

- Dem Leben unsere Stimme leihen -

**Subject: Reintegration of humanity into the biosphere
Here: World food problems**

On 4/26/2010 the AKT institute for all-comprising ethics took part in a survey of the European Commission with regard to the common agricultural policy of the European Union under the following link:

Why do we need a common European agricultural policy?

AKT: Europe is still an economic union, nevertheless should be developed into a federation according to the model of the U.S.A. or the Russian federation. It is necessary to guarantee equal opportunities in competition and common standards with regard to product quality and production methods.

What do the citizens expect from agriculture?

AKT: We expect that high standards of product quality with high ethical standards towards non-human life and nature are guaranteed. The surface-based food production consumes land, water, ground, diesel and requires a technical and chemical expenditure that bears no relation to the revenue. The products are bad for health, which can be put down above all to the use of pesticides. We need a modern nutrient production with high-tech quality. Nutrients should therefore be produced in biofermenters under hygienic conditions in factories, like for example proteins by microorganisms which are produced by the aid of sterilized cellulose culture mediums in liquid tanks instead of going on with the ethically reprehensible meat industry and even subsidizing it, which is destroying not only water and soil but also the world climate. The fact that protein carrier like soya with a high proportion of protein (50%) are fed to pigs (15 % protein) is really mismanagement. Besides, rain forest is cleared in order to produce soya beans!

Why does the GAP have to be reformed?

AKT: We have to develop new strategies taking account of the fact that humans share this world with many other life forms and creatures. It is necessary to produce nutrients in an ethically defensible way by the aid of most modern methods in order to recover land and plant forests extensively on former agricultural areas which help to reduce CO₂. The presence of wilderness not influenced by humans has to get normal again – humans have to withdraw themselves on a minimum of the land's surface. These new really modern methods of nutrient production and processing has to be subsidized massively in the first time, the traditional agriculture has to be given up step by step.

Der AKT- Gründer wurde 2002 von der **Hans-Rönn-Stiftung „Menschen für Tiere“** für seine Verdienste im Tierschutz und für seine Mitweltethik mit einem Preis geehrt.

Nach 15 Jahren in Karlsruhe hat die **AKTgGmbH** ihren Sitz im Juli 2004 nach Biedesheim verlegt, wo sie eine hochmoderne Tierhaltung und u.a. eine **Tropenhalle für Exoten und Reptilien** betreibt.

Im Mai 2009 verlieh der Landkreis Donnersberg den **„Donnersberger Tierschutzpreis“** an die AKT gGmbH.

Which instruments are required for the GAP of tomorrow?

AKT: We need a nutrient production by the aid of the most modern scientific knowledge and the support of development by a common policy in Europe and worldwide.

On 07/02/2010 the AKT represented by the signatory was invited to take part in the GAP-conference on 07/19 and 07/20/2010.

We use this as an opportunity to clearly define our short statement. This text will be given personally to the responsible Commissioners as well as to other people responsible or interested in the workshops and of course it will be put up for discussion and be circulated by mailing list. After the GAP this text will be sent to the German Bundestag, to the federal government, to media and non-governmental organizations as well as to other responsible institutions which will be asked for a statement.

Cellulose - the new 'bread for the world' or **The ethically correct feeding of the world population** by Biofermentationtechnology

1. Preface

The signatory is neither a nutritional scientist nor an agricultural engineer. Nevertheless he has been perceiving also in his function as founder and leader of the charitable AKT-Institute for all-comprising ethics attentively certain developments and wrong turns of human behaviour in our biosphere, and has always developed his knowledge in the relevant disciplines with the intention to find and present solutions in order to harmonize the vital interests of all living creatures.

Therefore, the following text is no scientific paper. Nevertheless, it's a suggestion based on logical thinking and facts, to solve some of the most urgent global problems in a forward-looking and sustainable way.

2. Short description of the global problems from which result the need for action explained in the following:

The world population meanwhile amounts to 6,8 billions of people and is rapidly increasing. A very urgently necessary reduction of the human reproduction rate is not a political aim, as it is 'allegedly' not compatible with the principles of freedom and self-determination. Resources of nutrients and raw material are becoming exhausted. The 'World Wide Fund for Nature' (WWF) showed, that we would need two earths, if we continued exploiting nature the way we currently do. More and more people are demanding a life-standard according to the western model, expanding nations with a high population like China and India are consuming

more and more raw material and nutrients, and what is even pushing ahead the shortage of resources is the fact that people are dealing so wastefully with them.

