Politechnika Częstochowska

Wydział Inżynierii Mechanicznej

Road Transport of Live Animals in the EU: Challenges in Worker Safety and Animal Welfare

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Introduction

- Between 2017 and 2021, over **1.5 billion live animal transports** were registered within the EU, with **86% being intra-EU** shipments.
- Animal transport within the EU is primarily driven by **economic factors**, such as differences in **production** and **slaughter costs**.

https://www.topagrar.pl/articles/zdrowie-bydla/ruszyly-kontrole-transportu-zwierzat-na-granicy-zwolano-sztaby-kryzysowe-2525429

Introduction

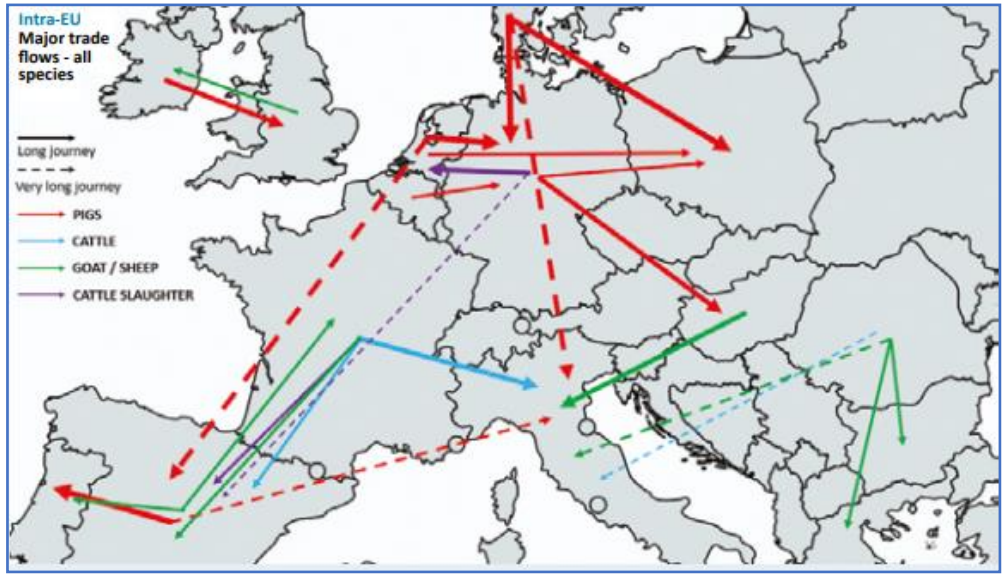
- Transport has an impact on **CO_2 emissions** (**15% from road transport**) as well as animal welfare and worker safety.
- During transport, animals are exposed to **stress** and **injury**, and improper handling increases the **risk of accidents**.

https://www.bankier.pl/wiadomosc/Organizacje-prozwierzece-chca-zakazu-transportu-zywych-zwierzat-na-duze-odleglosci-8130591.html

Aim of the study

The aim of the study is to analyze the impact of animal transport on their welfare and worker safety, as well as to identify potential solutions for optimizing transport processes in the context of EU regulations and technological advancements.

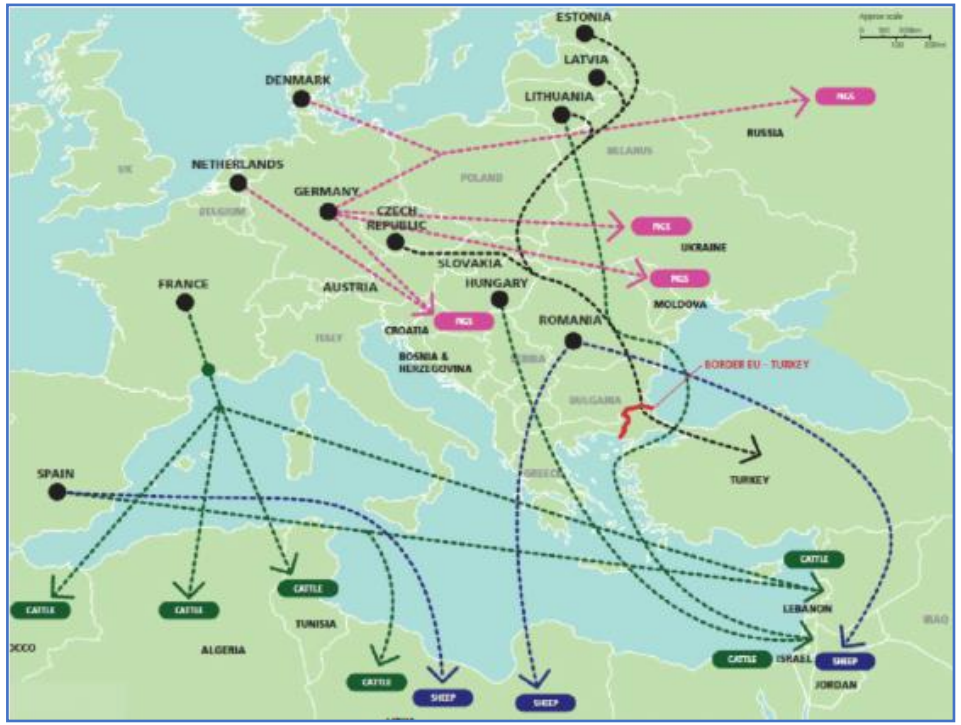
Major exporters and routes in live animal transport



