

Taxation of agricultural emissions in combating climate change: The case of Denmark

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Abstract

The agricultural sector is responsible for approximately one-third of global warming pollution, with nearly half originating from the livestock industry. However, until now, governments worldwide have focused their emission reduction efforts more on fossil fuels than the agricultural sector. Although the idea of imposing a tax on agricultural emissions was first proposed by New Zealand in 2022, it was later canceled due to criticism from farmers and a change in government. Nevertheless, Denmark has announced that it will impose a tax on carbon dioxide emissions from livestock starting in 2030, making it the first country in the world to implement a carbon tax on agriculture. Denmark, a significant exporter of cattle, pigs, and dairy products, aims to reduce greenhouse gas emissions by 70% compared to 1990 levels through this tax. The project creates a fresh "Eco Partnership" pact that involves the state, farming industry groups, ecological organizations, and labor unions. This pact includes various actions designed to tackle the environmental and climate effects of the nation's farming industry, such as proposals to implement a greenhouse gas levy on animal emissions. According to the government, Denmark's new initiative will be the first in the world to impose a carbon tax on livestock starting in 2030. Under the new program, livestock producers will initially be taxed at 120 kroner (\$17) per ton of CO₂e, increasing to 300 kroner (\$43) by 2035. The government has stated that the revenue from the livestock tax will be returned to the sector as a transition support fund to facilitate its green transformation between 2030 and 2031, with a review of the revenue allocation planned for 2032. Denmark's historic compromise tax agreement is subject to parliamentary approval. However, political experts anticipate that it will pass with broad consensus. This study will discuss climate taxation in the agricultural sector and provide insights into Denmark's agricultural and climate policies. In this context, the scope of the Green Tripartite Agreement will be examined, and this policy will be evaluated.

Keywords: Taxation, Agriculture, Denmark, Livestock, Climate

JEL codes: H23, S54, S18

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1. INTRODUCTION

As climate change becomes a global issue, the steps taken and the discussions surrounding this topic are increasing. One of the most significant initiatives addressing this problem worldwide is the Paris Agreement, which brings countries together to combat climate change. This treaty urges every country to combat global warming and adjust to its consequences. Approved by 196 members during the UN Climate Summit in Paris on December 12, 2015, the Paris Accord is a legally enforceable global agreement on climate measures. It came into effect on November 4, 2016, with the goal of restricting the rise in global temperatures to under 2°C above pre-industrial levels and aiming to cap it at 1.5°C if feasible (Şahin, 2024).

To meet the primary goal of the Paris Accord—keeping global temperature rise at or below 2°C—greenhouse gas outputs, including those from farming, need to be drastically cut (Searchinger & Waite, 2024). Research suggests that even if fossil fuel pollution were eradicated, greenhouse gases from the worldwide food industry alone would prevent reaching the 1.5°C limit or meeting the 2°C goal (Clark et al., 2020).

Worldwide, the food industry contributes to nearly one-third of all greenhouse gas emissions (Crippa et al., 2021). These emissions stem from farming, livestock activities, and deforestation (CAP, 2024). However, the livestock industry has a more significant environmental impact than other agricultural practices. The United Nations Food and Agriculture Organization (FAO) reported that in 2015, livestock was responsible for about 12% of total global emissions. A significant share of this pollution is due to methane, a potent greenhouse gas released by cattle and other animals through digestion and waste (Ziady, 2024). As a result, cutting emissions from farming and food production is essential to keeping global temperature rise under 1.5°C. Despite this, governmental policies to reduce emissions have prioritized fossil fuels over the agricultural industry (CAP, 2024).

Denmark, however, is on track to introduce the world's first carbon tax for the agricultural

sector. In June 2024, the Danish government reached a historic deal with business and civil society groups, resulting in the Green Tripartite Agreement. This accord was reached following several months of difficult talks. While the proposal to tax farming remains a contention, the Green Tripartite Agreement has received broad backing from the agricultural and business communities (MFAT, 2024).

Accordingly, the main focus of this study is the taxation of agricultural emissions and Denmark's significant agreement on this issue. The study will first discuss the necessity of a climate tax in agriculture and Denmark's objectives within its innovative agricultural and climate policies. Furthermore, the scope of the Green Tripartite Agreement will be examined, along with a general evaluation of this policy.

2. CLIMATE TAX IN AGRICULTURE

The Paris Accord seeks to ensure that the rise in the Earth's average surface temperature remains below 2°C, with an ideal goal of capping it at 1.5°C relative to pre-industrial times (SEFIA, 2021). Achieving this objective requires a swift decline in greenhouse gas emissions. While cutting emissions from fossil fuels is essential, other sources of pollution also create significant challenges in meeting this target (Clark et al., 2020). The global distribution of greenhouse gas emissions by sector, based on Statista's 2023 data, is illustrated in Figure 1 (Statista, 2024a).

