with biogenic CH4 as the prevalent chemical compound. The environmental impact due to AC and EU was split into feeding management and emissions from manure inside the shed and direct on the pasture. For the AC and EC the main polluting compounds were NH_3 in air followed by N_2O in air and PO_4 in water. The component with the highest environmental impact in terms of NRE was crude oil followed by energy produced from natural gas. We could conclude that dairy sheep farming should be systematically monitored to minimize the impact of its activity on environmentally sensitive areas (*e.g.* national parks) without impairing its competitiveness.

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Environmental impact of insect rearing for food and feed: state of the art and perspectives

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The demand for feed and animal food products is expected to rise sharply until 2050. In addition, livestock production plays a role in the overall anthropogenic impact. Thus, valuable protein alternatives such as edible insects are welcome. Edible insects have an excellent protein value, low feed conversion ratio (FCR) and can be massively reared on low-value substrates. Based on the available literature, this paper is aimed at reviewing the environmental performances of insect rearing and drawing the perspectives for future investigations. To date, few papers focused on the environmental impact of insects farming and used the Life Cycle Assessment (LCA) as standardized methodology. Impacts such as Global Warming Potential (GWP), energy use (EU) and land use (LU) have been estimated for the mealworm meal (MM) production. If compared to some animal food products, the GWP of MM ranges from about a half (pork) to less than a tenth (beef) (Tab. 1), mainly due to the weak climate-relevant emissions of this insect. In addition, the low LU of MM production sounds promising and may be partially explained by the low FCR (2.2) observed for this species. With the exception of beef and pork, the EU of MM is higher than the literature values for the other animal food products due to the rearing facility climate-conditioning. For feed production, housefly larvae grown on organic wastes (including poultry manure) have been studied. The data were obtained from a commercial-exploited testing site. If compared to literature data on fishmeal (FM), housefly larvae meal (HLM) exhibits a very low impact on climate changes, but is comparable to soybean meal (SBM) production (Table 1). Producing HLM requires less agricultural land than SBM as no dedicated crops are required. The energy demand of HLM production is more than twice the EU for SBM meal, but it is lower than for FM. Even if comparisons between these studies are not easy due to several methodological aspects, edible insects appear more sustainable than other animal products or feedstuffs. However, other environmental indicators (*e.g.*, acidification potential) should be investigated to get a complete understanding of the environmental performance of edible insects as food and feed. The different rearing strategies adopted have a significant effect on the sustainability of the mealworm and housefly rearing cycles. Studies comparing different insect species and/or different rearing strategies should be undertaken.

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The effects of slaughter age and restricted feeding on growth, carcass and meat quality traits of dairy breed lambs

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This experiment aimed to investigate the possibility to raise the carcass weight of lambs of dairy breed and produce low-fat meat by increasing the slaughter age and applying strategies to reduce feeding level. At 35d of age, 70 weaned lambs of Valle del Belice breed were divided into 2 groups and adapted to housing in multiple boxes and experimental diets over a 10-d period. The groups received *ad libitum* pelleted alfalfa hay and concentrates differing in the 20% inclusion of durum wheat bran (0WB, 20WB) used to reduce cost and energy level. After 45d of experiment, both groups were divided into 3 subgroups; 2 of them with 15 lambs were slaughtered at 90d of age (90L), whereas the other 4 subgroups received the same concentrates *ad libitum* (120L) or restricted at 75% of *ad libitum* intake (120R) for 30d until slaughter at 120d of age. Feed intake and live weight of lambs were regularly measured. At slaughter, carcass traits and tissue components of hind leg were recorded. Longissimus dorsi (LD) meat was evaluated for pH, colour, thawing and cooking losses, WB shear force and sensory properties in triangle tests. In both phases, 45-90d and 90-120d of age, the diet did not influence feed intake and growth of lambs fed *ad libitum* (90L and 120L), whereas under feed restriction the lambs fed 20WB showed a reduction in weight gain than 20R lambs fed 0WB (105 *vs.* 170 g/d, P,â§0.05). In all production systems, the diet did not affect the carcass weight (12.6 *vs.* 12.4; 14.7 *vs.* 13.7; 15.6 *vs.* 14.9 kg for