



Animal Welfare.  
Worldwide.

# HOW TO PREVENT THE NEXT PANDEMIC?

Results of the FOUR PAWS Future Study  
"COVID-19 and the interconnection between  
human wellbeing, animal welfare, the  
environment, and pandemics"

# THE CORONA CRISIS – A CRISIS IN THE RELATIONSHIP BETWEEN HUMANS, ANIMALS, AND NATURE?

There are lessons we have learned from the COVID-19 pandemic:  
Our way of thinking about health is outdated.

Human wellbeing is not something that exists in a vacuum. The state of nature, our treatment of habitats and animals have a direct impact on us.

COVID-19, like approximately 75 per cent of all emerging infectious diseases worldwide, such as SARS, MERS, Ebola or HIV, is a zoonosis, i.e. a disease caused by pathogens that jump from animals to humans. **Zoonoses are a clear symptom of the crisis between humans, animals, and nature** because they show how quickly human-caused habitat destruction can backfire. But they also underline how humans, animals and nature are indivisibly connected.

To create a better understanding of how our relationship with animals and nature must change to prevent future pandemics, VIER PFOTEN (FOUR PAWS) has worked together with an independent research institute to conduct a study on the future, interviewing 29 renowned international experts from various fields such as virology, human medicine, veterinary medicine, agriculture, climate, economics, law, and philosophy on three future scenarios: symptom control, preparedness for future pandemics, and their prevention. **The evaluation shows the risk of pandemics would decrease if animal welfare became a central component of pandemic prevention plans.** Moreover, this would have positive effects on many different aspects of our lives.

A central question refers to the approaches to health that should guide political measures to combat the pandemic. International organisations, such as the OIE, FAO, UNEP and WHO, are currently working with the concept of "One Health", which discusses the interdependence of human and animal health. But even here, the debate falls short; health connections must be supplemented by considerations of wellbeing and welfare – **"One Welfare" as an extension of "One Health"**. For only if we take animal welfare seriously can we take preventive action against the causes that lead to pandemics.

**The study's conclusion: We need a paradigm shift in the way we treat animals.** This means that international institutions must identify improving animal welfare as a necessary response to COVID-19 and as an important aspect of pandemic prevention, especially in light of the upcoming debate on an International Pandemic Treaty as well as the World Health Summit.

**75%**  
OF ALL EMERGING  
INFECTIOUS DISEASES  
WORLDWIDE ARE  
ZOOSES

*As a global community, we have all missed the point of trying to address the root causes and also to change the relationship with the non-human world.*

Mia MacDonald | Executive Director & Founder, Brighter Green

*The application of the One Health principles at least should have told us that we should have been planning well in advance for this reality and securing human populations from zoonotic disease, right? This is a failure in that respect. [...] I think we have a generalized sense of insulation from our food supply in our societies. [...] People don't expect to have to deal with the reality of what is happening with animal agriculture.*

Dinesh Wadiwel | senior lecturer in human rights and socio-legal studies at University of Sydney

*From environmental degradation to wildlife trade and consumption, rapid urbanization, deforestation, land-use change, and of course climate change – we need to tackle all these drivers, and it's easier said than done.*

Renzo Guinto | Associate Professor of the Practice of Global Public Health



# ANIMAL WELFARE IS VITAL FOR THE LIVING ENVIRONMENT

The pandemic has taught us that the health of the individual is the precondition for the health of all – humans, animals, and nature. **The welfare of animals thus has a direct and indirect influence on our entire living environment.** The experts express their views on thematic

## ANIMAL WELFARE & HUMAN HEALTH

Human health directly benefits from animal welfare. According to the experts' assessment, today's ways of dealing with animals and nature create acute health risks for humans.

