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Republic of Serbia
COMMISSION FOR PROTECTION OF COMPETITION

REPORT ON THE INQUIRY INTO COMPETITIVE CONDITIONS ON THE WHOLESALE TRADE MARKET FOR SYNTHETIC FERTILIZERS IN THE TERRITORY OF THE REPUBLIC OF SERBIA IN THE PERIOD 2017-2019

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1. Subject and purpose of the inquiry

Pursuant to Article 47 of the Law on Protection of Competition (Official Gazette of the RS 51/2009 and 95/2013 – hereinafter, the Law) and the Decision of the Commission Council of January 23, 2020, the Commission for Protection of Competition (hereinafter, the Commission) launched an inquiry into competitive conditions on the wholesale trade market for synthetic (mineral) fertilizers.

The Commission noted the need to analyze the competitive conditions prevailing on the fertilizer market, foremost owing to the fact that, based on publicly available information, the producer price of fertilizers in the first three quarters of 2019 has increased. An additional circumstance that decided on the launching of this sector inquiry relates to significant changes that have taken place in this particular sector in the previous period, which could have affected the market competition. This primarily relates to the opening of insolvency proceedings and bankruptcy of one of the largest manufacturers of synthetic fertilizers and nitrogen compounds in the Republic of Serbia – company HIP AZOTARA d.o.o. Pančevo.

Noting the fact that the fertilizer market has not yet been the subject-matter of an inquiry, while having due regard for certain specificities of this market such as the prominent dispersion on the demand-side, the nature of procurements of this kind of products as reproduction materials in the agricultural production and the high share of costs in the crop husbandry of farms (10-30%), it was deemed appropriate to review this market in a systematic and comprehensive manner. Considering that agriculture producers in the territory of the Republic of Serbia to large extent use synthetic (mineral) fertilizers, while the use of organic fertilizers is limited, the Commission opted to cover only synthetic or mineral fertilizers in this analysis.

The subject of this research is the establishment of relations between competitors on the wholesale trade market for mineral fertilizers, in terms of estimating their market share and relative power, as well as the analysis of contractual relations between manufacturers and importers, on the one hand, and their buyers, on the other, and the effects that those relations may have on the state of competition on said market.

The main purpose of this research is to perform a comprehensive analysis of the state and dynamics of competition on the market concerned. This includes the identification of potential market weaknesses, causing the buyers of mineral fertilizers to potentially incur costs greater than the optimum, and in conformity with the related findings, the provision of adequate recommendations directed at advancing the legal and fair business conduct of all undertakings. Also, indirectly, the purpose of this research is also the promotion of competition on the market identified as the subject of this inquiry.

The inquiry covered a three-year period, from 2017 to 2019, while all the collected and processed data and information relate to the period mentioned.

2. Methodological and legal framework and data sources

2.1. Methodological framework, scope of the analysis and data sources

The research was conducted by using a combination of the desk (secondary research) method, primarily relating to the analysis of the relevant legal framework and available professional literature, and the field research (questionnaire) method. The research itself is conducted based on the available (secondary) and primary data, the latter being collected via structured questionnaires answered by undertakings, competent public authorities and trade associations.

The main sources of data for preparing this analysis were the following:

- the existing legislation;
- data of the Statistical Office of the Republic of Serbia, on the production and sale of industrial products, according to the Monthly Survey of Industry;
- data of the Mineral Fertilizer Producer Group, Industrial Chemical Association of the Chamber of Commerce and Industry of Serbia, on the production, stock and exports of synthetic (mineral) fertilizers;
- data of the Ministry of Finance – Customs Administration, on the imports and exports of synthetic (mineral) fertilizers;
- data derived from the structured questionnaire drafted by the Commission, as provided by the selected undertakings – manufacturers and importers, and
- publicly available online information.

The Commission contacted eleven (11) undertakings in writing, among which are the manufacturers and largest importers and distributors of mineral fertilizers. The sample included four companies registered for carrying out the activities of “manufacture or synthetic fertilizers and nitrogen compounds”, Standard industrial classification code 2015, namely:

- Preduzeće za proizvodnju mineralnih đubriva ELIXIR ZORKA – MINERALNA ĐUBRIVA DOO Šabac (hereinafter, **Elixir Zorka**);
- ELIXIR PRAHOVO Industrija hemijskih proizvoda d.o.o. Prahovo (hereinafter, **Elixir Prahovo**);
- Preduzeće za proizvodnju veštačkih đubriva FERTIL DOO Bačka Palanka – removed from the Register on November 28, 2019 (hereinafter, **Fertil**); and
- Preduzeće za proizvodnju veštačkih đubriva i azotnih jedinjenja „HIP-AZOTARA“ DOO Pančevo – in bankruptcy (hereinafter, **HIP Azotara**).

The sample also included seven importers and distributors, namely:

- DOO PROMIST Proizvodno prometno preduzeće Novi Sad (hereinafter, **Promist**);
- AGROGLOBE društvo sa ograničenom odgovornošću za trgovinu na veliko Novi Sad (hereinafter, **Agroglobe**);
- KONZUL Preduzeće za spoljnu i unutrašnju trgovinu DOO Novi Sad (hereinafter, **Konzul**);
- EUROCHEM AGRO DOO BEOGRAD-NOVI BEOGRAD (hereinafter, **Eurochem**);
- NITRO PET DOO za proizvodnju, trgovinu i usluge Subotica (hereinafter, **NitroPet**);
- PHOSAGRO BALKANS DOO BEOGRAD-NOVI BEOGRAD (hereinafter, **Phosagro**); and
- BOREALIS L.A.T. DOO BEOGRAD (NOVI BEOGRAD) (hereinafter, **Borealis**).

Five out of seven importers included in the sample are registered for carrying out the activities of “wholesale trade of chemical products” - Standard industrial classification code 4675, while the remaining two are registered for carrying out the activities of “wholesale trade of grain, unmanufactured tobacco, seeds and animal feeds” - Standard industrial classification code 4621.

Undertakings included in the sample are requested to provide information on the output, import, export, and sales on the domestic market, average monthly price for all types of fertilizers, market and market share estimate, as well as to present a list of ten largest buyers and an overview of their biggest competitors on the fertilizer market. To perform an analysis of contractual relations, the Commission also collected the agreements concluded with specific categories of buyers of the products concerned.

Nine out of eleven observed companies have provided requested information. Companies HIP Azotara and Fertil have failed to provide requested information for the reasons which will be presented below. Companies Elixir Zorka and Elixir Prahovo belong to company Elixir Group and are observed as a single undertaking for the purposes of this analysis. In the light of the above, the sector inquiry is based on the sample of eight undertakings, whose combined share accounts for around 90% of the total estimated wholesale trade market for synthetic (mineral) fertilizers in 2019.

2.2. Relevant legal framework

The basic legislation governing legal relationships in the (synthetic) fertilizer marketplace is the Law on Plant Nutrition Products and Soil Enhancers (Official Gazette of the RS 41/2009 and 17/2019).

This Law governs classification, quality, labeling, phytosanitary control, and sampling in the circulation, importation and use of plant nutrition products and soil enhancers and testing of plant nutrition products and soil enhancers, as well as other issues of significance for plant nutrition products and soil enhancers.

Article 3 of this Law stipulates that the plant nutrition products and soil enhancers (hereinafter, plant nutrition products) which also contain the plant protection products, namely the chemicals, may be produced, placed into circulation, and used in the territory of the Republic of Serbia if they are classified, packaged and labeled in accordance with this Law and the regulations adopted based on this Law and the regulations governing the plant protection products, namely the chemicals.

Article 6 of this Law stipulates that the production of plant nutrition products may be carried out by a manufacturer that is entered in the Register of Economic Operators in accordance with the law governing registration of economic operators and that fulfils the requirements for production of plant nutrition products in accordance with the regulations governing environmental protection.

Under Article 7 is provided that the circulation of plant nutrition products may be carried out by a distributor that is entered in the Register of Economic Operators in accordance with the law governing registration of economic operators and that is entered in the Register of Distributors and Importers.

Article 8 provides that the entry in the Register of Distributors and Importers shall be conducted based on the application of a distributor or an importer, which is submitted to the Ministry of Agriculture, Forestry and Water Management (hereinafter, the Ministry), while Article 9 stipulates that the Register of Distributors and Importers shall be kept by the Ministry.

Article 11 of the Law stipulates that the manufacturer or distributor shall submit to the Ministry the data on plant nutrition products that have been produced and placed in the circulation twice a year, for the first half of a year by July 15 of the current year, and for the second half of a year by January 15 of the following year.

Article 18 provides that prior to placement in circulation, plant nutrition products must be entered in the Register of Plant Nutrition Products and Soil Enhancers, kept by the Ministry, and that the entry in the Register shall be conducted based on the application submitted to the Ministry by the manufacturer, distributor or importer of plant nutrition products.

In terms of secondary legislation governing this area, there is a number of existing regulations that elaborate legal provisions in more detail, namely:

- Regulation on the form and content of applications for registration of plant protection products;
- Regulation on the elements for assessment of active substances and/or basic substances and plant protection products;
- Regulation on the content and form of requests for testing of non-registered plant protection products and active substances and/or basic substances not entered into the List of Approved Substances for the research or development purposes;
- Regulation on the sampling and testing methods of food for the purpose of determining residues of plant nutrition products in food;
- Regulation on the content and manner of handling the documentation for assessment of active substances and/or basic substances and the methods for testing of active substances and/or basic substances;
- Regulation on the content and manner of handling the documentation for assessment of plant protection products and methods for testing of plant protection products;
- Regulation on the provision of services related to plant protection products;
- Regulation on the requirements in respect of facilities, equipment and professional capacity of employees of distributors and/or importers for the entry into the Register of Distributors and Importers;
- Regulation on the content of declaration and instructions for use of plant protection products, specific marks of risk and warnings for humans and the environment, and the manner of handling the emptied plant protection products packaging;
- Regulation on the form and content of applications for registration in the Register of Distributors and Importers of plant protection products and the content of the Register;
- Regulation on the conditions for carrying out the activities of disinfection, disinsectization and deratization in the field of plant protection and/or plant products;
- Regulation on the placement into circulation, import and sampling of pesticides.

Based on the analysis of legal provisions contained therein, it can be concluded that the Law on Plant Nutrition Products and Soil Enhancers distinguishes between the economic entities engaged in the production, on the one hand, and the economic entities that place into circulation and import plant nutrition products, on the other. In terms of subjects engaged in the placement into circulation and importation of plant nutrition products, in addition to the obligation to be entered into the Register of Economic Operators, they also must be entered into the Register

of Distributors and Importers, kept by the Ministry. The Register of Distributors and Importers also includes the list of all warehousing facilities and places of sale that fulfill the requirements laid down by this Law. Also, each manufacturer and/or distributor is obligated to submit to the Ministry on a biannual basis, the data on the output and products placed into circulation for plant nutrition purposes, while prior to the placement in circulation, plant nutrition products must be entered in the Register of Plant Nutrition Products and Soil Enhancers, also kept by the Ministry.

3. Concept of fertilizers and the relevant market

3.1. Concept and breakdown by types of fertilizers

Fertilizers are defined by the Law on Plant Nutrition Products and Soil Enhancers as chemical compounds of mineral and organic origin and mixtures of such compounds regardless of the state of matter, as well as microorganisms whose main purpose is to provide nutrient elements for plant nutrition. The purpose of using fertilizers is to accelerate the growth and development of plants whilst obtaining a high, qualitative and economically justifiable yield while ensuring environmental protection.

Fertilizers can be broken down into groups and classified based on several criteria.

Based on the state of matter, fertilizers can be classified into solid, fluid (gas) and liquid fertilizers.

Based on the rate of release controlled by fertilizers, they can be classified into a fast-release (nitrogen, potassium and water soluble phosphatic fertilizers) and a slow-release (nitrogen fertilizers and water insoluble phosphatic fertilizers) compounds.

In terms of chemical composition, fertilizers can be classified into two main categories, namely:

- Organic fertilizers or fertilizers that derive from organic, vegetable and animal sources, with nutrient content that comprises of organic compounds, obtained by fermenting vegetable and animal residues, and
- Inorganic (mineral or synthetic) fertilizers, with inorganic salts as nutrients which, when applied, improve the growth of plants and fertility of the soil, obtained by extraction, physical and/or chemical industrial processes.

By number of nutrients, synthetic fertilizers can be classified into two basic groups¹:

- Straight or monocomponent fertilizers, containing one of the three main elements (potassium, nitrogen or phosphorus), and
- Compound fertilizers, containing two or more nutrients.

Synthetic fertilizers are most widely used in cultivating maize, barley, sugarcane, soybeans and sunflower, as well as in the fruit, vegetables and flower farming. According to undertakings included in the sample, the proper use of fertilizers can help to increase crop production and

¹ The third, far less represented category includes special fertilizers, containing bioactive materials or pesticides.

yield up to 50%. Farmers opt for straight or compound fertilizers considering the economic, agronomic and technological factors. The composition of compound fertilizers and nutrient ratios therein depend on the fertilizer production technology options, while their formulation must match the properties of the soil and plant nutrition needs. Although the price of compound fertilizers is higher compared to straight fertilizers, they come with more cost-effective transportation options and at lower packaging costs. Compound fertilizers allow for two or more nutrient inputs to the soil, providing for nutrient balance and avoiding any shortages of nutrients, particularly in underdeveloped agricultural lands. This could be both an advantage and disadvantage of compound fertilizers compared to the straight fertilizers, given that crops do not always require all three nutrient inputs that are provided in a fixed proportion, although their behavior in the soil varies, as well as the timing of application².

The paragraphs below provide a brief overview of the main characteristics of straight and compound fertilizers and their varieties.

3.1.1. Single nutrient (straight) fertilizers

Nitrogen fertilizers (N-fertilizers)

The basic compound in the production of almost all N-fertilizers is the production of anhydrous ammonia (NH₃) based on the Haber–Bosch process, which can be used directly in crop fertilizing process or as a basis in the production of all other N-fertilizers and compound fertilizers. Nitrogen fertilizers can be further classified into:

1. Nitrate fertilizers (NO₃ - N), containing nitrogen in nitrate form;
2. Ammonium fertilizers (NH₄ – N), containing nitrogen in ammonia form;
3. Ammonium-nitrate fertilizers, containing nitrogen in both ammonia and nitrate form (50:50). These fertilizers display characteristics of both of the two groups of fertilizers. The most well-known ammonium-nitrate fertilizers are AN (ammonium nitrate), SAN (stabilized ammonium nitrate), CAN (calcium ammonium nitrate, nitro-limestone or nitrochalk), and URAS (ammonium nitrate-sulfate);
4. Amide fertilizers, containing nitrogen in amide form (NH₂). The most well-known amide fertilizer is urea or carbamide, the most concentrated solid nitrogen fertilizer with 46% of nitrogen and most commonly used nitrogen fertilizer in our country and the world. Urea has good compatibility with most of the pesticides, thus can be used both in fruit and vegetable production.

Phosphate fertilizers (P-fertilizers)

The sources of obtaining P-fertilizers are phosphates of organic sources (bone meal) and mineral sources (mineral deposits of phosphate, iron ore deposits containing phosphorus, etc.). Based on the procedure for natural phosphate processing, two types of phosphate fertilizers can be distinguished: natural phosphate fertilizers and industrial phosphate fertilizers. In both types of fertilizers, phosphate is contained in calcium phosphate form, while depending on its solubility, phosphate fertilizers can be classified into five groups:

- monocalcium phosphate,

² Bogdanović D., Prof, PhD (2014) “*Mineralna đubriva i đubrenje*”, University in Novi Sad, Faculty of Agriculture

- dicalcium phosphate,
- tricalcium phosphate,
- alkaline phosphate, and
- polyphosphate (condensed phosphate).

