

Safety Food

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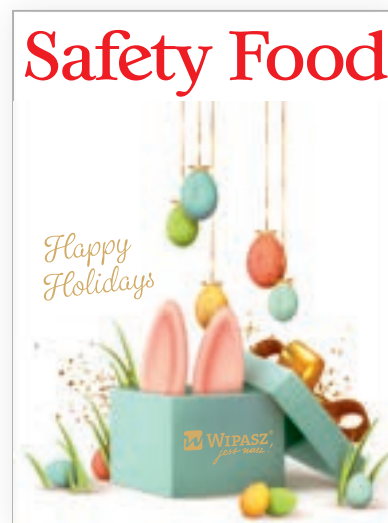
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Have a question for experts in the animal nutrition or poultry meat industry? Write to us! This magazine was created to respond to the needs of our customers.



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Ladies and Gentlemen:

I think that our lives during the COVID-19 pandemic are slowly returning to normal. However, another great misfortune has occurred across Poland's eastern border: Russia assault on a free Ukraine. We know World War II from the stories told by our old grandparents or from movies. Therefore, for us Europeans, citizens of the Western and democratic world, a war in which a man kills another man is incomprehensible and terrible.

This shows how we should respect and cherish democracy, because it prevents unjustified aggression between nations. Because of our history, Poles have the best understanding of this problem. Ukraine and its citizens are suffering for their freedom, but also for ours - the freedom of democratic Europe. We know from the history of World War II what autocrats are capable of. Therefore, we must help Ukraine in this fight as much as we can. Ukraine is the granary of Europe and Russia, the aggressor, wants to take control over it. Ukraine is a powerful exporter of wheat, corn, sunflower oil, etc. Without these supplies of those important commodities, shortages will occur around the world and poor people will experience hunger.

Wipasz S.A. wholeheartedly supports a free Ukraine and for Ukrainians. We welcome refugees - mothers with children and elderly persons - and provide extensive support to humanitarian efforts. The popular World War II-era saying "see you after the war" has sadly become relevant these days. Therefore, I also address to each of you with these words: "see you after the war, *Glory to Ukraine, Glory to the Heroes!*"

A handwritten signature in blue ink that reads "Józef Mucowski". The signature is written in a cursive style.



Our clients, contractors and friends,
we wish a wonderful and cheerful Easter!

Let it be a time full of family warmth,
positive energy and rest from everyday stress.

A handwritten signature in blue ink that reads 'Joey Mincicchi'. The signature is fluid and cursive, with the first name 'Joey' being more prominent than the last name 'Mincicchi'.

CEO



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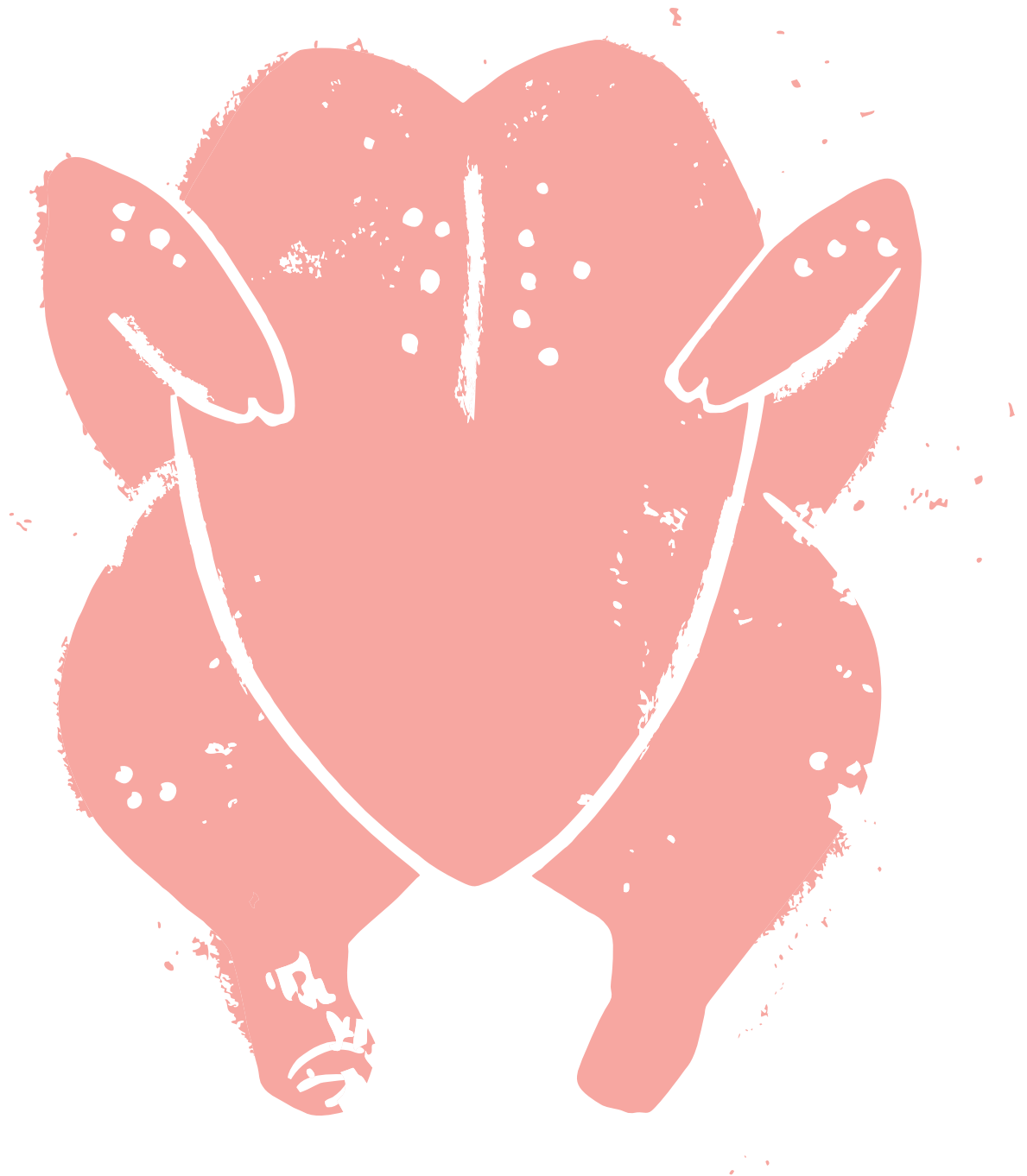
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Certificates held by Wipasz S.A.

Michał Jeżewski – Export and New Business Manager Wipasz S.A.

Wipasz S.A. holds all required quality certificates, such as **IFS** and **BRCGS**. Of course, this is the standard, but Wipasz always strives to exceed standards and to set new paths and trends in food quality, animal nutrition, and animal welfare. This is evidenced by additional certificates, such as **BRCGS Module 11** and **ASDA Certificate** – a unique certificate from a chain of British stores that confirms the highest quality of food. We also have the **HALAL** certificate, which allows us to supply products to markets in Muslim countries and societies.

Our distinguishing mark, not only on the Polish market, but also in Europe, is the **QS Zertifikat** – German animal welfare certificate that proves that animals (in our case – chickens) are bred according to strictly defined criteria and are scrupulously monitored. This ensures full product traceability from feed, through hatchery, chicken house, transport, slaughtering, and cutting, to the final product. This is a testimony that our products are healthy, safe, and of high quality.

However, **QS** is just the beginning and the first step. Wipasz went further to make our products even better and animal welfare levels even higher. We are the one among a very few companies in Poland and Europe that have the **ITW** (Initiative Tierwohl) certificate, which entitles us to label our products with both the ITW mark and the **Haltungsform 2** mark, which confirm the application of the following chicken breeding conditions:

- ☒ a strict antibiotic policy;
- ☒ toys, perches;
- ☒ maximum density of 35 kg/sqm;
- ☒ an organic bedding, such as straw/pellets;
- ☒ windows in chicken houses to provide access to natural light.

Thanks to this certificate, the traceability of our products is fully transparent and the consumer can verify the quality of our products 'from a field to a table'.

Wipasz has more to offer. We are the first company in Poland and one of a few companies in Europe to produce **no GMO** poultry feed, certified with the '**VLOG geprüft**' (Verband Lebensmittel ohne Gentechnik e.V.) mark. Our poultry plants are also VLOG certified and authorized to use the '**Ohne GenTechnik**' label on meat products. This puts us at the forefront of European poultry producers and allows us to be a trendsetter in the local market. We also produce a vege feed for chickens.

Thanks to the above-mentioned actions and our unique projects on the European market, such as the Polish Chicken Research Center and The Green Farms, as well as our own continuous education and that of our business partners, we are able to meet even the strictest quality and welfare requirements in the production of chicken meat. This is evidenced by the **KFC-YUM Brands** certificate, which allows our meat to be present in the popular restaurant chain throughout Europe.

Wipasz stands for more than feed, production facilities, and chicken meat production. Wipasz is all about the people who make up this company and without whom it could not function. Therefore, to emphasize how important our colleagues are to us, we have obtained the **SEDEX-SMETA** certificate which confirms that we work with the highest ethical standards, with full respect for others, and with a focus on development and continuous improvement of working conditions.

To sum up, Wipasz stands for continuous education, improvement, trend-setting, care for animal welfare, and the highest quality of products that reach consumers' tables all over the world. Wipasz stands for respect for another human beings: our products are tasty, healthy, nutritious, and produced to the highest standards.



QS. Ihr Prüfsystem für Lebensmittel.



Veterinary Clinic of Wipasz S.A.

– modern poultry veterinary medicine in practice

Mateusz Barszcz – Regional Manager, Veterinarian Wipasz S.A.

The recent changes to EU laws contained in Regulation (EU) 2019/6 of the European Parliament and of the Council, which concerns a reduction of the use of antibiotics in poultry, the increasing consumer demands to reduce their use, and the growing demand for antibiotic-free meat make it necessary to look for new breeding and veterinary solutions.

In order to meet consumer expectations and to help the breeders working with us as part of an integration to adapt to the changing trends, we have decided to expand our services to include veterinary care for broiler flocks.

As a leader in the poultry market in Poland, Wipasz S.A. employs the best specialists in poultry breeding – zootechnicians, nutritionists, as well as veterinary doctors and technicians.

Our joint activities and the use of the results of research projects conducted by the Polish Chicken Research Center enable us to develop optimal methods of breeding, prevention, and treatment of poultry.

The solutions that have been developed make it possible to lower production costs and reduce the use of antibiotics, and even replace them altogether, thus improving the production results. This has been proven many times on our Green Farms and among breeders cooperating with our veterinary clinic in Międzyrzec Podlaski.

Due to the high variability of pathogens and the ever-increasing resistance of bacteria, it is necessary to constantly monitor the epizootic situation in a given area and to continuously improve biosecurity in order to ensure the highest standards of farm safety and the best quality of poultry.

We are proponents of gradual evolution and tailoring of medical interventions to the needs of each flock, which is why we provide comprehensive advice on broiler rearing and breeding – each farm and flock of birds is different and requires a separate approach.

Our team assists farm owners at every stage of the production cycle, i.e. cleaning and disinfection of the farm, serological surveillance of each flock, etc., which enables effective use of vaccinations. We cooperate with leading laboratories in the country and abroad, and we know that prevention and diagnostics is the basis of modern veterinary medicine. By using state-of-the-art technology and analyzing all the data received from the integration – from the feed, through the chick, to the finished product, we are able to continually work on improving meat quality and breeding parameters, such as feed conversion, mortality, and the EPEF.

If you have any questions, please contact me:

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The paper market in 2022.

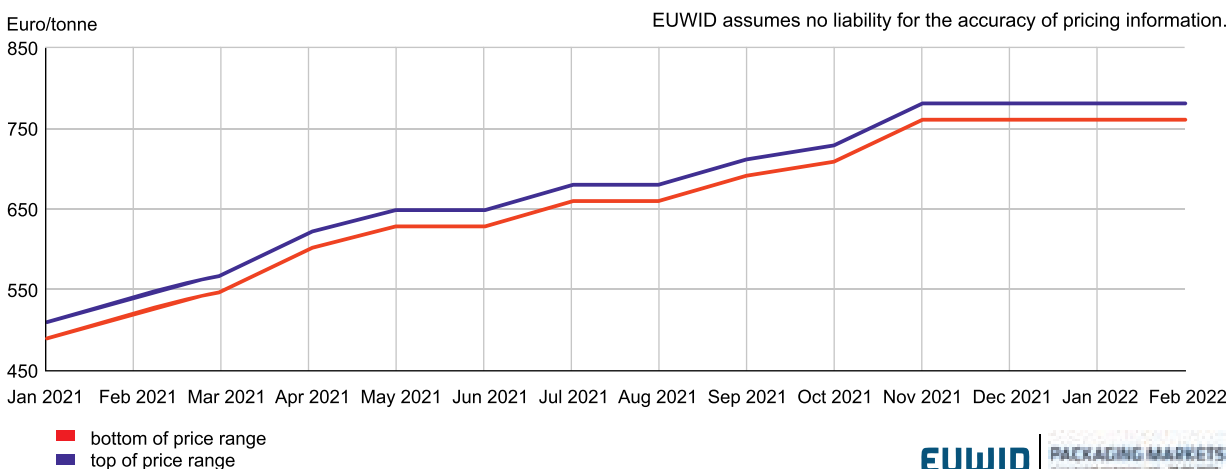
When will demand be equal with supply and have the eco trends already changed the market?

Paweł Szczerbicz – Director of Central Procurement and Sourcing Department Wipasz S.A.

“It’s fortunate that this old year is over” – surely this is a phrase that has been uttered very often in purchasing departments not only in the meat industry. Recently, purchasing negotiations have focused on limiting the magnitude of price increases rather than on lowering prices. The primary goal was to maintain purchase volumes and obtain materials from the market at times that would enable maintaining continuity of production at our two poultry plants. Our suppliers were not taking orders or were reducing orders by 30–70%. The carton packaging category in the central purchasing department has a key share of nearly 40% of the total. Apart from corrugated and solid cardboard cases used in logistics, the category also includes cardboard wrappers and trays used in the visual identification of the Chicken from the Green Farms product. In the third and fourth quarter of the previous year, the increase in paper prices on the EUWID European markets continued. The Wipasz supplier market reached its peak in the fourth quarter of 2021. The offered prices often exceeded the price increases manifested in the EUWID index or significantly ex-

ceeded the rising costs (electricity, gas, wages, and oil) affecting cardboard prices. This was due to the surging demand from businesses and the need to build high inventories already for the first quarter of 2022. Thus, the demand outpaced by far the supply that manufacturing companies could bring to the market. The price at which they would deliver the goods was not fixed until the day the paper was delivered to the paperboard production company. The growing global demand for corrugated board has led to many decisions by paper mill managers to switch from production of paper for newspapers to production of cardboard. In the second half of 2021, measures were taken to increase the supply of recycled paper at the expense of solid paper. The beginning of 2022 has brought a decidedly different situation for now. This is very evident from the EUWID quotes shown below. The last three quotation readings show no change in price. After a period in the fourth quarter of 2021 when demand exceeded supply by far, a balance has been restored. This is shown in the chart, which reflects the changes in the market after a period of time (ex post).

Chart 1
EUWID Price Watch Packaging Paper Germany Recycled corrugated case material Wellenstoff.



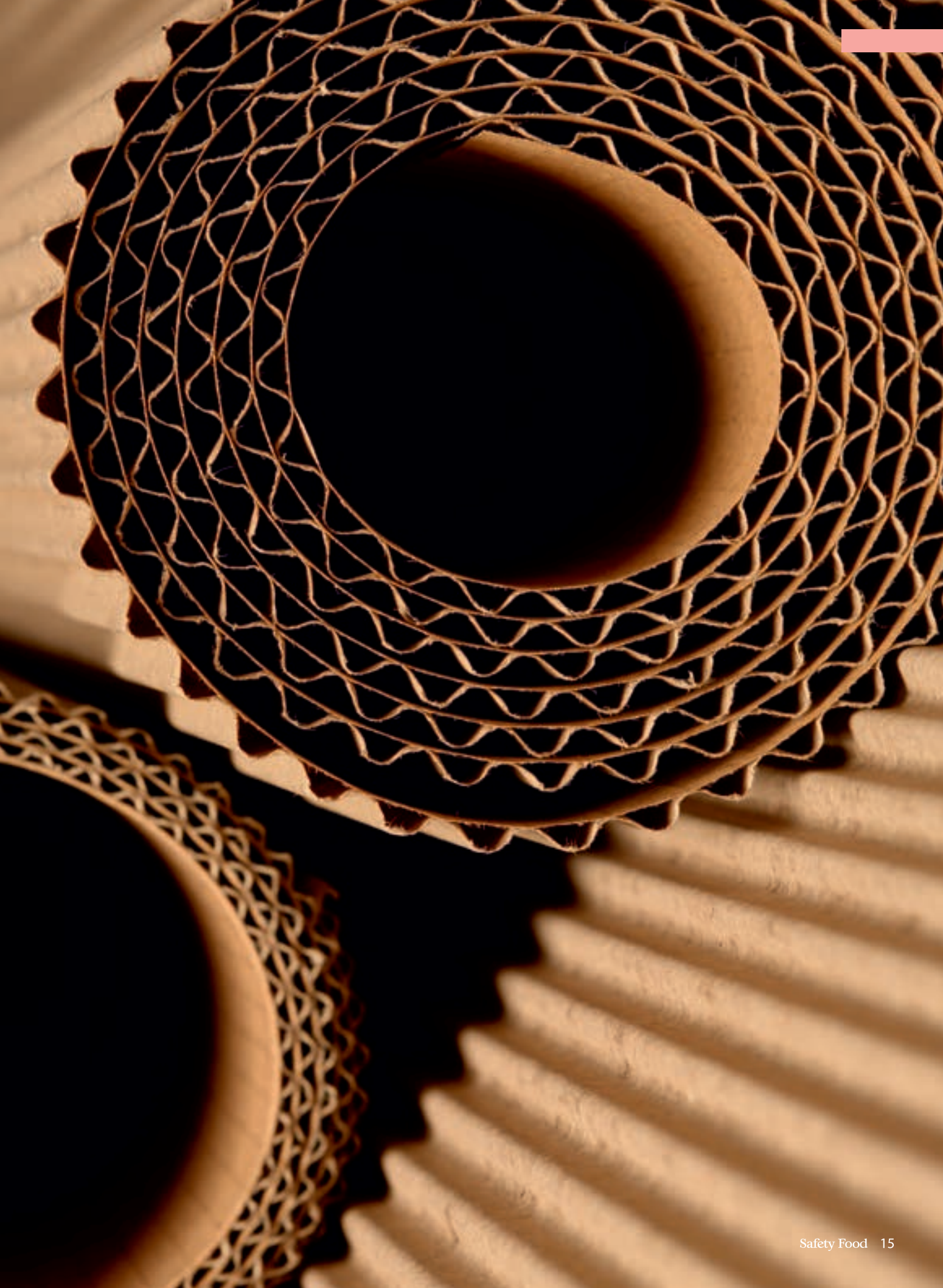


The best reflection of these numbers has been noticed by the Wipasz Purchasing Department since mid-December. Supply availability was not reduced and prices were rising somewhat more slowly. We are currently seeing a breakthrough in the corrugated carton category and the market is slowly changing from the supplier's market to a balance between buyers and sellers. Prices lower than last year's maximum prices are already agreed during negotiations. If the geopolitical situation and the war in Ukraine do not disturb the situation in the market, we may expect the first decreases in quotations since several months ago. We are also seeing concessions on the part of suppliers in terms of pallet storage time and pallet handling costs. More and more companies are offering their cooperation. In 2021, we saw almost no such situations (phone calls and inquiries). This confirms that the production capacity of companies and the supply of paper in the market have increased, which in the worst case should lead to a stabilization of prices, despite the growing costs other than those of raw materials, faced by producers, as well as the high inflation.

