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## THE ROLE OF THE CONCEPT OF THE NATURAL (NATURALNESS) IN ORGANIC FARMING

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**ABSTRACT.** Producers, traders, and consumers of organic food regularly use the concept of the natural (naturalness) to characterize organic agriculture and or organic food, in contrast to the unnaturalness of conventional agriculture. Critics sometimes argue that such use lacks any rational (scientific) basis and only refers to sentiment. In our project, we made an attempt to clarify the content and the use of the concepts of nature and naturalness in organic agriculture, to relate this conception to discussions within bioethical literature, and to draw the implications for agricultural practice and policy.

Qualitative interviews were executed with a range of people in the field of organic agriculture and with consumers of organic products, on the basis of a list of statements about the meaning of the concept of naturalness formulated by the authors. Based on the results of the interviews, we distinguished 3 aspects of the concept of naturalness: natural as the organic (life processes), natural as the ecological, and natural as referring to the characteristic nature of an entity. We related these conceptual aspects to three main approaches within the field of organic agriculture: the no chemicals approach, the agro-ecological approach, and the integrity approach. It became clear that these approaches can also be recognized in the change of attitude of farmers as they convert from conventional to organic agriculture, and in the attitudes of consumers of organic food products.

We conclude that the idea of “naturalness” can be used to characterize organic agriculture and to distinguish it from conventional agriculture, but only if naturalness not only refers to not using chemicals but also to ecological principles and respect for the integrity of life. Thus perceived, the principle of naturalness can also serve as a guide to future developments in the field of organic agriculture. As part of the holocentric ethics of organic farming the value of naturalness has three dimensions: a cognitive one, an emotive one, and a normative one.

**KEY WORDS:** concept of nature and naturalness, environment, ethics, farm ecology, integrity of life, organic agriculture and food

### 1. INTRODUCTION

In advertisements for organic food products, the “naturalness” of the product (produced in a natural way) is often emphasized. Naturalness is regularly mentioned to characterize organic farming, and is contrasted with the unnaturalness of conventional agriculture. Supposed examples of unnaturalness are the following: dehorned cows in strawless yards,



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debeaked hens kept in large flocks, growing plants in a water culture, use of synthetic pesticides, modern reproductive techniques such as ovum pick up or genetic modification, etc.

In discussions about genetically modified organisms (GMOs), the critique that the technique of genetic modification is unnatural is seen as one of the so-called intrinsic consumer concerns, not primarily based on the (extrinsic) consequences, the risks for human health or for the environment, but related to the human attitude towards nature (Reiss and Straughan, 1996; Nuffield Council, 1999; Task Group, 1999). In such discussions, organic farming is often mentioned as an alternative to the use of GMOs, again suggesting that organic farming could be seen as a (more) natural form of agriculture.

Critics<sup>1</sup> of the argument from (un)naturalness have argued that the focus on the concept of nature and integrity appeals to little more than sentiment and confusion. The terms “nature” and “natural” are said to refer to two things only. It can refer to everything in the universe, that is, everything to which the laws of physics, chemistry, and biology apply. This would imply that every sort of agriculture is natural, and no distinction can be made between different forms of agriculture. In this way one could argue that also genetic modification is natural, because natural processes at the molecular level are exploited, in contrast to fields such as chemistry where really synthetic products are made. The second sense of natural refers to pristine nature, unaffected by human interference. Then nothing humans do (including all agricultural activities) can be natural in this sense. So, either everything or nothing humans produce is natural.

A more philosophical kind of critique of appeals to nature refers to the distinction between statements describing facts and normative statements. According to this distinction human values cannot be derived from nature. Doing so is called a naturalistic fallacy. In this kind of critique, the value-ladenness of the concept of nature or the natural is often overlooked. What is it that gives the word natural such a positive feeling for many

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<sup>1</sup> This kind of criticism we recognized quite explicitly in the report of one of the referees of the first version of this article. Another example is a recent short article by Vijverberg (2001) about the difference between “chemical” and “natural.” An unambiguous meaning of natural is called “the physical,” as the opposite of supernatural or metaphysical. All man-made physical things become natural as well. Natural as opposed to artificial is regarded as a concept that is too ambiguous to be useful, because in our modern world what is usually called natural cannot be distinguished from what is cultural. The same arguments were put forward by the philosopher John Stuart Mill in the nineteenth century (see for this Sagoff, 2001). Mill argued that the term “nature” can either refer to the totality of things or to those phenomena that take place without the agency of man (often called pristine nature) and that we have already passed that stage a long time ago.