More and more land is taken from so far untouched nature in order to obtain surface for agricultural cultivation. Moreover, primeval forests are cleared, humid areas are drained, deserts are watered. The seas, once an inexhaustible source for proteins, are emptied by fishing, plundered and contaminated.

The grounds are ruined, as they show no more natural balance. They serve the plants used for agricultural purposes only as a root anchorage substrate. Monocultures due to intensive agriculture instead of diversity of biotopes, species and ecosystems are gaining ground worldwide –especially in threshold countries and the Third World. Nutrients for the agricultural plants are produced by enormous technical expenditure, transported and brought to the fields as chemical fertilizer, to pull up and harvest more and more high-capacity plants in shorter and shorter time by the aid of more and more monstrous machines

The country is being maltreated by tractors –even at night in the light of floodlight lamps.

Most of the agricultural plants, however, serve human nutrition only indirectly, as with them billions of livestock are fed, killed and processed also by extreme machine, technical and chemical expenditure. These western-style methods which for ecological and ethical reasons are reprehensible are now being taken over by threshold and third world countries and are ‘perfected’ in an extreme way. Brazil, for example, is running the agricultural industry which is supposedly developed highest – on the ground of former tropical rain forests

Coastal states create aquacultures: they fatten according to the model of the intensive keeping of livestock– fish and other sea animals in enclosures –drugs and nutrient entry in form of metabolism end products are accepted and doing this they pollute the ecologically sensitive coastal areas.

China is ‘colonizing’ now large parts of the African continent, in order to establish there among other things an intensive agricultural industry. Rain forests are even sacrificed palm oil plantations, in order to produce biodiesel. Fertile plants rich in nutrients like wheat, maize and soy are cultivated to feed livestock instead of supplying it directly to human food. On the average between 6 and 7 kg of grain are fed in order to produce 1 kg of meat. More and more people relate their life quality to the fact if they can afford buying meat and fish daily.

The agricultural and food industry is enhancing this tendency more and more with high-tech, supposed as short-term efficiency at the expense of our biosphere.

Shrinking biodiversity, drying up water resources, further acquisitions of ground, mass keeping of animals and slaughtering under ethically not acceptable conditions, high capacity breeding of plants and animals including genetic manipulation, the application of chemistry, drugs and the acceptance of vast amounts of emissions in form of liquid manure, nitrate infection of the grounds and the ground water by fertilizers, harmful gases such as methane and carbon dioxide which speed up the change of climate and also the application of plastics and plastic tarpaulin –large parts of Spain lie under foil in order to optimize tomato cultivation-, in Germany the same, among other things for the cultivation of asparagus- this list could be further continued in detail.

All these things – above all in Europe- are subsidized by taxes, the principle of the usually so glorified capitalistic ‘philosophy’ set aside. Planned economy is practiced instead producing even more problems –also in a sociocultural way.

3. Insights of evolution biology

A) Food chain

The more primitive a life form is developed, the more it is part of the basis of the so-called food chain. The yields of its metabolism are the basis of all other life forms, which build up their existence on them. The efficiency of metabolism of microorganisms and single-celled organisms tops that of multicellular organisms by far.

The more original a life form is, the more complete is its ‘set’ of nutrients and active substances which are the precondition of life in whatever kind and form, qualitatively (for example the number of the total 21 amino acids), as well as quantitatively (with regard to the total protein content)

Spirulina, a single-celled sea alga, for example contains all 21 aminoacids (protein elements) and has a protein content of 60-65%. As phytoplankton they form among other single-celled organisms (animals or plants) the nutrition basis in their biotope. Microorganisms and single-celled organisms (also and above all fungi) are the ‘destruents’ in each ecosystem, as they decompose organic material into anorganic minerals and trace elements which are taken up by plants (producers) in order to build up their biomass. Microorganisms and single-celled organisms.

B) Nature is an example for the solution of our world food problems

Termites have been using microorganisms for millions of years in order to win valuable protein from wooden fibres (cellulose) which they eat.