Another segment of the paper market is lightweight paper used in the manufacturing process for labels and excise tax strips for our finished products. Wipasz uses millions of them every month. In the purchase portfolio, it corresponds to almost 7% of the total purchases. The situation in this segment is different. Polish printing companies are fighting for every meter of feedstocks. The supply chain for label backing materials has been hit hard by strikes at the UPM company in Finland. The problem began on 1 January this year. Unfortunately, recent information indicates that the Paper Workers Union will continue the strike until at least 2 April. It is estimated that about 200 workers from 7 factories that are members of the Union perform work for the Finnish

State instead of the UPM. The Federation of Transport and Maritime Management has also joined the strike and, as a result, the handling of UPM paper and pulp at Finnish ports is blocked. Unfortunately, this category is experiencing great difficulties in terms of supply, with label stocks at Wipasz close to the minimum. Prices are rising, supply is lacking, and demand has not changed for months. Supply chains have been disrupted and forecasts are not very optimistic for the second quarter of this year.

At the beginning of the year, further expansion of cardboard packaging at the expense of plastic packaging on the Polish packaged meat market can be observed. Cardboard trays are hard to get and the quantities that can be purchased in the market are limited by individual suppliers. The cardboard Chicken from the Green Farms project is playing an increasingly important role, gradually reducing the share of plastic trays in Wipasz's purchase portfolio. Growing demand and limited supply are pushing prices in this category up by as much as several dozen percent compared to a year ago. New tray and bag solutions for packaging products weighing about 500 g are appearing on the market. The materials used have a cardboard to plastic ratio from 40/60% to as much as 80/20%. The last six months of market observations and news concerning cardboard projects in the industry that are underway confirm that in the next few years this technology will be very important. The European Union's paper/cardboard recycling level of 85%, compared to only 42% for plastic packaging, is also a valid argument confirming this expectation. It is therefore important to bring to the consumer market preferably single-material cardboard products in order to maximize recycling, as well as unprinted and unpainted products that can be easily separated by machines in the mechanical treatment of waste.



Food Industry Fair 2022

Maciej Stawicki – Deputy Sales Director Wipasz S.A.

The food industry trade show is undoubtedly a must-see in the calendar of every meat merchant. The COVID-19 pandemic has severely limited the organization of all kinds of mass meetings, including exhibition fairs. Some events were held online only and some were cancelled. Now that the epidemiological situation is becoming predictable and most countries are reducing or completely lifting restrictions, business fairs are also organized again. It is with hope and joy that we are preparing to meet with our current and future business partners at trade fairs in 2022. This article is a subjective selection of events to watch out for in 2022.

Business is about people, and people are about relationships. A key prerequisite for business is building desirable relationships, with meeting in person at a trade show being its essence. Food industry trade fairs are also an excellent platform for exchange of experiences and comments on the market, the latest trends, opportunities, and threats.

Hence, in parallel to the exhibition hall, subject-specific panels on current issues are organized. This year we should undoubtedly expect topics in the following areas: e-commerce, the zero-waste trend, plant-based meat alternatives, and environmentally friendly forms of packaging.

Wipasz will be present as an independent exhibitor at the SIAL trade fair in Paris to be held on 15–19 October.

GULFOOD Dubai

This year, the largest annual food trade fair was held on 13–17 February in Dubai.

The fair hosted more than 2 500 exhibitors from over 120 countries who presented their products in exhibition halls with a total area of over 93 000 square meters. The number of people who visited the fair was nearly 60 000.

The next trade fair will be held in Dubai as early as next year.

www.gulfood.com

Tavola Belgium

Organized since 1982, this biannual food trade industry fair focuses on the development of new premium products.

The fair will be held on 20–22 March and will allow 17 500 visitors to get acquainted with the product offer of more than 500 exhibitors.

www.tavola-xpo.be

IFE 2022

The London food trade fair is the largest event of its kind in the UK. This year it will be held on 21–23 March. The last edition took place three years ago and coincided with the first Brexit deadline. This fact was probably the main reason why the event was not as popular as its previous editions.

For this reason, the offer of the upcoming fair seems particularly interesting.

Over a thousand exhibitors, 30 000 visitors, and more than 70 subject-specific panels on the latest trends in the food and beverage category are expected to be the strengths of this year's edition.

The fair is held every 2 years.

www.ife.co.uk

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ALIMENTARIA Barcelona

The Gran via Venue exhibition halls host the Alimentaria fair, which takes place every 2 years in Barcelona.

This year's edition will be held on 4–7 April and will attract nearly 2 500 exhibitors.

www.alimentaria.com

SIAL Canada

Canada's largest food industry trade fair this year will take place on 20–22 April in Montreal. This fair is held annually. The event brings together more than 1 200 exhibitors from over 50 countries. By organizing its trade fairs in different parts of the world (Asia, Europe, North America), SIAL provides an excellent platform to learn about these markets; SIAL Canada is also a place to meet representatives of businesses from the USA.

www.sialcanada.com

PLMA

The largest private label trade fair will be held in Amsterdam from 31 May to 1 June.

This is not only a food industry fair, but due to its importance and wide scope it is a must-see for all who are interested in the direction of development of private labels.

The trade fair is organized by the Private Label Manufacturers Association, which brings together retailers, wholesalers, and manufacturers to collaborate on the development of new concepts. Private labels now account for over 40% of all products sold in seven European countries and over 30% in nine other European countries.

www.plmainternational.com

Summer Fancy Food Show 2022

New York's annual food industry trade show this year will be held on 12–14 June. Because of its popularity, the Summer Fancy Food Show is a resource of information on the market, producers, and trends, and a great opportunity to meet purchasing executives across all distribution channels in the United States.

The fair is organized by the Specialty Food Association, which was founded in 1952 and has more than 3 000 members.

www.specialtyfood.com/shows-events/summer-fancy-food-show

SIAL Paris

SIAL Paris is still a must-see for industry representatives in Europe. Held every two years, it swaps places in traders' calendars with the Anuga trade fair, whose last year's edition has yet to return to its pre-pandemic scale.

This year's SIAL fair will take place in Paris on 15–19 October and will enable more than 7 000 visitors to meet with exhibitors from more than 200 countries.

The first SIAL fair in Paris was organized in 1964, so the next edition will be a jubilee event.

SIAL comprises 21 exhibition sectors that cover all product categories. SIAL also includes SIAL Innovations – a food innovation competition that corresponding to the latest trends, organized in 15 different categories, and SIAL Talks – subject-specific conferences and discussions.

www.sialparis.com



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International Pavilions
Pavillons Internationaux

HALL
8

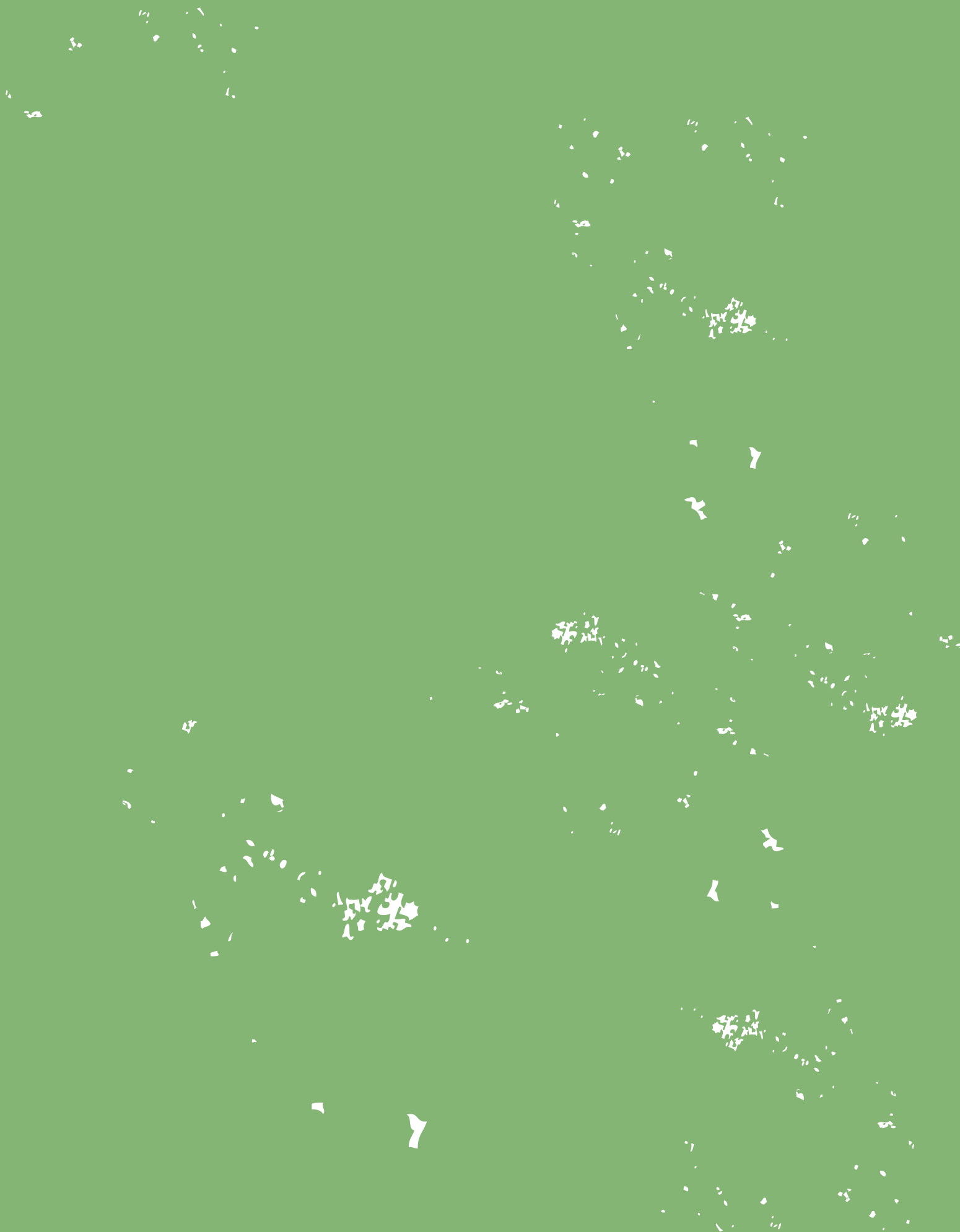
LATIN
AMERICA



SIAL

looks forward to seeing you
FROM 15 TO 19 OCTOBER 2022





In this section you will read:

- The impact of global climate policy on vegetable oil prices



The impact of global climate policy on vegetable oil prices

Mateusz Pałejko – Purchasing and Market Analysis Director Wipasz S.A.

The world entered the era of industrialization more than 200 years ago. This is associated with an ever-increasing demand for energy, which is mainly produced from raw materials such as coal and crude oil. At the current consumption rates, these raw materials are projected to last for a few decades or a little over 100 years. Production of energy from coal and crude oil generates a lot of climate and health damaging substances that cause global warming and many respiratory diseases.

Due to the need for alternative energy sources, the world's economies began to work intensively on the invention of other methods of energy production, as well as new fuels that could replace fossil fuels. These are called renewable energy sources and include wind, hydro, geothermal energy, and biomass. They have many advantages over energy produced from coal or crude oil.

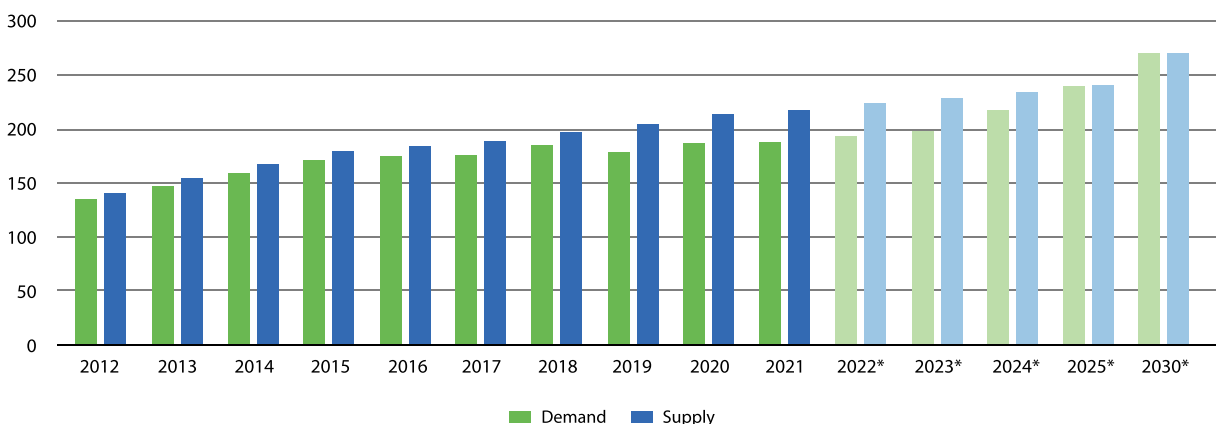
For the agro-industry, the most important 'renewable energy source' in terms of impact on our market is undoubtedly energy from so-called biofuels. The raw materials used to produce the main biofuels, namely bioethanol and biodiesel, come exclusively from agricultural production, the most important being corn and rapeseed. Biodiesel is made by way of chemical processing of vegetable oil (e.g., rape

seed, soybean, or palm oil), and bioethanol is dehydrated ethanol made from cereals (usually corn or sugar cane).

This undoubtedly resulted in a significant increase in demand for these commodities, which caused a sharp rise in their prices and ultimately translated into a noticeable change in the profitability of their production. Today, the demand for these commodities for biofuel production constitutes a real competition for the animal feed industry. For example, about 50% of the corn produced in the USA is used for bioethanol production and a similar trend can already be noticed in Europe as well as Poland. The situation is similar with vegetable oils, which are commonly used in the food and feed industry. In Poland alone, 70% of rapeseed oil is bought by fuel companies, where it is used to produce biodiesel, and only 30% is consumed. For the past few years, the same trends have also been true for animal fats. Today, the feed industry's biggest competition is the biofuels industry and the end result of biofuel production from agricultural feedstocks is ever-increasing food prices.

The chart below shows the production and total consumption of vegetable oils in the world in the past along with future projections (through 2030).

Chart 1
Demand for/supply of vegetable oils in the world (MLN tonnes).

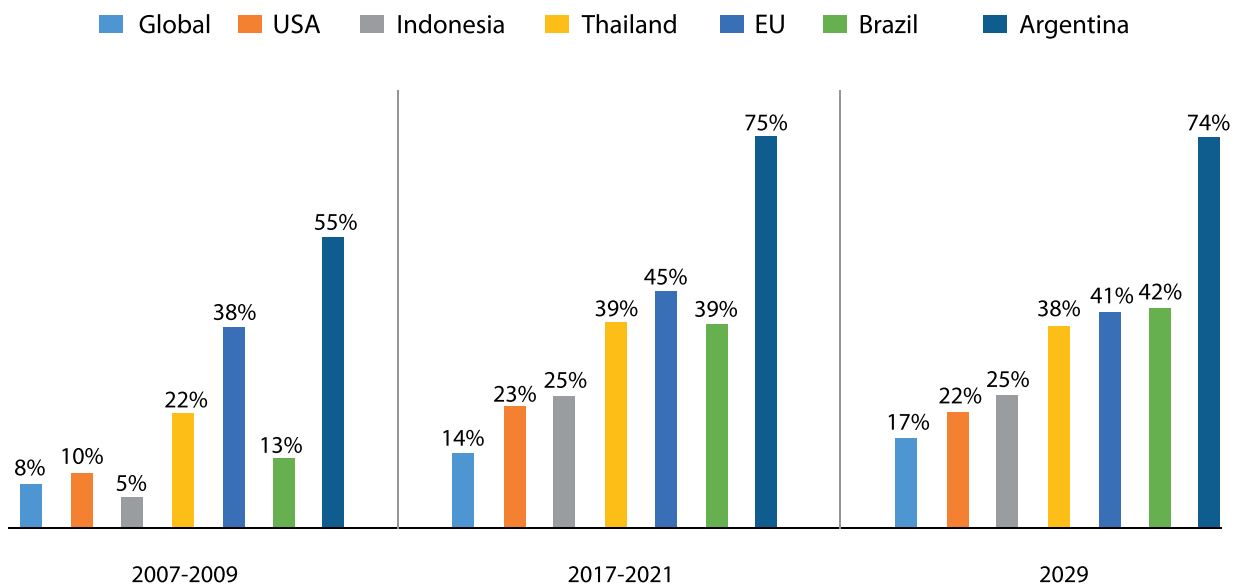


As you can see today, production outpaces demand and prices are still at record levels. Unfortunately, in 2030, demand is projected to increase significantly due to a lower and limited supply - the two values will be nearly equal to each other. What will the prices be then? Probably they will reach new record levels.

tion in each major region of the world. The percentage in each region has increased significantly over the years. The high percentage in South American countries is due to their ability to produce a large quantity of soybean (both Brazil and Argentina are among the top 3 soybean producers in the world) and thus to ensure easy and cheap availability of this raw material.

For a better understanding below is a graph showing the share of vegetable oils in biofuel produc-

Chart 2
Percentage share of vegetable oils in the production of biofuels in the world.



