FEED PHOSPHATE MARKET

BY TYPE (Dicalcium Phosphate, Monocalcium Phosphate, Tricalcium Phosphate, Defluorinated Phosphate & Others), BY LIVESTOCK (Swine, Cattle, Poultry, Aquatic Animals & Others), BY GEOGRAPHY

— Global Trends & Forecasts To 2018
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1 INTRODUCTION

1.1 KEY TAKE-AWAYS

- Definition and measurement of the feed phosphate market with respect to type, livestock and geography
- Revenue projection of the feed phosphate market with respect to four main regions, North America, Europe, Asia-Pacific and Rest of the World (ROW)
- Analysis of the market structure, by identifying various sub-segments of the feed phosphate market
- Strategic profiling of key players of the feed phosphate market and comprehensive analysis of their core competencies
- Tracking and analysis of competitive developments such as alliances, joint ventures, and mergers & acquisitions in the feed phosphate industry
- Strategic analysis of each submarket, with respect to individual growth trends and contribution to the overall feed phosphate market
- Opportunity analysis in the market for the stakeholders, by identification of high-growth segments of the feed phosphate market

1.2 REPORT DESCRIPTION

The research report provides a structured study and a market insight into the feed phosphate market, which is currently witnessing a steady growth, owing to the increasing demand of high-grade feed supplements for adding nutritional value to animal feed. Rising meat consumption and industrialization of pork and poultry may help this sector in attaining considerable market share in the future. This would be possible by increasing investments in R&D, coupled with refinement of phosphorus from low-grade phosphate rock in these regions for various products. Feed phosphate is a vital part of animal growth and nutrition of animals. The main concern slowing the growth of this market is high cost of phosphate and scarcity of...
phosphorus reserves across the globe. This report takes into account this wide range of factors and its influence on the market dynamics.

The report contains profiles of leading players in the feed phosphate market, including industry heavyweights such as The Mosaic Company (U.S), PhosAgro (Russia), PotashCorp (Canada) and Yara International Asa (Norway)
2 EXECUTIVE SUMMARY

The feed phosphate industry has been showing steady growth over the past four years. This growth is largely fueled by the increasing meat consumption and industrialization of the livestock industry. It has been observed that the growth is particularly high in emerging countries such as China and Brazil, because of development of livestock at a very fast rate, in terms of breed and quality.

The feed phosphate market is estimated to reach $XX million by 2018 from $XX million in 2013, growing at a CAGR of XX%. The Asia-Pacific market is driving the sales and is estimated to account for around XX% of the global market share in 2013. The Asia-Pacific market is expected to have a high CAGR of XX% due to increasing demand for meat products in the region and rising domestic meat production and increasing breeding of livestock. With rapid economic growth in the Asia-Pacific region, demand for meat protein is rising, especially in China, India, Malaysia and Japan. The Asia-Pacific feed phosphate market is expected to boost its share from $XX million in 2013 to $XX million by 2018. North America is estimated to be the second-largest market after Asia-Pacific, for animal feed phosphate with a XX% share in 2013, resulting from increasing per capita meat consumption. In North America, the U.S. is estimated to be the largest market with a share of around XX% in 2013. Europe is estimated as the third-largest market, with a share of XX%, in 2013.
The feed phosphate market is projected to grow with the increasing demand and rising consumption by livestock. Asia-Pacific is projected to be the largest market for feed phosphate by 2018, with revenue of $XX million. The European market is projected to grow at a CAGR of XX% to reach a size of $XX million by 2018. The ROW market is projected to reach $XX million by 2018.
3 MARKET OVERVIEW

3.1 INTRODUCTION

Feed phosphate is best source of phosphorus, which is an essential nutritional input for the development of livestock. Feed phosphate helps in promoting development in various stages of growth; it improves fertility of animals and also acts as a best source of calcium for bone development. Feed phosphate helps in developing metabolic functions in animals, and ensures proper functioning of immune and nervous systems.