Based on sectoral breakdowns, energy consumption (which includes transportation) is the primary driver of human-caused greenhouse gas emissions, totaling 37.6 GtCO₂e and making up 75.6% of global emissions. The energy sector encompasses fossil fuel usage, transportation, power and heat generation, buildings, manufacturing, construction, and fugitive emissions. After the energy sector, agriculture ranks as the second-largest source of greenhouse gases, accounting for 11% of total emissions. In third place are emissions from livestock, farming, and industrial processes such as chemicals, cement production, and other manufacturing activities, contributing 9%. Land use, land-use changes, and forestry operations come in fourth,

responsible for 7% of global emissions (HSE, 2024).

The farming industry is the most significant human-related source of methane, a potent gas with a much greater global warming potential than carbon dioxide (Statista, 2024b). As reported by the U.S. National Oceanic and Atmospheric Administration (NOAA), while carbon dioxide is often the primary focus in climate discussions, methane captures around 87 times more heat over 20 years. Methane emissions from waste

sites, oil and gas extraction, and livestock have surged significantly, particularly since 2020. According to the U.N. Environment Program (UNEP), livestock accounts for approximately 32% of human-induced methane emissions (NPR, 2024). The distribution of global methane emissions by sources, according to Statista’s 2023 data, is shown in Figure 2 (Statista, 2024c).

Methane is released through both human activities and natural processes. It is a potent greenhouse gas estimated to contribute to

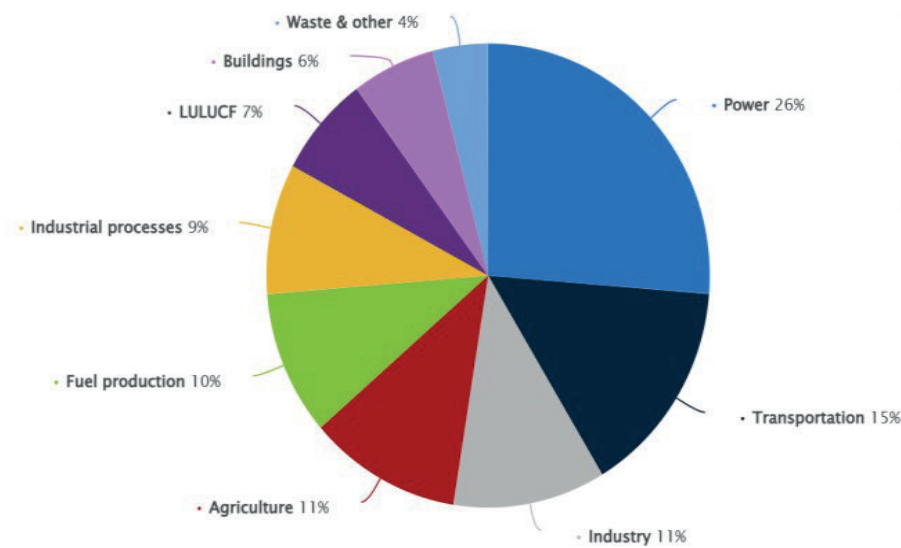


Figure 1. Distribution of greenhouse gas emissions worldwide in 2023, by sector

Source: Statista, 2024a

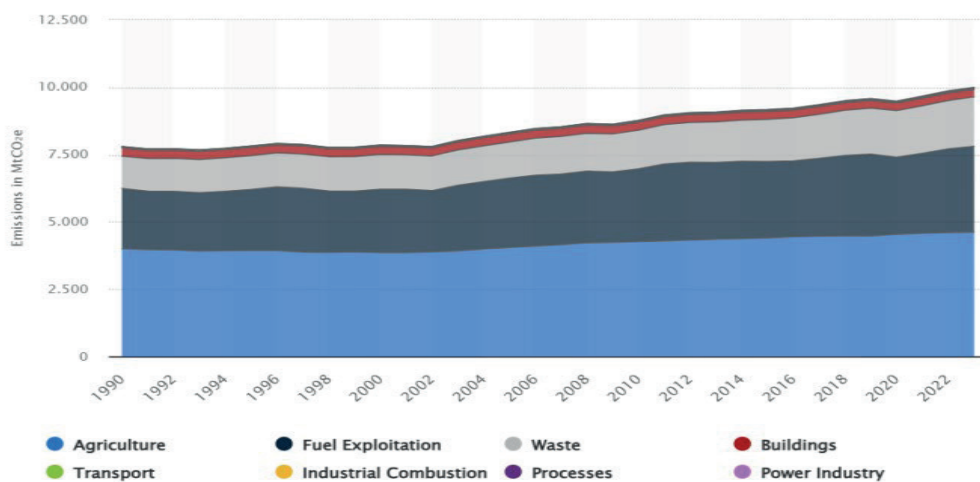


Figure 2. Annual methane (CH4) emissions worldwide from 1990 to 2023, by sector

(in million metric tons of CO₂ equivalent)

Source: Statista, 2024c

roughly 30% of human-caused global warming since the Industrial Revolution (Statista, 2024d). The agriculture industry is the largest source of methane emissions worldwide. In 2023, agricultural activities such as enteric fermentation and manure handling generated 4.6 billion metric tons of CO₂ equivalent in methane emissions, making up nearly 46% of the total methane released that year. Since 1990, methane emissions from agriculture have risen by 15% globally (Statista, 2024c).

