

Research, values and ethics in organic agriculture
– examples from sustainability, precaution, nature quality and animal welfare

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Agricultural systems are characterised by involving both natural and social systems. Organic farming, in particular, has developed as part of a wider organic movement incorporating producers, manufacturers and consumers. The organic movement is based on explicit rules as well as broader formulated principles and goals for farming and manufacturing, which are connected to underlying values and perceptions of the relationship between human and nature. This paper is concerned with the challenges to research entailed by the ethical issues in organic farming and the interplay of values and facts in agricultural research.

Some of the significant rules of organic farming imply restrictions on artificial fertilisers and pesticides, restrictions on medication and a prolonged detainment period after medication, and requirements on access to outdoor areas or grazing areas. What are the rationales for these particular rules? What are the values, perceptions and ethical issues involved? These questions are an important challenge to research on the development and regulation of organic farming, because the relevance of this type of research depends on the awareness and reflection upon such questions. Research which involves an inquiry into the values of the observed system for the purpose of choosing relevant research issues, and which thereby plays a role in the development of the observed system, can be called systemic research. An example is research into the impacts of agricultural practice on the environment, animal welfare, or human health. Such research often implicates the need for development or societal regulation of agricultural practice and technology, and must also be concerned with the actual possibilities and limits of development and regulation. Systemic research in agriculture involves critical reflection on a range of evaluative and normative aspects, for example in connection with the concepts of sustainability, precaution, nature quality and animal welfare. These concepts all entail a "better or worse" - a value aspect which can be ignored but not removed. Using such concepts in an open and clear way in research presumes knowledge of how and where values and norms enter into scientific concepts, and an open discussion of the implications of the values and ethical issues involved.

Conceptions of nature and knowledge

It is well documented that different groups use the concept of sustainability in different senses, such as weak and strong sustainability in economics and resource sufficiency and functional integrity in agriculture. And it is equally evident that precaution has different meanings in form of risk assessment and the precautionary principle. These distinctions can be seen as connected with different perceptions of nature and the relationship between man and nature, as well as with different conceptions of knowledge. Weak and strong sustainability can be related to a distinction between perceiving nature as robust or vulnerable. A robust nature has no limits of its own, corresponding to a principle of infinite intersubstitutability in environmental economics, where all natural resources are substitutable by human labour, capital and technology (e.g. Goodland, 1995). A vulnerable or tolerant nature can tolerate some amount of human influence, but there are definite limits to human impact, corresponding to the existence of a "critical" natural capital that cannot be

substituted with the conventional forms of human capital. Viewing nature as robust or vulnerable does not, however, explicate the relationship between man and nature.

In connection with investigations of the quality of nature in organic agriculture it is necessary to distinguish between two kinds of conceptions of man's relationship to nature. A distinctive kind that sees man as separate from nature and a systemic kind which sees humans as an integral part of nature (see figure 1). There are two opposing views of nature quality within the distinctive conception of nature, which can be characterised as "the agriculturist's" and "the naturalist's" perspective. "The agriculturist" values nature that is controlled, well-ordered and useful to man, while "the naturalist" values the wild and authentic nature, which is untouched by man. Organic agriculture primarily employs a systemic conception of nature – taking "the ecologist's" point of view - where the value of nature is found in the intimate, mutually benign processes between man and nature.