https://www.eurogroupforanimals.org/files/eurogroupforanimals/2020-12/Eurogroup-for-Animals_A-strategy-to-reduce-and-replace-live-animal-transport.pdf

- ❑ The **European Union** accounts for **73%** of **global live animal** transport.
- ❑Leading exporters include **Netherlands**, **Germany, Belgium,** and **Poland**.
- ❑**Poland** is a significant producer of **livestock**, particularly **pigs, cattle**, and **poultry**, exporting primarily to **Germany** and **Netherlands**.

Main routes of live animal transport



https://www.researchgate.net/figure/Main-transport-routes-for-extra-EU-live-animal-transport_fig3_353017801

- **38-62%** of transports are **short journeys** (up to 8 hours), and **13-46%** are **long journeys** (8-24 hours).
- **70%** of animals are transported by **land**, primarily to **slaughterhouses (65%)**, followed by **breeding (22%)** and **recreational purposes (13%)**.
- The transport route between the **Netherlands and Germany** is particularly intensive, especially for **pigs**, due to differences in production costs and market demand.

Notable export markets

- **Romania** is a leading exporter of **sheep and goats**, driven by high demand in the **Middle Eastern markets**.
- **Germany** plays a key role as a **poultry exporter**, with substantial shipments directed to the **Netherlands**, which serves as a major distribution hub.
- **France** is a major exporter of **cattle**, particularly to **Italy**, with a strong focus on **beef production** for international markets.

https://asstra.pl/aktualnosci/aktualnosci-asstra/2018/07/kopyto-za-kopytem/

https://weanimals.org/project/live-export-the-longest-journey/

Legal framework for animal transport in the EU

- The transport of animals within the European Union is regulated by **Council Regulation (EC) No. 1/2005** of December 22, 2004, which sets out the rules for the **protection of animals during transport**.
- **Carriers must have** the appropriate **authorizations** issued by the competent authorities, as well as **documents** containing information on the **origin of the animals**, **their destination**, and the **planned travel time.**
- **Long-distance transport** may last a **maximum of 8 hours**, with the **possibility of extending** it to **24 hours**, provided **additional** requirements are met, such as **rest** for the animals and **access** to **water and food** (Article 3, 4 of Council Regulation (EC) No. 1/2005).

Transport conditions and technical requirements

- **Transport vehicles** must meet detailed technical requirements, such as temperature control **systems ensuring a range of 5°C to 30°C**, **ventilation, and automatic watering systems**. Vehicles should also be **equipped with partitions** to **separate animal** groups and ensure stability during transport.
- **Short-distance transport** (up to 65 km) or transport **not related to business activities** (e.g., transporting pets) is exempt from certain formal requirements.
- The **transport vehicle must be equipped** with a **water** source that ensures quick access to water for all animals during the journey.

