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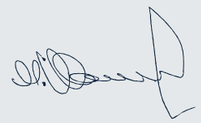
Editorial

Welcome to the latest edition of FOODprint, where we delve deep into the intersection of agriculture, food production, and climate change. As our planet faces unprecedented climate change challenges, including water scarcity, food price inflation, and food safety concerns, the resilience and adaptability of our agricultural systems have never been more crucial.

In this issue, we explore how shifting climate patterns are reshaping farming and food production practices, influencing crop yields, challenging supply chains, and prompting innovative solutions across the food industry. We also examine the evolving role of organic farming practices and insurance in managing risks associated with climate variability and extreme weather events, highlighting its synergy with international climate agreements like COP28.

Join us as we uncover the strategies and stories shaping the future of food production in a changing world.



Maksym Shylov
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Food & Agriculture

Your Local Contact in Food & Agriculture:

Rising Temperatures: What They Mean for Food Safety

As the effects of climate change become increasingly tangible - from soaring temperatures and intensified storms to agricultural losses - its broader, often unseen consequences continue to unfold.

Among these critical concerns is the impact on food safety, a vital aspect of ensuring public health and wellbeing.

Climate change in numbers

When looking at rising temperatures globally, Europe is currently experiencing the most dramatic changes.

In 2023, the Svalbard Islands (Norway) experienced the highest temperature increase at 3.6°C, similar to 2022. The Republic of Moldova led the temperature rise at 2.9°C, followed by Ukraine (2.8°C), Switzerland and Belarus (2.7°C), and Romania, Slovenia, and Bulgaria (2.6°C). France, Croatia, and Kazakhstan recorded temperatures slightly below 2.6°C. These countries, with extensive agricultural lands and significant animal populations, face increased risks from these temperature changes. While the global average for land dedicated to agriculture is 37%, Kazakhstan has 79%, Ukraine 71%, the Republic of Moldova 69%, Romania 57%, France 52%, and Bulgaria 46%.

Climate change has colossal impact on food safety

Food safety is crucial for ensuring food security, encompassing availability, accessibility, utilisation, and stability. Without adequate food safety measures, achieving food security is impossible. Unsafe food can result in health problems, particularly as climate change influences pathogens and pests, thereby affecting food safety and nutritional quality throughout the food chain. In insecure food supply situations, individuals often opt for less nutritious diets and consume more "unsafe foods," exposing themselves to health risks posed by chemical, microbiological, and other hazards.

As change unfolds, new risks emerge in the food supply chain due to several factors: increased exposure to known hazards, heightened pathogenicity or toxicity, and shifts in food composition driven by factors like trade or plant protection products (PPP). Climate change can amplify these risks, introducing or intensifying challenges across the food supply chain.

The main hazards to food safety due to changes in the weather can be categorised into 12 different classifications:

1. **Viruses:** Climate change influences the spread and characteristics of viruses, potentially exacerbating contamination in food and water sources. For example, heavy rainfall can lead to sewage overflow, contaminating water sources with norovirus. Additionally, warmer, more humid weather can also lead to new, more infectious norovirus strains. And, rising temperatures which thaw permafrost, can potentially revive ancient viruses and bacteria.

2. **Bacteria:** Higher temperatures facilitate the growth and spread of pathogens such as Campylobacter and Salmonella, increasing risks of infections in crops and food products.

3. **Parasites** are also thriving because of climate change. For example, oocysts are persisting in frozen soils or under ice due to warmer winter conditions, heavy rainfall is contaminating crops via runoff, and droughts are concentrating oocysts, increasing the risk of infection.

4. **Chemical hazards:** For example, mycotoxins are harmful compounds produced by moulds that can grow on foods like cereals, nuts, spices, dried fruits, and coffee beans. Common mycotoxins include aflatoxins, ochratoxin A, fumonisins, and deoxynivalenol, are formed during crop growth and storage in hot, humid conditions, with drought also promoting their formation. Climate change worsens this by fostering fungal growth and mycotoxin production, even in previously unaffected temperate zones.

5. **Heavy metals:** Mercury, lead, cadmium and arsenic are major public health concerns. Rising sea temperatures are expected to increase mercury levels in seafood like cod, tuna, and swordfish[1]. Factors such as ocean acidification, altered precipitation patterns, wildfires, and thawing permafrost also contribute to higher mercury levels in food[2]. Warmer temperatures due to climate change may triple arsenic concentrations in rice grains, posing significant health risks[3].

1 Schartup et al., 2019

2 FAO, 2020

3 Farhat et al., 2019

6. **Marine toxins:** Temperature changes and runoff after heavy rainfall are contributing to the growth of toxic algal blooms in freshwater and marine ecosystems, threatening food safety.

7. **Food additives, pesticides, and veterinary drugs:** Climate change affects the use and regulation of these chemicals, potentially altering their impact on food safety. Higher temperatures accelerate food spoilage and necessitate the use of more post-harvest chemicals like fungicides[4] which in turn increases the need for additional preservatives and antioxidants. Moreover, increased rainfall and pest prevalence also lead to higher pesticide residues in food.

