



## Agri-food industry by-products and functional additives for pigs feeding

### APPLICABILITY

#### Theme/Keywords

By-products, agri-food industry, food waste materials, nutrition, pig

#### Context

Animal growth performance and meat quality improvement

#### Geographical coverage

Worldwide

#### Required time

Time needed to prepare animal feed mixture and possible purchase/preparation of feed additives

#### Period of impact

Whole production, i.e. grower and finisher phases (fattening period)

#### Equipment

Feed mixers

#### Best in

Conventional husbandry, but applicable in all systems: intensive, extensive and organic production

#### Problem

Pigs can produce valuable human edible proteins. However, this requires large amounts plant proteins for their feed, that could also have been used for human food consumption. Can we reduce this food-feed competition?

#### Solution

Pigs can be good waste converters. So, feeding agri-food industry by-products helps to reduce waste whilst making valuable proteins for human consumption.

#### Benefits

Food waste can be reduced by many tons per year and converted to valuable feed for animals. This reduces the need for arable land, energy and water for animal feed production.

#### Practical recommendations

High quality and proper optimization of the diet of fattening pigs can improve their growth parameters and the quality of pork.

Pig feed should be palatable and varied to facilitate its consumption by animals and to meet the nutritional needs of animals.

By-products of agri-food industry should also reduce feeding costs and can have a positive impact on the health, welfare and quality parameters of pork. The use of several percent food waste materials (such as residues of flax seeds, milk thistle, dried apple or dried chokeberry) in the pigs' diet during the entire fattening period resulted in an increase in daily body weight gain, improved feed conversion ratio and ensured a higher final weight.

This additional source of fibre from by-products of agri-food industry in the diet of fattening pigs improves the feeling of satiety, which affects the well-being and meatiness of pigs, as well as the protein content in meat, without impairing the quality parameters of pork carcass and meat.

Moreover, enriched diets reduced drip loss in fresh meat, which is a positive effect considering the quality of the meat.



Figure 1: Dry apple pomace (Source: D. Łodyga, Poznan University of Life Sciences)



Figure 2: Pulawska breed pigs while eating (Source: D. Łodyga, Poznan University of Life Sciences)

## On-farm application

### System approach

Agri-food market by-products can be obtained as affordable post-production waste. To see the results, only a several percent of those by-products in the balanced feed mixtures is necessary.

### About this practice abstract and *mEATquality*

#### Publishers:

Poznan University of Life Sciences (PULS),  
Department of Animal Nutrition,  
Department of Genetics and Animal  
Breeding, Wołyńska 33, 60-637 Poznań, PL,  
<https://puls.edu.pl/>  
<https://wwz.up.poznan.pl/pl>

**Authors:** Dagmara Łodyga, Anita  
Zaworska-Zakrzewska, Małgorzata  
Kasprowicz-Potocka, Ewa Sell-Kubiak

**Review:** Angela Morell Pérez, Tatiana  
Kugeleva, Hans Spoolder, Bas Kemp and  
Brigitte de Brujin

**Contact:** Dagmara Łodyga  
[dagmara.lodyga@up.poznan.pl](mailto:dagmara.lodyga@up.poznan.pl)

***mEATquality*:** The *mEATquality* project  
aims to provide consumers with better-  
quality pork and broiler meat and animals  
with a high level of welfare by developing  
scientific knowledge and practical  
solutions together with farmers and chain  
partners.

The *mEATquality* project, an H2020 project,  
is coordinated by Wageningen Research  
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team of 17 partners organisations  
representing 7 EU countries. The project is  
running from October 2021 to September  
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**Project website:** [www.meatquality.eu/](http://www.meatquality.eu/)

**Social media:** Facebook and LinkedIn  
(@mEATquality) & Twitter  
@mEATqualityEU)

**Project partners:** Wageningen Research,  
Wageningen University, Aarhus University,  
Institute of Genetics and Animal  
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l'Industria delle Conserve Alimentari –  
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## FURTHER INFORMATION

### Further readings

1. Apple pomace is healthy and contain many important nutrients and active substances.

[A comprehensive analysis of the composition, health benefits, and safety of apple pomace](#)

2. Milk thistle improves metabolism and growth of pigs.

[Impact of milk thistle \(\*Silybum marianum\* L.\) seeds in fattener diets on pig performance and carcass traits and meat](#)

3. Agri-food waste can be used as feed components.

[Effect of the inclusion of food waste in pig diets on growth performance, carcass and meat quality](#)

4. Agri-food by-products contain natural antioxidants which promote health.

[Natural antioxidants as food and feed additives to promote health benefits and quality of meat products: A review](#)

