

BRIEFING FOR POLICYMAKERS AND GOVERNMENTS

From Food System Fragility to Agroecological Resilience

Moving Beyond Sustainable Intensification

WORLD ANIMAL PROTECTION

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EXECUTIVE SUMMARY

Sustainable intensification has increased structural fragility in global food production in recent years. Repeated shocks undermine the supply chains on which it is built, threatening food security. World Animal Protection believes that a transition to equitable, humane, and sustainable agriculture grounded in agroecology can provide long-term food security and better welfare for farmed animals.

Sustainable intensification is a food system framework aimed at increasing agricultural production while reducing environmental harm by boosting agricultural yields on existing land while also protecting vital ecosystems and natural resources. Some Governments and international institutions have presented this, and other concepts such as climate-smart agriculture, as solutions capable of feeding a growing global population without expanding the land used for farming. Sustainable intensification approaches tend to treat animals primarily as production units rather than as sentient beings with welfare needs. Poor welfare conditions in intensive systems have been linked to increased risks of zoonotic disease emergence and antimicrobial resistance (AMR).

However, evidence from supply shocks suggests that sustainable intensification is not delivering the resilience needed for food security. Sustainable intensification systems remain closely linked to industrial animal agricultural systems built on animal suffering. Synthetic fertilisers, fossil fuels, and imported animal feed rely on vulnerable global supply chains. During recent supply shocks including the ongoing Iran-US conflict, Russia-Ukraine war, and the COVID-19 pandemic, industrial agriculture systems have repeatedly faced difficulties and demanded and received public emergency support to help them continue operating.

Agroecology offers a more durable, economically viable and food secure alternative which values animals and improves biodiversity and supports public health, farmer livelihoods, social justice, democratic participation and systemic resilience to climate and market disruption. It promotes diversified farming systems, reduced reliance on external inputs, and increased local knowledge and community participation. Evidence shows agroecological systems can either maintain or improve productivity, while reducing dependency on volatile supply chains. However, agroecology remains marginal in climate policy debates and academic research despite growing policy recognition.

At COP31, Governments should prioritise food system resilience in domestic policies and climate action, to ensure food security, equity, animal welfare, and citizen livelihoods and health. Reforming harmful agricultural subsidies and prioritising food policy at the heart of Government policy are key tools to promote locally adapted knowledge driven solutions like agroecology.



Image: World Animal Protection

INTRODUCTION

Current global instability has created a moment to reflect on our broken food systems.[1] *Sustainable intensification, the food system framework adopted by some Governments, has led to a multitude of negative outcomes for people, animals, and the planet.*[2]

The structural vulnerability of sustainable intensification is especially visible at moments when supplies of imported feed, synthetic fertilisers, and fossil fuels are no longer guaranteed. Recent crises have demonstrated how quickly disruption can affect food prices and availability globally.[3] The response from animal farming industry groups has been calls for public money, which begs the question of how resilient are the industrial systems on which we currently rely?[4]

Sustainable intensification emerged as a response to concerns about how to combine the twin challenges of feeding growing populations and protecting vital ecosystems and natural resources. Its approach was to boost agricultural yields on existing land. However, since the concept emerged in the 1990s, its evolution has been marked by a lack of a universal definition,[5] a dominant focus on productivity and an outdated conceptualisation of sustainability. Climate-smart agriculture[6] has emerged as a term for a policy framework in which sustainable intensification is implemented. Both are framed in deliberately apolitical, technical terms that sidestep questions of land rights, corporate power, and food security and sovereignty.

The assumption that increasing production automatically improves universal food security is, however, not backed up by evidence. The world already produces enough food to feed the global population, yet 645 million people faced hunger in 2025.[7] Food insecurity is driven primarily by poverty, inequality, conflict, weak governance and food waste rather than insufficient production.[8]

Achieving sustainable food security requires that communities, particularly women and Indigenous peoples, who hold significant agroecological knowledge, have genuine decision-making power and agency over their food systems.[9] As the Intergovernmental Panel on Climate Change (IPCC) highlights, food security depends on availability, access, utilisation and stability.[10] Increasing yields alone cannot address these wider determinants. Furthermore, high-efficiency systems consider animals as commodities, thereby ignoring or rejecting their status as sentient beings.[11]

Agroecology is a farming framework that seeks to diversify production systems, strengthen local food networks and reduce dependence on external inputs.