Approximately 50% of the emissions from the agricultural food industry come from sources such as rice cultivation, fertilizer use, and soil at the farm gate. However, the main contributor to this segment's most significant increase is livestock activity emissions. Livestock produces approximately four billion metric tons of CO₂ equivalent yearly, making up 6% of global greenhouse gas emissions in 2023 and becoming the world's sixth-largest climate pollutant (Statista, 2024b). Nearly 90% of the methane from livestock comes from digestion, through fermentation, and is released via belching. Cows are responsible for the majority of this methane through their burping. More than 10% of the remaining methane from livestock is produced from manure pits in both pig and cattle operations (NPR, 2024). While agricultural emissions are often seen as "challenging to cut," the sector can use various strategies to mitigate its impact on climate change. In this regard, agroforestry, optimized crop cultivation, and better pasture management through rotational grazing and fertilization help promote cost-effective and sustainable farming approaches (Statista, 2024b).

However, in addition to these practices, implementing taxes to reduce agricultural emissions has also come to the forefront recently. In this regard, the New Zealand government introduced the first-ever tax on agricultural emissions in 2022, targeting methane and other gases released from livestock through belching, urine, and manure. The initiative aims to reach net-zero greenhouse gas emissions by 2050 and implement the agricultural emissions pricing framework by 2025 (Al Jazeera, 2022).

In New Zealand, agriculture contributes to half of the nation's total greenhouse gas emissions, a significantly higher share than the global average, where farming generally accounts for around 7.5% of total emissions. Methane (CH₄) constitutes most of New Zealand's agricultural emissions, primarily from livestock such as sheep and cattle. Therefore, imposing a tax on agricultural emissions has been deemed appropriate (CAP, 2024).

However, intense opposition from farmers led the government to abandon the world's first agricultural emissions tax. The policy sparked widespread debate, with farmers and rural communities in New Zealand staging protests, arguing that it would increase costs and threaten their livelihoods. Some claimed they had already taken steps to cut emissions and that the tax unfairly burdened them compared to other industries. Scrapping the tax marks a setback for New Zealand's ambitious climate targets. Although the country aims to reach carbon neutrality by 2050, emissions from agriculture remain a significant obstacle to achieving this goal (Al Jazeera, 2024).

Meanwhile, Denmark introduced an agricultural emissions tax in June 2024, making it the first nation globally to impose a levy on greenhouse gases from farming (CAP, 2024). This decision follows months of protests from European farmers, who argued that climate policies and regulations pushed them toward financial ruin (NBC NEWS, 2024). Denmark aims to implement the tax by 2030 and gradually increase it by 2035. The country has set an ambitious target to cut emissions by 70% across all industries by 2030. In this context, Denmark's groundbreaking new agricultural and climate policy, which taxes greenhouse gas emissions from livestock, restores nature and pays farmers to reduce nitrogen pollution, stands as the most comprehensive national policy in the world addressing the environmental challenges of agriculture (CAP, 2024). This extensive policy aims to enhance the nation's biodiversity by rehabilitating peatlands and expanding forested areas while reducing nitrogen pollution (Searchinger & Waite, 2024).

3. DENMARK'S INNOVATIVE AGRICULTURAL AND CLIMATE POLICY

Denmark is the second country in the world with the highest share of agricultural land, after Bangladesh (62%), with 59% of its land dedicated to agriculture (Rundgren, 2024). It is a net exporter of agricultural products, particularly pork and dairy, in the Scandinavian-Baltic region and produces three times the amount of food it needs (Denmark, 2024). There are more than 15,000 livestock farms in Denmark, housing millions of cows, pigs, and other animals (Aarhus University, 2023), and it accounts for 7% of Europe's pork production and 4% of its milk production (European Commission, 2025a). This contribution to the global food supply comes with environmental costs. Approximately half of Denmark's agricultural greenhouse gas emissions come directly from enteric methane (cattle burping) and manure management related to meat and milk production (Searchinger & Waite, 2024). As a leading exporter of milk and pork, Denmark recognizes its agricultural industry as the second-largest emitter of greenhouse gases, following the energy sector (Ziady, 2024).

