mechanized irrigation systems. In some regions, farmers

may not be familiar with the available technologies or may lack the necessary training to operate and maintain these systems effectively.

The disparity in information between technology providers and end-users can hinder adoption. Farmers may not fully understand the potential advantages of mechanized irrigation systems, leading to a reluctance to invest in these technologies. In areas where educational infrastructure is lacking, outreach programs and training initiatives may be insufficient. Bridging the knowledge gap requires targeted efforts to inform farmers about the long-term advantages of adopting mechanized irrigation.

Infrastructural and Power Challenges

In some regions, especially in developing countries, the lack of proper infrastructure poses a challenge to the implementation of mechanized irrigation systems. Insufficient roads, electricity, and storage facilities can hinder the delivery and maintenance of these technologies.

Mechanized irrigation systems often rely on a stable power supply. In regions where electricity availability is erratic or unreliable, farmers may face challenges in operating and maintaining these systems. This dependence on consistent power can limit the feasibility of mechanized irrigation in certain areas. The ongoing maintenance of mechanized irrigation systems requires technical expertise. Lack of access to trained technicians and a reliable supply chain for replacement parts can impede the efficient functioning of these systems over time.

Key Market Trends

Integration of Smart Technologies

The integration of smart technologies, including Internet of Things (IoT) devices, sensors, and data analytics, is a prominent trend in the mechanized irrigation systems market.

Smart technologies enable precision agriculture by providing real-time data on soil moisture, weather conditions, and crop health. This data allows for precise control over irrigation processes, optimizing water usage. Mechanized irrigation systems equipped with smart technologies can automate irrigation schedules based on the collected data. This automation enhances efficiency and reduces the need for manual intervention. Manufacturers and suppliers incorporating smart technologies can differentiate their

products in the market. Farmers are increasingly seeking advanced solutions that offer not only mechanization but also data-driven decision-making capabilities. The data generated by smart irrigation systems can be monetized by providing valuable insights to farmers, agronomists, and other stakeholders. This creates additional revenue streams for businesses in the mechanized irrigation systems market.

Sustainable Irrigation Practices

A growing emphasis on sustainability is driving the adoption of mechanized irrigation systems that prioritize water conservation, energy efficiency, and environmental stewardship.

Mechanized irrigation systems are incorporating water-efficient technologies such as drip irrigation and precision application methods. These technologies minimize water wastage and contribute to sustainable water management. The use of energy-efficient components and renewable energy sources, such as solar power, in mechanized irrigation systems aligns with the broader goal of reducing the environmental impact of agricultural practices. Increasing awareness of environmental sustainability is creating a demand for mechanized irrigation systems that align with green and sustainable practices. Businesses that prioritize sustainability can capitalize on this growing market segment. Governments and environmental regulations are placing greater emphasis on sustainable agricultural practices. Mechanized irrigation systems that meet or exceed these standards gain a competitive advantage in the market.

Adoption of Mobile and Cloud Technologies

The adoption of mobile and cloud technologies is transforming how farmers manage and monitor mechanized irrigation systems, providing remote access and real-time control.

Farmers can use mobile applications to monitor and control irrigation systems from anywhere. This accessibility enhances the flexibility and convenience of managing agricultural operations. Cloud technologies enable the storage and analysis of large datasets generated by mechanized irrigation systems. This facilitates data-driven insights and decision-making for farmers. Mechanized irrigation systems with mobile and cloud capabilities appeal to a broader range of farmers, including those with smaller operations. This accessibility contributes to market expansion. Companies in the mechanized irrigation systems market can leverage cloud-based platforms to offer data services. This includes providing historical data, predictive analytics, and customized

recommendations to farmers, creating new revenue streams.