8. **Antimicrobial resistance:** Increased antimicrobial use in food production contributes to rising resistance, impacting human health globally. Climate change worsens this by influencing disease prevalence in livestock, potentially increasing the demand for antimicrobial use and the emergence of resistance in both animals and humans.

9. **Human behaviour:** Prolonged, warmer seasons are changing consumer habits and seasonal practices are affecting food handling and storage, influencing exposure to foodborne pathogens[5]. For instance, BBQs and picnics in summer often create challenges related to temperature-safe food storage, cross-contamination between cooking vessels, and the undercooking of meat.

10. **Water issues:** Altered rainfall patterns and extended summer seasons are causing water crisis issues worldwide[6]. Water scarcity influences the spread of foodborne pathogens like Listeria monocytogenes by compromising hygiene in food processing plants. Water stress also impacts food production, as farmers facing inadequate municipal water supplies may turn to using surface water for irrigation, which can harbour various foodborne pathogens.

11. **Food storage:** Increasing ambient temperatures will disrupt the entire cold food chain, impacting processes such as initial food chilling, transport, storage, and display. Elevated ambient and storage temperatures heighten the potential for food safety risks[7]. Adapting the cold chain to these shifts will probably demand increased energy consumption for refrigeration systems, resulting in higher CO2 emissions.

12. **Consumer preferences:** Shifts towards plant-based diets and alternative foods raise concerns about allergen exposure and product safety.

4 FAO, 2020; Naicker, 2011

5 Tirado et al., 2010

6 Hofste, Reig and Schiefer, 2019

7 James and James, 2010

Food safety risk mitigation

These challenges highlight the need for adaptive strategies and international cooperation to safeguard food safety amidst ongoing climate change impacts. Throughout the world, food is kept safe by the collective efforts of those in the food supply chain: national authorities are establishing relevant guidelines and standards, food producers are adopting good practices, business operators are complying with regulations, and consumers are becoming more aware of safe food handling practices[8]. Raising awareness and commitment to action are key to integrating food safety into climate change mitigation strategies and enhancing emergency preparedness and response capabilities.

Emerging technologies are also aiding the mitigation of food safety risks and sustaining the positive trend of productivity growth. Digital innovations and improved traceability in supply chains swiftly detect and remove contaminated food, reducing public health risks. Innovations like automation, AI, big data, and Blockchain are crucial for managing food safety in changing agrifood systems. Furthermore, scientific advancements are reshaping global food safety risk assessments, highlighting the importance of preparedness and international cooperation in adopting these innovations effectively[9].

8 Food and Agriculture Organization of the United Nations, 2022

9 Goswami & Barua, 2007; G. Liu, Li, Wang, et al., 2018

The internet has transformed consumer access to information, shaping perceptions and preferences across various aspects of life. In food safety, online platforms are vital for educating consumers on cooking methods, offering traceability details, and promoting best practices.

A risk management and insurance perspective

Amid environmental and digital transformations, food companies must stay informed about the evolving risk landscape. Implementing effective and timely risk monitoring, assessment, mitigation, and transfer strategies is crucial for maintaining financial resilience in the face of emerging challenges, and having liability insurance, product recall plans, and contamination insurance safeguards in cases where mitigation efforts alone may not suffice. These measures collectively ensure readiness and resilience against potential risks in a dynamic business environment.

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How to Make the UN Climate Change Conference (COP28) Loss and Damage Deal More Viable?

The United Nations Climate Change Conference COP28 took place in Dubai in December 2023. The conference is the world's only multilateral decision-making forum on climate change with almost complete membership of every country in the world.

Countries come together each year to agree on ways to limit the rise in average global temperatures to no more than 1.5C by the end of the century, and help vulnerable regions to handle the negative effects of climate change.

Global climate justice: Redistributing losses from emissions to impact zones

One of the first significant deals which was reached at the summit was compensation for losses and damages from developed countries that primarily produce greenhouse gas emissions to countries that are intensely suffering from the effects of climate change as a result.

The UAE and Germany have already donated $100m to the loss and damage startup fund. The initial funding is close to US$429m. €225m ($245m) will come from the EU, £60m ($75m) from the UK, $24.5m from the US and $10m from Japan. Funding should further lead to the signing of an agreement, since the decision on losses and damages does not mention specific rules regarding the amount and frequency of funding, therefore raising the question of the long-term sustainability of the fund.

The loss and damage in developing countries is already estimated by some studies to be greater than $400bn annually – and expected to rise. Going forward, loss and damage costs will depend on the effectiveness of climate mitigation and adaptation efforts.

How effective are interstate climate change compensation initiatives?

However, a recent scientific article questioned the effectiveness of interstate climate change compensation based on the principles of tort liability. There are at least four structural differences between traditional conceptions of liability and the basic characteristics of climate change as a public policy issue that pose significant obstacles to the application of tort law to climate change.

Firstly, the concept of liability is traditionally based on an assumption that the cause of injury or damage should be linked to the series of actions and events. Climate science treats cause and effect in probabilistic terms, that is, with some degree of probability. Therefore, it is impossible to strictly prove the cause.

