PHOSAGRO

Product catalogue

Contents

Information on the use of mineral fertilizers contained herein is purely advisory in nature, and it is based on practical experience in the use of mineral fertilizers in Russia and shall not be construed as an official instruction.

About PhosAgro

PhosAgro is a Russian vertically integrated company and one of the world's leading producers of phosphorus-based fertilizers.

Our eco-efficient products boost farmers' crop yield and quality in over 100 countries on every inhabited continent. We produce more than 57 grades of fertilizers, ammonia and feed phosphates, apatite concentrate with 39% P_2O_5 or more.

The absolute priority of the company is the interests of the Russian farmers. PhosAgro confidently maintains one of the leading positions in supply of mineral fertilizers to the national market. It has almost doubled the supply volume over the last 5 years. We have a comprehensive knowledge base on crop growing on all types of Russian soils. We offer our customers the development of mineral nutrition systems for a wide range of crops in farms of various sizes: from small ones to large agricultural holdings.

Soil fertility care for the prosperity of life

Global company

Leader in the Russian and world markets by the production of eco-efficient mineral fertilizers. Implementation of different partnership projects all over the world.

Innovation

Search for the best solutions: modern approaches, production upgrading, application of the latest scientific farming developments and best practice.

Environmental friendliness

Care for the environment and ecological properties of products, enhancement of expertise in green chemistry and biotechnology, use of up-to-date gas emission and wastewater treatment systems.

Customer focus

Customer support in all farming aspects, development of the online trading platform. Creation and development of agricultural distribution centres and digital field systems.

How we work

The company's activities cover the full-cycle fertilizer production: mining and processing of high-grade phosphate rock, logistics infrastructure and distribution network.

Agricultural consulting

We do not just produce fertilizers, but also assist our customers in the most efficient use of our products. We train in the principles of sustainable agriculture and responsible farming. We collect feedback from agricultural producers in order to develop our product line.

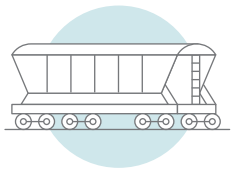
Mining and processing
We carry out mining of apatite-nepheline ore of magmatic origin in Murmansk region.
In contrast to feedstock from other producers, it contains almost no harmful impurities.

93%
Coefficient of apatite concentrate recovery from ore

Production
We continuously develop and improve our products using up-to-date equipment and the latest scientific developments.

The flexible production model enables fast demand response.

57
Fertilizer grades



Logistics
Our own logistics infrastructure (warehouses, mineral wagons, tanks, rolling stock cars) enables our uninterrupted supply.

23.2 mln tonnes
Volume of PhosAgro's finished products transported by rail in 2022

Marketing and sales
Our sales offices, traders and distributors supply products and render services to agricultural producers on all inhabited continents. PhosAgro has the largest mineral fertilizer distribution network in Russia and is actively expanding it.

33
Distribution centres in Russia

Principles of building a plant nutrition system

Any plant absorbs mineral compounds from soil, air and water, and converts them into organic compounds necessary for growth and development. Crop yields and quality depend on availability of fertilizer elements and amounts of water.

Main application methods

Main
The main way to fertilize. Uniform distribution of fertilizer elements on the soil surface, maintaining roughly the same distance between solid fertilizer granules or liquid fertilizer drops.

Sowing
Fertilizing simultaneously with crop seeding. The main purpose is to provide effective plant nutrition at the initial stages of development and growth.

Topdressing:
- **Non-root topdressing**
Application of nutrients on the leaves of plants in dissolved form.
- **Root topdressing**
Application of nutrients under the root in dissolved form.

Fertilizer and application dose selection factors

- Availability of fertilizer elements in soil
- Temperature mode and amount of precipitation
- Crop fertilizing need
- Predecessor crop and its feed system
- Plant protection system
- Peculiarities of the variety and hybrid
- Availability of fertilizing equipment

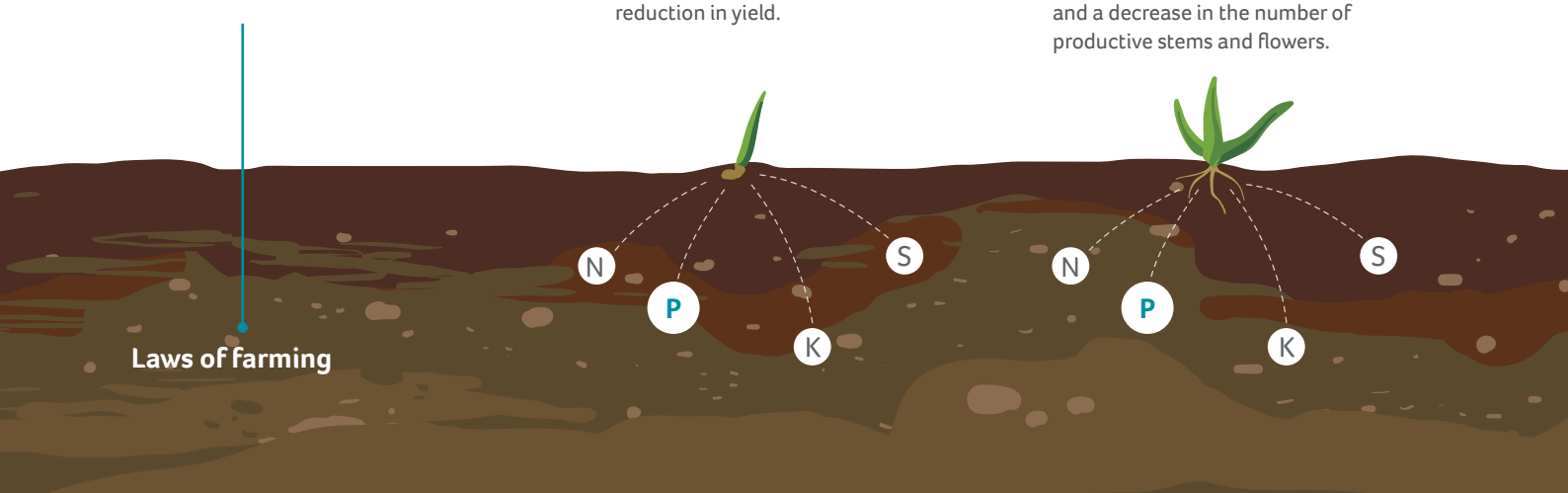
When applying mineral fertilizers, the balance of fertilizer elements and compatibility of fertilizers are to be considered. The shortage and imbalance of fertilizer elements prevent the plant from revealing the genetic yielding potential in full.

1

Initial stage
The plant consumes a small amount of fertilizer elements. **A phosphorus deficiency** during this period leads to a deterioration in root growth and a drastic reduction in yield.

2

Tillering
Anlage and differentiation of reproductive organs. **Deficiency of nitrogen, phosphorus, and potassium** leads to disruption of the development of the root system and a decrease in the number of productive stems and flowers.



Laws of farming

Content of proteins, fats and carbohydrates in plant products under various growing conditions

Protein in wheat
9–15%

Starch in potato
10–24%

Sugar in sugar beet roots
12–21%

Fat in oilseeds
19–60%

Rational fertilization helps to

- Get maximum yields
- Improve product quality
- Increase the generation of vital substances for human and livestock nutrition by plants
- Boost agricultural production economics

3

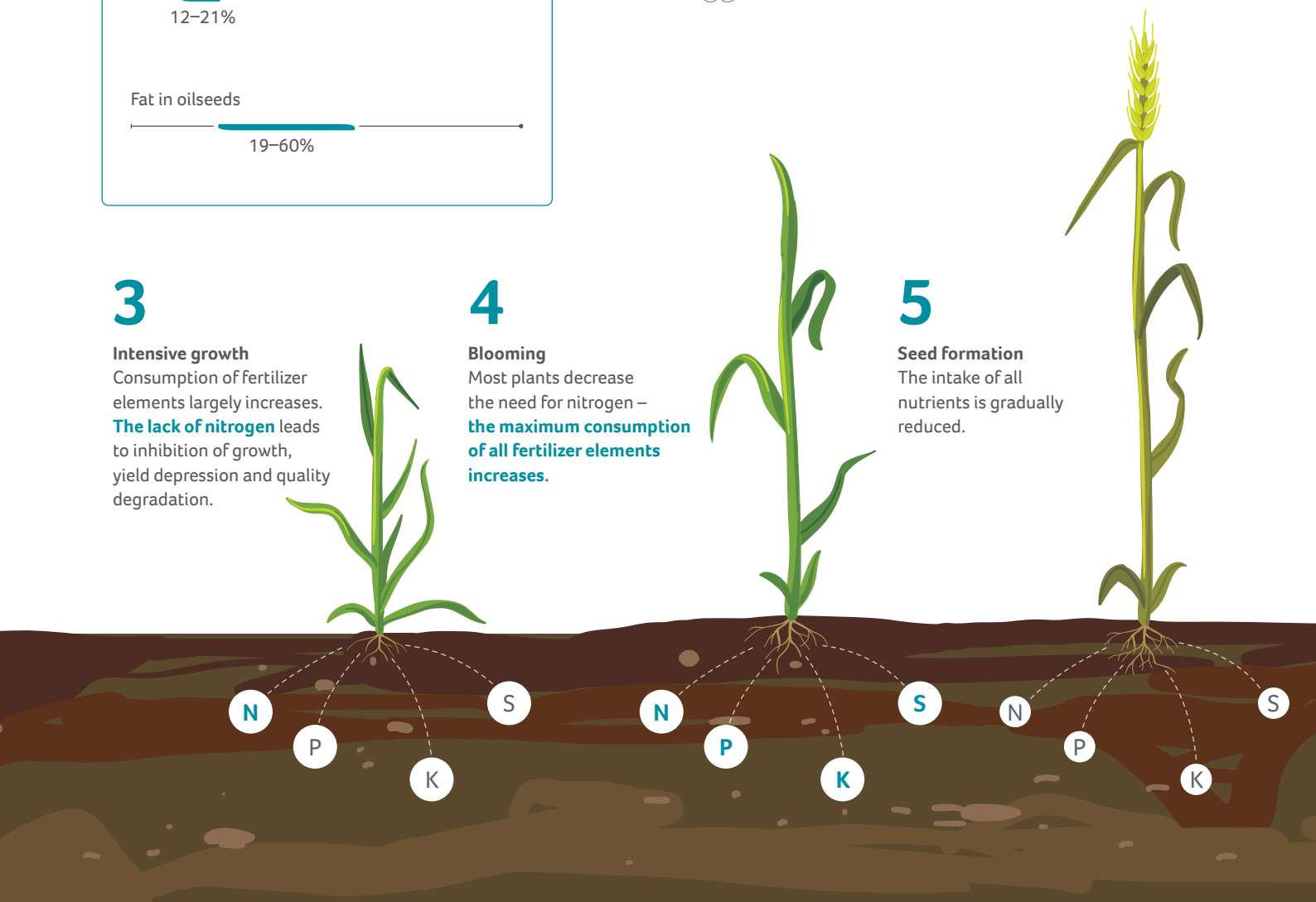
Intensive growth
Consumption of fertilizer elements largely increases. **The lack of nitrogen** leads to inhibition of growth, yield depression and quality degradation.

4

Blooming
Most plants decrease the need for nitrogen – **the maximum consumption of all fertilizer elements increases.**

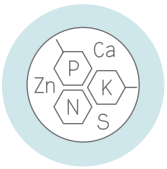
5

Seed formation
The intake of all nutrients is gradually reduced.



Product advantages

The right choice of modern fertilizer grades from our wide range ensures balanced mineral nutrition of crops under various soil and climatic conditions. This is a guarantee of consistently high yield and product quality with maximum economic effect.



Up to 8 fertilizer elements in a granule
The use of such fertilizers contributes to a good high-quality crop and high profitability of the economy.