Evidence increasingly demonstrates that it can improve yields while improving animal welfare, enhance biodiversity, lower costs and increase resistance to climate and market shocks.[12] Most importantly, it addresses all dimensions of food security rather than focusing solely on production.



FOOD SYSTEM FRAGILITY

Recent geopolitical crises have emerged as a major challenge to global food systems, exposing the vulnerability of agricultural production and supply chains to conflict, trade disruptions, and energy insecurity.[13]

The Russia–Ukraine war[14] and conflict in the Middle East[15] have demonstrated how geopolitical instability can create transport bottlenecks that rapidly disrupt the availability, affordability, and distribution of food and fertiliser worldwide. Rather than ensuring stability, globalised food systems and 'just-in-time supply chains' are amplifying crises as disruptions in one region quickly cascade across international markets.

The OECD (2026)[16] notes that ongoing geopolitical tensions are contributing to inflationary pressures, rising energy prices, slower economic growth, and heightened uncertainty across global markets.

The sustainable intensification framework of food production remains heavily dependent on fossil fuels, fertilisers, and international trade; under this model, geopolitical instability directly affects the capacity of food systems to maintain both productivity and sustainability.

So, while sustainable intensification is often presented as a pathway to improving food security, geopolitical crises reveal the limitations of this approach which relies on globally integrated and resource-intensive production systems.[17]

Image: Vincenzo Ricci / World Animal Protection / We Animals





Image: Vincenzo Ricci / World Animal Protection / We Animals

ENVIRONMENTAL AND ANIMAL WELFARE CONSIDERATIONS

As well as failing to provide food security, there are also significant doubts around whether sustainable intensification approaches are effective or sufficient to really tackle climate change. Agricultural interventions linked with sustainable intensification, such as improving efficiency, technology adoption or agroforestry, are modelled to achieve only 10-40% of the mitigation needed in agriculture by 2030.[18]

Many sustainable intensification approaches are enabling industrial farming which is increasing greenhouse gas emissions as well as destroying biodiversity. The results include the destruction of algal blooms, wildlife, pollinators, and small-scale farming and farmers.[19] Research shows that 35% of global tree cover loss is linked to high intensity agriculture. These are all contributing significantly to the ongoing sixth global mass extinction.[20]

From an animal welfare perspective, sustainable intensification pushes animals to their biological limits, creating and exacerbating health problems and welfare issues.[21] It keeps animals in highly confined and restrictive systems and treats welfare as secondary to efficiency. It is well documented that poor welfare conditions for animals drive zoonotic disease risk and antimicrobial resistance (AMR), with serious consequences for human health as well as the lives of animals confined within these systems.[22] A truly sustainable food system must consider animal wellbeing alongside productivity and environmental outcomes, including animals' physical health, psychological welfare, and opportunities to express natural behaviours (Boyle 2025; Dawkins, 2017).[23,24]



Image: World Animal Protection

WHAT IS AGROECOLOGY?

Agroecology[25] is a holistic approach that addresses ecological, socio-cultural, technological, economic, and political dimensions of farming and food systems. Its origins are built on knowledge accumulated by social movements.

Agroecology was codified by the High-Level Panel of Experts on Food Security and Nutrition (HLPE-FSN)[26] that created 13 principles of agroecology and the Food and Agriculture Organization (FAO) who developed 10 elements of agroecology.[27]

Principle 4 of the HLPE framework focuses specifically on animal health and welfare, establishing the intrinsic wellbeing of farmed animals as a core requirement of agricultural sustainability. Rather than reducing animals to mere commodities, production assets, or units of fertiliser, this principle recognises them as sentient beings with their own physiological and psychological needs.

Agroecological approaches should prioritise species-appropriate husbandry, preventative healthcare, and environments that support natural behaviours. Practices such as rotational grazing and silvopasture can contribute to these objectives when appropriately managed.

By codifying animal health and welfare as an independent, non-negotiable pillar, the HLPE framework ensures that intensive, confined animal farming models cannot be misclassified as agroecological, establishing a holistic safeguard.

