The value of 'naturalness' in organic agriculture

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Abstract

Producers, traders and consumers of organic food regularly use the concept of *the natural* to characterize organic agriculture or organic food. Critics sometimes argue that such use lacks any rational (scientific) basis and only refers to sentiment. We carried out research to (1) better understand the content and the use of the concepts of *nature* and *the natural* in organic agriculture, (2) to reconstruct the value basis underlying the use of the concept of *the natural* in organic agriculture, and (3) to draw implications for agricultural practice and policy. A literature study and the authors' own experience were used to produce a discussion document with explicit statements about the meaning of *natural* in the different areas of organic agriculture. These statements were validated by means of qualitative interviews with stakeholders. The concept of nature or the natural appeared to be value-laden. The value basis is a normative reconstruction that cannot just be derived from the use of the word *natural* by organic stakeholders. For this reconstructed concept the word *naturalness* is used. Naturalness thus becomes an ethical value for organic agriculture, an inspirational guide for organic stakeholders. The value of naturalness refers to a basic respect for the intrinsic value of nature, i.e., the value *nature* has, independent of the benefits it may have for humans. This manifests itself in three ways: (1) in the use of natural substances, (2) in respecting the self-regulation of living organisms and ecosystems, and (3) in respecting the characteristic (species-specific) nature of living organisms. If organic stakeholders limit themselves to using natural substances it is called the *no-chemicals approach*. If they also respect the self-organization of living organisms the authors call it the *agro-ecological approach*. If also the normative element of naturalness is included, it is called the *integrity approach*.

Additional keywords: concept of nature and naturalness, environment, ethics, farm ecology, health, integrity of life, organic food

Introduction

Organic agriculture aims at refraining from inorganic fertilizers and synthetic pesticides,

thus enhancing biodiversity and the self-regulating ability of the farm-ecosystem through low-input, ecological management (Kristensen *et al.*, 2006). In advertisements for organic food products it is regularly suggested that organic products are produced in a *natural* way. Also when comparing organic farming with modern, high-input (conventional) agriculture it is said that organic agriculture is more natural. Examples of unnaturalness are: dehorned cows in strawless cowsheds, debeaked hens kept in large flocks, growing plants in hydroculture, use of synthetic pesticides, and modern reproductive techniques such as ovum pick up or genetic modification. The criticism that the technique of genetic modification is unnatural is seen as one of the so-called intrinsic public concerns. It is not primarily based on the (extrinsic) consequences, the risks to human health or the environment, but related to the technology itself and man's attitude towards nature (Reiss & Straughan, 1996; Anon., 1999a, b).

Those criticizing the concept of naturalness have argued that the concept is muddled and vague or that there is no rational foundation for it (e.g. Vijverberg, 2001). With the latter they mean that it is not supported by natural science. In natural science nature is defined as everything to which the laws of physics, chemistry and biology apply. This would imply that every kind of agriculture is natural, and that no distinction can be made between different approaches in agriculture. In this view genetic modification is natural too, because natural processes at the molecular level are exploited, in contrast to chemistry where really synthetic products are made. The opposite result is obtained if natural is defined as pristine nature, nature that is unaffected by any human interference. Consequently, nothing humans do – including all agricultural activities – can be called natural. So either everything or nothing humans produce is natural. Indeed, the word 'natural' is a muddled concept, but this is mainly because those who use it do not say what they exactly mean by it.

A more philosophical kind of criticism 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. Something is natural or unnatural, but this does not automatically imply that it should or should not be done (the so-called naturalistic fallacy). Speaking about facts versus values – as if they were totally opposed to each other – is a consequence of the rise of modern science with its dualism between subject and object. According to this dualism all valuation is subjective, is a result of human judgment. According to this view there cannot be any value that is intrinsic or inherent to nature. With this kind of criticism it is often overlooked that concepts such as nature or natural always have a valuational component (are value-laden). They cannot be defined separate from a particular view on man's position in nature, or from the relation between man and nature. And in our opinion this is also true for the definition of nature in natural science.