About 75 per cent of all infectious diseases occurring in humans are zoonotic.<sup>1</sup> Throughout the study, factory farming, the wildlife trade, or encroachment into wildlife habitats were repeatedly cited as triggers or drivers of zoonotic and other diseases: **When animals are kept in high stocking density and suffer from poor health and stress, they are more susceptible to disease, and pathogens can more easily jump from species to species.** A case in point: In 2020, the SARS-CoV-2 mutations found on fur farms jumped to humans.

### Solutions:

To prevent future pandemics, the experts suggest limiting behaviours that adversely affect wildlife habitat and reducing the consumption of animal products. Furthermore, they call for interdisciplinary pandemic prevention strategies and interdisciplinary policies that take into account the interactions of humans, animals, and nature.

priorities and agree: A higher level of animal welfare would have positive impacts on many areas of life, including human health, animal health, climate, nature, agriculture, and the economy.

*The key is to control the detrimental impacts that we have on the environment; that alters the probability of contact and contagion between human and wildlife.*

Moreno di Marco | Research Fellow at the Dept. of Biology and Biotechnologies of Sapienza University of Rome

*We know that 70 per cent of all emerging and reemerging pathogens are zoonotic; they jump from animals to humans. It can happen without any warning. I think that it goes to show you that there's a significant influence and a significant factor related to animals that influence human health and vice versa.*

Dr. Syra Madad | Infectious Disease Epidemiologist, Harvard Belfer Center for Science and International Affairs and Senior Director, System-wide Special Pathogens Program Office, NYC Health + Hospitals

## ANIMAL WELFARE & ANIMAL HEALTH

Today's breeding and keeping methods in intensive livestock farming make animals sick: Animals are bred for high-performance characteristics, have no outdoor access and live in cramped environments. This weakens their immune system, and they often survive their short lives only through antibiotic use. About 80 percent<sup>2</sup> of all antibiotics are used in animal husbandry. **In large herds, sick animals are often not separated from healthy ones, which would result in all animals receiving antibiotics.** This leads to antibiotic-resistant germs and jeopardizes the effectiveness of those antibiotics that are critical for humans.

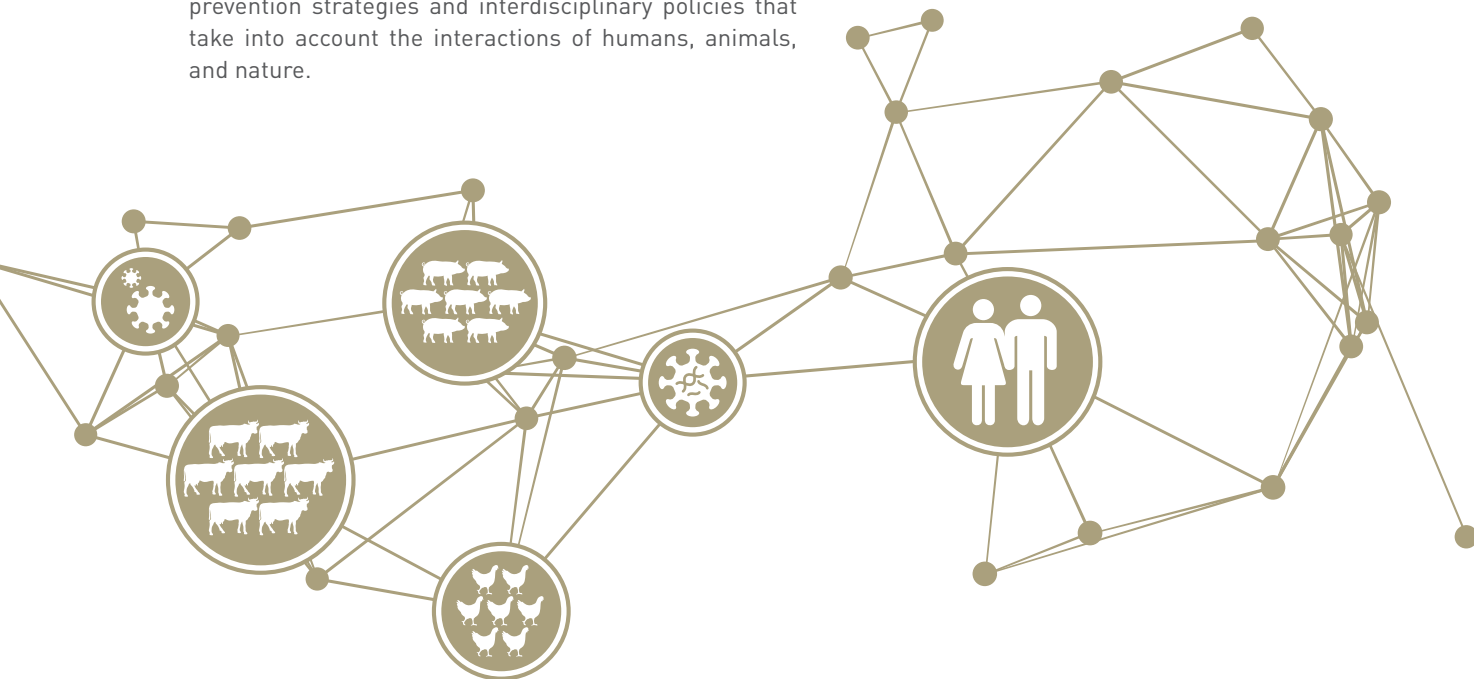
The experts emphasize as particularly problematic the widespread use of antibiotics, which is necessary to keep the factory farming system running. In addition, they say, this system is particularly risky in terms of spreading diseases among animals and increases the risk of zoonotic diseases. Several times, they emphasize the health risks this poses for humans and animals.