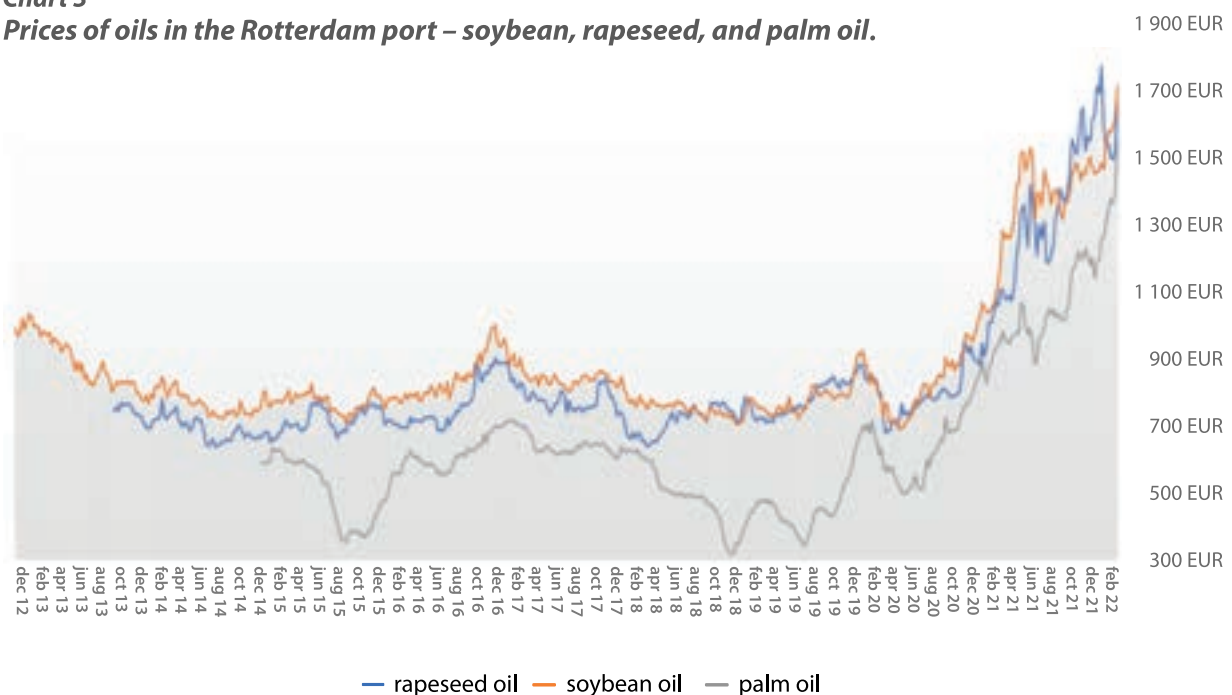
As you can see, in addition to food consumption, vegetable oils are increasingly used for biofuels. Each year, the countries worldwide set a mandatory minimum percentage of biofuel content in fuels. These indicators continue to rise, which translates into an overall increase in demand for oilseed commodities.

The effect of this demand can be seen below in the charts for several of the major vegetable oils used in feed production. The last 2 years have seen continuous increases in the price of oils. Of course, this is mostly the result of the pandemic, bad weather, and smaller harvests in the major oilseed producing countries. However, the growing absolute demand for these crops for biofuel production and not just for the food sector, as was the case just a decade or so ago, is also contributing to this growth to some extent.

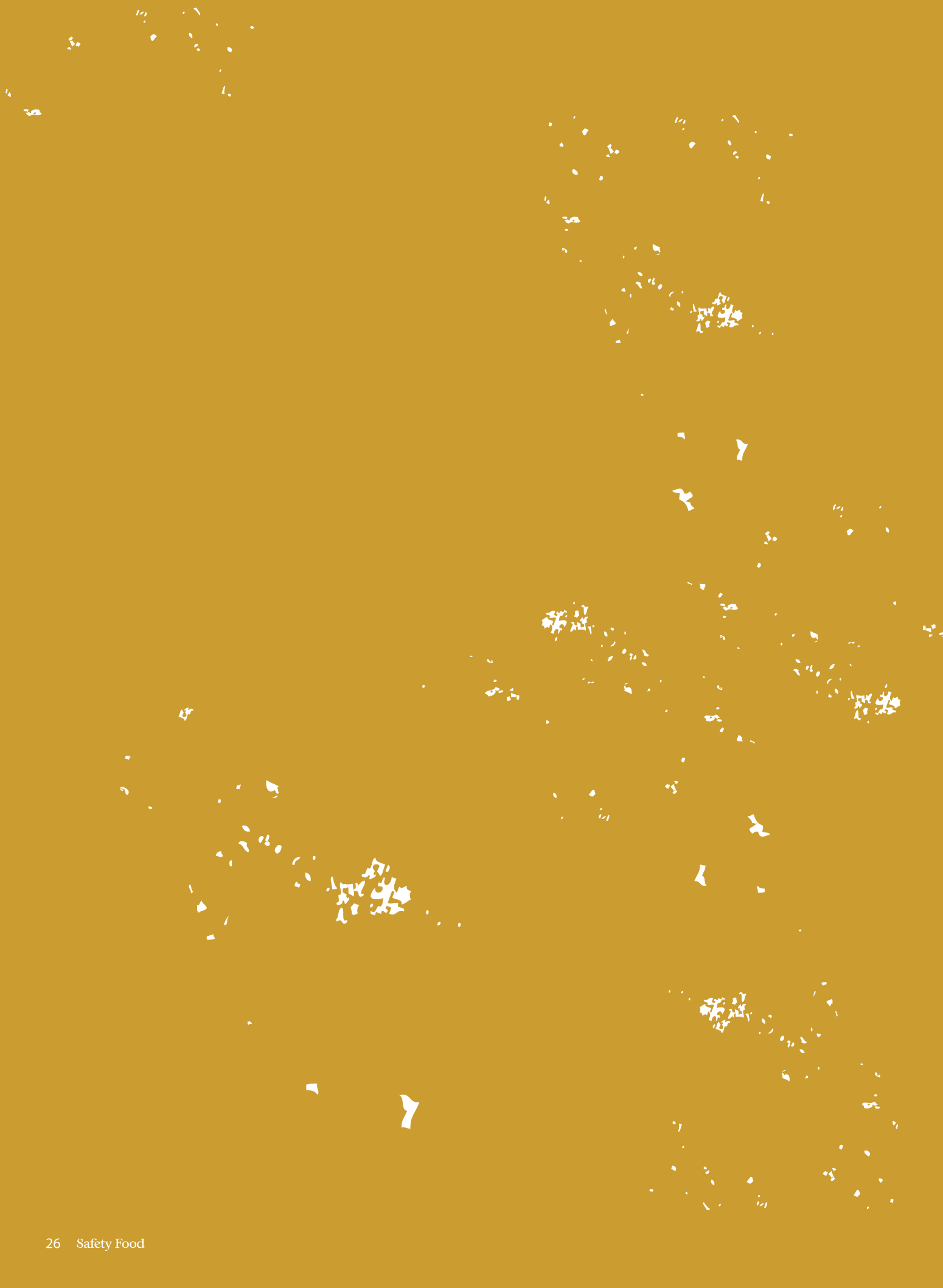
The use of vegetable oils for biofuel production was supposed, first, to make the world less dependent on crude oil and coal; second, to be much less harmful to the environment; and third, to contribute to rural development and agriculture. Unfortunately, like all other things, the stick also has two ends. We still consume large amounts of coal, especially in Poland. Additionally, agricultural production is not as low-carbon and harmless as assumed. Only the third assumption actually materialized.

Today we face a huge dilemma: should we choose biofuel production or feeding people. The imbalance between supply and demand contributes to a sharp increase in raw material prices. This in turn translates into more expensive oils not only for fuel production, but also for food production. In view of this, it is safe to say that the profits of some – oil producers and biofuel companies – can cause the poverty of others – the basic consumers of vegetable oils – especially in poor countries, where food costs constitute a large part of household budgets.

Chart 3
Prices of oils in the Rotterdam port – soybean, rapeseed, and palm oil.







In this section you will read:

- Characteristics of the enzymes used in the feed industry



Characteristics of the enzymes used in the feed industry

Adrian Dąbrowski – Feed Formulation Specialist Wipasz S.A.

Since the late 1980s, feed enzymes have played a major role in dramatically improving meat and egg productivity by altering the nutrient profile of feed ingredients. Through their targeting of specific antinutrients found in feed, feed enzymes enable pigs, poultry, and other monogastric animals to extract more nutrients from feed, thereby improving feed efficiency. Enzymes allow feed manufacturers greater flexibility in selecting the type of feedstocks that can be used in feed formulations without any problems. In addition, they play a key role in reducing the negative impact of livestock production on the environment.

Enzymes in the feed industry

All animals use enzymes to digest feed. They are produced by the animal itself or by microorganisms that are naturally present in the gut. However, the digestive process in animals is not 100% efficient. Pigs and poultry are unable to digest 15–25% of the feed they consume because feed ingredients contain indigestible antinutrients that interfere with the digestive process and/or the animal lacks specific enzymes that break down certain feed ingredients.

Feed enzymes are used to increase the availability of starch, protein, amino acids, and minerals such as phosphorus and calcium from feed ingredients. In addition, they can be used to supplement enzymes produced by young animals in which enzyme production may be inadequate due to an immature digestive system. Enzymes are proteins that are eventually digested or excreted by the animal, leaving no residue in the meat or eggs. The benefits of feed enzymes include:

- ▣ improved performance and reduced costs – by breaking down antinutrients in the feed, allowing the animal to digest more efficiently;
- ▣ environmental benefits – by improving digestion and nutrient absorption, which reduces the volume of manure produced and the phosphorus and nitrogen excretion;
- ▣ improved intestinal health – as a result of improved digestibility, there are fewer free nutrients available in the animal gut that can contribute to the potential growth of pathogenic bacteria.

Enzymes can be added to feed in two ways. One option is to change the feed formula to reduce feed costs and maintain production performance – this involves reducing the concentration of nutrients in the formulation while maintaining farm performance at current levels. When this happens, the cost of the enzyme is usually covered by the benefit resulting from reduced feed parameters, and there is even an increase in the profitability resulting from the use of the formulation. The second option is to add the enzyme without interfering with the feed parameters, which can increase production efficiency by improving the feed conversion efficiency. This method, however, increases the cost of feed.

In practice, matrix values are often assigned to enzyme products. These values, calculated based on animal studies, are typically for phosphorus, calcium, protein, amino acids, and energy that are released from the feed components using the enzyme. However, one should keep in mind that in order for the assumed values to have the desired effect, the enzymes must be stable during storage and production of feed at high temperatures, active in the animals' digestive tracts, and not antagonistic to minerals, vitamins, and other feed ingredients.



Enzymes are classified according to the substrates they act on. Currently, enzymes that decompose fiber, protein, starch, and phytates are mainly used in animal nutrition.

Carbohydrases

Carbohydrases break down carbohydrates into simpler sugars. In animal nutrition, they can be broadly divided into those that work on dietary fiber and those that work on starch.

Enzymes that break down dietary fiber

All plant-based feed ingredients contain fiber, which consists of various complex carbohydrates (non-starch polysaccharides) found in plant cell walls. There are two main fractions of fiber: soluble and insoluble; depending on the fraction, fiber can act in many ways as an anti-nutritional substance. First, some nutrients, such as starch and protein, are trapped in insoluble fiber cell walls. Pigs and poultry are unable to utilize them because their bodies do not produce enzymes capable of digesting fiber in cell walls. Second, soluble fiber can form sticky gels in the intestines that impede nutrient absorption and slow the passage of food content through the intestines. Third, fiber can bind water and therefore water-soluble nutrients.

The two main fiber-decomposing enzymes used in animal feed are xylanase and β -glucanase. Xylanases break down arabinoxylans, which are one of the main components of the cell walls of grain feedstocks (wheat, rye, and corn) and their byproducts. β -glucanases break down β -glucans, which make up the cell walls in barley and oat grains. Other enzymes that decompose various dietary fiber fractions currently used in the feed industry include β -mannanase, pectinase, and α -galactosidase. However, they are used on a smaller scale.

Starch-decomposing enzymes

The degree of starch digestibility in plant feed ingredients varies depending on starch composition, its grain size, and the amount of resistant starch (not digested). All of these properties are dependent on the plant genetics, the growing conditions, and the harvesting, drying, storage, and feed manufacturing processes.

Amylases are enzymes that break down the starch present in grains, cereal byproducts, and some plant protein feedstocks. The digestive system of animals produces several amylases. Salivary α -amylases, secreted in the mouth, initiate starch degradation immediately after feed ingestion. Pancreatic α -amylase is produced in the pancreas and secreted into the duodenum, where the available starch is decomposed. However, piglets just after weaning are not able to secrete enough amylases to digest all the starch in the feed. This is due to their still immature digestive systems and low intake of feed, only an increased presence of which in the intestines stimulates the secretion of endogenous enzymes.

By increasing starch digestibility, amylases added to feed potentially enable monogastric animals to extract more energy from plant components. This reduces the amount of fat added to the feed.

Proteases

Proteases are a group of enzymes that are responsible for digestion of proteins. They are used in the feeding of monogastric animals to break down indigestible storage proteins and protein antinutrients stored in various plant materials. Proteases work by splitting protein molecules into smaller peptides or single amino acids that can then be used by animals.

Seeds, especially of such legumes as soybeans, contain a large amount of storage proteins. Storage proteins are produced primarily during seed development and are stored in the seed to provide a source of nitrogen for the developing germ during germination. These proteins are frequently bound to starch. Proteases can help break down storage proteins, releasing bound energy-rich starch that can then be digested in the animal's digestive tract.

The major protein antinutrients are trypsin inhibitors and lectins. Trypsin inhibitors are found mainly in the raw proteins of legumes, such as soybeans and tick beans. These inhibitors have an adverse effect on the digestive process in the gastrointestinal tract because they block the action of trypsin. Trypsin is one of the main enzymes secreted by the pancreas to break down proteins in the small intestine. Lectins, on the other hand, are sugar-bin-

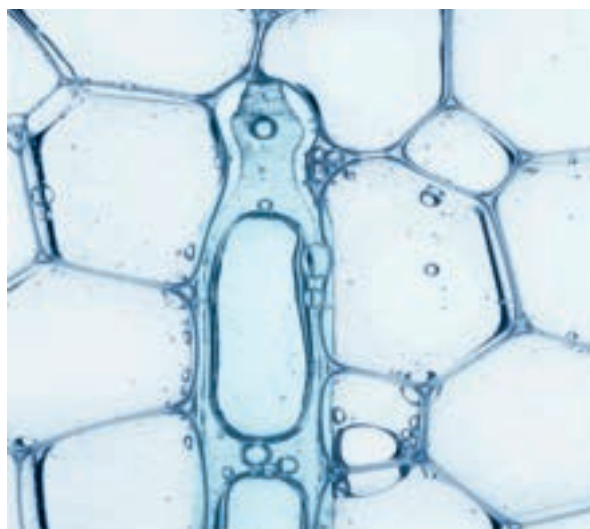
ding proteins that have also been shown to reduce digestive tract efficiency by binding to the intestinal epithelium. Both trypsin inhibitors and lectins cannot be digested or inactivated in any way by the animal's body. Although a common practice intended to combat these anti-nutrients is to heat seeds during processing, excessive heat treatment reduces the availability of important amino acids, particularly lysine. Thus, optimally processed seeds still contain residues of trypsin inhibitors and lectins. Proteases added to feed can therefore be used both to reduce the level of trypsin inhibitors and lectins, and to digest basic proteins, thus improving overall protein digestibility.

Phytases

Phosphorus is important for bone development and metabolic processes. Most of the phosphorus in plant ingredients is in the form of phytates, which are the main form of phosphorus storage in plant seeds. Phytase is an essential enzyme for degradation of phytates and release of phosphorus. Monogastric animals, however, do not produce phytase. In low pH conditions in the digestive tract, phytates are characterized by their ability to bind in complexes with minerals (such as calcium and magnesium), amino acids, and even whole proteins, making them impossible to digest. Supplementing the feed with phytase cuts off the phosphorus residues from the phytate molecule, which dramatically reduces its activity in formation of inseparable complexes. In addition, minerals and proteins already bound to phytate are released, which can then be digested and absorbed by the animal to improve production efficiency. Phytases also reduce the risk of environmental pollution by excess phosphorus excreted by animals.

Reduction of feed costs is a major reason for using feed enzymes. Feed accounts for about 70% of total pig and poultry production costs. The main feed nutrients for these animals are energy, protein, and minerals. The addition of enzymes improves the digestibility of these nutrients, allowing

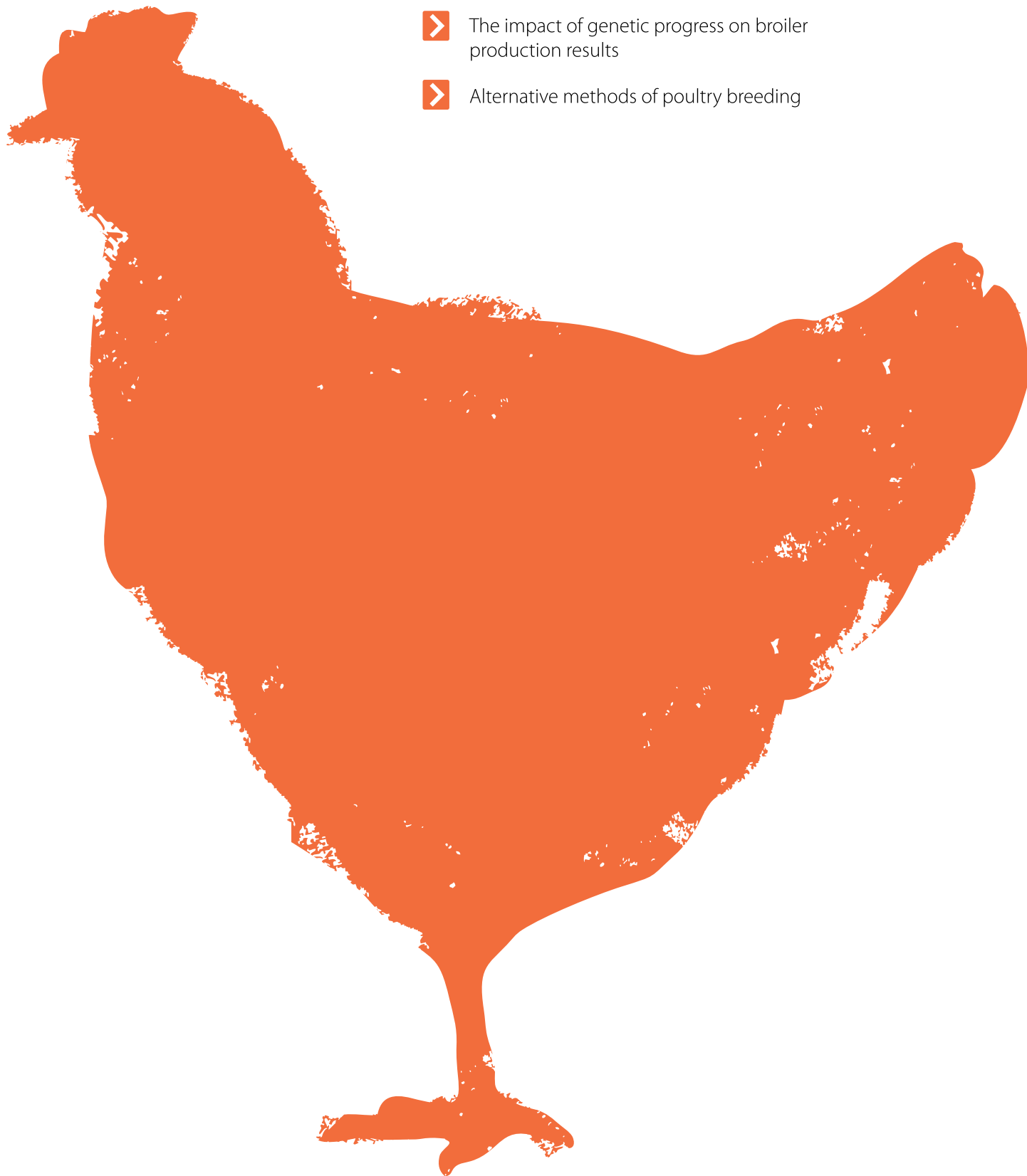
feed manufacturers to reduce their levels while lowering the cost of feed. The economic effect of adding enzymes to feed is largely a product of the cost of the enzyme versus the cost of such energy sources as oils and grains, such protein sources as soybean meal, and such inorganic phosphorus sources as mono- and dicalcium phosphate. Another factor driving the wider use of enzymes in animal feed is the issue of environmental protection associated with tightened regulations on emissions of phosphorus, nitrogen, and other substances from livestock farming. Increasing attention is also being paid to the carbon footprint of livestock production. Against this background, skillful use of enzyme properties by feed manufacturers, i.e. precise balancing of formulas to ensure the best possible animal production results and consideration for reduced emissions to the environment, perfectly matches the objectives of modern, sustainable animal production.