Sulphur for high-quality yields
All our complex fertilizers contain sulphur in a sulphate form, thus ensuring high-quality yields by the level of protein and oiliness.

Ammonia nitrogen NH_4+
The ammonia form of nitrogen, in contrast to the nitrate, less energy-intensive in the process of transition to vegetable proteins, contributes to better absorption of phosphorus and is not washed out of the soil.

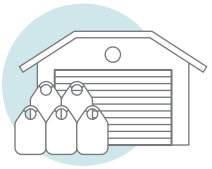
Environmentally safe feedstock
Phosphate ore mined in the Khibiny deposits developed by us has the world's lowest content of harmful impurities.

Uniform distribution of fertilizer elements
Each granule of our complex fertilizers that enters the soil contains the right proportions of fertilizer elements.

Water-soluble and plant-available phosphorus
FosAgro fertilizer brands are characterized by a high content of water-soluble phosphorus, which makes it more accessible for plant roots in the soil.

Wide range
The line of innovative grades of complex fertilizers containing macro- and microelements is suitable for any soil and climatic conditions.

Easy product selection
We offer PhosAgro feed systems and product brand categories to simplify the choice of the desired fertilizer grade.



Increased caking resistance
Our fertilizers do not cake during transportation and storage.

Perfectly balanced formula

Macroelements

N

Nitrogen
It stimulates the growth of the vegetative mass, increases the size and protein content of the grain yield and green mass. Nitrogen is included in proteins. Ammonia nitrogen is not washed out of the soil, in contrast to nitrate nitrogen. It contributes to better phosphorus intake and is absorbed directly by plant roots.

P

Phosphorus
Phosphorus is used in photosynthesis, energy conversion, cell division and growth, and transfer of genetic information. It contributes to strong root system growth, improves water intake by plants. Enhances resistance to disease and drought, accelerates ripening, improves grain quality.

K

Potassium
It ensures normal photosynthesis, intensifies synthesis and flow of carbohydrates from plant leaves to storage organs. Provides stability of grain, tubers, root crops even in dry years, increases starchiness and sugar content.

Mesoelements

S

Sulphur
It is required for many metabolic processes. It is included in three essential amino acids, necessary for protein synthesis. It improves phosphorus absorption by high calcium soils. Regulates redox processes, photosynthesis and plant growth.

Ca

Calcium
It plays a key role in soil fertility, maintaining the structure of cell walls and the integrity of cell membranes. Eliminates excess soil acidity. Increases caking resistance of the crop. Improves the availability of molybdenum, manganese, zinc, boron.

Mg

Magnesium
It is a key element for the synthesis of chlorophyll in plants, involved in photosynthesis and protein synthesis. Essential for vegetative growth. It is contained in small amounts in most of our complex fertilizers.

Microelements

Zn

Zinc
It is necessary for functioning of enzyme systems and protein synthesis. It controls the formation of essential growth and development regulators by plants. It contributes to larger phosphorus uptake by the plant. Most effective on sandy chernozems.

B

Boron
It is necessary for plants to develop new cells in growing organs and tissues. Essential for flowering and formation of fruits and seeds. It is especially effective on carbonate soils.

Eco-efficient nutrients

PhosAgro* was the first Russian company to be certified to GOST R 58658–2019, a national standard for products with improved characteristics which introduced the world's most rigorous limits on heavy metals and arsenic content. This allows PhosAgro to mark its products with a special Green One label.

PhosAgro has become the first company in the Russian mineral fertilizer industry to receive a certicate of compliance with the Ecological Union's Vitality Leaf standard and the right to use the internationally recognised ecolabel on its products.

The Vitality Leaf ecolabel certifies that the assessment of a product's life cycle proved it to be more environmentally preferable compared to peers.

To inform consumers, the EU has developed rules for the voluntary labelling of safe fertilizers with cadmium content of less than 20 mg/kg P_2O_5. To this end, PhosAgro's phosphate-based products are labelled in accordance with the EU regulations.

Additionally, PhosAgro's Green Label environmental claim asserts that its products are free from dangerous cadmium concentrations harmful to human health and soils. This will help to make a choice in favor of mineral fertilizers that preserve soil fertility and ensure high-quality yields.

* Here PhosAgro means JSC Apatit, PhosAgro Group's subsidiary.

Green Label – your key to healthy soil*

We have developed the Green Label to communicate the absence of cadmium concentrations harmful to human health and soils in PhosAgro products.

Cadmium content in our fertilizers is significantly less than 20 mg/kg P_2O_5. This is a major factor in reducing the impact on the soil, which ultimately contributes to a healthier yield.

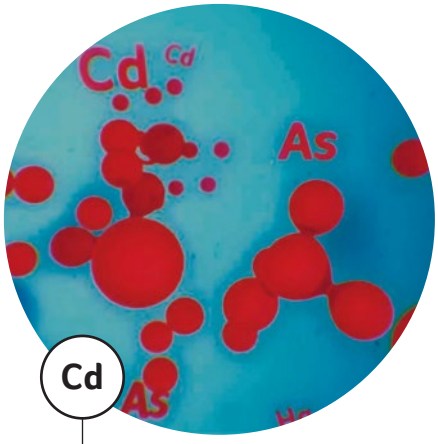
Heavy metals, such as cadmium, are particularly dangerous to humans.

Due to the application of fertilizers containing high cadmium levels, this toxic element accumulates in soils and transfers from the soil to people through the food chain. Cadmium is particularly dangerous to human health. High levels of heavy metals in the human body can lead to serious immune-system deficiencies and can also cause cancer.

To maintain healthy soils and uphold the general trend towards a healthy lifestyle, the EU intends to cap cadmium levels in phosphate fertilizers at 60 mg/kg of P_2O_5. Some countries have already introduced more drastic caps on cadmium levels.

EU

Today in Europe, phosphate products with a high cadmium content (from 20-60 mg/kg P_2O_5 and above) account for almost 40% of total consumption**.



< 60 mg/kg P_2O_5 – in 2022

Cd content in phosphate rock in different countries

Country	Russia	Morocco	USA	Jordan	China	Tunisia	Mexico
Rock type	Igneous	Sedimentary					
Cadmium content, mg Cd/kg	<0.3	40-122	25-114	15-19	<7-9	136	13,3

* The Green Label environmental statement affirms that the product is free from dangerous cadmium concentrations capable of harming soils.
** Estimates are based on IFA and CRU data and take into account the share of phosphate-based products with high cadmium content in the total turnover of phosphate-based products in Western Europe, Central Europe and the Baltic states.

APAVIVA®

Nitrogen-phosphorus
and complex fertilizers

Specifics

Apaviva complex fertilizers contain two (nitrogen and phosphorus) or three (nitrogen, phosphorus and potassium) basic macroelements, as well as essential mesoelements (sulphur, magnesium). Almost all of our complex fertilizers contain sulphur in varying amounts. Sulphur increases capacity of all crops: technical, cereal and legumes. Our complex fertilizers are easy to transport and use. A wide range of fertilizers suitable for various soil and climatic conditions.

NP 12-52

Monoammonium phosphate (MAP)

Best solid granular fertilizer to provide crops with phosphorus and nitrogen that are easy to uptake. These nutrients are vital for quick sprouting and vegetation. The temporary moderate acidification of the soil solution around the fertilizer granule brings the largest effect for nutrition systems on soils with the neutral and faintly alkaline reaction. Ammonia nitrogen contributes to better phosphorus intake by plants.

Digestible form P_2O_5

of total phosphates, not less

94.7 %

of digestible phosphates, not less

99.0 %

strength, MPa
min. **3**

pH
4.5–4.8

COMPOSITION

N	P_2O_5	water solubility, % of total P_2O_5	citrate solubility, % of total P_2O_5	K_2O	S	Zn	B	MgO	CaO
12 %	**52** %	**90**	**95**	—	**2.0** %	—	—	**0.4–0.6** %	—

APPLICATION

Period

Autumn **Spring**

Method

Main **During sowing**

ADVANTAGES

High croppage

High-quality plant products

Ensures good root system growth

APPLICATION

Crops

All crops

Soils

Neutral and alkaline soils

100 kg/ha in physical weight

NP 18-46

Diammonium phosphate (DAP)

Most concentrated phosphate-based fertilizer. It is perfect for any agriculture crop to provide full phosphorus nutrition throughout crop growth and development, as well as a starter dose of nitrogen and low sulphur.

It can be applied in autumn for tilling and in spring during sowing, as well as for pre-sowing cultivation. Dissolving in soil, it provides temporary alkalization of pH of the soil solution around the fertilizer granule, thus stimulating better uptake of phosphorus from the fertilizers on acid soils. Fertilizer's sulphur also contributes to the better intake of nitrogen and phosphorus by plants.

≥95%
ø 2–5 mm

Digestible form P_2O_5
of total phosphates, not less
94.7 %

of digestible phosphates, not less
99.7 %

strength, MPa
min. **3**

pH
6.0–7.2

COMPOSITION

N	P_2O_5	water solubility, % of total P_2O_5	citrate solubility, % of total P_2O_5	K_2O	S	Zn	B	MgO	CaO
18 %	**46** %	**90**	**95**	—	**2.5** %	—	—	—	—

APPLICATION

Period
Autumn
Spring

Method
Main
During planting (of tubers)

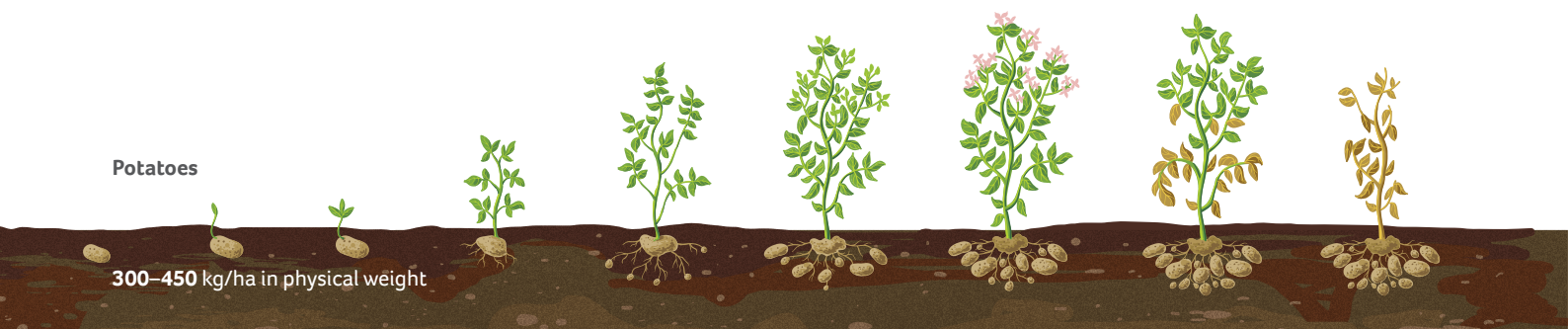
ADVANTAGES

- Optimal fertilizer for winter cereals
- Ensures good root system growth
- High croppage
- High-quality plant products

APPLICATION

Crops
All crops

Soils
All soils



Potatoes

300–450 kg/ha in physical weight

NP(S) 16-20(12)

A complex three-component fertilizer containing nitrogen, phosphorus and sulphur. It is particularly good for soils with high potassium and low labile sulphur content. High sulphur content makes this grade vital for oilseeds – rapeseed, sunflower, flax, because sulphur promotes oil accumulation in seeds. Optimized sulphur nutrition is also essential for wheat and soybeans because sulphur promotes protein accumulation in grains.