Segmental Insights

Type Insights

Based on the category of Type, the Drip irrigation systems segment emerged as the dominant player in the global market for Mechanized Irrigation Systems in 2022. Drip irrigation systems deliver water directly to the roots of plants, which can reduce water consumption by up to 70% compared to traditional irrigation methods. This is especially important in arid regions where water resources are scarce. Drip irrigation systems can also be used to deliver nutrients directly to the roots of plants, which can improve nutrient uptake and crop yields. Drip irrigation systems are relatively easy to install and maintain, which can save farmers time and labor. Drip irrigation systems can be used to irrigate a wide range of crops, from small vegetable gardens to large commercial farms. These factors are expected to drive the growth of this segment.

Crop Type Insights

The Cereals & Grains segment is projected to experience rapid growth during the forecast period. Cereals & grains are water-intensive crops, and mechanized irrigation systems can help to ensure that they receive the water they need to grow and produce high yields. Cereals & grains are the most widely cultivated crops globally, and mechanized irrigation systems can help farmers to irrigate large areas of land efficiently. Many governments around the world provide subsidies or other forms of financial assistance to farmers who invest in mechanized irrigation systems. This has helped to make these systems more affordable for farmers of cereals & grains. These factors collectively contribute to the growth of this segment.

Regional Insights

Europe emerged as the dominant player in the global Mechanized Irrigation Systems market in 2022, holding the largest market share in terms of value. European countries have been at the forefront of technological advancements in agriculture. The adoption of precision agriculture practices, which includes mechanized irrigation systems, is higher in Europe compared to other regions. The use of advanced technologies helps in optimizing water usage and improving overall crop yield. Many European countries have stringent regulations regarding water usage in agriculture. Mechanized irrigation systems offer a more controlled and efficient way of water distribution, aligning with

these regulations. Government support and subsidies also encourage farmers to invest in modern irrigation technologies. European countries, particularly in Western Europe, have highly productive agricultural sectors. The use of mechanized irrigation systems contributes to this productivity by ensuring a consistent and controlled water supply, which is crucial for crops.

The Asia-Pacific market is poised to be the fastest-growing market, offering lucrative growth opportunities for Mechanized Irrigation Systems players during the forecast period. Factors such as Asia Pacific region has a rapidly growing population, leading to an increased demand for food. Mechanized irrigation systems help meet this demand by enhancing agricultural productivity and ensuring a stable food supply. With the growing awareness of the benefits of mechanized irrigation systems, farmers in the Asia Pacific region are increasingly adopting these technologies to improve crop yields and optimize resource utilization. Many countries in the Asia Pacific region are focusing on modernizing agriculture to ensure food security. Governments are implementing policies and initiatives to encourage the adoption of advanced agricultural technologies, including mechanized irrigation systems.

Key Market Players

Lindsay Corporation

Jain Irrigation Systems Ltd.

Nelson Irrigation Corp

Rivulis Irrigation Ltd.

Mahindra & Mahindra Ltd.

Rain Bird Corporation

T-L Irrigation Co.

Mexichem S.A.B de C.V

Hunter Industries Ltd.

Valmont Industries Inc.

Report Scope:

In this report, the Global Mechanized Irrigation Systems Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Mechanized Irrigation Systems Market, By Type:

Drip Irrigation System

Sprinkler Irrigation System

Others

Mechanized Irrigation Systems Market, By Crop Type:

Cereals Grains

Pulses Oilseeds

Fruits & Vegetables

Others

Mechanized Irrigation Systems Market, By Region:

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

Asia-Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Kuwait

Turkey

Egypt

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Mechanized Irrigation Systems Market.

Available Customizations:

Global Mechanized Irrigation Systems market report with the given market data, Tech Sci Research offers 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).

Contents

- 1. LINDSAY CORPORATION**

- 2. JAIN IRRIGATION SYSTEMS LTD.**

- 3. NELSON IRRIGATION CORP**

- 4. RIVULIS IRRIGATION LTD.**

- 5. MAHINDRA & MAHINDRA LTD.**

- 6. RAIN BIRD CORPORATION**

- 7. T-L IRRIGATION CO.**

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- 9. HUNTER INDUSTRIES LTD.**

- 10. VALMONT INDUSTRIES INC.**

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