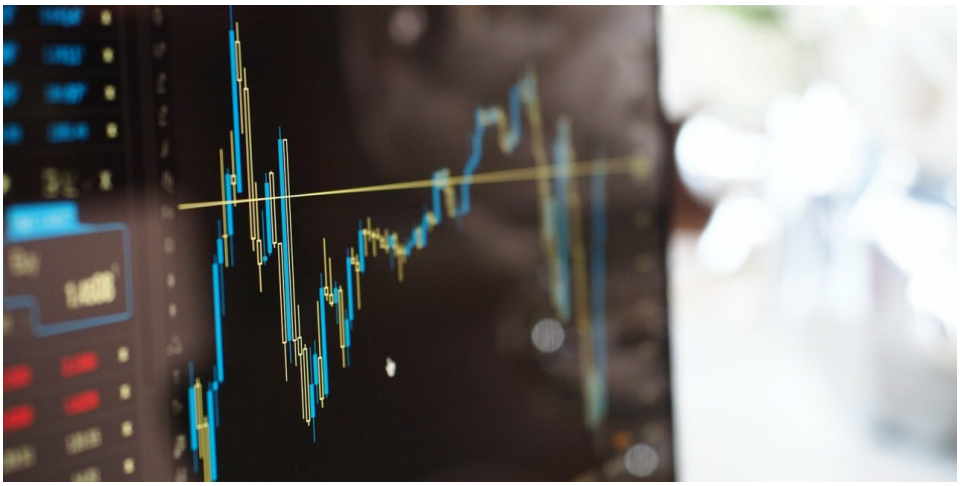
The top 5 challenges for businesses in 2022

By Technical Team, EW Nutrition

COVID-19 is definitely still a concern across the globe. With only about 47% of the world fully vaccinated, chances are we will not see the end of it next year. And with the unequal distribution of vaccines, globalization will keep bringing it home.

However, while everyone has an eye on the disruptions caused by COVID-19 to businesses and society in general, there are other looming challenges to prepare for. Here is a brief look at the top 5 challenges that rose to the surface in 2021, which are forecast to cause even bigger waves in 2022.



Sustainability: Accountability – and accounting

Greenwashing doesn’t wash anymore.

In 2021, sustainability has become an unavoidable topic not just for ecologists and (once a year or so) heads of state, but also for businesses and the masses. With extreme weather phenomena looming large in the news, climate change has become a fact of life. It no longer needs to be accepted as much as it needs to be managed.

The challenge is twofold. One the one hand, businesses need to demonstrate **corporate accountability** by monitoring the environmental footprint of their activities. On the other hand, businesses need to preserve the **financial viability** of their sustainability initiatives.

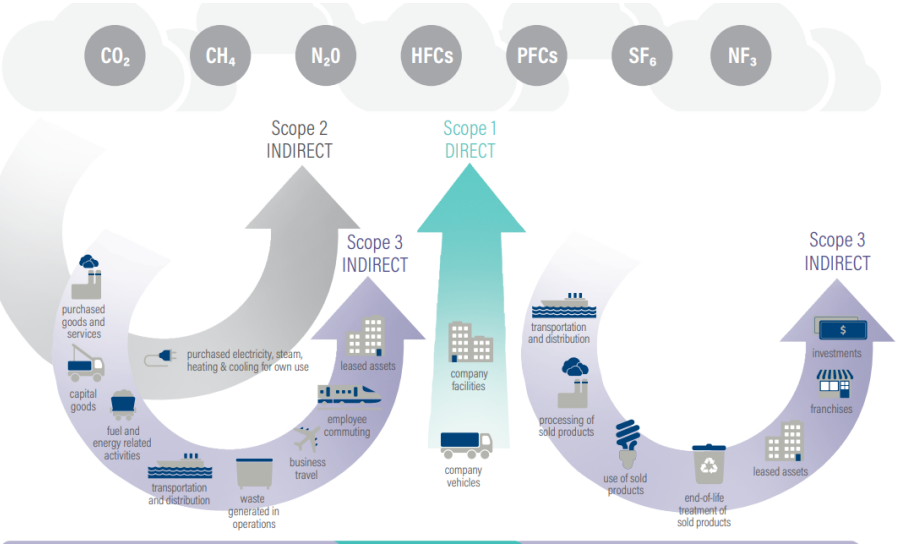
The balance between accountability and financial viability is still hard to find. Sustainability in business is an expensive proposition. Not only is it costly to implement fully sustainable measures, but finding the sustainability hotspots in your value chain and retrieving the data is sometimes nearly impossible. And, while reporting for scope 1 and 2 is somewhat easier, scope 3 accounting is still a tough nut to break.

Based on the Greenhouse Gas (GHG) Protocol, emissions are divided by source into 3 major scopes:

Scope 1 – direct emissions of the reporting company. This includes owned or controlled sources such as company facilities or company vehicles.

Scope 2 – indirect emissions from consumption. Here are included purchased electricity, steam, heating and cooling for the company’s use.

Scope 3 – all indirect emissions along the value chain. Under scope 3 fall upstream and downstream emissions through purchased goods and services, capital goods, processing, transportation and distribution, waste, use of sold products, and much more.



Source: GHG Protocol

Nevertheless, the equation must balance. A study by Pew Research Center shows that sustainability and addressing climate change are not just thoughts, but immediate concerns for the younger generation. Gen Z (people born between 1997-2012) are actively engaged in following and/or combatting the effects of climate change. Research by Deloitte indicates that, for Gen Z, climate change and protecting the environment are the top concern.

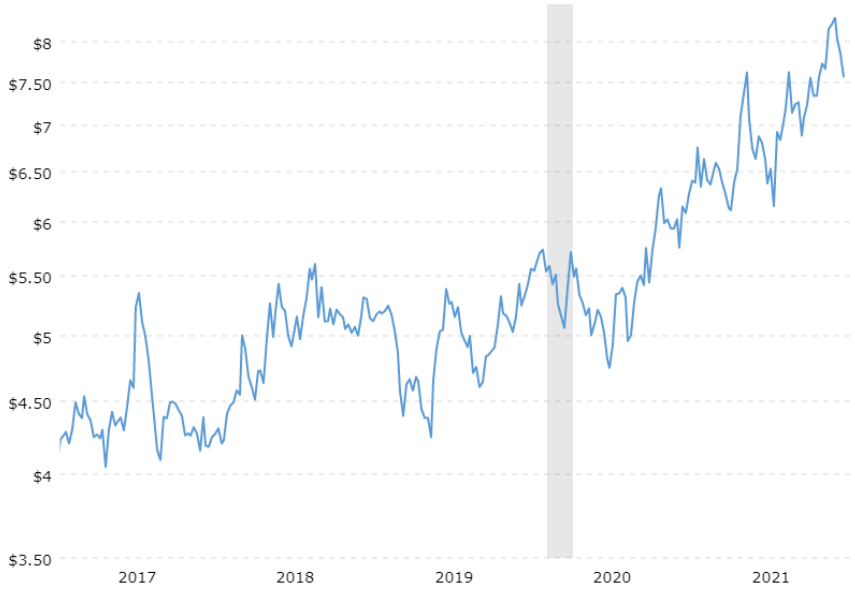
When your upcoming workforce demonstrates such strong interest, it is remiss to ignore it.

Climate challenges: Prepared for extreme weather?

This is getting serious.

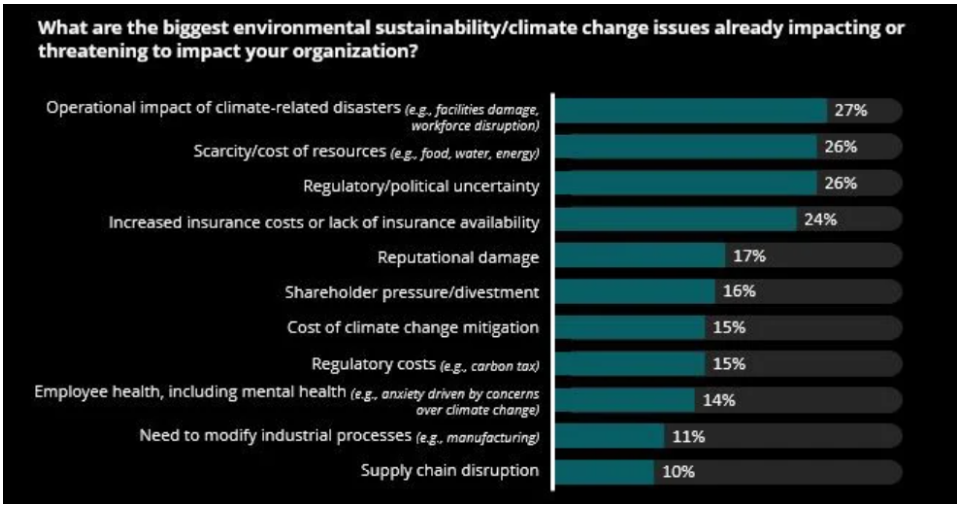
Deadly snowstorm in Spain in January. A deadly heatwave that killed 569 people in Canada in June. Deadly floods that affected western Germany, The Netherlands, and Belgium in July. Deadly fires that raged across Italy and Greece in August. And many more deadly extreme weather events whose roots lie in climate change.

They are not just a reason to join the fight for sustainability. They are, in more immediate terms, a reason to examine how well your business is prepared to face the next extreme weather event. Because it is definitely coming. And it may affect your business – possibly directly, depending on your location, but definitely indirectly. The impact of resource scarcity could already be felt this year, when extreme weather events around the world affected harvest quantity and quality. Coffee and sugar futures have been on the rise for years, and so have wheat prices.



Source: Macrotrends

In fact, according to a 2021 Deloitte report, companies are actively concerned about the impact of climate change issues on their activities, with climate-related disasters topping the list and scarcity of resources a close second.

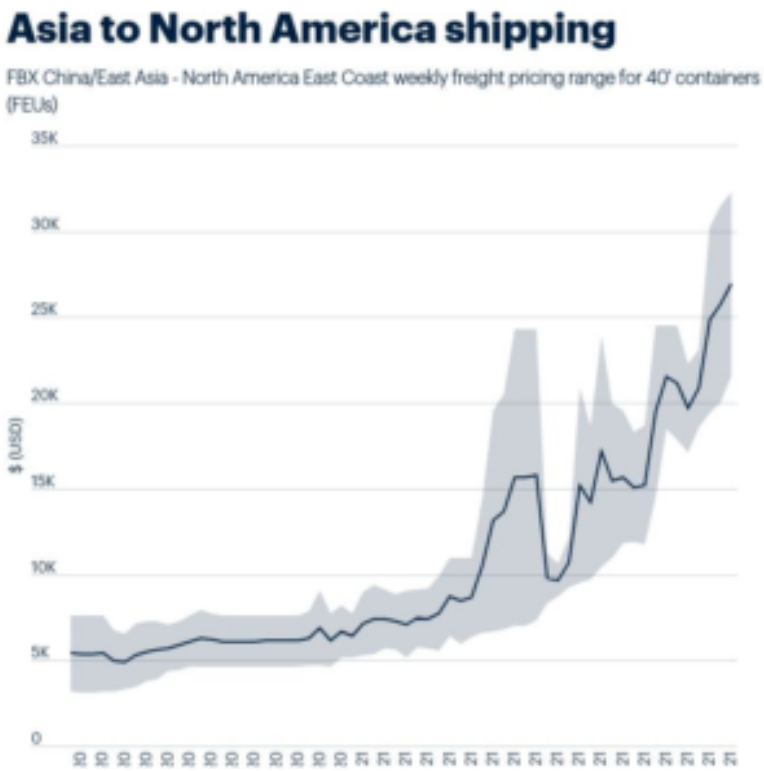


Source: Deloitte

Being prepared for extreme events means, in most cases, managing risks across company facilities, as well as across the value chain. The more widespread and varied the production footprint and sourcing capabilities, the better can a company weather the storm.