≥97%
ø 1–6 mm

Digestible form P_2O_5

of total phosphates, not less

94.7 %

of digestible phosphates, not less

99.7 %

strength, MPa
min. **3**

pH
6.9–7.1

COMPOSITION

N	P_2O_5	water solubility, % of total P_2O_5	citrate solubility, % of total P_2O_5	K_2O	S	Zn	B	MgO	CaO
16 %	**20** %	**90**	**95**	—	**12** %	—	—	**0.4–0.6** %	—

APPLICATION

Period

Autumn

Spring

Method

Main

During sowing

ADVANTAGES

- Ensures high yields on soils with low labile sulphur
- Increases protein in grains and oil in seeds
- Starter spring fertilizer for chickpeas, soybeans, rape, sunflower and flax
- Mixes well with other fertilizers

APPLICATION

Crops

Soybeans

Chickpea

Rape seed

Flax

Grain

Sunflower

Maize

Soils

All soils

200 kg/ha in physical weight

NP(S) 20-20(14)

A complex sulphur-containing fertilizer for high potassium soils. This grade is particularly useful for spring applications when crops require larger amounts of sulphur. Its application helps to ensure the active growth of plants, build immunity and strength. Quality of the final product is also improved, increasing the protein content in grains and the oil content in sunflower seeds and rapeseed. It is a perfect starter fertilizer for maize.

Digestible form P_2O_5

of total phosphates, not less

94.7 %

of digestible phosphates, not less

99.7 %

strength, MPa
min. **3**

pH
6.0–7.2

COMPOSITION

N	P_2O_5	water solubility, % of total P_2O_5	citrate solubility, % of total P_2O_5	K_2O	S	Zn	B	MgO	CaO
20 %	**20** %	**90**	**95**	—	**14** %	—	—	**0.1–0.3** %	—

APPLICATION

Period

Autumn **Spring**

Method

Main **During sowing**

ADVANTAGES

- Strengthens crop immunity to diseases
- Ensures high quality of grains, seeds and beans
- Ensures the best intake of nitrogen and phosphorus from fertilizers
- Accelerates crop growth through boosting the activity of enzyme systems

APPLICATION

Crops

Grain **Sunflower** **Rapeseed** **Maize**

Soils

All soils

150–200 kg/ha in physical weight

NP(S) 14-40(7)

A complex three-component fertilizer containing nitrogen, phosphorus and sulphur. It is particularly good for soils with low labile phosphorus, high potassium and low labile sulphur. A wide nitrogen/phosphorus ratio enables the effective use of this fertilizer during sowing when placed near seeds.

≥95%
ø 2–5 mm

Digestible form P_2O_5

of total phosphates, not less

94.7 %

of digestible phosphates, not less

99.7 %

strength, MPa
min. **3**

pH
4.6–4.9

COMPOSITION

N	P_2O_5	water solubility, % of total P_2O_5	citrate solubility, % of total P_2O_5	K_2O	S	Zn	B	MgO	CaO
14 %	**40** %	**90**	**95**	—	**7** %	—	—	**0.3–1.0** %	—

APPLICATION

Period

Autumn **Spring**

Method

Main **During sowing**

ADVANTAGES

- Applied on low phosphorus soils, eliminates sulphur deficiency
- Applied for legumes responding well to sulphur when a moderate dose of nitrogen is required.
- Increases protein in grains and oil in seeds
- Improves plant nutrition with phosphorus at low spring temperatures

APPLICATION

Crops

All crops

Soils

All soils

Chickpea

100 kg/ha in physical weight

NPK(S) 10-26-26(2)

A classic complex fertilizer used in traditional farming systems as the main fertilizer for both clean-cultivated crops with plowing in autumn and winter crops. Its use is especially advantageous in soil zones with a low content of labile phosphorus and potassium, where the responsiveness of cultivated crop to Diammophosca is higher than on fertile soils.

Digestible form P_2O_5

of total phosphates, not less

94.7 %

of digestible phosphates, not less

99.7 %

strength, MPa
min. **5**

pH
6.0–7.2

COMPOSITION

N	P_2O_5	water solubility, % of total P_2O_5	citrate solubility, % of total P_2O_5	K_2O	S	Zn	B	MgO	CaO
10 %	**26** %	**90**	**95**	**26** %	**2** %	—	—	**0.3–1.0** %	—

APPLICATION

Period

Autumn **Spring**

Method

Main **During sowing**

Crops

All crops

Soils

All soils

ADVANTAGES

- Fully covers crops' need for phosphorus and potassium, provides a starter dose of nitrogen
- 100% doses perfectly restores soil fertility for a future harvest
- Most efficient on soils with high mineral nitrogen content
- Applied for technical (potatoes, sugar beets, sunflowers) and cereal crops (winter wheat and barley)

APPLICATION

Sugar beet

450 kg/ha in physical weight

NPK(S) 8-20-30(2)

This grade is high in potassium and phosphorus and low in nitrogen, which is good for main application since autumn. It is particularly valuable for crops that require large amounts of available phosphorus and potassium in the soil. It is highly efficient on soils with low potassium content, fine-textured soils with a leaching water regime.

It is a universal fertilizer, perfect for perennial grasses, sugar beets and potatoes, as well as cereals and legumes on high sulphur soils.

≥97%
ø 1–6 mm

Digestible form P_2O_5

of total phosphates, not less

94.7 %

of digestible phosphates, not less

99.7 %

strength, MPa
min. **5**

pH
6.0–7.2

COMPOSITION

N	P_2O_5	water solubility, % of total P_2O_5	citrate solubility, % of total P_2O_5	K_2O	S	Zn	B	MgO	CaO
8 %	**20** %	**90**	**95**	**30** %	**2** %	—	—	**0.3–1.0** %	—

APPLICATION

Period

Autumn **Spring**

Method

Main **During sowing**

ADVANTAGES

- Low nitrogen contributes to the development of tubercles on legume roots
- Perfect nutrient proportions for autumn application for potatoes, sugar beets and other root crops
- Most efficient when used as the main fertilizer applied before perennial grass sowing
- Suitable for potatoes and beets, reduces machine passes through a field

APPLICATION

Crops

All crops

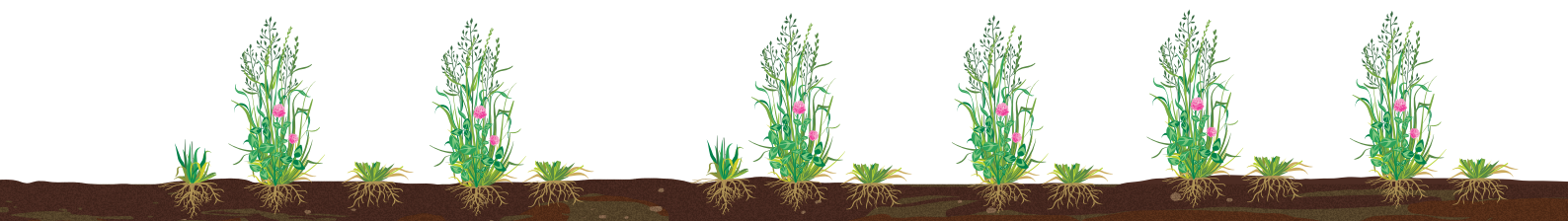
Soils

All soils

Perennial grass mixture

1st year of use

2nd and 3rd years of use



250–400 kg/ha in physical weight

NPK(S) 15-15-15(10)

A complex universal fertilizer for any soils and crops, most effective when applied for tilled and technical crops – before pre-sowing cultivation or during sowing. It is also a perfect starter fertilizer for spring cereals. The sulphur content ensures high intake of nitrogen and phosphorus by plants, and potassium facilitates faster transport of synthesis products (carbohydrates) to root vegetables and seeds.

≥97%
ø 1–6 mm

Digestible form P_2O_5

of total phosphates, not less

94.7 %

of digestible phosphates, not less

99.7 %

strength, MPa
min. **5**

pH
6.0–7.2

COMPOSITION

N	P_2O_5	water solubility, % of total P_2O_5	citrate solubility, % of total P_2O_5	K_2O	S	Zn	B	MgO	CaO
15 %	**15** %	**90**	**95**	**15** %	**10** %	—	—	**0.3–1.0** %	—

APPLICATION

Period

Autumn

Spring

Method

Main

During sowing

ADVANTAGES

- Consistent results irrespective of soil or crop characteristics
- High sulphur content increases the efficiency of nitrogen and phosphorus use by plants
- Contributes to improving the quality characteristics of the crop: increasing the protein content in grain, oil in seeds and the quality of tubers and root crops

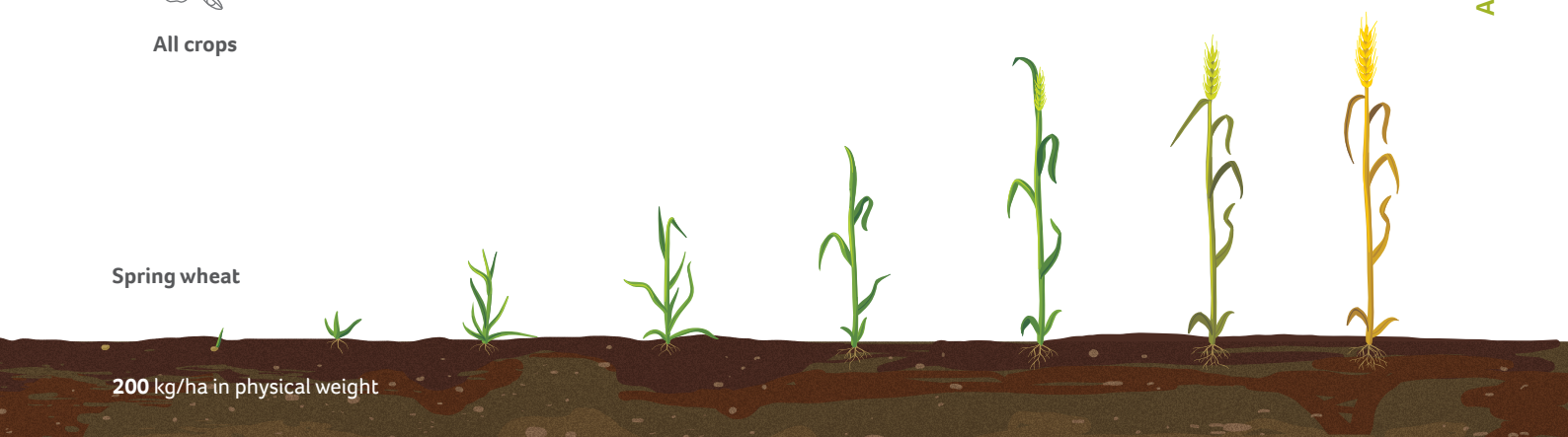
APPLICATION

Crops

All crops

Soils

All soils



Spring wheat

200 kg/ha in physical weight

NPK(S) 13-19-19(6)

Most concentrated complex fertilizer for both basic autumn application on the soil after winter harvesting, and spring application as a pre-sowing and starter fertilizer. It provides technical, cereal and tilled crops with all the phosphorus, potassium and sulphur required. Right proportions of nutrients and water-soluble form enable plants to use the nutrients to maximum effect. It requires no additional nitrogen nutrition when applied for sunflower.

