The Graefelfing Papers

Sustainability and Organic Agriculture

⇒ Preface 3
⇒ The Graefelfing Papers 2002 5
1.1 Preservation of and increase in biological diversity 8
1.1.1 The interdependence of biodiversity and agriculture 8
1.1.2 Natural habitats and organic agriculture 10
1.1.3 Renaturation and organic agriculture 10
1.1.4 Biodiversity as the basis of organic agriculture 11
1.1.5 Biodiversity and world nutrition 12
1.2 Assurance of economic viability 12
1.2.1 Job creation and organic agriculture 12
1.2.2 Prevention of migration from the land in developing countries 13
1.2.3 Regional food supplies and organic agriculture 14

⇒ Preface

The concept of sustainability was discussed as early as 1972 in the manifesto "The Limits of Growth" of the Club of Rome – without, however, specifically using this word. The Brundlandt Commission was the first to coin the term "sustainable development" in 1987 and defined it as the basis of an integrative global political strategy. It was the core theme at the environmental summit in Rio in 1992.

Even today, sustainable development is the central programmatic theme of environmental politics – still with, however, one weakness which has not been eliminated since Rio: the definition of "sustainability" is not clear, and the term is used on many levels and under various approaches, depending on the prevailing philosophy. These differing viewpoints, and any attempt to define "sustainability" in such a way as to be understood easily by the general public and thus in relatively simple terms, harbour the great danger of reducing an extremely complex topic to simple formulae.

Since Rio, the concept of sustainable development has become a new paradigm in all policy discussions about the future, the environment and development. One result has been the replacement of one of the three classic production factors in the vocabulary of economics – work, capital and land – namely the factor "land" by the factor "natural capital", which must be regarded as a step in the right direction. The realisation that nature as a whole is a scarce commodity which cannot be reproduced has achieved broad recognition. Sustainability is understood as the preservation of this natural capital (or of capital as a whole, including nature).

Such unanswered questions as, "Where does nature start, where does it stop?" and "How much nature do we really need?" exemplify the dangers of this way of thinking: it is anthropocentric. Those who regard sustainability solely from the aspect of cost, those who relate their demands for sustainable life and its exploitation solely to the life and requirements of human beings, overlook the fact that man is part of a far broader network – he is part of the whole of creation.

Those who see sustainability in a more complex manner think biocentrically, which means they focus on the preservation of life in all its diversity. Much of the scientific data available for many years reflects the fact that it is crucial for mankind to adopt a biocentric way of thinking, a learning process leading to greater sensitivity about interdependencies. This data alerts us to world-wide threats: global warming, extinction of species, desertification and erosion, water scarcity and starvation.

Since 1994 Naturland has been assembling, examining and evaluating data on various topics in the "Graefelfing Papers", inasmuch as they have direct relevance to agriculture and its impact on the environment. No matter what the topic – ozone pollution, general environmental effects, protection of the soil, water pollution control, world nutrition or the climate – again and again Naturland has explicitly pointed out the dangers emanating from non-sustainable forms of agriculture. All the major environmental associations, consumer protection organisations and other important bodies have lent their support to the "Graefelfing Papers" and, by appending their signature, emphasised the significance of these themes for the future of our earth.

The topic of the "Graefelfing Papers" in 2002 is the most comprehensive one so far: organic agriculture and sustainability. Many changes have come about since 1994. The German consumer has become much more aware and critical concerning the whole field of food production than some years back. Organic agriculture has grown to significant proportions. Forward-thinking politicians have adopted it as a concept for the agriculture of the future and are encouraging it to an extent which would have been unthinkable even a few years ago.

We see all this as a very positive development. However, it falls far short of what is required. The threats confronting mankind on our planet have grown to such proportions as to make immediate action imperative. Millions of figures from the atmosphere, glacier ice and the oceans give clear signals. Mock-ups of the climate point to apocalyptic scenarios in all parts of the world if mankind does not change tack – ten years after Rio – once and for all. And agriculture plays a role here too, the significance of which has not yet been recognised throughout the world. Only conversion to organic agriculture, specially adapted to each region and with the support of the world economy, can make agriculture viable in the future – in terms of sustainable development for all life on earth.