Supply chain issues: No end in sight

No, it’s not getting better soon.



Source: ICIS

In fact, after over a year of constant disruptions, problems have accumulated into a perfect storm. Unpredictable demand and availability, as well as unpredictable labor shortages, both due to COVID-19 and various side-effects and accidents, have pushed container availability and port unloading infrastructure into a frenzied downward spiral. While container prices have gone up (over $20,000 for a standard container coming to the US from east Asia), ports have been unable to handle the incoming ships' unloading needs.

Some ports have already moved to 24/7 operations, yet the issues will take much longer to fix – and prices are not likely to come down in a hurry. However, reliable forecasting in such turbulent times is nearly impossible.

In these circumstances, old wisdom can be reactivated. Instead of the cheaper and more agile just-in-time model that many companies practiced, increasing safety stocks and developing a wider global footprint are going to be the norm. On top, developing excellent relations with suppliers and managing customer expectations are critical. As Dan Swan, McKinsey Operations expert, put it: Supply chains are no longer a "necessary evil", but more and more "a real differentiator for companies". Product availability is the new name of the game.

In the meantime, expect prices and lead time to remain high for quite a while yet.

Digitalization: Keeping up with the world

To the surprise of no one with any knowledge of markets, a 2019 study by Deloitte confirmed that **businesses on their path to digital transformation tend to perform better financially**. In the meantime, COVID-19 has accelerated this trend. With the Zoom boom and remote working, digital communications have become the norm – and time is not going back. In 2022, a mature company should also be a digitally mature company.

What does digital maturity mean? By and large, according to Deloitte's concept of "pivoting to digital maturity", it means that organizations use data and technology "to continuously evolve all aspects of its business models—what it offers, how it sells (interacts with its customers) and delivers, and how it operates".

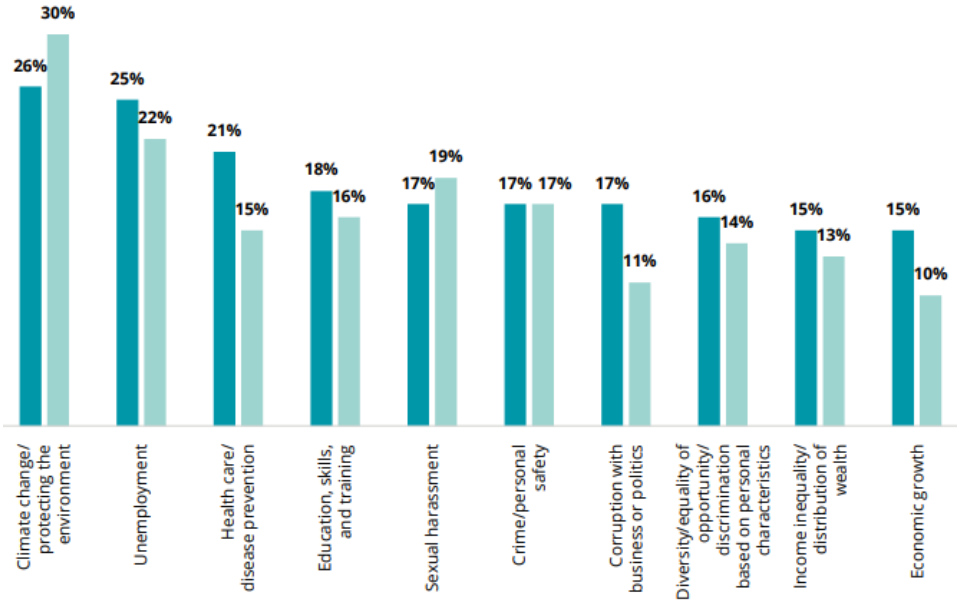
In 2022, organizations will feel even more under pressure to step up: connecting employees across multiple locations, integrating “business technologists” into their organigrams and empowering them to bring digitalization home, agility through autonomous modular processes, automation in every possible quarter, and more.

In some sectors, digitalization is self-implied. ICT, media, finance, and professional services are more digitally advanced than others. Logistics, retail, and other industries that rely on distributed databases will also make progress. However, even in agriculture and animal production, where most outsiders still picture tractors and barns, the fourth revolution is in full progress. The power of data, the possibilities brought by the cloud, the ease of synchronous communication will impact even the most conservative industries. Whoever is not prepared for digitalization will inevitably fall behind.

Human resources: Labor shortages, happynomics and more

How is it possible to have both high employment and labor shortages at the same time?

#2 on the list of concerns for Gen Z, as evidenced in Deloitte’s research, is unemployment. And yet, the evidence is mounting that most companies (nearly 9 in 10, in one study) are having trouble filling certain positions – especially entry- and mid-level.

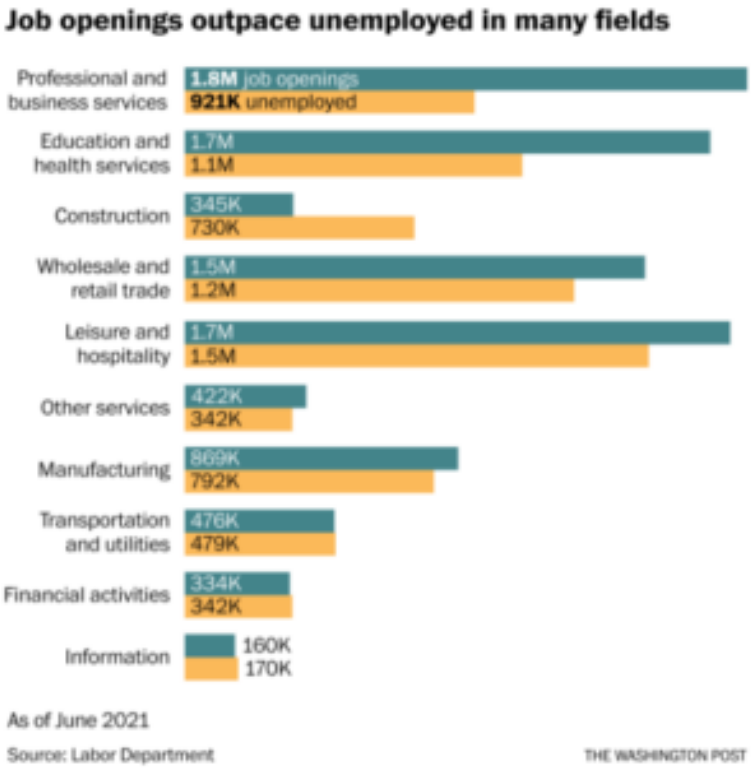


Source: Deloitte

In the US, analysts have been scratching their heads at a disconnect between 8.4 million unemployed and 10 million job openings, with radical differences in sectors such as professional and business services or education and health services.

Most answers focus on the realities of the “Corona times”. People who were forced to work remotely discovered that they enjoyed it. They left inflexible jobs for more flexible ones – or just to spend more time

with the family.



At the same time, childcare insecurity made it compulsory for some parents to give up their jobs to be home for children whose schools or care centers were closed in lockdown.

Workers in retail and hospitality, who saw their jobs being threatened, again and again, by COVID-19. Many were furloughed or sent into unemployment. While out of work, unemployment benefits allowed people to reconsider career paths – and many decided to move to more secure industries.

And, finally, workers whose jobs are not threatened fall prey to burnout during intense work-from-home bouts during long and/or repeated lockdown periods.

If companies have trouble filling positions, they might consider offering more flexibility. Another study by Gartner shows that, at least theoretically, employers and employees are aligned in seeing flexibility as critical to the organization. This includes as a top consideration the ability to work both from home and from the office, as well as somewhat flexible work times.

Yes, work-from-home will outlast COVID-19. At the same time, the concept of happynomics – the economics of personal happiness and well-being – is being transposed at work, with more corporate care for productivity through employee workplace satisfaction. It is by now quite clear that, the happier people are at work, the better the organizational outcomes.

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Five challenges, each of them compounded by the prolonged uncertainty of COVID-19 and by looming political tensions in various hotspots around the world. Businesses large and small are already critically affected by all. No business will be spared from at least one of the 5 factors; many will be impacted by several or all.

In 2022, companies must be ready to pivot, change strategies, and adjust course mid-route. That doesn't mean the first step shouldn't be, always and most critically, planning for these 5 challenges. Dwight Eisenhower was right: Plans are worthless, but planning is everything.

The supply chain crisis: What it is, why it happened, what to do

*By **Ilinca Anghelescu**, EW Nutrition*

“Supply chain issues” is now a buzzword that has gone beyond the realm of business into our lives and households. We know holiday gifts might be delayed because of supply chain issues, mobile phones or electric cars are facing essential parts shortages never before imagined, and entire companies’ production and delivery are affected by supply chain issues. Why is this happening and what can be done?

Supply chains are nearly invisible – until something happens

The supply chain is an interdependent network of companies, individuals, databases, and actions whose ultimate goal is to ensure product or service delivery**. The supply chain goes from the raw material to the end product or service that reaches the buyer.** In most cases, this also includes the return of the goods or product servicing.

In the case of feed or food, for instance, a simplified version of the chain includes harvesting, storage, transportation, receiving and processing other raw materials, manufacturing, packaging, distribution, sale to the end customer, as well as potential returns at every stage along the way.

Supply chains are absolutely essential to the functioning of nearly everything in today's society. If you eat tomatoes grown in your own garden, you are indeed outside the tomato supply chain; but your tools and fertilizer are probably not.

Supply chains are usually long, complex, highly interdependent, and often global because of cost pressure. No wonder, then, that one blow can bring down the whole domino chain. What is worse, the last year and a half brought not just one, but two concomitant blows.

Blow no. 1: Diminished capacity

The world is still reeling from the effects of COVID-19 – not just in terms of healthcare, but in terms of economic impact as well. In the immediate months after COVID-19 became a global concern, several things happened simultaneously to constrict the supply chain:

- many factories limited the number of workers allowed on premises
- ports (especially in China) shut down temporarily to halt the progress of the virus
- face-to-face businesses shut down as a reaction to COVID-19 regulations

These and other similar measures put pressure on the global supply chain. **Employee layoffs or furloughs, together with output decreases, meant fewer people could operate within the supply chain, which then translated into diminished production and delivery capacity.**

To cope with the immediate state of things and with the predicted economic downturn, lots of companies (among those who did not shut down altogether) decided to reduce their output in order to save costs.

