Water Europe
Technology & Innovation

Water Use and Needs in Livestock

Loïc Charpentier, Water Europe

Water and Livestock



Supply risk

Drought and seasonal water shortages affect feed production and farm operations.

Quality risk

Nutrients, pathogens and other pressures affect water bodies and treatment needs.

Climate risk

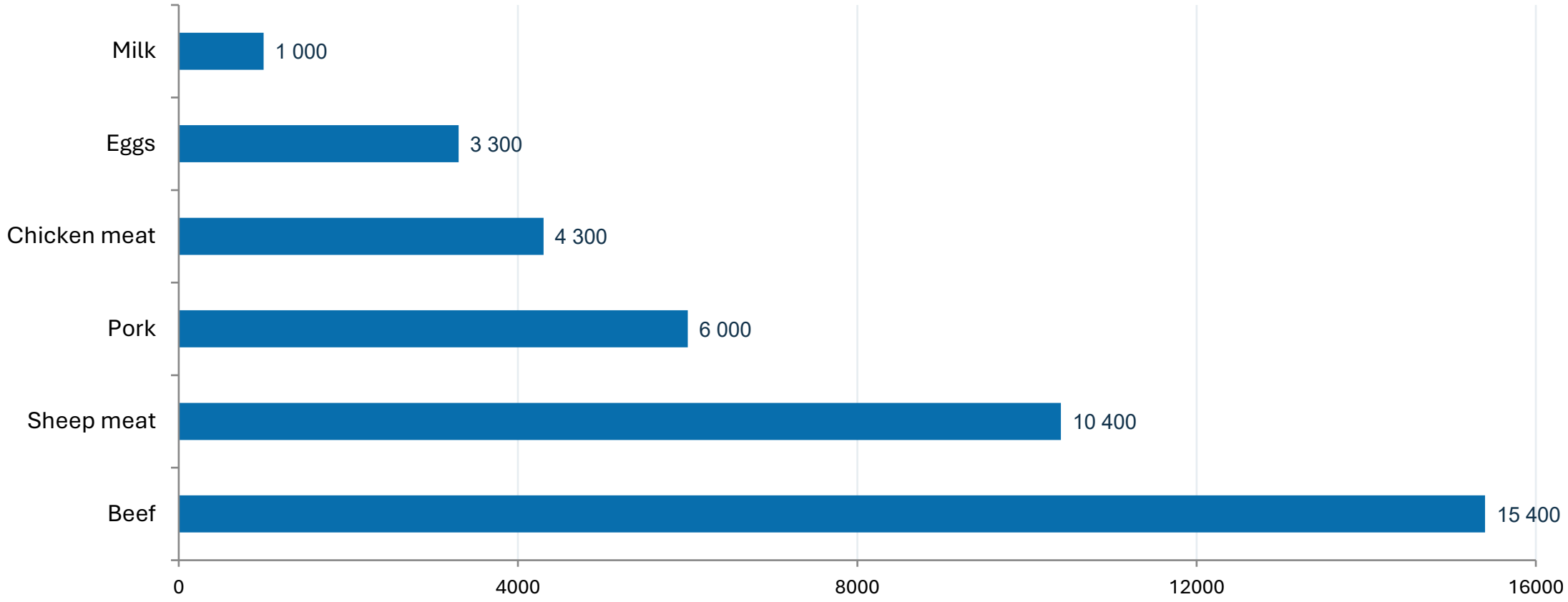
Heat stress raises animal water needs and changes pasture and feed conditions.

Business risk

Water availability and investment costs affect resilience and competitiveness.