Secondly, it is difficult to clearly define negligence in relation to the duty of care due to the diversity of activities associated with GHS emissions and the incomplete linkage of such activities to climate change.

Thirdly, a certain amount of time must pass between causing harm and unlawful behaviour (in our case, activities related to climate change). But climate change is a continuum problem caused by the accumulation of greenhouse gases and other warming pollutants over decades. The time delays inherent in climate change conflict with the time requirements required by tort liability law.

And finally, the high scale of claims that can be made in climate change liability cases can undermine the economic foundations of the societies that tort systems are designed to serve. Worst-case climate change scenarios could even lead to the risk of virtually unlimited damage.

Is a parametric (index) insurance system the solution?

To solve the above-mentioned inconsistencies between damage from climate change and the tort liability system, the author of the article proposes a parametric (index) insurance system. With this type of insurance, payment can be made automatically from an insurance fund (maybe an insurance company, a multi-country risk pool, etc.) provided that certain weather parameters are triggered.

We can still see successful parametric risk financing schemes in operation on both meso and macro levels, for example through the Rural Resilience Initiative and the Acre Fund in Africa, and with the Caribbean Catastrophe Risk Insurance Facility.

Despite society's movement towards risk pooling mechanisms for catastrophic risks such as drought, heat stress, floods and hurricanes, there is still an opportunity for private markets to provide additional capacity at all levels (micro, meso and macro). They can also offer additional financing of risks through of participation in catastrophic securities and insurance (reinsurance) using parametric (index) contracts.

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Is water scarcity dangerous for the European food industry?

We're all taught at school that 70% of the earth's surface is water. However, what we're not taught is that only 2.5% of the world's water is fresh, or that most of it is ice (68%), or deep underground (30.8%). In reality, only the 1.2% found in bodies of water on the earth's surface, such as lakes and rivers, is easily accessible.

Something else we're not taught is how much water goes into food production. Do you know how many litres of water are needed to produce 1kg of steak? 15,000 litres! And the production of 1kg of chocolate uses 17,196 litres of water! According to statistics from 2019, Europe produced 3.7 tonnes of chocolate which equates to an eyewatering amount of water! 63,625,200,000 litres to be precise!

With statistics like these, it is easy to see why this sector qualifies as the biggest consumer of water: It is estimated, that around 60% of all water consumption in the EU is expended by the food and agriculture industry.

EU food & agriculture sector uses the most freshwater

And here's why: As a key processing element and a major ingredient, fresh water is a vital, irreplaceable resource for the food processing industry. Animal products like meat, dairy and eggs have the highest water footprint of all foods. Most meat's water footprint, for example, comes from the water that goes into growing the crops that livestock eat. Similarly, for beer, it's not just the water in the bottle that counts, but also all the water needed to cultivate the barley and hops necessary to brew the drink in the first place. Fruit and vegetable processing is also a heavy user of water largely because it requires water to grow the crops and an exponential amount of water to wash the end produce.

Fresh water is also used in different technological food processing operations; however, their demands are different to other industries because the quality of the water must guarantee food safety: in some specific sectors almost 70% of the total water used is for sanitation operations, whilst cooling and heating operations ranks second with a share of about 20% of the total water consumed. Although a proportion of the water used becomes a part of the food product, it is not higher than 20–30% even for the brewing and soft drinks sectors. What this means is that, in general, more than 70% of the total water used is discharged as effluent which has high levels of biological (BOD) and chemical oxygen demand (COD), as well as fats, oils, and grease (FOG). Among the different industries, at between 10-30%, the food and beverage industry emits the highest amounts of organic water pollutants.

The reality of water scarcity in Europe: More consumption means more risk

The risk of water scarcity is one of the key considerations in the risk management and ESG policies of food and agriculture companies. In 2019, 77% of 35 publicly traded food & agri companies in the UK explicitly cited water as a risk factor in their annual reports, up from 59% in 2017. In addition, interviews with food processors in the UK conducted by Loughborough University's Business School found that 50% of respondents rated water loss as a high or medium risk.

And it's not just in the UK. Water scarcity is most prevalent in Southern Europe, particularly during the summer because of higher abstractions from agriculture, public water supply, and tourism. We regularly see intensive irrigation throughout the year leading to severe water scarcity in the Middle Apennines and the Po Basin (Italy), in Guadiana (Portugal and Spain), and in Segura (Spain). Similarly Mediterranean islands such as the Balearic Islands, Crete, and Sicily, experience incessant and severe water stress conditions throughout the year due to agriculture and tourism. Meanwhile in other parts of Europe, food and agriculture businesses are at risk of water scarcity caused by urbanisation combined with high abstractions from the energy and industrial sectors for cooling purposes, and from the public water supply sector. In addition, after unforeseen drought in areas such as Scandinavia in 2018, the Elbe basin in 2015, and the Black Sea basin in 2007, many companies are also including water scarcity in their risk evaluations where previously it might not have been perceived as a critical issue due to their geographical location.