Why is the word natural giving many people such a positive feeling compared with for instance the artefactual or the industrial? Or the other way round, when nature is opposed to culture, should 'nature' not get a more negative colouring? The human mind is then related to culture and the body to nature. According to some authors (e.g. 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 (1989) distinguishes between the

(Christian) view of a 'harmonious nature', which is good, which can be trusted, and the view of a 'fallen nature', as a mirror of sinful humanity, which is threatening and often is seen as an enemy that has to be defeated. 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 defeated as an enemy). A similar distinction can be made between organic agriculture and conventional agriculture.

The first conclusion from this introduction is that one should not try to find out what is the one and only true definition of nature or the natural, without placing it into a larger context referring to man's attitude towards nature or man's relation to nature. In this article this is done with the concept of *the natural* as defined or used in organic agriculture. Secondly, it is important to realize that using the word natural always involves a value component. Such a component cannot be simply derived from the meaning resulting from interviews with stakeholders. Its meaning has to be reconstructed and then debated in the organic sector. Such a reconstruction is undertaken in this article.

Methods used

We shall provide highlights of the results of an empirical research project, carried out by the authors to investigate the concept of the natural or naturalness in organic farming. The research consisted of two parts. In the first part the authors explored the meaning of the concept of the natural as used in the organic sector. In the second part an attempt was made to reconstruct the value base of this concept. Interviews were held with key persons in the field of organic farming in the Netherlands and with representatives of consumer organizations and consumers.

Interviews with stakeholders in organic farming

An obvious way to do empirical research about the meaning of the concept of nature / natural among stakeholders in the organic sector would be to use a bottom-up approach of concept mapping. With this bottom-up method the people who are interviewed are free to choose their own formulations, which are then grouped together in some previously selected way. Instead, we chose a top-down method, because the authors already were involved in the development of organic agriculture for a long time. On the basis of personal experience and a study of the literature a discussion-document was written containing 22 explicit statements about the meaning of natural in the following areas: the relation between (agri)culture and nature, biotechnology, sustainability, agro-ecosystem, animal husbandry, arable cropping, food and nutrition, and bioethics. Examples of the statements used were:

- A generally accepted characteristic of organic agriculture is its naturalness, in contrast to the artificialness of conventional agriculture.
- Control of production processes in organic agriculture is realized by making use of natural processes.

- Organic agriculture aims at integrating nature and culture.
- Naturalness does not automatically guarantee a healthy environment.
- Organic agriculture respects the characteristic nature of living plant and animal species.

The truth-value of these statements was validated through in-depth, qualitative interviews with 31 expert stakeholders representing a cross-section of different sectors of organic agriculture in the Netherlands. The results were summarized and discussed in a workshop with 22 expert stakeholders (organic farmers, traders, retailers).

Interviews with consumers of organic food

First, some hypothetical statements were formulated about how consumers would use the concept of the natural in connection with the organic food they eat. Representatives of consumer organizations validated the statements. Then, in-depth qualitative interviews with consumers were done by a marketing research centre (Motivaction; see Van Amersfoort & De Wit, 2000). Eighteen paired and two single interviews were held, 10 in a more urban and 10 in a more rural city. The consumers had used basic organic food products for at least one year.

Secondly, the underlying value basis of the concept of the natural was reconstructed. The bioethicist in the research group wrote a discussion document in which he tried to situate the organic conception of the natural in relation to different bioethical theories and metaethical discussions. Representatives of three different bioethics centres in the Netherlands critically reviewed this document. This led to a substantial revision of the original document. In this paper only the results of the reconstruction are given. To distinguish this reconstructed value base from the meaning of the word *natural* as used by stakeholders the word *naturalness* was used. Aspects of the value of naturalness were related to several styles of organic agriculture. The policy implications of these styles were discussed at an interactive workshop with 22 people involved in the development of the organic sector.

