



OWC 2020 Paper Submission - Science Forum

Topic 4 - Innovation in Organic farming: "thinking out of the Box"

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STRATEGIES AND VISIONS FOR THE FUTURE OF ORGANIC ANIMAL FARMING

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Abstract:

Based on existing knowledge and current research projects, a number of innovative strategies and approaches are proposed that would enable organic animal farming to contribute to a more sustainable and resilient food systems that also impacts positively on our surrounding socio-ecological landscape. The focus is on 1) integrated, multispecies, diversified systems, 2) sustainable foraging strategies and efficient utilisation of natural resources, 3) home grown protein feed especially for monogastric animals, 4) resilience as the core of health development rather than just freedom of diseases, 5) breeding including multipurpose breeds, and 6) enhanced mother-infant contact.

Introduction:

It is clear that there is a serious need for significant and fundamental improvements to the way we currently produce and consume food if we are going to meaningfully respond to the enormous global environmental challenges that face us. In some respects, organic farming offers an approach to a more sustainable food production into the future. We need less reliance on external and non-renewable resources, and more balance between yields, soil fertility, resilience and biodiversity. The role of animal farming in particular is faced with the challenge of balancing the potential positive contribution to our food system within an effective circular economy whilst also ensuring that the animals on our farms exist as living, sentient beings and thus are treated in ways which allow their lives, from their perspective, to be worth living.

Over recent decades the perception of industrialised animal production has been that it is the most 'climate friendly' and efficient. However, in practise natural and pasture-based systems may present a more sustainable future. Natural grasslands and agro-forestry systems may provide multiple benefits, and not least in their carbon storage capacity, and mixed farming gives greater opportunity for more efficient resource utilisation. Such systems are more effective in allowing animals to meet their natural needs. However, this

approach to farming also requires acceptance of diversity e.g. with regard to the species and type of animal kept and variations in outputs. Consequently, a greater requirement and opportunity for innovative approaches to the way animals are farmed organically is required, and particularly so if we are going to adhere to the IFOAM principles. In this paper, we highlight key areas of development that potentially contribute to the effectiveness and sustainability of organic animal farming systems into the future.

Material and methods: This paper draws on evidence from a recently published book [1] on organic animal farming which describes the state of the art of research and experiences on well-established organic farming systems, identifies new and innovative approaches to organic animal farming and poses conceptual questions concerning the future direction of sustainable farming. The evidence is supported by research in current projects funded via the H2020 ERA-net project, CORE Organic Cofund (2;3;4;5;6] and Plus [7], and is presented as a suite of key strategies for the future development of organic animal farming.

Results:

Integrated, diversified multi-species systems

Multi-species animal agriculture potentially reduces negative environmental impact through increased resource use efficiency and synergies. Depending on design, such systems integrate effectively within cropping systems by utilising animals' well-developed abilities to consume plants that are either indigestible or unacceptable to humans. These systems are enhanced further when crop rotations that include soil fertility building legumes are fed to animals and their manures are effectively applied thereby creating efficient nutrient recycling loops. Farms with many crops and many species of animal observe significant interaction and high levels of productivity per unit area in their ecologically intensified and very diversified farms. Such systems are also likely to be more complex to manage, and can be organised at a wider scale as integration and collaboration between farms.

Sustainable foraging, agroforestry and pastoralism

Holistic grazing increasingly being implemented in European cattle farms, where they offer interesting and yet relatively unexplored possibilities for carbon storage and use of marginal land and pasture areas. A wide range of innovative approaches to grazing, foraging and agroforestry systems – e.g. monogastric animals integrated in fruit production - represents future development pathways. Furthermore, the role of domesticated animals on the world's vast areas of natural rangelands could contribute positively, which leads to a debate about pastoral systems as a possible approach to organic farming, and as climate mitigating strategies.

Home grown protein feeds

One of the future important strategies to reduce reliance on imported feed is the integration of leguminous and protein rich crops within organic animal farms, especially for monogastric animals, in addition to e.g. food waste or recycle product. There is increasing research evidence that shows interesting and promising options to achieve this and one of the main challenges is to ensure integration occurs at the whole farm level and within regional agricultural landscapes.

