

THEMATIC NETWORK CREA

Research and Innovation Platforms and Infrastructures

NOME DELLA PIATTAFORMA / INFRASTRUTTURA

The Monterotondo Research Station



The infrastructure is configured **as a true open-air living lab** aimed at technological innovation, ecological transition, and the improvement of animal welfare.

Its main features include:

- **Field Experimentation:** Large expanses of land and livestock facilities dedicated to the monitoring and scientific breeding of various species, including cattle, buffaloes, chickens, and Lipizzaner horses.
- **Environmental Sustainability:** Advanced systems to study the reduction of the environmental impact of animal husbandry, feed optimization, and emission management.
- **Genetic Research and Welfare:** Hi-tech laboratories and barns where researchers apply technologies to track animal health, preserve biodiversity, and improve the final quality of food products (From Farm to Fork strategy).

The research themes are:

- **Individual Monitoring and IoT:** Utilizing sensors that constantly track environmental, physiological, somatic, and behavioral parameters in real time.
- **Prevention and Welfare:** Advanced algorithms analyze deviations from standard benchmarks. This allows for the early detection of pathologies before they manifest clinically, reducing antibiotic use and animal stress.
- **Precision Feeding and Emission Mitigation:** One of the primary research lines of CREA Animal Husbandry and Aquaculture involves dietary manipulation and precision feeding. By studying the rumen microbiology of buffaloes, researchers optimize feed rations to improve digestibility. This reduces enteric fermentation

and, consequently, **lowers methane emissions into the atmosphere.**

- **Behavioral Analysis via Audio and Video:** Utilizing artificial intelligence systems coupled with cameras and directional microphones.

Within the research activities, improving and monitoring the **quality and safety of final products** (milk and meat) is the direct result of applying Precision Livestock Farming (PLF) and sustainable nutrition. The applied scientific philosophy follows the European **"From Farm to Fork"** approach: an animal living in an optimal state of welfare and receiving a balanced diet produces healthier, more nutritious, and safer food.

CREA Centre	CREA-ZA	Premises	Monterotondo (RM)
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Parole chiave / ambiti di applicazione: PLF, LMD, welfare, emissions, laser methane detector, sustainability			

Nota per la compilazione: la scheda deve restare entro una pagina A4. Eliminare le parti tra parentesi quadre e sostituirle con i contenuti definitivi.