Agroecology emphasises nature-based solutions, closed production cycles, reduced external inputs, and the importance of essential local knowledge.[28] It replaces synthetic fertilisers and pesticides with natural alternatives, thus substantially lowering costs.[29,30]

It ensures diversified farming systems which provide multiple revenue streams across the agricultural calendar, buffering households against commodity price volatility.[31] Shorter value chains and territorial markets further ensure producers retain a greater share of food system value.[32]

Agroecology can also increase economic competitiveness, through reducing input dependency and diversifying income. Replacing synthetic fertilisers and pesticides with biological processes, nitrogen fixation, composting and integrated pest management substantially lowers cash costs.[33,34] In Senegal, by replacing synthetic inputs with biological processes farmers cut production costs by up to 60%, helping address food security of the rural poor.[35]



Image: World Animal Protection

Diversified farming systems also provide more revenue streams across the agricultural calendar, buffering households against commodity price volatility.[36] Critically, reduced reliance on purchased inputs decrease exposure to credit markets, helping to break cycles of agrarian debt that trap smallholders in structural poverty.[37]

Lastly, agroecology is inherently participatory. It treats farmers, including women and Indigenous communities, as knowledge holders and co-designers of innovation, rather than end-users of externally developed research.[38]

Thus agroecology research is largely led by countries with strong food sovereignty traditions and smallholder agricultural systems, while the sustainable intensification literature is dominated by major industrial agricultural producers.[39] There is a stark disparity in research and development (R&D) funding and scientific output. Research investment in sustainable intensification production outweighs that in agroecology productivity by roughly 100 to one.[40] This massive funding gap has created a misleading impression that agroecology production is not scientifically proven. The reality is that agroecology is significantly under-funded and under-researched.

Sustainable Intensification	Agroecology
Focus on efficiency and productivity	Focus on resilience and system transformation
Dependent on global supply chains	Supports local farmers and strengthens local food networks
Uses animals as commodities	Integrates high animal welfare and health standards into sustainable production
Production and profit focus	Creates new market opportunities for local farmers and local suppliers in the food chain
Relies on linear production models and specialised production systems	Based on social justice, Indigenous knowledge and community participation. Promotes circularity and integration among crops, animals and ecosystems, recycling nutrients and resources within the system

OVERVIEW OF THE DEBATE: SUSTAINABLE INTENSIFICATION AND AGROECOLOGY IN CLIMATE GOVERNANCE

Within the Koronivia Joint Work on Agriculture (KJWA) and the subsequent Sharm el-Sheikh Joint Work on implementation of climate action on agriculture and food security (SJWA), agroecological approaches have increasingly featured in discussions of adaptation, resilience and food system transformation.

Formal submissions by Governments have explicitly framed agroecology as a mechanism delivering simultaneous mitigation, adaptation, and food security outcomes.[41] The IPCC has explicitly validated the efficacy of agroecological systems in delivering measurable climate mitigation and adaptation outcomes.[42]

However, discussions on agroecology have not advanced at the UNFCCC as much as they have at the Convention on Biological Diversity (CBD) and the United Nations Convention to Combat Desertification (UNCCD). The CBD explicitly named it a biodiversity-friendly approach within the Kunming-Montreal Global Biodiversity Framework (2022). The UNCCD mentioned agroecology in the political declaration of COP17 from August 2026 and positions it as a core framework for adaptation finance.[43] In contrast, the UNFCCC has yet to formally reference agroecology within any official decision text.

Climate-smart agriculture and precision agriculture are also frequently mentioned, which draw on sustainable intensification approaches. In the most recent Nationally Determined Contributions (NDCs) submitted at COP30 (2025), nine countries mentioned sustainable intensification, while eight other countries mentioned related concepts. At least 55 countries mention climate-smart agriculture or related concepts.[44]

28 countries include agroecology explicitly in their NDCs, with concentration in sub-Saharan Africa and Latin America. Over half of the NDCs embed core agroecological practices (agroforestry, soil restoration, Indigenous knowledge co-creation, and conservation agriculture) without using the term directly.[45]

Image: World Animal Protection



SCIENCE AND AGROECOLOGY

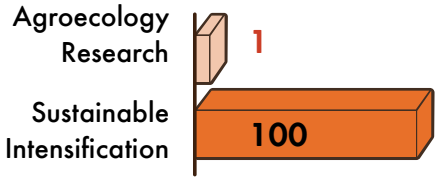
WHY THE WORLD ISN'T PAYING ATTENTION

THE SCIENCE VS. THE STATUS QUO

The IPCC Seal of Approval:
The IPCC validates agroecology as a powerful tool for climate mitigation and adaptation.

The Myth: Agroecology is unproven.

Reality: It is simply under-researched compared to sustainable intensification.