Livestock Water footprint

Global average, litres per kilogram of product — including green, blue and grey water

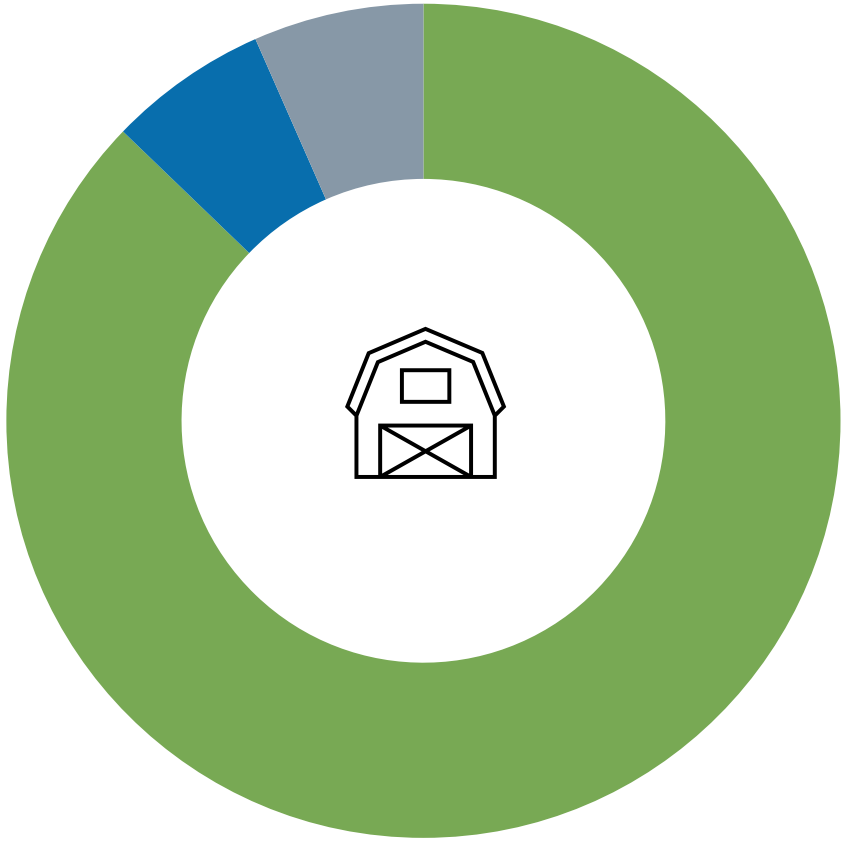


Historical global averages (1996–2005) · Not measures of current EU consumption

Mekonnen and Hoekstra (2012)

Livestock Water footprint

Global average water footprint of animal production, by component



87.2% GREEN WATER

Rainwater used by feed crops and pasture

6.2% BLUE WATER

Consumed surface water and groundwater

6.6% GREY WATER

Theoretical water volume related to pollution

Historical global averages (1996–2005) · Not measures of current EU consumption

Mekonnen and Hoekstra (2012)

Who are we?

Europe's leading multi-stakeholder platform advancing the transition towards a Water-Smart Society & Economy

Established by the European Commission as the European Technology Platform (ETP) for Water to:

- Improve **coordination and collaboration** in the water ecosystem in the EU and beyond;
- Enhance **performance and competitiveness** of the water ecosystem;
- Contribute to solving **global water challenges** through RTD&I.

Organisational identity:

- **Multi-stakeholder association** representing the European water ecosystem across the entire water value chain
- **Purpose- and values-driven association** guided by the vision of a Water-Smart Society & Economy
- **Unique organisational identity** that combines and goes beyond the roles of a think tank, trade association, and civil society organisation