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Challenges in live animal transport

Transport duration and animal interactions

- **Mixing unfamiliar animals** increases **aggression** and **stress**.
- **Overcrowding** restricts movement, leading to **fatigue**, **injuries**, and **unloading difficulties**.
- **Insufficient stocking** density **reduces stability**, **increasing** the **risk** of **falls** and **collisions**.
- **These factors increase** the for workers involved in animal handling, **risk of occupational injuries**

https://dudanatural.pl/pl/p/Sciolka-wiorowa-trociny-do-transportu-zwierzat-15-x-23-kg/91

Transport practices and worker safety

Effects of handling and driving techniques

- **Reducing noise** and **minimizing stress** stimuli lowers cortisol levels, **improving animal welfare** and **reducing panic responses**.
- **Sudden acceleration**, **braking**, and **sharp turns destabilize animals**, increasing the risk of falls, injuries, and trampling.
- **Handling distressed animals** during transport exposes workers to a **higher risk of injuries**.

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Transport infrastructure and environmental conditions

Effects of vehicle design and transport conditions

- **Inadequate loading ramps** and **poorly designed facilities** increase animal fatigue, stress, and risk of aggressive behavior.
- **Modern trailers** equipped with **lift systems** improve both animal welfare and worker safety.
- **Inadequate ventilation, overcrowding**, and **extreme temperatures** contribute to **heat stress**, **injuries**, and **mortality** among animals, which in turn create **additional risks for transport workers**.

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Impact of transport vehicle design on animal welfare and worker safety

Effects of vehicle design and transport conditions

- ❑ **Stressful loading process** affects animal welfare and **worker safety**.
- ❑ **Proper flooring** and **ramps** prevent slipping, tipping, or restraining animals.
- ❑ **Ramps should** be **designed** with the correct **slope** to ensure safe animal entry:
- ✓ 20° for pigs, heifers, horses.
- ✓ 34° for sheep and cattle.
- ❑ Using **lifts instead of ramps** can **reduce** the **risk** of injury to both animals and workers.

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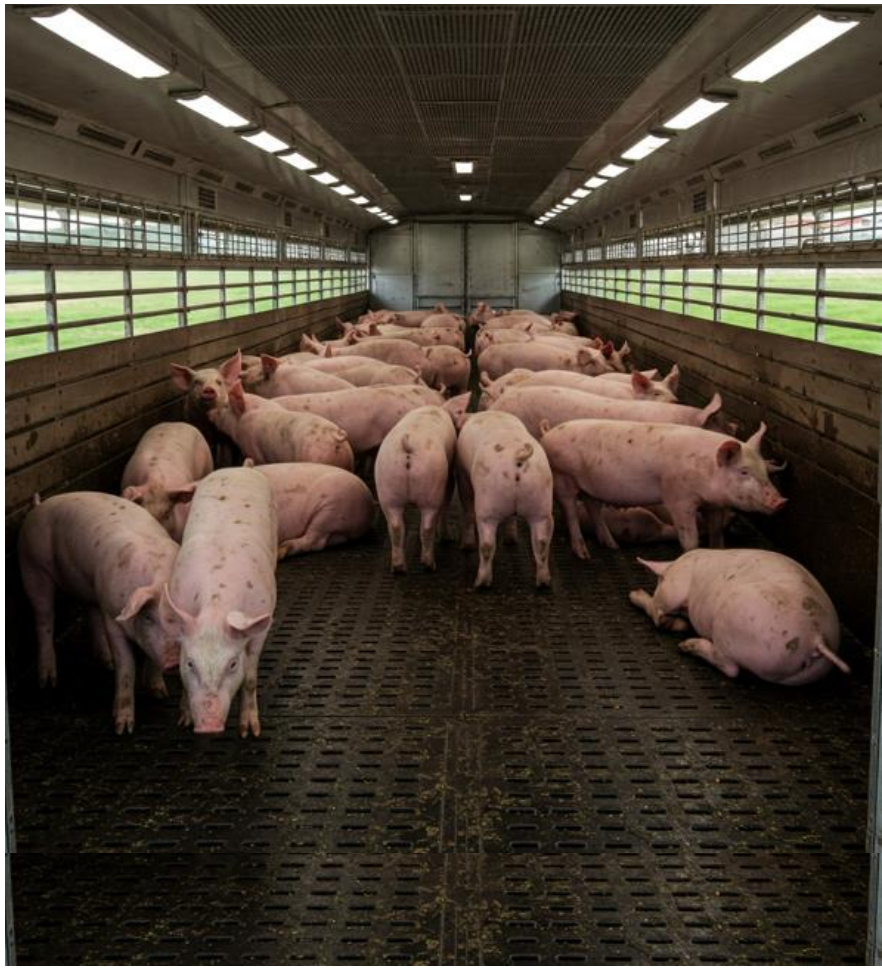
Impact of transport vehicle design on animal welfare and worker safety