### Solutions:

From an animal welfare perspective, the only viable way to reduce antibiotic use is a fundamental improvement in keeping conditions with lower animal numbers and a consistent ban on high-performance breeding lines. According to the study, political measures should serve animal welfare, animal health, as well as human health. **By designing animal husbandry in ways that foster animal welfare, we will improve the health of both humans and animals.**

*The lack of concern for animal welfare, let alone animal rights, in large scale animal agriculture is a contributor to zoonosis and pandemics. We know for sure this is the case with antibiotic resistance, because of the routine use of antibiotics. The potential for disease in very large, crowded, dirty, unsanitary facilities, where obviously the animals are stressed and their immune systems weakened.*

Mia MacDonald | Executive Director & Founder, Brighter Green



### ANTIBIOTICS USE



<sup>1</sup> World Organisation for Animal Health [OIE].  
Link: <https://www.oie.int/en/what-we-do/global-initiatives/one-health>

<sup>2</sup> World Organisation for Animal Health [OIE]. Chapter 7.6. Killing of Animals for Disease Control Purposes.  
Link: [https://www.oie.int/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access/?id=169&L=0&htmlfile=chapitre\\_aw\\_killing.htm](https://www.oie.int/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access/?id=169&L=0&htmlfile=chapitre_aw_killing.htm)