Blow no. 2: Increased demand

Despite the decreased demand for restaurant or hotel deliveries, lockdowns around the world brought about one other change: demand for endpoint deliveries soared. This would normally spell great news for producers, if only the supply chain weren't in the way.

Supply chains are built to be as efficient as possible: fast, agile, and as economical as can be. In other words, "lean". That also means that massive disruptions – whether positive or negative – are not easily handled. When demand for home deliveries went up dramatically, that would have been a good opportunity to beef up the delivery chain. Unfortunately, that increase in demand coincided with a limited personnel and product availability (because of blow no. 1), as well as shipping issues around the world.

How so? From the beginning of the pandemic until now, ships have been queuing up in ports around the world. The first Corona aftershock relocated production around the world and created unexpected demand. Containers were filled with high-margin goods (such as facial masks or home electronics) for the richer countries, while low-margin goods for other areas had to wait for free space.

This short-term unexpected move created competition for the limited number of containers on the market. Prices soared and containers traded at five times the cost of the previous year. (The Ever Given crisis in mid-2021 did not help, of course.) At the same time, unloading the cargo at the destination point had to be managed with reduced personnel, as pandemic restrictions still applied and docking availability remained the same. Ships had to wait for days to unload their cargo, despite high demand for their empty containers.

Collateral victim: semiconductors

It turns out, not surprisingly, that we have all grown more addicted to technology during the pandemic. Increased demand in home electronics, coupled with issues in the production of silicone-based parts (mostly led by a drive to reduce power consumption in China), led to a worldwide chip shortage that is affecting companies across many industries. Most notably, Tesla, Apple or Qualcomm are struggling to deliver orders and are readjusting their launch and delivery plans. If your mobile phone is delivered weeks late, blame it on the supply chain.

How to handle the supply-chain crisis

In 2022, keep your expectations low. The issues will not be resolved in a couple of months, so you must prepare for a year of very slow progress.

Prepare for at least two more years of high costs. Delivery delays will hit some markets more dramatically. Chip manufacturers have already announced shortage expectations throughout 2023, with lead times growing from 9 to 20+ weeks. Many large players in tech have announced plans to build their

own plants or replace chips (as Tesla did) with different technologies. Do not be overly optimistic, though: such plans take a long time – and ports are reeling from a new wave of COVID-19 infections and restrictions. At this point, it is not just the shipping costs that are running a little wild, with no incentive for the cargo players to lower them; it is also the ports themselves. In the port of Los Angeles, as in many around the world, it is not unusual for cargo to wait a month out at sea to be given access to docking and unloading.

Order early. This seems like a commonsensical step – and it is, at this point. As mentioned above – do not expect things to be resolved quickly and painlessly. Protein markets are hit just as much as tech components; ship and truck deliveries will take a very long time to recover across all sectors. Demand is increasing and supply is still low – and slow. Order early and strategize to cover the new cost structures.

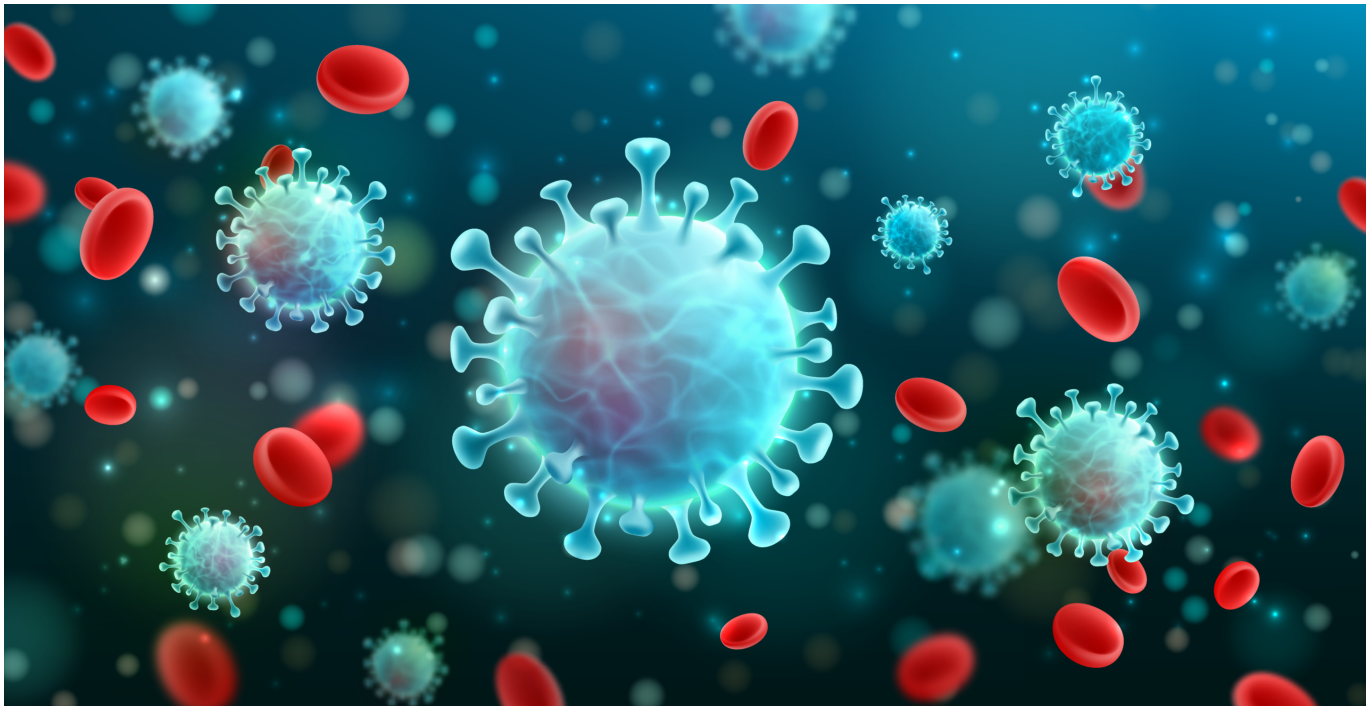
Explore options around the world. With China and Western Europe getting hit by new variants and suboptimal vaccination levels, the rest of the world remains to be explored. Options in richer countries, that once seemed too expensive, now may have an edge. Look closer to home rather to what was formerly a more cost-effective source. With shipping costs 3x to 10x what they were two years ago, the incentive is gone. (Even so, air freight is prohibitively expensive, so land access may be the most realistic option where accessible.)

Expand your capacity. Not everyone can start building plants at the drop of a hat, like Apple; but many companies can consider adding production lines or partnering with allies (and even competitors) to build or exploit resources. Since the supply chain issues are expected to last a couple more years on the optimistic side, it's a good idea to explore your options not just in geography, but in partnerships for capacity as well.

Prepare for worse times before the good ones. It's always a good idea to be prepared, but even more so now. Some ports are already closing again in early December (for instance, Dalian, China, took early measures against an outbreak) and the world is reacting to another potential large-scale lockdown.
On top of that, recession seems inevitable in many industries, and the new Corona mutations have already pushed the stock market down a few notches. Inflation has increased – 6.2% in the US in October versus last year, and in the eurozone the 4.1% inflation is the highest in the past 13 years. Some industries fare well simply because the market need is there (food and feed among them), but remember that the supply chain has companies across industries fighting for the same cargo space.

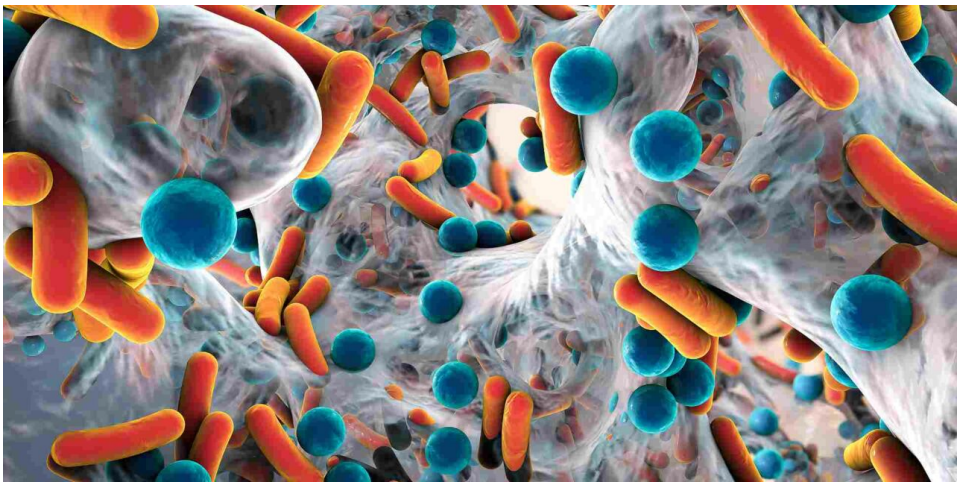
The answer to the supply chain challenge is to **practice caution, spread risk, and actively seek out opportunities – including partnerships, new business, and unexpected collaborations**. But then, these are good business practices at all times.

Two pandemics. How antimicrobial resistance will eventually overshadow COVID-19



*By **Dr.** Inge Heinzl, Editor, EW Nutrition*

Since early 2020, COVID-19 has been keeping the world under a cloud of uncertainty. With all eyes focused on this pandemic, we nevertheless must not forget that another, silent pandemic is developing: antimicrobial resistance (AMR). Unfortunately, the COVID-19 could easily exacerbate the AMR pandemic.

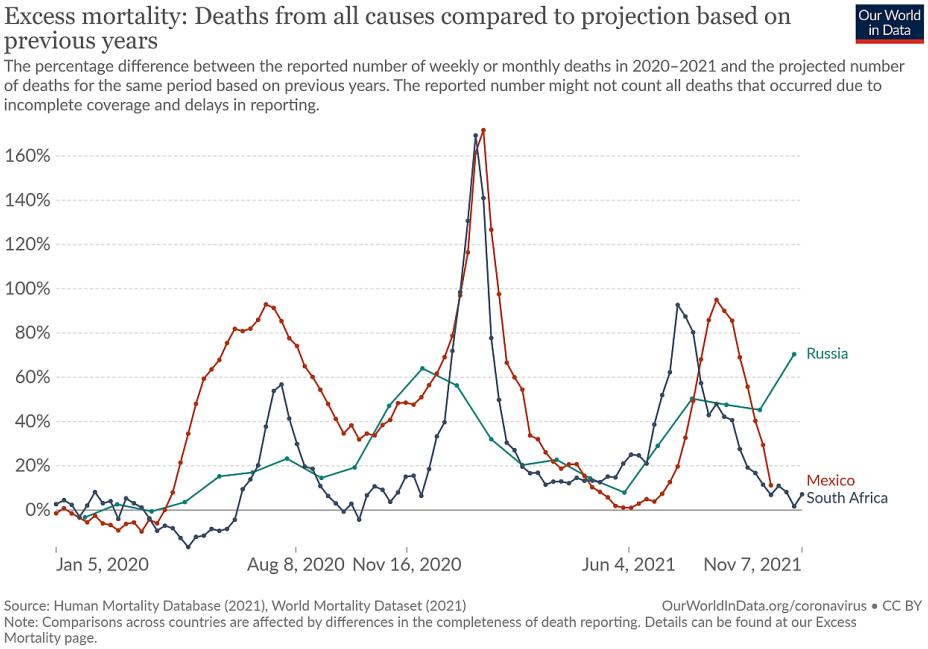


What is the relationship between COVID-19 and AMR?