In this section you will read:

- Is using herbs in poultry feeding a good idea?
- The impact of genetic progress on broiler production results
- Alternative methods of poultry breeding



Is using herbs in poultry feeding a good idea?

Katarzyna Włodarska – Poultry Premix Sales Specialist Wipasz S.A.

Various types of feed additives used to improve feeding efficiency and maintain good health and condition of animals are attracting more and more interest in animal feeding. The unique properties of herbs have long been used in the prevention of diseases and treatment of both humans and livestock. The development of the chemical industry has resulted in replacement of natural medicines with artificial substitutes. The prohibition to use feed antibiotics in EU member states, introduced in 2006, may have resulted in a higher incidence of inflammation, diarrhea, and reduced weight gain in birds. The growing problem of drug resistance in bacteria has contributed to the search for natural substances that can be used in veterinary treatment and prevention. Thus, herbs have become a natural, organic alternative.

The main advantage of herbs is the content of many active substances, such as essential oils, tannins, glycosides, flavonoids, mucilages, and organic acids, which show anti-stress, antibacterial, antiviral, antifungal, and immunostimulatory effects. By increasing the secretion of digestive enzymes, they improve appetite and keep the bird's body in physiological balance. When used as feed additives, herbs are natural and safe ingredients that improve the productivity and quality of broiler meat. Herbal preparations are an effective means for maintaining the microbiological balance of the digestive system and also have a positive effect on the immune system of birds by reducing their susceptibility to infectious diseases. In addition, essential oils contained in plants show hypocholesterolemic effects, which means that they inhibit the activity of HMG - CoA reductase (a liver enzyme), thus regulating the amount of cholesterol synthesized and lowering its level in the blood. Garlic, for example, contains such substances, and its addition to feed can also reduce cholesterol content in eggs and poultry meat.

Garlic

Contemporary pharmacological and clinical studies have confirmed garlic's powerful antibacterial, antiviral, fungicidal, anthelmintic, as well as antioxidant, anti-inflammatory, and antiseptic properties. Unlike antibiotics, garlic does not weaken the body, but has a strengthening effect without causing complications. Its versatile effect is due to its chemical structure. The main compound found in garlic is odorless allicin, which is released by the enzyme alliinase when garlic is crushed. Allicin is a volatile substance that has a very strong and characteristic odor, and its effects are compared to those of antibiotics. Another important ingredient is inulin, a soluble fiber that stimulates the growth of beneficial intestinal bacteria *Lactobacillus* and *Bifidobacterium*.

Escherichia coli, a bacterium that often causes large losses in poultry production, which lives in the intestine of healthy birds, has a very useful function (e.g. synthesizes the enzyme lactase and vitamin K2), but only to an extent. An imbalance of the gut bacteria causes self-infection. *E. coli* attaches to the intestinal mucosa and multiplies, secreting the enzyme hyaluronidase, which causes changes in the intestines and multiple bird deaths. The allicin contained in garlic can prevent this.

Garlic is especially known for its strong effect on microorganisms that cause upper respiratory tract infections. Because of their air sacs of small capacity, birds have very delicate respiratory systems. The essential oils released when fresh garlic is crushed cause inhalation of the respiratory system of birds. In cases of excess antibiotic use, fungi that cause various types of mycoses immediately nest in the digestive tract has been sterilized and contains no good bacteria. When using garlic there is no such

Table 1
Biologically active substances in herbs.

Active substance	Effect	Occurrence
Alkaloids	small amounts show a healing effect and relieve pain;	lupine, coltsfoot, rosy periwinkle, henbane, nightshade, and autumn crocus;
Saponins	anti-inflammatory, antifungal, increase secretion of digestive juices;	fenugreek, alfalfa, common comfrey;
Glycosides	they have laxative and antioxidant effects, regulate the function of the heart muscle, and strengthen the walls of blood vessels;	horseradish, white mustard, foxglove, and bearberry;
Flavonoids	natural antioxidants, have a relaxing effect on the smooth muscles of the gastrointestinal tract and bile ducts;	plantain, garlic, chamomile, yarrow, and fenugreek;
Tannins	they reduce the permeability of mucous membranes and have antidiarrheal, antibacterial, and anti-inflammatory effects;	silverweed, nettle, common comfrey, and echinacea purpurea;
Essential oils	have antioxidant, antibacterial, antiparasitic, antiseptic, and immunostimulant effects, increase appetite, stimulate digestion, and enhance taste;	garlic, cumin, fennel, nasturtium, nettle, rosemary, sage, and thyme;
Organic acids	actively participate in metabolism, stimulate salivary, pancreatic, and gastric glands, and improve digestion;	common chamomile, mint;
Plant pectins and mucilages	are used for diarrhea and digestive system disorders in young animals, as they reduce inflammation of mucous membranes;	plantain leaves, lime blossom, flax seeds;
Bitter substances	irritate taste cells, stimulate appetite, and increase gastric juice secretion;	spotted thistle and great yellow gentian;

risk, because it has antibacterial and antifungal properties. It also provides ideal protection against flu viruses and, when paired with onions, it is a cure for all kinds of intestinal parasites, including nematodes, which can cause cecal inflammation and hepatitis in turkeys.

According to Majewska et al. 1999, a group of turkeys that were given a water extract of raw garlic 2 times a week during the fattening period was characterized by increased body weight, better feed utilization by about 3%, higher survival rates, and higher meat quality in comparison to the control group. However, remember not to give garlic every day, as intermittent therapy has better results.

Oregano

Without a doubt, oregano is a natural growth 'stimulant' among the herbs used in poultry feeding. Studies have shown that its addition has beneficial effects on health and feed intake and utilization. Including herbs in the feed also improves the quality of the products obtained from them. For example, oregano, which exhibits 3–20 times higher antioxidant activity than other herbs, can improve the oxidative stability of broiler chicken tissues exposed to transportation stress, and additionally helps maintain normal meat color.

Several studies have proven that oregano effectively destroys many bacterial pathogens, including *Klebsiella*, *E. coli*, *Salmonella*, and *Staphylococcus aureus*. The key to fighting these conditions is to eliminate pathogens while supporting probiotic bacteria in the gut, which oregano does very well. In addition, it acts as a powerful antifungal agent. Of particular importance is oregano's ability to fight *Candida albicans*. Studies have also indicated oregano's strong antiparasitic effect. Like garlic, oregano is used to support the proper function of the respiratory system. The combination of strong antibacterial and antifungal properties makes oregano an ideal remedy for these types of infections.

Ginger

This is another versatile remedy, but like most herbs the best results are obtained by using its fresh form. Ginger phytoncides inhibit the growth of bacteria,

viruses, parasites, and fungi. When added to feed, it reduces the likelihood of parasites in broilers' digestive system. The 6-week fattening period for chickens is based primarily on feed intake and sedentary rest, which, with the rapid growth rate that characterizes broilers, can cause limb swelling that the consumer may perceive as a carcass defect. When used in doses of several grams per kilogram of feed, it significantly improves circulation, prevents swelling of the limbs, and has an analgesic and anti-inflammatory effect. Ginger stimulates the secretion of saliva, digestive enzymes, and mucus in the digestive system, improving its proper functioning. It improves feeding efficiency through better utilization of feed intake, which results in increased growth. The calming effect reduces deaths in the herd, especially during periods with increased incidences of heart attacks due to sudden stress. Ginger used in chick nutrition supports the immune system at the most critical times of rearing, when stress levels are highest and the body is most vulnerable to infection.

The prohibition to use antibiotics has brought back the use of natural and therefore organic substances in production. Replacing artificial boosters with herbs improves bird health. It contributes to better functioning of the immune, respiratory, and digestive systems by reducing the incidence of many bacterial, viral, parasitic, and fungal infections, which results in reduced use of pharmacological agents in production. In addition, the use of herbs has a beneficial effect on production outcomes, better feed digestibility, and higher meat and egg quality.

Sources:

Majewska T., 2018, *Drobiarstwo niekonwencjonalne, PRO AGRICOLA Sp. z o. o., 2nd edition, supplemented.*



The impact of genetic progress on broiler production results

Tomasz Kisiel – Regional Sales Director Wipasz S.A.

We have already covered the topic of the impact of genetic progress on broiler production results in 2018. An analysis carried out in the past few years leaves no illusions about further breeding progress. The situation is inspiring on the one hand but raises concern on the other.

Let us briefly describe what genetic progress is. It can be briefly defined as the genetic gain between the value of one or many traits of the parent flock and the offspring. It is achieved in several stages including pedigree farms (pure lines, e.g. A, B, C, D), grandparent farms (2-line hybrids AxB, CxD), parent farms (ABxCD), and commercial farms (ABCD). Parent farms work with poultry hatcheries to produce crossbreds that go to the commercial farm.

This is where our analytical work related to evaluation of the production traits of birds, in this case broilers, begins. As a brief reminder, below is a table showing the changes in production parameters from 2010 to 2017.

Year	Average breeding days	Average body weight (kg)	FCR (kg/kg of growth)	EPEF
2010	43,6	2,52	1,89	294
2017	39,4	2,43	1,60	372
Difference (%)	-9,6	-3,6	-15,3	+26,5

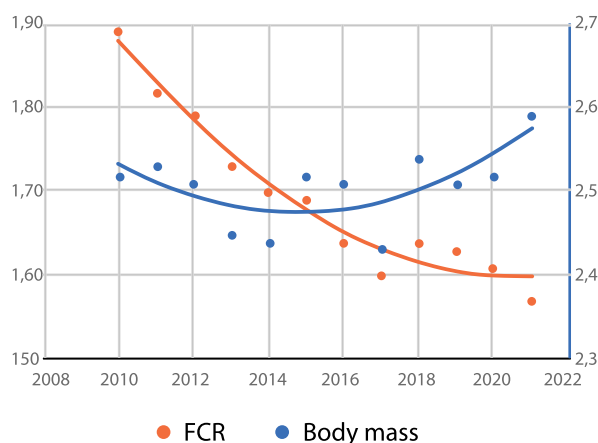
As we can see, with the breeding period shortened by more than 4 days, the body weight of the broilers decreased by only 90 g (which translates to one day of production). These birds would have weighed 2.52 kg by day 40.4. The feed conversion ratio (FCR) has also seen a spectacular decline.

The results recorded in subsequent years until the end of 2021 are shown in the table below.

Year	Average breeding day	Average body weight (kg)	FCR (kg/kg of growth)	EPEF
2018	40,6	2,54	1,64	370
2019	40,4	2,51	1,63	368
2020	40	2,52	1,61	375
2021	40,1	2,59	1,57	400

The bird breeding period has stabilized and is about 40 days. The body weight of broilers in the last comparison period increased to 2.59 kg. Of particular note is the feed conversion ratio linearly decreasing to 1.57 (2021). These regularities are even more noticeable over a longer comparative period.

Time trends – body weights and FCR in chicken breeding (2010 – 2021)





While the body weight of the birds was strongly dependent on the average slaughter day, the FCR decreased at a much higher rate. From 2010 to 2021, the bird weight growth was 2.7%, while the feed conversion ratio decreased by 16.9%. It should be noted that the average number of bird breeding days was reduced from 43.6 to 40.1. So if the bird weights were standardized on day 43.6, then in 2021 broilers would hypothetically weigh 2.81 kg, which is a 10.3% increase.

For a more illustrative comparison, below is a table with averaged production results in the different years on the 41st day of breeding.

Year	Average body weight (kg)	Daily growth (g)	FCR (kg/kg of growth)	EPEF
2010	2,37	57,8	1,78	59
2017	2,53	61,7	1,67	86
2021	2,65	64,6	1,61	104
Difference (%)	+11,8	+11,8	-10,6	b.d.

An interesting indicator is the difference between the body weight and the FCR. This result is expressed as a percentage and is a simplified assessment of breeding efficiency. It can be assumed that a score close to or above 100% is satisfactory.

An analysis of the presented results raises a question about the future of Polish chicken. Parameters such as length of breeding, final bird weight, and feed conversion ratio must be considered. The bird weights now seem to have reached their optimum. Faster growth rates and higher final weights for chickens would exacerbate health problems. This is due to the development and excessive strain on the birds' internal organs. Attention should also

be paid to the potential for meat quality deterioration. This would increase the incidence of defects such as PSE – pale (Pale), soft (S), and exudative (E) meat; DFD – dark (Dark), hard (Firm), and dry (Dry) meat; GMD – Deep Pectoral Myopathypat, and the formation of unwanted white fatty streaks on the pectoral muscles. In recent years, chronic colibacteriosis, referred to as the new broiler skin disease –*dermatitis* or *dermatitis* and *cellulitis*, has become an increasing problem in large-scale slaughter chicken breeding. Its occurrence is thought to be mainly associated with increased growth rates.

Further changes in conventional broiler chicken breeding will involve a reduction of the feed conversion ratio. Its value currently fluctuates between 1.50 and 1.60 kg of feed intake per kg of broiler body weight gain. We can expect results in the range of 1.45 to 1.50.

There may also be more interest in alternative breeding methods in the coming years. A growing group of consumers are interested in living according to the ECO trend. Production methods, types of birds, and related products are interesting topics, but they go beyond the scope of this article.



Alternative methods of poultry breeding

Dawid Strzyżewski – Product Manager Wipasz S.A.

As it is commonly known, Poland is a leader in the European Union in terms of broiler production, which poses new challenges but also opportunities for the industry. The fact that we export more than 50% of domestic production, as well as its large volume, makes it necessary to compete for markets with global industry leaders such as Brazil, the USA, and the very fast growing Ukraine. Given the geographical and climate conditions, it is clear that we cannot win this competition by significantly reducing production costs. The Polish poultry industry operates as efficiently as possible at every stage of production. It will also not be possible to clearly improve production results, as Polish breeders have been making full use of the genetic potential of chicks brought to farms for years. Therefore, in order to maintain the competitiveness of Polish poultry products, we must constantly adapt to changing consumer demands.

Alternative ways of poultry breeding may be one way to attract new consumers and thus win in new markets. These may relate to the conditions in which the birds are kept and specific feeding to achieve increased welfare. This affects the preferences of consumers who expect improved product quality.

Alternative breeding in Europe

One breeding alternative is organic farming, which started to develop intensively in Western Europe in the 1980s. Organic poultry farming in various countries includes among others native breeds of free-ranging birds. One of the best known low-intensity systems is the Label Rouge system, which originated in France. Label Rouge chickens are reared in poultry houses with windows, with the area not larger than 400 sqm. The stocking density is 11 birds/sqm and from 5 weeks of age the birds must have access to a free range, with the total area of about 1 ha. Chickens are slaughtered at the age of

81 to 100 days in slaughter plants located up to 100 km from the farm.

In the Netherlands, to meet consumer expectations, in addition to conventional breeding, broilers are also bred in other systems, such as Dutch Retail Broiler, which is most similar to conventional rearing. It is characterized by a maximum stocking density of up to 38 kg/sqm and a daily gain of no more than 50 g. The more restrictive systems in this area provide for lower stocking rates of 21 to 25 kg/sqm and the minimum age of chickens going to slaughter is at least 56 days, depending on the system.

Another option for organic farming is to operate a certified farm. However, this involves meeting the conditions set forth in European and national legislation (EU 543/2008). The most important of these are:

- ❑ GMO products are prohibited;
- ❑ the minimum slaughter age is 81 days;
- ❑ the maximum stocking density is 10 birds/sqm; a run must be provided that is accessible 24 hours a day;
- ❑ maximum of 21 kg of live weight per sqm can be achieved;
- ❑ the maximum usable area of the poultry house is 1 600 sqm;
- ❑ the number of chickens per poultry house must not exceed 4 800 chickens;
- ❑ there must be access to natural light – the window area should be equal to at least 5% of the floor;
- ❑ owning farmland or signing a contract with a farmer who owns such land – this is related to the rule that the quantity of 170 kg of N from manure per 1 ha of agricultural land must not be exceeded.



Alternative breeding in Poland

In Poland, there has been interest in breeding slow-growing chickens for several years. Local breeds or slow-growing lines, such as Hubbard JA57, are most often selected for this type of breeding. These birds are more healthy and are therefore more resistant to harsher environmental conditions than standard chicken broilers. This selection of chickens allows keeping them in houses with access to runs and keeping veterinary prevention measures to an absolute minimum.

To be described as slow growing, chickens should reach slaughter maturity no earlier than on day 56 at body weight of 2–2.1 kg. The weight may be higher, depending on their age at the time of slaughter. Some of the flocks go to slaughter after they are 71 days old. This depends on consumer expectations and breed choice. Conventional feed is allowed in the feeding of slow-growing flocks, but some consumers expect chickens to be fed using alternative methods. There are several types of compound feeds available on the market today for slow-growing poultry. The most common distinguishing features of these feeds are the labels:

- ☒ no GMO;
- ☒ no components of animal origin;
- ☒ feeds with a high proportion of corn are also allowed, which affects meat quality and color.

Another interesting alternative to conventional breeding is Chicken from the Green Farms. Birds in this system are kept in improved welfare conditions. Such a model of chicken production is offered by Wipasz S.A. Chickens are bred in conven-

tional farms that must meet specific additional conditions such as:

- ☒ large windows;
- ☒ stocking not exceeding 38 kg/sqm;
- ☒ using litter in the form of pellets or peat;
- ☒ feeding with 100% animal-free feeds for the entire fattening period;
- ☒ elements that allow animals to express natural behavior, i.e.: burrowing, pecking, sitting on a perch.

Advantages and disadvantages of alternative breeding

The meat from slow-growing chickens differs from that from broilers in organoleptic characteristics such as appearance (color), size and weight of individual carcass parts (breast fillet, thigh, etc.), and in sensory characteristics, i.e. texture (fibrousness) and taste. This is certainly a big advantage for the customer group looking for traditional culinary features. In addition, the material produced in this way has health-promoting characteristics, since its production is carried out with organic feed. However, one should keep in mind that organic production is much more expensive and involves a number of restrictions, which results in a much higher price of the final product. Therefore, this type of product is selected by informed consumers who look for specific products.





In this section you will read:

- Feeding sows during the transition period. What should one bear in mind?
- Probiotics in pig nutrition
- The effect of piglets' birth weight on their productivity



Feeding sows during the transition period. What should one bear in mind?

Seweryn Michalski – Pig Nutritionist Wipasz S.A.