Denmark's most recent national inventory report indicates that the agricultural industry is the country's second-largest emitter of greenhouse gases, following the energy sector. The report highlights that agriculture accounts for roughly 28% of Denmark's total emissions, with methane and nitrous oxide making up over 80% of this contribution. It also mentions that "a large portion" of these emissions comes from livestock farming (Aarhus University, 2023).

Denmark's agricultural emissions stem from methane produced by cows' burps, nitrogen fertilizers, manure spread on the soil, carbon dioxide released from peatland drainage, and various farming activities. In contrast, steps are already being taken to reduce emissions in the energy and transportation sectors. Nevertheless, meeting the emission reduction targets appears unlikely unless agricultural emissions are addressed (CAP, 2024). Furthermore, the country's leading agricultural organization, the

Danish Agriculture and Food Council, has set an ambitious goal of achieving carbon neutrality by 2050 (Searchinger, 2021).

Since 1990, Danish farmers have made some progress by reducing excessive nitrogen use, which helps lower harmful nitrous oxide emissions, and by improving the efficiency of the dairy and pork sectors. Despite some progress, it has not been enough, prompting Denmark to unveil the Green Triple Agreement in June 2024 to tackle emissions, bringing together both environmental groups and the agricultural sector. The World Resources Institute (WRI) states that this pioneering green policy combines regulatory power with substantial government investment to reduce nitrogen pollution, restore peatlands, and enhance biodiversity by planting new forests (CAP, 2024). This agreement, which includes a 40 billion krone (\$6 billion) investment in reforestation and wetland restoration, is designed to help Denmark meet its climate objectives (Ziady, 2024).

4. SCOPE OF THE GREEN TRIPARTITE AGREEMENT

Denmark has agreed to implement the world's first tax on agricultural emissions, including livestock emissions. This agreement, called the Green Tripartite Agreement, was announced in June 2024 after months of discussions between the country's main political parties, industries, farmers, trade unions, and environmental organizations. Under the agreement, starting in 2030, farmers will be required to pay a tax of 300 kroner (43 \$; 40 £) per ton for emissions from livestock, including cows and pigs; this rate will increase to 750 kroner (108 \$) by 2035 (Khalil, 2024). However, with a 60% income tax reduction, the effective cost per ton will initially be 120 kroner (17.3 \$) and rise to 300 kroner by 2035 (NPR, 2024).

In 2030, Denmark will tax greenhouse gas emissions from livestock, including cows, sheep, and pigs. This move will make Denmark the first country globally to levy a tax on the agricultural sector aimed at cutting greenhouse gas emissions and other factors contributing to global warming. Minister of Taxation Jeppe Brus

has emphasized that this agreement will support Denmark's objective of reducing greenhouse gas emissions by 70% from 1990 levels by 2030 (MFAT, 2024). Additionally, one of the goals of the Green Tripartite Agreement is to tackle nitrogen pollution to help restore Denmark's coasts and fjords (Khalil, 2024). The Green Tripartite Agreement, involving the agricultural sector and environmental groups, is based on three key components (CAP, 2024);

a) Livestock Emission Tax: The agreement introduces a progressive tax on emissions from livestock farming that surpass reduction targets. Pork and dairy producers will be exempt from taxes on 60% of the average emissions per animal. Farmers can avoid the tax if they achieve a 40% reduction in emissions compared to current average levels. However, farms will incur a fee of around \$42 per ton of emissions that exceed these averages (carbon dioxide equivalent) in 2030, with the rate increasing to approximately \$108 per ton by 2035. These tax rates are designed to encourage emissions reductions to meet the set targets strongly. The funds raised from this tax will be directed into a pool to assist all producers in cutting their emissions.

b) Incentives to Reduce Nitrogen Pollution: Denmark will compensate farmers with \$100 per ton to cut greenhouse gas emissions (such as nitrous oxide) resulting from nitrogen fertilization of agricultural lands. The country plans to utilize funds from the EU's Common Agricultural Policy (CAP) for this initiative. Nitrogen usage in farming is viewed as one of the primary contributors to pollution in marine, freshwater, and groundwater ecosystems, as well as to overall environmental harm within the EU. Furthermore, Denmark has experienced its second consecutive historical oxygen depletion in its waters this year. As a result, Denmark emphasizes the urgent need to reduce nitrogen pollution and has set a target to cut 13,780 tons by 2027 (Thygesen & Jørgensen, 2024).

c) Promoting Biodiversity and Preserving Carbon: The Green Tripartite Agreement aims to improve nature through land use changes, address biodiversity loss, and enhance coastal ecosystems (Thygesen & Jørgensen, 2024). By

2045, Denmark plans to rehabilitate 140,000 hectares of peatlands drained for agricultural use and create 250,000 hectares of new forests (Khalil, 2024). Approximately 10% of Denmark's land will be converted into carbon-reducing or carbon-storing habitats. Forest restoration efforts will target areas with the highest nitrogen runoff in nearby trees and coastal waters. To support this restoration, Denmark will create a new Green Land Fund with an investment of 40 billion kroner (\$6 billion). Landowners will carry out the changes through voluntary actions under incentive programs. However, experts are questioning whether the incentives for farmers to abandon their land will be strong enough to meet the targets. The agreement also states that if landowners do not implement voluntary regulations, strict nitrogen regulations will come into force by 2027, with the specifics of these regulations to be determined in 2025 (Thygesen & Jørgensen, 2024).