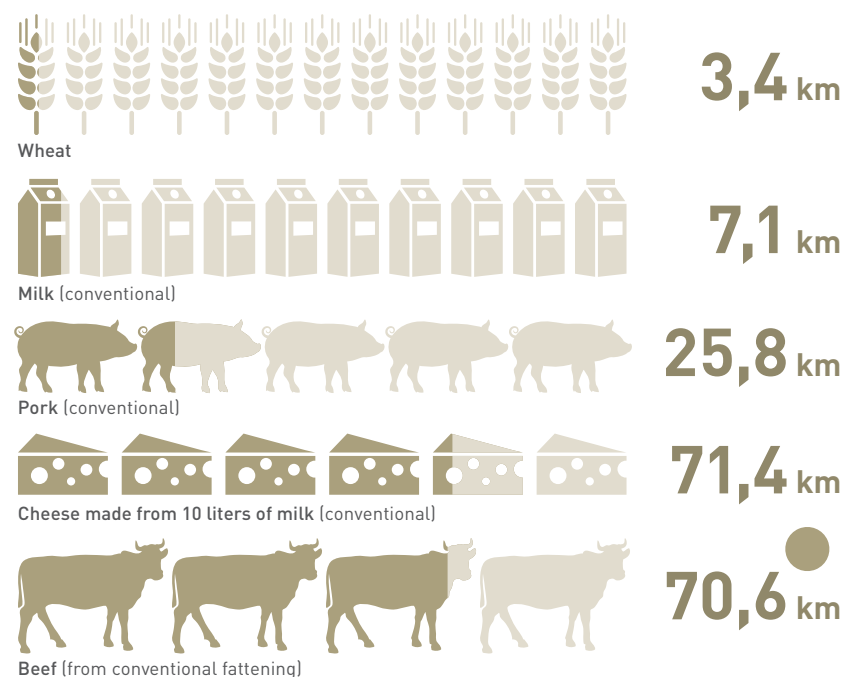
## ANIMAL WELFARE & CLIMATE PROTECTION

Today's forms of animal husbandry lead to irreparable damage to the climate and the environment: through huge animal populations, high nutrient surpluses, resource consumption, and immense greenhouse gas emissions. The current UN Climate Report (IPCC) recommends, among other things, drastically reducing methane emissions, as methane is 87 times more harmful to the climate than CO<sub>2</sub>. According to estimates by the European Environment Agency, methane emissions account for 53.74% of greenhouse gas emissions from the EU agricultural sector.<sup>3</sup> Methane emissions are almost entirely attributable to animal husbandry and are produced during the digestion process of animals or during liquid manure storage.

**According to the study, reducing livestock numbers, lowering meat consumption, and turning away from factory farming, where the focus is purely on productivity and where animal welfare plays no role, are therefore preconditions for achieving the climate targets.**

Animal welfare and climate protection go hand in hand. Only a drastic reduction in animal numbers will make it possible to keep the remaining farmed animals in animal-friendly conditions with sufficient space and outdoor access. From a climate protection perspective, permanent grassland is also an important factor in CO<sub>2</sub> storage. It also offers significantly higher biodiversity compared to cropland.

### GREENHOUSE GAS EMISSIONS PER KILOGRAM (shown in kilometers by car):



<sup>3</sup> European Environment Agency (EEA).  
Link: <https://www.eea.europa.eu>

METHANE IS  
**87 times**  
MORE HARMFUL  
THAN CO<sub>2</sub>

*Certainly, animal agriculture is contributing to climate change; it's a leading factor in deforestation and biodiversity loss. Scientists have told us, we need biodiversity to protect human life on this planet as well.*

Mia MacDonald | Executive Director & Founder, Brighter Green

## ANIMAL WELFARE & NATURE CONSERVATION

**According to the study, the systematic destruction of habitats and the loss of biodiversity are direct consequences of today's factory farming.**

Experts say, one of the biggest drivers of rainforest deforestation, is livestock farming. This is accompanied by logging forests to create arable land for animal feed, mostly soy. The main use of soy is animal feed. The EU imports around 14 million tons of soy beans yearly as a source of protein to feed farm animals, including chicken, pigs, and cattle, as well as for milk production.<sup>4</sup> The cultivation often happens under ecologically questionable conditions. In South America, the rainforest has been and continues to be cleared for soy bean cultivation, and current conventional cultivation methods rely heavily on pesticides.

As a result, wild animals lose their homes, entire species are deprived of their habitats and become extinct, and biodiversity collapses. **This decrease in overall genetic diversity makes it easier for pathogens to evolve and spread amongst fewer hosts. According to the interviewees, this threatens the resilience of entire ecosystems against infectious diseases.**

Where animals are forced to migrate due to the destruction of nature, they come into contact with entirely new species and their viruses, as well with people. This, too, leads to epidemics. The experts emphasize throughout the study: protecting natural habitats is therefore crucial to safeguarding animal welfare and human wellbeing.

