

# Power to the pellet: challenges in the circular agriculture

**To replace cereals in animal feed with less sticky co-products from circular agriculture, there is an urgent need to find out how animal feed pellets stay intact, from factory to animal. In *Pelleting in the circular agriculture*, a unique Wageningen based collaboration of experts from animal science, process technology, and physics are investigating how to make sustainable animal feed and give power to the pellet.**

Pelleted animal feed contains a large share of cereals. To further move to a circular agriculture, more co-products should be used to feed animal like pigs and chickens. Replacing cereals in animal feed is challenging, because besides providing nutritional value, the cereals also make the pellets stronger.

## **Pelleting in the circular agriculture**

The *Pelleting in the circular agriculture* (PCA) project is looking at how to include more co-products from agriculture and human food industry in pelleted feed. Examples are co-products that are released during the production of food or biofuels or that come from discarded foodstuffs. These co-products have other physical and chemical properties than complete cereals.

Menno Thomas from Zetadec, co-coordinator of the project: "The main problem of replacing cereals by co-products in pellet feed is that such modifications weaken the pellets, making them brittle. This leads to losses throughout the entire chain, from production and transport to storage, and even in less nutrition during the feeding pigs and chickens. The challenge is then to find new ways to incorporate these co-products into animal feed."

## **Microscopic level**

This project provides insight at a microscopic level into the physical and chemical properties of animal feed. For this, the researchers use a mix of 3D imaging and mechanical measurements.

Joshua Dijkman, assistant professor at Physical Chemistry and Soft Matter at Wageningen University & Research: 'During the production of animal feed, basic

ingredients are mixed, after which moisture and heat are added. The mixture is then pressed into pellets. We will study all these stages of production in-depth and look at how we can optimize the process for processing co-products in animal feed. The aim is to discover how we can make high-quality feed pellets of the future, without having to use cereals'.

## **Workshops**

PCA uniquely aims at combining fundamental and applied sciences by relating studies at microscopic level to those on pilot factory level. However, there is another unique feature about this project: the research findings are actively disseminated to (young) feed professionals via workshops organised by Feed Design Lab and e-learning modules developed by educational professionals of Aeres Training Centre International.

Project co-coordinator Guido Bosch from Animal Nutrition Group at WUR: "In this way we believe that we can provide feed manufacturers with new knowledge and tools that allow them to make their feeds more fit for the circular agriculture."

In this public-private collaborative project, Wageningen University & Research works together with a host of partners and from across the sector: Zetadec, Agrifirm, DSM, Elanco Animal Health, Phileo by Lesaffre, Pelleting Technology Netherlands, VICTAM Foundation, Feed Design Lab and Aeres Training Centre International.

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### NOTE FOR THE EDITOR

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