The agreement outlines various climate strategies for farms, covering aspects like fertilizer application and animal feed management. It also specifies that the Danish government will track and explore new climate technologies and methods for the agricultural sector. Another component of the agreement focuses on land use and management. As per the agreement, local authorities will oversee and carry out regional restructuring plans involving coastal water councils and river basin management groups (Dwyer & Quiroz, 2024). Overall, the policy is notably comprehensive; it strikes a balance between agricultural production, emission reductions, and nature restoration (Searchinger & Waite, 2024) and broadly aligns with the WRI 2021 report, which calls for a societal contract leading to carbon neutrality in Danish agriculture (WRI, 2021). Alternatively, the new taxation system, set to be implemented on January 1, 2030, will be grounded in two key criteria (MFAT, 2024);

a) Number of Animals: The tax will be levied exclusively on pigs and cattle. Pigs will be classified as slaughter pigs, piglets, or other pigs, whereas cattle will be divided into 15 categories, including factors such as breed and milk production capacity.

b) Per Animal Emissions: The assessment will consider various factors influencing emissions, such as the age of barns, time spent outdoors, waste management practices, feeding methods, adoption of climate-friendly technologies, and animal feed composition. At this stage, authorities have approved 15 climate-friendly technologies for inclusion in the emission calculations.

Beyond excluding animals other than pigs and cattle, manure use (considering its quality) and small farms constitute the other two important exceptions. The number of animals on each farm will calculate the overall emissions. Farms will use various criteria to assess their total emission reductions based on reference levels from 2024 or 2025, with taxation applied accordingly. Farmers who shift land use from agriculture to forestry will receive a one-time compensation per hectare, estimated at 75,000 DKK (MFAT, 2024). A core principle of the agreement ensures that revenue from the new tax will be placed into a dedicated fund for a minimum of two years to facilitate the sustainable transition of the livestock sector. The use of these funds will be reassessed in 2032 (Niranjan, 2024). This approach allows collected revenues to be redistributed to farmers, gradually alleviating financial pressure through investments in green technology advancements (MFAT, 2024).

This policy complements Denmark's previously announced efforts to increase plant-based protein production (Denmark, 2023) and reduce food loss and waste (European Commission, 2025b). Copenhagen, the capital, which signed the WRI Coolfood Pledge (Coolfood, 2024), has reduced its food supply-related emissions by 25% ahead of the 2025 target by reducing meat consumption and shifting toward plant-based foods. When these efforts are combined, Denmark emerges as a leader in the Produce, Protect, Reduce, and Restore actions, as indicated by the WRI research, which demonstrates that these actions are essential for feeding the growing global population while reducing greenhouse gas emissions and restoring nature (Searchinger & Waite, 2024).

5. TAXING AGRICULTURAL EMISSIONS: A GENERAL ASSESSMENT

The agricultural sector has become a central focus in sustainability and climate policies due to its substantial role in global greenhouse gas emissions and its difficulties in mitigating climate effects. The United Nations Food and Agriculture Organization (FAO) reports that animal-based products such as meat, dairy, and eggs contribute to 34% of global protein intake. In comparison, emissions from livestock represent 14.5% of human-induced greenhouse gas emissions. Additionally, the livestock industry faces multiple environmental concerns, including land and water consumption, deforestation, ethical considerations regarding animal welfare, and long-term sustainability challenges (Segal, 2024).

Denmark, a leading exporter of pork and dairy products, anticipates that agriculture will be responsible for 46% of its total emissions by 2030. Experts predict that introducing a carbon tax will cut 1.8 million tons of these emissions within its first year of enforcement, contributing to Denmark's aim of slashing overall emissions by 70% by 2030 (Ford, 2024). This initiative highlights the impact of setting bold climate objectives. Through the Green Tripartite Agreement, Denmark has effectively united policymakers, the agricultural sector, and environmental advocates, all of whom recognize that achieving the nation's ambitious climate goals is impossible without significant contributions from agriculture and land management (Searchinger & Waite, 2024). Introducing a carbon tax in Denmark's agriculture sector, with the revenue directly allocated to the sector, is seen as a historic development (Thygesen & Jørgensen, 2024). Denmark's well-balanced policy shows other countries how to take real action on agricultural emissions. The policy acknowledges that the European Union (EU) must promote similar climate ambitions to achieve true success. It will also help ensure a level playing field for Danish agriculture and prevent the environmental impacts of food production from spreading to other countries (Searchinger & Waite, 2024).

