

IGN-Research Award 2024

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Farmer work satisfaction and aspects of animal welfare in organic mixed livestock farming

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Summary

Mixed livestock farming (i.e. with more than one livestock enterprise) has been proposed as a more sustainable agricultural strategy compared to specialised farming. In this context, sustainability often refers to three pillars, namely environment, society and economy, whereas another sustainability framework, OneWelfare, focuses on the inherent connectedness between the areas of human welfare, animal welfare and the environment. By utilising both frameworks, this dissertation focuses on previously underrepresented research areas such as human and animal welfare in mixed livestock farming, a farming system with low prevalence in Europe, but high potential for improving agriculture for current and future generations. The knowledge on such farming systems is limited with previous research mainly focusing on economic aspects such as production or environmental indicators including e.g. resource use efficiency.

Using a sample of 102 European organic mixed livestock farmers the aim of the first article '*High work satisfaction despite high workload among European organic mixed livestock farmers – a mixed-method approach*' is to identify the reasons for as well as contributing factors to work satisfaction. Analysing quantitative and qualitative answers from face-to-face interviews reveals high levels of satisfaction with work and income across farmers, often despite a high workload and many work peaks per year. Reasons for satisfaction expressed by farmers include autonomy, efficient use of (environmental) resources, appreciation by consumers, personal development as well as connection to nature and promotion of their vision for sustainable agriculture, whereas contributing factors include, for example, desired free time matching time taken off work and managing a complex and mentally challenging farm.

Since farmer welfare is inherently connected to animal welfare, as proposed by the OneWelfare framework, the aim of the second article '*Single- and multi-species groups: A descriptive study of cattle and broiler behaviour on pasture*' is to describe and quantify inter-species interactions between young cattle and broiler chickens as well as investigate possible behavioural differences between single- and multi-species groups. Behaviour was assessed using direct observations (i.e. instantaneous scan, continuous behaviour and focal animal sampling) and fear tests for broilers (i.e. tonic immobility, inversion and novel object tests). More broilers in multi-species groups were outside their hut and ranged further than in the single-species group, but there was no difference in fearfulness between groups. Inter-species interactions occurred two to three times per hour and ten animals per species, and the most common interactions were cattle displacing broilers and broilers approaching cattle.

In the third article '*Mix it – Co-grazing with cattle reduces broiler losses and increases broiler range use*' we assessed, in the same experiment featured in the second article, animal indicators, which are relevant for the animals themselves as well as to productivity and thereby indirectly to farmer welfare in terms of income. Video surveillance was used to identify the cause of missing or dead broilers, direct observations to quantify range use, regular weightings to determine weight gain and feed conversion

IGN-Research Award 2024

ratio, and visual inspections for scoring the severity of skin lesions. Fewer broilers in the multi-species groups were lost to predatory birds than in the single-species groups, even though they ranged further and were outside in greater numbers. Additionally, they gained slightly more weight and had a slightly better feed conversion ratio. There was no difference between groups in terms of skin lesions.

Overall, this dissertation complements the literature indicating positive effects of mixing livestock species on farms in terms of animal welfare and farmer satisfaction. These positive effects on farmers and their animals may be mutually beneficial, as proposed by the OneWelfare framework. However, further research is necessary to validate our findings, further characterise mixed livestock farming and determine reasons for differences between this less prevalent farming strategy and e.g. specialised farming.