people, as compared with the art; factual or the forced for instance? Or the other way round, when nature is opposed to culture, nature tends to get a more negative coloring. The human mind is then related to culture and the body to nature. According to some authors (see Sieferle, 1989) this opposition between people with a positive attitude towards nature and people with a more negative attitude has been deeply embedded in Western culture since the time of the Greek philosophers. Sieferle distinguishes between the (Christian) view of a “harmonious nature,” which is good, which can be trusted, and the concept of a “fallen nature,” as a mirror of sinful humanity, which is threatening and seen as an enemy that has to be conquered. This distinction can be recognized in the opposition between natural healing methods (trusting the self-healing capacity of the human body) versus modern medicine (in which diseases have to be conquered as an enemy). As we will see in this article, a similar distinction can be made between organic agriculture and modern agriculture based upon experimental science.

It is clear from these discussions that an explication of the concept of nature and the (un)natural within organic agriculture is urgently needed, if only to prove that there is more at stake than just sentiment and confused ways of argumentation. It is important for the producers and consumers of organic food and for all those involved in education and propagation of organic agriculture.

The goal of our research project is, therefore, to clarify and make explicit the concept of naturalness in organic agriculture and the attitude of organic farmers and consumers of organic products towards nature. Is the scope of the concept of naturalness in organic agriculture indeed limited to the two meanings distinguished by the critics, or is more involved?

## 2. METHODS USED

Four phases can be distinguished in the project:

- *Interviews with key figures in the field of organic farming in the Netherlands.*

An obvious way to do empirical research about the view of nature of producers of organic food would be to use a bottom-up approach of concept-mapping: the people who are interviewed are free to choose their own formulations, which are then grouped together in some previously selected way. Instead of this method, we have chosen a top-down method. The authors have already had long experience with discussions in both bioethics and organic agriculture (plants, animals,

nutrition). Before this project began the bio-ethicist in the group had done research on the use of the concept of nature and integrity in discussions about the genetic modification of animals (Visser and Verhoog, 1999). One of the goals of the present project was to extend the theoretical framework developed in that context to the field of organic agriculture (including plants<sup>2</sup> as well as animals). Because of this background, the authors decided to write a discussion-document in which they formulated what they believed to be the meaning of naturalness within organic agriculture.

The discussion document contained explicit statements about the meaning of naturalness in the following areas: the relation between (agri)culture and nature, biotechnology, sustainability, agro-ecosystem, animal husbandry, arable cropping, food and nutrition, and bioethics. We here give a shortened version of the 16 statements in the discussion document related to the production process, without the explanation that accompanied them:

1. A widely accepted characteristic of organic agriculture compared with conventional agriculture is its naturalness.
2. Control of the production process is not directed at becoming independent of nature. It is control with respect for nature and natural processes. Because of this, organic agriculture is closer to nature than conventional agriculture.
3. Organic agriculture wants to integrate culture and nature.
4. Genetic manipulation is seen as unnatural and in conflict with important values of organic agriculture related to respect for life and species barriers.
5. Biotechnology can have effects that are positive for the environment, but it is not a technology that is “green” in the ecological sense.
6. Genetically modified food is considered to be unnatural because of the way it is produced.
7. Sustainability is defined within the context of the agro-ecosystem as a whole, in which no use is made of techniques and substances that are foreign to the system.
8. The naturalness of organic agriculture is not always a guarantee that it is good for the environment.
9. Means of production in organic agriculture must show respect for plant, animal, nature, and environment.

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<sup>2</sup> Here we refer to Lammerts van Bueren (1999) and her work on concepts for organic plant breeding.

10. (and 11 combined) The organic farm is an agro-ecosystem with a characteristic “individuality,” in which the farmer is aware of the interrelatedness of all the elements of the system.
12. Naturalness in organic animal production primarily means that the characteristic “nature” of the animals is taken into account (using natural medicine, supporting natural behavior, and respect for animal integrity).
13. It is out of respect for animal integrity that some modern reproduction techniques are rejected.
14. In organic agriculture the characteristic nature and integrity of plant species are respected.
15. In organic agriculture we see a gradual transition from growth in open soil to growth in greenhouses. On the basis of the concept of naturalness it is hard to draw a sharp borderline, except for hydroponics.
16. Food that is grown in a natural way is considered to be important by consumers.

The qualitative interviews were meant to check whether key figures in the field of organic agriculture agreed with these statements, and to find out whether important aspects of the concept of naturalness were missing in the document. Key figures are defined as people who, according to the authors, possess expert knowledge about one or more of the following areas of organic agriculture: dairy cattle, pig keeping, hen keeping, animal feeding, horticulture, plant breeding, food processing and trade, control organizations, education and information, and representatives of organizations defending the interests of organic farmers and consumers. We interviewed 25 key figures. The results were summarized and discussed in a workshop.