Leaf- cutting ants nourish exclusively from a special fungi, however produce by the aid of their growth and rapid reproduction nutrients, that directly or because of their efficient nutrition content, form the culture medium of many ‘higher’ developed life forms, if those find a way , to nourish from them and/or to form a symbiotic relationship with them.

species, which they nourish from parts of leaves having cut those from leaves , transported with enormous efforts, chewed them before and fermentated them this way. They cultivate those mushrooms in their perfectly air-conditioned homes. The mushroom was domesticated by them – it exists only in the homes of that special type of ants. If the ant state dies, the mushroom also dies –it doesn’t infect the environment and therefore can’t ‘go wild’. By their special way of nutrition the ants get themselves an ‘extracorporal biofermenter’, in a living space where cellulose is available in abundance. They didn’t wait until they developed in the course of evolution biology an appropriate digestive system, in order to secure themselves their own ecological niche.

There were dinosaurs nourishing from plants, which already had special digestive systems (of mechanical and biological nature) in order to use microorganisms for their nutrition : those microbes decomposed indigestible cellulose by enzymes and used it to nourish, grow

and reproduce, and the dinosaurs digested them and covered a big part of their own protein need in this way.

20 million years ago, grass came into existence and spread all over the earth. As a consequence all of a sudden there was a new nutrition source, and in response to that animals developed mammals that had a special digestive system with two or three rumen which were placed within their digestive systems before their normal gland stomach. Above all, ruminants (they have three rumen, two mechanical and one biological) made with this ability (they use microbes and therefore start in the food chain at the 'lowest level') a great career among farm animals.

They passed on the diversity of species and individuals of equidae (Equine) and other grazing animals, which showed no or less rumen (eg camels and cervids) and filled the grasslands, savannas, and prairies in the world with millions of mostly large individuals. It was important to improve the nutritional value of grass biochemically by organic fermenter (in this case the rumen) in conjunction with mechanical kneading and grinding methods (ruminant teeth in conjunction with network and omasum upgrade). In this case animal bacteria and protozoa work in order to cover the protein requirements of ruminants in essence. In this respect, ruminants can not be taken as strict vegetarians.

The evolution has produced **even primates that**). **All other herbivores found different ways to take microorganisms in the' service' of their diet**, feed on the more difficult to digest leaves of the rainforest and developed also rumen (two) , mind- primates!!! This is the family of Semnopithecus (Colobidae) in particular, to enrich the cellulose digested food with additional nutrients in the form of microbes.

C) The current food industry carries on destructiveness of the raw materials produced in agriculture

It's increasingly difficult for food purists and romantics to be able to get food in its natural state. Food Design has taken hold everywhere, wherein the problem is that of a high quality natural product is made mostly something inferior. First, the food is broken down into its components, to be then mixed into something completely new. Eggs, countless chickens placed in deplorable living conditions will be processed industrially to millions and get broken down into components, in ready-to-consumes products, as foam in desserts, in baked goods and candy bars. Milk is first completely skimmed and then the standard fat content of exactly 3.5% or 1.5% is added. Everything is homogenized, emulsified and sterilized. In order to enable all people to drink milk, even if they can not tolerate lactose because of their hypersensitivity, there is now lactose-free milk. Valuable fruit are crushed, boiled and destroyed into ketchup, jam or extracts.

The vitamins, color and taste often stay with those aggressive processing methods on the line, compensated with the addition of flavored, vitamin additives and dyes. The same happens with mineral water, drinks and juices. The fruits are often not even in trace amounts in the drink, but displayed nice and tasty on the label. For this tendency there are still many examples, but it is also clear that we humans have mostly refrained from long to eat foods, such as the nature or the farmer delivers-this trend is hardly reversible (fast food society, , quick-and-maintenance convenience foods)

Those who argue that it is undignified or even abhorrent, to eat nutrients produced by 'nasty' bacteria, should make themselves clear that microbes are involved massively in

digestion, that cheese, tofu, yogurt, beer, Spirits, wine, etc. are produced by using produced by microorganisms. Even rotten eggs are a delicacy in Japan!

D) Man must leave the top of the food chain 'voluntarily' –for economic, ecological and ethical reasons

So far mankind carried on virtually an parasitism on rumensystem of ruminants, by providing them with cellulose rich biomass (grass, hay, straw), fattened them in order to then eat them. This allowed people to live in continents and climatic zones, where no for them useful plants occurred (deserts, grasslands, savannas, mountains, subpolarzones. They were able to take into account that many nutrients remained in the truest sense of the word on the line, because the host, namely the animal, also lived by the yield of nutrients, which earned its rumensystem. The density of population and their livestock was mostly low in history and could be compensated by the respective ecosystems. **But now 6.8 billion people and their billions livestock want to be fed, which is ecologically impossible and economic mismanagement. It can therefore be assumed that we would not have any idea of the circulation systems and laws of metabolism of life in the biosphere.** We can not avoid to relate to microbes in symbiosis- on an industrial scale, as only they can feed our population in an environmentally acceptable way

The marine biologist Hans Hass once said that evolution would take six million years to make an animal grow fins, and in contrast that we humans simply produce them from the rubber.