Results

Interviews with stakeholders in organic farming

On the whole all respondents working in the organic sector agreed on the statement that organic farming is more natural than conventional farming, which is considered to be more artificial. All respondents realized that farming as such is a cultural activity in which human beings intervene in nature. It is the way of intervention that makes the difference. When the concept of nature is understood as pristine, i.e., wild nature, without any intervention 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. On the whole, respondents nevertheless considered it a useful concept for distinguishing organic from conventional farming. The questions then become why do they think so and what do they mean by more natural.

The answers to these questions were found by grouping the responses in the following way. Respondents found organic farming to be more natural than conventional farming because:

- The aim of organic farming 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 of becoming independent of nature (fully controlled by technology, mainly aiming at a 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).
- In organic farming man intervenes less radically in natural processes and living entities and the methods used are less artificial or synthetic ('natural methods'). It is considered to be a gentler technology, making use of the laws of nature at an ecological level, as against the harder technology (including genetic manipulation) of conventional farming (Von Gleich, 1989).
- There is a positive attitude towards nature. Nature should be considered as a friend and not as an enemy. One can therefore 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 for the ecosystem or the health and behaviour of plants and animals, mistakes from which the farmer can learn).
- It is because of the wisdom of nature that nature is considered 'good', deserving our respect. It does not imply, 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 plant and animal production are rejected because of respect for natural genetic species barriers (the species-specific 'nature', the integrity of plants and animals). There is also the uncertainty involved in applying the results of reductionistic thinking in the environment, as in attempts to control a complex organic system with gene technology.

Interviews with consumers of organic food

The following impressions are obtained from the summary of the consumer research as done by Motivaction (Anon., 2000):

- 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, respecting nature, 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 extent to and way in which processing a primary food product influences its 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 process, the less natural it is. Genetic engineering from that point of view is very unnatural.
- Production related to season and region, amount of energy input, but also the kind of packaging 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 may 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: outdoors, fresh air, contacts 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. From that point of view, part of the consumers see organic agriculture as *less* sustainable because they presume that it is less storable. It is considered *more* sustainable if consumers 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.

Normative reconstruction of the value of naturalness

Looking at the diverse responses of stakeholders and consumers makes clear that the natural refers to a number of different issues. Most of them are somehow related, but it is not immediately evident how. Neither can a coherent view on what the natural means in organic farming just be logically derived from these responses. The more so if one's aim is to give meaning to naturalness as an ethical value that may serve as guidance for future developments. During the research project (1999–2002) the authors made an attempt and discussed their proposal for reconstruction in a final workshop. Since 2002 they have presented their results in all kinds of fora, which has led to further refinement of the concept.

Integration of culture and nature in agri-culture

If nature is defined as pristine nature, i.e., as the opposite of culture, then any form of agriculture is unnatural by definition, because pristine nature is defined as nature not influenced by human action. The results of our interviews show that most key persons in the sector do not share this dualistic (either–or) view on the relation between nature

and culture. We think that in the organic view on 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, and that one pole cannot be reduced to the other.

Looking at the relation between nature and culture as a polar relation has important consequences. The impossibility of reducing one pole to the other means that the relative autonomy (independence) of the nature pole is respected in organic agriculture. Consequently, it becomes legitimate to speak about human agricultural activities as more or less natural. The more this independence is respected, the more natural an agricultural practice is. Conventional farming shows a tendency towards becoming totally independent of nature, fully controlled by technology in an artificial environment (such as greenhouses with hydrocultures). 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 integrating agricultural activities into nature. The farmer learns from nature. In practice this means that nature is seen as an ecological system, and the ecological farmer wants to model the agricultural practice as an agro-ecosystem.