≥97%
ø 1–6 mm

Digestible form P_2O_5

of total phosphates, not less

94.7 %

of digestible phosphates, not less

99.7 %

strength, MPa
min. **5**

pH
6.0–7.2

COMPOSITION

N	P_2O_5	water solubility, % of total P_2O_5	citrate solubility, % of total P_2O_5	K_2O	S	Zn	B	MgO	CaO
13 %	**19** %	**90**	**95**	**19** %	**6** %	—	—	**0.3–1.0** %	—

APPLICATION

Period

Autumn **Spring**

Method

During sowing

ADVANTAGES

- Sulphur in a sulphate form ensures the best intake of nitrogen and phosphorus
- Improves quality indicators of grain and root and tubers
- Facilitates maximum yields in case of local application
- A perfect starter fertilizer for sunflower and potatoes

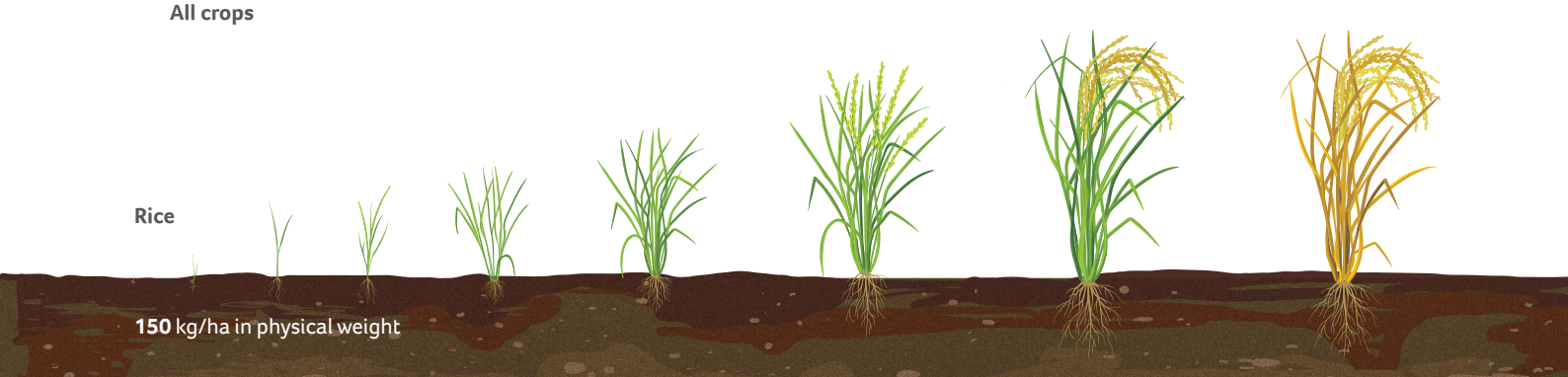
APPLICATION

Crops

All crops

Soils

All soils



Rice

150 kg/ha in physical weight

NPK 12-32-16

Complex fertilizer containing nitrogen, phosphorus, potassium and, in a small amount, sulfur. It can be used on different types of soils, especially soils with low labile phosphorus and high labile potassium.

It is recommended for all crops, especially containing more phosphorus than potassium in the yield (spiked cereals, maize, legumes).

Digestible form P_2O_5

of total phosphates, not less

94.7 %

of digestible phosphates, not less

99.7 %

strength, MPa
min. **5**

pH
6.0–7.2

COMPOSITION

N	P_2O_5	water solubility, % of total P_2O_5	citrate solubility, % of total P_2O_5	K_2O	S	Zn	B	MgO	CaO
12 %	**32** %	**90**	**95**	**16** %	**1** %	—	—	**0.3–1.0** %	—

APPLICATION

Period

Autumn **Spring**

Method

Main **During sowing**

ADVANTAGES

- Applied on soils with low labile phosphorus
- Improves plant nutrition with phosphorus at low spring temperatures
- Applied for legumes (soybeans, peas, alfalfa) when a moderate dose of nitrogen is required
- Starter fertilizer in feed systems for maize, sugar beets

APPLICATION

Crops

All crops

Soils

All soils

Peas

150 kg/ha in physical weight

APAVIVA® +

Nitrogen-phosphorus and complex fertilizers with microelements

Specifics

In addition to the basic macroelements (nitrogen, phosphorus and potassium) and mesoelements (sulphur, magnesium), fertilizers of this category also contain calcium and microelements (boron and zinc). Microelements are the most essential tool to control the rate of physiological and biochemical processes in plants. We recommend relying on the crop's need for each microelement, as well as on the results of agrochemical soil research during the selection of the fertilizer grade in order to boost both quantity and quality of crops.

NPK(S) 8-20-30(2)+0.3B*

This grade is highly effective on soils with low potassium, light in terms of their aggregate-size distribution, on soils with a percolative regime and on calcareous soils with low presence of labile forms of boron. Both main and starter applications are recommended.

*Sales of this product are only possible upon completion of registration. Information about this grade is intended solely to inform the user about the future expansion of the product range.

≥97%
ø 1–6 mm

Digestible form P_2O_5

of total phosphates, not less

94.7 %

of digestible phosphates, not less

99.7 %

strength, MPa
min. **5**

pH
6.0–7.2

COMPOSITION

N	P_2O_5	water solubility, %	citrate solubility, %	K_2O	S	Zn	B	MgO	CaO
8%	20%	90	95	30%	2%	—	0.3%	0.3–1.0%	—

APPLICATION

Period

Spring **Autumn**

Method

Main **Before sowing**

Crops

Tomato **Soybeans** **Sunflower**

Potato **Sugar beat** **Mustard**

Soils

All soils

ADVANTAGES

- Low nitrogen content contributes to development of nodules on the roots of legumes
- Ratio of the main elements in combination with boron is ideal for autumn application for root crops, sunflower, and potatoes
- Boron in a single granule with NPK allows full root nutrition with the microelement
- Highly effective when used as the main fertilizer before sowing perennial grasses with legumes element

Sugar beat

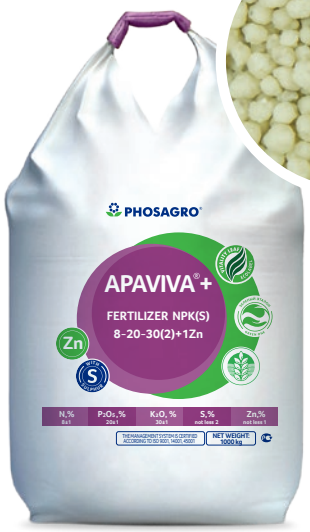
400–450 kg/ha in physical weight

NPK(S) 8-20-30(2)+1Zn*

Complex fertilizer recommended for soils with insufficient exchangeable potassium, highly-humous and bleached soils. Suitable for main and pre-sowing application.

*Sales of this product are only possible upon completion of registration. Information about this grade is intended solely to inform the user about the future expansion of the product range.

≥97%
ø 1–6 mm



Digestible form P_2O_5

of total phosphates, not less

94.7 %

of digestible phosphates, not less

99.7 %

strength, MPa
min. **5**

pH
6.0–7.2

COMPOSITION

N	P_2O_5	water solubility, %	citrate solubility, %	K_2O	S	Zn	B	MgO	CaO
8%	20%	90	95	30%	2%	1%	—	0.3–1.0%	—

APPLICATION

Period

Autumn **Spring**

Method

Main **Before sowing**

ADVANTAGES

Low nitrogen content contributes to development of nodules on the roots of legumes

Ratio of the main elements in combination with zinc is ideal for autumn application for maize and grain

Zinc in a single granule with NPK increases disease resistance, as well as drought and frost resistance of winter cereals

Highly effieicnt if applied as the main fertilizer used before sowing perennial grasses

Crops

Grain **Beet** **Flax** **Buckwheat** **Potato** **Clover** **Maize**

Soils

All soils

Perennial grass mixture

150–200 kg/ha in physical weight

NPK(S) 10-26-26(2)+0.3B*

Efficient complex fertilizer for main application for soils with low presence of labile forms of microelements. Especially efficient in irrigated agriculture with a percolative regime.

*Sales of this product are only possible upon completion of registration. Information about this grade is intended solely to inform the user about the future expansion of the product range.

Digestible form P_2O_5

of total phosphates, not less

94.7 %

of digestible phosphates, not less

99.7 %

strength, MPa

min. **5**

pH

6.0–7.2

COMPOSITION

N	P_2O_5	water solubility, %	citrate solubility, %	K_2O	S	Zn	B	MgO	CaO
10%	26%	90	95	26%	2%	—	0.3%	0.3–1.0%	—

APPLICATION

Period

Autumn

Method

Main

Before sowing

ADVANTAGES

- Covers the need of crops for phosphorus and potassium and provides plants with a starting dose of nitrogen
- Allows to eliminate the limiting factor for nutrients
- Highly efficient for autumn application for crops that have a significant need for boron
- Well suited for soils with a low content of labile phosphorus and potassium

Crops

Sugar Beet

Spring rape seed

Potato

Soybeans

Sunflower

Maize

Soils

All soils

Sugar beat

400–450 kg/ha in physical weight

NPK(S) 10-26-26(2)+1Zn*

Complex multicomponent fertilizer for main and sowing application on soils with low phosphorus and potassium content. Highly efficient on soils with low zinc content, on calcareous soils with neutral and weakly alkaline reaction, as well as when using high doses of phosphorus fertilizers.

*Sales of this product are only possible upon completion of registration. Information about this grade is intended solely to inform the user about the future expansion of the product range.

≥97%
ø 1–6 mm

Digestible form P_2O_5

of total phosphates, not less

94.7 %

of digestible phosphates, not less

99.7 %

strength, MPa
min. **5**

pH
6.0–7.2

COMPOSITION

N	P_2O_5	water solubility, %	citrate solubility, %	K_2O	S	Zn	B	MgO	CaO
10%	**26**%	**90**	**95**	**26**%	**2**%	**1**%	—	**0.3–1.0**%	—

APPLICATION

Period

Spring **Autumn**

Method

Main **Before sowing** **During sowing**

Crops

Beet **Flax** **Maize**

Legume grasses **Sunflower** **Potato**

Soils

All soils

ADVANTAGES

- Compensates for the lack of labile phosphorus and potassium and replenishes Zn in soil
- Provides plants with a starter nitrogen dose
- Replenishes soil fertility when applying 100% dose
- Highly efficient as the main fertilizer before sowing grain crops

150–200 kg/ha in physical weight

NPK(S) 15-15-15(10)+0.3B

All-purpose complex fertilizer optimal for use as a starter fertilizer for most crops on all types of soils. High sulfur content has a positive effect on metabolism of plants and on their ability to use macroelements from soil much more efficiently. Boron promotes full-fledged pollination of plants, improves growth and maturation of seeds and fruits.

≥97%
ø 1–6 mm

Digestible form P_2O_5

of total phosphates, not less

94.7 %

of digestible phosphates, not less

99.7 %

strength, MPa
min. **5**

pH
6.0–7.2

COMPOSITION

N	P_2O_5	water solubility, %	citrate solubility, %	K_2O	S	Zn	B	MgO	CaO
15%	15%	90	95	15%	10%	—	0.3%	0.3-1.0%	—

APPLICATION

Period

Spring **Autumn**

Method

Main **Before sowing**

During sowing

ADVANTAGES

High sulfur content increases resistance to adverse environmental factors while increasing the quality and yield of agricultural crops

Balanced ratio of main elements gives an excellent impetus to plant development

Ratio of main nutrition elements in combination with boron are ideal for starter application for oilseeds and potato

Boron in a single granule with NPK provides comprehensive root nutrition with this microelement

Crops

Beet **Flax** **Sunflower**

Rape seed **Maize**

Peas

Soils

All soils

150–200 kg/ha in physical weight

NPK(S) 15-15-15(10)+1Zn*

Complex fertilizer with an optimal ratio of macro-, meso- and microelements. Increased sulfur content provides a significant effect on low-humic, waterlogged and loamy sand soils, as well as when using high doses of nitrogen fertilizers. Zinc helps increase frost resistance and heat resistance of plants, participates in photosynthesis and respiration of plants. Most efficient with local application during sowing.

*Sales of this product are only possible upon completion of registration. Information about this grade is intended solely to inform the user about the future expansion of the product range.