What is more, it's not just water scarcity that the food and agriculture industry is concerned about; it's also risks posed by water quality, especially where insufficient water resources of a certain quality are available to satisfy the requirements of the industry and of the public. When the balance of water demand exceeds the water supplied by the natural system, governments are often required to employ temporary or permanent legal bans or restrict water usage. This in turn causes a major headache for food processing plants and other businesses in the sector.

The impact of water scarcity on the food industry

When fresh water is scarce, there are many consequences for the food industry, and it's like a domino effect which culminates in the termination of food production or food processing, leading to higher prices, food and drink shortages, and more. Let's look at some of the knock-on effects: Reduced water availability impacts the ability of farmers to irrigate their crops, leading to lower agricultural productivity. This, in turn, can affect the supply and cost of raw materials for the food industry. Disruptions in the transportation of goods and the operation of processing facilities on the waterways can also occur which leads to delays in production and distribution, impacting the overall food supply chain and again increasing prices. In times of drought, stricter regulations related to water use and wastewater discharge are often enforced meaning the food industry faces additional compliance requirements, necessitating investments in water-efficient technologies and sustainable water management practices.

The industry is also having to take into account changes in consumer preferences. Increased awareness of environmental issues, including water scarcity, is leading many to favour products and companies that clearly demonstrate their water conservation efforts. Businesses that fail to address water-related risks could also face reputational challenges on top of the risks created by a marked reduction in water supply.

Insurance and environmental response

The problem of global water scarcity and the reduction in water availability has forced the food industry to make water management a top priority to ensure the industry as a whole is acting sustainably. Insurance, as a tool for financing losses, is used in the event of scenarios of acute water supply disruptions. Losses due to accidental water shortages can be covered through a conventional property damage and business interruption agreement as an additional extension of utility BI. When it comes to damage caused by third parties, losses can be compensated through contingent business interruption, trade disruption, or parametric policies.
But where there's acute risks, there are huge opportunities for change: Water scarcity concerns are driving innovation in the food industry and with members of the public. Companies are investing in water-efficient technologies, sustainable agricultural practices, and water recycling systems to mitigate the impacts of scarcity on their operations. Spatial climate adaptation activities, such as the relocation of production plants from southern Europe to more water-rich areas are also taking place. Moreover, individuals are increasingly aware of their water footprint which leads to the reductions of direct water use (less showering, flushing, turning off taps, using water butts to collect rainwater to water the garden etc.). This increased consciousness is creating an opportunity for long-lasting sustainable change in our individual food choices as we start to consciously opt to buy products which are sustainably made.

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Food Price Inflation in CEE & SEE Countries – Its Impact on Insurance and the Future

According to the International Monetary Fund food and energy are the main drivers of today's inflation. As we all find ourselves increasingly spending more money on food and heating bills, it is hard to deny this fact. In this article we compare food price inflation across Central and Eastern Europe in the 18 countries where GrECo Group operates and ask how differences in prices came about, and what the consequences are for insurance?

How food price inflation is measured

The United Nations' Food and Agriculture Organisation uses the FAO Food Price Index (FFPI) to track and monitor price changes in international markets for key basic foodstuffs. They use the reference period 2014 to 2016 as the FFPI base value, this being 100. For example, if in July 2005 the FFPI in Austria was 76.4, this means that the main basket of food products cost 23.6% less in July 2005 than the average basket in 2014 - 2016 yy. If the FFPI, let's say, in June 2022 was at 121.1, the food inflation was 21.1% compared to 2014 - 2016 yy.

Different rates of food price inflation in Europe

For the purposes of this article, we analysed the food price indices in CEE/SEE countries. These are split into the following three groups: EU countries using the Euro as an official currency, EU countries using their own national currency, and non-EU countries.

The analysis shows that the increase in food prices in EU countries follows the same course, i.e. the dynamics from 2020 are very high compared to the previous 20 years (2000 - 2019 yy). This proves the economies of EU countries are interconnected.

Trends of note

For countries outside the EU, we see that prices have risen in different ways at different times. There was a sharp increase in prices in 2013 – 2014 in the Ukraine, which can be attributed to the destabilisation of the economy during the Maidan Revolution, the ensuing Russian occupation in February 2014, and the subsequent large devaluation of the local currency.

If we look at the period 2020 – 2022, a more interesting trend can be seen primarily related to COVID and Russia's invasion of Ukraine. Among the six Euro area countries we analysed, Austria showed the lowest FFPI increase and Lithuania the highest. Furthermore, among the five EU countries that use national currencies, the highest inflation was recorded in Hungary, and the lowest in the Czech Republic. Meanwhile, among the four non-EU countries, Ukraine suffered a much higher FFPI than in the period 2014 - 2016. Serbia is the most stable in this respect.

A look at increasing food prices during 2020 - 2022

If one makes a straightforward comparison of FFPI values over recent periods, the differences between countries in the EU are clearly noticeable. For example, food prices increased significantly in both Austria and Croatia from 2020 to 2022.