Graefelfing, 15th August, 2002

⇒ The Graefelfing Papers 2002

1. Organic agriculture is the most important option for sustainable world-wide agriculture. Organic agriculture should not just be the plaything of short- and medium-term political interests. The German government and all the political parties are called upon to further the expansion of organic agriculture, independent of party-political interests, as a concept and as a clear political aim at a concrete two-digit growth rate.

2. The best correspondence of organic agriculture to a model of sustainability is where the original concepts of integration and of recycling management are put into practice. The EU standards on organic agriculture (EU-VO 2092/91 et. al.) only partially correspond to this model, in contrast to the standards of the German organic agricultural associations. The German government and all the political parties are called upon to use their best efforts to amend the EG-VO in such a way that the EU standards are raised to the standards of the German organic agricultural organisations. This implies both the commitment to conversion of the whole farming operation, the tightening up of fertilizer and fodder standards and the adoption of processing standards.

3. An efficiency revolution solves neither the agricultural problems in Germany nor in Europe nor in the world. Genetic engineering, in particular, far from enhancing the field of agriculture, conceals inestimable risks for the future of mankind and thwarts all efforts to achieve sustainability. The German government and all the political parties are called upon to combat earnestly all attempts to introduce genetically engineered organisms into agriculture and in the processing of foodstuffs.

4. The policy paper on the strategy on sustainability passed by the German government in April 2002 does not give sufficient space to the role of agriculture. The German government and all the political parties are called upon to amend "healthy nutrition", the chosen priority, to include the corresponding production of the foodstuffs necessary to achieve this aim. The topic "nutrition" must, in the context of the relationship between health, healthy nutrition, production and processing of foodstuffs in the framework of the dialogue between the producer and the consumer, reformulate its central theme to define organic agriculture as the concept to be emulated.

5. The German government and all the political parties are called upon to contribute towards the fight against hunger in the world by realigning agricultural policy. Foreign aid projects in the field of agriculture should adopt or-

ganic agriculture in developing countries as the basis of their aid to ensure food for the world and sustainable development.

6. Both in Germany and throughout the world, a socio-political offensive must be taken in the aftermath of the World Summit on Sustainable Development (WSSD), which, with new impetus, will call for the raising of public consciousness and the initiation of political action to promote globally ecological and socially equitable development. Contrary to previous policy, agriculture and the important role it plays in the maintenance of the basis of our existence and in the protection of the climate, water and soil and the conservation of nature must be granted priority. The German government and all the political parties are called upon to further this discussion and to create the basic conditions necessary.

7. A global balance between rich and poor, the basis of successful war on the destruction of nature and against world starvation, will not get off the ground without fundamental changes in transnational economic, trade and financial policy. The foundations of world trade and financial practice are still foiling sustainable development and the Rio process; agriculture and agricultural produce are likewise affected. The German government and all the political parties are called upon to make a contribution towards greater justice in terms of sustainable development.

8. Organic farmers, market gardeners, vintners and owners of organically managed woodlands protect the climate and nature, preserving biodiversity, the soil and water. This sustainable work provides a significant service to society. The German government and all the political parties are called upon to ensure that this contribution is adequately recompensed in future, independent of the proceeds from products.

9. The promotion of organic agriculture is also a cultural assignment. Organic agriculture preserves the know-how of the traditional crafts of food production and processing, the know-how of rural farming practice and the know-how of regional methods of landscape conservation. Were it not for organic agriculture, many skills and spheres of knowledge would today be lost for ever. This know-how and these craft skills are an inestimable source of knowledge which deserves to be preserved and cultivated. The German government and all the political parties are called upon to recognise this contribution and to do their part to ensure that this is recognised by society and appropriately recompensed.

10. The social contribution of organic agriculture, stemming from its ethical principals and practical approach, offer considerable potential for viable social services. This applies both to organic agriculture in Germany, which re-

tains and creates jobs, saves farms from being abandoned and maintains cultivated landscapes as areas of environmental protection and for recreational purposes, as well as to organic agriculture in Europe and the developing countries, where it puts a stop to migration from the land, improves the food and health situation of the inhabitants and offers them prospects for the future. The potential behind these socio-ethical and cultural (see 9.) aspects is far from being exhausted. The German government and all the parties are called upon to refocus on agricultural policy, adjusting their sights to organic agriculture and all its benefits, thus increasing its services to society.