≥97%
ø 1–6 mm

Digestible form P_2O_5

of total phosphates, not less

94.7 %

of digestible phosphates, not less

99.7 %

strength, MPa
min. **5**

pH
6.0–7.2

COMPOSITION

N	P_2O_5	water solubility, %	citrate solubility, %	K_2O	S	Zn	B	MgO	CaO
15%	15%	90	95	15%	10%	1%	—	0.3–1.0%	—

APPLICATION

Period

Spring **Autumn**

Method

Main **Before sowing** **During sowing**

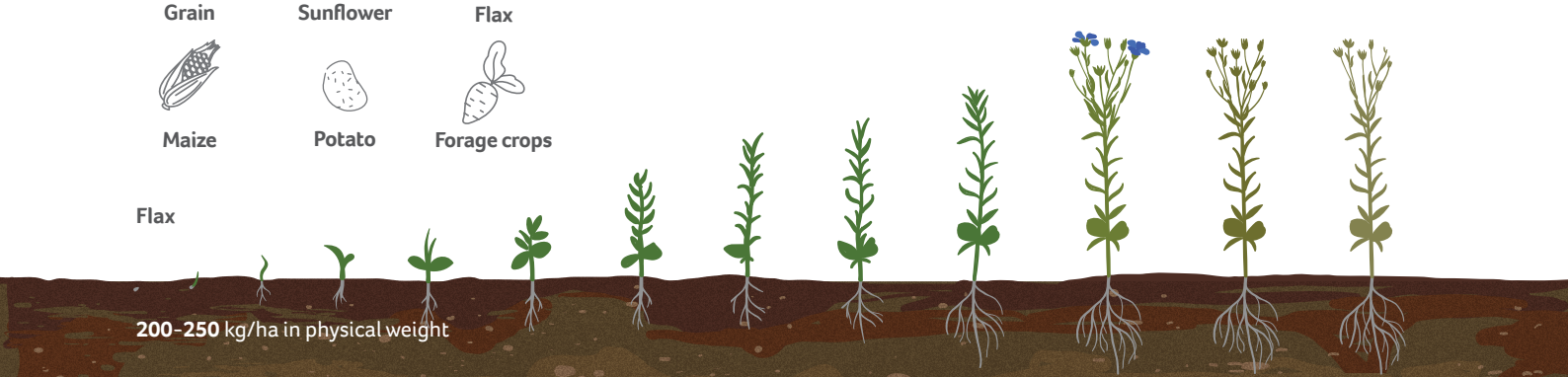
Crops

Grain **Sunflower** **Flax** **Maize** **Potato** **Forage crops**

Soils

All soils

Flax



200–250 kg/ha in physical weight

ADVANTAGES

High sulfur content increases utilization coefficient of nitrogen and phosphorus from both fertilizer and soil

Balanced amount of main nutrients in combination with zinc are ideal for pre- and post-sowing application

Zinc increases disease, as well as drought and frost resistance of winter cereals

Highly efficient when used as a sowing fertilizer for accelerated seed germination and plant development

NP(S) 14-40(7)+1Zn

Complex fertilizer for potassium-rich soils, sod-podzolic, heavy loamy and gumbo soils. It increases plant immunity and resistance to adverse environmental factors.

≥97%
ø 1–6 mm

Digestible form P_2O_5
of total phosphates, not less
94.7 %

of digestible phosphates, not less
99.7 %

strength, MPa
min. **3**

pH
4.6–4.9

COMPOSITION

N	P_2O_5	water solubility, %	citrate solubility, %	K_2O	S	Zn	B	MgO	CaO
14%	40%	90	95	—	7%	1%	—	0.3-1.0%	—

APPLICATION

Period
- **Autumn**
- **Spring**

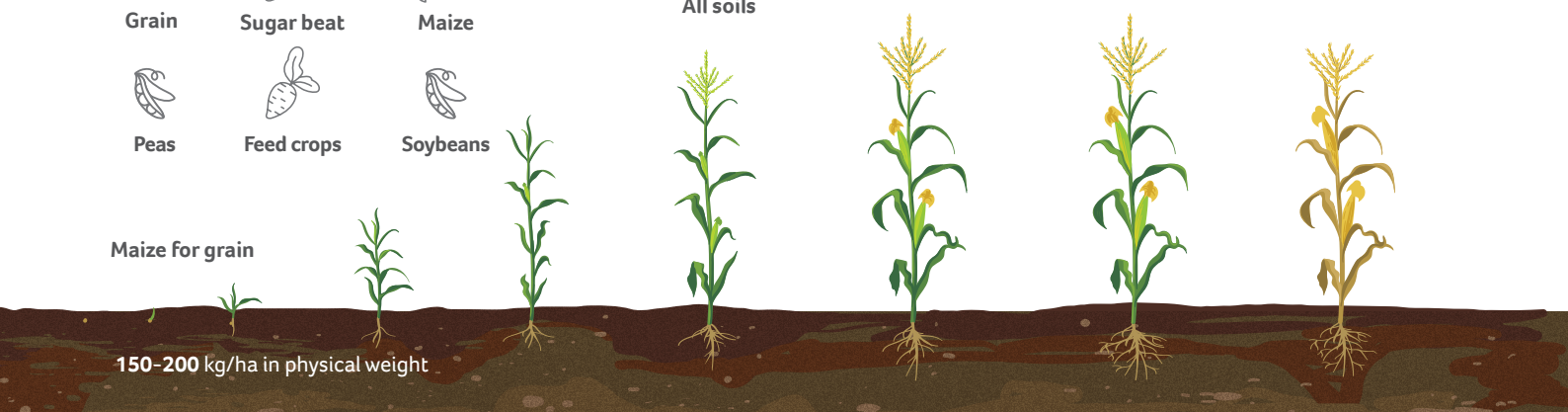
Method
- **Main**
- **During sowing**

ADVANTAGES

- Improves plant nutrition with phosphorus at low spring temperatures
- Promotes development of high-quality grain, seeds, and beans
- Ratio of nitrogen and phosphorus in combination with zinc is ideal for autumn application for root crops and maize
- Sulfur and zinc in a single granule together with other main nutrition elements help to achieve high quality of grains

Crops
- **Grain**
- **Sugar beat**
- **Maize**
- **Peas**
- **Feed crops**
- **Soybeans**

Soils
- **All soils**



150–200 kg/ha in physical weight

NP(S) 20-20(14)+0.4Zn

A complex fertilizer for maize and cereals containing macro-, meso- and microelements in one granule. Containing zinc, the fertilizer is perfect for cultivating technical crops requiring intensive growth and strong immunity. It prevents temporary stress of plants during the transition from grain to root nutrition.

≥97%
ø 1–6 mm

Digestible form P_2O_5

of total phosphates, not less
94.7 %

of digestible phosphates, not less
99.7 %

strength, MPa
min. **5**

pH
6.0–7.2

COMPOSITION

N	P_2O_5	water solubility, % of total P_2O_5	citrate solubility, % of total P_2O_5	K_2O	S	Zn	B	MgO	CaO
20 %	**20** %	**90**	**95**	—	**14** %	**0.4** %	—	**0.2** %	—

APPLICATION

Period
- **Autumn**
- **Spring**

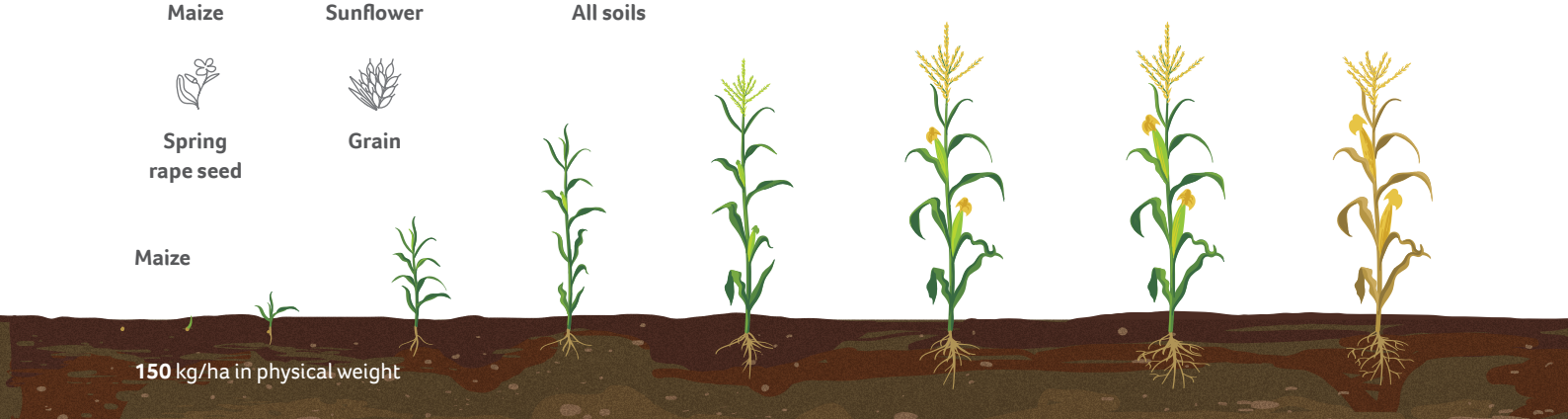
Method
- **Main**
- **During sowing**

Crops
- **Maize**
- **Sunflower**
- **Spring rape seed**
- **Grain**

Soils
- **All soils**

ADVANTAGES

- Accelerates metabolism and guarantees timely ripening
- Ensures high quality of grains and seeds
- Energizes plants for intensive growth
- Strengthens crop resistance to diseases



150 kg/ha in physical weight

NITRIVA®

Nitrogen fertilizers

Specifics

Traditional sources of open-access nitrogen for plants. They are effectively applied for all types of soils and cultivated crops. Nitrogen is included in the proteins. Therefore, the nutritional value of food depends on the availability of nitrogen in plants. Nitrogen is required for most cultivated plants in larger amounts than other fertilizer elements.

N 34.4

Ammonium nitrate

A concentrated granular nitrogen fertilizer to provide agricultural plants with nitrogen in the early spring, as well as after cut and grazing to promote aftergrowing, active growth and development of green material. It contains equal amounts of ammonia and nitrate nitrogen, and is a universal and high-performance mineral fertilizer. The prolonged use gives an acidifying effect on the soil, thus requiring periodic calcification.

strength
> 8 N/granule

pH
5.0–5.5

COMPOSITION

N	P_2O_5	water solubility, %	citrate solubility, %	K_2O	S	Zn	B	MgO	CaO
34.4 %	—	**100**	—	—	—	—	—	**0.2–0.5** %	—

APPLICATION

Period

Autumn **Spring**

Method

Main **During sowing**

Crops

All crops, except for legumes and rice

Soils

Alkaline soils

Perennial grass mixture

1st year of use

200 kg/ha in physical weight

200 kg/ha in physical weight

2nd and 3rd years

230 kg/ha in physical weight

230 kg/ha in physical weight

140 kg/ha in physical weight

140 kg/ha in physical weight

ADVANTAGES

- Best source of quick-release nitrogen
- Effective for a wide range of crops
- Balanced nitrogen nutrition provided by nitrate and ammonium forms of nitrogen
- Increases the protein and oil content in farmed products

Ammonium sulfate

Ammonium sulfate is a highly effective nitrogen fertilizer with a high sulfur content. Used in growing the most common cereals, oilseeds, feed and vegetable crops.