- *Interviews with representatives of consumer organizations and consumers.*

We first had interviews with some representatives of consumer organizations. These interviews were meant to check the views of the authors, as expressed in the following statements (formulated before the results of the interviews with the consumers were known):

17. A consumer of organic products will be more aware of a relation between nature and agriculture than a consumer of conventional products.
18. Consumers of organic products will spontaneously reject biotechnology, because it is associated by them as being artificial, unnatural, unknown, and therefore worrying and probably dangerous.

19. Consumers will associate naturalness with sustainability and care for the environment.
20. The consumer will be unaware of the concept of an agro-ecosystem.
21. The consumer will associate naturalness with animal welfare rather than the use of natural medicine.
22. The consumer will regard as unnatural many ways of organic production that are considered natural or indispensable by the producers.
23. Consumers who buy organic food at the market or directly from the farmer will know most about food production in general and naturalness in particular.

We then compared these statements with the view of consumers of organic products. Being interested in the values and motives of consumers for buying organic food, and the role of naturalness therein we have decided to use a qualitative approach. A quantitative approach is not helpful in a situation where there exists confusion about the boundaries and meaning of the concept of naturalness. To find out what consumers have in mind when they say that organic agriculture is more natural than conventional agriculture a qualitative method is more useful.

The in depth interviews with consumers were done by a marketing research centre (Motivaction; see Amersfoort and Wit, 2000) by means of 18 paired-interviews and 2 single interviews, ten in a more urban and ten in a more rural city. The consumers had used organic basic food products for at least one year. The interviews with the consumers were done after those with key figures in the field. The questions were formulated by Motivaction on the basis of the discussion document of the authors and the results of the interviews with key persons. Questions were grouped in the following way:

- the personal experience of consumers with nature, organic agriculture, conventional agriculture
- the mutual relations between naturalness, care for the environment, sustainability, and vitality
- methods of production and processing organic food (plants and animals)
- criteria used by consumers in purchasing organic foodproducts
- *Normative (ethical) research aiming at a reconstruction of the system of values and norms of organic agriculture, and the role of different aspects of the value of naturalness within this system.*

The bio-ethicist in the research group wrote a discussion-document in which he tried to situate the organic conception of naturalness in relation to different bio-ethical theories and meta-ethical discussions. This discussion document has been critically reviewed by representatives of three different bio-ethics centers in the Netherlands. This led to a substantial revision of the original document.

- *Policy phase.*

In the last part of the research project, the authors drew conclusions as to the policy implications. On the basis of the results of the empirical and normative phases in the researchproject, policy implications were formulated, relating the concept of naturalness to several styles of organic agriculture that can be distinguished in the present situation. These implications were discussed at a workshop.

### 3. RESULTS: THE ROLE OF THE CONCEPT OF NATURALNESS IN THE FIELD OF ORGANIC FARMING, INCLUDING CONSUMER PERCEPTION OF NATURALNESS

#### 3.1. *Interviews with People Holding Key Positions in the Field of Organic Farming*

As expected, the respondents did not agree with all the statements formulated by the authors. On the whole, all respondents agreed on the statement that organic farming is more natural than conventional farming, which is considered to be more artificial. All realized that farming as such is a cultural activity in which human beings interfere in nature. It is the way of interference that makes the difference. When the concept of nature is understood as pristine, wild nature, without any interference of human beings, it becomes impossible to talk about naturalness in connection with agriculture. This is realized very well within the field of organic agriculture. And yet, most respondents considered it a useful concept in comparison with conventional farming. The question then becomes why they think so and what they mean by “more natural.”

Summarizing the results of the interviews, most respondents found organic farming to be more natural because:

- Although organic farming is part of human (agri)culture, its aim is to be harmoniously integrated into nature (finding a balance between human interests and nature’s interests). Conventional farming, on the other hand, shows a tendency to become independent of nature (fully controlled by technology, mainly aiming at high production).

