



### Nitrogen flows in livestock farming systems: Reduce losses, restore balance

The development of animal production is currently a subject of great debate. The evolution of diets, in Asia in particular, has increased the demand for animal products. At the same time, there is growing concern within the international scientific community regarding the associated environmental impact, as animal production is a significant consumer of land and resources and a potentially large emitter of pollutants.

Nitrogen flows represent an interesting way to consider this debate. Livestock farming systems have a major role in nitrogen flows and their resulting potential impacts on the environment. The traditional model for the agronomic cycling of nitrogen (feeding animals which release nitrogen in the form of associated food products and manure, the latter of which is the main source of nutrients for the crops) no longer holds because synthetic fertilizers have allowed for the abundant availability of nitrogen without a reliance on animals.

In this context, the French Ministries of Ecology and the Agriculture requested a synthesis on the scientific state of knowledge on the balances and flows of nitrogen connected to livestock farming systems. The requirements were to make available to decision makers and stakeholders the scientific knowledge on these flows and their fate, and to identify options to reduce nitrogen pressure on the environment. To achieve this, a collective scientific assessment was performed by a multidisciplinary panel of experts which drew the current situation of nitrogen pressure; explained the social and economic causes of the territorial variability; quantified the flows on farms; looked at indicators and regulation instruments and finally identified options for reducing nitrogen pressure.

This *Advances in Animal Biosciences* Special Issue arises from the extended summary report of this scientific assessment.