Ammonium sulfate stimulates the growth and development of plants, improves product quality, and reduces the risk of increasing nitrates in products. Nitrogen in ammonium sulfate is presented in the ammonium form and is highly effective in systems of prolonged nitrogen nutrition. Accelerates the decomposition of crop remains, improving soil fertility. When treating crops with plant protection products, it is recommended to add ammonium sulfate to the solution of post-emergence herbicides to increase the effectiveness of weed control by reducing the alkalinity of water.

granulated

strength, MPa
min. **3**

COMPOSITION

N	P_2O_5	water solubility, %	citrate solubility, %	K_2O	S	Zn	B	MgO	CaO
20.5%	—	—	—	—	**22**%	—	—	**0.4–0.6**%	—

APPLICATION

Period

Autumn **Spring** **Summer**

Method

Main **During sowing** **Leaf and root topdressing**

ADVANTAGES

- Accelerates the decomposition of crop remains, improving soil fertility
- Nitrogen in the ammonium form is not washed out of the soil and is used in the technologies of prolonged nitrogen nutrition
- Source of nitrogen and sulfur for plants
- Increases the protein content in wheat grain and oil content in rapeseed

Crops

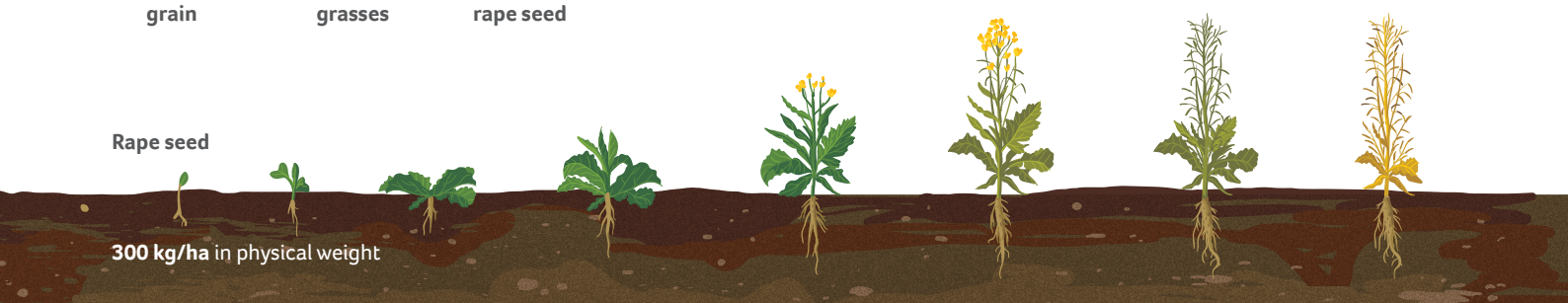
Potato **Rice** **Flax** **Cabbage** **Maize**

Winter grain **Forage grasses** **Winter rape seed** **Sunflower**

Soils

Neutral and alkalescent

Rape seed



300 kg/ha in physical weight

N 46.2

Urea

The most concentrated granular nitrogen fertilizer to provide agricultural plants with nitrogen throughout the growth and development period, supplying plants with all three forms of open-access nitrogen: amide, ammonium and nitrate (after transformation in soil). It is suitable for soils with pH < 6.5. Its transformation in soil results in alkalization and further acidification of the soil solution. This nitrogen fertilizer is the most eco-friendly and harmless for plants, providing a wide range of uses: from autumn application during tillage for crop quality increase to use as an anti-stress agent. It is the only form of nitrogen fertilizer for rice.

prilled

strength
> 7 N/granule

pH
8.0–10.0

COMPOSITION

prilled N	P_2O_5	water solubility, %	citrate solubility, %	K_2O	S	Zn	B	MgO	CaO
46.2 %	—	**100**	—	—	—	—	—	—	—

APPLICATION

Period

Autumn **Spring** **Summer**

Method

Main **During sowing** **Leaf and root topdressing**

Crops

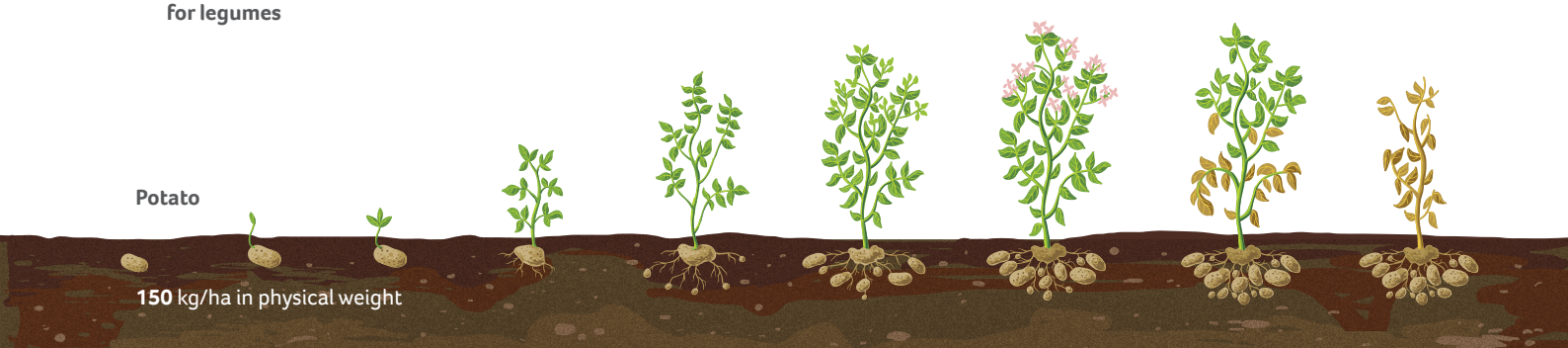
All crops, except for legumes

Soils

Acid soils

ADVANTAGES

- Has a positive effect on extended root formation
- Provides highly effective nitrogen nutrition with a prolonged effect
- Can be applied in a high dosage in one single application
- Increases the protein and oil content of field crops



Potato

150 kg/ha in physical weight

APALIQUA®

Liquid and water-soluble
compound fertilizers

Specifics

Liquid compound fertilizers are convenient to apply, and they are used to make liquid fertilizer mixtures. Liquid fertilizers help nutrients be introduced into the soil more evenly.
Water-soluble fertilizers are used for fertigation in open and protected soil. Products from this line are also ideal for foliage application when it is necessary to adjust phosphorus nutrition during the growing season.

NP 11-37

Ammonium polyphosphate

A unique liquid nitrogen-phosphorus fertilizer produced in Russia only by PhosAgro. Maximum phosphorus availability and absorption by plants compared to traditional solid phosphorus-based fertilizers, especially on soils with high calcium carbonate content. It ensures yield increase for different crops during foliar application. It is most effective in dry weather conditions. It is easy to store on farms.

Density, kg/l
1.44

Conversion rate, %
≥ 57

Dosage, l/ha
30–70

COMPOSITION

N	P_2O_5	water solubility, % of total P_2O_5	citrate solubility, % of total P_2O_5	K_2O	S	Zn	B	MgO	CaO
11%	**37**%	**100**	**100**	—	—	—	—	—	—

APPLICATION

Period

Autumn **Spring** **Summer**

Main

Method

During sowing

Leaf and root topdressing

ADVANTAGES

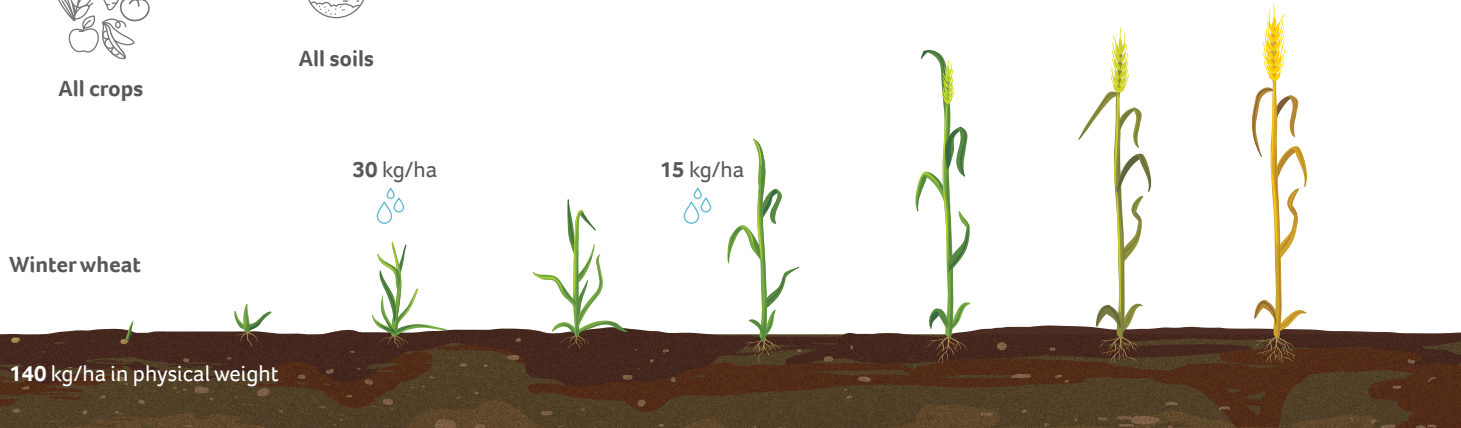
- Provides efficient use in low doses
- Suitable for foliar and root application
- Ensures prolonged phosphorus nutrition
- Enables broad time frame for application
- Provides great efficiency of a phosphate fertilizer
- Requires no moisture for dissolving due to its liquid form

Crops

All crops

Soils

All soils



NP 12-61

Water-soluble ammonium monophosphate (MAP)

Fully water-soluble fertilizer for fertigation and foliage application for all crops grown on any soil or substrate. This product has unique characteristics in terms of water solubility, which allows it to be used for any irrigation system, including modern-day drip systems. Fertigation can be carried out from the emergence of seedlings (planting) to flowering and fruit formation. Fertilizer fully meets the plant needs in phosphorus.

pH
4.0–5.0

Crumbliness
100%

COMPOSITION

N	P_2O_5	water solubility, % of total	citrate solubility, % of total	K_2O	S	Zn	B	MgO	CaO
12 %	61 %	100	100	—	—	—	—	—	—

APPLICATION

Period

During the growing season

Method

Soil and foliage application

ADVANTAGES

- Minimum insoluble residue (0.02%) eliminating clogging of drip emitters and irrigation tapes
- The ammonium form of nitrogen provides reduced pH in the rhizosphere, which increases phosphorus availability
- Highly effective in the initial stages of plant development as a phosphorus source
- Excellent for foliage application both as in its pure form and in tank mixtures with pesticides and agrochemicals*
- Does not corrode metal parts of pumps and other irrigation equipment

Crops

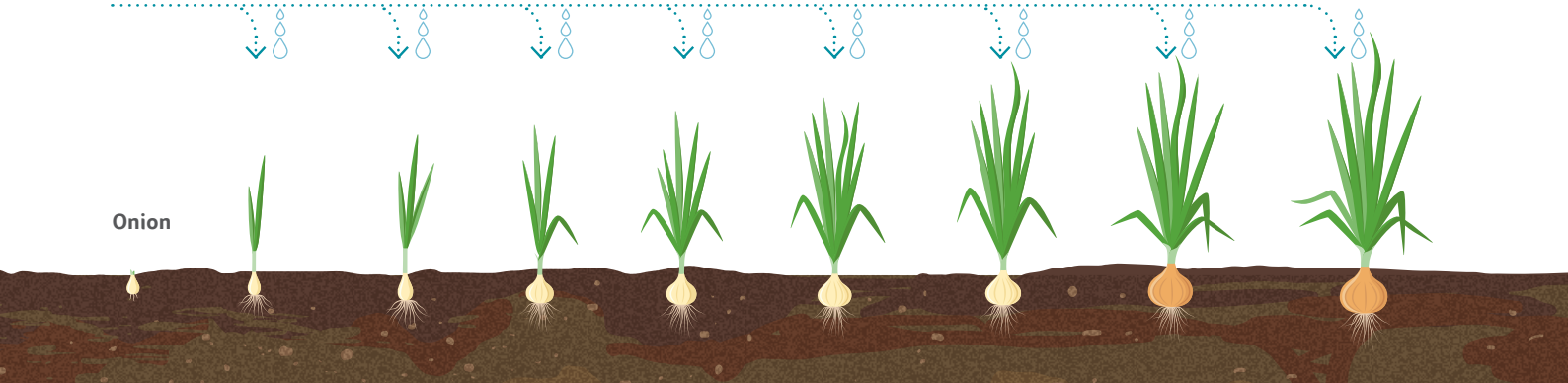
All

Soils

All soil types

* Never mix with Ca- and Mg-containing fertilizers as this leads to precipitation of Ca and Mg phosphates

From 0.5% of spray solution in the sprouting phase to 1.0% of solution in the full maturity phase



Fertigation

Water-soluble MAP NP 12-61 has unique properties with regards to solubility in water; it is used in all irrigation systems including modern drip irrigation systems.