- Nature (a natural entity) is not seen as a mechanistic material system but as a complex organic, living whole.
- The concept of nature as an organic whole corresponds with the daily human experience of nature, in contrast to the more analytic, abstract, and reductionistic concept of nature underlying modern science (which has a great influence on modern agriculture).<sup>3</sup>
- In organic farming, man interferes less radically in natural processes and living entities and the means used are less artificial or synthetic (“natural means”). It is considered to be a gentler technology, making use of the laws of nature at an ecological level, versus the harder technology (including genetic manipulation) of conventional farming.<sup>4</sup>
- There is a positive attitude towards nature: nature should be considered as a friend and not as an enemy. Therefore, one can speak of a dialogue, as if nature is a partner, with a self-organizing capacity. This idea returns in the rejection of certain modern (genetic) breeding technologies as being coercive, rather than eliciting.
- There is a wisdom in nature that enables the farmer to learn from nature: nature as a teacher (when the farmer makes mistakes it has consequences in the ecosystem or the health and behavior of plants and animals; from that the farmer can learn). Carrying capacity of the ecosystem, recycling, harmony, precautionary principle (derived from the complexity of nature).
- It is because of the wisdom of nature that nature is considered “good,” deserving our respect. It does not mean, as many critics suggest, that what takes place in (pristine) nature is automatically good or healthy for human beings
- Many organic farmers try to stimulate natural biodiversity within their agro-ecosystem.
- Genetic engineering and several other modern reproductive techniques in plants and animals are rejected out of respect for natural species barriers (the species-specific “nature,” the integrity of the plants or animals). There is also the uncertainty involved in applying the results of reductionistic thinking in the environment (human arrogance in believing that one can control a complex organic system with gene technology).

On the whole, respondents agreed with the 16 statements formulated by the authors. One or two respondents said that sustainability or vitality

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<sup>3</sup> It is the latter conception that is used by the critics mentioned in the introduction: nature as everything to which the laws of physics, chemistry, and biology apply.

<sup>4</sup> The words “gentle” and “hard” are used here in the way it has been formulated by Arnim von Gleich (1989).

should be the most important goal (value) of organic farming, instead of naturalness.

As to the statements about gene technology, one person had no problems with the technology as such, only with the intention behind it, and the present socio-economic context in which the technology is developed. Gene technology, although unnatural, could still contribute to a better environment. An interesting critique of gene technology was that it makes the farmer dependent on specialists from outside; the farmer loses control over the agro-ecosystem.

With respect to sustainability, some agreed that with a very restricted definition of naturalness (using products of natural origin, thus not produced synthetically in the laboratory), it is true that this does not automatically lead to a healthy environment (think of excess use of organic manure, or copper). Also the effect on the ecosystem should always be considered. Others think that organic farming is automatically sustainable if the farmer takes the harmony, stability, or “nature” of the agro-ecosystem as its guiding principle (carrying capacity, recycling, low use of energy, etc.). Problem areas are the cultivation of fruit and pigs and poultry for meat production only.

### *3.2. Interviews with Consumers about Their Perception of Nature*

Representatives of consumer organizations expect that naturalness is an important criterion for consumers of organic products, and that there is not a fundamental difference between consumers of mostly organic products and consumers of biodynamically produced food. More important is the difference between consumers who buy in supermarkets and those who buy in health-food stores. For consumers, more natural food is related to less interference, less processing, less artificial, no use of additives. Consumers will not connect the naturalness of the production of food with sustainability or with the idea of an agro-ecosystem. Naturalness in connection with the production of animal food is brought into relation with a high standard of animal welfare (natural behavior, not forcing animals to grow fast, not mutilating the animals, etc.). It is expected that consumers will consider unnatural: heating of greenhouses, artificial light, plastic groundcover in spring, a lot of synthetic manure to let plants grow fast, tomatoes in winter.

These expectations proved to be quite reasonable when we compare them with the results of the consumer interviews:

- In spontaneous descriptions of organic agriculture consumers often use the word nature or natural (natural balance, naturalness as norm,

closer to nature, producing as natural as possible, leaving nature in its value, using the forces of nature).

- Most consumers do not define nature as wildness, but as everything that lives (growing by itself). The concept of nature has an emotional meaning as well: peacefulness, silence, freedom, becoming yourself, holidays.
- The amount and way of processing a primary food product influences the naturalness. Less processed food, or food processed in a traditional way without additives is associated with more natural food.
- The more artificial the food production and process the less natural it is. Genetic engineering is from that point of view very unnatural.
- Production related to season and region, amount of energy input, but also the kind of package material, affects the (perceived) naturalness of food.
- Consumers can perceive a special food process as natural, but this is not always a reason to buy the product. For pragmatic reasons, they can choose a more desirably processed food product (which might not be natural at all).
- Natural(ness) in general is associated with: simple, pure, non-artificial, unspoilt, and fair.
- Agriculture in general is in some ways a natural activity: outside, fresh air, contact with plants and animals on a caring and basic level. It is clear to consumers that organic agriculture is more natural than conventional agriculture.
- The concepts of naturalness and care for the environment correspond more with the idea of organic farming than vitality or sustainability. Naturalness is one of the basic conditions of organic agriculture (besides: care for the environment, no pesticides, and food safety).
- Sustainability is in the first place associated with paint and materials used in buildings. In the second place food from organic agriculture is seen as *less* sustainable by part of the consumers because they presume that it is less storable, or *more* sustainable if people look at the impact on the soil.
- Vitality is a very difficult concept for consumers when associated with food or agriculture. They can only imagine a very healthy and vital looking organic farmer.