Meeting nutritional needs during the transition period (TP) is one of the most important aspects of nutrition, which affects not only the quality of pregnancy and the condition of newborn piglets, but also determines subsequent reproductive cycles. A well-balanced ration helps improve the welfare of the sow, which is subjected to many stressful situations during late pregnancy.

The transition period includes the last 10 days of pregnancy and the first 10 days of lactation. Nutrient requirements change significantly during that period. Due to the fact that the last 10 days of pregnancy are the time of the largest fetal growth (up to 25% of birth weight), mammary gland development, colostrum production, and milk production, the need for protein, amino acids, and minerals also increases. During that period, in particular a proper quantity of calcium is essential for the normal mechanisms of uterine muscle contraction. Excess or deficiency of calcium can block this mechanism and have the opposite effect.

If a poor sow condition is allowed (too small or too large body weight), during parturition complications may arise, such as greater weight differences between piglets, diarrhea of suckling piglets, and prolapse of reproductive organs. Fat sows have a higher rate of difficult parturitions – because of the

layer of fat, the uterus and the birth canal are less contractible during labor. This results in longer parturition times, higher piglet mortality, and poorer piglet viability at birth. Excess body fat also prevents optimal activation of energy reserves during lactation. It can lead to post-term pregnancy and cause problems getting into the next estrous cycle. Therefore, the sow's nutrient intake must be controlled.

Fiber is very important in sow nutrition. During the transition period, it is the quality and type, more than the raw fiber levels, that are critical due to water retention capacity, regulation of intestinal transit, digestive comfort, and regulation of microflora. The presence of such fiber causes the food content to pass through the intestines faster, thus preventing stagnation of stool and constipation. Fiber swells in the digestive tract, which results in a feeling of satiety and improves the comfort of the animal. This allows sows in late pregnancy to receive less feed, but with higher concentrations of energy and protein. This is an important feeding mechanism because the developing fetus, the enlarging uterus, and the amniotic fluid fill the abdominal cavity, so there is physically less room for the long intestine loops and their peristalsis is further impaired.

Table 1
Energy and nutrient requirements for pregnant sows (Pig Nutrition Standards, 2021).

Daily intake	Period	Period				91st-105th day of pregnancy				<105th day of pregnancy			
	Litter	1	2	3	≥4	1	2	3	≥4	1	2	3	≥4
feed (kg)		2,7	2,9	2,9	3,0	2,8	3,0	3,0	3,2	2,7	2,8	2,8	2,9
metabolic energy (MJ)		32,5	35,0	35,0	36,0	33,6	36,0	36,0	38,4	33,8	35,0	35,0	36,3
total protein (g)		351	377	377	390	364	390	390	416	427	442	442	458
standardized digestible protein (g)		289	310	310	321	300	321	321	342	351	364	364	377



By preventing constipation, which sows frequently suffer from just before parturition, we reduce the risk of, among others, MMA. It is a disease syndrome (*mastitis, metritis, agalactia*) caused by the aerobic bacteria *E. coli* manifested by inflammation of the mammary gland and endometrium, and agalactia. As soon as a few hours after the parturition, the sow may have a fever, inflammatory edema of the mammary glands may appear, and lack of appetite and apathy are observed. In this condition, she shows no interest in her piglets. This situation is an immediate threat to the life of the entire litter. Malnourished piglets quickly lose energy, which they have little of at birth. As a result of hypoglycemia, they become quiet and lethargic, which can directly lead to death.

During the transition period with the start of lactation, sow milk has a high concentration of nutrients. 4.3 kg of milk causes 1 kg of piglet weight gain. By the 7th day of their lives, the piglets double their birth weight. During lactation, the sow uses 70% of her energy intake from feed to produce milk, whereas during pregnancy she used 30% of her energy to sustain it. This means that the lactation period is much more metabolically demanding and requires higher energy inputs.

Water is also necessary for the proper functioning of the bodies of sows and piglets. Water deficiency

results in reduced food intake and reduced weight gain, which can subsequently cause reproductive disorders. In lactating sows, water deficiency can cause reduced milk production, which, especially in the first piglet feeding period, weakens the litter and increases the number of deaths, and can also cause the appearance of cannibalism. Lactating sows drink 10–15 liters of water per day, while in late pregnancy they drink up to 20 liters. During lactation, water intake by sows varies between 20 and 45 liters per day, and up to 70 liters of water per day is possible. Piglets should start drinking water soon after birth, in the first week of life, and their water intake varies between 0.3 and 0.7 liters per day. During this period, the water should be at a slightly higher temperature than for other groups of pigs.

In this article, only some aspects of sow nutrition during the transition period are discussed. There are many other important issues that every breeder and nutritional advisor should keep in mind. Any mistakes made at this stage result in real production losses: weak piglets, stillborns, lower growth rates, longer sterility, repeated estrus, lower farrowing rates, more difficult parturitions, miscarriages, MMA, etc. Sows are the most important element of the whole herd and proper feeding improves their welfare and health, which determines the efficiency and profitability of the whole production.

Table 2
Nutrient content in colostrum and milk (Hurley, 2015).

Components (%)	Colostrum			Milk		
	0 hours	12 hours	24 hours	2 days	3 days	17 days
Water	73	78	80	79	79	81
Protein	17.7	12.2	8.6	7.3	6.1	4.7
IgG (mg/ml)	64.4	34.7	10.3	4.5	3.1	1.0
Fat	5.1	5.3	6.9	9.1	9.8	8.2
Lactose	3.5	4.0	4.4	4.6	4.8	5.1
Ash	0.7			0.9		
Energy (kJ/100 g)	260	276	346	435	468	409



Probiotics in pig nutrition

Maciej Maniak - Pig Nutritionist Wipasz S.A.

Pig death and health problems are most often caused by, among other things, a physiological imbalance or improper formation of the intestinal microflora. In young animals, this is affected by factors such as:

- ❑ feed change;
- ❑ temperature changes;
- ❑ transfer to another pen;
- ❑ the stress related to weaning of piglets from the sow;
- ❑ nutritional errors, such as feeding too much protein, an underdeveloped digestive tract, poor hygienic conditions, and pathogen infections.

These factors can result in the development of pathogenic bacteria in the colon (*E. coli*). They cause the occurrence of troublesome diarrhea and increase animal mortality. At the same time, the pH of the gastrointestinal contents changes to alkaline, which negatively affects the growth of beneficial lactobacilli and leads to poorer health.

So far, antibiotics added to feed have been used for prophylaxis to protecting animals from adverse effects of pathogenic microorganisms in the gut. Given the increasing number of antibiotics that are prohibited, it is necessary to look for agents that can replace them while keeping production profitable and harmless to consumers and the environment.

One solution is to use probiotics, which have many beneficial health and nutritional properties. Probiotics are formulations that contain both live and/or dead microorganisms that stabilize the balance of microbial populations and enzymatic activity in the gastrointestinal tract, while exerting positive effects on animal growth and development.

Probiotics may include an appropriately selected natural strain of bacteria or a mixture of such stra-

ins. They are made using lactic acid bacteria, some yeasts, or mold mycelium. They can be further enriched with elements, vitamins, and immunoglobulins required for piglet rearing. Probiotics for pigs are made from microorganisms isolated from the inside of the gastrointestinal tract of pigs. Their effectiveness depends on many factors, so it is important to choose the right product to provide a large enough number of live cells that will be able to reproduce in the animal's digestive tract.

The beneficial effects of probiotic use include:

- ❑ lower pH of the gastrointestinal contents;
- ❑ production of natural antibiotic substances;
- ❑ improved digestion and assimilation of nutrients;
- ❑ increased immunity to bacterial infections and improved health;
- ❑ reduced level of toxic metabolic products and prevention of diarrhea;
- ❑ increased intestinal enzyme activity, which increases digestibility and feed intake;
- ❑ improved quality of intestinal microflora and prevention of the development of pathogenic microflora.

The above-mentioned positive effects of probiotics result in increased weight gain, better health, and reduced stress and mortality, which significantly improves the efficiency and profitability of pig production.

Probiotic products are available as powders, suspensions, gels, granules, and pastes, and their dosage depends on the age and species of the animal. In piglets, they are administered periodically (1 or 2 times), immediately after birth to prevent the development of pathogens in the gastrointestinal microflora and later they should be used systematically in compound feed or added to water.

The results of most studies clearly indicate the usefulness of probiotics in pigs during the entire breeding period, especially in young animals. In piglet rearing, the best results have been observed when probiotics are administered orally in the form of a paste, as the animals are unable to take them up directly with the feed. However, for animals that eat solid feed, it is best to feed them in compound feed or with water. Probiotics can be used not only preventively but also for ill pigs treated with antibiotics

to restore the balance of bacterial flora faster, because they speed up their recovery. The use of probiotics has an effect similar to the use of antibiotics - both products reduce the number of pathogenic bacteria in the digestive tract. Probiotics, acting within the gastrointestinal tract, are not absorbed into the body and act locally as a growth promoter, improving overall health, digestion, and feed nutrient utilization, as well as animal immunity, thereby increasing the profitability of breeding.



The effect of piglets' birth weight on their productivity

Michalina Dwojak – Product Specialist Wipasz S.A.

During weaning of piglets, the litter is subjected to selection according to weaning weight. Lighter piglets generally need 12 days of longer rearing to reach an even selling weight.

The body weight of piglets at birth has a major impact on their subsequent growth and development. Piglets of different body weights also show unequal growth rates during rearing and fattening. As a result of breeding work focusing on improving the characteristics of the breeding use of sows, an increase in the number of piglets born and reared in the litter was achieved. However, large litter size is associated with lower piglet weight and its greater variability. This, in turn, raises the risk of increased losses in rearing and reduced rate of weight gain by porkers. In addition, piglets that are lighter at birth are more likely to

contract various diseases during the subsequent rearing period, including arthritis and diarrhea.

The effect of initial low body weight on subsequent animal growth diminishes with age. After fattening, only the smallest pigs in the group are significantly smaller than the others. The growth rate of porkers is rather constant and does not vary significantly depending on the birth weight. It is only towards the end of the fattening period that one can notice that the magnitude of daily gains is lower in piglets that are the lightest at birth. The growth time varies according to birth weight, especially in the period between birth and weaning.

The following table shows the relationship of piglet weight in different periods of an experiment conducted by Wipasz.

Table 1
Body weight of experimental piglets in different periods.

Designation	Statistical measure	Weight at birth		Significance of differences
		<1,80	>1,80	
Body weight at birth (kg)	\bar{x}	1,53	2,08	**
	s	0,25	0,18	
	v	16,34	8,65	
Body weight on day 7 (kg)	\bar{x}	2,65	3,87	**
	s	0,63	0,65	
	v	23,77	16,79	
Body weight on day 14 (kg)	\bar{x}	4,70	6,18	**
	s	0,82	0,99	
	v	17,45	16,02	
Body weight on day 21 (kg)	\bar{x}	6,54	8,26	**
	s	1,00	1,37	
	v	15,29	16,58	
Body weight at weaning on day 28 (kg)	\bar{x}	7,99	10,03	**
	s	1,23	1,58	
	v	15,39	15,75	

** highly significant differences

Piglets of different body weights show unequal growth rates during rearing and fattening. The table shows the body weights of the experimental piglets in different periods of the experiment. As the data shows, in all periods, greater body weights were typical of piglets that were heavier at birth. Identical trends were also observed at the time of weaning.

As for daily gains over the entire rearing period – from birth to slaughter – piglets that are lighter at birth perform worse than piglets heavier at birth. Daily gains were 0.59 kg versus 0.63 kg in the two groups, respectively. The difference between these values was confirmed statistically with high significance.

An analysis of the table also shows the difference in the slaughter age of the pigs assigned to the two groups. Animals lighter at birth (<1.80 kg) reached slaughter weight on average at 184.59 days of age,

while heavier piglets (≥ 1.80 kg) reached it at 172.95 days. Thus, the difference in breeding length between the two groups of animals was 11.64 days. The difference between the slaughter ages was statistically confirmed.

Body weight determined immediately after parturition is unrelated to meat content, fat content, or proportion of valuable carcass cuts. **It is safe to say that birth weight has an effect on the length of the breeding period, but has no effect on meat quality.**

It is important to properly prepare sows to give birth to an even litter and large and vigorous piglets. In sows, this should begin as early as on the 90th day of pregnancy. During the period when fetal growth is the most intensive, feed dosage and composition should be changed. Providing nutrients in adequate quantities for intensive fetal growth and development results in piglets with large birth weights.





In this section you will read:

- The benefits of yeast in cattle nutrition
- Grazing season – benefits and risks
- Milk replacers in calf rearing



The benefits of yeast in cattle nutrition

Żaneta Kubiak – Cattle Nutritionist Wipasz S.A.

An essential part and the most important factor affecting both health and performance of animals is their proper nutrition. The desired effect is achieved by feeding appropriate rations consisting of good quality roughage, concentrated feeds, and mineral and vitamin supplements. Proper nutrient levels in the ration influence proper distribution of feed ingredients in the rumen, uniform performance, and good cow health. Yeast is very popular in cattle nutrition because of its valuable properties.

Types of yeast

The history of use of yeast in ruminant nutrition dates back more than 100 years. Yeast is a highly digestible product (close to 90%) with a high dry matter content (about 90%) and a high total protein content (40–50%). Yeast has a fairly high metabolic energy content (11–25 MJ/kg) depending on fiber, starch, and fat. It is currently used in three different forms: dried dead yeast, dried live yeast, and yeast metabolites. Dead (inactive) yeast is primarily a source of protein, vitamins, trace elements, and minerals. Live yeast further influences the digestion process in the rumen. Metabolites, on the other hand, have a beneficial effect on the rumen microflora and improve the palatability of feed.

The benefits of yeast use

Both dead and live yeast is an excellent source of protein, vitamins, trace elements, and minerals. The protein contained in the yeast is naturally protected from breakdown in the rumen and rich in amino acids, including lysine, so important for high-performing cows, which is one of the amino acids limiting the synthesis of milk protein. Yeast provides large amounts of B-group vitamins, but it may also contain vitamins A, E, and even D.

Live yeast, in addition to the above-mentioned nutritional values, has a beneficial effect on digestive processes occurring in the rumen: it stabilizes the pH, which improves the rumen's natural environment, and stimulates the growth and development of cellulolytic and anaerobic bacteria. Yeast consumes oxygen, which is toxic to bacteria and creates more favorable conditions in the rumen fluid and leads to proliferation. Increasing the concentration of cellulolytic bacteria results in better digestibility of fiber and a reduction in lactic acid concentration, which prevents rumen acidification and therefore the occurrence of acidosis. They stimulate the production of volatile fatty acids, which are the main source of energy and increase the fat content of milk.

The use of these valuable microorganisms is especially important in the transition/perinatal period, i.e. 2–3 weeks before calving, and in the early stage of lactation when more concentrates are added to the ration. Yeast supplementation at that time improves dry matter intake and helps the rumen adapt to the new feeding conditions.

Yeast also has probiotic (active) and prebiotic (binding pathogenic bacteria and mycotoxins) effects. It has a beneficial effect on the intestinal microflora and the environment of the digestive system. The energy components of yeast include mannans – polysaccharides that animals do not digest. These sugars have the ability to bind to mycotoxins in the gut and to inactivate them so they can be excreted, which prevents poisoning by these toxins. Besides, mannans are taken up by the favorable lactic acid bacteria, which thus proliferate and lower the pH of the gastrointestinal contents, which also eliminates pathogens. These processes result in the elimination of diarrhea and infections with pathogenic bacteria, and an increased animal immunity.

There are also studies that show the beneficial effects of yeast on heat stress outcomes. The use of this additive reduced the animals' body temperature and levels of cortisol, a stress hormone, which is associated with higher feed intake on hot days.

Selenium yeast

Increasing attention is being paid to the ability of yeast cells to accumulate elements. Therefore, products enriched with elements such as calcium, magnesium, zinc salts, or selenium are developed. The so-called selenium yeast deserves a little more attention. This element is needed for proper growth and development of the body. Its deficiency can adversely affect reproduction, production outcomes, and animal health. Introducing selenium into the ration increases its transfer to the fetus, which prevents deficiency in calves as well, and it has a significant impact on normal fetal development. In addition, selenium has a beneficial effect on the condition of the mammary gland and thus reduces the number of somatic cells in milk.

In conclusion, the use of yeast has a positive effect on feed intake and better feed utilization, and improves animal health and immunity. All of these

factors lead to better production outcomes and sometimes to improved milk parameters. Therefore, it is a good idea to include this product in the prepared ration for both young and adult cattle.

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Grazing season – benefits and risks

Daniel Andrzejczyk – Cattle Nutritionist Wipasz S.A.

Cattle grazing and pasture feeding are an increasingly rare view these days. Why is it so? It may be a good idea to consider the merits of such feeding and to examine the issues associated with this form of grazing.

Savings

The main benefits of pasture grazing are the availability of fresh grass, which is abundant from May to October. Young forage is a feed that significantly reduces milk production costs due to its high content of easily digestible protein and sugar. When properly balanced with by-pass protein and supplemented with energy from easily digestible carbohydrates (e.g. high energy feed, cereal starch, or dried beet pulp), it allows for high milk production in excess of 30 liters.

Health and fertility

Another important aspect is animal health. A healthy cow produces a lot of good quality milk. Cows that move freely in a pasture have a stronger musculoskeletal system. Sunlight is a prerequisite for the synthesis of vitamin D3 in the cow's body and the vitamins and β -carotene that are contained in grass significantly improve heat manifestation and increase mating effectiveness. Grazing is very good for hoof health and reduces the somatic cell count in milk.

Healthy milk

Studies confirm that milk from pastured cows contains more fat-soluble vitamins that have antioxidant effects. It contains more polyunsaturated fatty acids and whey proteins. Milk produced without silage in the feed is characterized by a better taste. In conclusion, the use of yeast has a positive effect

on feed intake and better feed utilization, and improves animal health and immunity. All of these factors lead to better production outcomes and sometimes to improved milk parameters. Therefore, it is a good idea to include this product in the prepared ration for both young and adult cattle.

Young, 12-18 cm tall grass contains relatively little fiber, which can be supplemented with hay or straw. It is very important to provide animals with minerals in the form of salt licks and vitamins. One should also not forget to supplement the diet with an extra dose of magnesium. A typical mineral and vitamin mix during the grazing season is Mlekowit Mg which, at the dose of 150-200 g, is effective in preventing pasture tetany. This premix is recommended to be fed one month prior to the start of pasture feeding.

The types of grazing can be divided into free grazing and rotational grazing. Free grazing is characterized by free movement of animals throughout the area. A large pasture with a small number of animals results in rapid overgrowth of grass and presence of uneaten grass, which leads to wasted food. From the economic standpoint, this is not an attractive type of grazing.

Rotational grazing, which involves dividing the pasture into equal paddocks, is the most efficient. It makes it possible to feed grass at the right growth stage, i.e. 12-18 cm. Grazing in such paddocks continues for 3-5 days and then the animals move to the next paddock. This type of grazing allows agrotechnical treatments to be performed in the paddock that has been used. Dividing pasture into paddocks is economical, but also time consuming and cumbersome. The most common way to do this is by using an electric fence.