Water-soluble MAP NP 12-61 is highly effective for fertigation of all crops grown in any soil or substrate. Fertigation with Water-soluble MAP NP 12-61 may be done starting from seedling emergence (transplanting) until flowering and fruit formation. This product entirely satisfies crop phosphorus requirements.

EXAMPLE: The fertigation of open-field grown onion with 15 kg P_2O_5/ha starting first true leaf requires 24.6 kg/ha of Water-soluble MAP NP 12-61. This also provides nitrogen at 3 kg/ha.

24,6 kg/ha
MAP NP 12-61 → **15 kg P_2O_5/ha**
3 kg N/ha →

15 kg **100 liter**

It is recommended to dissolve 15 kg of Water-soluble MAP NP 12-61 in 100 liter of water to prepare stock or concentrated solutions.

Water-soluble MAP NP 12-61 is compatible with most water-soluble fertilizers excepting Ca- and Mg-containing products. Combination with Ca and Mg fertilizers may be done only after preliminary compatibility tests, and the results depend on pH and other quality parameters of irrigation water. Dissolve Ca and Mg products in a different tank. With only one tank, Water-soluble MAP NP 12-61 should be applied at different time.

Fertilizer compatibility in stock solutions

Fertilizer	$(NH_2)_2CO$	NH_4NO_3	$(NH_4)_2SO_4$	$Ca(NO_3)_2$	$Mg(NO_3)_2$	$NH_4H_2PO_4$	KH_2PO_4	KNO_3	K_2SO_4	KCl
Urea										
Ammonium nitrate	+									
Ammonium sulphate	+	+								
Calcium nitrate	+	+	-							
Magnesium nitrate	+	+	+	+						
Monoammonium phosphate	+	+	+	-	-					
Monopotassium phosphate	+	+	+	-	-	+				
Potassium nitrate	+	+	+	+	+	+	+			
Potassium sulphate	+	+	±	-	+	+	+	+		
Potassium chloride	+	+	+	+	+	+	+	+	±	

+ compatible ± reduced compatibility - incompatible

Foliar fertilization

Foliar spray of Water-soluble MAP NP 12-61 on phosphorus deficient plants is an effective tool to improve phosphorus nutrition. Foliar fertilization cannot replace soil application of phosphorus and needs to be considered as a supplemental method of phosphorus fertilizer application.

Foliar application of phosphorus is highly effective in various crop species grown in various environments when applying phosphorus rates from 3 to 9 kg P_2O_5/ha, which is equivalent to Water-soluble MAP NP 12-61 rates from 5 to 15 kg/ha. Higher rates may be used in small grains. Lower rates of foliar applied phosphorus are recommended in legume crops to reduce foliar supplied nitrogen.

Water-soluble MAP NP 12-61 is a unique fertilizer for foliar application of phosphorus taking into consideration a wide ratio between phosphorus and nitrogen.

Water-soluble MAP NP 12-61 is compatible with most pesticides and fertilizers in a tank mix. Do not mix it with Ca- or Mg-containing fertilizers taking into consideration risks of precipitation of Ca and Mg phosphates. Tank mixing may be done only after preparing a sample of the spray solution and testing it on a small area.

APASIL®

Stress-free harvest

Specifics

ApaSil® is produced using the e-PAS technology, which combines the two most accessible forms of silicon (soluble silica and amorphous silica) in a stable state in a single product, effectively supporting the plant during its most critical development phases and maximizing its yield potential, also under stress conditions.

TO ORDER

ApaSil®*

Adaptogen, plant growth stimulator, natural immunity inducer based on amorphous silica (31.5% SiO_2) for pre-sowing seed treatment and foliage application for a wide range of agricultural and decorative crops on all types of soils.

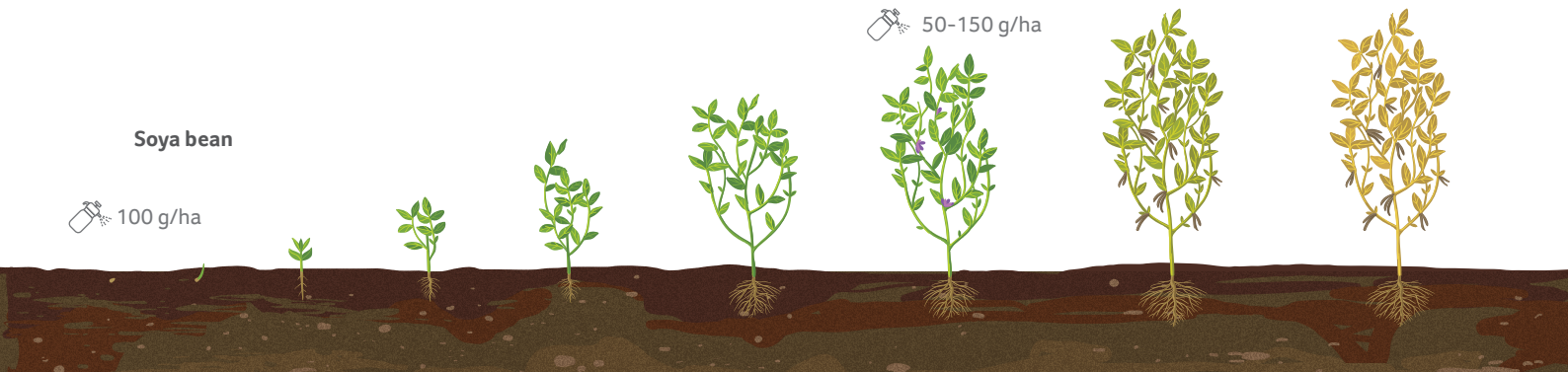
* Sold by JSC Apatit.

APPLICATION GUIDELINES

Crop	Dosage	Spray solution consumption	Application period and specifics
Cereals, potatoes, industrial, forage	25–100 g/t	10–30 l/t	Pre-sowing treatment of seeds
Grain crops	50–100 g/ha	100–300 l/ha	Foliage application for plants in the tillering and flag leaf phase
Corn	25–50 g/ha	150–300 l/ha	Foliage application for plants in the 5–7 leaves phase
Rice	25–50 g/ha	150–300 l/ha	Foliage application for plants in the full sprouts (at a plant height of 10–15 cm) and tillering phases
Industrial	50–150 g/ha	100–300 l/ha	Foliage feeding for plants at the budding start
Vegetables	50–200 g/ha	200–400 l/ha	Foliage application for plants in the growing phase 1–3 times
Potatoes	200–400 g/ha	100–300 l/ha	Foliage application for plants in the full sprouts and budding phases
Fruits and berries	100–400 g/ha	800–1,000 l/ha	Foliage application for plants at the beginning of vegetation resumption and in the budding and flowering start phase

ADVANTAGES

- Stimulates germination and increases seed vigor
- Helps plants deal with stress caused by herbicide treatment
- Increases resistance to temperature and water stress
- Accelerates growth and form-building processes
- Stimulates root formation
- Increases resistance to diseases and pests
- Increases the effectiveness of biological agents
- Enhances absorption and transport of both essential and micronutrients



APAGYPS

Universal ameliorant for acidic and saline soils

Specifics

Contains mesoelements necessary for plant growth and development (calcium, sulfur, magnesium), macronutrients (phosphorus), and a number of micronutrients (silicon, zinc, copper). Thanks to its highly dispersed structure (average particle size of 10 microns), it quickly penetrates into the soil to a depth of 20–40 cm, saturating the soil subsurface with nutrients. Actively reacts with soil particles to form valuable soil peds and restores soil structure, while reducing soil density. Indispensable for restoring the sulfur and calcium balance in the soil. Features moisture retention, making it suitable for use as bedding for livestock and poultry.

TO ORDER

APAGYPS*

Universal ameliorant for any type of soil, helps restore soil fertility and maintain soil health. Application of product reduces soil density, improves its water and air balance, restores soil structure, increases the phosphorus, sulfur, calcium and zinc content in the soil and stabilizes soil acidity. It increases the efficiency of fertilizers used in crop nutrition systems. Effective in the first year of application with any type of soil tillage, especially in irrigation. Can be used in animal husbandry as a component of bedding, composting activator.

*Sold by JSC Apatit.

COMPOSITION

N	P_2O_5		K_2O	SO_4	Zn	Cu	MgO	CaO	SiO_2
—	up to 1.5 %	water solubility, % of total: up to 0.6	—	38–40 %	0.03 %	0.06 %	1.6 %	20–22 %	15 %

APPLICATION

Period

- Autumn
- Winter
- Spring
- Summer

Method

- Primary application
- Before sowing for cultivation
- By vegetation: after grass cutting
- With compost introduction

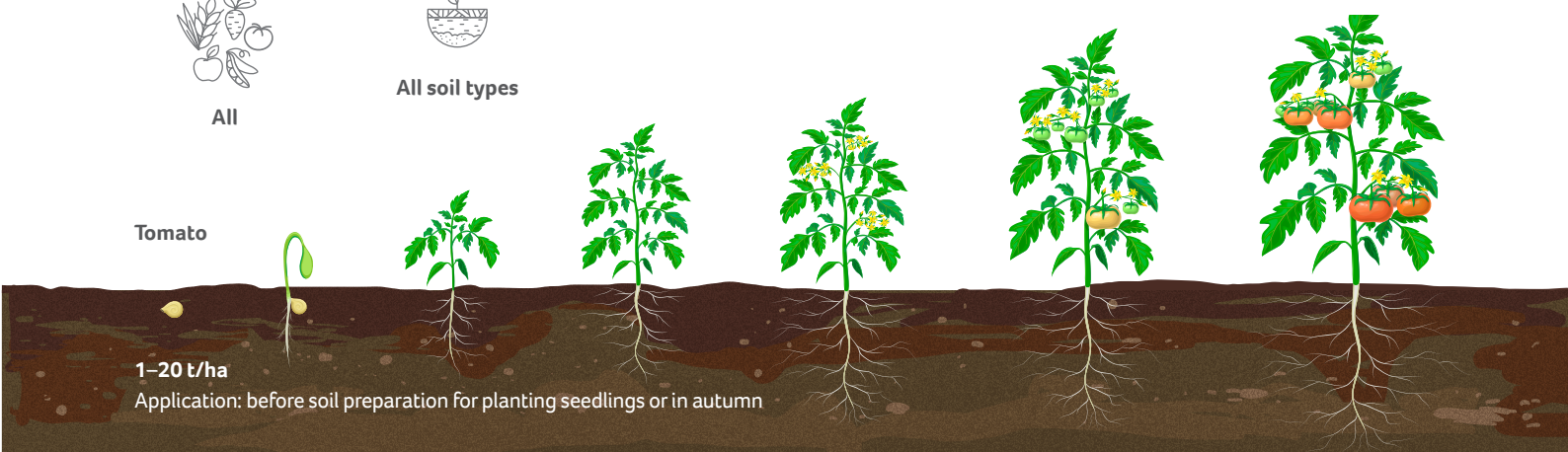
Crops

- All

Soils

- All soil types

Tomato



1–20 t/ha
Application: before soil preparation for planting seedlings or in autumn

ADVANTAGES

- yield increase by 15–20% in the application year
- increase in protein by 1.2–2%, sugars by 1–3%, and fat by 1.5–2%
- increase in vitamin content in fruits, berries, and vegetables
- soil density reduction
- systematic application prevents formation of soil caps and cracks in the field
- its effect lasts up to 5 years

APAFEED®

Feed additive

Specifics

Defluorinated feed phosphate. The addition into the diet of livestock and poultry fills the lack of phosphorus and calcium. It provides metabolism, strengthening the bone, immune and reproductive systems. It is perfect for livestock and poultry.