The consumer interviews also brought out, as was expected by the people holding key positions in organic agriculture, that most consumers have little knowledge of food production in general and organic production in particular.

#### 4. INTERPRETATION OF RESULTS

To be useful for any policy with respect to the future of organic agriculture, the meaning of nature or the natural that is implicit in the results as presented has to be reinterpreted and be made more precise. We have done this in a step-by-step approach, by comparing that meaning with the definition of the natural as used by critics (see introduction). Critics say that “nature” can mean only two things:

- A. everything in the universe (everything to which natural laws apply)
- B. pristine nature

A. The first meaning (everything in the universe) is far too general to do justice to the complexity of the concept of nature. In the organic view of nature, a distinction is made within the universe between inorganic and organic nature. Agriculture is primarily related to organic or living nature. That is why it is called *organic* agriculture (in the Netherlands: *biological* agriculture), clearly indicating that it deals with the realm of living nature.

This leads us to the first interpretation of the distinction between what is natural and what is unnatural: the natural is related to the realm of living nature, that is nature as it is experienced spontaneously by most people (see also the interviews with consumers). This common sense view of nature is not the same as pristine nature. What is important is that it lives and grows by itself. On reflection, one can distinguish several aspects of this interpretation:

1. Living as opposed to dead (inorganic nature is dead in this sense) chemical pesticides and herbicides are related to death, not to life
2. The idea of the autonomy of life. Life processes have emergent properties compared with non-living nature. In genetic modification techniques, the level of life is reduced to the molecular (physico-chemical) level
3. Natural substances versus synthetic substances, produced in the laboratory. The laboratory or the factory is associated with the mechanical (the machine-like), a metaphor that is traditionally opposed to the metaphor of the organic.

In organic agriculture this emphasis on the autonomy of life-processes can be approached negatively and positively. The negative approach we have called the no chemicals approach (where “chemical” stands for all synthetic inorganic substances), and the positive approach the agro-ecological approach.

*Approach 1: The no chemicals approach*

This approach to organic farming is very similar to the one that is defined by official legal standards. It is a negative approach in the sense that organic agriculture is said to distinguish itself from conventional farming because no chemical pesticides, no synthetic manure, no GMOs, etc. are permitted. Farmers have to replace (bio)chemical-synthetic substances by more natural substances. Instead of chemical sprays against diseases farmers use “natural” sprays or biological control, synthetic manure has to be replaced by organic manure, and instead of herbicides, mechanical weed control is used. Even the use of homeopathic remedies in animal husbandry can be seen from this point of view. Homeopathic medicine is believed to be more natural because it is derived from natural substances, and not from chemical substances synthesized in the laboratory. This approach often is the first step in the conversion process from conventional to organic farming. Farmers are motivated to stop using unnatural chemical sprays and artificial manure. This approach is linked to a rather limited view of human and environmental health.

The distinction between living (organic) nature and dead (inorganic) nature is then associated with the distinction between healthy and unhealthy (related to death). Using no chemical pesticides and herbicides (etc.) is believed to be healthier not only for the environment, but also for humans. Although this association definitely is not true in all cases,<sup>5</sup> it is related to a strong belief of producers and consumers that organic food is healthier. This also is the motivation behind the fast process of the industrialization of organic food production (the “Organic-Industrial Complex”), especially in the USA (Pollan, 2001; Sagoff, 2001). Pollan discovered that the way of thinking behind this industrialization process is very much conventional. The aim is to produce uniform organic products that have to be substantially processed in order to transport them over long distances.

Experienced organic farmers believe that this negative approach to organic agriculture, based on a too limited conception of the natural, is not enough. They think that organic farming needs a more fundamental change in the way of thinking about how to handle problems and find solutions. Put rigorously, they think that the no chemicals approach is still based on the suppression of symptoms, and the desire to create a highly controllable environment in which pests and diseases have to be fought and to be eliminated. Organic farming should be more than substituting natural

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<sup>5</sup> Many critics of organic farming keep on emphasizing that “natural” food can be very dangerous for humans (health risks of organic manure, poisonous substances within natural plants) or for the environment (the use of pyrethrum or copper for instance).

substances for those permitted by the organic regulations. The thinking of the no chemicals approach remains analytical. Acting is based on symptom reduction and solutions have a piecemeal character. This brings us to the second (ecological) approach to organic agriculture and the concept of nature underlying it.