100-to-1 Research Disparity

Adopted by CBD and UNCCD
Both formally include agroecology.



Mentioned in more than 28 NDCs but sidelined by UNFCCC
The UNFCCC has yet to reference it.

4 REASONS THE UNFCCC STRUGGLES TO CHANGE

The Climate-Smart Trap

Negotiations favour climate-smart agriculture, a technical framework that sidesteps land rights and corporate power.

Animal Agribusiness Lobbying

Big meat, fertiliser and seed corporations steer agendas toward proprietary technologies and carbon markets.

Structural Exclusion



High costs and language barriers price out the frontline farmers and Indigenous communities most affected.

Metric Bias



UN processes prioritise quantifiable carbon data over traditional, local-based farming knowledge.

RECOMMENDATIONS FOR POLICYMAKERS AT COP31



Image: World Animal Protection / Tracks Investigations

We recommend that at COP31, Governments prioritise agroecology in climate and food systems discussions. They should progressively reorient agricultural support away from sustainable intensification and towards agroecological systems and practices. This includes the below specific measures:

1. Promote integrated food systems approaches that address emissions, biodiversity, animal welfare, social impacts and food security together.

Governments' policies should promote a transition to equitable, humane, and sustainable agriculture grounded in agroecology to provide long-term food system resilience and better welfare for animals.

2. Redirect agricultural subsidies towards agroecological transitions rather than increased industrial efficiency.

Public subsidies are now heavily concentrated on high-input production systems. Governments should redirect current agricultural subsidies towards equitable, humane and sustainable food systems only.



Image: AnimalKIND / World Animal Protection

3. Develop integrated public policy frameworks to support agroecological transitions.

Governments should establish coherent and integrated public policies that connect agriculture, climate, biodiversity, food security, rural development and animal welfare, while ensuring the meaningful participation of farmers, Indigenous peoples, traditional communities and civil society in their design and implementation. They should also promote research into agroecology, agroecological innovation, farmer transition, farmer-led knowledge exchange, diversified farming systems, animal welfare, resilience and ecosystem restoration, and local food economies.

4. Integrate agroecology and animal welfare into NDCs and national climate policies.

Governments should incorporate agroecological food system transformation into their NDCs and national climate plans, including measurable objectives that address climate mitigation and adaptation, biodiversity, food security and animal welfare.

5. Embed animal welfare and wider impacts on animals and habitats more firmly in food systems policies, governance and climate modelling.

Governments should recognise the impacts of food systems on animals as an integral consideration in climate and agricultural policymaking, food systems strategies, investment decisions and governance frameworks. This should also include impacts on wild animals and their habitats arising from land-use change, habitat degradation, pollution and other pressures associated with agricultural production.

6. Promote healthy and sustainable diets alongside agroecological transitions.

Governments should support a transition towards healthy and sustainable diets, particularly in high meat-consuming countries, increasing the availability and accessibility of diverse plant-rich foods alongside the transition towards agroecological production.

CONCLUSION

The choice between sustainable intensification and agroecology is ultimately a debate about future food systems and food security for next generations. Sustainable intensification emerged in response to concerns about agricultural productivity. Yet continued food insecurity demonstrates that the problem is not efficiency and yield growth. A more resilient and humane approach is needed.

Agroecology helps diversify farming systems, reduce dependence on external inputs, create stronger integration between crops, animals and ecosystems and ensure greater respect for animal welfare. Agroecology addresses these dimensions by reducing dependence on volatile supply chains, strengthening biodiversity, improving livelihoods, ensuring animal welfare and increasing climate resilience.

Policymakers can support this transition by embedding animal welfare in food and climate policies, redirecting agricultural subsidies towards agroecological practices, investing in innovation and research and promoting healthy and sustainable diets.

COP31 presents an opportunity to move beyond incremental improvements and support genuine food system transformation. To achieve greenhouse gas reductions while ensuring long-term food security, Governments should place agroecology at the centre of climate and food policies. Global food security will necessitate us working together to build food systems that are equitable, humane and sustainable in a rapidly changing world.

Image: Valerie Kuypers / World Animal Protection



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We are **World Animal Protection.**

We end **the needless suffering of animals.**

We influence **decision makers to put animals on the global stage.**

We help **the world see how important animals are to all of us.**

We inspire **people to change animals´lives for the better.**

We move **the world to protect animals.**

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