NITRIVA® Feed

Feed additive

Specifics

Feed urea is an efficient source of non–protein nitrogen in cattle and sheep feed. Promotes an increase in dairy productivity in dairy cattle breeds and efficient muscle mass building in beef cattle and sheep breeds.

Monocalcium phosphate

$Ca(H_2PO_4)_2$

Monocalcium phosphate is a food supplement for livestock and poultry diet to replenish calcium and phosphorus that contribute to the formation of strong bone tissue and skeleton, improve metabolism, functions of the nervous, immune and reproductive systems, increase productivity. Mineral additives of this composition are especially recommended for feeding herbivorous animals.

strength, MPa
4 on average

pH
min. 3.4

COMPOSITION

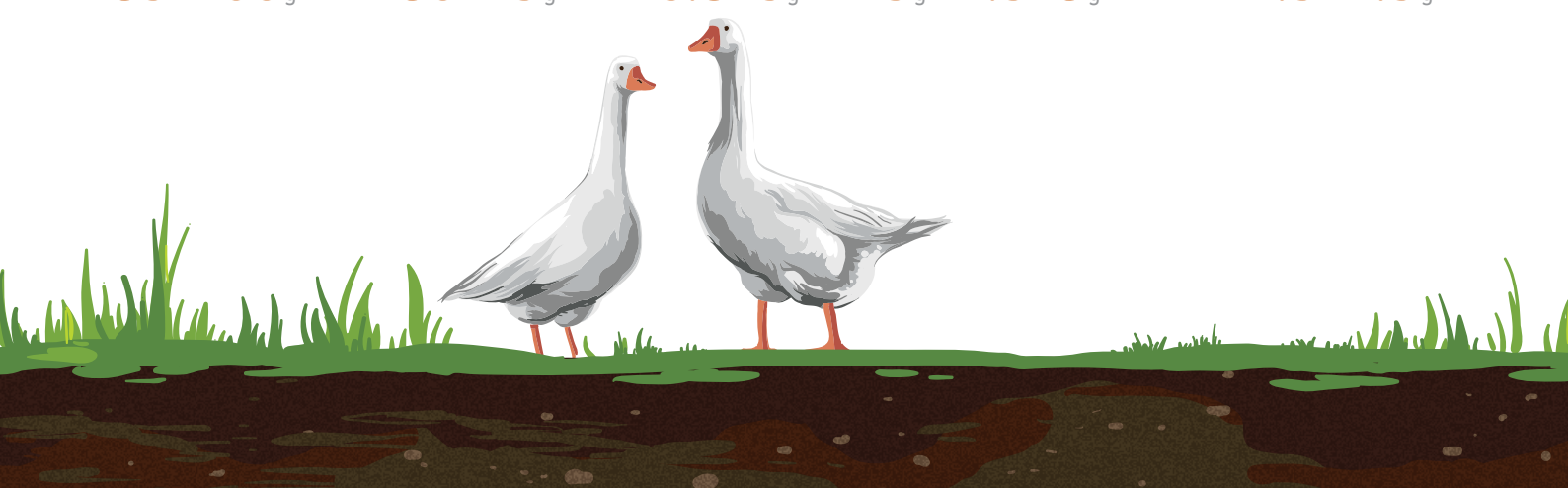
Phosphorus	Calcium	Moisture
22–23 %	**15–17** %	**max. 4.0** %

ADVANTAGES

- Increases productivity
- Promotes healthy breed
- Improves the nutritional value of meat, milk
- Reduces the fattening period
- Contributes to conservation of young livestock
- Reduces feed consumption

FEEDING

Milking cows	Bulls	Lambs	Ewes	Young sheeps	Poultry
35–100 g	**30–75** g	**0.8–5** g	**2–5** g	**1.5–3** g	**1.5–2.5** g



Recommendations

By phosphorus content and availability, monocalcium phosphate meets the world market's requirements both in terms of satisfaction of the physiological need of poultry for phosphorus and in terms of environmental protection.

Ensures uniform digestion. This leads to better intake and greater daily gain of broilers and piglets

Acts as a mould inhibitor and can be considered as a ready-mixed feed conserving agent

Reduces the number of bacterial and fungal organisms and prevents their generation

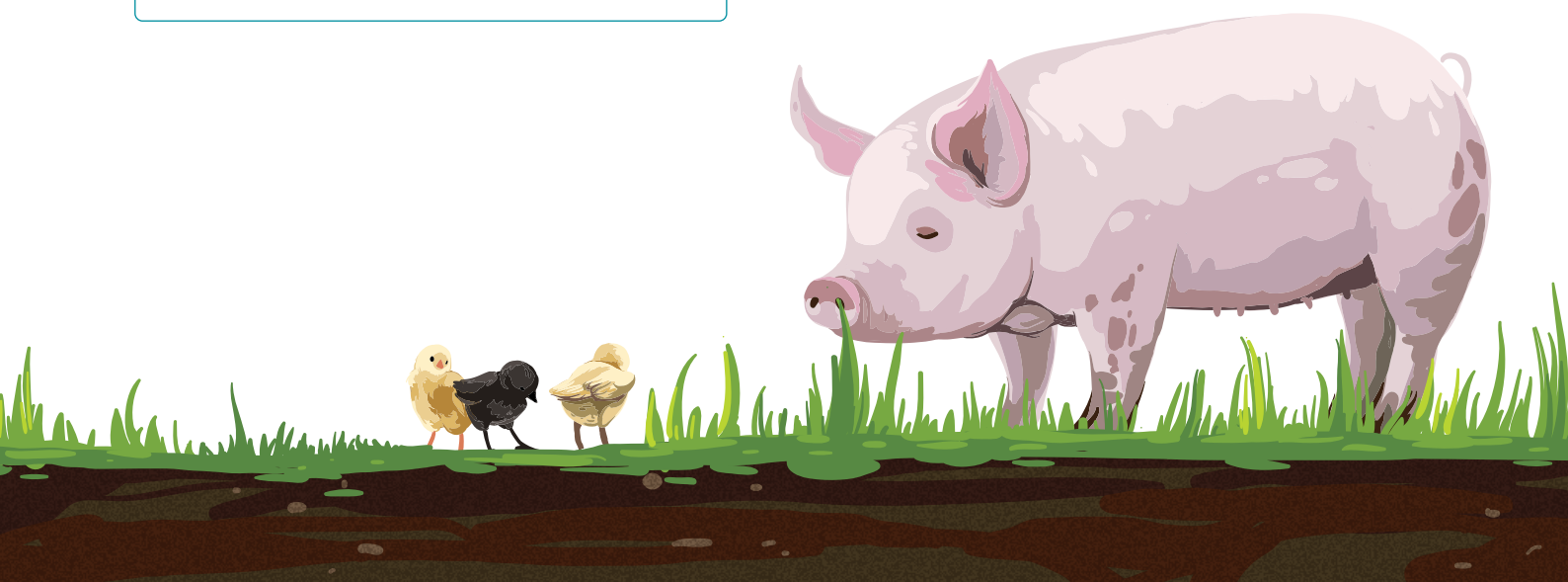
Has a light non-aggressive effect. The minimum pH of its 1% solution is 3.5. It does not destroy proteins and vitamins

Intake of 1 gramme of available phosphorus by livestock and poultry

based on the data of leading Russian institutions

	Share of available phosphorus	Consumption
Monocalcium phosphate	**99%**	**4.6g**
Dicalcium phosphate	92%	4.6g
Defluorinated phosphate	87%	6.4g
Tricalcium phosphate	40%	22.4g

Lower costs to meet the daily need for phosphorus when using monocalcium phosphate which has the highest total phosphorus content and features good digestibility. This reduces customer's overhead costs and providing variability of ready-mixed feeds, premixes and protein-vitamin mineral supplements.



Feed grade urea

$CO(NH_2)_2$

Urea is used to replenish the deficiency of available protein in the diet. It is an industrial chemical product of the interaction of ammonia and carbon dioxide.

Feed urea is used to replenish the nitrogen deficiency in diets of ruminants. The use of feed additives replenishes crude protein deficiency in diets of ruminants, which leads to their growth, development and increased productivity.

COMPOSITION

Urea	Nitrogen	Biuret	Mass fraction of total water
≥97 %	≥46 %	≤1.4 %	≤0.5 %

ADVANTAGES

- Supplies nitrogen to microorganisms of the digestive tract
- Has a positive effect on the synthesis of milk and muscle bulk
- Contains no genetically modified products
- Partially replaces and reduces the consumption of other feeds and additives
- Can replace 20-25% of the required protein in livestock's diets
- Compatible with all feed ingredients, drugs and other feed additives

FEEDING

Cows	Calves older than 6 months	Fattening calf bulls	Sheep
80–150 g	40–50 g	100–120 g	13–18 g

The highest daily dose of urea per 5 kg of live weight of cattle and sheep shall not exceed 1 g. The daily dose is fed for 2-3 times. It is introduced gradually into the diet during 10-15 days, starting with small doses, without breaks. In case of breaks, feeding shall be proceeded with small doses.

Recommendations

Urea is provided with ready-mixed feed, concentrated mixture or silo, thoroughly mixed. Feeding doses with ready-mixed feed or concentrates (grain feed):

Cattle

2.5–3 %
of feed mass

Sheep

3–4 %
of feed mass

It is introduced with molasses as 1:8–9. When feeding with the silo, the additive is mixed with the silo immediately before livestock feeding in the ratio of up to 1% of the silo mass, or the silo is treated with an aqueous solution prepared 1-3 hours before consumption in the ratio of 1 kg of urea per 2-3 litres of water.

The daily dose is fed for 2-3 times. The highest daily dose of feed urea per 5 kg of live weight of cattle and sheep shall not exceed 1 g.

The additive is compatible with all feed ingredients, medicines, and other feed additives. Livestock products after application of this feed additive can be used for food purposes without any restrictions.

Agricultural consulting

We help to develop an individual program of effective mineral nutrition for obtaining the most profitable high-quality crops for a wide range of agricultural producers: from agricultural holdings to small farms.

Our specialists

- Select the most suitable types of fertilizers for your soil and climatic conditions
- Calculate application dose and schedule
- Provide information about agrochemical properties of our products and research results.
- Provide agricultural support

Recommendations are based on data on:

- Soil fertility
- Amount of precipitation
- Crop's need for fertilizer elements
- Crop tillage and rotation on the farm
- Scientific and practical experience in obtaining maximum yields in the region
- Features of the variety or hybrid
- Yield use directions

Step 1
Soil sampling and agrochemical research.

Step 2
Crop rotation analysis and determination of the crop's needs for mineral nutrition.

Agricultural support

A comprehensive consulting programme for the entire growing cycle to ensure quality yields. The service is provided to agricultural holdings and large enterprises and includes all stages – from soil sampling to maintenance of implementation of the developed nutrition schedules.

- Development of recommendations for optimizing factors affecting agricultural production
- Enterprise staff training
- Monitoring plant development and yield
- Accounting of yields and analysis of agronomic and economic efficiency of the execution of recommendations

Other services

- Analysis of regional soil fertility and climatic conditions
- Agricultural calculation of the crop's need for fertilizer elements
- Interactive monitoring of crop state (NDVI index analysis)
- Soil and yield mapping
- Leaf analysis during vegetation

Step 3
Correlation of the crop's nutritional need and desired yield with analysis results.

Step 4
Selection of the rational formula and calculation of the dose of mineral fertilizers, determination of the application period.

Step 5
Customer support when applying the developed nutrition schedule, consulting support.

Where we work

The unique resource base, mining assets on the Kola Peninsula and up-to-date production facilities make PhosAgro one of the world's leading supplier of agricultural fertilizers. Russia is a priority market for the company. The effort and money invested in developing PhosAgro-Region, the Company's own distribution network, have for years supported PhosAgro's undisputed leadership as the largest supplier of all types of mineral fertilizers to Russian farmers.

№1
by total supply of all types of fertilizers to the Russian market

33
distribution centers in Russia

22
regional offices

74
regions of presence

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