

Avoiding Greenhouse Gas Emissions The Essential Role of Chemicals



Feed additives – 4 amino acids for pig and broiler production: DL-Methionine, L-Lysine, L-Threonine and L-Tryptophan

An Evonik case study



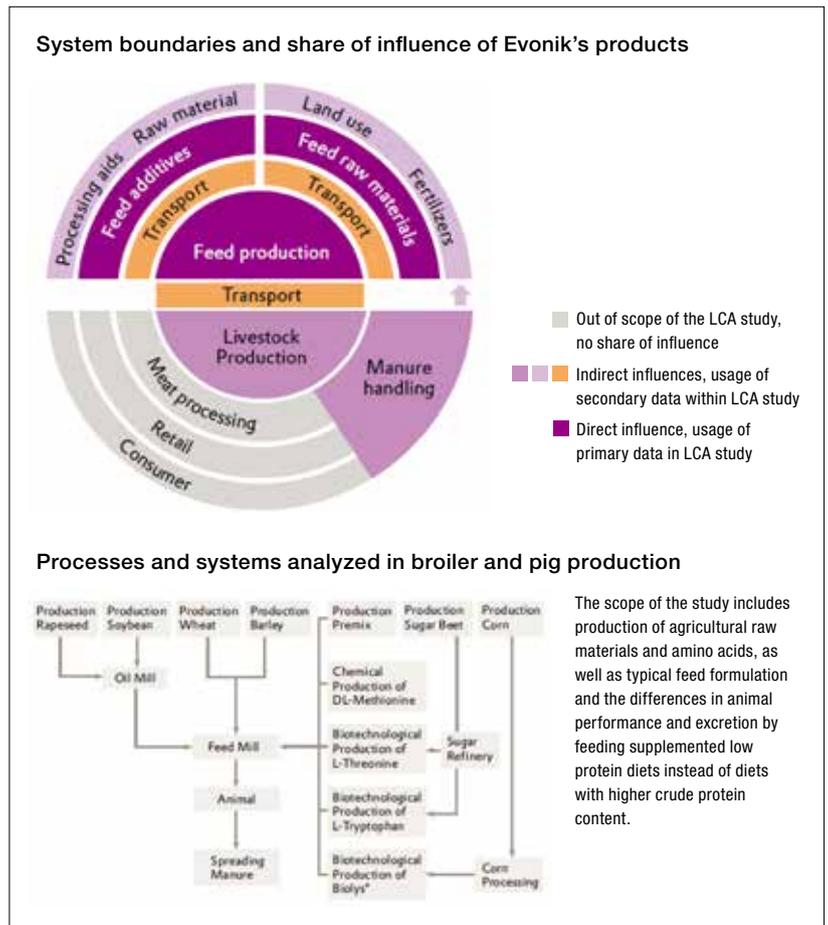
Supplementing animal feed with essential amino acids can save significant amounts of feed raw materials, resulting in minimized use of arable land for crop production and thus, fewer CO₂eq emissions.

Furthermore, feed supplementation with these essential amino acids reduces both nitrogen and greenhouse gas emissions resulting from feeding and excretion.

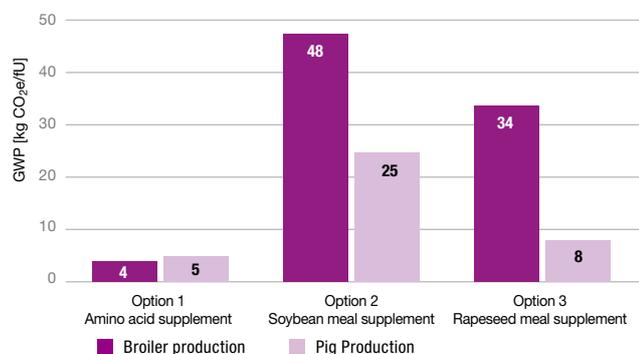
Animal feed is specifically formulated to meet the physiological nutrition needs of animals, particularly the necessary shares of essential amino acids. Lack of certain amino acids in pig and broiler feed can be compensated either by adding a higher percentage of protein-rich feed components such as oil seed, or by fortifying the feed with essential amino acids produced by Evonik for this purpose.

The present case study compares a supplemented feed mix including crystalline amino acids with two non-supplemented feed mixes based on soybean as protein rich feed ingredient in one case, and on soybean and rapeseed in the second case. The study addresses both animals, broiler and pigs.

Full study available at: www.icca-chem.org/energy-climate



Global Warming Potential GWP100 [CML2001] of broiler and pig production



Broiler production

The global warming potential of the supplemented feed mix for broiler production shows lower environmental impacts due to substitution of protein rich feed ingredients like oil seeds by feed ingredients with lower crude protein contents.

Pig production

The global warming potential of options 2 and 3 with oil seeds as source for the additional amino acids have a higher GWP than the supplemented feed mix option 1. The portion of soybean meal originating from land that has caused land use change has a significant influence on the estimated GWP.



This case study illustrates how the reduction of greenhouse gas (GHG) emissions can be enabled by chemical products, as part of a series of case studies brought to you by ICCA. Chemical industry members offered Life Cycle Assessment [LCA] case studies for the purpose of showing illustrative examples on how to calculate avoided greenhouse gas emissions. The avoided emission calculations were based on the guidelines developed by ICCA and WBSCD (World Business Council for Sustainable Development) - Chemical Sector, with the support of Arthur D. Little and Ecofys. Other life cycle environmental impacts such as water and land use change were outside the scope and usually not considered.