Phosphate fertilizers are not or only rarely used as individual fertilizers in the Republic of Serbia, instead, they are utilized in the form of binary or ternary compound fertilizers. The most widely used phosphate fertilizers on the domestic market are MAP (monoammonium phosphate) and DAP (diammonium phosphate) fertilizers.

Potassium fertilizers (K-fertilizers)

The sources of obtaining potassium fertilizers are potassium salts, whose deposits are mostly exploited in Germany, France, Poland, Spain, and Russia. The Republic of Serbia imports concentrated P-fertilizers in the following forms:

- potassium-chloride (58-62 % K_2O , KCl)
- potassium-sulphate (48-52 % K_2O , K_2SO_4), and
- potassium-magnesium-sulphate (patent kali), a dual nutrient fertilizer containing both potassium and magnesium.

3.1.2. Compound fertilizers

Compound fertilizers are fertilizers that contain at least two nutrients. Depending on the manufacturing processes, compound fertilizers can be broken into blended, compacted, and complex fertilizers³.

Blended compound fertilizers

Blended compound fertilizers result from mechanical mixing or blending of individual fertilizers (for example, urea, superphosphate, and KCl in a certain ratio (depending on the given formulation)), with mostly no chemical reactivity of used components in the mixture, and where each of the elements keeps its properties. When used, each granule of a blended compound fertilizer represents a separate element and delivers in such manner.

Compacted compound fertilizers

Compacted compound fertilizers (fertilizers of more recent date) are produced by compacting, which is essentially a dry process with no liquid medium or binding agent used, and which are perceived as very good fertilizers from the agroecological perspective. When used, each granule or flake of a compacted compound fertilizer contains all three nutrients in a certain ratio, each delivering individually. These fertilizers can be placed between the blended compound and complex compound fertilizers by the value of fertilization delivered. These fertilizers have been previously manufactured in the Republic of Serbia by company Fertil from Bačka Palanka.

³ Bogdanović D., Prof, PhD (2014) “*Mineralna đubriva i đubrenje*”, University in Novi Sad, Faculty of Agriculture

Complex compound fertilizers (NPK fertilizers)

Complex compound fertilizers are obtained by specific chemical treatments in reactor-mixers of fluid and solid raw materials or produced fertilizers, causing a chemical reaction between the components and resulting in a product that is completely different from the source materials – a new chemical compound with new characteristics that contain plant nutrients. The formulation of complex compound fertilizers provides a composition in percentage ranges of nitrogen, phosphorus and potassium per 100 grams of fertilizers.

NPK (nitrogen (N), phosphorus (P) and potassium (K)) fertilizers can be classified into three groups:

- Nutrients with equal NPK ratios (for example NPK 15-15-15, or NPK 16-16-16, etc.);
- Nutrients with the 1-2-3 NPK ratio (for example, NPK 8-16-24, or NPK 6-12-24, etc.), and
- Nutrients with the 1-3-2 NPK ratio (for example, NPK 8-20-10, or NPK 6-24-12, etc.).

In the complex compound fertilizers, nitrogen is in amide, ammonia or nitrate form, phosphorus is water or citrate soluble, and potassium is in sulphate or chloride form, that is, in a plant absorbing form. This is also the advantage of complex compound fertilizers over the blended compound and the compacted compound fertilizers.

3.2. Interchangeability of fertilizers and the relevant market

Considering that fertilizers can be classified by several criteria, which calls into question the issue of interchangeability of certain types of fertilizers from the supply and demand side, undertakings included in the sample have been requested to comment on the extent to which the fertilizers of various chemical composition can be considered interchangeable or substitutable by reason of their characteristics, intended use and price.

Undertakings have agreed that organic and mineral (synthetic) fertilizers as to their characteristics, intended purpose and use, cannot be regarded as substitutable. The primary difference, according to the sampled undertakings, derives from the fact that a high percentage of nutrients in organic fertilizers are found in various organic forms, which are not readily available to plants, instead, it is necessary to go through particular microbiological transformation (mineralization) pre-treatments for nutrients to become plant-available. The nutrients in mineral (synthetic) fertilizers are predominately found in a form of mineral compounds, which are easily and rapidly plant-available and require no transformation pre-treatments to the soil.

However, as to the substitution between individual types of *synthetic* fertilizers, primarily in terms of their intended purpose and use, undertakings have expressed diverse positions and opinions on this issue.

According to one of the companies, mineral (synthetic) fertilizers allow for substitution by all fertilizers that are fully mineral (synthetic) by their composition and contain nutrients in the mineral composition. This undertaking further elaborated that from the standpoint of end-users, these products are interchangeable by reason of their characteristics and intended purpose, i.e., effects that are reflected in the final agricultural yield and crop quality.

Nevertheless, the majority of undertakings believe that a certain substitution is possible within the same group of fertilizers, both within the nitrogen fertilizer group (urea, AN and CAN) and the compound fertilizer group, while the interchangeability between the two categories is not possible.

In terms of nitrogen fertilizers, undertakings have stated that the substitution is possible although not ideal given the different content and forms of nitrogen, primarily referring to the difference between urea, on the one hand, and other types of nitrogen fertilizers, on the other. Urea has a higher content of total nitrogen and is a long-acting fertilizer, while the ammonium-nitrate fertilizers are more quickly broken down (nitrogen is available to plants after 2-3 days). The substitution possibilities within the nitrogen fertilizer group are determined by the soil type, amount of active substance, crops cultivated and weather conditions or rainfall, all of which are decisive for the reaction of these products in the soil. For example, CAN is neutral to mildly alkaline on the pH scale, while AN and urea act mildly acid to acid, making them not preferable in the treatment in acid soils.

As for two-component (binary) and three-component compound fertilizers, undertakings took the position that the interchangeability is possible under certain conditions. Solid binary fertilizers are, for the most part, substitutable if they belong to the same subgroup (NP, PK, or NK) because the emphasis is on the active matter that factors the formulation, while the amounts that are applied to the soil can differ. In the case of three-component fertilizers, substitution is possible between fertilizers with identical or similar amounts of each of the three major nutrients in the formulation: nitrogen, phosphorus and potassium.

One undertaking stated that the substitution is not possible even within the nitrogen fertilizer group. According to the said undertaking, all three types of nitrogen fertilizers (urea, AN and CAN) have a completely different set of recommendations for use and, in fact, are not interchangeable. AN is mostly recommended for use in alkaline soils (high pH levels) and CAN in acid soils (low pH levels), while its potential use in alkaline soils must be short-term.

The majority of undertakings included in the sample have agreed that despite the above-mentioned differences and limited interchangeability between individual types of fertilizers by reason of their characteristics and intended purpose, habits and traditions dictate the use of one or the other type of fertilizers in practice. According to their statements, although fertilizers participate in the total cropping costs with 30%, it happens that farmers do not conduct preliminary soil analyses and expected yield response to fertilization, thus remain oblivious to the soil pH values, instead, they fertilize by guessing, in an arbitrary manner, habitually or guided by experience.

One of the undertakings mentioned that from the point of view of agronomy, recommendation is not to alternate between fertilizers, but to use the products recommended by experts. This particular undertaking underlined that the replacements are nonetheless made, particularly in cases of shortage of particular fertilizers on the market, within individual groups of fertilizers (nitrogen fertilizer for some other type of nitrogen fertilizer, one NPK formulation for the other), but with a very high potential for error, as well as the occurrence of adverse effects to the soil, plant growth and yield quality.

In terms of interchangeability by reason of *price*, undertakings have stated that there is no regularity between the selling price of fertilizers and their relations since the products in question are commodities that experience weekly price fluctuations. As to nitrogen fertilizers, undertakings have stated that the most economical fertilizer per unit of nutrient is always the

one with the highest content of actives (urea), while the most expensive N-fertilizer is the one with the lowest nutrient content (CAN and AN). Individually observed, per product unit, urea is the most expensive fertilizer, while CAN represents the cheapest option. The pricing policy of two-component and three-component compound fertilizers is similar, meaning, the higher the content of actives, the lower the price per unit of actives, and the higher the price per unit of product. Individual undertakings indicated the phenomenon whereby a large number of buyers continue to purchase the cheapest fertilizers available on the market, without having regard to the price per unit of active substances.

In the light of all the above specified similarities and differences between individual types of fertilizers, and taking account of the need to narrowly define the subject matter of this sector inquiry, the Commission also considered the relevant European Commission's practice with the fertilizer market.

The past European Commission's practice with the fertilizer market is limited to merger control and state aid cases. In merger procedure cases such as COMP/M.8971 – INA/PPD/Petrokemija, COMP/M.6695 – AZOTY TARNOW/ZAKLADY AZOTOWE PULAWY, COMP/M.7784 – CF INDUSTRIES HOLDINGS/OCI BUSINESS, COMP/M.4730 – YARA/KEMIRA GROWHOW, etc., the European Commission considered possible further sub-segmentation for straight and compound fertilizers, as well as separate product markets for N, P and K fertilizers within the straight fertilizer market considering their different chemical properties. In terms of segmentation within individual types of straight fertilizers, European Commission states in its decision that the merger parties and the majority of their competitors have claimed that all N-mineral fertilizers are interchangeable, both from a customer perspective and manufacturers perspective and constitute one single product market, while their buyers have indicated that there is a limited degree of substitutability either from the demand side or from the supply side, the same could be said for both P and K fertilizers. Accordingly, in its decisions concerning the fertilizer market the European Commission considered mineral fertilizers distinct from organic fertilizers, and N-, P- and K-fertilizers as separate product markets; however, it has left open whether any further segmentation within the mineral fertilizer market should be made, in particular between straight and compound fertilizers.

In the light of the above, considering the share of individual types of fertilizers on the domestic market, for the purposes of its inquiry the Commission initiated from the wholesale trade market for synthetic (mineral) fertilizers as a whole, to further segment it into the following narrower markets:

1. nitrogen fertilizer market, and
2. compound fertilizer market.

Within the framework of the nitrogen fertilizer market, particular attention is given to the urea market as the most represented type of nitrogen fertilizers, while placing the focus within the compound fertilizer market on the complex (NPK) fertilizers, accounting for around $\frac{3}{4}$ of the said market.

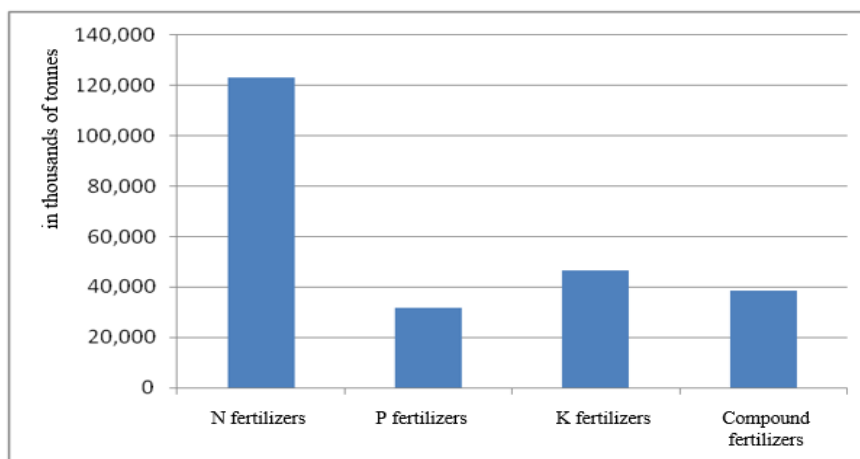
In terms of geographic dimension, the Commission based its analysis on the data on actual production, imports, exports, and wholesale trade of synthetic fertilizers in the territory of the Republic of Serbia.

4. Synthetic fertilizer production

4.1. Global synthetic fertilizer production

According to FAO data (Food and Agriculture Organization of the United Nations), the total global production of synthetic fertilizers in 2017 amounted to around 240 million tonnes⁴. Observed by nutrients, the share of nitrogen fertilizers reached 51%, potassium fertilizers 19%, phosphorus fertilizers 13%, and compound fertilizers 16%.

Diagram 1 – Global production of synthetic fertilizers by nutrients, 2017



Source: <http://www.fao.org/faostat/en/#data>

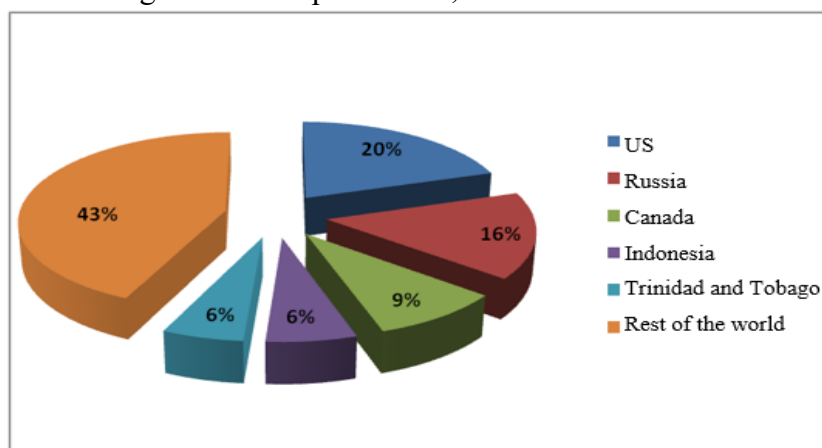
- *Nitrogen fertilizers (N fertilizers)*

The total global production of nitrogen fertilizers in 2017 was 123 million tonnes, of which 35% are urea, 20% ammonia, 18% ammonium nitrate (AN), and 13% urea ammonium nitrate (UAN). Ammonium sulfate (AS) and calcium ammonium nitrate (CAN) account for 9% and 4%, respectively, while the other forms of nitrogen fertilizers make up 1% of the total global production of nitrogen fertilizers.

The largest producers of nitrogen fertilizers in the world are the US and Russia, the two making up 36% of the global production of this type of fertilizers in 2017, while the top five producing countries of nitrogen fertilizers make up 57% of the total global output.

⁴ Data on the global production in 2018 and 2019 were not available at the time of drafting this report.

Diagram 2 – Global nitrogen fertilizer production, 2017

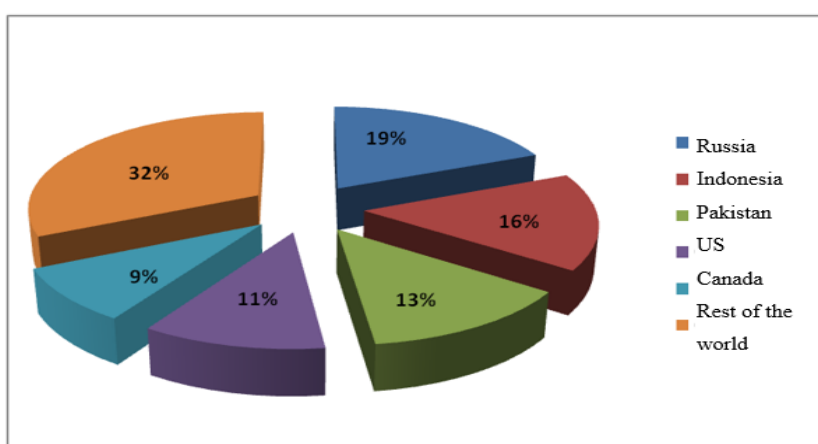


Source: <http://www.fao.org/faostat/en/#data>

Urea

Russian Federation is the top country by urea production and export in the world. Based on data for 2017, a total of 8 million tonnes of urea is produced in Russia, accounting for 18.7% of the total global production and 15.6% of the world's urea exports. Other leading urea producers are Indonesia, Pakistan, the US, and Canada, the five countries making up around 2/3 or 68% of the total global production of urea.