Phosphorus plays a pivotal role in all living beings by transferring energy in the form of adenosine triphosphate (ATP). Phosphorus is also a key part of the DNA and RNA structures. Main types of feed phosphates used as feed grade are dicalcium phosphate, monocalcium phosphate, mono-dicalcium phosphate, tricalcium phosphate, defluorinated phosphate and various other types (magnesium phosphate). Feed phosphate accounts for XX% to XX% of the global phosphate consumption. The use of substitutes such as dried distillers grain and phytase are lowering the market demand for feed phosphate. The prime factor driving this market is a better-organized of pork and poultry industry, increasing meat consumption and development of livestock breeds. The main concern for the growth of the feed phosphate market is scarcity of phosphorus, and the rising prices of phosphate.

Feed phosphates are used as a supplement with source of calcium and phosphorus for livestock such as swine, cattle, aquatic animals and poultry. The main types of feed phosphate that are used as feed grade are dicalcium phosphate and monocalcium phosphate, which together cover about XX% of the market share. It is widely used for adding nutritive value to the diet of animals. Feed phosphate helps animals in attaining the faster growth by providing nutritive value to their meals. Main players focusing on manufacturing of feed phosphate are Yara International Asa (Norway), OCP Group (Morocco), The Mosaic Company (U.S.), PotashCorp (Canada) and PhosAgro (Russia).
3.2 HISTORY & EVOLUTION OF THE MARKET

Phosphorite, the source rock for phosphate, is sedimentary rock which contains high amount of phosphate minerals. There are large deposits of phosphates in Russia, the U.S, North Africa and China. Feed phosphate, its derivatives and its compounds are manufactured from phosphate. Feed phosphates are inorganic salts of phosphoric acid which are essential for animals for growth, development, fertility, metabolism and proper functioning of immune system and bone development. Feed phosphates help to meet the needs of phosphorus in animals. Major types of phosphates are calcium phosphate in various forms such as (monocalcium phosphate, dicalcium phosphate and mono-dicalcium phosphate) and other types are magnesium phosphate, sodium phosphate and ammonium phosphate. Phosphate supports functioning of cells, membranes and body fluids.

3.3 COMPLEMENTARY MARKET: ANIMAL FEED MARKET

The animal feed market consumption was XX million tons in 2012. China is the largest producer of animal feed, and Asia-Pacific is the biggest producer of animal feed, globally, that produces about XX% of the animal feed during the year 2012. Asia-Pacific is estimated to be followed by Europe that contributes an estimated to about XX% of the total animal feed production. Poultry is estimated to dominate the animal feed market with a share of as much as XX% of the total production during the period of 2013. This high production of poultry feed is because poultry is still the most-preferred meat form mainly due to religious and taste preferences. Poultry is followed by ruminant feed that consists of livestock such as dairy animals and other ruminants. The ruminant feed production is estimated to be about XX%, followed by pig feed production that amounts to about XX% in year 2013. However, the industry’s growth rate is hampered by restraints such as stringent regulatory procedures that are delaying the registration and approval of new feed additive products which enhances the quality of the feed. Also the on-going debate on the use of antimicrobial growth promoters being used as animal feeds.
3.4 WINNING IMPERATIVE

3.4.1 INNOVATION IN PRODUCTION PROCESS

The feed phosphate market is experiencing a period of high consolidation over the last few years. This is resulting in more intense competition among the developing countries producers and exporters. The leading players of the feed market are involved in expansion and acquisition of companies’ operations to expand their business operations and thence, global presence. They have acquired companies with broad product portfolios, technological advantages, diversified geographical presence or marketing advantage. This strategy enhanced the R&D as a huge group of experts assemble together on one big platform.

EcoPhos (Belgium) is focusing on developing innovative technology necessary for lowering the cost of production by treating low-grade phosphate rock for producing phosphate and its derivatives. The company is continuously engineering the performance of their projects by conducting research on its business operations and technologies. J.R Simplot (U.S.) is primarily focusing on research and development activities for development of new feed technology enabling the company to offer innovative products addressing various needs of its customer. The Mosaic Company, one of the important players in the feed phosphate market, is involved in expansion including EcoPhos S.A, PhosAgro, and PotashCorp; thus increasing their businesses and geographic presence.