*Around 45 per cent of the land surface on the earth is used for grazing livestock or growing crops to feed livestock. That is driving deforestation. It's destroying native habitat and places like the Amazon; those animals are being displaced and forced to interact, in new and unnatural ways, with both humans and other types of animals that they would never come into contact with naturally.*

Ann Linder | Fellow at the Animal Law and Policy Program,  
Harvard Law School

<sup>4</sup> European Commission (7 January 2019). United States is Europe's main soya beans supplier with imports up by 112%.  
Link: [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_19\\_161](https://ec.europa.eu/commission/presscorner/detail/en/IP_19_161)

## ANIMAL WELFARE & AGRICULTURE

To meet the increasing demand for animal proteins, animal production has been intensified, industrialized and globalized. This has had several undesirable effects on human life (and livelihoods) and on animal welfare.

The experts state with a large majority that animal husbandry is an important starting point for the paradigm shift in our relationship with animals. Factory farming forces animals into cruel living conditions, increases the risk of zoonotic diseases, and destroys natural habitats for feed crops or pasture.

Therefore, the experts support concrete reforms in agriculture. The end of factory farming in its current form was repeatedly called for as a long-term goal.

To drive this process forward, many of those surveyed call for **a reduction in the consumption of animal products**. Plant **products could be subsidized more, and their further innovation could be supported by governments**, e.g. in the field of cellular agriculture.

Animal welfare is the key to these reforms. The negative effects of modern agriculture could only come about in the first place because animal welfare played no role in its conception, the experts emphasize.

It must therefore be the objective of international organisations and national governments to present an overall strategy for an animal-friendly as well as environmentally and climate-compatible restructuring of agriculture and food production.

*Animal welfare would also promote cost honesty [...]. I would definitely reshape agricultural policies in the clear direction of reducing animal stocks. [...] A carbon tax on a European or national level to tax foods – with a worse ecological footprint in terms of greenhouse gas emissions – higher, and in exchange introduce relief in other areas so that nobody is additionally burdened. You reward with economic measures whatever is ecological and protect us from pandemics and “punish” whatever is the opposite. [...] When you get to the lower levels, like on national levels, I’d say you’d have to change the value added tax, e.g. plant-based milk alternatives currently have a higher tax than dairy milk, so for health and ecological reasons, you could invert that, for health reasons and for animal wellbeing.*

Kurt Schmidinger | Food scientist, Founder of Future Food

## ANIMAL WELFARE & THE ECONOMY

A recent analysis published in the journal Science<sup>5</sup> found that the cost of implementing key prevention measures over the next decade (based on today’s values), including wildlife and forest protection, would be only 2% of the estimated financial damage already caused by COVID-19. **Thus, a preventive approach to combating pandemics is far more cost-effective than a reactive approach, since a single zoonotic outbreak can cost trillions of dollars worldwide, as we have seen in the case of COVID-19.**

The enormous costs of dealing with the pandemic could be used as an argument, the experts say, to build public support for pandemic prevention and to effect change in human behaviour.