Diagram 3 – Global urea production, 2017

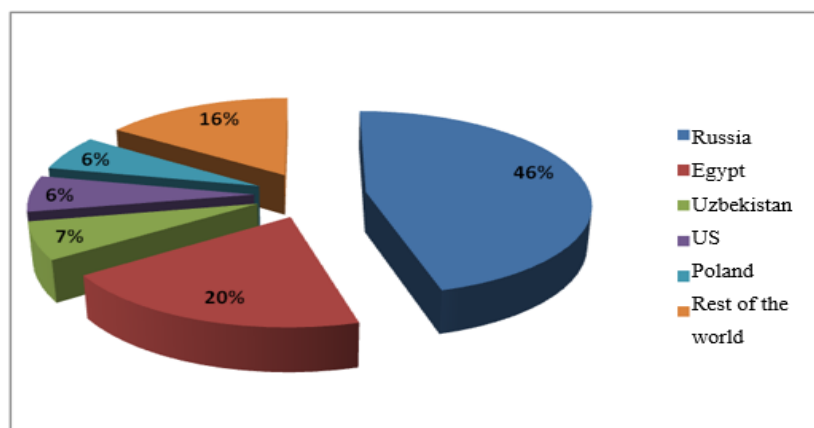


Source: <http://www.fao.org/faostat/en/#data>

Ammonium nitrate (AN)

Russia is by far the largest producer and exporter of ammonium nitrate, accounting for 45.7% of the total global production and 43.3% of the world's exports of this nitrate fertilizer in 2017, followed by Egypt with around 20% of the world's manufacturing output. The top five ammonium nitrate producing countries, including Uzbekistan, the US, and Poland, make up around 85% of the total global production.

Diagram 4 – Global ammonium nitrate production, 2017

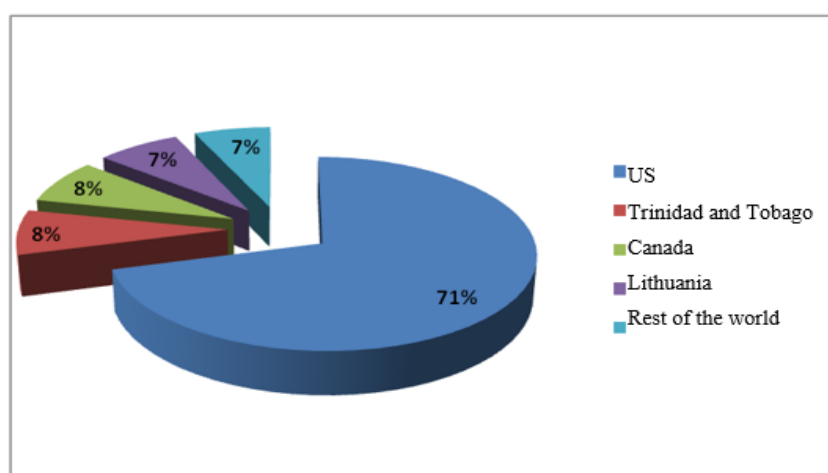


Source: <http://www.fao.org/faostat/en/#data>

Urea ammonium nitrate (UAN)

The US is by far the largest producer of urea ammonium nitrate, accounting for 71% of the total output of this nitrate fertilizer in 2017. The top four UAN producing countries together make up 93% of the total global production.

Diagram 5 – Global urea ammonium nitrate production, 2017

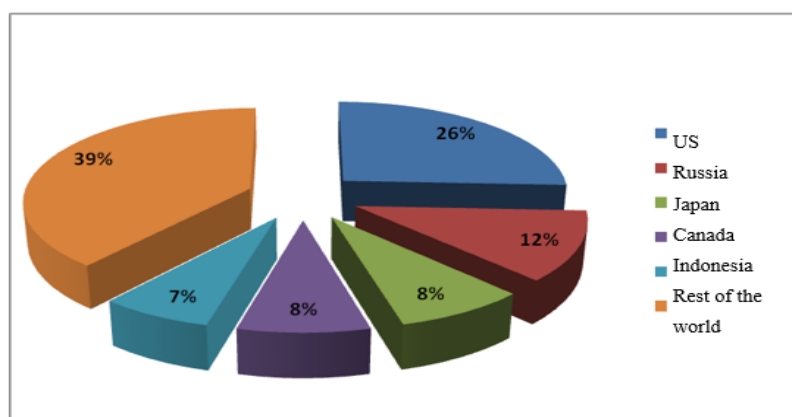


Source: <http://www.fao.org/faostat/en/#data>

Ammonium sulfate

The US is the largest producer of ammonium sulfate in the world, accounting for around $\frac{1}{4}$ or 25.7% of the total global production of this nitrate fertilizer in 2017. Other leading ammonium sulfate producers are Russia, Japan, Canada, and Indonesia, the five countries jointly making up 60.9% of the world's manufacturing output in 2017.

Diagram 6 – Global ammonium sulfate production, 2017



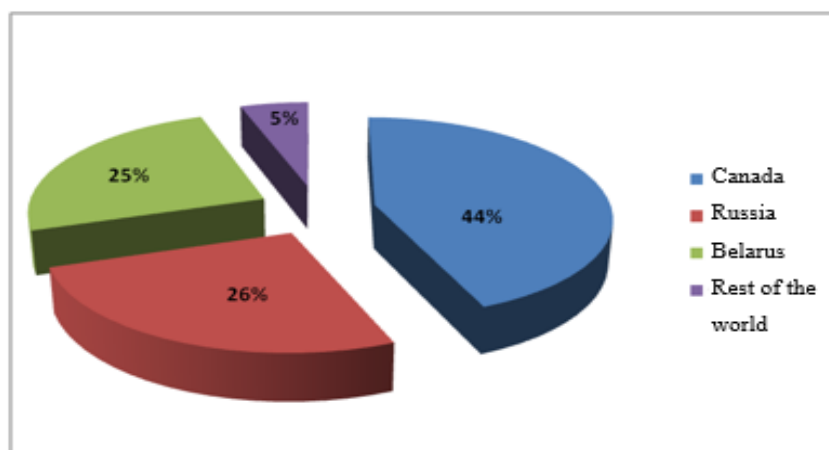
Source: <http://www.fao.org/faostat/en/#data>

- *Potassium fertilizers (K fertilizers)*

The total global production of potassium fertilizers in 2017 was 46.5 million tonnes, of which 97.1% are potassium chloride, while the share of potassium sulfate and potassium nitrate production output was 1.1% and 1.7%, respectively.

Canada, Russia, and Belarus are the top countries by potassium fertilizer production in the world, accounting for 95% of the world's K fertilizers manufacturing output in 2017.

Diagram 7 – Global potassium fertilizer production, 2017

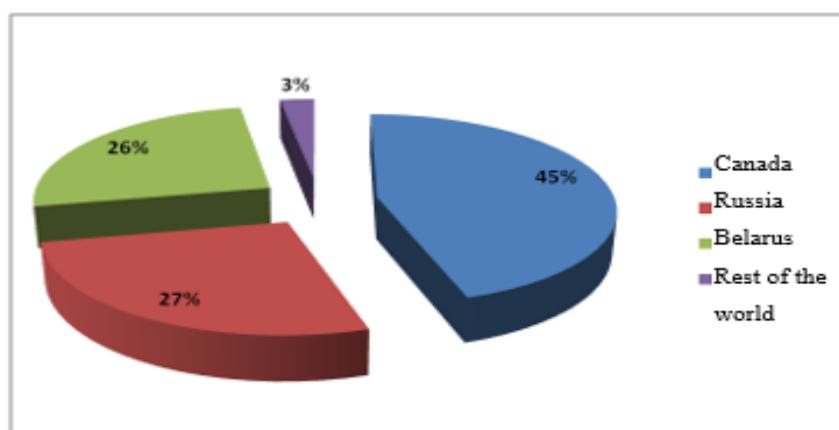


Source: <http://www.fao.org/faostat/en/#data>

Potassium chloride

Canada is by far the largest global producer and exporter of potassium chloride, accounting for around 45% of the total global production and 37% of the world's exports of this potassium fertilizer in 2017, which is mostly used as a raw material for the production of other types of fertilizers. Other leading producing countries are Russia and Belarus, the three making up 97% of the world's potassium chloride manufacturing output in 2017.

Diagram 8 – Global potassium chloride production, 2017



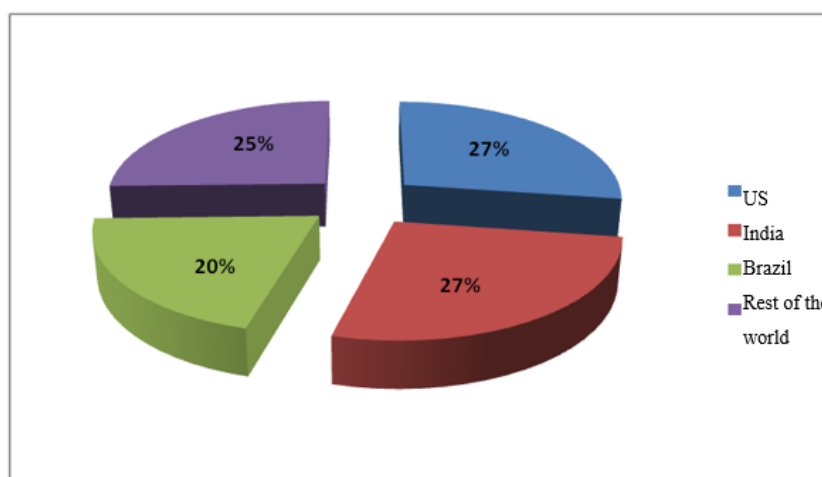
Source: <http://www.fao.org/faostat/en/#data>

- *Phosphorus fertilizers (P fertilizers)*

In the total global production of phosphorus fertilizers in 2017, the share of superphosphate was 44%, diammonium phosphate 33%, and monoammonium phosphate 23%, while the remaining 1% of the output covered other types of phosphorus fertilizers.

The largest phosphorus fertilizer producing countries are the US and India, with a 27% share each in the world's manufacturing output in 2017, followed by Brazil - the three jointly accounting for around $\frac{3}{4}$ of the total global production of phosphorus fertilizers.

Diagram 9 – Global phosphorus fertilizer production, 2017

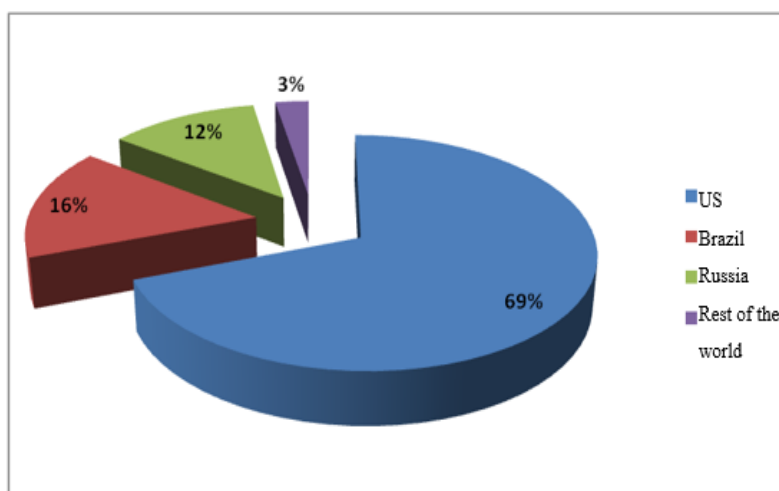


Source: <http://www.fao.org/faostat/en/#data>

Monoammonium phosphate (MAP)

The US is by far the largest global producer and exporter of monoammonium phosphate, making up 69.4% of the total global production and 29% of the world's exports of this phosphate-based fertilizer in 2017. Other leading producers are Brazil and Russia, the three accounting for 97% of the world's monoammonium phosphate manufacturing output in 2017.

Diagram 10 – Global monoammonium phosphate production, 2017

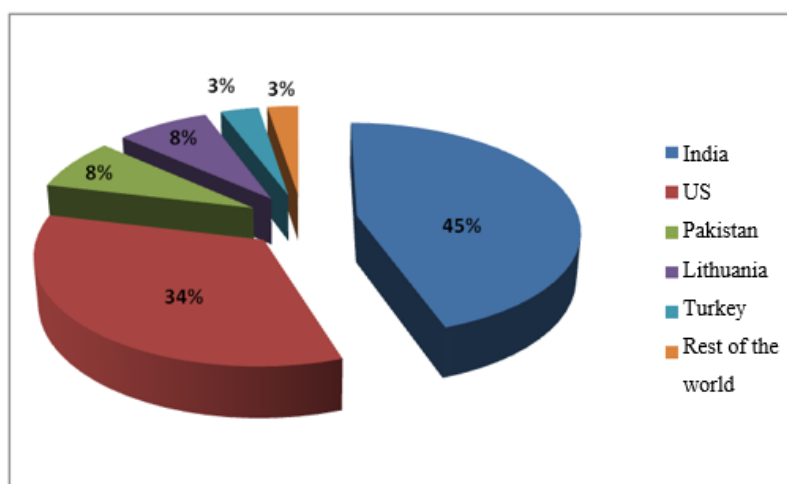


Source: <http://www.fao.org/faostat/en/#data>

Diammonium phosphate (DAP)

The largest global producers of diammonium phosphate are India and US, the two making up 79% of the total global production of this fertilizer in 2017, while the top-five producing countries, including Pakistan, Lithuania and Turkey, jointly account for 97% of the world's diammonium phosphate manufacturing production. The leading exporter of this particular fertilizer is Morocco with 23% of share in the total global exports in 2017.

Diagram 11 – Global diammonium phosphate production, 2017

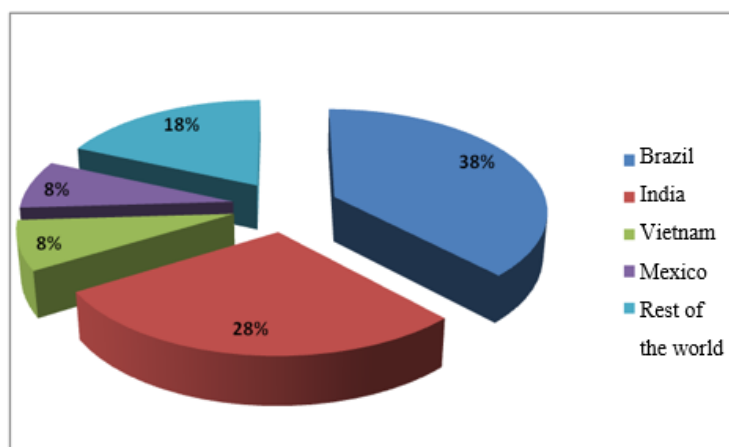


Source: <http://www.fao.org/faostat/en/#data>

Superphosphate

Brazil and Vietnam are the leading global producers of superphosphate, jointly accounting for around 2/3 of the total global production of this fertilizer. Other leading superphosphate-producing countries are Indonesia, Poland and Italy, the five jointly accounting for 77% of the total global superphosphate output.