Resilience as the core of health development

The health of animals on organic farms must be seen as much more than the absence of disease, and that health should also encompass the ability to adapt and to self-manage, in relation to physical, mental and social wellbeing. Thinking of health in terms of 'resilience' helps us to develop strategies allowing us to significantly reduce antibiotics in animal farming, and to concentrate on health promoting feed, house, breeding and

handling of animals, as shown through the last 15-20 years of research on antibiotic reducing strategies in organic farming.

Appropriate breeding and breeds, including multipurpose breeds

Whereas a loss of breed diversity is an increasingly common lament of current farming, genetic diversity is a clear agro-ecological aspiration. Over the past half century, the common breeds and breeding goals have been organised towards industrial farming conditions, where animals are continuously housed or protected by suites of prophylactic medicines. This often leaves organic farmers with difficult decisions and limited tools regarding the best choice of animal for particular situations. Furthermore, there is need for more robust breeds and increasing awareness that dual- or multi-purpose breeds, e.g. egg-and-meat-poultry breeds and milk-and-meat-cattle, are more efficient than specialised breeds.

Improved and increased mother-infant contact

The principles of organic farming promotes allowing animals to meet natural needs, and the natural motivation to take care of newly born or hatched offspring is very strong in mother animals of most species. There is increasing interest among researchers, farmers and other stakeholders in the dairy sector for alternative systems that allow cows and calves to stay in contact for extended periods. Much of this interest results from increasing public concern and scrutiny. There are also examples of the development of pig systems that allow longer contact between piglets and sows (up to ten weeks outdoor). However, within the commercial poultry sector, such innovation is not evident and many breeds have lost the ability to become broody. This presents a strong challenge for the future development of organic poultry farming.

Discussion:

Organic animal farming builds on context relevant development and diversity, and although not necessarily unique to organic farming, we see the emphasis on diversity as a pre-condition to success, given the variability across societies and the natural world, and especially given that a key aim of organic farming is to work with, and be a part of, nature. The nature of organic farming accentuates variability by placing emphasis on the use and interaction of local, natural resources, which further underlines diversity as one of the most important agricultural assets of organic agriculture, pushing resilience and different responses to uncertain futures. The four organic principles as formulated by IFOAM in 2005 emphasise that 'organic farming' is about keeping ethical values and the overall principles act as guidance for development rather than a focus on meeting legal requirements and certification only. As much as the principles are contextual, their way of being implemented varies with circumstances. Adopting strategies such as those outlined in this paper, guided by the ethical principles, lead to multiple practical contextual applications. It is abundantly clear that there is no current farming system that can be considered sustainable without society also having to make fundamental changes in the way we consume and waste food. It is an imperative that we focus on how we responsibly alter our eating habits so that our nutritional needs are matched with the ecological capacity of the planet to produce food fairly and without doing irreversible damage. Innovative systems of keeping animals on organic farms can play a key role in this challenge.

References:

- 1 Vaarst, M. & Roderick, S. 2019. Improving Organic Animal Farming. Burleigh Doods Series in Agr.Sci. 46.
- 2 GrazyDaiSy: <http://projects.au.dk/coreorganiccofund/core-organic-cofund-projects/grazydaisy/>
- 3 MixEnable: <http://projects.au.dk/coreorganiccofund/core-organic-cofund-projects/mix-enable/>
- 4 FreeBirds: <http://projects.au.dk/coreorganiccofund/core-organic-cofund-projects/freebirds/>
- 5 POWER: <http://projects.au.dk/coreorganiccofund/core-organic-cofund-projects/power/>

6 ProYoungStock: <http://projects.au.dk/coreorganiccofund/core-organic-cofund-projects/proyoungstock/>

7 ORGANICDAIRYHEALTH <http://projects.au.dk/coreorganicplus/research-projects/organicdairyhealth/>

Disclosure of Interest: None Declared

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