Furthermore, it's evident that inflation between 2022 and 2020 exceeded that between 2020 and 2015 in nearly every country. For instance, in Latvia, prices rose sharply from 2020 to 2022 compared to the previous period. Prices began to rise drastically from the third and fourth quarters of 2021, likely attributable to the post-COVID food and energy supply chain crisis. Non-EU countries also experienced substantial increases, highlighting the widespread impact of these issues.

Why is food price inflation so high between 2020 - 2022?

A fundamental cause of any inflation is the scarcity of goods, either their total lack or their availability in only insufficient quantities. This happened in the post-COVID recovery phase, when deferred demand for energy resources collided with supply chain constraints. At the same time, in 2021, we witnessed a sharp increase in the prices of cereal and oilseed raw materials. We also saw the first forecasts of increasing food prices. Soon after, Russia's invasion of Ukraine caused a new issue in the food supply chain that persists today: the disruption of grain exports from Ukraine, one of the world's largest grain producers. This disruption has exacerbated global food insecurity, resulting in higher prices and shortages in many regions.

Another cause of inflation is excess demand, be it due to the government printing extra money, the acceleration of the money multiplier, new demand created by GDP growth, or the inflow of new foreign capital. For example, according to Forbes the consistent monetary stimulus on a massive scale, unprecedented since World War II, turned the flywheel even further in 2020 - 2022.

On top of that, the negative expectations of enterprises and consumers add more fuel to the fire. Today, nobody is willing to take a risk by selling goods without hedging against the risk of higher production costs in the future. Manufacturers are already increasing prices to transfer the risk to their consumers. There is also the theory that big corporations and monopolists (e.g., in the energy segment or food retail) can merely squeeze out more profit by driving up prices. It will be interesting to see what the final 2022 balance sheets and ESG reports will look like for 2023.

Impact of inflation on insurance markets

In our opinion, inflation impacts negatively on insurance consumption and insurance premiums. On the positive side, greater financial uncertainty, and changes in the spending structure (increased share of spending on inflexible goods and utilities) make households and enterprises rethink their insurance spending. To further curb price increases, central banks significantly raise base rates. Together with inflation expectations and the calculation of an additional risk premium for uncertainty, such actions lead to a significant increase in the cost of capital. This means investors in the insurance industry are increasingly making outrageous demands.

As a result, we have already witnessed a lack of capacity following the first wave of investor capital outflow from international insurance markets. As a result, insurers are not only starting to optimise their portfolios, but they are also becoming increasingly risk averse. Some of the conventional property risks are very difficult to renew and additional limits, for example, in the meat industry, in agricultural insurance, and in other sectors can hardly be obtained. Markets are thus hardening again.

What can we expect in the not-too-distant future and what will save us from the abyss?

Food and energy supply chain constraints pushed up prices post-COVID. Aggressive government monetary policies, negative expectations and further supply chain disruptions caused by Russia's invasion of Ukraine exacerbated the situation. This has affected CSEE countries in different ways, however what they have in common is that prices in 2021 - 2022 soared at an unprecedented rate. The insurance market, in turn, is now entering a phase of portfolio optimisation due to the growing lack of investor capital.

So, what does the future have in store for us?

A similar scale of inflation took place in the 1970s when price increases were associated with oil shocks in 1973 and in 1979 - 1980. That said, prior to these shocks, monetary policy was focused on keeping interest rates low to maintain employment levels and pour more money into an economy that resembles ours today. Further policy tightening resulted in a deep economic crisis in the early 1980s.

However, there are two important differences between the current situation and the 1970s. The first is that the magnitude of commodity price jumps today is smaller than in the 1970s. And the second is that a paradigm shift in monetary policy frameworks has taken place since the 1970s, meaning central banks in advanced economies now have clear mandates for price stability, which is expressed as an explicit inflation target.

"Beyond the near term, inflation is expected to decline, but the experience of the 1970s suggests some material risks to this inflation outlook". The Centre for Economic Policy Research

CEPR considers such risks to be material if the following events do not occur:

1. Global production lines and logistics undergo adjustments.
2. Inflation expectations are expected to stay firmly anchored in the medium term.
3. The structural forces that suppressed inflation prior to the pandemic endure.

In addition, we believe increasing economic activity towards the reconstruction of Ukraine and new investments in technologies leading to the decarbonisation of economies will additionally inject economic growth, which will, in turn, result in a stabilisation of prices.

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Are Insurers Ready to Insure Organic Crops?

Organic farming is not only about healthy food, but also about using practices that make our agriculture sustainable and resistant to climate change for many generations to come. In this article, we take a closer look at the present and the future of organic farming, as well as the importance of crop insurance practices in helping with the transition to greener farming methods.

What is organic farming?

There are many explanations and definitions for organic agriculture, but all agree it is a practice that relies on ecosystem management rather than external agricultural inputs. It is a system that considers potential environmental and social impacts by eliminating the use of synthetic inputs, such as synthetic fertilisers and pesticides, veterinary drugs, genetically modified seeds and breeds, preservatives, additives, and irradiation. These are replaced with site-specific management practices that maintain and increase long-term soil fertility and prevent pests and diseases.