Diagram 12 – Global superphosphate production, 2017

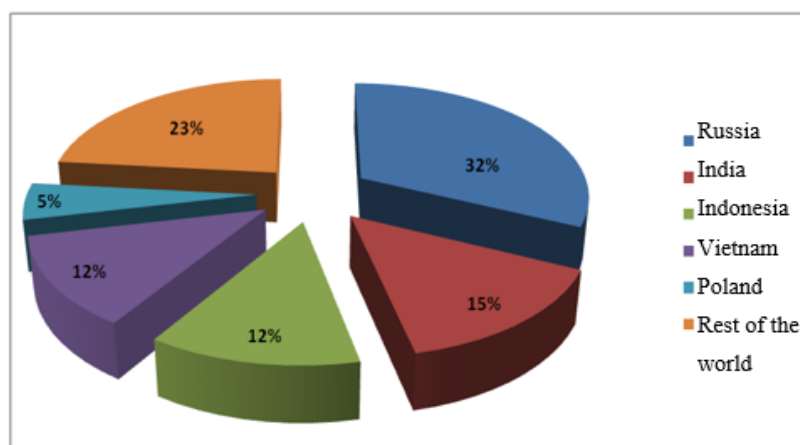


Source: <http://www.fao.org/faostat/en/#data>

- *Complex (NPK) fertilizers*

The largest global producer and exporter of complex fertilizers is Russia, accounting for around one-third of the total global production and export of these fertilizers. Other leading producing countries are India, Indonesia, Vietnam and Poland, the five jointly making up 76.7% of the world's manufacturing output of NPK fertilizers. Serbia ranked 13th among complex fertilizer producing countries in the world in 2017, accounting for around 1% of the total global manufacturing output.

Diagram 13 – Global complex fertilizer production, 2017



Source: <http://www.fao.org/faostat/en/#data>

4.2. Synthetic fertilizer production in the Republic of Serbia

Based on data provided by the Statistical Office of the Republic of Serbia (hereinafter, Statistical Office) at the request of the Commission, the total fertilizer production in 2019 reached the level of 550 thousand tonnes, which represents a 14% output increase compared to 2017.

In 2017 and 2018, other phosphorus fertilizers accounted for 40% of the total fertilizer production, complex fertilizers for 51-56%, while the share of other types of fertilizers in the manufacturing output was marginal. In 2019, complex fertilizers accounted for 75% of the total fertilizer production, ammonium phosphate for 15%, while other phosphorus fertilizers accounted for 10% of the total fertilizer manufacturing output.

According to the Statistical Office, data on the production of urea and ammonium nitrate, powdered or granulated superphosphate and ammonium phosphate, are not included in the data on the total fertilizer production (for 2017) on grounds that only one manufacturer provided data on the production of these specific types of fertilizers, thus making the Statistical Office unable to provide the requested information due to the obligation to protect trade secrets.

Given that the provided statistics on the total fertilizer production was incomplete, the Commission sent requests for provision of information directly to the following fertilizer producers – companies Elixir Zorka and Elixir Prahovo, operating under the Elixir Group umbrella, company HIP Azotara from Pančevo, and company y Fertil from Bačka Palanka.

Based on the data and information provided, it is established that only one synthetic fertilizer producer currently operates in the Republic of Serbia – company Elixir Group, with its manufacturing plants in Šabac (Elixir Zorka) and Prahovo (Elixir Prahovo). An insolvency procedure was opened in September 2018 against once the largest producer of mineral fertilizers in the Balkans, company HIP Azotara from Pančevo, coinciding with the discontinuation of production, only to be followed by the company's declared bankruptcy on January 3, 2019.

The synthetic fertilizer production was also carried out by company Fertil from Bačka Palanka until 2016. As presented by the company in a reply to the Commission's request for provision of information, no production or imports of mineral fertilizers was carried out in the period from 2016-2019, instead, the company only cleared out inventory in 2016 and 2017. Attached to the letter, a decision of the Serbian Business Registers Agency of November 28, 2019 was provided, on the removal of company Fertil from the business register.

Given the above, data on fertilizer production supplied by the sole national producer – company Elixir Group⁵, is provided below.

The total production of mineral fertilizers in the manufacturing plants owned by company Elixir Group showed an upward trend in the observed three-year period, increasing by [...] % in 2019 compared to 2017.

Diagram 14 – Total production of synthetic fertilizers, 2017-2019

[...]
Source: Elixir Group

Compound fertilizers account for [...] % in the total fertilizer production, of which NPK and NP fertilizers make up [...] % and [...] %, respectively, of the total fertilizer production. Nitrogen

⁵ If compared to the official statistics, data on fertilizer production supplied by Elixir Group show that the production of this company accounted for [...] % of the total fertilizer production in 2017 and [...] % in 2018, while the Serbian official statistics underestimated the total fertilizer production in 2019 by at least [...] %.

fertilizers account for between [...] % and [...] % of the total fertilizer manufacturing output, while the remaining [...] % relate to phosphorus fertilizers.

Diagram 15 – Total synthetic fertilizer production by types of fertilizers, in tonnes

[...]
Source: Elixir Group

In the observed three-year period, the production of compound fertilizers experienced growth by [...] %, while the production of nitrogen and phosphorus fertilizers decreased by [...] % and [...] %, respectively.

XXX

The following diagram shows the production in the manufacturing plant in Šabac, direct production in the Prahovo plant and service production in the Prahovo plant for its affiliated company Elixir Zorka.

Diagram 16 – Structure of the fertilizer production within company Elixir Group

[...]
Source: Elixir Group

XXX

5. Fertilizer imports and exports

5.1. Fertilizer imports

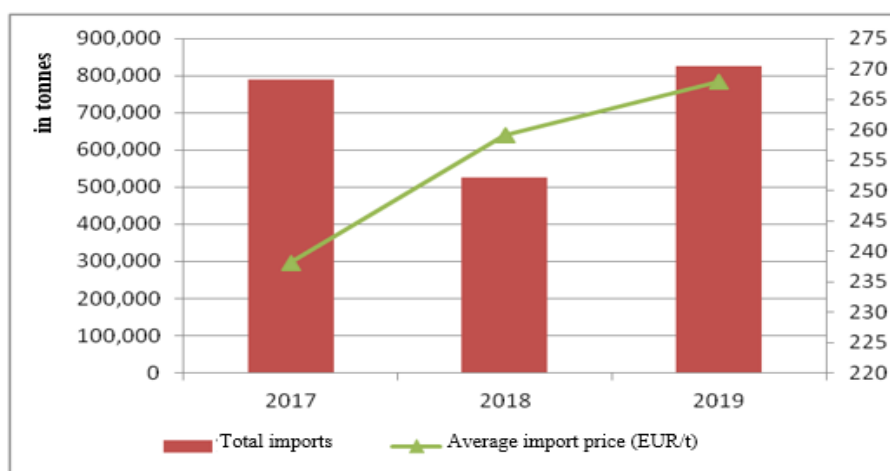
Based on customs classification, the imports of synthetic (mineral) fertilizers are covered by the following tariff codes:

- 3102 – mineral or chemical fertilizers, nitrogenous
- 3103 - mineral or chemical fertilizers, phosphatic
- 3104 - mineral or chemical fertilizers, potassic, and
- 3105 - mineral or chemical fertilizers containing two or three of the fertilizing elements nitrogen, phosphorus and potassium (compound fertilizers).

For the purposes of this analysis, the total imports per calendar year are observed as the sum of imports for each of the four tariff codes listed above in the relevant year. The information provided by the Customs Administration on the imports per individual business entities are then cross referenced with the data on imports submitted by said business entities. No sharp variations in data are noted, except in the case of company Elixir Group where, in discussions with the person in charge, is established that a significant share of imports shown in the Customs Administration data relate to the potassium chloride imports, a product treated as a raw material and used in the production of other types of fertilizers, and which, as such, is not shown as imports of fertilizers in the Elixir Group data. The Commission took note of this

information when estimating the synthetic fertilizer market, while solely using the Customs Administration data in this part of the analysis.

Diagram 17 – Synthetic fertilizer imports and average import price, 2017-2019



Source: CPC calculations based on the Customs Administration data

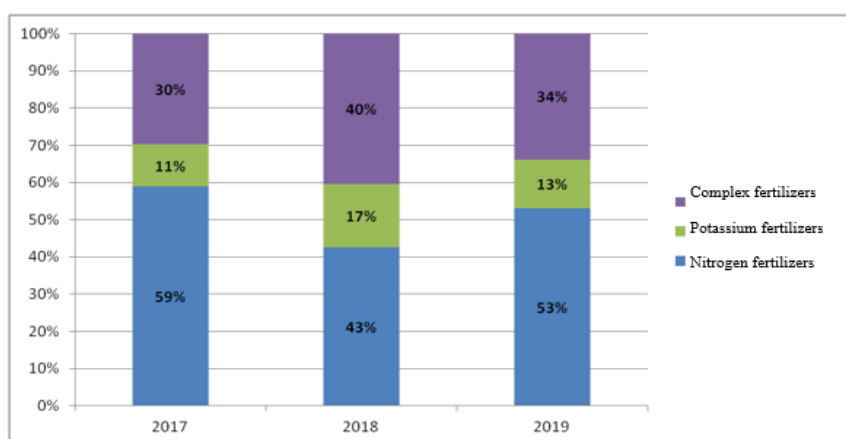
The total synthetic fertilizer imports, calculated as the sum of imported quantities of fertilizers for each of the tariff codes listed above, shows a variable trend in the three-year period observed. After a drop in imports in 2018 against 2017 by one third, 2019 saw an appreciable rise in imports, exceeding the 2017 levels by 5% by the end of the year.

In value terms, imports fell by 27% in 2018 compared to 2017, only to grow by 62% in 2019, exceeding the 2017 levels by 18% by the end of the year.

The average import price within the three-year period increased from 238 to 268 euros per tonne, which represents an increase of 13%.

Nitrogen and compound fertilizers are prevalent in the total imports of mineral fertilizers, the two accounting for between 83% and 89% of the total fertilizer imports by volume. Potassium fertilizers are substantially less prevalent in the imports, while the share of phosphate fertilizers is marginal.

Diagram 18 – Structure of mineral fertilizer imports (import volume)

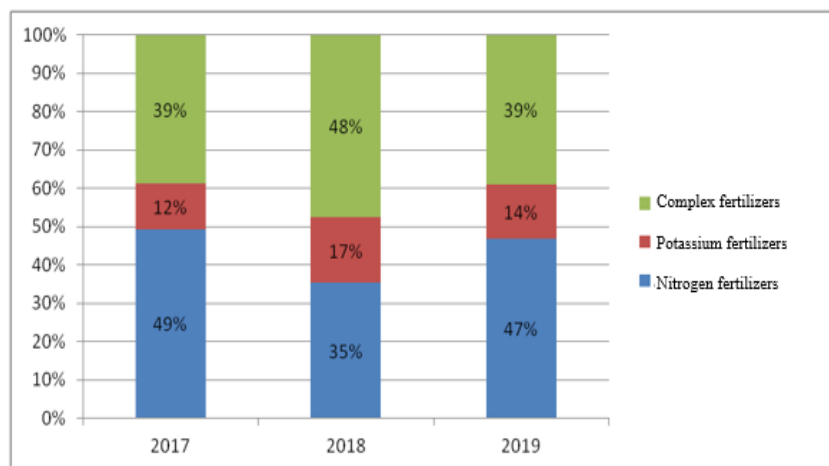


Source: CPC calculations based on the Customs Administration data

Urea containing $\geq 45\%$ by weight of nitrogen stands out in the 2019 nitrogen fertilizer imports, accounting for 55% by volume of the nitrogen fertilizer imports or 29% of the total mineral fertilizer imports. NPK fertilizers are most prevalent in compound fertilizers, accounting for 56% of the compound fertilizer imports or 19% of the total mineral fertilizer imports in 2019. Urea and NPK fertilizers jointly account for around one-half of the total mineral fertilizer imports in the observed period.

By value of imported goods, nitrogen fertilizers account for a sizable share of the fertilizer imports in 2017 and 2019, while compound fertilizers are predominately imported in 2018.

Diagram 19 – Structure of mineral fertilizer imports (import value)



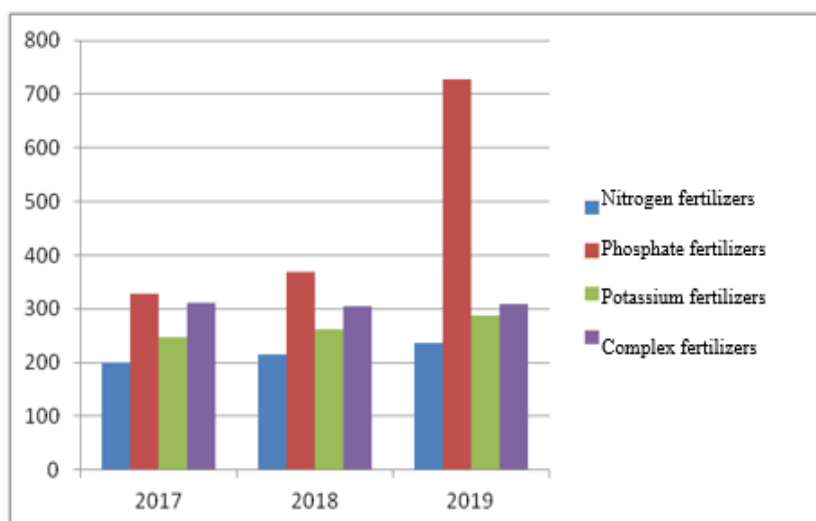
Source: CPC calculations based on the Customs Administration data

By volume of imported goods, the nitrogen fertilizer imports fell by 6% in the observed three-year period, while the imports of other fertilizers increased, mostly of the least widely represented category of phosphate fertilizers, namely by 38%. A major drop of around 50% in the nitrogen fertilizer imports was recorded in 2018 compared to 2017. In 2019, the nitrogen fertilizer imports almost doubled, while the imports of urea, as the most significant type of nitrogen fertilizers, increased 2.8-fold due to, inter alia, bankruptcy declared by company HIP Azotara from Pančevo, once the largest urea producer in the Republic of Serbia.

By value of imported goods, all four categories of fertilizers have recorded a growth in the observed three-year period, ranging from 11% (nitrogen fertilizers) to 45% (potassium fertilizers), while the phosphate fertilizer imports, although marginal, increased three-fold. The increase in the import value is foremost achieved in 2019 relative to 2018 in the categories of nitrogen (114%) and potassium (37%) fertilizers, while the urea imports grew by 204% in value.

The average import price of nitrogen fertilizers was lower than the average import price of other types of fertilizers in the observed period, with a 19% growth over the 3-year period. The complex fertilizers from imports are 30-50% more expensive and their average import price remained almost unchanged, while the most expensive are phosphate fertilizers whose share in the imports is negligible.

Diagram 20 – Average import price per type of fertilizer, in EUR/t

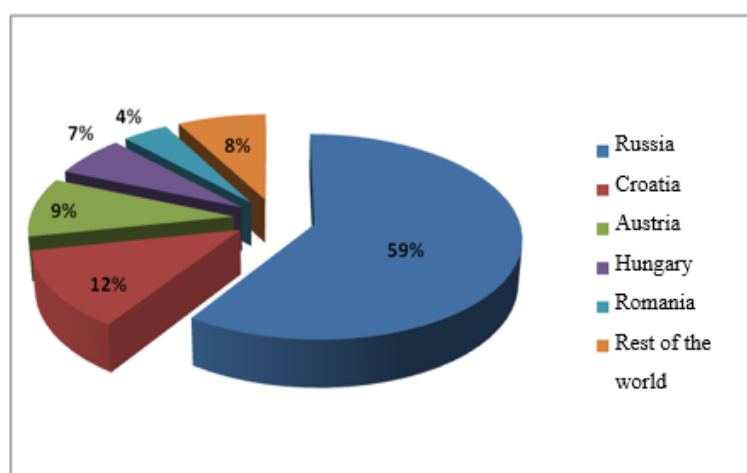


Source: CPC calculations based on the Customs Administration data

Imports by country of origin

Mineral fertilizers are mainly imported from Russia (around 60%), while significantly smaller quantities are imported from the EU, mostly Croatia, Austria, Hungary, and Romania. In the observed three-year period, the imports from these five countries accounted for 92% of the total mineral fertilizer imports.