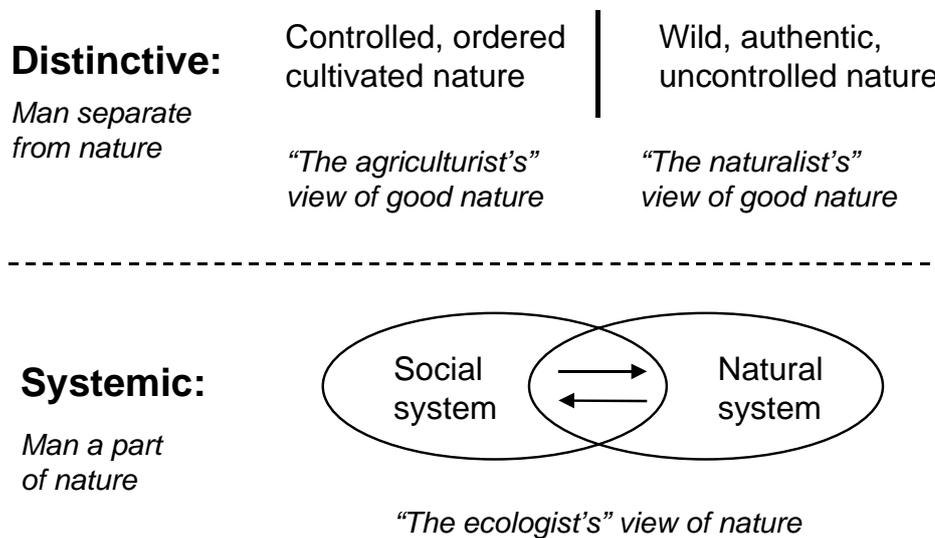


Figure 1 Distinctive and systemic conceptions of the relationship between man and nature

This threefold distinction in the conception of man's relation to nature can be used as an organising principle for the many new normative concepts referring to nature and the environment. One example is a recently suggested distinction between two schools within the philosophy of nature conservation, compositionalism and functionalism, which can be used to interpret and organise the normative concepts in conservation (Callicott *et al.*, 1999). Compositionalism corresponds to "the naturalist" view within a distinctive conception of nature, while functionalism corresponds to the systemic view. Another example can be found in the philosophy of sustainability, where Paul B. Thompson (e.g. 1996) suggested resource sufficiency and functional integrity as the only two philosophical meanings of sustainability. Sustainability as resource sufficiency implies an instrumental relation to nature, with a focus on the foreseeable use of resources, food production and food distribution. In functional integrity, agriculture is seen as a complex system of production practices, social values and ecological relations, where the functional integrity of the system can be nurtured or disrupted by human practice. Sustainability in this sense supports strategies for increasing the resilience of the system and avoidance of irreversible changes, and is therefore closely related to the concept of precaution. Resource sufficiency is related to "the agriculturist" view within a distinctive conception of nature, while functional integrity is related to a systemic conception of nature.

Thompson's two different meanings of sustainability furthermore involve different conceptions of knowledge, and in this respect they can be aligned with the distinction between risk assessment and the precautionary principle. Precautionary acting involves reflections on the limits of knowledge and control and development of strategies for handling ignorance and uncertainty (e.g. Smithson, 1993). Historically, the precautionary principle stems from the German "Vorsorgeprinzip" and the literal meaning of Vorsorge combines concern about and caring for the future. According to this principle the responsibility towards future as well as present generations obliges us to preserve the natural basis of life and avoid irreversible changes with unforeseeable consequences. The principle is implemented by acting before conclusive scientific understanding is available in front of possible irreversible damage, early detection of dangers through comprehensive research, and promotion of cleaner technologies (Boehmer-Christiansen, 1994).

Systemic ethics

The normative concepts of agriculture, nature and the environment can also be discussed in relation to ethical theory. A normative basis for these concepts can be found in a systemic framework of ethical extension which distinguishes between an individualistic and a systemic approach to moral considerability (Goodpaster, 1978). History shows an extension of the sphere of ethics from the consideration of one's fellows towards the inclusion of equal men, slaves, women, and other sentient beings. And lately the further extension of ethics to living beings and ecosystems is discussed. The individualistic path of extension of moral considerability is based on the recognition of the other as being, in a morally relevant sense, a subject of the same kind as myself - living, feeling or self-aware beings. The systemic path of extension is based on the recognition of a larger system (such as the family, the community, or the ecological system) being, in a morally relevant sense, a wider conception of "myself" as a highly connected, sustained system (Alrøe and Kristensen, in prep).

