

South American camelids as alternative livestock

Previous research at IBERS has clearly demonstrated the economic and environmental benefits of mixed grazing. However, cattle numbers in the uplands continue to decline. Production systems incorporating novel livestock species such as South American camelids alongside sheep could offer innovative alternatives that capitalize on existing livestock and grassland management expertise while delivering wider environmental benefits. There are four species of South American camelid; llamas and alpacas (which exist only as domesticated animals), plus guanacos and the highly-endangered vicuna (which exist only in the wild). Adaptations to Andean conditions mean that camelids are well suited to the poorer quality vegetation and harsh climatic conditions found in upland areas across the UK.



Alpacas produce fine fibre that commands a much higher price than sheep wool. Alpacas are also eaten in Peru, especially in the highest areas of the Andes where they are a crucial source of protein for local communities (the conditions are too harsh for sheep or cattle). They produce a meat with a healthier fat profile compared to lamb or beef. Another benefit of camelids is that their grazing habits are distinctly

different to conventional livestock. Previous research has shown they will happily consume invasive hill grass species (e.g. *Molinia*, a.k.a. purple moorgrass) rejected by sheep, while avoiding plant species of conservation concern (e.g. heather). Consequently, they could deliver additional benefits in terms of habitat management, making them attractive to schemes supporting the delivery of public goods such as increased biodiversity and carbon storage in upland areas. Mixed grazing with camelids is also expected to lead to improved pasture utilisation and overall animal performance, plus they will chase away foxes and other predators.



Using funding received from the Joy Welch Trust we set up a research herd of alpacas. In addition to generating a model for livestock diversification and alternative land use, the herd is a resource for more fundamental science. Camelids are pseudo-ruminants rather than true ruminants; their digestive system has three rather than four chambers within the 'stomach' and a different pattern of motility. Our experimental herd will provide a resource for research work by staff and students exploring the impact of such differences in comparative physiology on digestive efficiency and related methane emissions, particularly on lower-quality forages.

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