Diagram 21 – Fertilizer imports by country of origin



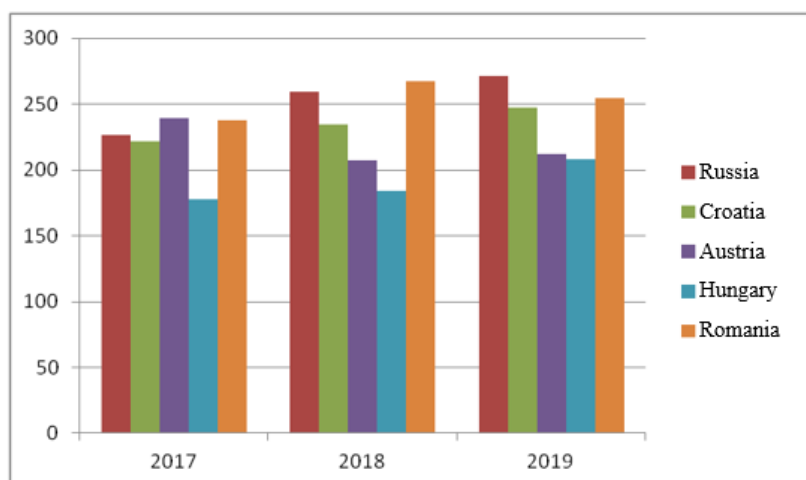
Source: CPC calculations based on the Customs Administration data

In the observed period, fertilizer imports from Hungary and Russia increased by 19% and 8%, respectively, while the imports from other countries fell in the range from 2% (Croatia) to 17% (Austria).

The average price of fertilizers imported from Russia increased in the observed period by 20%, making the fertilizers imported from Russia (among the leading import partners) to become the most expensive fertilizers on the domestic market. Of the listed five countries, only the imports from Austria got cheaper in the three-year period observed by 11%, while the imports from

other countries became more expensive, increasing between 7% (Romania) and 17% (Hungary).

Diagram 22 – Average import price of fertilizers by country of origin, in EUR/t



Source: CPC calculations based on the Customs Administration data

Fertilizer importers

Synthetic fertilizers are freely imported and not burdened with customs duties, which is reflected in the structure of imports, characterized by the presence of a large number of importers, none of which stands out to any substantial degree.

According to the Customs Administration data, the leading fertilizer importer in 2017 and 2018 was company Elixir Group, removed from the leading importer position by company Promist in 2019. Companies Phosagro, Borealis, and Eurochem stand out among other import companies, the five accounting for around 2/3 of the fertilizer imports in 2019. Eight observed undertakings account for between 74% and 86% (in volume) or 68% and 82% (in value) of the total synthetic fertilizer imports in the three-year period.

Diagram 23 – Structure of imports in 2019, in tonnes

[...]

Source: CPC calculations based on the Customs Administration data

By volume of imported goods, the strongest growth in imports in the three-year period observed was achieved by XXX, increasing the imports 2.5-fold compared to 2017. Companies XXX and XXX also achieved a growth in imports, while the remaining importers saw a decline, ranging from 12% to 46%.

5.2. Fertilizer exports

The total synthetic fertilizer exports showed an upward trend in the three-year period observed, increasing by 29% in volume and 51% in value in 2019 compared to 2017. The average export price increased in the three-year period observed from 257 to 299 euros per tonne, which represents a 16% increase.

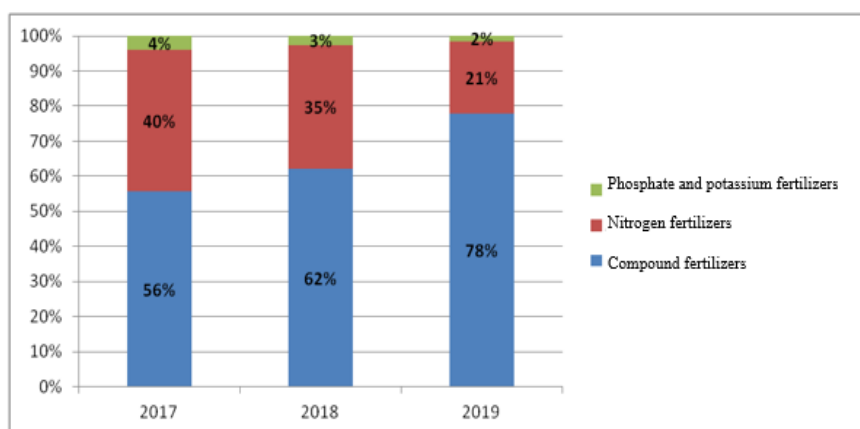
Diagram 24 – Mineral fertilizer exports and average export price, 2017-2019



Source: CPC calculations based on the Customs Administration data

Compound fertilizers classified under tariff code 3105 are most prevalent in the mineral fertilizer exports and their share in the total exports increased in the three-year period from 56% to 78% (in volume) or 69% to 85% (in value), followed by nitrogen fertilizers whose share in the observed period decreased from 40% to 21% (in volume) or 28% to 14% (in value), while the share of other types of fertilizers in the exports remained negligible.

Diagram 25 – Structure of mineral fertilizer exports, in tonnes



Source: CPC calculations based on the Customs Administration data

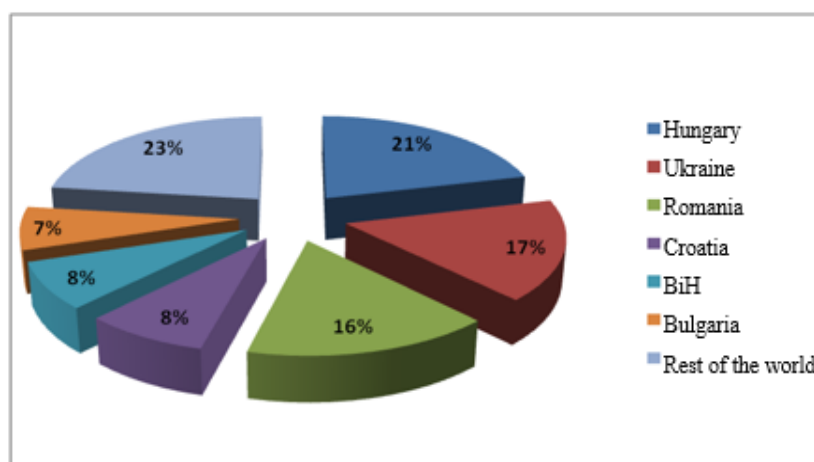
A shift like this in the structure of exports to the benefit of compound fertilizers reflects the changes in the structure of fertilizer production, which can be contributed to the discontinuation of nitrogen fertilizer production in the manufacturing plants of HIP Azotara in 2018. As a result of the discontinuation of nitrogen fertilizer production in this plant, the largest fertilizer exporter in 2019 was company Elixir Group, where compound fertilizers dominate in the production structure.

Exports by country of destination

Mineral fertilizers are mostly exported to Hungary, while Romania, Croatia, Bulgaria, and BiH stand out among other neighboring countries. In 2019, significant quantities of fertilizers are exported to Ukraine, making it the second-largest export destination for Serbia. In the observed

three-year period, exports to these six countries accounted for around 80% of the total synthetic fertilizer exports.

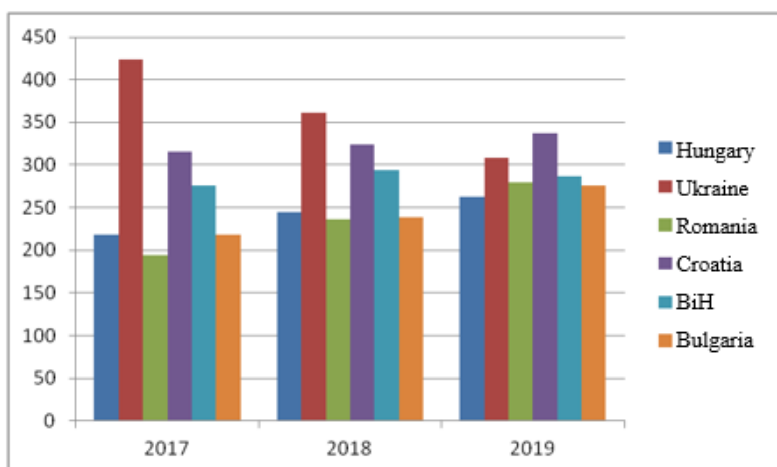
Diagram 26 – Fertilizer exports by country of destination, 2019



Source: CPC calculations based on the Customs Administration data

Compared to the beginning of the observed period, exports to Romania and Ukraine registered the highest growth (more than 2.5 times), while the fertilizer exports to Hungary fell by 21%.

Diagram 27 – Average export price of fertilizers by country of destination, in EUR/t



Source: CPC calculations based on the Customs Administration data

In 2017 and 2018, the highest average export price of fertilizers is obtained on the Ukrainian market, where more expensive, compound fertilizers, were almost exclusively exported, followed by the Croatian market, which reached the highest average export price in 2019. The average export price increased in the observed period, in the range from 4% (BiH) to 44% (Romania), while only the Ukrainian market saw a decline in export price by 27%.

Fertilizer exporters

The largest fertilizer exporter is company Elixir Group, whose share in the total exports increased from /50-60%/ to /70-80%/ (in volume) or /60-70%/ to /80-90%/ (in value) in the observed period. Companies Borealis and Promist stand out among other fertilizer exporters,

the three undertakings jointly exporting around 90% of the total quantities of synthetic fertilizers.

Diagram 28 – Structure of fertilizer exports in 2019, in tonnes

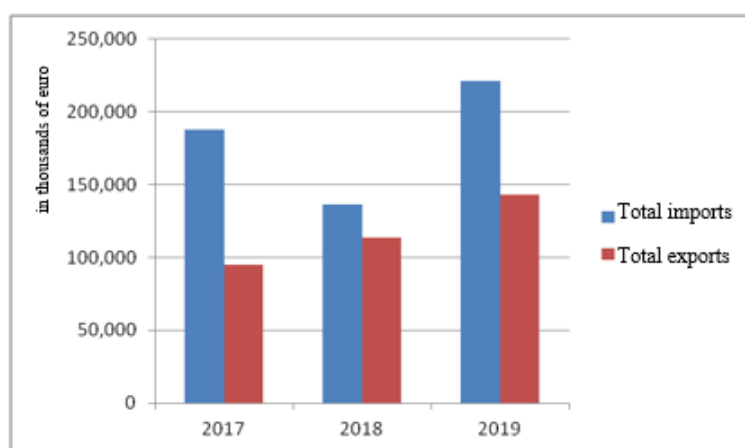
[...]

Source: CPC calculations based on the Customs Administration data

Import content of exports

Owing to the steady expansion of exports and the variable trend in mineral fertilizer imports in the observed period, the mineral fertilizer import content of exports increased from 50% in 2017 to 65% in 2019. The import content of exports was highest in 2018 when the fertilizer imports registered record-low levels for the observed three-year period, reaching 83%.

Diagram 29 – Comparative overview of mineral fertilizer imports and exports, 2017-2019



Source: CPC calculations based on the Customs Administration data

6. Estimated market for synthetic fertilizers and market shares

The total synthetic fertilizer market is estimated as the total fertilizer production plus imports net of exports, stock excluded. Given that the Statistical Office data on the total fertilizer production for 2017 and 2018 are incomplete (foremost in the segment relating to nitrogen fertilizers or urea) and that the Commission lacked other usable data on the total fertilizer production in the relevant years, it was not possible to estimate the fertilizer market for the two years mentioned, instead, the market is estimated based on the data for 2019.

As data on the total fertilizer production in 2019, the Commission relied on the data provided by company Elixir Group given that no other fertilizer production took place in 2019, and also because the Statistical Office showed somewhat lower production levels in 2019. The data on fertilizer imports and exports are sourced from the Customs Administration and cross-referenced with the data on imported and exported quantities supplied by undertakings. The allowance is made for data on the fertilizer imports of company Elixir Group which, for the reasons stated above that concern the potassium chloride imports as raw material, are supplied by the company itself.

A particular analytical challenge concerned the estimate of the fertilizer market by value. This estimate is done by converting the value of imports and exports for each of the four tariff codes into dinars, based on the average middle exchange rate of the dinar for 2019, while the value of production is approximated by multiplying produced quantities by average selling prices for the relevant type of fertilizer⁶. Given the differences in average selling prices between undertakings, two approximations are done, minimal (production x lowest average price) and maximal (production x highest average price), to give an interval value.

Although an estimate like this represents the best possible evaluation of the market size that the Commission could have made based on the data at its disposal, it cannot be considered ideal for at least two reasons. The first reason is that the value of sales of imported goods is approximated by the value of imports, which represents the purchase costs and does not include the importer or distributor margin. The second reason relates to the fact that undertakings, manufacturers and importers, trade with each other, thus their sold quantities, in aggregated terms, overestimate the fertilizer market by around 50%. In this regard, the value of goods sold from direct import and the value of goods sold that are previously procured on the domestic market, from manufacturers and/or other importers⁷, could not be differentiated in the total value of goods sold. Against that background, individual average selling prices, calculated as the ratio of the value of sales to the quantities sold, may contain margins of several undertakings in the trade cycle and, as such, are not a good indicator of the value of goods from indigenous production. For that reason, the value of production is estimated in the range between the minimal value, obtained as a product of the quantities produced and the lowest average selling price, and the maximal value, obtained as a product of the quantities produced and the highest average selling price. The estimate of the production value made in this manner has enabled the Commission to estimate the entire fertilizer market in the interval between the estimated minimal and the estimated maximal value. Given that compound fertilizers have a significant share in the total fertilizer production on the domestic market, the difference between the estimated minimal and maximal value is highest for compound fertilizers, while relatively negligible for nitrogen fertilizers.

In this manner, the total synthetic fertilizer market in 2019 is estimated at around 806 thousand tonnes. In value terms, the total fertilizer market is estimated at between 27.1 billion dinars (229,95 million euros) and 31.6 billion dinars (268.13 million euros). The fertilizer market estimated in this way only slightly deviates from the data provided by XXX, assessing the total fertilizer market in 2019 at [...] ⁸.

Table 1 – Estimated synthetic fertilizer market in 2019, in tonnes

[...]

Source: CPC calculations based on data supplied by the Customs Administration and undertakings

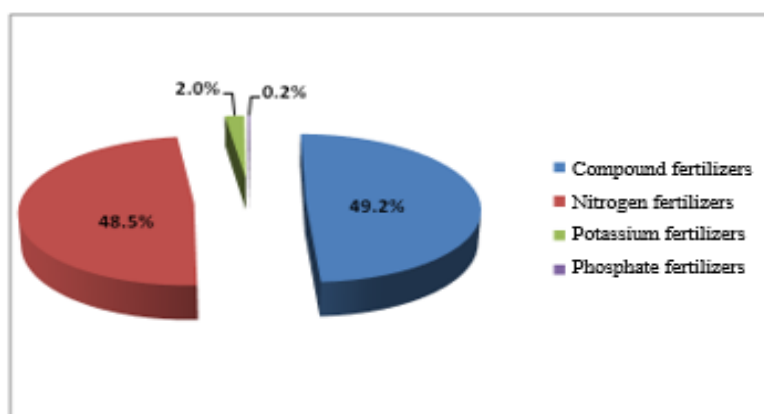
Compound and nitrogen fertilizers are pronounced in the structure of the synthetic fertilizer market, accounting for around 49% of the market share each. The market share of potassium fertilizers is 2%, while the share of phosphate fertilizers is marginal.