The naturalness of organic agriculture is primarily based on respect for nature in the relationship between humans and nature. This respect for the independence of nature manifests itself in three ways:

1. In applying substances that are as natural as possible, rather than using synthetic substances. If organic stakeholders limit themselves to this aspect, the authors speak of the *no-chemicals approach* to organic agriculture.
2. In taking measures to stimulate the self-regulating ability ('autonomy') of living systems, including (agro-)ecological systems. If organic stakeholders also include this aspect the authors call it the *agro-ecological approach* to organic agriculture.
3. In respecting the characteristic (species-specific) nature of every living organism. This is called the *integrity approach* to organic agriculture.

Another consequence of seeing the culture–nature relation as a polarity relation is that all concepts of nature get a value component. Therefore, taking into account the relative autonomy of the nature pole can also be formulated as having respect for the intrinsic value or inherent worth of all living entities (including ecosystems, landscapes). In a dualistic view on this relation, culture – as the product of the human creative mind – is often opposed to nature as being a material object only. In this view, nature by itself has no meaning or value. In a polar relation, however, the concept of nature always has a valuational aspect. The results of the interviews indicate that for many organic farmers this valuational dimension is intentionally implied when they speak about *the natural*.

The no-chemicals approach

The no-chemicals approach to organic farming is very similar to the one defined by official legal standards for organic agriculture, e.g. EEC Directive 2092/91 (Anon., 1991). It is a negative approach in the sense that organic agriculture is said to distinguish itself from conventional farming because no such materials or techniques like synthetic pesticides, inorganic fertilizers, and GMOs 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. Inorganic fertilizers have to be replaced by organic manure, and mechanical weeding is used instead of herbicides. Even the use of homeopathic remedies in animal husbandry can be seen as more natural because they are 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 inorganic fertilizers. This approach is linked to a rather limited view on human and environmental health. Using non-chemical pesticides, herbicides and the like is believed to be healthier not only for the environment, but also for humans. Although this association definitely is not true in all cases, it is related to a strong belief of producers and consumers that organic food is healthier (Worthington, 2001).

Underlying the no-chemicals approach is the distinction between the laws of inorganic and organic nature. In organic agriculture the primary focus is on 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. The natural is related to the realm of living nature, nature as it is experienced spontaneously by most people. This was a clear outcome of the interviews with consumers. This common sense view on nature is not the same as pristine nature. Important is that it lives and grows by itself. Upon reflection one can distinguish several aspects of this interpretation:

- Living as opposed to dead (in this sense inorganic nature is considered dead). Synthetic pesticides, herbicides and insecticides can be summarized as 'biocides': they kill life. A similar association exists with the word 'anti-biotics'.
- 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.
- Natural substances versus synthetic substances produced in the laboratory. The laboratory or the factory is associated with the mechanical (the machine-like), a metaphor which is traditionally opposed to the metaphor of the organic.

The agro-ecological approach

Experienced organic farmers believe that the no-chemicals approach is based on too a limited conception of the natural. 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 eliminated. Organic farming should be more than substituting synthetic substances by those permitted by the organic regulations. The thinking of the no-chemicals approach remains too analytical. Intervention in nature 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.

During the conversion period organic 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 synthetic pesticides and inorganic fertilizers. A new attitude and another way of acting is needed that is 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 special 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 soil life (e.g. earthworms, soil organisms). Organic farmers say: "we need to feed the earthworms and not merely the plants".

Diseases are now seen as symptoms of unbalanced systems: a 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. For instance, to control aphids 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 needed in which plants that grow in hedges, borders or ditches maintain natural predators within the farm system. Plant vigour can also be increased through the right choice of manure, or by sound crop rotation.

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

The integrity approach

The term 'natural' refers to taking into account the characteristic nature of plants, animals, man and ecosystems, as a consequence of attributing intrinsic value to nature. Respect for the integrity of the farm ecological system, the living soil, and the plant and animal species used, is the result of an inner process of involvement of the farmer with the way of being of natural entities. Farmers 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. These are all aspects of the concept of 'integrity'.