The COVID-19 pandemic, as well as AMR, have a direct health impact on people: they get ill, suffer from its short- and long-term effects, or even die. AMR, on the other hand, is not a disease in itself but makes various bacterial infections difficult to treat and is considered a pandemic due to its dramatic global scope (Cars et al., 2021). Both pandemics, the 'loud' COVID-19 and the 'silent' AMR pandemic, are monitored by official institutions. Still, for both, significant uncertainties around actual case figures exist, especially in low-income countries.

Beginning in China in around December 2019, SARS-CoV-2 spread to the rest of the world within a

few months. Figures collated by the WHO show over 250 million confirmed cases and over 5 million deaths to date, with excess mortality rates indicating this to be an underestimation. Quantifying the death toll due to AMR is far more challenging, as disease conditions vary, resistant bacteria go undetected, or the causative pathogens are not identified in the first place (Giattino et al., 2021).



O'Neill (2014) reported about 700,000 people dying from infections with resistant pathogens every year. He forecasted that, by 2050, 10 million people per year will die if we don't change anything. This figure would represent twice the number of people who died from COVID-19 within the last two years. In the US and the EU, according to CDC, antibiotic resistance causes 23,000 and 25,000 deaths per year, respectively. In Thailand, 38,000 deaths are attributable to ABR. And in India, 58,000+ babies died from infections with resistant bacteria, usually passed on from their mothers.

Woerther et al. (2013) note a continuous increase of resistant strains globally. In 2010/11, ESBL carriage rates of 3 to 20 % were the "norm", but some WHO regions already showed 60 to 70% carriage rates by 2011. In the US, 223,900 cases of *Clostridium difficile* occurred in 2017, and at least 12,800 people died (CDC, 2019).

As in the case of SARS-CoV-2, the spread of AMR organisms can be prevented by hygiene measures. Except for hospital settings reported in developed countries, the spread of resistant bacteria is invisible. Regardless of how little we know about it from official reports, there are indications that bacteria resistance is ubiquitous, triggered to a large extent by the (over)use of antibiotics in community settings. Moreover, it is far more difficult to identify that a patient suffers from AMR infection than from SARS-CoV-2. The latter is easily detected with widespread testing systems, including self-testing.

COVID and AMR have severe economic consequences

Besides claiming many lives, both COVID and AMR increase the costs for healthcare. Additionally, due to high sickness ratios and lockdowns, economic losses are tremendous. For COVID as well as for AMR patients, the hospitals need specialized systems and procedures (ventilation apparatus, extraordinary hygiene measures) and specially qualified personnel to treat the infected persons. In addition to the cases of infection, mental illness increases due to these exceptional circumstances.

US study extrapolates ten-figure costs due to AMR

In a US cohort study based on records of 25,000 patients from 2007-2015, Nelson et al. (2021a) calculated

the treatment costs for infections with methicillin-resistant *Staphylococcus aureus* or carbapenem-resistant *Acinetobacter* to be $4.6 billion.

Another study done by Nelson et al. (2021b) with 87,509 elderly patients suffering from infections with the same resistant pathogens showed estimated costs of $1.9 billion, with 11,852 deaths and 448,224 inpatient days. In these two studies, only two resistant bacteria species were considered – and they alone triggered costs of more than 4 billion US dollars.

Estimation of COVID costs shows long-lasting negative economic impact

In the case of COVID, an estimation done by Tan-Torres Edejer et al. (2020) yielded $52.45 billion in added healthcare costs worldwide over four weeks in a status quo scenario. The costs would increase/decrease if the transmission increases/decrease. More detailed consideration is provided by Cutler and Summers (2020).

Category	Cost (billions) in USD
Lost GDP	7592
Health loss	
• Premature death	4375
• Long-term health impairment	2572
• Mental health impairment	1581
Total	16121
% of annual GDP	90

Estimated Projected health cost of the COVID-19 crisis (Cutler and Summers, 2020)

Economic losses due to Corona are tremendous – What about losses due to AMR?

Some of the costs arising during the corona pandemic are partially compensated. New jobs within the health system, industries providing healthcare materials or developing vaccines/medicine partially cover the damages caused to the economy.

Additional to the healthcare costs, costs due to the impact on the economy arise. According to Maliszewska et al. (2020), financial losses because of the COVID-19 pandemic can be attributed to four categories:

1. the direct impact of a reduction in employment (shutdowns of operations), but also labor shortage due to illness of the personnel
2. the increase in costs of international transactions
3. the sharp drop in travel (caused by travel bans in certain countries)
4. the decline in demand for services that require proximity between people (e.g., down periods of restaurants).

According to a UN (2020) early estimate, the “economic uncertainty it has sparked will likely cost the global economy $1 trillion in 2020”.

Comparing the costs for both pandemics, AMR does not seem to be as scary as COVID. However, we are only at the beginning. AMR figures are constantly increasing. If O’Neill (2014)’s scenario occurs, we will witness more AMR-caused deaths than deaths from COVID-19, as well as higher costs.

Antibiotic use promotes the development of resistances

Antimicrobial resistance is natural; Alexander Fleming mentioned it as early as 1929, soon after discovering penicillin. Most of the antibiotics are derived from natural substances. Penicillin, for instance, is

produced by a mold fungus. This is why completely isolated cultures such as the Yanomami in Venezuela, who have never taken antibiotics, can also show resistant bacteria in their gut flora (Lahrtz, 2015). Every contact with an antibiotic has the potential to promote resistance.

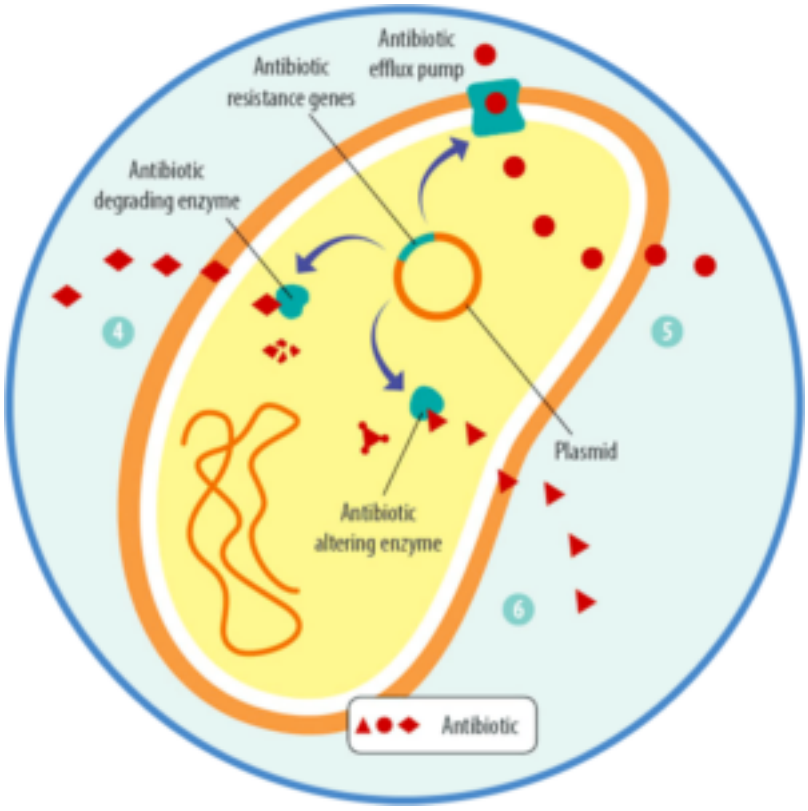
Bacteria develop resistance in different ways

In a typical situation, an antibiotic has an impact on “good” and “bad” bacteria. One bacterium, due to a random mutation, can develop resistance to antibiotic treatment. Suddenly, that resistant bacterium has survived the battle, remains the “king of the castle”, and can use all the space and nutrients to proliferate.

Different types of resistance are possible (Levy, 1998). The bacteria can

- stimulate the production of enzymes, modifying or breaking down (and, therefore, inactivating) the antibiotic
- eliminate access ways for antibiotics or develop pumps discharging the antibiotic before it takes effect
- change or eliminate the targets of the antibiotics, the molecules they would bind.

Bacteria spread their ability to resist

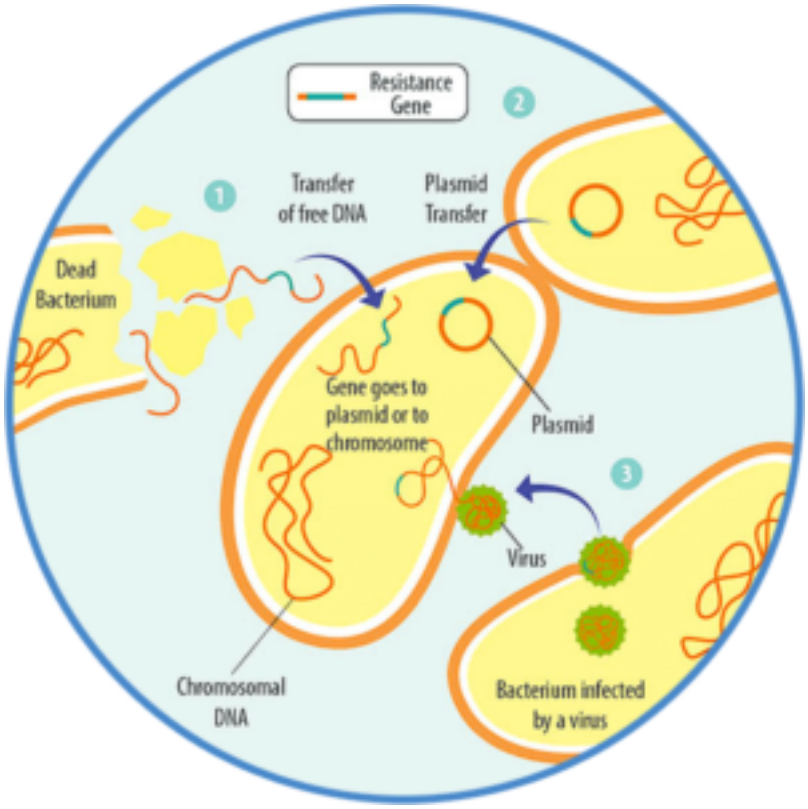


The problem of antibiotic resistance is not only that one bacterium, due to mutation, can withstand an antibiotic treatment. The more dangerous possibility is that it can also transfer this ability to other, potentially more harmful bacteria. How is this transfer achieved? Bacteria can acquire these mutated “resistance genes” through

- vertical transfer from mother to daughter cells
- the intake of these genes from dead bacteria, which is also possible between different strains (including between “good” and “bad” ones)
- plasmids transporting the genes from one bacterium to another (horizontal transfer), which is also possible between strains
- viruses transporting the genes.

Due to this exchange of resistance genes, harmful bacteria can become resistant because they acquire the

mutated gene and, therefore, the ability to resist antibiotics from a harmless bacterium.