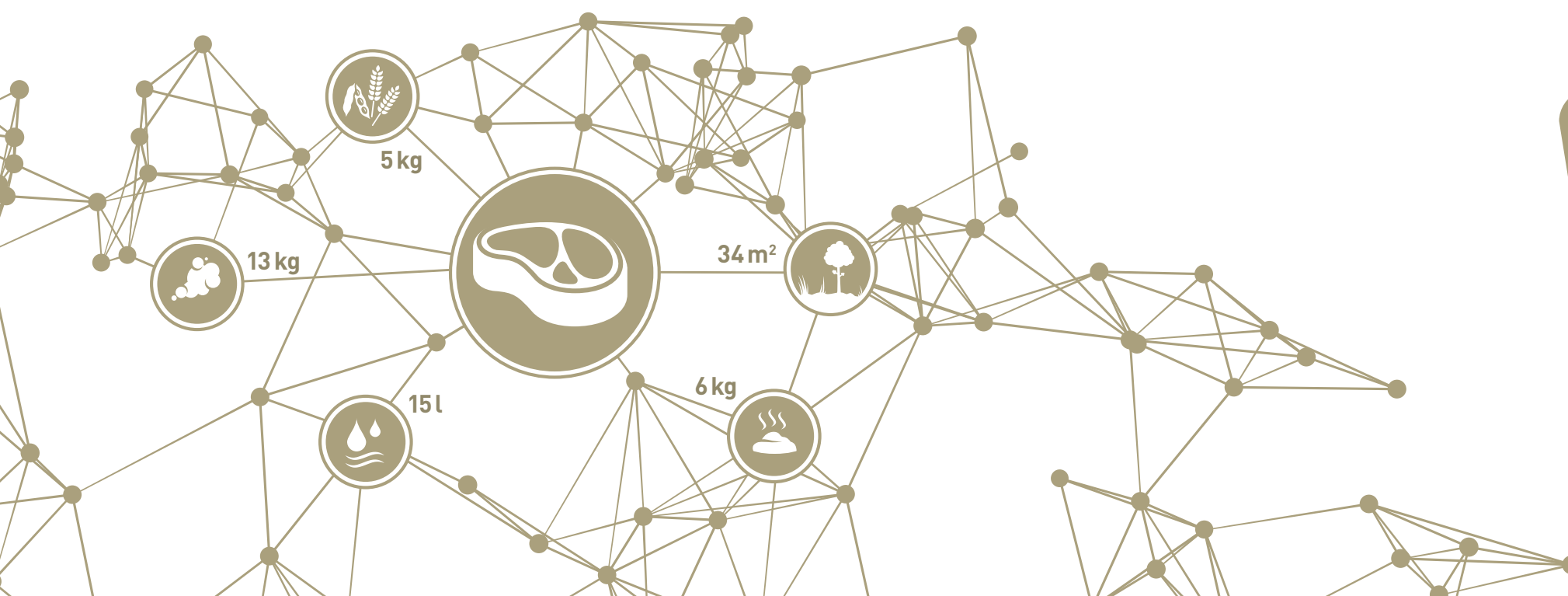
Food systems and diets over-reliant on animal products have negative impacts on the climate, animals and human health. They also increase the risk of zoonotic disease outbreaks and future pandemics. Policymakers should therefore ensure that the production and consumption of animal protein is no longer subsidized and that plant-based, more sustainable food systems are promoted instead.

*There is a strong focus on prevention. As I mentioned before, prevention is the most cost-effective way to deal with disease emergence risk.*

*The more we can prevent, the less we have to control. And preventing is going to be always cheaper than controlling.*

Moreno di Marco | Research Fellow at the Dept. of Biology and Biotechnologies of Sapienza University of Rome

RESOURCES REQUIRED PER KILOGRAM OF BEEF



<sup>5</sup> Dobson, A.P., Pimm, S.L., Hannah, L., Kaufman, L., Ahumada, J.A., Ando, A.W., Vale, M.M. Ecology and economics for pandemic prevention. Science. 24 July 2020. Vol. 369, Issue 6502, pp. 379-381. doi: 10.1126/ science.abc31895



## SUMMARY OF THE RESULTS

**The corona crisis was not created by a supernatural force; it was man-made, just like the climate crisis.**

The future study shows which priorities must be set, in order to minimize the risk of future pandemics:

Current scientific and political discussions on "One Health" should be thought of in a more holistic and interdisciplinary way and include animal welfare and climate protection. **The key to preventing future pandemics is not simple symptom control in the form of medication and isolation of animals, but a real paradigm shift towards greater animal welfare and prevention: "One Welfare".**

The study's experts clearly advocate a scenario in which factory farming gradually ends, fur farms and live animal markets are closed, and plant-based diets increasingly replace meat consumption. Animal welfare should be part of the next Sustainable Development Goals (SDGs) after 2030.