Pasture feeding works best on small farms with small numbers of dairy cows – up to 40. Milk yield depends on the right balance of protein to energy intake. Corn silage, which is fed to the animals after coming from a pasture and before going out to a pasture, is excellent for this purpose. High-energy mixes can also be used, but one should keep in mind that every 1 kg of concentrated feed reduces the intake of dry matter of grass by an average of 0.5 kg. As the amount of concentrate feed increases, these values are even greater, so it makes the most sense to feed 2-3 kg of mixture. A very good concentrate feed for this period is the no GMO Wimilk Extra Energia 18. The high proportion of easily digestible starch supplements energy defi-

ciencies and the intestinal protein contained increases milk production.

The main disadvantages of this feeding method are the time-consuming preparation of the pasture and the variability that makes it difficult to properly balance the feed ration. When grazing cattle, one must remember to keep fresh water and salt licks available at all times. It is also important to prepare a shady spot where cattle can find shelter from the heat of sunlight or from rain. With high-yielding cows, milk yield is down to about 30 l due to insufficient grass regrowth or rapid overgrowth, loss of protein, and sugars in the grass.



Milk replacers in calf rearing

Piotr Zdrodowski – Cattle Nutritionist Wipasz S.A.

Nutrients play an extremely important role in the first few months of a calf's life. One must keep in mind that mistakes made during rearing affect the entire life of the animals and cannot be corrected. For this reason, special attention should be paid to the living conditions and feeding of calves.

In the first few moments of life, calves are fed colostrum, which is a secretion of the mammary gland. It should be administered for up to 4-5 days after the calves. Without a doubt, it is one of the most valuable and important sources of nutrients. Additionally, colostrum helps build immunity in the calf. However, over time, not only the amount but also the composition of colostrum changes. Therefore, at this stage one should already be thinking about the successive feeding methods. At this point, special attention is paid to the milk replacers described below.

After colostrum feeding, drinkers with milk replacers and concentrated feeds are used. However, it is important to keep in mind that the products used must be a good substitute for breast milk, i.e. products of high quality. Many breeders choose milk replacers not only because of their price - they are cheaper than milk, but also because of their composition - they are microbiologically safe and have guaranteed composition, which is extremely important for animal health.

Many breeders ask themselves, what should the characteristics of a good milk replacer be? The answer is simple: it should support the passive immunity that calves have acquired during colostrum feeding. The product must also contribute to the growth of the animal and maintain proper health. Therefore, it is important for the product to contain all the nutrients and components necessary to maintain the health of the calf. Milk replacers should also contain prebiotics and probiotic bacterial cultures to maintain adequate intestinal bacterial

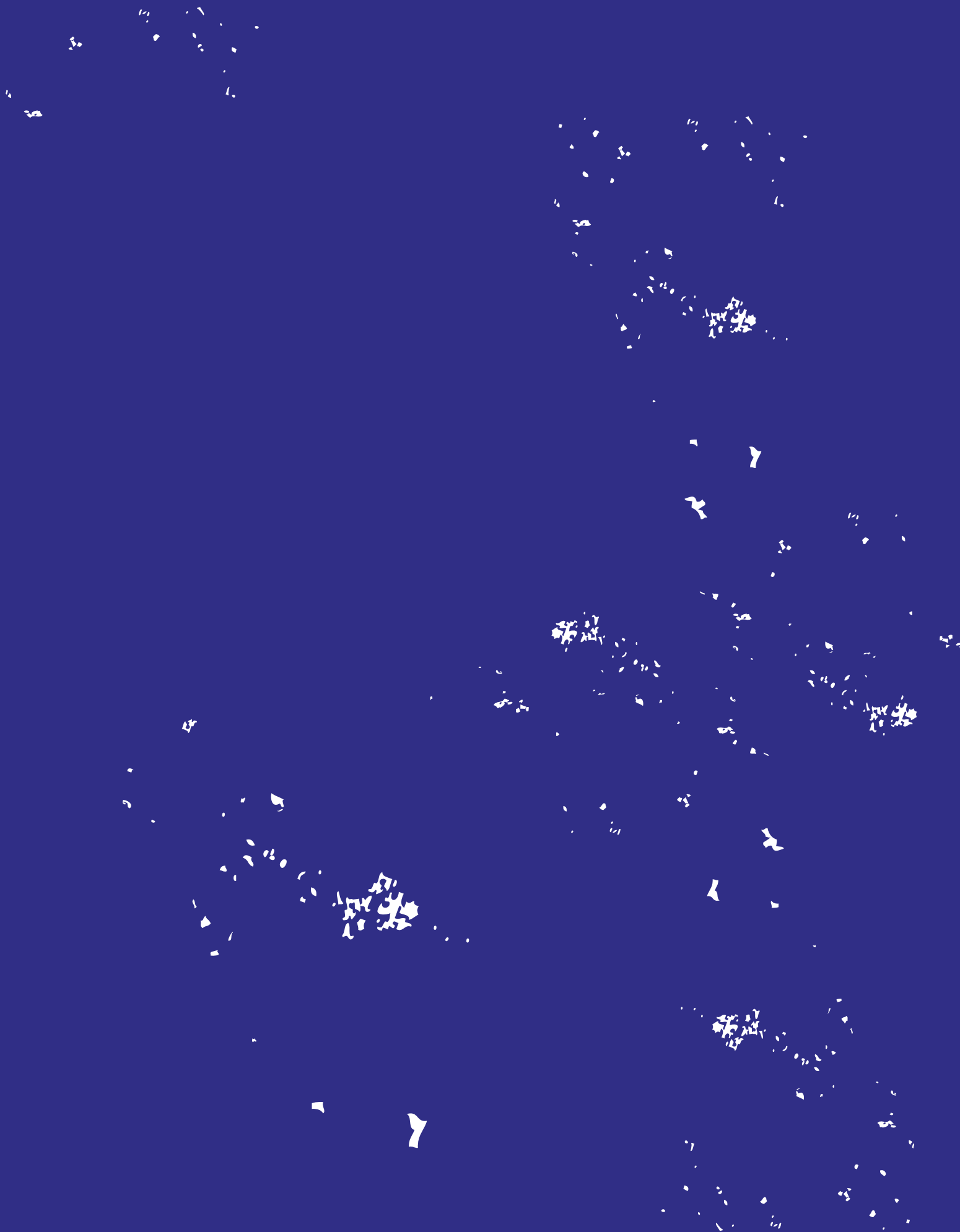
flora and minimize the risk of growth of pathogenic bacteria in the digestive system. If the calf does not receive these elements, it will be prone to sickness. The products should also have an attractive taste and smell for the calves so that the animals are more eager to consume them.

High quality milk replacers from the Witamilk line perfectly meet the rearing objectives and make it possible for the breeder to achieve excellent financial results.

- ❑ **Witamilk Premium Plus** – a product with the highest content of milk components for calves from 3 days of age, which can be used in automatic feeding stations.
- ❑ **Witamilk Premium** – an instant product for calves from 3 days of age, which can be used in automatic feeding stations.
- ❑ **Witamilk 1** – a product for calves from 3 to 21 days of age.
- ❑ **Witamilk 2** – a product for calves from 21 days of age.
- ❑ **Witamilk Len** – a product with the addition of flaxseed, for calves from 21 days of age.

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In this section you will read:

[➤ Direct support schemes](#)



Direct support schemes

Piotr Włodawiec – legal counsel, partner
Michał Otkala – lawyer

Dear readers, this time we decided to discuss the topic of direct support schemes. This is a seemingly simple issue that, thanks to the jurisprudence of Administrative Courts, has become very interesting.

Direct payments as basic aid to farmers

Direct support schemes are a major component of assistance provided to the agriculture. Farmers submitting applications are required to meet a number of conditions set out in the Act of 5 February 2015 on payments under direct support schemes and in Regulation (EU) No. 1307/2013 of the European Parliament and of the Council of 17 December 2013 establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy (...). One of the basic conditions is to have at least 1 hectare of land eligible for the payments, with the minimum area of a single plot of farmland that can be eligible for area payments equal to 0.1 hectares.

Currently, direct payments are intended, among other things, to support and stabilize farmers' incomes, keep agricultural land in a good agricultural condition that is compatible with environmental protection, and ensure fair competition in the agri-food sector. By 3 December 2021, PLN 9.9 billion in direct payments for 2021 had been transferred to farmers' bank accounts.

Despite the seemingly clear and transparent prerequisites for granting the payments, farmers still receive many negative decisions with refusal to grant the payments; most often they are appealed against to Provincial Administrative Courts (hereinafter referred to as PAC) and quite frequently the above-mentioned cases are resolved by the Supreme Administrative Court (hereinafter referred to as SAC) as a result of cassation complaints against the judgments of courts of first instance.

This article presents two judgments of the PAC and one of the NSA concerning entities entitled to receive direct payments.

Artificial splitting of farms to receive assistance

In its judgment of 29 April 2021 (ref. no. I GSK 630/18), the SAC ruled on the case of refusal to grant payments under the direct support schemes. The appellate authority issuing the decision pointed out that the complainant did not conduct agricultural activity on his own and his farm was artificially divided and registered in the producers' records system, while the actual owner of the animals and land was another person who also submitted an application for a payment. As follows from Art. 60 of Regulation (EU) No. 1306/2013 of the European Parliament and of the Council of 17 December 2013 on the financing, management and monitoring of the common agricultural policy (...):

„(...) no advantage provided for under sectoral agricultural legislation shall be granted in favor of a natural or legal person in respect of whom it is established that the conditions required for obtaining such advantages were created artificially, contrary to the objectives of that legislation“.

Guided by the above provision, the appellate authority denied the payment. The court of first instance found the findings of the authority to be correct. While the appellate authority recognized that although the appellant and the other entities formally constituted independent farms, they remained closely related (personally, economically, and functionally).

The SAC overturned the judgment and the decision appealed against. In the grounds for the judgment, the court indicated that, when examining

whether the farmer meets the requirements for obtaining the payments applied for, the authority should have first of all assessed whether the farm run by the farmer meets the requirements for an agricultural holding within the meaning of national and EU legislation, i.e. whether it is a separate unit in technical and economic terms, with separate management, which breeds animals or produces agricultural products, and maintains the land for production purposes in a good agricultural condition while observing the principles of environmental protection.

Direct payments for agricultural land constituting a part of the State Treasury Agricultural Property Stock

In its judgment of 2 March 2021 (ref. no. III SA/Po 757/20), the PAC in Poznań resolved the issue of agricultural land located on registered plots that are a part of the State Treasury Agricultural Property Stock (hereinafter referred to as STAPS).

In its application, the entity that applied for payments under the direct support scheme for 2019 indicated farmland plots that were a part of the STAPS. In view of the pending litigation and the absence of a statement confirming that the said plots were owned or leased by the applicant, the authority processing the case excluded the said plots from the payment.

The applicant alleged that the interpretation applied by the authority was inconsistent with European Union law. The PAC ruled that in the case of farmland plots constituting a part of the STAPS, the legal status is regulated as follows: the owner is the State Treasury and the lessee is indicated in a contract concluded only in writing, unlike in the case of most agricultural plots not being a part of the STAPS where the lease contract is concluded orally so the farmer cannot in any way confirm the title to the land. Therefore, the legal status of the plots constituting a part of the STAPS must be settled in writing in order to avoid an effect that is incompatible with laws of the European Union, which consists in a situation where the farmer who cannot prove the legal title to the land could receive a direct payment.

The PAC fully shared the opinion of the authority that the receipt of payments for the land constituting a part of the STAPS is only allowed in a situation where the applicant holds legal title to the said land.

Marriage as a group of individuals constituting an organizational unit without legal personality

In its judgment of 11 May 2021 (ref. no. II SA/Bd 207/21), the PAC resolved a situation concerning granting of financial assistance to farmers particularly affected by the COVID-19 crisis under the measure titled „*Exceptional temporary assistance for farmers, micro-enterprises, and small and medium-sized enterprises particularly affected by the COVID-19 crisis.*”

In that case, the applicant ran a farm together with her husband. Upon her husband's death, the animals registered to him were transferred to her as the producer's spouse. The first-instance authority refused to grant her assistance on the grounds that the animals had not been registered by her in the period required pursuant to the Regulation of the Minister of Agriculture and Rural Development of 24 August 2020 on specific conditions and procedures for granting and paying financial assistance for operations of the following type (...) (hereinafter referred to as Regulation), i.e. as of 1 March 2020.

In the grounds for the ruling, the PAC explained that the identification number only serves organizational purposes and does not determine the right to receive a payment. The court held that a farmer (or his or her spouse) who, as of 1 March 2020, was the factual owner of animals, as defined in § 2(1)(1) of the Regulation, is entitled to apply for assistance. Additionally, the PAC shared the view of the SAC, expressed in its resolution of 30 May 2012 (ref no. II GPS 2/12), that in the situation in question neither each spouse nor the spouse entered in the register of agricultural producers is an agricultural producer. Spouses must be considered a group of individuals constituting an organizational unit without legal personality.

The PAC reversed the appealed decision and pointed out that the fact of assigning only one identification number cannot be a factor supporting a decision not to grant assistance if the spouses are co-owners of a farm and co-owners of livestock, and therefore they cannot obtain separate identification numbers.

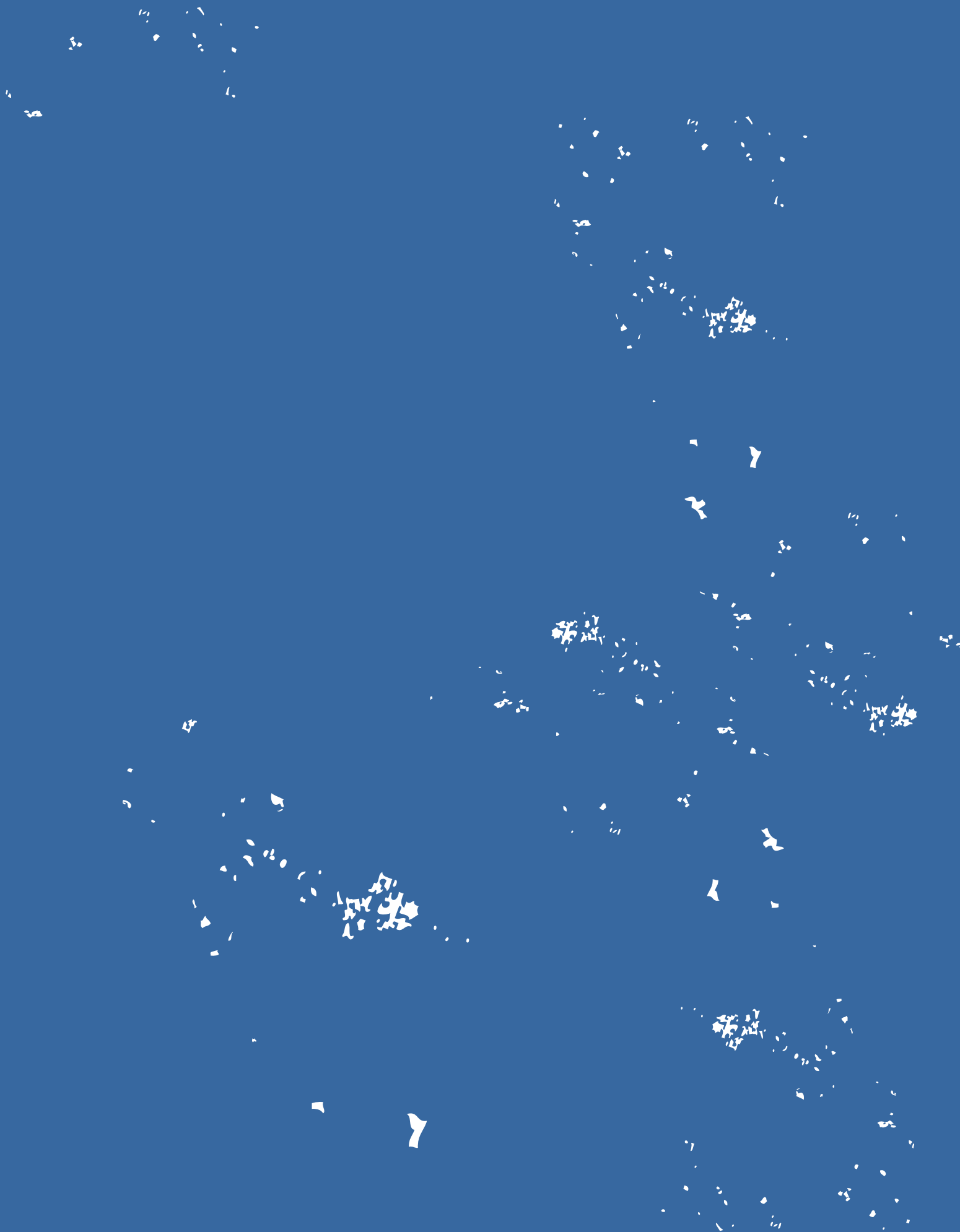
Interesting case law

As shown in the above judgments, despite the seemingly clear and transparent conditions for receiving direct payments, there are still situations

where courts decide that it is right for administrative authorities to refuse to grant payments. The most common reason for refusal to grant payments is the applicants' attempts to circumvent the law, as in the first two judgments described, but there are also situations where courts decide in favor of the applicants by pointing out the authority's misinterpretation of facts, as evidenced by the last of the judgments described above.







Our experts

answer your questions



Breeder asks – Experts advises

How does Poland compare to other European Union countries in corn production and consumption?

Just 10 years ago, Poland was a corn importer. Investment in the poultry sector has resulted in increased demand for feed production materials and thus for agricultural commodities. Additionally, corn consumption is driven by the bioethanol sector,

which has made Poland an exporter of corn for several years – production exceeds domestic consumption. What is more, the 2021 harvest was an absolute record and allowed Poland to get on the podium in terms of production this commodity in the European Union (after France and Romania, and before Hungary).

*Mateusz Palejko
– Purchasing and Market Analysis
Director Wipasz S.A.*

Chart 1
Corn production in Poland in milion tonnes.