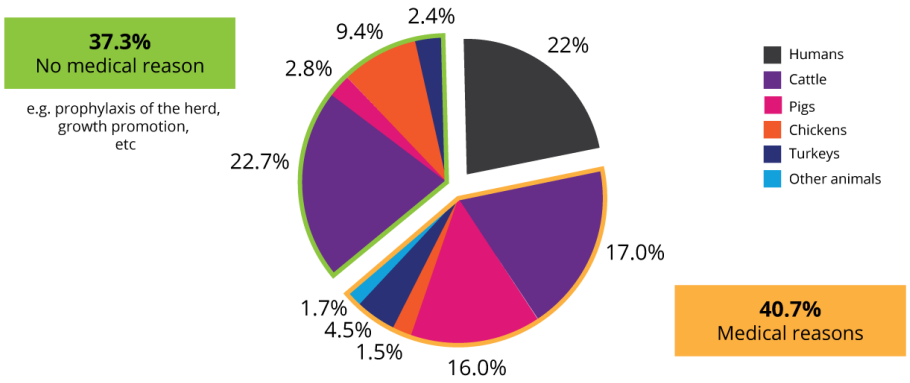
Enhanced antibiotic resistance due to COVID-19?

Just as influenza (Morris et al., 2017), the COVID-19 pandemic is reported to influence the transmission of bacterial infections and the development of antimicrobial resistance. Several reasons and facts argue for this statement.

1. Bacterial co-infections are often identified on top of viral respiratory infections. These are then the main reasons for higher morbidity and mortality (Mahmoudi, 2020). Also, **COVID-19 weakens the immune system of people and paves the way for secondary infections**. This is the reason why, in some cases, COVID-19 patients are given antibiotics prophylactically. Langford and co-workers (2020) published a summary of different studies concerning this topic, and other authors confirm this tendency (Garcia-Vidal et al., 2021; Rawson et al., 2020; Rodríguez-Baños, 2021; Russel et al., 2021). They reported a relatively low incidence of bacterial co-infections of 3.5% (95% CI 0.4-6.7%) and secondary bacterial infections of 14.3% (95% CI 9.6-18.9%). However, high use of antibiotics (70%) could be observed, most of them broad-spectrum antibiotics such as third-generation cephalosporins and fluoroquinolones (Langford et al., 2020).
2. Contrary to influenza patients, who get bacterial secondary infections or co-infections in the community, COVID patients are more likely to get these infections in the hospital. There, the risk of “catching” a resistant pathogen is higher.
3. This risk increases during a pandemic such as COVID simply because more people spend more time in the hospital. The hospital staff is overloaded; often, hygiene compliance is less than perfect.
4. Due to the high number of patients, the determination of bacteria strains is often delayed, and, therefore, doctors more often resort to broad-spectrum antibiotics.

Antibiotics in animal production contribute to AMR development

In animal production, antibiotics are not only used for the treatment of diseases but also prophylaxis of the whole herd or growth-promoting purposes. **Data collected in the US in 2017 (human) and 2018 (animals) revealed that, in total, nearly 80% of the antibiotics were used in animals.**



Use of antibiotics in animals and humans in the US 2017/18 (according to Benning, 2021)

Reduction of antibiotics leads to a decrease in resistances

A report published by the CDDEP in 2015 showed an earlier example (Dutil, 2010). When the 3rd generation extended-spectrum cefalosporin (Ceftiofur) was used at the egg stage of broiler chicken farming in Canada, the prevalence of *E. coli* and *Salmonella* strains resistant to this antibiotic increased in chicken, but also humans. After discontinuing the antibiotics, the resistance dropped by one-half to one-quarter of the previous year's value within one year.

This decrease makes perfect sense. An antibiotic-resistant gene is not worth the organism's effort if the associated antibiotic is not used, converting the gene into a negative factor for "fitness". It only costs energy and, in the end, disappearance from the microbiome.

Antibiotic reduction in animals shows first benefits

Besides antibiotic stewardship in human medicine (no broad-spectrum antibiotics, targeted use, and only against bacteria rather than viral diseases), reducing antibiotic use in animal production is vital. The European Union has already made strides and banned antibiotics as growth promoters in animal production in 2006. The Netherlands has been leading the way when it comes to a reduction in veterinary prescribed antibiotics. From 2009 to 2018, antibiotic sales decreased by 70% (de Greeff et al., MARAN Report, 2020). First decreases of resistance have already be documented, among which:

- no carbapenemase-producing *Salmonella* in 2019
- only 19 ESBL-producing *Salmonella* isolates were confirmed, mainly from humans
- the resistance percentage in commensal *E. coli* (caecal samples) has halved for most antibiotics, converting into consistently low values during recent years
- no *E. coli* isolates resistant to extended-spectrum cephalosporins were detected in fecal samples from farm animals.

Preserving the effectiveness of antibiotics is key

Various feed supplements can support the animals at different stages of their life in order to reduce antibiotic use in animal production. In the long run, this will be a game-changer in ensuring that animal products and the process of animal production itself are not part of the problem.

Antibiotic reduction has become an increasingly stringent task. In the wake of the COVID-19 pandemic, the world has gained a renewed awareness of the importance of infectious diseases. We saw how fast progress in healthcare could suffer setbacks and we were forced to recognize the need for resilient health systems (Cars, 2021).

The pandemic can teach us a valuable lesson in this respect. We must realize that it is essential to use antibiotics further as an effective tool to treat harmful diseases. To that end, we must do everything we can to keep this weapon sharp. The first step is to reduce antibiotic use in human health, as well as in livestock production. It will not be an easy way. It is, however, the only effective way in the long run.

References

Benning, Reinhild, and By. “Antibiotics: Useless Medicines: Heinrich Böll Stiftung: Brussels Office – European Union.” Heinrich-Böll-Stiftung, September 7, 2021. https://eu.boell.org/en/2021/09/07/antibiotics-useless-medicines.

Bergevoet, R.H.M., Marcel van Asseldonk, Nico Bondt, Peter van Horne, Robert Hoste, Carolien de Lauwere, and Linda Puister-Jansen. “Economics of Antibiotic Usage on Dutch Farms: The Impact of Antibiotic Reduction on Economic Results of Pig and Broiler Farms in the Netherlands.” Research@WUR. Wageningen Economic Research, June 2019. https://research.wur.nl/en/publications/economics-of-antibiotic-usage-on-dutch-farms-the-impact-of-antibi.

Cars, Otto, Sujith J Chandy, Mirfin Mpundu, Arturo Quizhpe Peralta, Anna Zorzet, and Anthony D So. “Resetting the Agenda for Antibiotic Resistance through a Health Systems Perspective.” *The Lancet Global Health* 9, no. 7 (2021). https://doi.org/10.1016/s2214-109x(21)00163-7.

CDC. “Antibiotic Resistance Threats in the United States 2019.” U.S. Department of Health and Human Services, Atlanta, GA. 2019.

http://dx.doi.org/10.15620/cdc:82532.

Centers for Disease Control and Prevention. “Antibiotics Don’t Work on COVID-19.” Centers for Disease Control and Prevention. Accessed October 7, 2021. https://stacks.cdc.gov/view/cdc/107496.

Center for Disease Dynamics, Economics & Policy (CDDEP). “The State of the World’s Antibiotics, 2015.” June 8, 2018. https://cddep.org/publications/state_worlds_antibiotics_2015/.

Cutler, David M., and Lawrence H. Summers. “The COVID-19 Pandemic and the $16 Trillion Virus.” *JAMA* 324, no. 15 (2020): 1495. https://doi.org/10.1001/jama.2020.19759.

de Greeff, S. C., A. F. Schoffelen, and C. M. Verduin. “Maran Reports.” WUR. National Institute for Public Health and the Environment, June 2020. https://www.wur.nl/en/Research-Results/Research-Institutes/Bioveterinary-Research/In-the-spotlight/Antibiotic-resistance/MARAN-reports.htm.

Dutil, Lucie, Rebecca Irwin, Rita Finley, Lai King Ng, Brent Avery, Patrick Boerlin, Anne-Marie Bourgault, et al. “Ceftiofur resistance in Salmonella Enterica serovar Heidelberg from Chicken Meat and Humans, Canada.” *Emerging Infectious Diseases* 16, no. 1 (2010): 48–54. https://doi.org/10.3201/eid1601.090729.

Edris, Amr E. “Pharmaceutical and Therapeutic Potentials of Essential Oils and Their Individual Volatile Constituents: A Review.” *Phytotherapy Research* 21, no. 4 (2007): 308–23.

https://doi.org/10.1002/ptr.2072.

Garcia-Vidal, Carolina, Gemma Sanjuan, Estela Moreno-García, Pedro Puerta-Alcalde, Nicole Garcia-Pouton, Mariana Chumbita, Mariana Fernandez-Pittol, et al. “Incidence of Co-Infections and Superinfections in Hospitalized Patients with Covid-19: A Retrospective Cohort Study.” *Clinical Microbiology and Infection* 27, no. 1 (2021): 83–88. https://doi.org/10.1016/j.cmi.2020.07.041.

Gelband, Hellen, Molly Miller-Petry, Suraj Pant, Sumanth Gandra, Jordan Levinson, Devra Barter, Andrea White, and Ramanan Laxminarayan. “The State of the World’s Antibiotics, 2015.” Center for Disease Dynamics, Economics & Policy (CDDEP), June 8, 2018. https://cddep.org/publications/state_worlds_antibiotics_2015/.

Heckert, R.A., I. Estevez, E. Russek-Cohen, and R. Pettit-Riley. “Effects of Density and Perch Availability on the Immune Status of Broilers.” *Poultry Science* 81, no. 4 (2002): 451–57. https://doi.org/10.1093/ps/81.4.451.

Hutchins Coe, Erica, Kana Enomoto, Patrick Finn, John Stenson, and Kyle Weber. “Is Covid over? | Page 12 | Debate Politics.” Mc Kinsey and Company, September 2020. https://debatepolitics.com/threads/is-covid-over.425042/page-12.

Lahrtz, Stephanie. “Resistenzgene auch im Dschungel.” Neue Zürcher Zeitung, April 21, 2015. https://www.nzz.ch/wissenschaft/medizin/resistenzgene-auch-im-dschungel-1.18526784.

Langford, Bradley J., Miranda So, Sumit Raybardhan, Valerie Leung, Duncan Westwood, Derek R. MacFadden, Jean-Paul R. Soucy, and Nick Daneman. “Bacterial Co-Infection and Secondary Infection in Patients with COVID-19: A Living Rapid Review and Meta-Analysis.” *Clinical Microbiology and Infection* 26, no. 12 (2020): 1622–29. https://doi.org/10.1016/j.cmi.2020.07.016.

Levy, Stuart B. “The Challenge of Antibiotic Resistance.” *Scientific American* 278, no. 3 (1998): 46–53. https://doi.org/10.1038/scientificamerican0398-46.

Mahmoudi, Hassan. “Bacterial Co-Infections and Antibiotic Resistance in Patients with COVID-19.” *GMS Hyg Infect Control* 15, no. Doc35 (2020). https://dx.doi.org/10.3205/dgkh000370

Maliszewska, Maryla, Aaditya Mattoo, and Dominique van der Mensbrugghe. “The Potential Impact of Covid-19 on GDP and Trade: A Preliminary Assessment.” Policy Research Working Papers. World Bank Group, March 2020. https://elibrary.worldbank.org/doi/book/10.1596/1813-9450-9211.