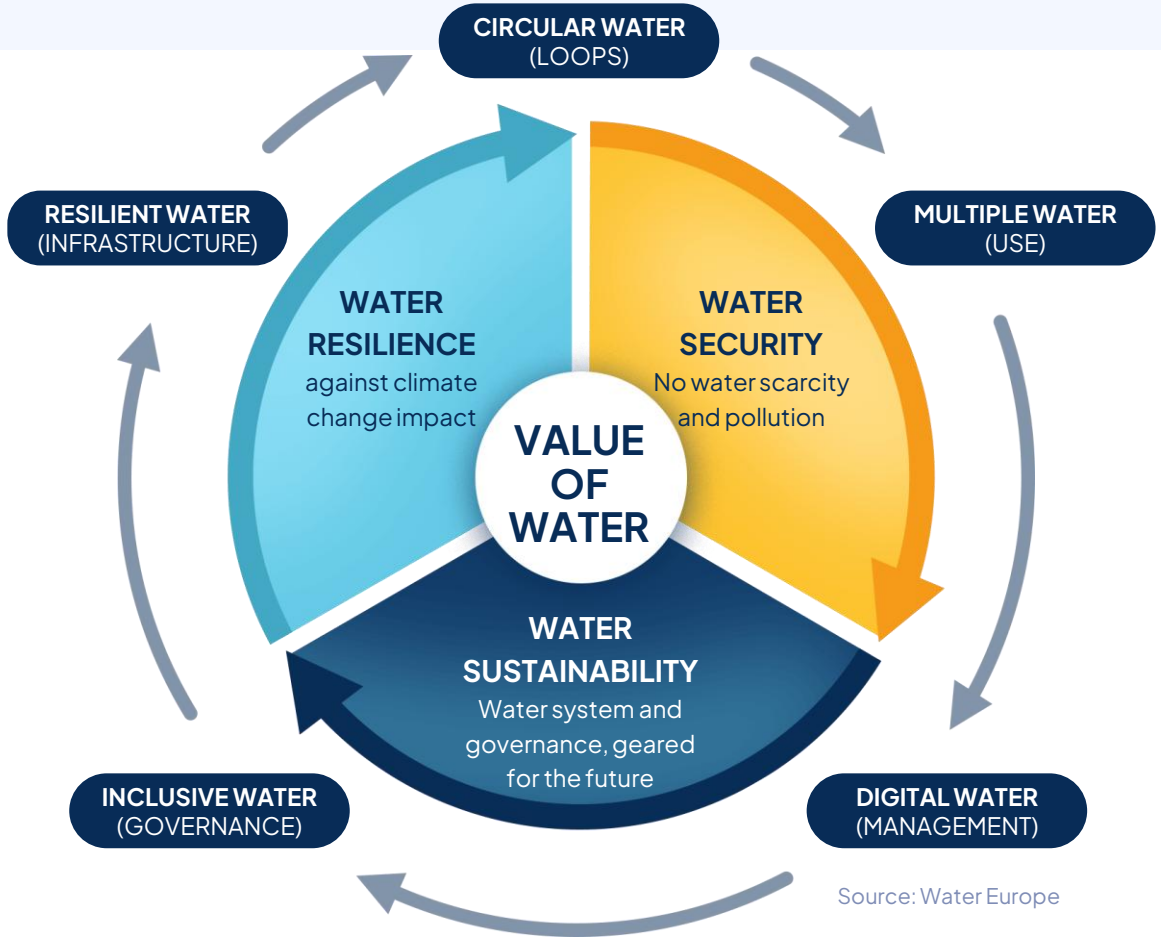


College A: Multinational corporations
College B: Research & Technology developers
College C: Utilities
College D: Suppliers & SMEs
College E: Large water users
College F: Public Authorities
College G: Civil Society Organisations

Water Vision

Water-Smart Society:

- A society in which the **value of water** is recognised and realised to ensure water security, sustainability, and resilience.
- all available water sources are managed so **that water scarcity and pollution** are avoided.
- water and resource loops are largely closed to foster **a circular economy and optimal resource efficiency**.
- the water system is resilient against the **impact of climate and demographic change**.
- all relevant stakeholders are engaged in guaranteeing sustainable **water governance**.



Source: Water Europe

Water-Smart Economy

The economic dimension of a Water-Smart Society: an economy in which the full value of water and the integrity of the hydrological cycle are recognised and embedded in decision-making, with water recognised as a strategic asset that enables sustainable prosperity, competitiveness, security, societal well-being and environmental resilience.

EU Water Resilience Strategy

≥10%

EU ambition to improve water efficiency by 2030

Measurement

Develop comparable metrics sensitive to geography and season.