The policy tools are generally structured to maintain Denmark's climate-efficient agricultural production. The well-designed tax on livestock incentivizes farmers to increase production efficiency rather than reduce production. The policy also includes broader commitments for necessary research and development to sustain Denmark's agricultural production and create a level playing field for Danish agriculture through EU policies (Searchinger & Waite, 2024). The agreement also includes goals to protect nature, restore damaged ecosystems, and create forests and wetlands (Niranjan, 2024).

Denmark's policy was introduced following months of farmer protests across Europe. Many argued that environmental regulations and climate policies were driving them toward financial ruin (NPR, 2024). While Denmark's tax agreement is subject to parliamentary approval, political experts expect it to pass unanimously. Details still need to be worked out, but Denmark is highly determined to manage them. Indeed, the fact that the tax agreement will come into effect in 2030 means farmers will have some more time to adapt to the new requirements (MFAT, 2024).

Arla Foods CEO Peder Tuborgh, who leads Europe's largest dairy cooperative, supported the agreement but stressed that farmers making efforts to cut emissions should not face penalties. Meanwhile, DLG Group CEO Kristian Hundeboll highlighted the importance of ensuring the tax complies with EU regulations to safeguard competitiveness. Peter Kiær, President of the Danish National Association for Sustainable Agriculture, argued that the agreement is purely bureaucratic, cannot solve climate issues, and may even hinder green agricultural investments (Ziady, 2024).

The agreement will undoubtedly have shortcomings in terms of its applicable areas. Its long-term success will depend on its implementation and whether it can bring the necessary structural changes in the agricultural sector. However, this agreement is an important starting point for climate taxation in agriculture, and achieving its goals will not be easy. Denmark has the highest environmental

tax burdens globally, as nearly 10% of its government revenue is derived from ecological taxation (Wier et al., 2005). The introduction of an additional tax on livestock, alongside existing environmental taxes, will inevitably create a reaction mechanism. However, Denmark, which holds a significant share of agricultural land globally, does not ignore agricultural emissions, which considerably impact greenhouse gas emissions. By proposing a carbon tax on agricultural emissions, Denmark targets one of the most significant sources of climate change. The agreement, by committing to promote international efforts that Denmark can help achieve through the EU, represents an important step in this direction and creates a significant model for other countries to develop similar policies (Searchinger & Waite, 2024).

6. CONCLUSION

Emissions from agriculture are a key factor in combating climate change. In this regard, introducing taxes on agricultural emissions and Denmark's landmark agreement is central to our research. The study has yielded the following findings:

- Although carbon dioxide is more significant in climate change, researchers have found that methane gas traps more heat. To meet the targets of the Paris Agreement and fossil fuel goals, governments need to take bold steps in reducing emissions from the agricultural sector.
- 2022 the New Zealand government proposed the world's first agricultural emissions tax. However, the tax sparked serious debates, and farmers' opposition led to its cancellation. This situation highlights the difficulty of addressing climate change in the agricultural sector.
- Despite many protests and opposing views, Denmark became the first country to implement an agricultural emissions tax by signing the Green Triple Agreement. This tax focuses on a major source of methane emissions, a potent gas that plays a significant role in global warming.
- The fundamental idea behind the Green Triple Agreement is that the revenue generated from the new tax will be reinvested into the farming

sector to alleviate financial pressure over time by supporting innovations in green technology.

- According to the agreement, farmers will be taxed 300 Danish kroner (43 dollars) per ton in 2030, increasing to 750 kroner (108 dollars) by 2035. Farmers will also receive a 60% income tax reduction, meaning the actual cost per ton will start at 120 kroner and rise to 300 kroner by 2035. The government will provide subsidies to support regulatory changes in farm activities.
- The policy comprehensively balances agricultural production, emission reduction, and nature restoration.
- With its new agriculture and climate policy, Denmark inspires other countries to create similar policies, starting with those with high agricultural emissions.

On a global scale, agriculture is a major contributor to the climate crisis, responsible for roughly one-third of all greenhouse gas emissions. According to the UN Environment Programme, the livestock sector contributes approximately 32% of human-induced methane emissions, with methane gas from cows and other animals being a key factor. However, governments have been reluctant to address agricultural emissions, often underestimating the sector's impact. One of the primary reasons for this reluctance is undoubtedly the intense protests from farmers and the opposing views of experts. Indeed, New Zealand had to cancel its plan to impose a tax on agricultural emissions starting in 2025 after facing strong resistance from farmers.