In general, the development of organic farming is driven by:

- **consumers:** who are becoming more and more conscious about how their food is produced, processed, handled, and marketed.
- **governments:** aiming to reduce groundwater pollution or create a more biologically diverse landscape.
- **farmers:** who believe that conventional agriculture is unsustainable and have developed alternative modes of production to improve their family health, farm economies, self-reliance, and wealth (organic farming can also be much more beneficial, considering that prices for organic food are higher than those for conventional products).

Organic farming in the EU

The area under organic farming in the EU has increased by almost 66% in the last 10 years – from 8.3 million hectares in 2010 to 13.8 million hectares in 2019. It currently accounts for 8.5% of the EU's total 'utilised agricultural area', but there is still lots of room for improvement.

A sustainable food system is at the heart of the European Green Deal. Under the Green Deal's Farm to Fork strategy, the European Commission has set a target for at least 25% of the EU's agricultural land to be organically farmed, and a significant increase in organic aquaculture by 2030. To achieve it the EU Commission has set out a comprehensive organic action plan. It is broken into three interlinked axes that reflect the structure of the food supply chain and the Green Deal's sustainability objectives.

Is organic farming riskier than conventional farming?

Organic farming is often deemed as being more resilient to certain climate risks compared to conventional farming practices. USDA's Risk Management Agency (RMA) recognises organic farming practices as good farming practices and continues to improve crop insurance coverage for certified organic producers and producers transitioning to certified organic production.

Organic farms tend to promote biodiversity by avoiding synthetic pesticides and encouraging the use of cover crops, crop rotation, and other practices that enhance ecological diversity. This diversity can make farms more resilient to changing weather patterns, as different crops have varying tolerance to climate conditions.

In addition, a strong emphasis is taken on soil health practices like composting and reduced tillage. Healthy soils can better retain water, which can be critical during periods of drought or irregular rainfall, helping to mitigate the impacts of climate change. For example, during the very dry 2021 growing season, the farms in Canada with higher levels of soil organic matter produced an average of 8.2 more bushels of canola per acre than farms with lower levels of soil organic matter.

Moreover, organic farming typically produces fewer greenhouse gas emissions compared to conventional farming, primarily due to the avoidance of synthetic fertilizers and pesticides. Therefore, it brings less exposure in respect of ESG transition risks.

Insurance of organic farms

As a rule, insurance companies do offer insurance coverage specifically for organic crops. However, insurers and farmers face several problems related to crop insurance. Organic farming can potentially lead to lower yields, due to the inability to use synthetic pesticides and fertilizers. It creates some controversy within classic crop insurance practices. It is difficult to include more widely diversified organic farming in a crop insurance system that was largely built on insuring conventional types of field crops, and that largely defines success and failure in terms of crop yield and revenue. For organic farmers, by contrast, success also includes other values and goals, such as improving soil quality, increasing biodiversity, and enhancing the environment. In such a case, the level of insured yields is usually lower than for conventional farming. For example, in the USA, if a farmer does not have an individual yield history for organic crops, they can be offered insurance for the area yield level for standard crops but reduced by 35%.

Moreover, underwriters in insurance companies possess limited information regarding organic farming practices and how they are related to crop insurance. Many agents of insurance companies do not know as much as they would like about organic production, and do not feel comfortable or well-prepared enough to work with organic growers. At the loss adjustment stage, the parties of the insurance contract may face the problem of interpreting good farming practices, violation of which is the reason for diminishing the insurance indemnity or even a decline in compensation. Clear cases of failure include things like using insufficient amounts of seed or fertilizer, grossly underwatering an irrigated crop, or allowing weeds to take over the field. What this means is that insurance adjusters and outside experts decide if it is a failure or not, and not the farmer. However, there are many grey areas. The complexity and integrated nature of an organic production system means it can be difficult for an adjuster to judge whether a given organic farm is using good farming practices, unless they are intimately familiar with the operation.

One more problem is that insurance companies usually experience higher loss ratios from insuring organic farmers compared to standard clients. It can be explained by the lower participation of organic agriculture in crop insurance, hence, a higher adverse risk selection. Moreover, growing a more diverse selection of crops can bring additional risk of failure depending on the variety, hence, more potential losses to the insurance company. And finally, organic farms grow more produce than conventional farms, and horticulture and viticulture is more vulnerable to climate risks compared to field crops, that makes insurers more reluctant to insure it. In addition, it is difficult to verify sums insured based on market prices from liquid markets of conventional crops. Organic food is more expensive; therefore, an insurance company should consider the higher price of crops. Instead, its verification is often just to follow the contract price between a famer and their buyer. It means, that the exposure (maximal loss) per one hectare in organic farming can also be higher.

Conclusions: can insurance lead the transformation of farming practices?

The EU has an ambitious target to have 25% of land under organic farming by 2030. This is a big challenge for farmers who, despite economic and social motivation, and growing consumer demand, are struggling with difficulties in the transition phase. Insurance plays one of the most important roles in motivating farmers to switch from conventional methods to more environmentally friendly ones. Insurers are ready to insure organic crops but should continue to develop their expertise to ultimately ensure that organic farmers have the same access to crop insurance, on equal terms to conventional farmers. For this purpose, several methodological, educational and data availability problems need to be solved.