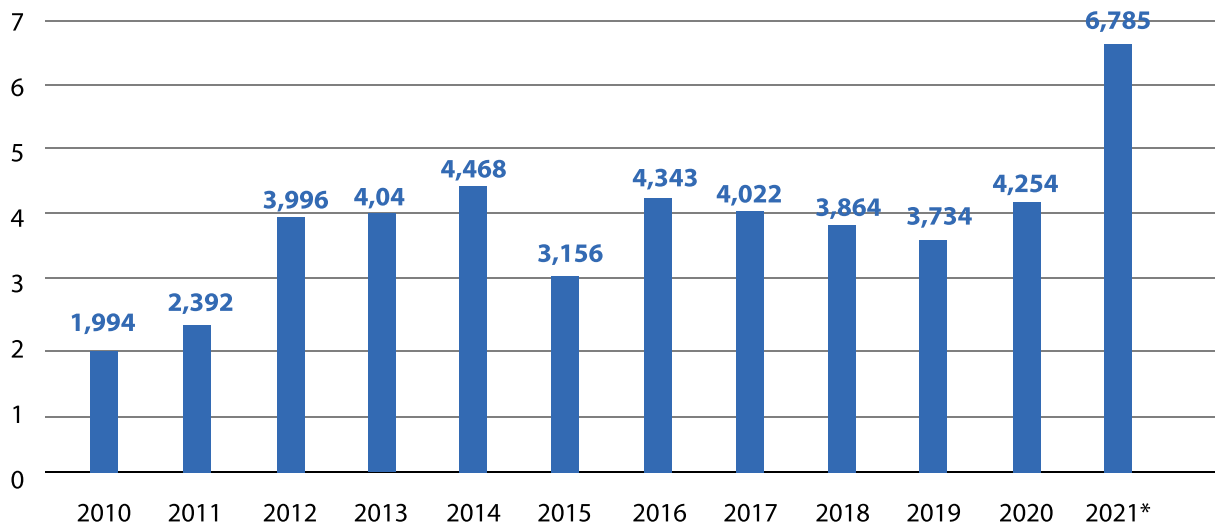
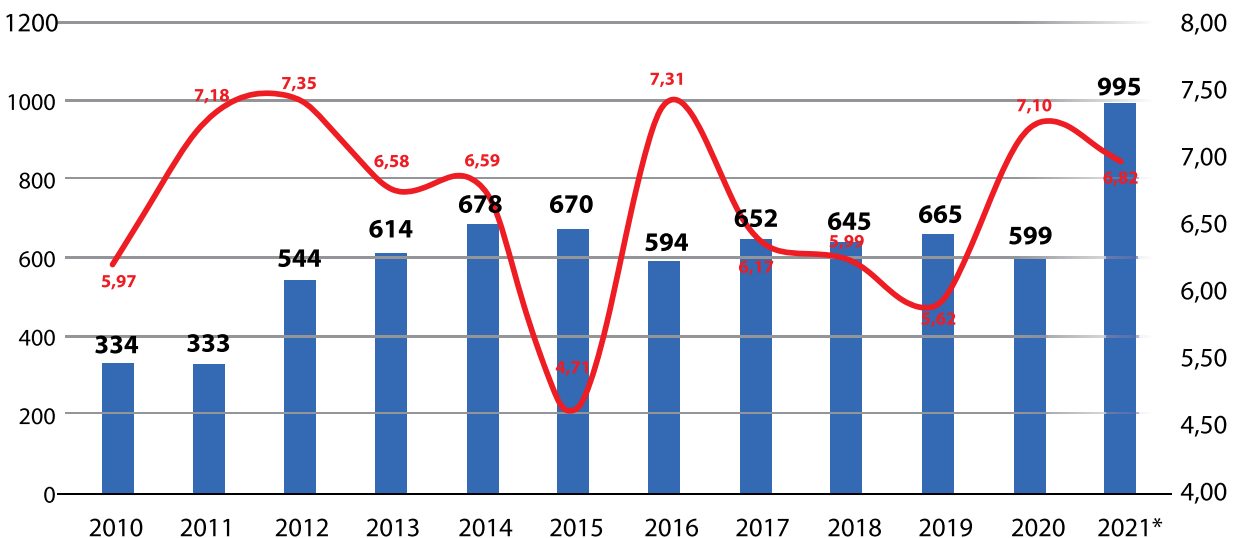


Chart 2
Area and yield of corn in Poland (thousand hectares).



How does the changing climate affect the prices of strategic commodities?

Currently, prices for all commodity grains, proteins, and oilseeds are at record high levels. This is directly related to the adverse weather conditions in North and South America, which actually must be called a drought. The greatest negative surprise is that dry conditions are present in the same areas for the second year in a row. This is unusual because earlier in history a dry year was followed by weather favorable for crops and a very good harvest.

Dry weather (including the so-called La Nina weather effect) has led to a drastic drop in the size of this year's crop, including many of the main ingredients of feeds. This concerns most importantly significantly smaller rapeseed and wheat harvests in Canada, corn and soybean harvests in Brazil, Argentina, and Paraguay, and wheat and corn harvests in Europe.

The consequence of noticeably lower supply and an ever-increasing demand for food (due to constantly growing global population) is that prices of agricultural commodities continue to rise to historic highs, resulting in massive, ever-increasing, inflation.

There can be only one conclusion: climate change is already having a measurable impact on our lives and the poorer the country, the more these changes hit the population, as people have to spend an increasing proportion of their income just on everyday living and food.

Mateusz Palejko
– Purchasing and Market Analysis
Director Wipasz S.A.



Are post-extraction rapeseed and sunflower meals good feedstocks for pigs?

Feed costs account for about 70% of the total cost in pork production. An essential nutrient for building muscle mass in pigs is protein, which is the most expensive nutrient in feed. Today, the best and one of the most expensive sources of plant-based protein is post-extraction soybean meal. However, one must not forget about post-extraction rapeseed and sunflower meals.

Our experience shows that diversification of ingredients in pig feed always brings good results. This principle applies to cereals as well as and high-protein materials such as post-extraction meals. A rich composition of the feed improves its palatability, has a positive effect on the functioning of the digestive tract, and reduces the risk associated with the possible insufficient quality of a single component (e.g. contamination with mycotoxins).

Post-extraction rapeseed meal

Rapeseed is a domestic oilseed plant that is very popular to grow in Poland. Although rapeseed is not used directly in pig nutrition, post-extraction rapeseed meal is. The protein content of this feedstock is about 35%. Rapeseed protein is characterized by high levels of sulfur amino acids (methionine, cystine) in comparison with other high-protein components of plant origin.

Post-extraction rapeseed meal contains a lot of crude fiber – about 12%, which is 2–3 times more than in post-extraction soybean meal. This is both a disadvantage and an advantage of this component. It is a disadvantage because this limits its use in feeding young animals such as piglets. It is an advantage because nowadays the fiber content of feed produced at farms is often insufficient. The turmoil in the commodity market has resulted in limited availability of barley and relatively high price of bran compared to cereals. This results in feed formulations with a high proportion of triticale, rye, or wheat, which do not provide the required crude fiber levels.

A negative characteristic of post-extraction rapeseed meal is the content of anti-nutritional substances such as erucic acid as well as glucosinolates and products of their breakdown. However, the rapeseed varieties currently grown in Poland are characterized by exceptionally low levels of these compounds.

Research conducted in Poland by Zaworska-Zakrzewska et al [2020] indicates that replacing protein from post-extraction soybean meal with protein from post-extraction rapeseed meal (up to 23% in the mixture!) and yellow lupin seeds (7.5% in the mixture) did not deteriorate pig production results. Only in the starter type feed, this had an adverse effect on daily weight gain and feed conversion. In grower and finisher feeds, there was no negative effect of complete replacement of post-extraction soybean meal with post-extraction rapeseed meal and yellow lupin seed in the feeds.

In practice, such modifications are not applied because there is no need for them and they would be economically unjustified, although rapeseed meal is gradually being successfully introduced into feed formulas for pigs from 20 kg of body weight. Typically, the level of 8% of rapeseed meal is not exceeded in grower or finisher feeds.

Post-extraction sunflower meal

Cultivation of sunflower is not very popular in Poland, but in many European countries (Ukraine, Romania, France, and Russia) sunflower is grown on a large scale and imported to Poland mostly in the form of post-extraction meal.

The protein content of post-extraction sunflower meal varies between 33 and 36%. Similar to rapeseed meal, sunflower protein is rich in sulfur amino acids. The high crude fiber content (17–19%) limits the use of this feedstock in piglet feeding, but in sow and porker feeding it is an important component that enriches the recipe with different fiber



fractions and valuable amino acids. As with rapeseed meal, the inclusion of sunflower meal in the diet starts at the starter stage. Scientific studies suggest that sunflower meal can constitute up to 7–12% in mixtures for fattening pigs and up to 15% in mixtures for sows, without negative effects on the health and production results.

In conclusion, 'dark' meals, as they call them, are an excellent supplement to a pig's diet. They enrich feeds with sulfur amino acids, constitute a partial replacement for soybean meal, reduce the cost of the entire mix (usually), and introduce fiber, which is essential for proper development of the bacterial microflora of the pig's digestive tract.

Bartosz Myśliński
– Feed Formulation Specialist Wipasz S.A.

How much feed urea can a ration for a dairy cow contain?

Feed urea is a raw material that can significantly reduce the cost of protein components in the feed ration. It is a source of ammonia needed by the bacteria present in the rumen to multiply and build their own organisms. In doing so, they produce the complete protein needed by cows for growth and milk production. The use of this material has some limitations. A dose of 150 g per cow per day is considered a safe amount of urea. Commission Regulation (EU) No. 839/2012 provides that the amount of urea nitrogen must not exceed 30% of the total nitrogen present in the ration. If urea has not been used before, it should be introduced gradually. It is important to mix it meticulously with the other components of the ration so that all animals take up the same amount of this component. It is equally important not to use this relatively cheap material for calves, because in the first 6 months of life they do not have a sufficiently developed rumen.

Sometimes a farmer asks a question about feeding cheaper fertilizer urea instead of feed urea, which is not allowed. The manufacturing standards for these two components are significantly different. The formulation of fertilizer urea is allowed to contain some impurities that are unacceptable in feed urea and may cause adverse health effects in animals. Urea is a feed additive registered by the European Commission in the EU register of feed additives and may be fed to animals with a developed rumen only if labeled as such.

Bartłomiej Radzikowski
– Feed Formulation Specialist Wipasz S.A.



What are acidifiers and for what purpose are they used?

Acidifiers are nothing more than organic acids or mixtures of organic acids. These products exist in a powdery form (added to compound feeds) or in a liquid form (added to water). The addition of acids improves absorption, affects the pH level of the content of the stomach and the intestines, has a preservative effect (inhibits the growth of fungi, bacteria, and protozoa, and prevents the formation of mycotoxins). Some acids have a beneficial effect on regulation of the microflora of the digestive system and improve the smell and palatability of feed. Acidifiers are used in animal nutrition as a preventive measure because of their health-promoting properties and as growth promoters that cause an increase in feed intake and thus higher daily gains. These products are also used by veterinarians to support drug treatment.

Due to its preservative effect, the addition of an acidifier can be significant when feeding own feds that are not heat-treated. Acidification of water improves its quality and hygienic status, thus preventing the growth of pathogens such as *Escherichia Coli*. In many studies, the use of acids has been shown to significantly reduce and decrease the number of *E.Coli* and *Salmonella* bacteria in the cecum of broilers.

Paulina Czajkowska
– Premix Sales Specialist Wipasz S.A.

Are there any native poultry breeds in Poland?

Poland has a genetic resources conservation program for poultry. This program preserves native breeds of laying hens, ducks, and geese. The national protection program covers eleven breeds and lays of laying hens, e.g. Karmazyn, Leghorn, Polbar, Sussex, and Zielononóżka Kuropatwiana. We also have a very valuable population of waterfowl. In my opinion, populations of Pekin ducks (lines P11, P22, P33, P44, and P55) and the mini duck (K2) created by professor Książkiewicz are of particular value. The Waterfowl Genetic Resources Station in Dworzyska preserves populations, unique on a global scale, of geese originating both from the graylag goose, e.g. Suwalska, Rypińska, and Kielecka, or from the Chinese goose, e.g. Garbonosa and Kubaniecka.

These poultry populations are protected by the *in situ* method that consists in protection of live animals in their natural environment. Native bird populations have many valuable traits despite their inferior utility. These include immunity to diseases, adaptability to worse environmental conditions, ability to utilize less valuable forage, high fertility, and lower timidity. What is important for the consumer is the favorable tissue composition of carcasses, which contain more fine-fiber meat.

Due to the above characteristics, these birds are well suited for organic breeding.

Tomasz Kisiel
– Regional Sales Director Wipasz S.A.



How much feed should a sow with 12 piglets eat?

The goal of feeding of lactating sows is to produce piglets of optimal weaning weight. It is assumed that for 1 kg of growth, a piglet needs about 4-4.3 kg of the sow's milk, so the milk yield of the sow determines the high weaning weight of the piglets. A sow's feeding level should be changed gradually and this should be correlated with her intake. A sow should receive feed at least three times a day. The feed requirements of lactating sows depend mainly on the average gain of piglets in the litter. Assuming that a piglet grows approximately 230 g per day, the sow should receive up to 5.5 kg of feed during the first week after the parturition. The ration should then be increased gradually at the last feeding of the day. After two weeks, the sow should eat about 8-10 kg of feed per day. It is assumed that the living needs of a sow are satisfied by about 2 kg of feed, while for each piglet in a litter the sow should receive 0.5 kg of feed more. The metabolic energy of the feed should be approx. 13 MJ, while the required protein content is approx. 17%. It is also important to remember that the sow's peak milk production is on days 17-19 after the parturition. During that period, it is important to provide adequate amounts of not only energy and protein, but also of micro- and macroelements and amino acids. When feeding a lactating sow, one must not forget about water either. During lactation, a sow drinks about 25 liters of water per day to cover her needs. This quantity should be increased by the number of piglets in the litter multiplied by 1.5 liters of water, which amounts to about 50 liters of water needed for the sow to produce an appropriate quantity of milk.

Adam Rzewuski
– Pig Nutritionist Wipasz S.A.

Possible consequences of excess sodium in feed

Sodium occurs naturally in nature – it is present in all living organisms found on earth. It is one of many mineral components. Sodium is responsible for the functionality of the nervous system, protects against dehydration, and is also responsible for maintaining proper blood pressure levels and proper cardiovascular function. Sodium deficiency and excess are very dangerous for animals and can threaten their lives. Excessive sodium, or hypernatremia, is far more common. This is primarily due to the very high cost of production of compound feeds and the resulting large amount of highly processed products added to the feed. These include chips, tortilla dough, and bakery waste. In wet feeding, these are the standard feedstocks right after cereals, but we are increasingly seeing this practice in dry feeding. High grain prices are forcing growers to look for alternative feed ingredients.

A small excess of sodium causes, at most, a 'transient state' which the body of a healthy animal is able to cope with. However, a long-term sodium-potassium imbalance can cause much greater havoc, irreversible changes, and often even death. Excess sodium primarily causes swelling due to retention of large amounts of water in the body. Symptoms that can be observed simultaneously include nausea, drowsiness, and even coma and uncontrollable muscle tremors.

In order to avoid the risk of an excess of this element, it is worthwhile to ensure a healthy, varied diet and to consciously choose feed additives in which the amount of sodium is at an appropriate level.

Anna Mikołajczyk
– Pig Nutritionist Wipasz S.A.



What fiber is best and what level of fiber is appropriate in pig nutrition?

Pigs' stomachs, unlike those of other species of animals, are not able to digest dietary fiber, so its proportion in the ration should be limited. Although fiber is poorly digested by pigs, its inclusion in compound feeds is essential for proper function of the digestive system.

Fiber is nothing more than plant-based ingredients that are not digested by enzymes in the pig's digestive tract. Fiber breakdown in monogastric animals occurs in the intestines thanks to the bacteria that reside there. The chemical and physical properties of fiber, the level of absorption of other nutrients in the feed, the age of the animals, and the sources of fiber the individual is accustomed to have a very significant impact on the utilization of fiber.

valuable sources of protein, which further complements the diet of pigs. Bran is high in fiber and contains vitamins B and mineral salts. They activate metabolism and cause a feeling of satiety. They have a mild laxative and lactogenic effect, but when stored improperly they can contain mycotoxins. Pulp and pomace are by-products of the fruit and vegetable industry. They contain several percent of dry matter, are rich in sugars, malic acid, pectin, and tannins, as well as in vitamins and minerals, especially potassium. When used in small doses, they have a dietary effect and a beneficial influence on the digestive tract. They must be stored properly to keep them from spoiling. Specialty feed additives (feed fiber concentrates) that contain structural and soluble fiber (70-80% of fiber) are also available. The advantage of these additives is that they are completely safe and can be used without any fear as they do not contain mycotoxins.

Table 1

Level of dietary fiber in the feed	
Technology group	Proportion of fiber in the compound feed (%)
Piglets 10-15 kg	up to 5%
Piglets 15-30 kg	up to 6%
Porkers 30-70 kg	up to 6%
Porkers 70-120 kg	up to 7%
Boars	up to 6%
Non-pregnant sows and pregnant sows until the 90th days of pregnancy	6-10%

Depending on the technology group, we can determine the appropriate level of fiber in the ration. When using fiber in feed for individual animals, we need to pay attention to its source.

Oat grain can be identified as the first and most easily digestible grain. It contains approximately 126 g/kg of dry mass. Oat is a valuable source of exogenous amino acids (highest levels of lysine and threonine) and minerals. Other sources are rapeseed meal, sunflower meal, bran, pulp, and fruit pomace. Rapeseed meal and sunflower meal are

When introducing selected materials as a source of fiber in feed rations, one should keep in mind that some of them, when used in excess quantities, can have adverse effects, e.g. cause diarrhea in piglets. They can also reduce the utilization of other ingredients in the feed, as well as increase production costs. Keep in mind, however, that adequate levels of fiber in compound feed are beneficial to the functioning of the gastrointestinal tract in pigs. Regardless of which raw material you choose, the most important thing, besides price and availability, is the highest quality of the product.

Table 2

Level of dietary fiber in the feed							
Material	Piglets 10-15 kg	Piglets 10-30 kg	Porkers 30-70 kg	Porkers 70-120 kg	Non-pregnant sows and pregnant sows until the 90th days of pregnancy	Lactating sows and sows after the 90th day of pregnancy	Piglets 10-15 kg
Oat (%)	5	10	15	20	15	20	15
Rapeseed meal (%)	0	5	8	12	3	5	3
Sunflower meal (%)	0	5	8	10	7	10	7
Bran (%)	7	10	10	15	15	20	15
Pulp/pomace (%)	5	5	5	5	5	20	5

Anna Mikołajczyk
– Pig nutritionist Wipasz S.A.



My calves lose a lot of weight after weaning. What could be the cause?

When growing calves, we should aim to wean them on the 70th day of their lives. Of course, the date is not the most important thing. We should always be guided by solid (concentrated) feed intake. If a calf does not eat at least 2 kilograms of starter feed before weaning, it will not be able to maintain a rapid growth rate. In order to achieve this, it is necessary to start growing calves with concentrate feeds that are readily consumed by the calves, but also to remember about digestibility suitable for their age. I recommend products with gelatinized starch, e.g. **Cielak Musli**, whose palatability and high digestibility guarantee the proper growth of the animal and its rumen. In order to properly prepare for weaning, it is necessary to control not only the intake of the starter feed but also the amount of milk or milk replacer given. To increase concentrate feed intake and smoothly transition the calf to solid feed, the amount of liquid feed given twice a day must be reduced by a half 2–3 weeks before the end of liquid feeding. One week before weaning, liquid feed should be given only once a day. This practice, with the use of high quality feed, allows weaned calves to maintain rapid growth rates. One must remember to give dry fibrous feeds (hay, straw) only in chopped form, 2 cm long, and in amounts smaller than 100 g. Otherwise, they will take up space in the rumen and limit starter feed intake, thereby limiting growth rates.

Filip Kula
– Product Manager Wipasz S.A.

What causes bloat in calves?

There are several factors that can cause bloat in calves. The first is feeds that are poorly matched to the age of the animal and the digestive capabilities of the developing digestive tract. Feeds may not contain excessive amounts of easily fermentable protein and sugar. Roughage should be introduced gradually and at the right time. This applies in particular to legume silage. Constant access to feed as well as water must be ensured to avoid hungry calves overeating and drinking too much water at one time.