⁶ Except for phosphate fertilizers whose sales figures are presented by a single undertaking, thus the market value is observed as the value of phosphate fertilizer sales of the said company. XXX

⁷ This does not relate to phosphate fertilizers for the reasons stated above (Footnote 6), as well as to potassium fertilizers where no domestic production took place.

⁸ Estimates by individual types of fertilizers also only slightly deviate from the estimates provided by the majority of undertakings included in the sample.

Diagram 30 – Structure of the synthetic fertilizer market in 2019, in tonnes



Source: CPC calculations based on data supplied by the Customs Administration and undertakings

The highest turnover by volume on the synthetic fertilizer market in 2019 is achieved by company Elixir Group, whose market share is estimated at /20-30/%⁹, followed by Promist and Phosagro with the estimated share of /20-30/% and /10-20/%, respectively, and Eurochem with the estimated share of /5-10/%. Individual turnover of other undertakings and distributors in 2019 did not exceed [...] tonnes, while their individual market shares remained below 6%. Eight observed undertakings jointly generated around 90% of the estimated turnover in synthetic fertilizers in 2019.

Diagram 31 – Estimated turnover in fertilizers on the Serbian market in 2019, in tonnes

[...]

Source: CPC calculations based on data supplied by the Customs Administration and undertakings

Table 2 – Estimated market for synthetic fertilizers in 2019, in million RSD

[...]

Source: CPC calculations based on data supplied by the Customs Administration and undertakings

In value terms, compound fertilizers have a share between 45% and 51% on the market, followed by nitrogen and potassium fertilizers with a 37-41% and 12-14% share, respectively, while the share of phosphate fertilizers is marginal.

The markets for nitrogen and compound fertilizers are in more detail analyzed below, considering that the two fertilizers are predominant on our market.

6.1. Nitrogen fertilizer market

The market for nitrogen fertilizers in 2019 is estimated at around 390 thousand tonnes, which does not deviate significantly from the estimates provided by undertakings included in the sample. In value terms, the estimated nitrogen fertilizer market ranges between 11.2 billion dinars (95.03 million euros) and 11.6 billion dinars (98.43 million euros). Around 60% of the

⁹ XXX.

estimated nitrogen fertilizer market relates to urea. Out of nitrogen fertilizers offered on the domestic market, only AmoSulfan is produced in manufacturing plants owned by company Elixir Group, while other nitrogen fertilizers (urea, AN, CAN) are imported.

Diagram 32 – Structure of the nitrogen fertilizer market, 2019

[...]

Source: CPC calculations based on data supplied by the Customs Administration and undertakings

Companies Phosagro, NitroPet, Agroglobe, and Eurochem are prominent importers on the nitrogen fertilizer market. XXX

Eight observed undertakings jointly account for 81% of the estimated nitrogen fertilizer market in 2019.

Urea

Urea is a nitrogen fertilizer sourced from abroad in 2019 due to the lack of domestic production of this particular compost. The market for urea as the most represented type of nitrogen fertilizer on our market is estimated at around 228 thousand tonnes in 2019, which does not deviate significantly from the estimates provided by undertakings, ranging between 220 to 250 thousand tonnes. In value terms, the urea market is estimated at around 7 billion dinars (59,4 million euros), which does not deviate significantly from the estimates provided by individual undertakings, stating that the market value is between 6 and 8 billion dinars.

Diagram 33 – Estimate of urea turnover on the Serbian market in 2019, in tonnes

[...]

Source: CPC calculations based on data supplied by the Customs Administration and undertakings

Company Phosagro with a /20-30/% share stands out among other observed undertakings, followed by Eurochem and Agroglobe with a /10-20/% and /10-20/% share, respectively. XXX

Eight observed undertakings account for 84% of the total estimated urea turnover generated on the Serbian market in 2019.

The differences in market share estimates based on the Commission's and data supplied by undertakings can be explained by the fact that undertakings have based their own estimates on the sales made, which also include the sales of fertilizers previously procured from other suppliers on the domestic market. On the other hand, the Commission based its estimates on the data on produced and imported quantities net of exports, to avoid the trade between undertakings themselves.

6.2. Compound fertilizer market

The compound fertilizer market is estimated at around 400 thousand tonnes, which matches the estimates made by undertakings active on this market. XXX. In value terms, the compound fertilizer market is estimated in the range between 12 and 16 billion dinars or 101.82 and 135.76 million euros.

Companies Elixir Group, Promist, and Phosagro are the most relevant undertakings on the compound fertilizer market, the three jointly accounting for around 90% of the estimated compound fertilizer market in 2019.

Diagram 34 – Estimate of compound fertilizer turnover in 2019, in tonnes

[...]

Source: CPC calculations based on data supplied by the Customs Administration and undertakings

Complex (NPK) fertilizers

Around 3/4 of the compound fertilizer market is held by complex or NPK fertilizers. The complex fertilizer market is estimated at around 270 thousand tonnes, which is somewhat lower than the estimates made by undertakings themselves, stating that the market volume in 2019 has reached the level of around 300 thousand tonnes. The difference of around 30 thousand tonnes may represent the sale of stock from the previous period, but also a limited coverage of imports considering the insufficient precision and clarity of tariff codes in this category.

Considering that four out of eight undertakings have estimated this market at 300 thousand tonnes, the market shares are calculated by reference to the market estimated in this manner.

In value terms, the complex fertilizer market is estimated at between 8 and 9 billion dinars or 67.88 and 76.37 million euros, which is somewhat lower compared to the estimates provided by individual undertakings, stating that this market is worth around 10 billion dinars (84.85 million euros).

Diagram 35 – Structure of the NPK fertilizer market in 2019, in tonnes

[...]

Source: CPC calculations based on data supplied by the Customs Administration and undertakings

Company Elixir Group is the most relevant undertaking on the complex fertilizer market with the estimated share at /40-50/% in 2019¹⁰, followed by Promist with a /20-30% estimated share, while the remaining importers jointly account for around 1/4 of the market.

6.3. Wholesale trade of synthetic fertilizers (data supplied by undertakings)

The following undertakings have provided data on the sales quantities and sale value of synthetic fertilizers:

- Elixir Zorka, and Elixir Prahovo (Elixir Group);
- Promist;
- Agroglobe;
- Konzul;
- Eurochem;

¹⁰ Elixir Group self-assessed its own share on the complex fertilizer market in 2019 at around [...] %.

- NitroPet;
- Phosagro, and
- Borealis.

Following a drop in sales in 2018 compared to 2017 by 10% (in volume) or 8% (in value), the total fertilizer sales made by eight observed undertakings grew by 45% (in volume) or 47% (in value) in 2019, exceeding the levels achieved at the beginning of the observed three-year period by 29% (in volume) or 36% (in value) by the end of 2019.

In this part of the analysis, the Commission considered the data on external sales and domestic revenue from the Elixir Group's consolidated financial statement. Given that the turnover figures by individual type of fertilizers are not shown in the consolidated financial statement, instead, said data are presented in the subsequent submissions for companies Elixir Zorka and Elixir Prahovo, the combined turnover of the two companies is observed when analyzing the turnover per individual type of fertilizers, which did not allow for the exclusion of mutual sales made by these two companies and sales to other companies within the group.

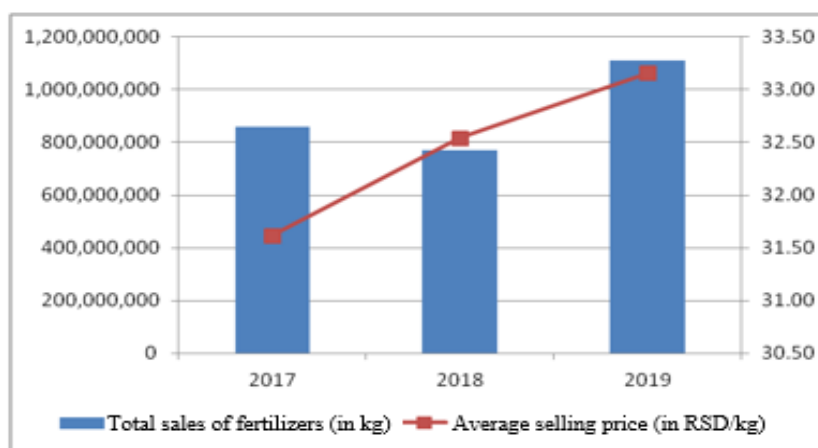
The average sale price of fertilizers shown an upward trend in the period observed, increasing by 5% in 2019 compared to 2017.

The observed undertakings sell fertilizers to each other, other importers/distributors and agricultural producers, while the average share of the ten largest buyers in the 3-yr total trade of fertilizers ranges between 23% and 82%.

XXX

The diagram below shows the total sales of synthetic fertilizers for the observed eight undertakings (left Y axes) and the average selling price (right Y axes), expressed as the quotient of the total value of sales and the total sales quantities.

Diagram 36 – Total sales of fertilizers and average selling price, 2017-2019



Source: CPC calculations based on data supplied by undertakings

Observed individually, four out of eight undertakings experienced reductions in turnover volume in 2018, ranging from 10% to 45%. All of the observed undertakings, except for XXX and XXX, have increased the turnover in fertilizers in 2019, from 12% to as much as 650%. XXX was the only undertaking to report a constant 3-y reduction in turnover, reaching 20% (in volume) or 18% (in value).

However, it should be noted that the data on turnover in fertilizers presented in this manner, when observed in aggregate terms, significantly overestimate the fertilizer market and cannot be used to estimate market shares. The main reason (as already explained) represents the fact that importers and distributors trade among each other and that the procurement from other importers and the sales to other traders represent a significant share of their turnovers, which are then included in the total quantities sold and increase the quantities of fertilizers placed on the market from the domestic production sources and direct imports. Given that the Commission lacked complete data on the actual production in 2017 and 2018, and that the market was only possible to estimate for 2019, it is evident that when comparing the market estimated in this manner and the total sales made by eight observed undertakings, the total turnover of said undertakings exceeds the estimated market by almost 50%.

In light of the foregoing, the Commission did not further compare the sales quantities and the value of sales made in the trade between individual undertakings, instead, its primary focus was placed on the selling price analysis and price dynamics during the period observed.

7. Fertilizer selling price analysis

7.1. Average annual selling price analysis

The average selling price of fertilizers of each undertaking included in the sample is calculated as the ratio of the total value of sales to the total sales quantities. The diagram below shows the average annual selling prices for eight observed undertakings.

Diagram 37 – Average selling prices of synthetic fertilizers in RSD/kg, 2017-2019

[...]

Source: CPC calculations based on data supplied by undertakings

The illustration above allows for the conclusion that the lowest average selling price in the observed three-year period was achieved by XXX, offering only nitrogen fertilizers. Companies XXX, XXX, XXX, and XXX take turns on the most expensive list, offering wider variety of fertilizers, while XXX's selling price was below the average selling price achieved throughout the entire observed period.

In the three-year period observed, the average selling price of all observed undertakings has increased in the range from 3% to 22%.

Nitrogen fertilizers

Nitrogen fertilizers account for around half of the total turnover in synthetic fertilizers of eight observed undertakings.

XXX

The total turnover in nitrogen fertilizers, calculated as the sum of turnovers of eight undertakings included in the sample, increased by 18% (in volume) and 34% (in value) compared to 2017, while the average selling price increased by 13%.

The lowest average selling price of nitrogen fertilizers in the observed period is achieved by companies XXX and XXX, while the highest average price is recorded by XXX, XXX, and XXX.

In the observed period, the average selling price of nitrogen fertilizers of the majority of undertakings included in the sample has increased in the range from 2% to 27%. Companies XXX and XXX represent an exception, whose average selling prices in 2019 were by 1-2% lower than in 2018.

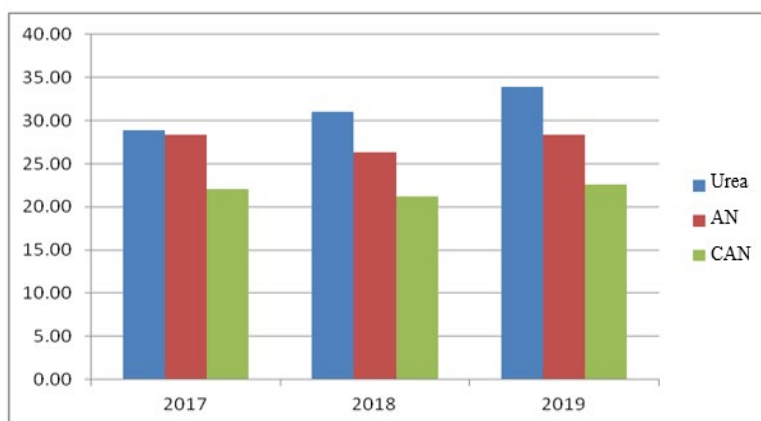
Diagram 38 – Average selling prices of nitrogen fertilizers in RSD/kg, 2017-2019

[...]

Source: CPC calculations based on data supplied by undertakings

By type of nitrogen fertilizers that can be found on the domestic market, urea was the most expensive fertilizer in the entire observed period, with the average price increasing from 28.9 to 33.9 dinars per kilo, while AN, and in particular CAN, were much more affordable options.

Diagram 39 – Average selling prices of nitrogen fertilizers by types, in RSD/kg



Source: CPC calculations based on data supplied by undertakings

Urea

Urea is the most represented type of nitrogen fertilizers, accounting for 55% of the total turnover in nitrogen fertilizers of eight observed undertakings in 2019. This data does not deviate considerably from the previously estimated urea market, according to which urea accounts for around 60% of the total market for nitrogen fertilizers.

The total turnover in urea of eight observed undertakings fell by 42% in 2018 compared to 2017, only to more than double in 2019, increasing by 33% (in volume) or 56% (in value) compared to 2017. The average selling price of urea showed a positive trend, increasing by 17% in the three-year period.

Diagram 40 – Average selling prices of urea in RSD/kg, 2017-2019

[...]

Source: CPC calculations based on data supplied by undertakings

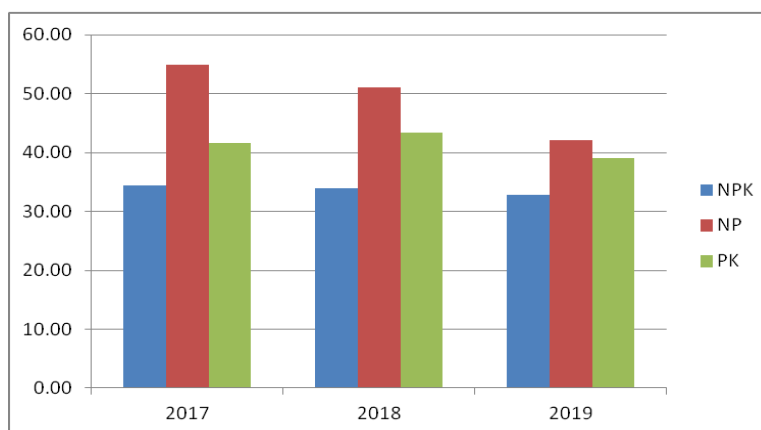
The chart given above indicates that the average selling prices of urea of the majority of undertakings have been relatively uniform during 2019, fluctuating from 32 to 33 dinars per kilo, while only companies XXX and XXX have deviated with a somewhat higher average selling prices. Such uniformity in average selling prices could be explained by the fact that no domestic production of urea in 2019 took place, instead, the entire range of urea was based on imports. On the other hand, when domestically manufactured urea was placed on the market in addition to the imported urea in 2017 and 2018, more pronounced price variations between individual undertakings have been noted in terms of the average selling prices of this particular type of fertilizer.