1.1 Preservation of and increase in biological diversity

Biodiversity, the great variety of all forms of life, is a source of wealth the value of which to the survival of mankind cannot be set high enough. Agricultural production comes in contact with biodiversity at every level: genetic variety, the variety of species and the variety of natural habitats. For biodiversity can be regarded on three levels. Of fundamental importance is the variety in species of viruses, bacteria, fungi, plants and animals. A further level of biological variety is genetic diversity within a species, both within geographically isolated populations and between the individuals of a population. A further aspect of biodiversity, however, is the variety of biological communities and ecological systems and the interplay between all three levels. All levels of biological variety are necessary for the preservation of the species and natural symbioses and for the welfare of mankind.[1] In order to maintain biological variety and, wherever possible, to increase it, sustainable agriculture must meet the requirement to keep to a minimum the interference caused by its practice.

Species make complex contributions. They guarantee that ecological systems work. Never before, however, was the rate at which species disappear or are destroyed as high as today. The world over, between five thousand and twenty thousand more species are becoming extinct than emerge in the same period.[2] Day by day, according to various estimations, between 75 and 100 species become extinct. The causes for the risk to biodiversity are complicated and the structure of the connections extremely complex. A whole cluster of changes in the natural environment is contributing to the extinction of species.

1.1.1 The interdependence of biodiversity and agriculture

A new interactive atlas of the biodiversity of our planet shows that mankind has modified about half the surface of the earth since 1850. The atlas was drawn up by the UNO's environmental organisation, UNEP.[3] The FAO, the United Nations Food and Agricultural Organisation, raised the alarm in its "World Status Report On Vegetable Genetic Resources in Food and Agriculture", presented at the Fourth International Technical Conference On Vegetable Genetic Resources in Leipzig, Germany, in June, 1996: biodiversity is crucial to the survival of mankind. The report

[1] BAUR, B.; EWALD, K.C.; FREYER, B.; ERHARDT, A. (1997): Ökologischer Ausgleich und Biodiversität. Grundlagen zur Beurteilung des Naturschutzwertes ausgewählter landwirtschaftlicher Nutzflächen. Birkhäuser Verlag, Basel

[2] NATURLAND (publisher) (1998): Artenschutz durch Ökologischen Landbau. Graefelfing

[3] http://stort.unep-wcmc.org/imaps/gb2002/book/viewer.htm

is based on data from 150 countries. It confirms that one of the main causes for the depletion in the genetic variety of breeds and species in agriculture and in food is the spread of modern agriculture.

Agriculturally used land is full of multifariously inhabited ecological systems. And it has close mutual connections to its uncultivated natural surroundings. Even centuries ago, the impact of the agricultural use of land on biodiversity was recognised. It is not single partial factors which are responsible for the extinction of species through agriculture, but rather the combined effect of a whole package of factors. Some of these are intensive conventional agriculture with its use of pesticides, nitrogen surplus, draining measures, destruction of small biotopes and of those on field margins, of structural elements along the edges of roadways and fields, embankments, hedges, damp biotopes etc. The biodiversity of the wild flowers found on farm land has diminished by between 30% and 50% since the 50's[4] - this figure applies, however, only to conventional farmland.

As far as developments in Europe are concerned, IFOAM (International Federation of Organic Agriculture Movements) declared that the threat to 70% of all endangered bird species and 40% of all endangered plant species bore a direct relationship to agricultural activities.[5] About half of Europe's land is put to agricultural use. Over the past one hundred years an enormous loss of biotopes and in the variety of species can be determined. Genetic variety is decreasing in agriculture too, according to IFOAM. Traditional varieties – from apples to cereals – are no longer being cultivated, because they do not correspond to the EU norms.[6] In many southern regions, the variety of cultivated plants in organic farming systems is far greater than in one-sided conventional systems. For example, farmers in Peru cultivate over 3,000 kinds of potatoes. The impoverishment in variety is made evident by the fact that industrialised agriculture the world over has lead to the world's population deriving 90% of its food energy from only 15 varieties of plants, combined with the loss of a rich tradition of diverse varieties.[7]