Morris, Denise E., David W. Cleary, and Stuart C. Clarke. “Secondary Bacterial Infections Associated with Influenza Pandemics.” *Frontiers in Microbiology* 8 (2017). https://doi.org/10.3389/fmicb.2017.01041.

Muniz, EC, VB Fascina, PP Pires, AS Carrijo, and EB Guimarães. “Histomorphology of Bursa of Fabricius: Effects of Stock Densities on Commercial Broilers.” *Revista Brasileira de Ciência Avícola* 8, no. 4 (2006): 217–20. https://doi.org/10.1590/s1516-635×2006000400003.

Nelson, Richard E, Kelly M Hatfield, Hannah Wolford, Matthew H Samore, R Douglas Scott, Sujan C Reddy, Babatunde Olubajo, Prabasaj Paul, John A Jernigan, and James Baggs. “National Estimates of Healthcare Costs Associated with Multidrug-Resistant Bacterial Infections among Hospitalized Patients in the United States.” *Clinical Infectious Diseases* 72, no. Supplement_1 (2021a): S17–S26. https://doi.org/10.1093/cid/ciaa1581.

Nelson, Richard E, David Hyun, Amanda Jezek, and Matthew H Samore. “Mortality, Length of Stay, and Healthcare Costs Associated with Multidrug-Resistant Bacterial Infections among Elderly Hospitalized Patients in the United States.” *Clinical Infectious Diseases*, 2021b. https://doi.org/10.1093/cid/ciab696.

O’Neill, J. “Antimicrobial Resistance: Tackling a Crisis for the Health …” amr-review.org. Wellcome Trust and HM Government, 2014. https://amr-review.org/sites/default/files/AMR%20Review%20Paper%20-%20Tackling%20a%20crisis%20for%20the%20health%20and%20wealth%20of%20nations_1.pdf.

Partanen, Krisi H, and Zdzislaw Mroz. “Organic Acids for Performance Enhancement in Pig Diets.” *Nutrition Research Reviews* 12, no. 1 (1999): 117–45. https://doi.org/10.1079/095442299108728884.

Rawson, Timothy M, Luke S Moore, Nina Zhu, Nishanthy Ranganathan, Keira Skolimowska, Mark Gilchrist,

Giovanni Satta, Graham Cooke, and Alison Holmes. “Bacterial and Fungal Coinfection in Individuals with Coronavirus: A Rapid Review to Support COVID-19 Antimicrobial Prescribing.” *Clinical Infectious Diseases*, 2020. https://doi.org/10.1093/cid/ciaa530.

Rodríguez-Baño, Jesús, Gian Maria Rossolini, Constance Schultsz, Evelina Tacconelli, Srinivas Murthy, Norio Ohmagari, Alison Holmes, et al. “Antimicrobial Resistance Research in a Post-Pandemic World: Insights on Antimicrobial Resistance Research in the COVID-19 Pandemic.” *Journal of Global Antimicrobial Resistance* 25 (2021): 5–7. https://doi.org/10.1016/j.jgar.2021.02.013.

Russell, Clark Donald, Cameron J. Fairfield, Thomas M. Drake, Lance Turtle, R Andrew Seaton, Dan G. Wootton, Louise Sigfrid, et al. “Co-Infections, Secondary Infections, and Antimicrobial Usage in Hospitalised Patients with Covid-19 from the ISARIC WHO CCP-UK Study: A Prospective, Multicentre Cohort Study.” *SSRN Electronic Journal*, 2021. https://doi.org/10.2139/ssrn.3786694.

Tan-Torres Edejer, Tessa, Odd Hanssen, Andrew Mirelman, Paul Verboom, Glenn Lolong, Oliver John Watson, Lucy Linda Boulanger, and Agnès Soucat. “Projected Health-Care Resource Needs for an Effective Response to Covid-19 in 73 Low-Income and Middle-Income Countries: A Modelling Study.” *The Lancet Global Health* 8, no. 11 (2020): e1372–e1379. https://doi.org/10.1016/s2214-109x(20)30383-1.

United Nations. “Coronavirus Update: Covid-19 likely to cost economy $1 trillion during 2020, says UN trade agency.” March 2020. https://www.un.org/sustainabledevelopment/blog/2020/03/coronavirus-update-covid-19-likely-to-cost-economy-1-trillion-during-2020-says-un-trade-agency/.

Woerther, Paul-Louis, Charles Burdet, Elisabeth Chachaty, and Antoine Andremont. “Trends in Human Fecal Carriage of Extended-Spectrum β-Lactamases in the Community: Toward the Globalization of CTX-M.” *Clinical Microbiology Reviews* 26, no. 4 (2013): 744–58. https://doi.org/10.1128/cmr.00023-13.

WHO. “Who Coronavirus (COVID-19) Dashboard.” World Health Organization. Accessed October 7, 2021. https://covid19.who.int/.

China lockdown sends ripples across international animal production

For animal production, just as for many other sectors that trade globally, China is a central node within our industry's complex supply chains. As China is starting to lift its restrictions again, what can we say about the knock-on effects of China's lock-down on animal production to date? And what happens now that these measures are replicated in other markets?

Soaring Chinese demand for chicken and pork imports

Wuhan, the capital of Hubei province in China, is home to more than 11 million inhabitants and to the Huanan Seafood Wholesale Market, where the first human infection with SARS-CoV-2 likely took place. From January 23, 2020, onwards, Chinese authorities effectively put all of Wuhan under quarantine: Places and trains could no longer leave the city, buses, subways, and ferries were suspended. Lock-down measures were extended to much of Hubei province and beyond.

According to analysts and Chinese state media, poultry production was seriously affected: Transport restrictions prevented feed such as soybean meal from being delivered to poultry farms, forcing farmers to cull millions of young birds. Hence, the first noticeable ripple effects on international animal production were felt in terms of Chinese import demand. In February, the Financial Times reported that China lifted the ban on importing live chickens from the US to tackle the worsening protein shortage.

This protein shortage is, of course, a longer-term issue due to African Swine Fever's decimation of the Chinese hog population by 40% that has sent pork prices skyrocketing in the past year and fueled inflation. According to Nikkei Asian Review, the added pressure of COVID-19-related domestic transport disruption on pork prices has led to a boost in Chinese demand for imported meat. The U.S. Meat Export Federation reported that US pork exports to China in January 2020 were almost ten times higher than the year before, reaching 74,350 metric tons. However, pork exporters were and still are having trouble getting their pork into China because of the lockdown measures' paralyzing effect on sea freight.

Prices hikes for vitamins and amino acids

By the same token, Chinese manufacturers were and still are having trouble getting their products out of China, or even more fundamentally, producing them in the first place. Much of the world's supply of feed ingredients such as B vitamins, vitamin D3, threonine, and lysine is produced in China. The ripple effect of China's lockdown on global animal production supply chains has thus been keenly felt in terms of the availability and pricing of multiple vitamins and amino acids.

Delayed January exports are starting to trickle in, but disruptions in shipping links are expected to continue for some time yet – and supply chain bottlenecks translate into price hikes. Analysts report vitamin and amino acid price hikes of varying magnitude relative to pre-pandemic levels, and markets appear to be getting more volatile rather than more stable. Among others, Nan-Dirk Mulder, Senior Global Specialist for Animal Protein at Rabobank, therefore, expects animal health and feed additive prices to continue to rise in 2020.

China restrictions ease, but everyone else under lockdown

If we look at China in isolation and assume that its lifting of restrictions will steadily continue, there is reason to be cautiously optimistic. Martijn de Cocq, Lead Analyst at FeedInfo News Service, reports that Chinese production of premix, compound feed, and amino acids and vitamins is back to 80-90% of 2019 levels. Against a backdrop of backlogs, low stock levels, and shortages of certain raw materials, manufacturers are playing catch-up now to meet both domestic and export demand, putting pressure on spot prices for various feed additives and also on seaport capacity.

Chinese economic recovery also bodes well for animal product import demand. Despite the delays and disruptions to supply chains and trade flows caused by COVID-19, Iowa State University researchers Wendong Zhang and Tao Xiong, for instance, anticipate American exports of poultry, pork, and beef products to China to grow from $3 billion to $5 billion in 2020.

However, even if China bounces back quickly, eschews further rounds of lockdown measures, and returns to producing and shipping its usual volumes of feed additives (albeit at temporarily higher prices) – in terms of global animal production, we also have to ask ourselves what happens in the target markets for Chinese exports.

Deciding factors: transport and labor

Specifically, we have to consider domestic transport logistics, e.g., how raw materials are getting from ports to feed manufacturing facilities how end products are getting to farms. The undisrupted functioning of the feed supply chain is indispensable for animal production. Hence, many countries have already explicitly classified feed as an essential good that needs to be exempt from transport restrictions imposed to stem the spread of Sars-Cov-2. The EU Commission, for instance, has adopted a directive on “green lanes” to facilitate cross-border freight transports, including that of feedstuffs. The other hot-button cross-border topic, which eventually will affect animal feed as well, is, of course, seasonal labor, which is urgently required for spring planting in both Europe and North America.

The big dark cloud hovering over every sector within animal production is the question of what would happen if they are severely affected by staff shortages due to coronavirus infections. We simply don’t know. All lockdown measures put in place right now, at a considerable social and economic cost, are about preventing a scenario where large parts of the population are simultaneously ill. However, at the level of, say, a feed mill or a farm, even just a few infections among staff, could require them to suspend operations, with unthinkable consequences for animal welfare and food security.

In the absence of a crystal ball, we have to accept a certain baseline of unnerving uncertainty about future developments and focus on the positives: Globally, feed manufacturing is going strong, and animal producers are busier than ever to play their role in maintaining reliable food supply chains during these extraordinary times.

Corona – Must We Fear Transmission from Livestock to Humans?

SARS-CoV-2 is causing one of the worst global challenges in the 21st century right now. The virus is a member of the family of coronaviridae and belongs to the RNA-viruses. It is assumed that the virus was transmitted by wild animals on a wet market in China. If the virus came from wild animals, is it possible that it can also be transmitted to our farm animals and vice versa? There is considerable confusion in the market. In India, e.g., sales of poultry meat broke down by 80% since January, due to rumors that one could catch the virus from eating chicken.

Corona – nothing new in agriculture!

For people working in the agricultural sector, coronaviruses are not unknown. Cattle producers often fight against diarrhea in newborn calves and against winter dysentery in young adult cattle. Pig farmers know Porcine Epidemic Diarrhoea (PED) and Transmissible Gastroenteritis (TGE) very well. Poultry farmers vaccinate their animals against infectious bronchitis (IB). Are these diseases all caused by the same viruses? No! Different members of the coronavirus family are responsible.

Most of the coronaviruses are species – and tissue – specific

To infect animals or humans, the spike-proteins forming the crown – the “corona” – of the coronavirus must bind to receptor molecules on the target cells of the host’s tissues. The binding is highly specific, just like a lock and its specific key go together, or how an antibody binds to a particular pathogen. SARS-CoV-2, for example, needs a particular cell membrane protein (angiotensin-converting enzyme 2 – ACE2) to enter human cells; TGE viruses, on the other hand, depend on the porcine aminopeptidase N (ANPEP). The cells of pigs have other receptor molecules than the cells of poultry. The cells of the gastrointestinal tract are

different from the cells of the respiratory tract (Russ, 2020).