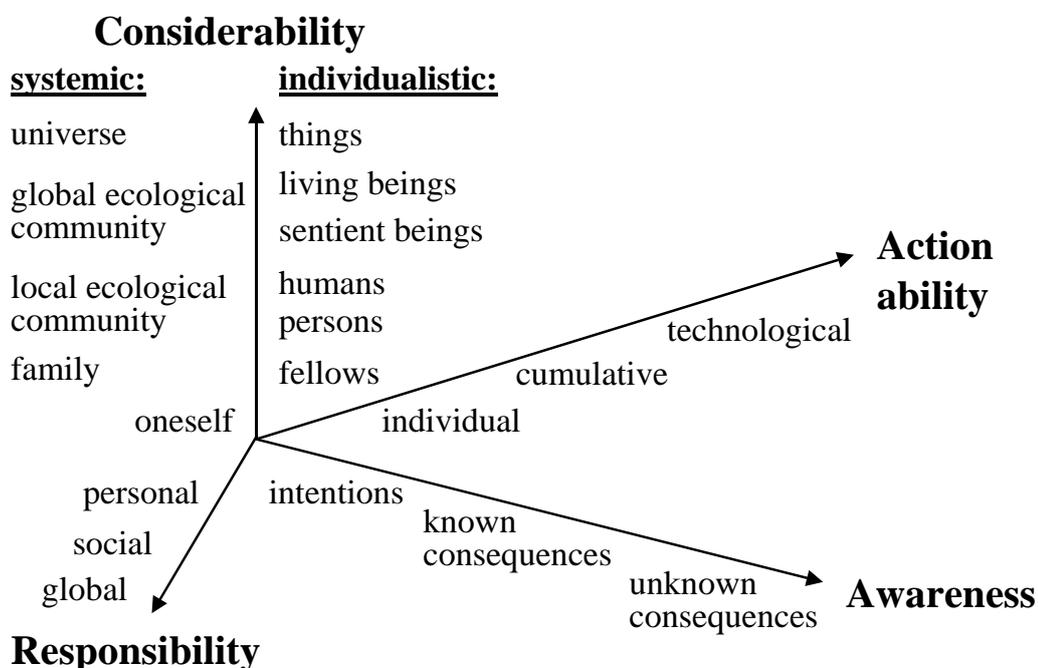


Figure 2 Four dimensions of ethical extension

The framework of systemic ethics is based on an ethic of responsible acting (Jonas, 1984), which involves further dimensions of ethical extension besides moral considerability (see figure 2). The dimension of moral responsibility concerns the moral agent and may be extended from personal responsibility to the responsibility of social organisations. The development of human action ability, in the form of technology, forces an extension of the scope of ethics from individual to cumulative and collective, technological actions. And finally there is scope for an extension of awareness from intentions to the known consequences, and further to the unknown consequences of human action. A systemic ethics like this can constitute a theoretical basis for new normative concepts such as sustainability and precaution in agriculture. Sustainability in the sense of functional integrity is primarily concerned with the systemic aspect of considerability and also involves the dimension of awareness. The precautionary principle is focused on the dimensions of action ability and awareness, while the polluter pays principle – a related principle from environmental policy – focuses on the dimensions of action ability and responsibility.

Animal welfare in a systemic perspective

Traditionally, ethics has been concerned mainly with the individualistic aspect of considerability, and the subject of animal welfare has been established as an extension of individualistic considerability. Therefore the conventional approach to animal welfare has focused on the individual animal and its well-being. The rest of the systemic framework of ethics is, however, also relevant for the development, research and regulation of animal welfare in organic farming. We can distinguish between four aspects of animal welfare, a) the definition and operationalization of the concept of animal welfare, b) the evaluation of welfare, c) the ethical decision on how well the animals should be, and d) the solution of animal welfare problems (Alrøe *et al.*, 2000). The evaluation of welfare can be made independent of values - given an operationalized definition of animal welfare. But the other aspects all involve value judgements and ethical considerations. Fraser *et al.* (1997) identify three main approaches to animal welfare, which focus on the animal's experience, feeling or preference (feel well), their needs and clinical health (function well), or their possibilities for developing and using natural adaptations (live a natural life). And they further suggest a conceptual model that integrates the three approaches, which describes the important aspects of welfare as an expression of the relation between the nature of the animal (the adaptations) and the conditions the animal is exposed to in the production system (the challenges). In order to define and operationalize a concept of animal welfare, value judgements have to be made regarding the choice or weight of the three approaches and the choice of measures of welfare.

From an individualistic perspective the ethical decision on how well the animals should be depends on the moral considerability and significance of different kinds of animals. From a systemic perspective the decisions on moral considerability of farm animals concerns the functional integrity of the agricultural system. With regard to the solutions of animal welfare problems, a narrow focus on individual welfare within given production systems leads to solutions such as changes in care-taking, dehorning of calves, removal of beak-tips in chickens, etc. A systemic approach broadens the perspective to include the relation between individual welfare and systemic structures. This allows for seeking other kinds of solutions to animal welfare problems, with respect to the nature of the animals (choice of species and lineage, choice of breeding systems and reproductive technologies, genetic technology, etc.), the farm structure (housing systems and outdoor production, management, etc.), and the larger production and consumption structures (market mechanisms, consumer perceptions and preferences, etc.).