[4] HILBIG, W.; BACHTHALER, G. (1992): Wirtschaftsbedingte Veränderungen der Segetalvegetation in Deutschland im Zeitraum 1950 bis 1990. Angewandte Botanik 66, 192-200.
[5] HILTON-TAYLOR, C. (2000); 2000 IUCN Red List of Threatened Species. IUCN, Gland, Switzerland
[6] IFOAM (INTERNATIONAL FEDERATION OF ORGANIC AGRICULTURE MOVEMENTS) (publisher) 2002: Sustainability and Organic Agriculture. Position paper for the WSSD Prepcom IV in Bali/Indonesia
[7] GREENPEACE ENVIRONMENTAL TRUST (publisher) (2002): The Real Green revolution - Organic and agroecological farming in the South. Nicholas Parrot & Terry Marsden. Internet Download 2002 www.greenpeace.de

1.1.2 Natural habitats and organic agriculture

In organic agriculture, the trend is quite the contrary. The wild flora found where cereals and root crops are cultivated has in many investigations always proven to contain up to six times more species than with comparative conventional crops. Besides this, apparently the number of species remains constant in the case of organic agriculture even after 25 years, whilst the variety of species decreases rapidly over the same period in the case of conventional agriculture.[8] Innumerable studies – from the investigation of the populations of meadow mushrooms in Scandinavia to flowering plants in the USA and studies of plant varieties in Germany – demonstrate the positive effect of organic agriculture on biodiversity.[9] Intensive investigations into the life of the soil have proven that the chemical, physical and biological structure correlates strongly with the type of farming practised. Particularly where the biological diversity of soil life is concerned, the results speak in favour of organic agriculture. Generally speaking, organically worked soil contained more organic substances and was rich in worms and in species of worms.[10]

1.1.3 Renaturation and organic agriculture

Organic agriculture can even restore land to its natural state. The methods practised result in endangered species, thought lost, re-establishing themselves relatively quickly. In various investigations recording the vegetation found, ten years after conversion to organic agriculture 50% of the species were on the Red List of threatened species.[11] The higher incidence of richly flowering weeds, distributed in a more homogenous manner over the areas cultivated, where no herbicides are used, where the soil is left undisturbed, with a rich variety of crops and organic fertilisers, all these encourage the incidence of small organisms on organically farmed land.[12] A recent investigation by NABU, a German nature conservancy

[8] HILBIG, W.; BACHTHALER, G. (1992): loc. cit.
[9] IFOAM (publisher) 2002: Sustainability and Organic Agriculture. loc. cit.
[10] PFIFFNER, L. (2000): Significance of organic farming for invertebrate diversity – enhancing beneficial organisms with field margins in combination with organic farming. In: STOLTON, S.; GEIER,B.; MCNEELY, J. (Hrsg.) (2000): The Relationship between Nature Conservation, Biodiversity and Organic Agriculture. IFOAM, Germany
[11] FRIEBEN, B. UND KÖPKE, U. 1994: Bedeutung des Organischen Landbaus für den Arten- und Biotopschutz in der Agrarlandschaft. 8. Wiss. Fachtag. "Integrative Extensivierungs- und Naturschutzstrategien". Lehr- u. Forschungsschwerpunkt "Umweltverträgliche und standortgerechte Landwirtschaft" der Landwirtschaftlichen Fakultät der Universität Bonn (publisher): Forschungsberichte H. 15, S. 77-88
[12] KÖPKE, U.; FRIEBEN, B.; GEIER, U.; HAAS, G.: Ökologischer Landbau: Positive Umweltleistungen – Kriterien der Nachhaltigkeit – erfasst mit Ökobilanzen. In: ELLENDORF; F.; STÜTZEL, H. (publisher) (2000): Workshop „Nachhaltige Landwirtschaft“ 31.05.- 02.06.1999. Landbauforschung Völkenrode, Sonderheft 212 (2000). 341 S

organisation, on the premises of the German Institute For Organic Agriculture near Luebeck, came to an even more surprising conclusion: one year after conversion from conventional to organic farming methods, the number of larks breeding there doubled, whilst it remained stable on the control areas farmed conventionally. Larks, as other birds whose natural habitat is open landscapes, are among the losers where farming is practised ever more intensively. Their numbers are decreasing throughout the whole of western Europe. NABU voices its criticism that decades of industrialised farming have induced unprecedented impoverishment in the number of species. Many birds which were common before are now on the Red List of threatened species. The new evidence cited above gives cause for hope that even sensitive and seriously threatened species may have a chance of revival if the sustainable practices of organic agriculture are adopted. "Although the investigations have not yet been concluded, there are signs of positive developments in other bird species too", comments Dr. Hermann Hoetker, the head of the NABU Institute for the Protection of Birds in Bergenhusen.[13] Similar studies have also been carried out abroad. As a result of such studies, for example, the Royal Society for the Protection of Birds in Great Britain has converted all the agricultural areas of its nature reserves to organic agriculture.[14]