Table: examples for the different coronaviruses in livestock and humans (adapted from Ackermann, 2016)

Virus	Disease	Species	Genus*
TGEV PEDV FCoV-I	Transmissible gastroenteritis Porcine epidemic diarrhea Feline infectious peritonitis (FIP)	Pigs Pigs Cats	α
BCoV HEV MERS-CoV SARS-CoV SARS-CoV-2	Diarrhea in newborn calves; winter dysentery Vomiting and wasting disease Middle East respiratory syndrome Severe acute respiratory syndrome COVID-19	Cattle Pigs Humans Humans Humans	β
IBV TCV	Infectious bronchitis Blue comb disease	Poultry Poultry	γ
PDCoV	Porcine delta coronavirus	Pigs	δ

*for the allocation to the genus, one crucial factor is the viral protein nsp 1.

Corona in Pigs

For pigs, five coronaviruses are relevant. The porcine epizootic diarrhea virus (PEDV) and the transmissible gastroenteritis virus (TGEV) belong to the α genus. They show a high affinity to the epithelial cells of the gastrointestinal tract. The porcine respiratory coronavirus (PRCV) is also a representative of the α genus, but does not show any affinity to the gastrointestinal epithelial cells. It causes respiratory diseases. The other viruses are the hemagglutinating encephalomyelitis virus responsible for the vomiting and wasting disease and belonging to the β-genus, and the porcine delta coronavirus (PDCoV), causing diarrhea (Stiebnitz, 2017).

Corona in Poultry

Infectious bronchitis caused by a coronavirus belonging to the γ genus is one of the major economically critical respiratory diseases in poultry. As it also affects the kidney and the reproductive tract, the consequences are kidney damage, decreased egg production, and bad egg quality. A further significant problem of IB in poultry is the rapid spread. Within 48 hours, a whole flock can be infected and remains a virus reservoir, even after recovery. Usually, the infection is horizontal, from hen to hen, not from hen to the chick. However, infection via contaminated eggs shell in the hatcheries is also possible (MacLachlan and Dubovi, 2016).

Corona in cattle

The symptoms associated with bovine coronaviruses are calf diarrhea, winter dysentery (hemorrhagic diarrhea) in adult cattle, and respiratory infections in animals of various ages (MacLachlan and Dubovi, 2016). The bovine coronavirus belongs to the ß genus. The bovine coronavirus is not as host-specific as many other coronaviruses. It can infect dogs, turkeys, and other wild ruminants such as waterbucks, giraffes, or white-tailed deers.

Can SARS-CoV-2 also be exchanged between humans and livestock?

SARS-CoV-2, like the MERS-CoV (Middle East Respiratory Syndrome) and the SARS-CoV (2002/03), belongs to the ß genus of coronaviruses. All three can infect animals and humans, which can be seen from the way they spread: SARS-CoV originated from bats, MERS-CoV was transmitted by camels, and for SARS-CoV-2,

bats (Zhou et al., 2020) but also pangolins (Zhang, 2020) are assumed to be the source. But not livestock animals.

There is one known case of a SARS-CoV infected pig, which was discovered in China in the context of research on the SARS epidemy in 2002 (Chen, 2005). Scientists from the Chinese Academy of Sciences in Beijing examined six animal species living in close contact with humans and found this one pig infected by SARS-CoV of human origin. As the only person having contact with the pig was tested negative for the coronavirus several times, it was concluded that the infection likely came from virus-contaminated feed. The pigs in rural areas in China are often fed the leftovers from restaurants.

For now: keep calm

Today, there is no scientific indication that livestock can contract SARS-CoV-2 from humans or vice versa. In Germany, the Friedrich Löffler Institute (2020), a leading research institute on epizootic diseases, is conducting extensive studies at the moment to better understand the sensitivity of animals towards SARS-CoV-2. Reliable results are expected earliest at the end of April. Until then, let's keep calm, and behave responsibly to weather these unsettling times.

By Inge Heinzl, Editor EW Nutrition

References:

Ackermann, Matthias. "Taxonomie und Familienalbum der Viren." *Beilagen zur Vorlesung Virologie 2015/16 Teil II* (2016). https://www.vetvir.uzh.ch/dam/jcr:b55d076d-f488-47c7-87b3-774f9d05c0f2/Vi_Fam2016%281%29.pdf

Chen, W., M. Yan, L. Yang, B. Ding, B. He, Y. Wang, X. Liu, C. Liu, H. Zhu, B. You, S. Huang, J. Zhang, F. Mu, Z. Xiang, X. Feng, J. Wen, J. Fang, J. Yu, H. Yang and J. Wang. „SARS-associated coronavirus transmitted from human to pig." *Emerg. Infect Dis.* 11 no. 3 (2005): 446-8. https://doi.org/10.3201/eid1103.040824

Daly, Russ. "COVID-19 and Livestock: Is there a connection?." *Swineweb* (2020). http://www.swineweb.com/covid-19-and-livestock-is-there-a-connection-by-russ-daly-professor-sdsu-extension-veterinarian-state-public-health-veterinarian/

Friedrich Löffler Institut. SARS-CoV-2 / COVID-19: Umgang mit Haus- und Nutztieren. Short Messages. 02/28/2020. https://www.fli.de/en/news/short-messages/short-message/sars-cov-2-covid-19-umgang-mit-haus-und-nutztieren/

MacLachlan, N. James and Edward J. Dubovi (Eds.). „Coronaviridae." Fenner's Veterinary Virology (Fifth Edition, 2016). Academic Press. Copyright: Elsevier Inc. https://doi.org/10.1016/C2013-0-06921-6

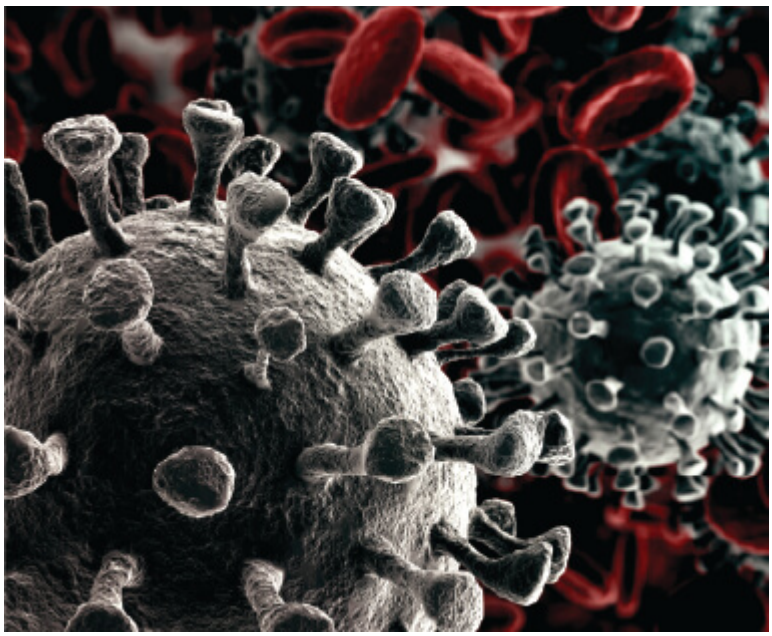
Stiebnitz, Christoph Gunther. „Charakterisierung und klinische Verlaufsuntersuchung aktueller PEDV-Feldinfektionen in deutschen Schweinebeständen unter Berücksichtigung betriebsspezifischer Managementfaktoren". *Inaugural Dissertation*, München, 2017. urn:nbn:de:bvb:19-208698. https://edoc.ub.uni-muenchen.de/20869/1/Stiebritz_Christoph.pdf

WHO. "Middle East respiratory syndrome coronavirus (MERS-CoV)." *Factsheets. WHO* (2019). https://www.who.int/news-room/fact-sheets/detail/middle-east-respiratory-syndrome-coronavirus-(mers-cov)

Zhang, Tao, Qunfu Wu and Zhigang Zhang. "Probable Pangolin Origin of SARS-CoV-2 associated with the COVID-19 Outbreak." *Current Biology* 30 (2020):1-6. https://doi.org/10.1016/j.cub.2020.03.022

Zhou, Peng, Xing-Lou Yang, Xian-Guang Wang, Ben Hu, Lei Zhang, Wei Zhang, Hao-Rui Si, Yan Zhu, Bei Li, Chao-Lin Huang, Hui-Dong Chen, Jing Chen, Yun Luo, Hua Guo, Ren-Di Jiang, Mei-Qin Liu, Ying Chen, Xu-Rui Shen, Xi Wang, Xiao-Shuang Zheng, Kai Zhao, Quan-Jiao Chen, Fei Deng, Lin-Lin Liu, Bing Yan, Fa-Xian Zhan, Yan-Yi Wang, Geng-Fu Xiao and Zheng-Li Shi. "A pneumonia outbreak associated with a new coronavirus of probable bat origin." Nature 579 (2020):270-273 https://doi.org/10.1038/s41586-020-2012-7

COVID-19: What we are doing and what you can do



Dear friends,

Over the past few weeks, we have all found ourselves facing a situation never before seen on this scale. How are we, at EW Nutrition, dealing with it? In a few words: with responsibility to customers, partners, and employees. To find out what we are doing as a company, but also to find out how COVID-19 might spread and what YOU can do to limit risks to yourselves and others, read more here.

What we are doing as a company

Recognizing the challenge posed by COVID-19 in our times, we at EW Nutrition remain on high alert, focused primarily on delivering solutions to our customers and security to our partners and employees.

No Coronavirus cases or known contact with such exist at present among our international teams, yet the EW Nutrition management is acting responsibly on three levels:

- Coordinating operations to ensure on-time and on-standard delivery to our customers
- Postponing/canceling all events that involve any relatively large group of customers and/or employees, regardless of the costs to the company, in order to ensure the health and safety of everyone involved (three events have been canceled/postponed so far: in Turkey, Germany, and Mexico)
- Coordinating with employees to ensure maximum levels of hygiene are observed, as well as best practices of social distancing and self-isolation in order to “flatten the curve”. Where necessary and possible, remote work has been encouraged.

Moreover, to stay ahead of any potential disruptions and to keep on top of the news, the management team at EW Nutrition meets every morning for updates and sends out periodical communications to all concerned.

With the measures it has adopted and the positive code of conduct we are modeling, EW Nutrition is acting preemptively and responsibly to address any present and future challenges that the COVID-19 pandemic may raise. We are confident of our company's capacity to provide stability and value to our customers, partners, and employees.

How does the virus spread?

New research from the University of Austin, Texas, shows that more than 10% of the cases are transmitted by people without any observable symptoms – what is knows as "asymptomatic transmission". This type of transmission makes containment more difficult, warranting "extensive control measures including isolation, quarantine, school closures, travel restrictions and cancellation of mass gatherings."

Since this is a new virus, it is impossible to say with 100% certainty how it is spread. However, it is almost certain that one of the transmission pathways is through the cough or sneeze droplets from infected persons, even when these infected persons do not show very clear signs of the disease.