Compound fertilizers

Three-component NPK fertilizers, providing nitrogen, phosphorus and potassium, are the dominant type of compound fertilizers, accounting for between 71% and 79% in volume of the total turnover in compound fertilizers of eight observed undertakings¹¹. NP fertilizers account for between 16% and 23% of the total turnover, while the share of PK fertilizers is negligible.

If compared, the average annual selling prices of NPK, NP and PK fertilizers have all showed a downward trend. In 2017 and 2018, by far the most expensive were NP fertilizers, closely followed by PK fertilizers in 2019, which have a negligible share of the domestic market and are sold by two undertakings only.

Diagram 41 – Average selling prices of NPK, NP and PK fertilizers, in RSD/kg



Source: CPC calculations based on data supplied by undertakings

The average selling price of NPK fertilizers showed a downward trend in the period observed for all observed undertakings, except companies XXX and XXX which kept the prices at the 2017 level. In 2019, the average selling price of eight observed undertakings was by 5% lower than in 2017, while the total turnover in these types of synthetic fertilizers increased by 46% (in volume) or 39% (in value).

¹¹ Based on the previously estimated market for compound fertilizers, NPK fertilizers account for $\frac{3}{4}$ or 75% of the compound fertilizer market in volume terms.

Diagram 42 – Average selling prices of NPK fertilizers in RSD/kg, 2017-2019

[...]

Source: CPC calculations based on data supplied by undertakings

The highest average selling prices of NPK fertilizers in 2017 and 2018 were achieved by companies XXX and XXX, and XXX and XXX in 2019, while company XXX offered the most affordable or one of the most affordable prices of NPK fertilizers during all three observed years.

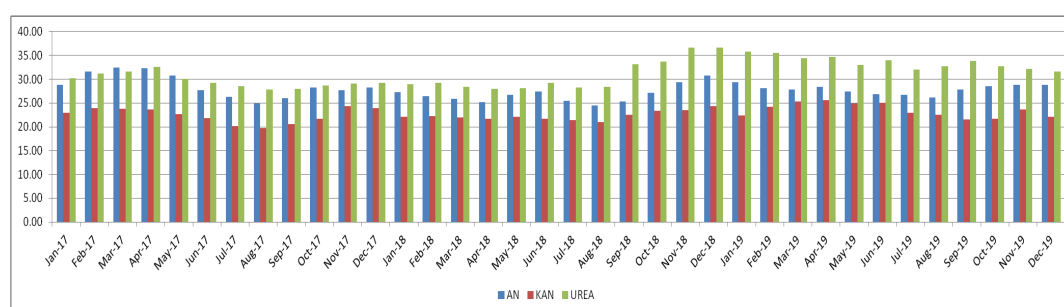
XXX

7.2. Average monthly selling price analysis

In addition to data on the sales quantities and total value of sales for all types of fertilizers used to calculate the average annual selling prices, undertakings were also requested to provide data on the average monthly prices for each type of fertilizer in their offer for the period from January 2017 to December 2019. The average selling prices for each month of the year are then calculated as the simple arithmetic mean of average selling prices¹² of all undertakings offering said fertilizers in a given month.

Taking into account the share of individual types of fertilizers in the total turnover in fertilizers, a side-by-side comparison of trends in average selling prices of nitrogen fertilizers - urea, AN and CAN is provided, followed by a side-by-side comparison of trends in average selling prices of compound fertilizers – NPK and NP.

Diagram 43 – Dynamics of average monthly prices of nitrogen fertilizers, in RSD/kg

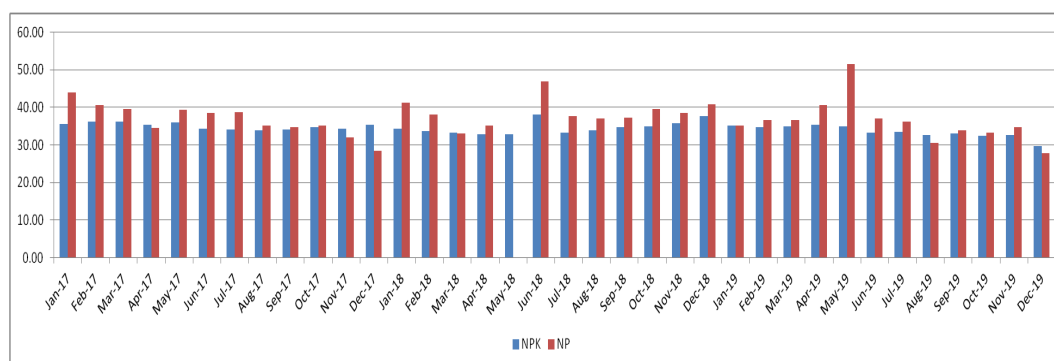


Source: CPC calculations based on data supplied by undertakings

This side-by-side comparison of trends in average monthly prices of three types of nitrogen fertilizers shows that CAN fertilizers were the most affordable throughout the entire observed period, while urea was the most expensive fertilizer for a significant duration of the observed period. The difference between the average selling prices of urea and AN fertilizers was particularly pronounced in the period from September 2018 to September 2019, followed by a gradual convergence of average monthly prices of the two types of fertilizers, seen in a mild growth in AN fertilizer prices and a declining trend in urea prices.

¹² Given that the Commission lacked data on the quantities sold on a monthly basis, it was not possible to calculate the weighted average selling price.

Diagram 44 – Dynamics of average monthly prices of compound fertilizers, in RSD/kg

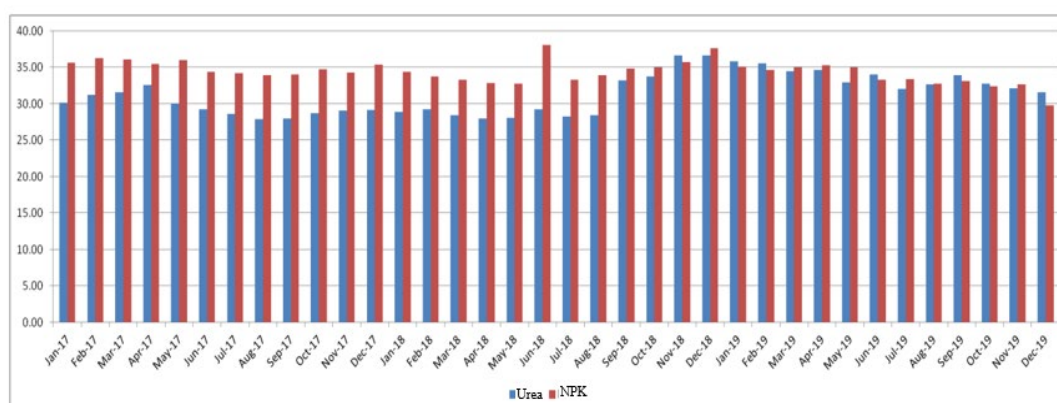


Source: CPC calculations based on data supplied by undertakings

The average monthly prices of NP fertilizers were mainly above the average monthly prices of NPK¹³ fertilizers throughout the observed period. Both types of fertilizers showed relatively uniform price trends in the observed period, with no sharp deviations but with few exceptions.

The diagram below offers a side-by-side comparison of trends in average selling prices of two, individually most represented types of fertilizers – urea and NPK, in the period 2017-2019.

Diagram 45 – Trends in average monthly prices of urea and NPK fertilizers, in RSD/kg



Source: CPC calculations based on data supplied by undertakings

Based on the diagram above, two parallel trends can be noted.

The first notable trend is the increase in the average selling prices of urea from August to November 2018, when the price reached record high levels in the observed three-year period. Following the growth momentum, a stagnation occurred with a subsequent mild drop in the average selling prices through the end of the observed period, when the prices returned to the early 2017 levels. Parallel to that, the average price of NPK fertilizers showed a variable trend throughout the entire observed period, alternating between mild boom and bust cycles, mostly without any major and sudden oscillations.

This trend in the average selling prices of urea in the second half of 2018 could be partially explained by the supply reductions, caused by the discontinuation of production in the only

¹³ For undertakings XXX and XXX, and XXX and XXX, the prices of NPK fertilizers offered in a 16:16:16 (16% nitrogen, 16% phosphorus, and 16% potassium) and 15:15:15 ratio, respectively, were taken into account since the respective series of data by month were more complete. Other undertakings have shown only one series of data by month for NPK fertilizers.

domestic urea factory, HIP Azotara, and the opening of insolvency proceedings followed by the company's bankruptcy¹⁴. After the initial market reaction to the price change, i.e., supply reductions from domestic sources, an increase in the imports of this particular type of fertilizer occurred, causing the market to stabilize in early 2019, followed by a subsequent gradual drop in the average selling prices of urea on the market.

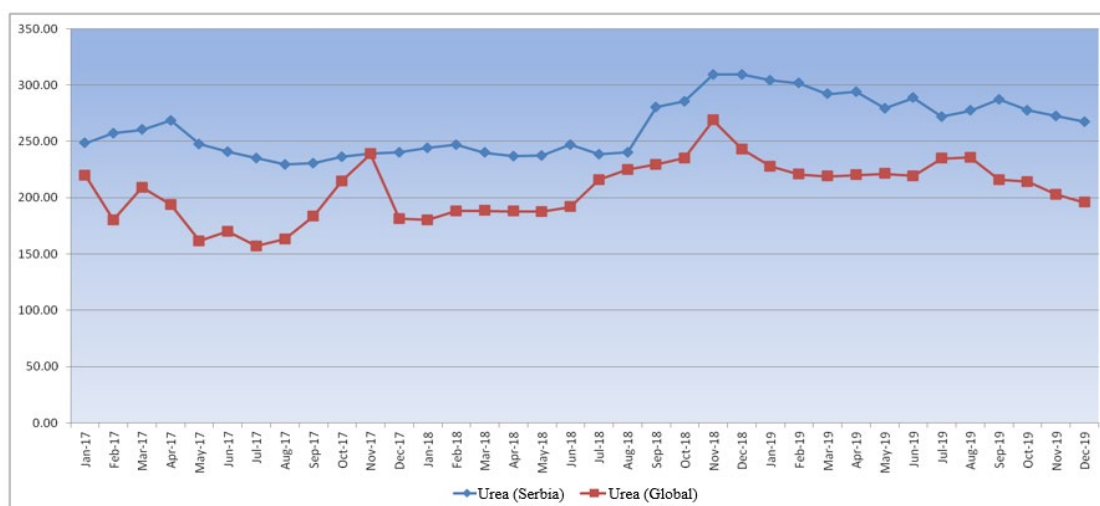
The second notable trend, which is a direct consequence of the first one, is the gradual convergence of average selling prices of the two types of fertilizers after September 2018, causing the average selling prices of urea to be above the average selling prices of the traditionally more expensive NPK fertilizers during certain months of that period.

To explain in more detail the price trends of urea on the domestic market in the second half of 2018, the diagram below shows a side-by-side comparison of trends in the average monthly selling prices of urea on the domestic and global market.

The series of data by month on the global urea prices for the 3-year period presented in euro per tonne, are sourced from the website: <https://www.indexmundi.com/commodities/?commodity=urea&months=60>.

The average monthly selling prices of urea on the domestic market are converted into euros, applying the average middle exchange rate of the dinar available on the official website of the National Bank of Serbia: https://www.nbs.rs/export/sites/default/internet/cirilica/scripts/kl_period.html.

Diagram 46 – Trends in average monthly prices of urea on the domestic and global market, in EUR/t



Based on the chart provided above, it can be noted that the average monthly selling price of urea on the domestic market was constantly above the average monthly price on the global market throughout the entire observe period, but that it has generally mirrored its trend, with somewhat milder oscillations in the first part of the observed period.

The average monthly prices on the domestic and global market have adjusted to a degree from September to November 2017 when the average selling prices almost equalized, and from July

¹⁴ Given that the Commission lacked the data on urea production in 2017 and 2018 and on the supply of these fertilizers on the domestic market, this is only a presumption.

to November 2018 when the prices of this particular fertilizer increased both on the global and domestic market.

From December 2018 to the end of the observed period, prices of urea on both markets have first dropped, only to stabilize and later experience mild oscillations, followed by their gradual differentiation. The exception is the months of July and August 2019, when the average prices of urea on the domestic and global market again recorded variations below the average values.

To check the degree of association between the prices of urea on the domestic and global market, a correlation analysis of the average selling prices is done as the next step in the analysis. The correlation coefficient is a measure of the strength (degree) and direction of a relationship between the relative movements of two variables. In this specific example, we have used the Pearson coefficient of linear correlation whose values range from (+1) indicating a perfect positive linear correlation to (-1) indicating a perfect negative linear correlation. The values close to 0 are said to have a very weak linear correlation or no linear relationship.

The correlation analysis resulted in a positive correlation coefficient between two series of data, amounting to 0.7, indicating a moderate correlation between time series on the average monthly prices of urea on the domestic and global market.

7.3. Analysis of wholesale trade margins on urea

Considering that a side-by-side comparison of the 3-y average monthly prices of urea on the domestic and global market has shown that the average selling prices of urea on the domestic market were above the average selling prices on the global market throughout the entire observed period, the margins of importers and wholesale traders of this fertilizer are estimated based on all available data.

To this effect, we have first compared the data series by month on the urea selling prices on the two markets and calculated the 3-y average price deviations (the first approach), and then compared the average annual selling prices of urea for each of the eight undertakings included in the sample against the average import prices (the second approach).

Based on the observations of data series by month on the average selling prices, given in euro per kilo, it could be concluded that the 3-y average selling price of urea on the domestic market was on average 28% higher than the average selling price on the global market. On the other hand, if we observe the urea selling price on the global market as the purchase or import price, and if the difference between the average selling prices on the two markets is weighted up against the average selling price on the domestic market, it derives that the 3-y average gross margin of importers was around 21%. If we observe the average price differences, broken down by year, it derives that the average gross margin was the highest in 2019 when it reached 23%, while the lowest in 2018 at 18%.

However, given that the data series by month on the global urea prices represent the average prices, and that the average urea price on the global market is not necessarily the actual import price for each individual undertaking, in the second approach we have compared the actual average import prices and the average selling prices for the eight observed undertakings. The average import prices of each importer are calculated based on the Customs Administration data on the volume and value of imports for the tariff code 3102101000 – *Urea containing more than 45% by weight of nitrogen on the dry anhydrous product*, while the average import

price for the market as a whole is calculated as the ratio of the total value of imports to the total imported volumes of the observed undertakings for the given tariff code. The average import prices are then converted to dinars, based on the average middle exchange rate of the dinar for the relevant year. The data on the average import price for 2017 does not include companies XXX and XXX, which have not imported urea during that period. The data on the average import price and the average export price for 2018 does not include company XXX, since the company showed no urea imports in 2018, instead, it has but only domestically procured urea from other importers. The results of the analysis based on the second approach are presented in the following diagram.

Diagram 47 – Average gross margin in wholesale trade of urea

[...]

Source: CPC calculations based on data supplied by the Customs Administration and undertakings

The average gross margin of importers included in the sample had a negative 3-y trend, dropping from 14.3% in 2017 to 9.7% in 2019. Observed individually, the average gross margin of six undertakings was reduced in the three-year period observed, three of which have increased their margins in 2019 after a more significant drop in 2018 compared to 2017, although the margin values stayed substantially below the 2017 levels.

If we compare the results of the analysis based on the two described approaches, it can be concluded that they differ significantly, both in terms of the estimated gross margin and in its trend over the three-year period, which, inter alia, can be explained by the following factors.