**To get there, the experts of the study recommend the following measures, among others:**

### **Investments in plant-based products and cellular agriculture:**

The market for plant-based alternatives is growing, in comparison to that of animal products. Government investments in research in these areas would help produce the same nutrients without zoonotic risk or animal suffering.

### **An interdisciplinary and cost-benefit approach:**

Policy makers must address pandemics in an interdisciplinary frame that includes prevention and animal welfare and recognize the costs tied to response compared to the costs of preventive measures.

### **Awareness-raising:**

The close interconnection between human and animal well-being should become part of scientific, political, and social discourses.

## POLITICAL DEMANDS

The conclusions to be drawn from the future study in terms of politics should therefore be as follows: Any policy decision that dismisses animal, environmental and climate protection as secondary concerns is a decision that supports the crisis and increased pandemic risks.

### **FOUR PAWS thus deduces the following political priorities that must be implemented:**

- We need governments and decision makers around the world to prioritize animal welfare and climate protection so that we can prevent future pandemics. The "One Welfare" framework must be incorporated into policy making to recognize not only the interrelationships between human health and animal health, but also aspects of animal welfare. These are crucial elements to consider in all pandemic prevention strategies and legislation.

- The political measures for preventing future pandemics must focus on making our agricultural and farming systems more resilient and prohibiting practices that increase the risk of zoonotic disease prevalence and spread. These practices include the commercial trade in wild animals, fur farming, factory farming, and the trade in dog and cat meat.

*I think governments could and should absolutely, for example, invest in R&D or provide tax credits for the establishment of alternative protein and cellular agriculture, research and production facilities. I think that's a no-brainer. I think that has a lot of promise for economic growth and has a lot of promise for alternative means of producing protein that don't have remotely the same contribution to zoonotic disease risk (as livestock). If those plant-based alternatives and/or cultured meat become affordable and become more widespread, people, if given the option to not have an animal killed but still have their cake or steak and eat it too, then, I think, that would be a game-changer for people.*

Jan Dutkiewicz | Postdoctoral Fellow at Swiss National Science Foundation, Policy Fellow at Harvard Law School

*There is, in my view, an unprecedented opportunity, at the present moment, for a conversation on ending industrial animal agriculture. Five years ago, it would have almost been impossible to even imagine raising a prospect of dismantling industrial animal agriculture as something realistic, as a political proposal. But, I think, if you combine COVID-19 with what is going on in terms of anthropogenic climate change and the recommendations from the IPCC to reduce meat consumption as the solution, I think that there is actually a serious opportunity for animal advocates to make the case for this, for scenario three (prevention). Realistically it's going to take a while. But it's the best time it has ever been to make this proposal.*

Dinesh Wadiwel | Senior Lecturer in Human Rights and Socio-legal Studies at University of Sydney



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## ABOUT FOUR PAWS

**FOUR PAWS is the global animal welfare organisation for animals under direct human influence, which reveals suffering, rescues animals in need and protects them.**

Founded in 1988 in Vienna by Heli Dungler, the organisation advocates for a world where humans treat animals with respect, empathy and understanding. FOUR PAWS' sustainable campaigns and projects focus on companion animals including stray dogs and cats, farm animals and wild animals – such as bears, big cats, orangutans and elephants – kept in inappropriate conditions as well as in disaster and conflict zones. With offices in Australia, Austria, Belgium, Bulgaria, Germany, Kosovo, the Netherlands, Switzerland, South Africa, Thailand, Ukraine, the UK, the USA and Vietnam as well as sanctuaries for rescued animals in twelve countries, FOUR PAWS provides rapid help and long-term solutions.

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