Optimal transport conditions

- **Proper partitions** in transport vehicles **prevent aggression** between animals, **reducing the risk** of **injuries and stress** for both animals and workers.
- **Vehicles must be designed** to provide **adequate space** and **stability** for animals, which is essential for their welfare during transport and the **safety of the workers involved**.
- **Vehicles** should be **equipped with non-slip floors** to **prevent animals from slipping**, while also improving workplace safety for the staff.
- Vehicles **must be equipped** with **ventilation systems** and **devices** for **monitoring temperature** and **humidity**.



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Perspectives for the road transport of live animals in the EU

Challenges of live animal transport in the EU

- **Live animal transport** is associated with many controversies, particularly concerning **the stress, pain, and injuries animals** may experience during long journeys.
- **Social pressure** is **increasing** to improve the **conditions of live animal transport**, leading to more **stringent regulations** in the **EU** that impose requirements regarding animal comfort and welfare.

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Perspectives for the road transport of live animals in the EU

Challenges of live animal transport in the EU

- **Live animal transport** also has a significant impact on the **natural environment**, **contributing to greenhouse gas emissions**. Transporting **animals over long distances** generates a **higher carbon** footprint than **transporting processed products**.
- The **European Union** aims to **reduce live animal transport** by **promoting the transportation of processed products** as a more sustainable alternative, which aligns with the goals of the Green Deal.

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Perspectives for the road transport of live animals in the EU

Sustainable transport solutions for the future

- **Transporting meat** has a **lesser environmental impact** compared to **transporting live animals**.
- The EU **plans to integrate environmental costs** into transport pricing to incentivize eco-friendly logistics solutions.

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Perspectives for the road transport of live animals in the EU

Sustainable transport solutions for the future

- Use of **artificial intelligence** and **route planning algorithms** to optimize travel distances, **reducing stress** and costs for animals.
- **Sensors monitoring animal health parameters** (e.g. body temperature, heart rate) **allow real-time** adjustment of transport conditions, improving animal welfare.

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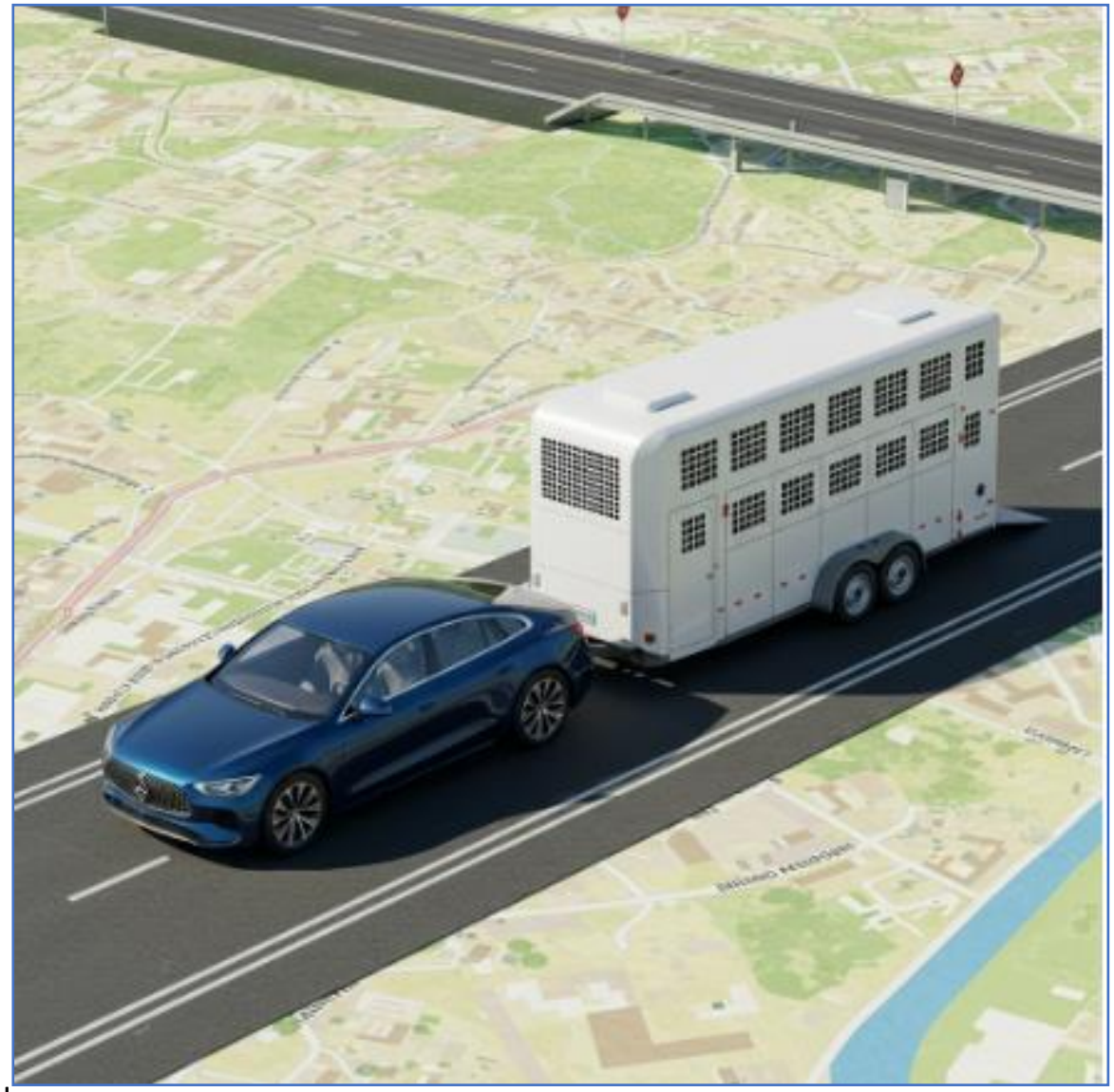
Perspectives for the road transport of live animals in the EU