GrECo Group, as one of the leading specialist brokers in the CSEE region, facilitates the development of solutions for organic farming by conducting crucial research in this area and creating tailor-made solutions for the insurance and agricultural industries. We firmly believe insurance can play a major role in the transformation of agriculture from conventional practices to more ecological ones. We just need to provide the farmers with the right incentives and solutions.

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“When Disaster Happens, Meat Processors Will Typically be Held Legally Liable” The Financial Impact of a Food Contamination Outbreak.

Regardless of the category, ensuring food safety is considered one of the biggest challenges of the twenty-first century and features prominently on the agendas of most countries.

According to regulations[1], food is considered unsafe if it is likely to be harmful to health or unfit for human consumption. Whether it is a defective ingredient, a mistake in production, or improper transport or retail handling, the cause of a product defect can be multifaceted, and as soon as a business has even the slightest reason to believe that their product does not comply with food safety requirements, they are obliged to immediately withdraw it from the market. From producer to processor to importer and trader, this provision applies to the entire supply chain. Are you ready if your business falls victim to food contamination?

Statistics are worth a thousand words

Figures show that between January 2020 and 1 March 2024, 2,371 food safety incidents were registered in EU countries. That’s, on average, 575 cases per year, or the equivalent of almost two incidents per day! Within this, according to RASFF[2], meat and meat products were the third most frequently reported category (13%) to have food safety issues in the food industry. During the last four years, countries across CESEE, from Poland to the Netherlands, Belgium and France to Italy, CESEE reported multiple cases of salmonella, listeria, and escherichia coli shigatoxin as issues they were facing, as well as unauthorised substances or an excess of substances, foreign bodies inside the meat, and traceability concerns.

1 Art. 14 of the EU Basic Regulation EC 178/2002

2 The EU has one of the highest food safety standards in the world – largely thanks to the solid set of EU legislation in place, to keep food and feed safe. As part of the food safety tools, the Rapid Alert System for Food and Feed (RASFF) was established to ensure the exchange of information between member countries to support swift reaction by food safety authorities in case of risks to public health resulting from the food chain.

(EFSA - European Food Safety Authority Annual Report 2009).

Why the Meat Processing Industry is so Exposed to Injury Claims, Contamination and Recalls

The meat industry represents a long food supply chain. It starts with the production of crops to feed livestock, and goes on to include further breeding, slaughter, processing (either in its natural state or as an ingredient in another product such as pizza toppings, beef patties or ready meals), transportation, storage, and finally, delivery to the end consumer. During any of these stages errors and failure to comply with food safety standards can occur leading to product contamination and an array of negative financial and reputational consequences.

Product recalls can be organisationally and financially challenging for a business, and even more so for those who operate outside their local market. In this regard, the meat industry is potentially where some of the biggest problems lie[3]: It heads the list of foods most frequently associated with safety hazards and human illness, and when meat products are enroute to another part of the world and a contamination problem arises, organisations need valued and trusted support to handle the situation quickly and effectively.

A recent case study of a German company with a turnover of 100 million EUR serves as a good example. Listeria was found in some of the company’s meat products. They had to bear recall expenses from US and UK markets and additionally lost gross profit.

Once all recalls had been done, all contaminated products destroyed and the source of the problem identified and rectified, the company suffered total losses of 90 million EUR.

3 (EFSA - European Food Safety Authority Annual Report 2009).

Meat Manufacturers Held Accountable No Matter Where the Fault Occurs

When disaster happens, meat processors will typically be held legally liable along with their meat suppliers or carriers, even if the cause of meat contamination does not occur at their meat processing premises. From unidentified additives, hidden allergens, and the use of nitrates, to the mislabelling of products (unintentionally or intentionally), fraudulent activity by suppliers and malicious adulteration of products by a disgruntled employee, the possibility of a food safety issue resulting in a costly, reputationally damaging lawsuit are high and meat products processors will bear the brunt of the exposure. What is more, if a meat product processor imports their meat from foreign countries, customers will be more likely to bring claims against the manufacturer because lawsuits against foreign meat packing plants and suppliers may be difficult to pursue.

No matter what the cause, it is essential for meat processors to have the right kind of insurance provisions in place because a food safety incident can result in numerous additional expenses. All the possible losses resulting from product contamination can be categorised in the following way:

- Losses related to damages to customers resulting from bodily injury or property damage, including associated defence costs, various types of fines and penalties.
- Pre-recall and crisis response costs.
- If there is the feeling that something has gone wrong, a company can incur costs for chemical analysis, physical examination, or other necessary laboratory testing to ascertain whether the meat products have

been contaminated or what the potential effects of that might be. Moreover, crisis management services are often needed for immediate response to the incident (including extortion).