Feed phosphate players are also expanding their plant capacity considering the market demand and plant facilities in different regions to increase their global network. In 2013, Mosaic acquired CF Industries Holdings, Inc.’s phosphate business for $XX billion. In 2013, EcoPhos (Belgium) announced the purchase of Aliphos division of Tessenderlo Group for enhancing the production of phosphate.
3.5 BURNING ISSUES

3.5.1 USE OF PHYTASE

The prices of raw materials for feed phosphate production are leading to uncertainty of the future prospects of the feed phosphate market. Feed phosphate is used in feed of animals for their growth and development by adding nutritional value to their diet. Over the last few years, the prices of phosphates are increasing due to their use in other industrial applications, such as animal feeding and fertilizer manufacturing, at large scale. Phytase is used as a substitute of phosphate in supplementing diet with contents of phosphorus essential for manufacturing a diet rich with source of calcium and phosphorus. Phytase is available at a cheaper price as compared to phosphate.

The reserves of phosphates are depleting at large scale, leading to phosphate cost hike. The use of phytase is increasing at an alarming rate in feed grade as a source of phosphorus. Phytase market is growing around XX % every year, which shows an amplification of the market. Phytase is used in feed of poultry, swine and other livestock as cheaper source of phosphorus.

The rising prices of raw materials across the globe are the major issues for the feed phosphate market. The leading manufacturers of feed phosphates are also increasing the price of their products due to increase in the cost of raw materials such as phosphates and phosphoric acid.

3.5.2 SCARCITY OF PHOSPHATE RESERVES

Phosphorus production is limited due to scarce reserves of phosphorus. The production of phosphorus is done through mining and there is no other alternative path for obtaining and manufacturing phosphorus. According to r study and analysis, world’s phosphorus contents will be depleted in next 50 years to 100 years. Phosphate is used as a source of calcium and phosphate. The reserves of phosphorus have depleted in Europe, which has led this region to take to importing phosphate and its derivatives. Due to fewer reserves of phosphates, the cost of phosphates is rising at alarming rate. Phosphate is largely used in the manufacture of
fertilizers and in large quantities, which is resulting in depletion of reserves of phosphate. If reserves of phosphate are used continuously at the same rate, they would be on verge of complete depletion, which would affect the future of phosphate and its by-product industries.

3.6 MARKET DYNAMICS

3.6.1 DRIVERS

3.6.1.1 Rising Meat Consumption

In spite of economic slowdown, the global feed phosphate market is growing with the constant increase in demand for meat and meat products. Feed phosphate is used as a source of calcium and phosphorus in feeding animals, making it a valuable addition to their diet. It also helps animals in weight-gain during their growth stages. The global per capita consumption of meat in 2009 was 40.08 kg and has increased to 43.83 kg in 2013, which is growing at the CAGR of XX%. These meat and meat products of animals fed with these phosphates are consumed by humans.

Feed phosphate, with its diversified applications, satisfies the need of population by feeding animals with best input for their nourishment. There are various types of feed phosphates such as dicalcium phosphate, monocalcium phosphate, mono-dicalcium phosphate, tricalcium phosphate, and defluorinated phosphate, etc. which are widely used in Asia and North America. Brazil and Russia are emerging markets for feed phosphate production, as they are focusing on feeding animals with rich food for giving the best quality of meat.

3.6.1.2 Industrialization of Pork and Poultry Businesses

The development of pork and poultry industries is increasing globally; thus, the demand for feed phosphate in supplemental diet is increasing at alarming rate. Industrialization has lead in developmental changes in pork and poultry industry. Industrialization has lead to development of large production units, which are manufacturing in large quantities and offering the products at a lower cost by enhancing the quality and consistency. Industrialization in pork and poultry meat production is leading to alarming growth in this sector as the main players are breeding the livestock by nurturing them with adequate nutrition with a rich diet, thus resulting in rise in
demand of feed phosphate, which is essential for growth of animals. The main players leading the market in pork and poultry segment are Tyson Foods, Inc. (U.S), JBS (U.S), Cargill Meat Solutions (Canada), and Smithfield Foods, Inc. (U.S). Industrialization has led to a rapid growth in pork and poultry production and consumption. There is need of feed for complementing the operations of pork and poultry, thus driving the market for feed phosphate.