B. When nature is defined as pristine nature, as the opposite of culture, then any form of agriculture is unnatural by definition, because pristine nature is defined as nature uninfluenced by human action. The results of our interviews show that most respondents do not share this dualistic ('either-or') view of the relation between nature and culture. The second interpretation of what is meant with "natural" has to do with this relation between nature and culture. We think that in the organic view of the relation between (agri)culture and nature, it can best be described as a polar, dialectical relation. This means that:

- The two poles (nature and culture) cannot be defined independently of each other.
- One pole cannot be reduced to the other.

To look at the relation between nature and culture as a polar relation has important consequences. The first consequence is that it becomes legitimate to speak about human agricultural activities as more or less natural. This will be made explicit in the second, agro-ecological approach to organic agriculture. It is recognized that agriculture is a cultural activity, but the word "ecological" is added to emphasize that it aims to be as natural as possible. This means that the relative autonomy of the nature pole is respected. The more this independence is respected, the more natural an agricultural practice is. This independence manifests itself not only in the application of natural substances, but also in integrating the self-regulating ability of living systems and in respecting the intrinsic worth of natural entities.

The second consequence of the polarity relation is that in a polarity relation all conceptions of nature get a value component. This led us to distinguish a third approach in which the man-nature relation within organic agriculture is looked at from a more ethical level. This approach we have called the integrity approach to organic agriculture.

*Approach 2: The agro-ecological approach (focus on context)*

That the nature pole with a value of its own is respected was apparent from the interviews. In the agro-ecological approach this shows itself in the fact that in the agro-ecosystem, self-regulation is a very important principle. Conventional farming shows a tendency to become totally independent of nature, fully controlled by technology in an artificial environment.

Although the plant itself still is a living organism, it is isolated from its natural surroundings. In organic farming, we find the opposite tendency, namely to integrate agricultural activities into nature. The farmer learns from nature. In practice this means that nature is defined as an ecological system, and the ecological farmer wants to model the agricultural practice as an agro-ecosystem.

During their conversion period, farmers might experience that they cannot ignore the ecological context when they are confronted with problems such as diseases. They notice that under organic circumstances, it is not sufficient just to avoid chemical pesticides and artificial fertilizers. A new attitude and another way of acting is needed based on the prevention of problems through knowledge of ecological processes. To sustain plant health, farmers begin to understand that the “*living soil*” and soil life in particular needs to be taken care of. They experience that a soil with a good structure, sufficient organic matter, and active soil life is a necessary condition for healthy plant growth. Organic manure feeds the soil life. Organic farmers start realizing that “we need to feed the worms and not merely the plants.”

Diseases are now seen as symptoms of unbalanced systems: lack of balance between plant or animal and farm environment. Rather than fighting pests and diseases with chemicals, the emphasis shifts to control of the environment. To control aphids, for instance, the farmer has to create an internal system-controlled environment, rather than using repeated input from outside by spraying with natural sprays, or buying natural enemies. A more diverse environment is necessary in which plants growing in hedges, borders or ditches maintain natural predators within the farm system. Plant strength can also be increased through the right choice of manure, or by sound crop rotation.

All this means that farmers start to think in a more ecological way, looking for the broader context of a problem and realizing that the farm should be transformed into a complex, sustainable, and balanced agro-ecosystem. Terms like closed system, mineral cycle, self-regulation, and biodiversity are important keywords to characterize naturalness in this approach of organic agriculture. One needs to work together *with* nature instead of fighting *against* nature. Solutions are based on rational, experiential, and experimental ecological knowledge.

### *Approach 3: The integrity approach*

This approach is implied in the second consequence of the shift to a polarity view of the relation between nature and culture. In a dualistic view of this relation, culture, as the product of the human creative mind,

is often opposed to nature as being a material object only. Nature in this view has no meaning or value in itself. The critics mentioned in the introduction totally neglect this valuational aspect of the concept of nature or the natural.

In a polar relation between nature and culture, the concept of nature always has such a valuational aspect. Results of the interviews indicate that for many organic farmers this valuational dimension is intentionally implied when they speak about the “natural.” It manifests itself among others as respect for the integrity of life, for the agro-ecosystem, and for human needs (including social and economical integrity). The term “natural” here refers to taking into account the characteristic nature of plants, animals, humans, and ecosystems because nature has an intrinsic value.