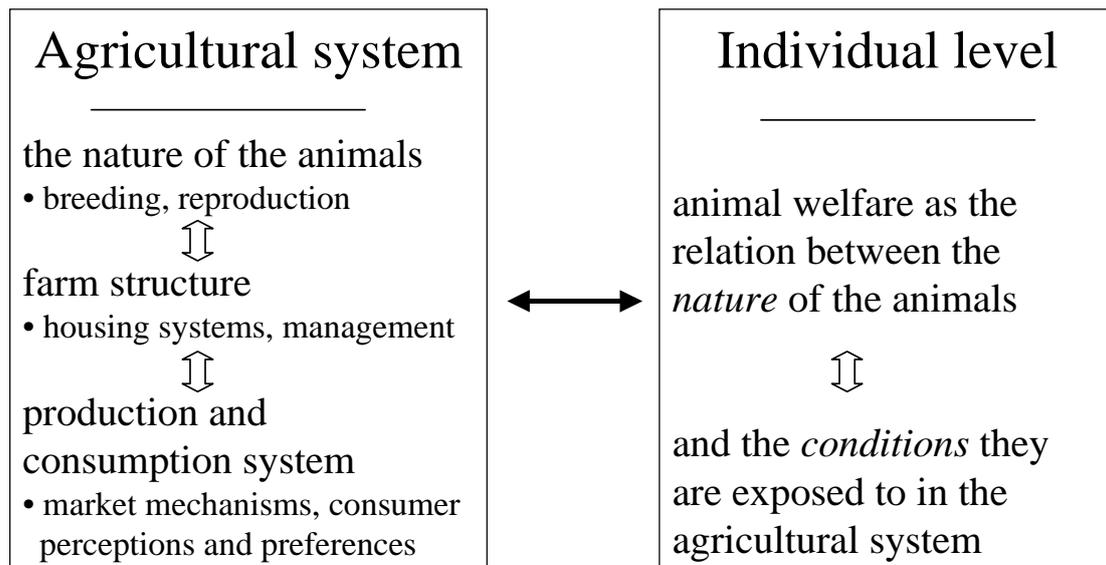


Figure 3 The relation between animal welfare at the individual level and in a systemic perspective

The particular rules of organic farming mentioned in the introduction are mainly related to the systemic perception of nature and the ensuing values and ethics. The restrictions on artificial fertilisers can be seen as pertaining to sustainability as functional integrity, by way of forcing a sustainable use of the soil. Restrictions on pesticides can be connected to the precautionary principle in terms of human health, contamination of drinking water, etc., as well as to functional integrity (Alrøe and Kristensen, in press). Restrictions on medication can be connected to the systemic perspective on animal welfare, as well as to the precautionary principle in regard to resistance in disease germs, and the prolonged detainment period after medication only seems reasonable in light of the systemic perspective on animal welfare. The requirements on access to outdoor areas or grazing areas also relate to a systemic perspective on animal welfare, and perhaps in particular to a view of the natural life as valuable in animal welfare.

Systems research and value inquiry

The relevance of research in organic agriculture depends on the attendance to the underlying values and perceptions. At the same time the on-going development of organic farming, connected with the increasing market and new productions, causes an increasing demand for reflection upon the values and principles of organic farming. On the other hand, the explicit and pervasive values and the particular perception of nature in organic farming pose a philosophical and practical challenge to research. Research in organic agriculture is faced with the problem of how to acknowledge and incorporate the fundamental values of organic farming, while preserving the conventional scientific standards of objectivity. This challenge can be confronted by way of a systemic approach to research, which entails a deliberate use of systems research methodology and value inquiry, and critical reflection upon the interplay of values and facts in research. Value inquiry involves investigations of existing values in agriculture and research as well as theoretical inquiry into values and ethics. In general, the development and regulation of agriculture involves measures and indicators that are related to values (or "orientors") as notions of better and worse. The ethical issues in organic agriculture also pose a challenge to ethics in terms of the systemic perspective, which seems to go counter to the long tradition of individualistic humanistic ethics. Due to the

intimate connection between natural and social systems, organic agriculture (and agriculture in general) can provide ethical issues and examples to foster a new systemic perspective in ethics.

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