Firstly, the analysis founded on the first approach is based on the average monthly selling prices, used to calculate the annual averages, while the analysis founded on the second approach is based on the annual averages of import and export prices, calculated as the ratio of the total value of imports/sales to the total imported/sold quantities.

Secondly, the average selling prices on the global market in the first approach are observed as “purchase prices” of importers, which need not necessarily be and most often is not the case. Also, individual importers and wholesale traders have procured urea in 2017 and 2018 on the domestic market, which could not be taken into account in this analysis.

Thirdly, calculations of the average import prices in total and per importers are based on the data supplied by the Customs Administration for one tariff code, while is realistically possible that the urea imports are partially covered by some other tariff codes.

Fourthly, the average monthly selling price of urea on the domestic market in the first approach is based on the simple arithmetic mean of the average prices of all observed undertakings, on account of unspecified quantities, in order to perform the weighting. On the other hand, in the analysis based on the annual data, the average prices are calculated as the weighted average.

The above-mentioned limitations can explain, to a degree, discrepancies in the results of the analysis; however, based on the above considerations it could be concluded, nonetheless, that the results of the analyses founded on the second approach, based on the data by individual undertakings, represent a better indicator of the level and trend of the average gross margin on the market observed.

8. Categorization of buyers and assessment of competitive market conditions

8.1. Categorization of buyers and rebate policy analysis

At the request of the Commission, only one undertaking has provided an official categorization of buyers, while others have stated that they do not have any particular plan of categorization of buyers, with one citing a variability in the supply and demand chain as the reason for such business approach. Two undertakings have stated that despite the lack of an official plan of categorization, they nonetheless perform certain informal cataloging of buyers by quantities of mineral fertilizers purchased on an annual basis.

XXX

The majority of undertakings included in the sample also stated that their internal rules do not define the rebate policy, while only two undertakings have provided the rebate scales.

Four companies explicitly stated that they do not have a rebate policy.

Two companies have stated that they do not have an official rebate policy, instead, they negotiate prices with each individual buyer, ensuring that the largest buyers are offered the most advantageous terms. The conditions prevailing on the global market, competitive supply and logistical constraints (for example, low water levels on the Danube) have the strongest impact on pricing. According to these companies, the prices are negotiated and agreed on several times in a season (in several lots), since there are only few buyers that buy the total amount of fertilizers at once, instead, driven by uncertainties in terms of fertilizer needs, they mostly buy in several lots throughout a year.

XXX

8.2. Assessment of competitive conditions on the market

Undertakings were also requested to present their perception of the competitive conditions prevailing on the fertilizer market and on the existence of potential barriers to market entry.

All undertakings, without exception, have stated that the market is open and shows no barriers to entry that affect or could potentially affect the pro-competitiveness of this market. According to their statements, the imports and distribution of mineral fertilizers in Serbia are clearly and precisely defined in national laws, regulations and rulebooks, while the competitive environment is intense like never before.

Synthetic fertilizers are imported to Serbia at zero rate of import and with no quantitative restrictions which are advantages that, according to undertakings, are mostly used by manufacturers and distributors of synthetic fertilizers from the Russian Federation, entities that are also positioned as global leaders on the synthetic fertilizer market. According to one company, a complete raw material resource base and existing production capacities of the Russian synthetic fertilizer producers enable them to offer conventional synthetic fertilizers at very affordable prices. One of the companies indicated that with such position of the Russian manufacturers, national manufacturers and importers of synthetic fertilizers are put in a price-taker situation. Also, the company also stated that there are no transport barriers to place foreign manufacturers in a less favorable competitive position on the domestic market, since the

transport en route from the Black Sea, Port of Constanța to the Danube Port in Serbia is relatively inexpensive and has no significant effect on the final price of synthetic fertilizers.

XXX

One of the companies indicated that primary agricultural producers as individual independent farmers, particularly in the Central Serbia region, have developed a deep-rooted orientation to the use of synthetic fertilizers manufactured by the Russian companies. According to the company, domestic consumers believe that said fertilizers are most qualitative and affordable.

According to one of the surveyed companies, manufacturers and distributors of synthetic fertilizers from the Western Europe region also benefit from the free import of synthetic fertilizers on the Serbian market. In the absence of barriers to market, they highly efficiently build their competitive positions with primary agricultural producers that can afford to allocate more resources to synthetic fertilizers given their financial position, particularly to high potential fertilizer technologies which (declaratory) have a significant impact on the crop efficiency. Undertakings covered by the analysis have also stated that the manufacturing plants located in Hungary, Romania, and Austria, with representative offices in Serbia as well, have expanded their capacities in the previous period, while the Bulgarian plant and Petrokemija Kutina from Croatia do not have registered “daughter” companies in Serbia, instead, they place their products through a network of importers backed by the manufacturing support logistics.

9. Analysis of contractual provisions

The analysis of contractual provisions is based on contracts and supporting documentation (annexes, purchase orders, etc.) supplied by undertakings included in the sample. The table below shows the key features of consumer contracts.

Table 3 – Overview of key features of contracts

[...]

Source: Contracts and purchase orders supplied by undertakings

Based on the contracts and supporting documentation provided, it can be concluded that they concern sales and purchase agreements concluded for a period of up to one year. Also, in direct relation to business policies of individual wholesale traders, two of the wholesale traders observed have not entered into one-off contracts given that they are direct importers of mineral fertilizers. Other wholesale traders were open to the possibility of one-off contracts to purchase mineral fertilizers. A certain number of wholesale traders use the umbrella (general) contracts that can be supplemented by annexes depending on the consumer needs. In accordance with contractual provisions, delivery can be one-off or successive. The majority of wholesale traders use both methods of delivery.

The leading method of payment is in cash, while all wholesale traders use the currency clause pegged to euro, except for one that pegged to dollar. Noting the fact that wholesale traders engaged in the wholesale trade of other seed goods and supplies for agricultural production are also present on the wholesale trade market for mineral fertilizers, two of the wholesale traders included in the sample have also entered into barter agreements. Based on their features, these agreements have a form of forward contracts, thus the prices of goods as means of payment are

linked to the prices at the commodity brokerage Produktna berza in Novi Sad. The agreements supplied by two wholesale traders specify that their buyers also undertake to sell additional quantities of goods to the wholesale trader based on a written request, as payment for mineral fertilizers. However, the agreements also specify that the price cannot be lower than the price of goods at the time of conclusion of said agreements. In that manner, the risk of a reduction in the trading price is fully passed on to the wholesale trader, which ensures the stability of production.

Apart from wholesale traders that enter into forward contracts, all other wholesale traders request advance payments before delivery of the agreed quantities of mineral fertilizers, except for one that also allows payment plans. Given that a certain number of contracts are set as a one-off selling and purchase solution, they also specify the quantities of mineral fertilizers to be purchased, as well as the price. In other types of agreements, fertilizers are presold, most often up to one year in advance, thus the payments can be successive although all of the payments must be made before receiving the goods. The realization and delivery times are set depending on the consumer needs; therefore, the majority of wholesale traders deliver mineral fertilizers based on the consumer dispositions, while fully observing set deadlines.

10. Concluding observations and recommendations

The sector inquiry into the wholesale trade market for synthetic (mineral) fertilizers is conducted to provide a comprehensive overview of the structure and dynamics of this market and competitive conditions prevailing therein, as well as to identify potential weaknesses on said market. The main rationales behind the launch of this analysis were the fertilizer price increase in the first half of 2019 and the bankruptcy of one of the largest fertilizer manufacturers in the Republic of Serbia – company HIP Azotara from Pančevo.

For the purposes of this analysis, the Commission used data on the production, imports and exports of fertilizers supplied by the Statistical Office of the Republic of Serbia and the Ministry of Finance – Customs Administration, as well as other publicly available data and information on the production, imports, exports and wholesale trade of synthetic fertilizers. The sector inquiry also covered eight undertakings, manufacturers and importers, jointly accounting for around 90% of the total estimated fertilizer market in 2019.

Given the share of individual types of fertilizers on the domestic market, for the purposes of its inquiry the Commission initiated from the wholesale trade market for synthetic (mineral) fertilizers as a whole, within which it has then analyzed the nitrogen fertilizer market and the compound fertilizer market in more detail.

The conducted analysis showed that the production of synthetic fertilizers in the observed three-year period had an upward trend, as well as that in the territory of the Republic of Serbia from the second half of 2018 onwards operates only one manufacturer – company Elixir Group.

The fertilizer imports in the observed period showed a variable trend, while the imported fertilizers represent a substantial part of the range on the domestic market. In 2019, the fertilizer imports grew by more than 60% compared to the previous year, 2018. Fertilizers are predominately imported from Russia, while far smaller quantities are procured from Croatia, Austria, Hungary, and Romania. Nitrogen and compound fertilizers are predominant in the

total imports of mineral fertilizers, the two accounting for 85-90% of the total fertilizer imports in the observed period.

The total exports of synthetic fertilizers in the observed period showed an upward trend, increasing in 2019 by 29% in volume and 51% in value compared to 2017. The structure of exports is determined by the structure of domestic production, making the two-component and three-component compound fertilizers predominant in the fertilizer exports, while the exports of nitrogen fertilizers in the three-year period are halved.

Owing to the steady expansion of exports and the variable trend in mineral fertilizer imports in the observed period, the mineral fertilizer import content of exports increased from 50% in 2017 to 65% in 2019.

The average annual import and the average annual export prices showed an upward trend in the observed three-year period, increasing by 13% and 16%, respectively.

Based on all data at the Commission's disposal, the total synthetic fertilizer market in 2019 is estimated at around 806 thousand tonnes, which only slightly deviates from the estimates provided by individual undertakings at the Commission's request. Based on the Commission's estimations, the highest turnovers are generated by companies Elixir Group, Promist, and Phosagro, while eight observed undertakings have jointly generated around 90% of the estimated turnover in synthetic fertilizers in 2019.

The nitrogen fertilizer market in 2019 is estimated at around 390 thousand tonnes, while 60% of the estimated nitrogen fertilizer market relates to urea, which is globally sourced. The biggest undertakings on the urea market are importers Phosagro, Eurochem, and Agroglobe, while the share of eight observed undertakings in the total estimated turnover in urea on the Serbian market amounted to 84% in 2019.

The compound fertilizer market is estimated at around 400 thousand tonnes, of which around 75% account for complex (NPK) fertilizers. The biggest undertakings on the complex fertilizer market are Elixir Group and Promist, while the remaining importers account for around 25% of the market.

A particular issue identified in the fertilizer market analysis related to the incomparability of data on the fertilizer sales provided by undertakings with the market share estimates made by the Commission, given that the estimates of the total fertilizer market provided by undertakings and the estimates made by the Commission do not differ significantly. This is mainly due to the purchase-sales relationships between undertakings themselves, causing their sold quantities, in aggregate terms, to overestimate the fertilizer market by around 50%, rendering such data unusable in the market share estimates. In this regard, the differences in estimated market shares between the Commission and undertakings (whose estimations are sometimes significantly higher) can be explained by the fact that undertakings, observing the total market, have based their own market share estimates on the sales made, which also include the sales of fertilizers previously procured from other suppliers on the domestic market. On the other hand, the Commission based its market share estimates on the data on produced and/or imported quantities net of exports, to avoid the trade between undertakings themselves.

The data on the sales by volume and value, as supplied by undertakings, have confirmed the initial hypothesis that the average selling price of fertilizers in the observed period had an upward trend, which represented an increase of around 5% over the three-year period. The

average selling price of nitrogen fertilizers increased by 13% over the three-year period observed, while the average selling price of urea, as the most represented type of nitrogen fertilizers on our market, increased by 17%. The increase in the average selling price of urea was particularly pronounced in the second half of 2018, which could be the consequence of the bankruptcy of the sole national urea producer that caused the reorientation to imports, on the one hand, and of the increase in prices on the global market during the same period, on the other.

The analysis also showed that the average selling prices of compound fertilizers, unlike nitrogen fertilizers, have experienced a downward trend, which reflected positively on the general increase in the selling prices of fertilizers over the three-year period, and which can be explained by the fact that these fertilizers are placed on the market, to a significant extent, from domestic sources. The average selling price of the most represented NPK fertilizers had a downward trend with most of undertakings included in the sample, which on average represents a decrease of 5% compared to the beginning of the observed period.

A comparative overview of the average monthly selling prices of the two individually most represented types of fertilizers, urea and NPK, showed a gradual convergence of said prices in the period after September 2018, causing the average selling prices of urea to be above the average selling prices of the traditionally more expensive NPK fertilizers during certain months of that period. This trend is a result of an increase in the average selling price of urea in the second half of 2018 through November of that year, when the price reached a record high level for the observed three-year period, on the one hand, and a variable trend with relatively mild oscillations in the price of NPK fertilizers, on the other.

The average monthly selling price of urea on the domestic market through the entire observed period was above the average monthly price on the global market, but it has generally mirrored its trend, with somewhat milder oscillations in the first part of the observed period. The correlation coefficient between two series of data was positive, amounting to 0.7, indicating a moderate correlation between time series.

The majority of undertakings covered in the analysis indicated that they do not have any special plan of categorization of buyers, as well as that their internal rules prescribe no rebate policy, however, they nonetheless perform certain (in)formal cataloging of buyers by quantities of mineral fertilizers purchased on an annual basis. The analysis of contracts with buyers provided by undertakings showed that they concern short-term contracts, concluded for a period of up to one year, and that the payments in majority of cases are made in advance, that is, before delivery of the agreed quantities of mineral fertilizers. Payments are made in cash, using the currency clause pegged to euro, except in the case of one wholesale trader that pegged to dollar. Two wholesale traders have also concluded forward contracts or barter agreements, where the prices of goods as means of payment are linked to the prices at the commodity brokerage *Produktna berza* in Novi Sad.

Based on all obtained and publicly available data and information, no market weaknesses are identified that would indicate the need to further regulate the market concerned. Undertakings have agreed that the fertilizer market is open and transparent, that the supply of fertilizers in the past couple of years is strong, and that the competition is intensive, causing the reduction in margins for all undertakings in the trade cycle. According to undertakings, this trend will continue in the period to come as well, with end-users benefiting the most from such circumstances given that fertilizers will be offered at increasingly more favorable prices and better terms.

Based on the analysis of the Law on Plant Nutrition Products and Soil Enhancers and other regulations governing the market for wholesale trade of synthetic fertilizers, it is established that the legal framework is adequate and in accordance with the Law on Protection of Competition.

However, the Commission ran into difficulties in its analysis owing to the limited use value of data at its disposal. According to the Commission, what is essential both for the highest possible quality of analysis on the state of competition and more qualitative agricultural policymaking, is the improvement in quality and degree of up-to-dateness of available statistics on fertilizers, particularly in the part concerning the annual production and trade in fertilizers on the domestic market. Namely, although the Commission has collected the data from multiple sources to obtain as precise as possible estimates on the size of the markets concerned, the majority of collected data was incomplete with limited comparability, somewhat rendering impossible any precise and complete monitoring of the dynamics of the market concerned in the three-year period.

The importance of the use of mineral fertilizers for agricultural producers has affected the Commission to adopt a recommendation concerning the wholesale trades of mineral fertilizers with no rebate policy and which directly negotiate on prices with buyers, to adopt such a policy in accordance with the Law on Protection of Competition. A transparent and in a timely manner published discount scales would enable agricultural producers to make rational and informed decisions when selecting their preferred suppliers of fertilizers, as well as to cut their own costs and increase efficiency.

Given the importance of the industry concerned for the development of crop husbandry and agricultural production as a whole, in the conditions of free market access and free formation of prices, and the current market structure, the Commission will continue to pay particular attention to the conduct of undertakings and circumstances that might indicate an infringement of the Law on Protection of Competition.