Respect for the integrity of the farm ecological system, the living soil, the plant and animal species used is the result of an inner process of involvement with the way of being of natural entities. Farmers begin to experience that their focus on problems and solutions is connected with their personal attitude and their personal relationship with either the soil or the cultivated plants or animals. They experience that the organic farming system is more than merely a complex ecological mechanism and more than the sum of the parts. This feeling is also present in relation to the plants or animals they take care of. They develop a respect for the wholeness, harmony, or identity of a living entity based on a personal involvement with the life of plants or animals.

This attitude of respect inspires the farmer to find the right course of action at the right moment in the specific farm context. This respect for integrity has first been recognized in the field of animal husbandry. The animal's needs have to be understood by farmers in the context of the farming system. Cows should be fed as ruminants instead of monogastric animals like pigs and poultry. They should be kept as horned animals in a well-balanced herd. Dehorning can only be avoided if the farmers are prepared to develop a new way of acting based on the cow's needs in terms of herd management, housing, and feeding (Baars and Brands, 2000; Waiblinger et al., 2000). Also the cows' need for outdoor summer grazing is derived from respect for the cow's “nature.” Outdoor grazing cannot be replaced by an outdoor run only.

As to the socio-economic aspects, we want to mention Community Supported Farms (Groh and McFadden, 1990) as an attempt to enlarge the concept of sustainability within ecological farming to the socio-economic sphere as well. In this system, prices of products are no longer determined by the free market system of supply and demand, but are based on the

needs of the family living at a farm. Also soil prices should not be related to the free market but should be based on the agricultural use of the soil for the production of high quality food. The idea of consumer-supported farms is also of interest to consumers who are looking for less anonymous food products.

## 5. BIOETHICS AND THE ETHOS OF ORGANIC FARMING

The authors have become convinced that naturalness is or could become an important element of the ethos of organic agriculture. The ethos is the system of ethical norms and values, the “philosophy” behind organic agriculture. What is lacking in the no chemicals and in the agro-ecological approach is respect for the “otherness,” the identity, the characteristic nature of natural entities as partners of humans; and the realization that humans are participants in nature. In the organic sector the ideal is to reach integration of culture and nature, without giving up the relative autonomy of both man and nature.

The authors conclude that naturalness is of moral value in organic agriculture. In the literature on value-clarification three components of the process of moral valuation are distinguished.<sup>6</sup>

- A rational (cognitive) dimension. To this belong the concept of nature, and of the relation between man and nature, in so far as these are connected with the valuation of nature. Different worldviews, including the scientific one, can play a role here.
- An emotive dimension. One must have the feeling that it is good, and that one feels good by it. Several basic attitudes towards nature can be distinguished: man as ruler, man as steward, man as partner of nature, and man as participant in nature. The basic attitude can be positive (nature is good, the wisdom of nature, etc.) or negative (nature is threatening, it has to be controlled, etc.).
- A normative dimension. The consequences of the foregoing dimensions for human action, for what we ought to do or not to do with nature. Here several bio-ethical frameworks can be distinguished: anthropocentric, zoocentric, biocentric, and ecocentric.

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<sup>6</sup> We refer here to the literature on value clarification (Simon et al., 1978) where these three dimensions can be recognized in the processes involved in all valuing: feeling, thinking, communicating, choosing, and acting. The three dimensions are also mentioned by Keulartz et al. (2002) in their study of conceptions of nature in relation to natural habitat restoration projects in The Netherlands.

There should be a certain consistent relation between these three dimensions. The emphasis on integration of culture and nature in organic agriculture, and a positive attitude towards nature as having a good of its own, asks for more holistic methods of research in which the autonomy of natural entities as partners is respected.

Of the different bio-ethical frameworks, there is not one that by itself is sufficient to characterize the ethos of naturalness in organic agriculture. Some form of man-centered stewardship is needed to emphasize the special role of man in nature, as a bearer of culture. The zoocentric element, which refers to the needs and subjective feelings of animals, is of great importance in organic agriculture. Combined with the attitude of partnership, this leads to some form of egalitarianism. In the biocentric framework, this is extended from animals to plants. Respect for the integrity of all living beings is present in organic agriculture. It plays a great role in the evaluation of modern reproductive techniques such as genetic modification. The ecocentric element is very important with respect to organic agriculture (especially in the agro-ecological approach). It can be recognized in the positive attitude towards wild nature, and respect for the wisdom of nature, especially in connection with the principle of self-regulation, the “self” referring to the relative autonomy of nature. The principle of ecological sustainability is of great importance in organic agriculture: taking care of the fertility of the soil, rotation of crops, no use of chemical pesticides, etc. To be able to prevent diseases, it is necessary to understand the coherence of the whole agro-ecosystem. The idea of preservation of diversity is extended to agricultural breeds and varieties. Finally, the ecocentric attitude is present in the idea of participation in nature, which brings with it an element of care and responsibility (precautionary principle and sustainability).