1.1.4 Biodiversity as the basis of organic agriculture

Organic agriculture not only encourages biodiversity, it needs it at every level, according to IFOAM, as the basis of its agrarian system. „Organic farming is a system of agriculture that relies largely on locally available resources and is dependent upon maintaining ecological balances and developing biological processes to their optimum. These systems take local soil fertility as a key to successful production. Wild species perform a variety of ecological services within organic agriculture: for example pollinators, natural enemies of pests and soil micro-organisms are all key components in agro-ecosystems."[15] It is therefore the duty of organic agriculture to preserve the biodiversity of agro-ecosystems – not only as a matter of principle but also for the quite practical reason of preserving fertility and yield. The significance of biodiversity is therefore a component of the IFOAM standards, which serve as the basis for all organic agricultural standards throughout the world.

[13] NATURSCHUTZBUND DEUTSCHLAND (NABU) (2002): Ökolandbau schützt Feldvögel. Press release of 26th June, 2002. Internet Download www.nabu.de 2002

[14] BRITISH TRUST FOR ORNITHOLOGY (publisher) (1995): The Effect of Organic Farming Regimes on Breeding and Winter Bird Populations: Part 1. Summary report and Conclusions, BTO Research Report, NO 154, BTO, Thetford, UK

[15] IFOAM (publisher) 2002: Sustainability and Organic Agriculture. loc. cit.

1.1.5 Biodiversity and world nutrition

Feeding the world and maintaining bio-diversity at every level do not have to be contradictions in terms. With the first "green revolution" in developing countries, intensive agriculture destroyed biodiversity but did not manage to conquer world famine. The winner of the Alternative Nobel Prize of 1993, Dr. Vandana Shiva, declares: "Biodiversity must be preserved if we wish to put a stop to hunger and poverty. It does not just offer short-term solutions at unacceptable long-term ecological expense. Biodiversity allows us to maximise food production, at the same time helping us to preserve ecological systems and renew ecological cycles." And she makes the following plea: "The protection of biodiversity requires us to make radical changes in some of our ways of thinking, in our consumption and patterns of production, but also in our politics, so that the millions of other species are protected which have the same right to life as human beings. The industrialised West will have to adopt even more drastic changes, since there the patterns of thought and the ways of life required to preserve many species and their multifarious functions are well-worn concepts."[16]

1.2 Assurance of economic viability

The preservation of farms and agricultural structures as well as employment possibilities in the field of agriculture are important criteria when defining sustainable agriculture. Organic agriculture scores many points in this area. Its sustainable eco-friendly method of operation not only makes an important contribution to the maintenance of natural bases of life. It upholds and creates jobs on farms and in rural areas, the rate depending on the region.

1.2.1 Job creation and organic agriculture

More manpower is required in organic than in conventional agriculture. The reason for this is more labour-intensive animal husbandry, more frequent harvesting of fodder legumes and mechanical weeding. Although organic agriculture employs modern machinery, much is and will remain manual work. According to Koerber, "In the end, the social acceptability of organic agriculture is greater. The adoption of new branches of pro-

[16] SHIVA, V. (2001): Biodiversität. Plädoyer für eine nachhaltige Entwicklung. Bern, Switzerland

duction and processing requires 20% to 40% more manpower than on a comparable conventional farm."[17]

In 1998, BUND, a German association for the protection of the environment and nature, produced a report entitled "The Environment and Jobs In Germany: Energy and Preservation Of The Climate, Agriculture and Forestry" together with ÖTV (now ver.di), the trade union for the civil service, transport and traffic. It lists the potential offered in the form of jobs in the so-called "green areas" which would be produced after conversion of farms to organic agriculture. In Germany alone the potential in agriculture is given as 90,000 additional jobs. Moreover, it would stop further farms from being abandoned. Jobs lost in the fertiliser, pesticide and fodder industries would be compensated many times over if the conversion to organic agriculture were on a large scale.[18] These figures, issued in 1998, are probably too low in 2002. In 2002, there are 15% more organic farms than in 2001. The increased support of organic agriculture in Germany planned by the Federal cabinet in June, 2002, could lead to a further multiplication of new jobs in this area, especially if the newly created jobs and those saved from disappearance in the processing industries are added.