Investment

Support farm-level deployment and water-smart infrastructure.

Coordination

Align agriculture, water policy, catchment authorities and innovation.

From Efficiency to Resilience

1	**PROTECT**	Healthy soils, catchments, water bodies and ecological flows
2	**REDUCE**	Avoid losses; monitor use; improve feed and irrigation efficiency
3	**REUSE**	Safely recirculate suitable water and valorise process streams
4	**PREPARE**	Plan for drought, heatwaves and competing demand

Innovation Opportunities

On the farm

Smart meters and leak detection
Climate-adapted animal housing
Soil moisture and grazing management

Feed & farming systems

Precision irrigation where justified
Alternative feed ingredients
Crop rotations and drought-resilient fodder

Processing & circularity

Water audits and fit-for-purpose reuse
Resource recovery
Water-energy efficiency

UniversWater

UNIVERSWATER

- **Project title:** Universal Interoperative Sustainable Agri-Water Management Platform
- **Start and end date:** 1 June 2024 – 30 November 2027

- **Abstract:** The UNIVERSWATER project enhances agricultural water management by integrating portable sensors, earth observation imaging, and AI-driven decision support systems (DSSs). It develops cost-effective water remediation solutions and optimizes water use across three case studies: dairy farm wastewater treatment, soil salinization mitigation, and pesticide/fertilizer application. The project aims to create a modular, adaptable DSS for sustainable water resource management.
- **Use cases:** 3 use cases; Italy, Ireland and Greece
- **Total EC contribution:** €5,996,597.75
- **Project coordinator:** University College Cork - National University of Ireland, Cork, Ireland
- **Project website:** www.universwater.eu



NPower

NPOWER
BALANCING N & P FLOWS

- **Project title:** balancing Nitrogen and Phosphorus flOWs by budgEting at Regional scale
- **Start and end date:** 1 January 2025 – 31 December 2028

- **Abstract:** The NPower project optimizes nitrogen and phosphorus (N/P) management at the regional level by developing solutions to reduce emissions and rebalance nutrient flows. It demonstrates N/P recovery technologies, replicates best practices, and implements governance measures. With regional clusters in Spain, Belgium, Finland, and Ireland, the project ensures its solutions apply across diverse European environments, benefiting key economic sectors.
- **Regional clusters:** 4 clusters: Spain, Finland, Belgium, Ireland
- **Total EC contribution:** €8,953,480.25
- **Project coordinator:** ASOCIACION EMPRESARIAL CENTRO TECNOLOGICO DE LA ENERGIA Y DEL MEDIO AMBIENTE DE LA REGION DE MURCIA, Spain
- **Project website:** www.npower.es



GEORGIA

- **Project title:** Green dEal cOmpliant iRriGation Increasing Europe's Agriculture resilience to drought
- **Start and end date:** 1 February 2025 – 31 January 2028

- **Abstract:** The GEORGIA project enhances agricultural resilience to drought by improving water management efficiency. It explores innovative irrigation systems, including sewage sludge recycling, biowaste reuse, and water-absorbing geocomposites. Using AI-driven decision support, drone-based monitoring, and in-situ sensors, it tests solutions across seven pilot sites in six countries, involving 1,200+ farmers in both conventional and organic farming to ensure sustainable water use.
- **Pilot Sites:** 7 pilots in Greece, Cyprus, Bulgaria, Serbia, Austria, Poland
- **Total EC contribution:** €4,970,932.24
- **Project coordinator:** SYNELIXIS LYSEIS PLIROFORIKIS AUTOMATISMOU & TILEPIKOINONION ANONIMI ETAIRIA, Greece
- **Project website:** Not yet



The Future Water Resilience Strategy

Water Resilience Initiative 2.0

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01 Measure impact, not just volume

Distinguish water sources and assess scarcity, seasonality and quality.

02 Invest in practical transition

Combine efficiency, ecosystem protection, circularity and adaptation.

03 Build solutions across sectors

Coordinate farmers, feed suppliers, processors, water actors and policymakers.