**Fertilizers, Fodder and Pesticides in Kazakhstan**

Throughout the world the need for improving agricultural productivity is rising. One of the main reasons is the need for increasing the supply of food for growing world population, which, according to the UN, increases at 1% per year. This need is escalated by the ongoing decrease of the amount of arable lands and higher consumption of food in developing countries, due to rising living standards. Rising energy costs puts more pressure to increase agricultural productivity as increasing proportion of crops are diverted to produce biofuels.

Fertilizers represent one of the most reliable ways of improving agricultural productivity. Nitrogen (N), Phosphate (P2O5), potassium (K2O) are the three most important fertilizers.

Phosphorus is a vital for photosynthesis, utilization of sugar and starches, seed development, water absorption in the soil is one of the major causes of low yields. Phosphate fertilizers are used worldwide for almost all major crops, such as corn, rice, wheat, soybeans, fruits, and vegetables. According to the Ministry of Agriculture, Kazakhstan’s agriculture needs about 0.6 Mt of P2O5. However, current consumption now stands at only about 5 – 10% of estimated needs, mainly due to the financial constraints on the farmers. Yet, the demand is expected to grow due to government programs aimed at improvements in agricultural productivity.

Kazakhstan has huge deposits of phosphate ores mainly concentrated in the Karatau basin located in Zhambyl and also partly in the South Kazakhstan regions.

The total production volume of basic inorganic chemicals and finished fertilizers amounted to 1.8 million tonnes in 2011, of which 1.5 million tonnes were exported to a value of USD 3 billion. Based on its natural resources and investments in advanced technologies, Kazakhstan is
assuming a position as leading supplier of mineral fertilizers to the global market.

According to the JSC National Agency for Export and Investment  KAZNEX INVEST, export of fertilizers from Kazakhstan in 2014 grew by 5.4% to $65.7 million compared to 2013, the volume of imports, by contrast, declined by 27.4% to $85.8 million.

Kazakhstan nitrogen imports were at level of 69,655 tonnes of nutrients in 2014, down from 108,291 tonnes of nutrients previous year, this is a change of 35.68 %.Though Kazakhstan potash imports fluctuated substantially in recent years, it tended to increase through 2005 - 2014 period ending at 10,848 tonnes of nutrients in 2014.

Fodder is an important rangeland resource. Hay collection from natural pastures has traditionally been a crucial component of livestock husbandry. In northern areas winter feeding depends largery on stored fodder, and in southern areas traditional seasonal systems provide for optimum fodder availability. The preservation of fodder has become a salient issue because of the declining incomes of rural herders and their consequent inability to migrate with their herds. Pastoralists are becoming increasingly stationary, unable to bear the risks of theft or the cost of herders to help transport flocks to mountain pastures in the summer. In addition, fodder storage in the form of silage is not common. Plant fodder production via legumes is a common practice, but even this land use is risky as production as expand into vital grassland and can further lower water tables through withdrawals for production needs. While seasonal cycles of herding are increasingly becoming a vestige of a vanishing nomadic culture, the needs remains for an integrated system of rangeland management that enables preservation of the fodder base through expanded access to pasturelands. Kazakhstan has the most extensive permanent pasture per animal in the world – this tremendous resource most not be squandered.

In Kazakhstan, the total fodder security does not meet the needs of livestock breeding.  Scarce is succulent forage production, the availability of which is 31% of the demand; such valuable types of forage as haylage, mono-fodder (grain-haylage), and mangold (fodder beet) are virtually not produced at all. This requires a greater area of irrigated pastures for complete grazing fodder availability for the existing livestock; fodder fund should be also established in sufficient scopes to meet the industrial poultry farming requirements. At the same time, the Ministry of Agriculture announced in 2008 its willingness to increase subsidising so that to reduce the cost of fodder in beef, pork and poultry production by 3 002 000 $.  For this purpose, 7 505 000$ were allocated this year; the programme proved its effectiveness and will continue to be implemented. The total amount, approved by the Ministry of Economy within this sub-programme for Y2009 amounted to 10 507 000$.

The crop protection segment covers the production and formulation of pesticides. Pesticides are widely used in agriculture for management of crop health. Herbicides are the most widely used pesticide, followed by insecticides and fungicides. This segment is subject to strict governmental regulation due to potential risks of pesticides to the health of the humans, animals and environment.

The information on the use of pesticide on vegetables in Central Asia is scant, but policy planners in Kazakhstan believe that about 7.5% of the vegetables produced in their country contain excessive residues of pesticide.

Pesticides market is essential to the global agrochemistry industry. Global exports of pesticides have been continuously growing, reaching an all-time high of USD 34.96 bln in 2014. As of 2015, Germany, France, US and China are the largest exporters, accounting for more than 47% of global exports.

Synthetic herbicides currently dominate the global herbicide market due to their commercial availability, cost efficiency, and limited commercialization of Bio herbicides. Glyphosate, a broad-spectrum & nonselective herbicide holds the largest market share among other herbicides. Glyphosate segment is expected to grow at a compound average growth rate of 5.7% between 2014 and 2020, second highest among all, in terms of volume.

Kazakhstan is a new importer of pesticides, with imports reaching USD 121.9 mln in 2015. Major suppliers of pesticides on the Kazakh market include China, Russia, Germany and France. Exports of this product group declined from USD 2.6 mln in 2010 to just USD 317th in 2015. Kazakh producers have been unable to satisfy internal demand, which is estimated at 16-18kT per year.

The outlook of the pesticide industry looks fairly positive, however, increasing regulation and development of new products might constrain demand for glyphosate, which is the main product of the Kazakh pesticide subsector.

AWEX ALMATY – September 05,2017

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