To **meet demand for local products** and **enhanced animal welfare**, companies will **need to limit long-distance transport**, invest in **new technologies**, and focus on processed product transport.



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Conclusions

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Reducing stress and improving workplace safety

- **Appropriate loading** and **unloading** conditions are crucial for **reducing stress** in **animals** and **improving worker safety**.
- **Avoiding noise** and **sudden movements** during loading and unloading directly benefits **animal welfare** and **worker safety**.
- **Proper conditions** during transport **reduce** the **risk of injuries** to both animals and workers.

Conclusions

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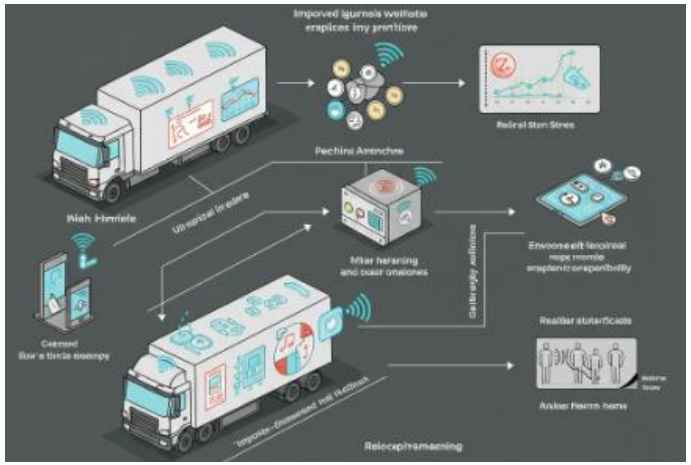
The importance of animal density in transport vehicles

- Proper **stocking density** in vehicles is essential **to ensure animal welfare** and **worker safety**.
- **Excessive stocking density** restricts movement, while too **much space destabilizes animals**, increasing the risk of injury.
- **Maintaining adequate space** improves **control** over animals and **reduces worker injuries**.
- **Poorly designed vehicles**, such as **defective ramps** or inadequate ventilation, **negatively impact** animal welfare and safety.

Conclusions



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Implementing technology for safer and more sustainable transport

- Artificial **intelligence-based monitoring systems** can **assess animal welfare** in **real-time**, enabling adjustments to **minimize stress** and **prevent injuries**.
- **Modernizing transport infrastructure** (e.g., ramps, ventilation) is **necessary** to **enhance safety** and animal welfare.
- **Land transport of animals** contributes to **pollution emissions**, highlighting the **need for more sustainable solutions**, such as route optimization, to meet climate goals.


Thank you

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