Re-Livestock
RESILIENT FARMING SYSTEMS

PRACTICE ABSTRACT 15
Assessment of farm animal welfare under climate change scenarios

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WP5: Re-Assessment of livestock farm systems

Climate Change and Livestock: Complex Impacts

The relationship between **climate change** and **livestock farming** is complex and affects animals differently in different systems. E.g., **intensive dairy cows** with high metabolic-heat production will likely be at risk of **heat stress** at lower temperatures compared to cows in a low-input system.

However, a **grazing cow** may not have access to **shade/cooling** and be at greater risk of diseases associated with **direct solar radiation** (Figure 1).
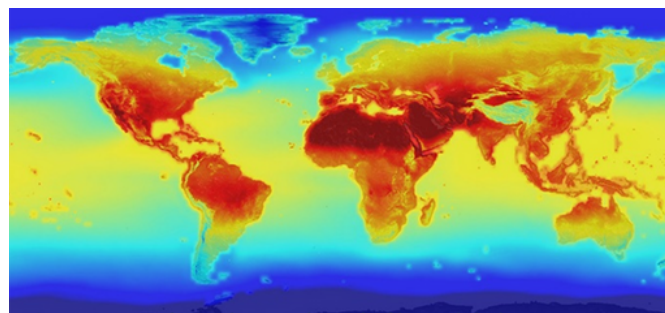

Figure 2. NASA's predictions (2015) of how global temperature might change under different emissions scenarios. (Credit: NASA)

This task aims to evaluate the impact of **climate change** on **animal welfare** by identifying **hazards** and **risks** in a range of **farming systems** across various climatic conditions. It will cover different regions, evaluating them against modelled scenarios of climate change. Specifically, we plan to collect data from five European weather stations, each representing a distinct climate zone (such as 'hot and dry' and ' cold and wet'), and to model climate change scenarios until 2100.

Figure 1. Dairy cows seeking the shade of a tree on a hot day. (Credit: Lindsay Whistance)

Assessing Climate Change Impacts on Animal Welfare

In the face of increasingly challenging weather patterns, understanding these dynamics is **crucial** for developing strategies that promote good **animal welfare** alongside sustainable and resilient food production (Figure 2).

We will analyse how projected climatological changes relate to animal welfare, using relevant welfare indicators from existing literature. We will then explore strategies to mitigate impacts including assessing the innovative practices in **feeding**, **breeding, management** and systems that are being tested in the Re-Livestock project for their ability to address identified risks to welfare. Furthermore, we will delve into the role of **Precision Livestock Farming (PLF)** in climate mitigation, exploring its potential to minimize climate-related animal welfare hazards and consequences.