However, Denmark has ignored these protests and announced that it will impose a tax on agricultural emissions, with the law set to take effect in 2030. Since Denmark is the largest producer of pork, beef, and dairy in Europe, this policy is crucial for the country. Furthermore, while the country plans to become carbon-neutral by 2050, it acknowledges that emissions from the agricultural sector present a significant challenge to achieving this goal. Denmark is targeting a significant source of methane emissions through its innovative climate policy, one of the most potent gases contributing to

global warming. This policy, which balances agricultural production, emissions reduction, and nature restoration, is comprehensive and is an example for many countries to develop similar policies.

Denmark's tax agreement, viewed as a historic compromise, is expected to pass with broad political consensus despite being subject to parliamentary approval. This new tax aims to reshape the country's agricultural industry after 2030 while addressing climate change. The entire purpose of the tax is to create solutions for reducing agricultural emissions. The Green Triple Agreement, particularly with the carbon tax and significant land-use changes, marks an important step toward a green transition. The policy represents an investment in the future of agriculture. While the agreement is historically significant, its long-term success will depend on its implementation and whether it can bring about the necessary structural changes in the agricultural sector. However, it is undeniable that these innovative steps could serve as a model for other countries aiming to reduce livestock emissions for the climate's benefit.

REFERENCES

- AARHUS UNIVERSITY (2023). *Denmark's National Inventory Report 2023*. Yayın No: 541, Denmark: AARHUS UNIVERSITY.
- AL JAZEERA (2022). New Zealand proposes cow, sheep burp tax to curb emissions [online]. <https://www.aljazeera.com/news/2022/10/11/new-zealand-farmers-to-face-livestock-emissions-charges-under-new>, [Date Accessed: 4/02/2025].
- AL JAZEERA (2024). New Zealand scraps 'burp tax' on livestock after backlash from farmers [online]. <https://www.aljazeera.com/economy/2024/6/11/new-zealand-scrap-burp-tax-on-livestock-after-backlash-from-farmers>, [Date Accessed: 4/02/2025].
- CAP(2024). Denmark is First Country to Tax Agriculture Emissions [online]. <https://climateadaptationplatform.com/denmark-is-first-country-to-tax-agriculture-emissions/>, [Date Accessed: 4/02/2025].