The supplemental efficacy of feed phosphate and the growth in animals have increased the demand for feed phosphates. The consumption of dicalcium phosphate and monocalcium phosphate as a feed grade are growing at a great pace. The main advantage of feed phosphate for livestock is that it helps in development of bones, efficient and effective functioning of immune and nervous system. Feed phosphate is essentially used in adding nutritional value to the diet and meals of animals. The Mosaic Company (U.S.), PotashCorp (Canada), and PhosAgro (Russia) are the leading players in the feed phosphate market. The extensive development in pork and poultry industry will help in improving the demand of feed phosphate for animals.

### 3.6.2 RESTRAINT

#### 3.6.2.1 High Cost

Phosphorus is one of the most essential raw materials used in production of feed phosphates. However, the feed phosphate manufacturers are facing problem due to rising phosphorus prices, and diminishing phosphate mines has hindered the growth of feed phosphate. Dicalcium phosphate and monocalcium phosphate are the important types of feed phosphate used as sources of phosphorus and calcium in animal feed. As there is strong competition for raw material, leading phosphate players have established special divisions to extract phosphates and their derivatives from the mines.

Phosphate is the main source of producing feed phosphate. Phosphate reserves are scarce and they are concentrated in very few countries. Thus, most countries have to import phosphate and its derivative products. The increasing cost of oil and thus transportation, is leading to rise of prices of phosphate every year. Feed phosphate production is very less in Europe, Latin America and Africa, but requirement for phosphate in feed production is higher in all the
regions. The shortage of phosphates for producing feed has raised barriers for the feed phosphate market growth, especially in Europe. In Europe, the availability of phosphate as raw material is low when compared to the other regions. Non-availability or lack of supply of phosphate has ultimately increased the feed phosphate prices.

3.7 PORTER’S FIVE FORCES ANALYSIS

Source: MarketsandMarkets Analysis
### 3.7.1 Feed Phosphate Market, by Type

#### TABLE 1

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e - Estimated; p - Projected

Source: FAOSTAT, Primary Interviews, and MarketsandMarkets Analysis

Asia-Pacific is estimated to be the leading consumer of dicalcium phosphate with XX% of the global dicalcium phosphate market in 2013. This is due to the trend of adding nutritional value as growth promoters, and the large livestock animal base in Asia-Pacific. North America is estimated to capture XX% of market share while Europe has only an XX% of market share in 2013, because of the proper supplementary diet through natural food and supplements in these regions. The improper dietary composition can cause insufficient development of bones, which can result in the early death of livestock. The situation in ROW is similar to Asia-Pacific, where livestock producers are using dicalcium phosphate for both medicinal purposes and for growth promotion.

In the global dicalcium phosphate market, Asia-Pacific is estimated to be the largest consumer with a market size of $ XX million in 2013 and is projected to reach $ XX million by 2018, with
the fastest CAGR of XX %. The prime concern of proper nutritional diet for animals is fueling the demand for dicalcium phosphate as it is a good source of calcium. The European and ROW markets are growing at a very slow pace, as the use of dicalcium phosphate in these regions is low. The North American market size for dicalcium phosphate is estimated to be $ XX million in 2013 and is projected to reach $ XX million by 2018, at a CAGR of XX %. The global market for dicalcium phosphate is estimated to be XX million in 2013 and is projected to reach XX million by 2018.
**TABLE 2**

**FEED PHOSPHATE MARKET VALUE, BY LIVESTOCK, 2011–2018 ($MILLION)**

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<td>xx</td>
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<td>Xx</td>
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<td>xx</td>
<td>Xx</td>
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<td>Total</td>
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<td>Xx</td>
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</tbody>
</table>

e - Estimated; p - Projected

Source: All About Feed Magazine, The Poultry Site, FAOSTAT, Primary Interviews, and MarketsandMarkets Analysis

Poultry is the largest consumer of animal feed phosphate globally, and is estimated to account for XX% of the overall animal feed phosphate market in 2013. Pork segment is estimated to be the second-largest segment with a XX% share, followed by cattle with a XX% share in 2013. Pork and poultry are high-growth segments for feed phosphate consumption due to increasing consumer preferences. The recent disease outbreaks have influenced the global meat production industry to focus on better and more hygienic feed options. Feed phosphate helps in the growth of animals as it is a source of calcium and phosphorus, which help in development of bones. Feed phosphate also helps in improving metabolism and immune system of the animals.