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 was first recognized in the field of animal husbandry, but it also plays a crucial role in the rejection of genetic engineering (Verhoog, 2007). Farmers have to understand the animal's needs in the context of the farming system. Cows should be fed as ruminants instead of monogastric animals like pigs and poultry, and should be kept as animals with horns

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 & Brands, 2000; Waiblinger *et al.*, 2000). Also the cows' need for outdoor summer grazing is derived from respect for the cow's 'nature'. Grazing cannot be replaced by an outdoor run only. In organic husbandry it is recognized that 'natural behaviour' is an important element of the organic concept of animal welfare (Lund, 2002).

Conclusions and their validation

The construction of the value of naturalness has been a creative process of interaction between the authors and organic stakeholders, making use of the results of interviews and statements in literature. Concepts of nature always have a value component because they cannot be defined independent of having a particular view on what is considered to be a good relation between humans and nature. In organic agriculture it is considered to be good to respect the intrinsic value of nature. Nature cannot just be seen as a material resource only. This so-called respect for the relative autonomy of nature manifests itself in three ways: (1) using natural substances (substances more or less directly related to living nature), (2) respecting and making use of the self-organizing capacities of living organisms and ecosystems, and (3) respecting the characteristic nature of natural entities. These components of the value of naturalness have been connected to three different approaches in the field of organic agriculture: (1) the no-chemicals approach, (2) the agro-ecological approach, and (3) the integrity approach.

These three approaches could be seen as separate styles of organic farming in which the word *organic* is defined in different ways. But the main aim of the authors was not to describe different styles of organic farming but to formulate naturalness as an ethical value. This means that the value of naturalness is related to an idea of the ideal organic agriculture. From that perspective it may be said that the value of naturalness should include all three components. An extra argument is that the three approaches to organic agriculture can also be recognized in the inner conversion process of farmers from conventional to organic agriculture (Dutilh, 2001; Bloksma, 2002). Østergaard (1997), who studied the learning process of Norwegian organic farmers during conversion, concluded 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. Although it does not mean that all farmers integrate the integrity approach, there surely is a tendency into that direction.

The no-chemicals approach in itself cannot claim the value of naturalness. Such a claim should also include respect for ecological principles and for the integrity of living nature as a whole. The no-chemicals approach is not enough to distinguish organic farming from an environmental friendly, integrated form of conventional agriculture. If this 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. The value of naturalness could then become an important element of the ethos of organic agriculture, i.e., the system of ethical norms and values, or the 'philosophy' behind organic agriculture. What lacks in the no-chemicals and in the agro-ecological approach is moral respect for the 'otherness', the identity, the characteristic 'nature' of living entities as partners of man; 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.

This ethos of organic farming could then serve as a future guide for the organic sector as a whole. This should be preferred to the alternative of breaking up organic agriculture into different permanent styles with separate trademarks. Moreover, a conversion in thinking is not only necessary for new organic farmers but also for policy makers, traders, processors, consumers and researchers (De Wit & Van Amersfoort, 2001; Van Ruitenbeek, 2001; Baars, 2002). With the rapid growth of the organic sector, made possible by several European policies, there is a risk that the implementation and interpretation of organic agriculture in the standards of cultural practice, in advising farmers and in research, will mainly be focused on the no-chemicals approach, thereby losing its connection with the intentions of organic agriculture as discussed by De Wit & Verhoog (2007).

The authors presented their conclusions at an interactive workshop with 22 participants who are involved in several policy issues related to organic agriculture. The participants were asked to answer the following three questions:

1. Do you recognize the three approaches in organic agriculture as distinguished by the authors, and the concept of naturalness related to it?
2. Do you agree with the conclusion of the authors that the claim for naturalness is a useful criterion for distinguishing organic agriculture from conventional agriculture, under the condition that all three aspects of naturalness are included?
3. What are the implications of these conclusions for agricultural practice and policy?

A large majority (19) of the participants found the grouping recognizable and convincing, and a good basis for a discussion about the future direction of organic agriculture. The three approaches 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 distinction between the three approaches can create greater transparency, both inside and outside the organic movement. It can be useful as a source of inspiration.

Note

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