- CLARK, A. M., DOMINGO, G. G. N., COLGAN, K., THAKRAR, K. S., TILMAN, D. LYNCH, J., AZEVEDO, L. I., & HILL, D. J. (2020). Global food system emissions could preclude achieving the 1.5° and 2°C climate change targets [online]. <https://www.science.org/doi/10.1126/science.aba7357> , [Date Accessed: 4/02/2025].
- COOLFOOD (2024). 2023 Climate Impact Report: City of Copenhagen [online]. <https://maaltider.kk.dk/sites/default/files/2024-06/Coolfood%20Pledge%202023%20Copenhagen%20climate%20impact%20report.pdf> [Date Accessed: 6/02/2025].
- CRIPPA, M., SOLAZZO, E., GUIZZARDI, D., MONFORTI-FERRARIO, F., TUBIELLO, F. N., & LEIP, A. (2021). Food systems are responsible for a third of global anthropogenic GHG emissions. *Nature Food*. 2 (March), 198-209.
- DENMARK (2023). *Danish Action Plan for Plant-based Foods*. Denmark: Ministry of Food, Agriculture and Fisheries of Denmark The Department.
- DENMARK (2024). Agricultural Sector [online]. <https://www.trade.gov/country-commercial-guides/denmark-agricultural-sector> , [Date Accessed: 6/02/2025].
- DWYER, O., & QUIROZ, Y. (2024). Denmark is on its way to introducing a world-first tax on greenhouse gas emissions from agriculture in 2030 [online]. <https://www.carbonbrief.org/qa-how-denmark-plans-to-tax-agriculture-emissions-to-meet-climate-goals/> , [Date Accessed: 6/02/2025].
- EUROPEAN COMMISSION (2025a). Denmark – CAP Strategic Plan [online]. https://agriculture.ec.europa.eu/cap-my-country/cap-strategic-plans/denmark_en , [Date Accessed: 6/02/2025].
- EUROPEAN COMMISSION (2025b). Member State Page : Denmark [online]. https://ec.europa.eu/food/safety/food_waste/eu-food-loss-waste-prevention-hub/eu-member-state-page/show/DK , [Date Accessed: 6/02/2025].
- FORD, A. (2024). Denmark sets first carbon tax on agriculture [online]. <https://www.politico.eu/article/denmark-sets-first-carbon-tax-on-agriculture/> , [Date Accessed: 11/02/2025].
- HSE (2024). Ülkelere ve Sektörlere Göre Sera Gazı Emisyonu [çevrimiçi]. <https://www.hseturkiye.net/post/> , [Erişim Tarihi: 4/02/2024].
- KHALIL, H. (2024). Flatulence tax: Denmark agrees deal for livestock emissions levy [online]. <https://www.bbc.com/news/articles/c20nq8qgep3o> , [Erişim Tarihi: 4/02/2024].
- MFAT (2024). *A Green Denmark: First country to tax agricultural emissions*. New Zealand: New Zealand Foreign Affairs & Trade.
- NBC NEWS (2024). Gassy cows and pigs will face a carbon tax in Denmark — a world first [online]. <https://www.nbcnews.com/science/environment/cows-pigs-carbon-tax-methane-denmark-rcna159019> , [Date Accessed: 10/02/2025].
- NIRANJAN, A. (2024). Belching livestock to incur green levy in Denmark from 2030 [online]. <https://www.theguardian.com/world/article/2024/jun/26/flatulent-livestock-to-incur-green-levy-in-denmark-from-2035> , [Date Accessed: 10/02/2025].
- NPR (2024). Gassy cows and pigs will face a carbon tax in Denmark, the first country to do so [online]. <https://www.npr.org/2024/06/27/nx-s1-5021147/denmark-carbon-tax-cows-pigs-farms-worlds-first> , [Date Accessed: 4/02/2025].
- RUNDGREN, G. (2024). The Danish carbon tax for agriculture is no carbon tax at all [online]. <https://www.resilience.org/stories/2024-11-08/the-danish-carbon-tax-for-agriculture-is-no-carbon-tax-at-all/> , [Date Accessed: 11/02/2025].
- SEARCHINGER, T. (2021). How to Make Agriculture Carbon-neutral: Lessons from Denmark [online]. <https://www.wri.org/insights/how-make-agriculture-carbon-neutral-lessons-denmark> , [Date Accessed: 6/02/2025].
- SEARCHINGER, T., & WAITE, R. (2024). Denmark’s Groundbreaking Agriculture Climate Policy Sets Strong Example for the World [online]. <https://www.wri.org/insights/denmark-agriculture-climate-policy> , [Date Accessed: 12/02/2025].
- SEFİA (2021). Türkiye Paris’e Ne Kadar Uzak? Paris İklim Anlaşması’nda çok tartışılan, az bilinen doğrular [çevrimiçi]. <https://sefia.org/blog/turkiye-parise-ne-kadar-uzak-paris-iklim-anlasmasinda-cok-tartisilan-az-bilinen-dogrular/> , [Erişim Tarihi: 4/02/2024].
- SEGAL, M. (2024). Denmark Announces First-Ever Carbon Tax on Agriculture [online]. <https://www.esgtoday.com/denmark-announces-first-ever-carbon-tax-on-agriculture/> , [Date Accessed: 11/02/2025].
- STATISTA (2024a). Distribution of greenhouse gas emissions worldwide in 2023, by sector [online]. <https://www.statista.com/statistics/241756/proportion-of-energy-in-global-greenhouse-gas-emissions/> , [Date Accessed: 4/02/2025].
- STATISTA (2024b). Agriculture emissions worldwide - statistics & facts [online]. <https://www.statista.com/topics/10348/agriculture-emissions-worldwide/#topicOverview> , [Date Accessed: 4/02/2025].

STATISTA (2024c). Annual methane (CH₄) emissions worldwide from 1990 to 2023, by sector [online]. <https://www.statista.com/statistics/1298494/annual-global-methane-emissions-by-sector/>, [Date Accessed: 4/02/2025].

STATISTA (2024d). Total methane emissions worldwide as of 2023, by source [online]. <https://www.statista.com/statistics/1423661/global-sources-of-methane-emissions/>, [Date Accessed: 4/02/2025].

ŞAHİN, Z. (2024). Yeşil Aklama Sözlüğü: Paris Anlaşması nedir? [çevrimiçi]. <https://teyit.org/teyitpedia/yesil-aklama-sozlugu-paris-anlasmasi-nedir>, [Erişim Tarihi: 4/02/2024].

THYGESEN, L. K., & JØRGENSEN, N. S. (2024). Is Denmark's Green Tripartite Agreement really as groundbreaking as it claims? [online]. <https://rgo.dk/is-denmarks-green-tripartite-agreement-really-as-groundbreaking-as-it-claims/>, [Date Accessed: 11/02/2025].

WIER, M., PEDERSEN, K. B., JACOBSEN, H. K., & KLOK, J. (2005). Are CO₂ taxes regressive? Evidence from the Danish experience. *Ecological Economics*. 52(2), 239-251.

WRI (2021). A Pathway to Carbon Neutral Agriculture in Denmark [online]. <https://www.wri.org/research/pathway-carbon-neutral-agriculture-denmark>, [Date Accessed: 6/02/2025].

ZIADY, H. (2024). World's first carbon tax on livestock will cost farmers \$100 per cow. *CNN Business*. 27 June 2024. <https://edition.cnn.com/2024/06/26/business/denmark-cows-carbon-tax/>, [Date Accessed: 10/02/2025].