

## Carbon and Water Footprint of Poultry Sector

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### EXECUTIVE SUMMARY

In line with the growing interest of consumers in the environmental performance of products sold worldwide, the Argentine poultry sector, represented by the Center for Poultry Processing Companies (CEPA), requested the National Institute of Industrial Technology (INTI) conduct a Life Cycle Analysis (LCA) to determine the environmental performance of chicken meat through two indicators: carbon footprint and water footprint due to scarcity. Twelve companies participated in the study, which together processed nearly 350 million tons of chicken in 2020, which represents 46% of Argentine production.

The study has been carried out following ISO 14040 and ISO 14044 LCA standards and the specific carbon footprint (ISO 14067) and water footprint (ISO 14046) standards. The study is compatible with type III ecolabelling standards (ISO 14025) and with Product Category Rules published by *The International EPD System*.

This is a cradle-to-gate study that includes the following production stages: breeding farm (parents), layer farm, hatchery, fattening farm and poultry slaughterhouse. The feed mill, where feed is produced for all stages of animal growth, and the transport that connects these stages, are also involved. The environmental inventory included data on the agricultural grains production and inputs and materials used in all stages of the production and slaughter cycle (electricity, fuel, materials for chicken litter, packaging, cleaning, and disinfection, among others). The inventories were built with agricultural data from the 2019/2020 crop season and with industrial data from the year 2020.

Carbon footprint calculated is 1.50 kg of CO<sub>2</sub> eq/kg of chicken meat. The impacts are distributed in the slaughterhouse stages (25.3%), fattening farms (29.3%), balanced feed plants (41.9%), laying farms (1%), rearing farms (0.5%) and incubator (1.9%). Within the fattening farm, the contributions of the feed used for the fattening of the chickens, enteric fermentation and manure management, the consumption of electricity and the transport of supplies, mainly the chicken litter, stand out. Within poultry slaughterhouse, the consumption of electricity, the wastewater treatment emissions, the supplies for packaging and transportation stand out.

Regarding the water footprint due to scarcity, the result is 0.54 m<sup>3</sup> eq/kg of chicken meat, distributed in the stages of poultry slaughterhouse (38.3%), fattening farms (9.7%), feed mill (47.8%), breeding farms (0.6%), laying farms (1.3%) and hatcheries (2.3%). The largest contribution to impacts on rearing, laying and broiler farms comes from feed, followed by energy and transportation. Within the poultry slaughterhouse subsystem, the consumption of electricity, cleaning products and the cardboard used for packaging stand out.

The results of the study are within international ranges and in many cases below them. The challenge ahead is to continue addressing improvements, mainly in transport and energy consumption, to contribute to the reduction of environmental impacts.