Somehow, the elements of the different bio-ethical frameworks have to be integrated in a new way, to do justice to the ethos of naturalness in organic agriculture. We have called this integrative framework: holocentric. The details of such a holocentric ethic have to be elaborated with the participation of the organic sector itself. Used as a guide in the process of further improvement of the organic production system, it does not exclude the making of compromises, but these should always have a temporary nature. It should be a source of inspiration, to come to moral decisions for those involved. It is not meant to be a strict juridical framework.

## 6. DISCUSSION AND CONCLUSIONS

In reconstructing the results of the interviews, the authors have distinguished three meanings of the concept of nature, the natural, and naturalness in organic farming: firstly, natural as related to the realm of life and life processes (the organic); secondly natural as the ecological, and thirdly natural as referring to the characteristic nature of an entity. These meanings have been connected to three different approaches in the field of organic agriculture: the no chemicals approach, the agro-ecological approach, and the integrity approach.

The three approaches could be seen as separate styles of organic farming. It also became clear, however, that these approaches can be recognized in the inner conversion process of farmers from conventional to organic agriculture (Bloksma, 1991; Dutilh and Mustard, 2001). Østergaard (1997), who was looking for the learning process of Norwegian organic farmers during conversion, mentioned that through a continuous interaction between intentions, experience, experimenting, and information acquisition, the farmer successively gains knowledge about a new situation. At a certain stage, converting to organic agriculture means a personal “shift of paradigm”: old goals are left and new visions and goals are developed. So conversion consists of an internal or human part and an external, agronomic-technical or practical part. Although this does not mean that all farmers integrate the last level, there surely is a tendency in that direction.

Contrary to what critics say about the concept of the natural, we believe that good reasons can be given and are given why organic agriculture is more natural than conventional agriculture. It is not just a matter of defining the natural in a different way than do the critics; it is also believed that organic agriculture really is “closer to nature.” We conclude, therefore, that the concept of naturalness may be used to characterize organic agriculture and to distinguish it from conventional agriculture, but only if all three aspects of the natural mentioned in this paper are included. We think that the concept of naturalness is misused when only the first meaning is adopted, as is done in the no chemicals approach to organic agriculture. It should also include respect for ecological principles and for the integrity of living nature as a whole.

With naturalness as a criterion, the no chemicals approach is not sufficient enough to distinguish organic farming from an environmental friendly, integrated form of conventional agriculture. When this first approach is broadened with knowledge and awareness of system ecology and respect for the integrity of life, we have an important condition for further development and optimization of organic farm management and

organic product quality. Then it will be feasible to use the holocentric ethos of organic farming as a future guide for the organic sector as a whole, rather than the alternative of breaking up organic agriculture into different permanent styles, with separate trademarks. But then, a conversion in thinking is not only necessary for farmers but also for new policy makers, traders, processors, consumers, and researchers (Baars, 2001; Ruitenbeek, 2001; Wit and Amersfoort, 2001). With the rapid growth of the organic sector, as implemented in several European policies, there is a risk that the implementation and interpretation of organic farming in the standards, in advising farmers, and in research, will mainly be focused on the first approach, thereby losing its connection with the intentions of organic agriculture.<sup>7</sup>

The authors presented their conclusions at an interactive workshop with participants who are involved in several policy issues related to organic agriculture. The participants were asked to give their answer to three questions:

- Do you recognize the three approaches in organic agriculture distinguished by the authors, and the conception of naturalness, which is related to it?
- Do you agree with the conclusion of the authors that the claim for naturalness is a useful criterion to distinguish organic agriculture, under the condition that all three aspects of naturalness are included?
- What are the implications of these conclusions for policy?

A large majority of the participants found the grouping recognizable and convincing, and a good basis for a discussion about the future direction of organic agriculture. It is useful as an inspirational guide, not as a normative (juridical) standard. It should become the subject for debate in the organic movement, including farmers (especially those planning to convert to organic agriculture) as well as retailers and consumers. The grouping can create greater transparency, both inside and outside of the organic movement.

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<sup>7</sup> The International Federation of Organic Agriculture Movements (IFOAM, 2000) makes a distinction between general principles, recommendations, and standards. We use the word "intentions" as similar to principles because the general principles are described as the "intended goals" of organic farming.

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