Rising per capita meat consumption, especially pork and poultry meat in the Latin American and Asian regions, is fueling the growth of the feed phosphate markets in these regions. The feed phosphate market is projected to increase from $ XX million in 2013 to $ XX million by 2018, at a CAGR of XX%. Poultry is the largest segment, estimated to be worth $ XX million in
2013 and projected to reach $ XX million by 2018, at a moderate CAGR of XX%. Increasing intake of high-protein feed and the increasing shift towards white meat are expected to drive the demand for poultry feed phosphate in the near future. Pork is estimated to be the second-largest market with $ XX million in 2013 and is projected to reach $ XX million by 2018, with an expected CAGR of XX%.
4 FEED PHOSPHATE MARKET, BY GEOGRAPHY

4.1 NORTH AMERICA: MARKET WITH STEADY DEMAND

In global scenario, U.S is the second-largest producer of feed phosphate. As the U.S. is a developed economy, it is welcoming to all the innovations that may be taking place, for the improvement of animal feed and its supplementary products, so that the animals face no problems or health issues while consuming the same. North America consists of three main countries: U.S., Canada, and Mexico, of which, U.S. and Canada are studied individually. Among them, U.S. is the largest consumer of feed phosphate with a total market share of around XX% in 2013. According to FAO, U.S. is ranked second in consumption of feed phosphate.

**TABLE 3**

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<td>Canada</td>
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U.S. topped the list with the highest market share. The American feed phosphate market is estimated to be $ XX million in 2013 and is projected to reach to $ XX million by 2018, growing with a CAGR of XX% for the period under review.
Other markets in North America are estimated to grow at a CAGR of XX% from 2013 and are projected to grow to $ XX million by 2018. The Canadian market has shown a relatively slow growth. Health issues and deficiencies of minerals are the main reasons which led to the change in the consumption of feed for animals in Canada. The North American market is projected to be worth $ XX million by 2018, growing at a CAGR of XX%.
5 COMPETITIVE LANDSCAPE

5.1 MAXIMUM DEVELOPMENTS RECORDED IN 2013

With a large number of developments taking place in the feed phosphate market, the market is expected to show a positive growth trend. The number of developments increased between 2009 and 2014, with the largest number of developments recorded in 2013, following zero developments observed in 2012. The growing demand for feed phosphates can support further growth of the market.

Source: MarketsandMarkets Analysis.

Expansion was the most adopted strategy by the top global players of the feed phosphate market. This helped the companies to expand its production capacity and develop their business at an alarming rate. Expansions are done to fulfill the current market requirements. The adoption of this strategy helps them tap into unexplored markets and also cash in on the growing demand of the products. In 2012 there were no developments observed in the feed
phosphate segment, and on other hand, the industry underwent the maximum number of developments in 2013.
6 COMPANY PROFILES

6.1 EUROCHEM

<table>
<thead>
<tr>
<th>Company at a Glance</th>
<th>Recent Financials</th>
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<td><strong>2013</strong></td>
<td></td>
</tr>
<tr>
<td>Founded             : 2001</td>
<td></td>
</tr>
<tr>
<td>Headquarters        : Moscow, Russia</td>
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<tr>
<td>Employees           : 22,0073</td>
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<tr>
<td>Revenue             : $XX Billion</td>
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<td>Ownership           : Public,</td>
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<td>EVHM                : RU</td>
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6.1.1 OVERVIEW

EuroChem is a top manufacturer of nitrogen, phosphate and potash. EuroChem operates its phosphate business through subsidiaries such as Phosphorit-EuroChem (Russia), Lifosa-EuroChem (Lithuania), EuroChem-BMU (Russia), and they use high-quality phosphate rock for manufacturing phosphate products.
EuroChem is operating its phosphate business in various regions such as North America, Southeast Asia and Europe. EuroChem’s feed phosphate range includes monocalcium phosphates, defluorinated phosphates.
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