What applies to Germany – creation and assurance of jobs in organic agriculture – is valid to an even greater degree in the developing countries. There the use of machinery is much less intensive. The proportion of manual work entailed is much greater than in industrialised countries. This means that labour requirements in agriculture are correspondingly higher.

1.2.2 Prevention of migration from the land in developing countries

Organic agricultural projects have proven in many cases that, particularly in developing countries, one of the main advantages of this agrarian system is the positive influence it has on the social structures. Organic agriculture keeps the people on the land instead of letting them migrate to city slums. Migration from the country to the city can only be stopped if the poverty is not exacerbated. Farmers in developing countries often become destitute because they work their land by unsuitable methods, e.g. by employing synthetic chemical pesticides and soluble fertilisers, which deplete the soil so that the land does not give sufficient yield. In organic agricultural projects e.g. smallholders' co-operatives such as those served by

[17] KOERBER, von K.; KRETSCHMER, J. (2002): Zukunftsfähige Ernährung. Gesundheits-, Umwelt-, Wirtschafts- und Sozialverträglichkeit im Lebensmittelbereich. Internet Download 2002

[18] ÖTV and BUND (publisher) (1998): Arbeit durch Umweltschutz. Internet Download 2002 www.bund.net

Naturland the world over, the farmers remain on their land because they have acquired a new form of ensuring their existence, an agrarian system maintaining the fertility of the soil, which encourages a successful combination of subsistence farming and cultivation of export produce. In this way organic agriculture helps to create stable social systems, facilitates continual cultural expansion e.g. by encouraging the establishment of schools, and creates prospects and livelihoods for the people.

The interplay between the maintenance of jobs and the environment is particularly evident in the developing countries. Preventing land migration has a direct impact on the land and the maintenance of the quality of the soil. Only by discouraging farmers from migrating to the cities by furthering organic projects can the land continue to be farmed and stops it from deterioration by erosion, a fate which is an especially serious threat to fallow land in the tropics and sub-tropics. Considering the fact that the production factor work is, compared to the industrialised countries, in general relatively cheap, labour-intensive organic agriculture has distinct advantages in the developing countries.[19]

1.2.3 Regional food supplies and organic agriculture

Organic agriculture is also particularly suitable for advancing domestic markets in developing countries, thereby improving the national basis of the food supply to their own people. Many measures necessary for the adoption of ecological practices in farming are inherent in the system of organic agriculture. Farmers and smallholders converting to organic agriculture do still start with the organic production of an export crop much in demand, in order to achieve better prices for their products. However, they do not stick to the production of cash crops. If conversion is performed in co-operation with a national or international farming association, its advisers will convince the farmers that organic agriculture requires more than just desisting from the application of certain prohibited substances. The introduction of crop rotation with a minimum of 20% legumes, a requirement of certain certification organisations such as Naturland, leads in many cases to the increased cultivation of grain pulses. They are then sold at local markets and help to improve local food supplies. Another example is when Naturland introduced cattle as a source of fertilisers to the organic tea gardens of Darjeeling, India: as a positive side effect the families can use the milk themselves or earn additional income by selling it. The mixture of crops practised in organic farming means that even farmers producing cash crops for export have a much greater variety of products and foodstuffs at their disposal. For example, legumes

[19] NATURLAND (publisher) (1996): Welternährung und Ökologischer Landbau. Graefelfing, Germany

and vegetables are grown between coffee trees. The produce of this mixture of crops is suitable for the farmers' own consumption or for sale on local markets. Generally a prolonged learning process is necessary before such projects are put into practice, and this process must be tackled in a participatory manner, demanding much patience both from the advisers of the agricultural associations and from the farmers themselves. The final effect is that cultivation becomes more varied and ecological means of maintaining the soil's fertility are employed. In the sense of development aid policy, a reasonable balance is thus achieved between subsistence and export farming.

If we analyse these processes in the light of ensuring food supplies, they produce a positive picture. The qualitative improvement in self-sufficiency and in the agricultural products grown for the farmers' own consumption can also contribute to the alleviation of a major problem in developing countries, the standard of health of their populations.