- Recall costs. These are numerous:
  - Communications costs: emergency phone lines, public relations specialists, radio, television, internet, media announcements etc.
  - Transportation costs: collecting products from store or consumers, the related reverse logistics, and other freight and distribution charges.
  - Storage costs: expense for rent or hire of any additional warehouse space needed to house returned products. The producer may even need multiple locations across several countries.
  - Destruction costs: the physical examination, reworking, relabelling, destruction, and disposal of contaminated products, including the destruction and disposal of packaging and labelling material that cannot be reused.
  - Third party recall liability: costs incurred by retailers, wholesalers, and distributors to recall contaminated products. If the meat product is an ingredient in a product manufactured, distributed or handled by a customer, the meat producer can receive claims for any damages, which could also include a customer's losses and expenses resulting from their product recall.
- Increased costs of working: a crisis more often than not requires the hiring of additional people, remuneration for overtime, cleaning contaminated equipment and premises etc. all of which incur additional expenses.
- Replacement costs: these occur when the factory must make the product again or outsource the production due to the recall.
- Loss of sales: the value of gross profit lost because of an actual reduction in the sales revenue caused by product contamination. This often stems from the fact that some supply contact may be lost after the incident and in some cases, even production lines must be shut down in order to investigate the cause of contamination.
- Rehabiltation (market position restoration) costs such as customary shelf space and slotting fees to re-establish sales levels and market share, and sales and marketing expenses, e.g. giving a 25% discount for the next purchase etc.
- Crisis consultants: necessary fees and costs of crisis management, food safety, security or public relations consultants or other independent consultants engaged.

When all else fails, insurance prevails

As we have seen, even a factory that strictly follows food safety standards can fall victim to product contamination. Insurance as a financial loss recovery risk management tool is therefore relevant for any meat processor. If the risk is analysed and presented properly by a broker to underwriters, suitable coverage and a fair insurance price can be achieved.

As a rule, there are three types of insurance offers in CEE/SEE insurance markets: Product liability insurance, product recall extension to a product liability policy, and contaminated product insurance. A comprehensive package of all three can cover a company for all the above-mentioned risks and more. However, due to a plethora of offers on the market, it is sometimes very difficult not only for the insureds, but also for insurance professionals to clearly define what is covered and what is not. Moreover, there are some challenges to find underwriters with risk appetites to cover "hard" risks, for example, products containing GMO or carcinogens. Therefore, it's important for businesses to carefully review their insurance policies and consult closely with insurance professionals to ensure they have adequate coverage tailored to their specific needs and risks.

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Over 20 Years of Resilience in the Food Industry

A Client Case Study

Ziegler Trading, which is headquartered in Zsámbék, Hungary, specialises in producing cheese plates. Zsolt Varga, Food & Agri Practice Leader at GrECo Group, recently spoke with János Ziegler, Managing Director and Owner of the company, to delve into the company's operations and discuss their enduring partnership with GrECo Hungary.

VARGA: Please can you tell us a little bit about Ziegler Trading?

ZIEGLER: Of course! In a nutshell, we make cheese plates in various sizes with a large variety of different cheeses. We were founded in 1970 by my father and moved the business to Zsámbék 22 years ago as a greenfield operation.

We have a large foreign customer base and export over 70% of our cheese plates to 12 European countries either under the brand name Ziegler or as supermarket-own brands. We are an ISF-Food certified company, and we also have an organic food licence.

VARGA: What's the history of your relationship with GrECo Hungary? Why did you choose GrECo as your insurance partner?

ZIEGLER: We have been cooperating with GrECo for over 20 years. Your company offers us a wide range of insurance solutions and it represents Ziegler Trading very efficiently in all insurance related matters. Over the years GrECo Hungary has secured better conditions for us than an insurance company just dealing with one type of insurance, or any other independent broker company in the Hungarian market. Plus, the team has always helped us efficiently navigate any claims processes whenever we have needed them to.

VARGA: You mentioned that you export a lot of your products. Where are your main markets?

ZIEGLER: We export to several major European markets: to give you an idea the UK, France, Germany, Austria, and Sweden are some of them. We're also exporting within Eastern Europe with the Czech Republic being our biggest market in the region.

VARGA: Initially you had property, general and product liability insurance with GrECo, how did the idea of extending the coverage come about?

ZIEGLER: Funnily enough, it happened by accident. I had mistakenly thought general product liability insurance also covered the cost of product recall claims. I found out during one of my conversations with GrECo Hungary's experts that this wasn't the case, and the rest is history.

VARGA: Do you feel more secure now you are covered against product recall risks?

ZIEGLER: I feel much more resilient now. If for whatever reason there are any unforeseen product recall expenses, I am safe in the knowledge that despite having to reclaim products from across Europe, the huge expenses entailed in doing so will be covered. That is a great comfort.

VARGA: Have you ever had to make a claim? What happened and how did your insurance help?

ZIEGLER: Fortunately, we haven't had any product recalls yet.

However, there was a case a few years ago when apparently one of our products had metal contamination. A customer who bought our product forged some medical documents which accused us of hazards to health. They were after compensation. Under the scope of the insurance cover, GrECo mobilised the insurance company's doctors and they were able to prove that the documents were fake. The end of the story is that the tricky customer decided it was best to disappear and the case was closed. Thanks to GrECo securing us the right coverage and helping us to deal efficiently with the bogus claim everything was sorted, and our reputation wasn't damaged.

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