Filip Kula
– Product Manager Wipasz S.A.

Another factor that leads to excessive rumen fermentation is the way animals are fed liquid feed. Note that milk or milk replacer should bypass the undeveloped rumen and enter the abomasum. For this reason, calves have an esophageal gutter that closes at the time of sucking and directs the liquid into the actual forestomach. If it does not close, the liquid goes into the rumen where it starts to ferment and produce a lot of gas. Several conditions must be met for this process to work properly:

- ▣ proper teat quality – one mechanism for closing the gutter is the strong sucking reflex in the calf;
- ▣ the temperature of the milk or milk replacer should correspond to the body temperature of the cow, i.e. 39 degrees Celsius. Feeding cold milk causes the gutter to close and the milk or milk replacer to enter the rumen;
- ▣ improper head and neck position during feeding can also result in milk entering the rumen. The position of the calf should be similar to the natural suckling position.

Feeding larger than recommended amounts of milk or milk replacer can also cause bloat. Poor hygiene of the equipment used to prepare and serve the liquid feed can also lead to bloating of the abomasum. This is caused by anaerobic bacteria of the *Clostridium* genus which produce large amounts of gas. To avoid this, the calf-feeding equipment must be washed and dried very thoroughly.

One should also use preparations and feeds that contain probiotic bacteria, prebiotics, or live yeast. They help populate the digestive system with beneficial microflora, thus protecting it from pathogens.



Chicken in puff pastry

Ingredients:

- ☒ 600 g Green Farms chicken fillet
- ☒ 400 g puff pastry
- ☒ 200 g fresh spinach
- ☒ 80 g cheese (goat/blue/feta)
- ☒ 2 cloves garlic
- ☒ 2 table spoons butter

Spices:

- ☒ salt, pepper
- ☒ 1 teaspoon oregano
- ☒ a pinch of nutmeg
- ☒ a pinch of red bell pepper

For daubing:

- ☒ 1 egg yolk
- ☒ 1 table spoon milk

Preparation:

Divide the fillet into 2 parts, make an incision in the larger part to form a “pocket,” leave the smaller parts (loose fillet) whole. Season the meat with salt, pepper, and oregano. Melt the butter, mix it with finely shredded garlic, daub the fillets.

Rinse the spinach, dry it, chop it and put it into a pot. Keep stirring it and heat it up until it wilts. Season it with salt, pepper, sweet paprika, and nutmeg, and mix it with the diced cheese. Place the filling in the pocket prepared in the meat previously.

Preheat the oven to 200 degrees Celsius. Line a baking pan with paper, lay 4 large squares of puff pastry. On two sides of the dough, cut the edges with scissors to form longer strips; leave the center whole.

Place the fillets in the middle and fold the strips inward so that they overlap; gently press the connections together. Daub the dough with the egg yolk mixed with milk and put it in the preheated oven. Bake for about 40 minutes until it becomes golden brown in color.

Enjoy it!



Chicken in leek sauce

Ingredients:

- ☒ 500 g Green Farms chicken fillet
- ☒ 1 large leek
- ☒ 1 large onion
- ☒ 1/4th 30% cream
- ☒ 50 g butter
- ☒ 1 garlic clove
- ☒ lemon juice

Spices:

- ☒ salt and pepper
- ☒ 1 teaspoon thyme
- ☒ 1/2 teaspoon sugar

Preparation:

Cut off the green parts of the leek, leaving the white and light green parts. Cut it lengthwise into 4 pieces and wash thoroughly. Cut it into half-centimeter pieces. Peel the onion and slice it lengthwise or dice it. Melt half the butter in a frying pan, fry the onion, and add the leek. Season it with salt and sugar, add a half of the thyme, sprinkle it with pepper, and add the chopped garlic. Fry everything for about 5 minutes on medium heat, stirring occasionally. Cover it and simmer for another 10 minutes –until the leek is tender.

In the meantime, prepare the chicken. Cut the fillet into larger cubes. Add salt, season with pepper, and sprinkle with a half of the thyme. Melt the remaining butter in another skillet and fry the fillets for about two minutes on each side.

Pour the cream onto the soft leek and bring it to a boil on low heat. Put the fillets into the leek sauce and simmer covered for about 5 minutes until the meat is not raw. Sprinkle the entire dish with lemon juice and freshly ground black pepper. The dish is best served with mashed potatoes.

Enjoy it!



Easter poultry jelly

Ingredients:

- ☒ 1 package of chicken fillet from the Green Farms
- ☒ 400 g of chicken drumsticks from the Green Farms
- ☒ 1 bunch of greens (carrots, celery, parsley, leek)
- ☒ 1 large onion
- ☒ 1 can green peas
- ☒ parsley leaves
- ☒ 5 eggs
- ☒ bay leaf
- ☒ pepper and sault
- ☒ allspice
- ☒ universal gelatin

Preparation:

Wash the vegetables and the meat thoroughly. Put the meat into a pot, pour 2,5 l of water and boil. Then put the vegetables and spices in the pot, cut the onion in half and fry the flat part in a pan, add it to the boiling stock. Cook it on low heat until a golden broth forms is obtained (about 3 hours). In the meantime, cook hard-boiled eggs in a separate pot; let them cool down.

Remove the meat from the prepared broth and let it cool down, then cut it into small pieces. Cool the cooked carrots from the stock as well and cut them into slices. Strain the rest of the stock in a strainer so that it is clear. Drain the peas.

In small salad bowls, arrange sliced eggs, carrots, and peas, green parsley leaves (finely chopped), and meat.

While the broth is still hot, stir in the gelatin and gently pour it into the filled salad bowls.

Set them aside in a cool place until they cool down, then put them to the refrigerator for the night.

The finished poultry jelly can be served with horseradish or a splash of apple cider vinegar.

Enjoy it!



Easter pound cake

Ingredients:

- ☒ 170 g wheat cake flour
- ☒ 190 g potato starch
- ☒ 220 g vegetable oil
- ☒ 190 g fine sugar
- ☒ 4 large eggs
- ☒ 2 teaspoons baking powder
- ☒ 1 lemon
- ☒ lemon icing

Preparation:

Place the dry ingredients (no sugar) in a smaller bowl and mix them very well. Pour the fine sugar into a large bowl and beat in the eggs (you can substitute for cane or brown sugar for regular sugar). Beat eggs with sugar using a mixer at the highest speed for at least 3 minutes. The sweet egg mixture should turn into a light fluff and the sugar should dissolve completely. Then reduce the power of the mixer, slowly add oil to the mixture and keep mixing all the time. Turn off the mixer, pour in the mixture of the loose ingredients, and mix the dough. You can add juice and lemon zest to the resulting mixture.

Gently pour the mixed dough into the baking pan and place it in an oven preheated to 175 degrees Celsius (with heating on top and bottom). Bake the cake for up to 55 minutes and check it to make sure it doesn't burn. Carefully open the oven door and poke a wooden skewer stick into the dough. If the stick is dry when removed, the cake is ready. Open the oven door slightly and remove the cake 10 minutes after baking.

While still warm, remove the cake from the pan and put it upside down to cool it down. Once cooled, the cake can be frosted with homemade icing or sprinkled with powdered sugar.

Happy Easter!

Enjoy it!



Summary of the activities of the Wipasz Helping Hand Foundation

Marta Oksiuta – Wipasz Helping Hand Foundation

It has been another successful year for the Wipasz Helping Hand Foundation's November Fundraising Campaign. The involvement of our Employees, Business Partners, and Friends enabled us to raise almost 80 000 PLN.

The response to our Foundation's activities makes it possible to implement many wonderful initiatives aimed to promote the development, education, and equal opportunities for children and young people.

Some of the events that we were able to support deserve special mention. One of them is #Strzał w samodzielność, a project organized by the Association of Families and Friends with the Down Syndrome. The goal of this initiative is to make young persons with the Down syndrome independent and teach them basic skills needed in daily living.

To promote the children's sports development and activity, we decided to donate the funds to support sports activities organized by the UKS ORZEŁKI association in Kaszyce. This made it possible to purchase sportswear for the young participants of the event. We also contributed to the funding of the organization of the 'Bieg na żywioł' sports event in Międzyrzec Podlaski. We also supported the Special School and Education Center for mentally disabled children in Zaluć, where we donated bicycles, bike helmets, and reflective vests.

We know how important it is to properly familiarize children with the world of multimedia at an early stage of their education, which is why we decided to support traditional teaching methods to make the learning of the youngest kids more attractive and effective. We helped the kindergarten in Kodeń, run by the local government, which organizes

classes for 5 years old children. The Wipasz Helping Hand Foundation donated a state-of-the-art interactive monitor. Classes organized using the monitor will make it possible to use different methods and means of education to address the challenges faced by children in the 21st century.

At the beginning of the year, we received a request for support in the construction of a playground for the kindergarten run by the local government in Drelów. Of course we agreed to provide the support! We donated funds that will support the work to create this special place. There was also plenty of sweets and gifts.

These are just some of the initiatives we were able to support - there were many more!

- ☑ Support for the Volunteer Fire Department in Swory;
- ☑ Purchase of lockers for the school in Drelów;
- ☑ Purchase of sports equipment for young people;
- ☑ Purchase of tables and equipment for Elementary School no 2 in Międzyrzec Podlaski;
- ☑ Purchase of teaching aids for children;
- ☑ Sponsored trips for children and young persons;
- ☑ Scholarships for talented young children.

Because good deeds pay off, we encourage you to support our Foundation and we hope that we will be able to help many people in the future!



**Dear Customers, Business Partners,
Employees, and Friends of Wipasz S.A.**

Russia's attack on Ukraine was the first news we heard on 24 February 2022. Moments later, in all the media, we saw hundreds of thousands of women with children fleeing their own homes, carrying a few basic items in their bags. Terrified, cold, and tired, they didn't know where they were going. A few dozen people found their way to us – to our company apartments located all over Poland.

The mobilization and help that Poles provided to people escaping from the war has been admirable. Thousands of people rushed to welcome complete strangers into their own homes, to give them warm clothes or food.

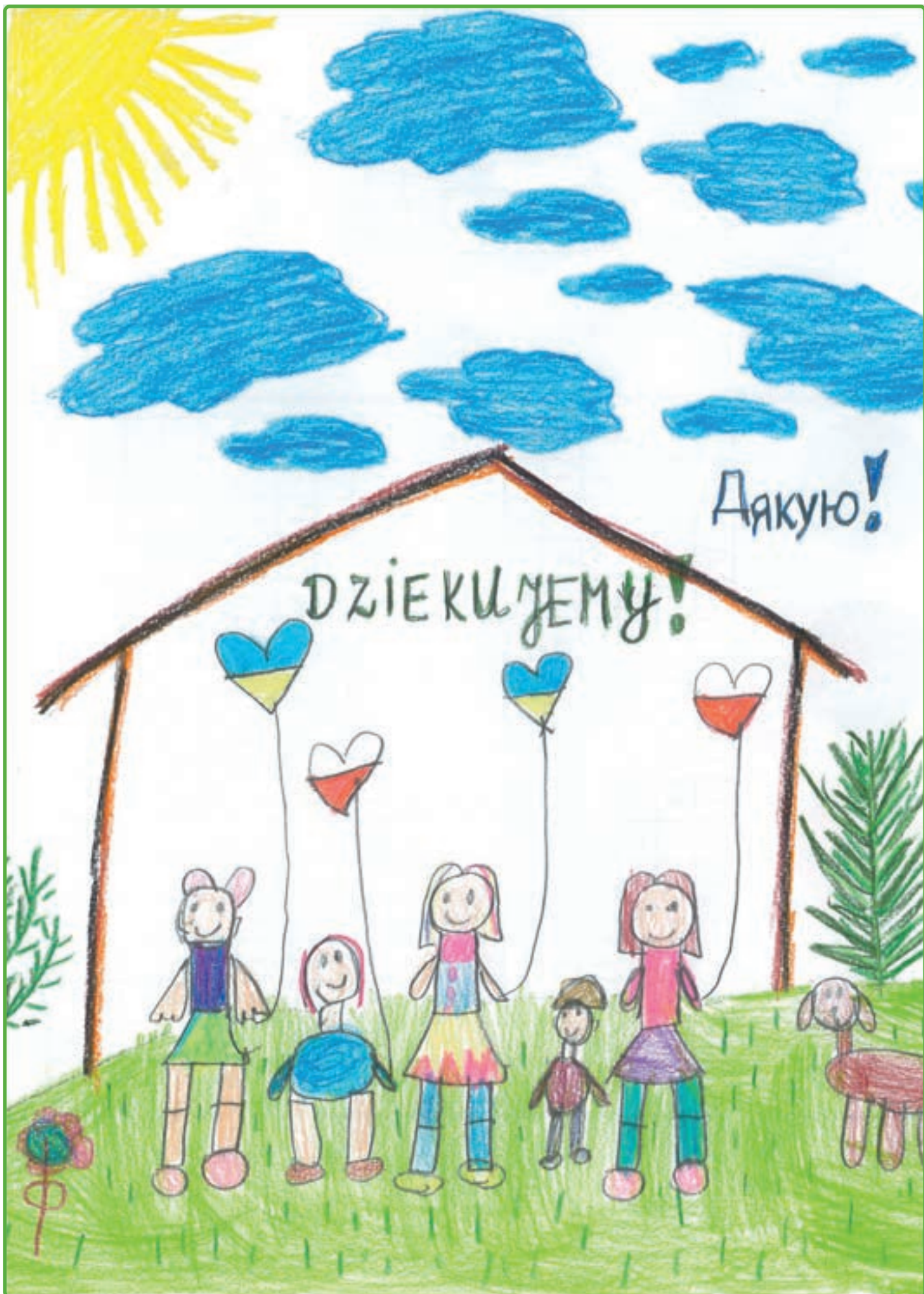
Our Helping Hand Foundation and Wipasz S.A. also immediately started to help. We focused on both helping those coming to Poland and supporting those staying in Ukraine to fight on the front lines. Things that we have been able to do:

- ☒ Over 80 people – women and children – from Ukraine are staying in our apartments. We have equipped all the children so that they could start their education in their new schools in Poland with a smile. We are helping their mothers to learn Polish, deal with formalities, and finding jobs. We have provided them with everything they need.
- ☒ We provided the following supplies for a humanitarian convoy: 150 sleeping bags, 150 sets of thermal underwear, 300 pairs of winter socks, 46 power banks, 100 pairs of tactical combat goggles, 120 pairs of tactical combat gloves, 61 pairs of tactical combat knee pads, 51 tactical combat vests, 20 walkie-talkies, 100 headlamps and batteries, and 100 camouflage military uniforms.
- ☒ We have purchased the necessary household appliances and equipment for the apartments prepared for the refugees.

We are writing about this because we want to be transparent about the activities of our foundation, which you have so generously supported and continue to support. Thank you for your empathy and responding to our appeals for help in such large numbers. Remember, together we can always do more good.

Paulina Buczek

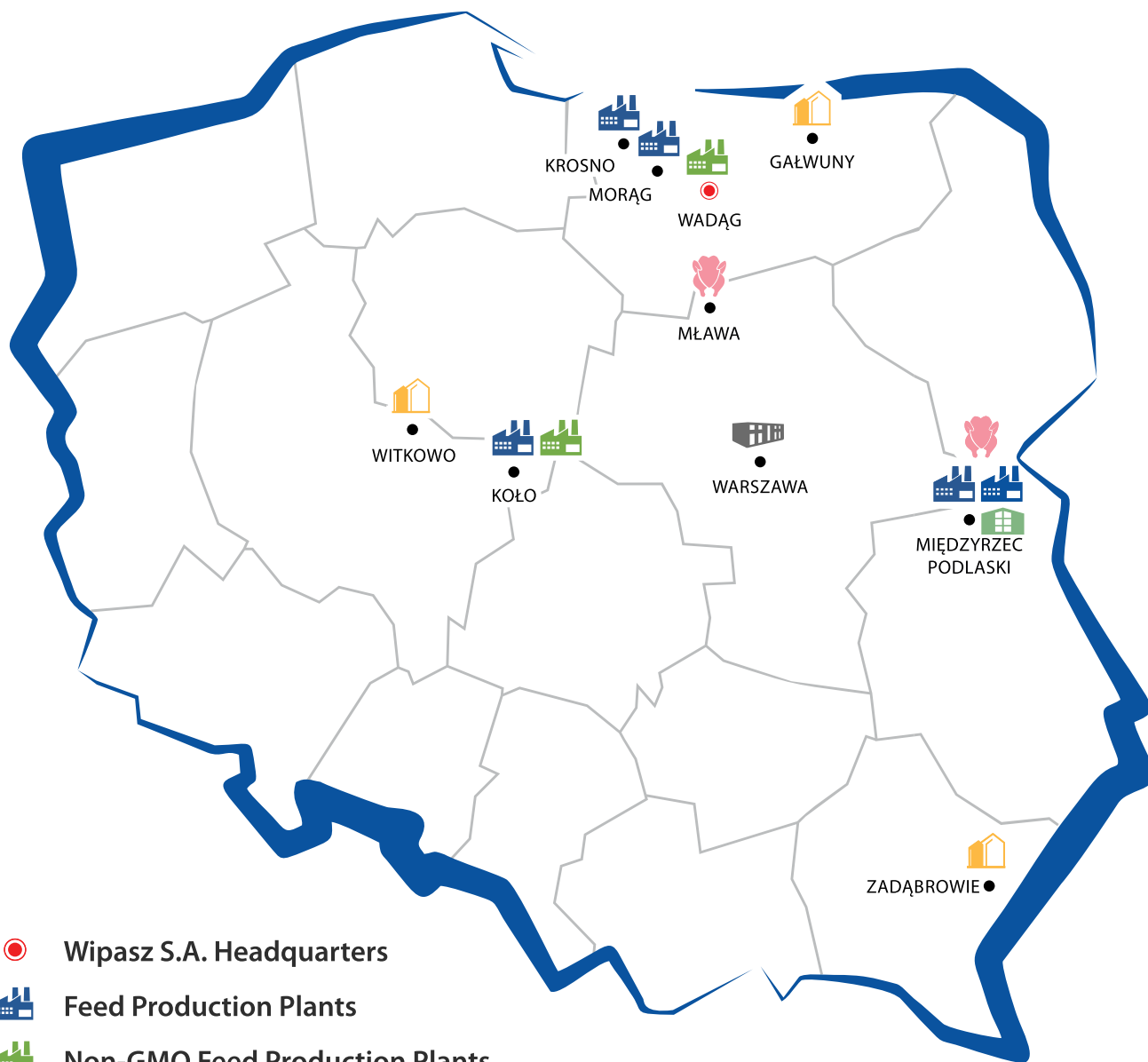
President of the Helping Hand Foundation



DZIEKUJEMY!

Дякую!

Our locations



-  Wipasz S.A. Headquarters
-  Feed Production Plants
-  Non-GMO Feed Production Plants
-  Grain Stores
-  Poultry Processing Plants
-  Sales Office
-  Polish Chicken Research Center

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