It is also possible that contact with objects on which such droplets reside may be a secondary pathway of transmission. So far, it is not known for certain how long COVID-19 can survive outside the body, but a related virus (MERS-CoV) was known to survive for up to 60 minutes in the air. Bear in mind, therefore, that objects in public spaces and confined spaces such as restrooms and elevators might also be sources of infection.

What can you do to reduce risks?

Social distancing

Keep a distance of at least a meter from other people: not just those who sneeze, cough or in any way appear to be ill, but generally from people you know have spent any time outside or with other people. This way you minimize the risk of being hit by droplets of saliva from people who may be already infected or carry the virus.

It is a radical practice, yet it is proven to be very effective. This is the solution that many countries that were hit by the SARS epidemic, for instance, adopted to curb the virus's explosive growth.

Wash your hands

Soap and water or an alcohol-based hand sanitizer are the best way to keep viruses away. Wash your hands thoroughly not just every two hours, but literally as often as you can, and especially after contact with other people or objects in public places.

Avoid public places

This includes bars, restaurants, theaters or any other places that may not already be closed. Since it is not yet clear how long coronavirus survives in the air or on objects, even places that may appear safe could potentially still harbor active viruses.

Assist the elderly – cautiously

The elderly and those with preexisting conditions are known to be at higher risk than the rest of the population. If you are an active member of the population outside these groups, it is important to minimize contact with those at risk. However, do assist them by ordering or delivering their shopping for them, or in any way that minimizes their exposure to potential sources of infection.

Avoid touching your face

Your mouth, nose, and eyes are easy pathways for the virus to transfer from your hands to inside your body. Even between sessions of hand-washing, it is important to remember not to touch your face. You may be unaware of certain gestures, either when touching objects or when touching your face, so this is a type of learned behavior that we all need to pay attention to.

Do not rush to the ER

If you do feel unwell, it is important to not rush out to a clinic or hospital. Please call the emergency services and follow their instructions. Rushing out in case of infection can be detrimental to your health and the health of other people you will be exposing. Bear in mind that, in most cases, the symptoms of COVID-19 are mild (fever and coughing being the most common) and there is no cause to panic.

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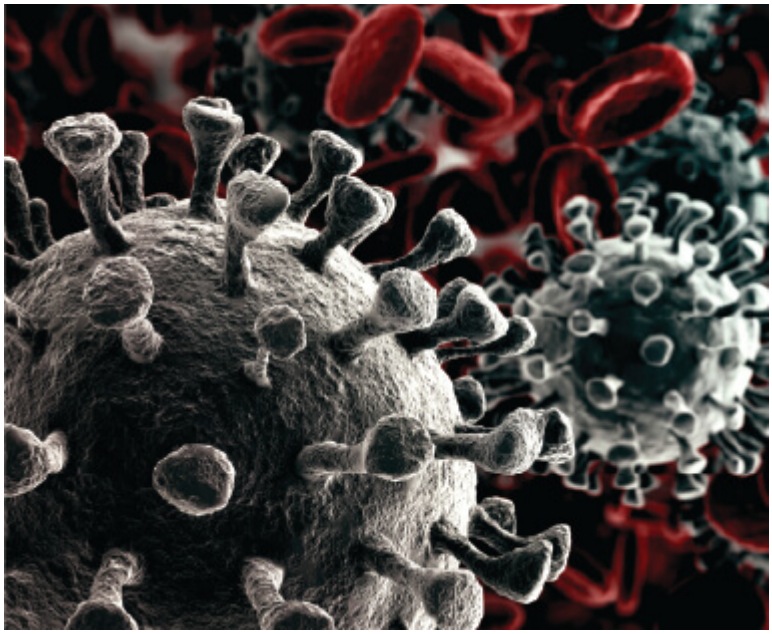
8 ways COVID-19 might impact your business



*by **Ilinca Anghelescu**, EW Nutrition*

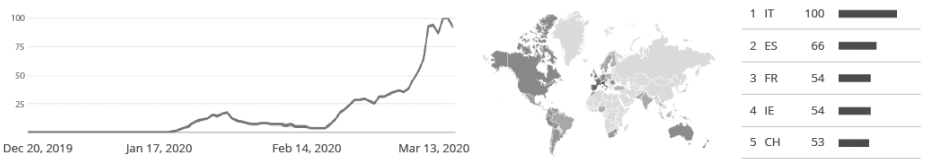
By now there is no doubt the economic impact of COVID-19 will be massive. The question is, how exactly will the pandemic impact your business – and what can you do to mitigate or prevent what's coming?

Since January, the international community has been aware of the seriousness and ease of contagion of COVID-19. Despite that, internet searches for "coronavirus" only exploded over the past couple of weeks. Worldwide, as a population, we were more interested in Harry Styles, home loan rates and Gal Gadot than in the impending crisis.

In other words, we individually, as well as markets, were slow to understand and accept the long-term

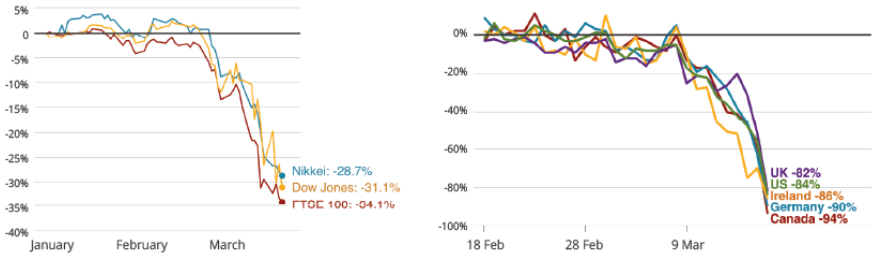
implications of the pandemic.

Google searches for "Coronavirus" since December and which countries did it most



Now that the seriousness of the pandemic has hit home, there are known losses in some industries: airlines worldwide are expected to lose $29BN, with some smaller players being forced out of business by reduced demand. Other low-margin industries, like restaurants or the travel industry, are likewise already sustaining major losses.

Figure 1 – Visualization of COVID-19 impact on markets / Restaurant reservations



And while we are seeing the world slowly understanding and adapting to a new reality, you, like everyone else, have to prepare for the impact of COVID-19 on your business. *Quick note:* though it may appear so at first, not all the ways the pandemic affects businesses are negative!

Labor shortage

As workers are affected by the pandemic, many will either choose to stay home or will be forced to. In some countries, self-isolation measures are elective. In other regions that are more severely affected, the government may require workers in non-essential industries to not break isolation measures. This may affect your company at all levels, from processing feed or feeding animals to delivering goods across quarantined regions.

What you can do:
– Identify proximity workers you can rely on
– Preemptively create crisis scenarios for a reduced workforce
– Create a waiting list of short-term labor resources

Supply shortages

Lockdowns in China, Italy or Spain already provide examples of what happens when regions go into full isolation. Consider how massive shortages in the antibiotic supply from China or shipment delays across the world, for instance, are already affecting the animal production industry.

What you can do:
– Overstock now
– Contact alternative suppliers to create an improved supply chain
– Check expiration dates for your existing supply and consume early dates first
– Choose alternatives for products with an uncertain supply chain

Demand shortages

Depending on the industry and the market, you may be faced with reduced demand. Simply consider the fact that reduced demand for restaurants will lower, in turn, demand for supplies for the restaurant: less meat, butter, milk consumed in restaurants is less meat ordered.

What you can do:
– Prepare for basic production only
– Prepare to stock raw materials long-term if possible
– Discuss with suppliers to cut or minimize deliveries

Government policies

The Food and Drug Administration, the United States' highest authority in food and medicine safety, announced it would suspend inspections of foreign food manufacturers. The impact of this decision could be felt in the quality of foreign feed or raw materials quality. Other governments are already – or might soon be – limiting imports, restricting non-essential activities, offering financial packages for at-risk businesses,

What you can do:
– Review government policy updates on a daily basis and tailor production and operations to ensure compliance
– Give early feedback to government measures
– Apply early for relief measures, even if not severely impacted yet

Lower biosecurity standards

Even now, biosecurity is implemented more in theory than in practice. Routinely there are small infringements – and we can expect their numbers to grow massively in times of crisis. People are less likely to go through the motions if personnel is reduced, supervision is less strict, and the financial pressure of the pandemic is high. This will trigger severe risks for the animal and feed production industries, as well as for product packaging. Workers who hide symptoms to be able to sustain wages; workers attempting to speed up work because of reduced personnel; reduced or looser inspections and monitoring – all these

could perpetrate risks to your operations and to the population at large.

What you can do:
– Tighten biosecurity measures and controls
– Supplement lower government monitoring with additional on-location measures
– If you operate with a reduced workforce, periodically check how downscaling affects biosecurity implementation

Immediate economic downturn

At this point, almost all industries have a global component: your raw materials may be imported; the ingredients in the antibiotics or vaccines you use may come from anywhere around the world; your packaging may be produced in China; your software solutions may come from the Indian subcontinent; your quality controls may be managed by a consultancy from a distant European country – and so on. However much we may try to avoid it, there may be immediate repercussions on your business. Either because your goods may be inaccessible for part of the world, because of lower demand on the consumer side, or because of diminished production capacities, you may feel the impact of the pandemic sooner rather than later.

What you can do:
– Cut costs for non-essentials
– If you are in feed production, consider stocking on toxin binders, search for alternative suppliers, and assess your supply levels
– If you are in livestock production, employ solutions for animal health and welfare to lower disease risk
– Apply for government bailout early
– Assess your export strategy and prepare to zoom in on domestic
– Assess long-term payroll capacities during diminished business demand

Changing consumption trends

It turns out that, after all, the impact could be positive for some industries. The meat industry seems to be doing relatively well, despite the challenges. While in China, severely affected by ASF on the animal side and now by COVID-19 on the human side, meat production was dramatically affected, in other regions demand for – and supply of – animal protein is stable. Consider the new opportunities for frozen or prepackaged food products: as less fresh meat is consumed in restaurants or bought because of infrequent store visits, consumption of these meat products and by-products is not expected to go down – in fact, it may well increase.

The market might, however, first have to be taught to embrace these prepackaged or frozen products.

What you can do:
– Prepare for less fresh meat demand by upping prepackaged meat production
– Teach your end-users about the benefits of frozen products, from meat to egg whites, for instance

Negative impact for others, positive impact for you

While the negative effects are real, there are ways you can balance the COVID-19 impact by taking advantage of some of the positives. Consider that, to give just one example, the energy market is likely going to take a hit. This, in turn, may lead to lower fuel costs for farmers.

Reduced travel means more savings for your company, and while working from home (WFH) may lead in some cases to somewhat reduced productivity, taking an early stand and instructing your team on how to structure WFH days will help preserve productivity while cutting down on energy, fuel and other travel costs, cleaning, in-office equipment depreciation, and other such expenses.

What you can do:
– Check your balance sheets regularly
– Transfer savings from quick benefits into investments into long-term strategy
– Most importantly – never panic!

Ongoing research into treating COVID-19 already shows great promise. While we do not yet know how long these unusual circumstances will last, you can make provisions for the near future and think long-term of how to protect your businesses from this pandemic or any future such challenges.