How long will we people of the 21st Century-the era of industrial agriculture, animal diseases and rotten meat scandals of overpopulation and hunger in the Third World, the nutrient and resource wars, climate change, looted and fertilized sea and inland water, the emaciated soils and cleared forests, and not least, the billions of time tortured and assassinated so-called farm animals, need to win our staple food from the cultivation of microorganisms to 'reach' at least the 'intelligence' of ants, termites, dinosaurs and cows?

Learning from nature and the animals, instead of exploiting and destroying them, this is the motto of a humanity ready for the future.

Why haven't we people already built Biofermenters on industrial scale and distributed them the famine areas of the **world in order to tap into the food chain at the bottom of nutrients**, because this method is more economical, since it manages with much less nutrients, water and other resources, and virtually no harmful emissions, is thus more ethical, and protects our biosphere? It is completely wrong to provide the third-world nations instead with our traditional agro-industrial methods in the frame of development programs, and therefore with the destruction of the last natural areas; this exacerbates our global situation completely.

4) The idea of the biofermentation-technology

At the age of 13 the signatory watched TV program (Telekolleg on SWF-3), at that time still in black and white), in which the function of biofermenters for the production of proteins was shown in theory. Since then, he has been pursuing this idea, but only now the time seems to have come to suggest this idea in public, as the problems get bigger and bigger.

Already Nazi Germany experimented with glass tube systems, which were exposed to the sun and into which water was pumped inoculated with single-cell algae and fed with air and nutrients. The algae increased explosively, and when the solution was dark green and thick, a large percentage of the algae was harvested and the obtained nutrients were processed to

food. The use of algae microbes would e.g. a solution to provide people in sunny countries with nutrients. These attempts were aborted due to the war-so at least one TV documentary.

Also and above all fungi can be used effectively to the nutrient production, as well as animal microbes, as both do not need light to grow.

Microbes and bacteria have been used for a long time to manufacture drugs, infusion solutions and culture media. The amino acids and glucose in the drip solutions in the medical field have already been long established for hygienic reasons - from bacteria.

Even plastics and wood can be produced by cells, certainly oils and as well from which biodiesel can be produced-more effectively than through oil palm, rapeseed or sunflower. Microbes can produce with far less effort than fruit, sugar beet and sugar cane, sugar and other carbohydrates such as starch.

Of course, this technology is still not mature, in the era of biotechnology and genetics, high technology and industrialization of most natural processes, it should however be easy to deliver these life forms in our service, which already constitute the foundation of life on earth, and can easily be modified and in genetically modified form can produce almost anything that has a biological pattern. The time urges us to press ahead at full speed this industry.

5) Techniques and procedure of the Biofermentertechnology

Huge silos or tanks filled with water which was inoculated with suitable microorganisms and which is supplied to start the production process with heat, depending on the type microbes with oxygen, minerals and trace elements, and monitored electronically. The solution is in constant motion - kept the overall conditions constant. To supply is the breeding ground that the microbes will destruct or better metabolize, - cellulose!

All plants have cell walls, that is wood, which is obtained through grass, hay, straw, leaves, bark, waste from the timber industry, waste from the plant processing. Even waste paper could be used in purified form werden. The cellulose substrate however needs to be cleaned, homogenized, and especially sterilized as otherwise the microcultures would infect and as a consequence spoil. The generation of heat by burning wooden pallets is exemplary. Cellulose pallets or metabolic end products of the microbes are an ideal fertilizer, almost exclusively mineral, low odor, it can be spread on the fields or used as a breeding ground for phytofermentersystems. The gasemissions can be caught directly by hoses; with them the factory, for example could be heated the factory (methane) as well with the heat produced by the microbes in their massive metabolism. This could also be fed into the district heating. Carbon dioxide which is generated could be conducted in a phytofermentersystem to grow algae in glass tubes by photosynthesis. Separation systems harvest and extract the mature microbes and lead them to their use - namely the processing of pure protein, sugar or other substances to be won. Ethical concerns about these creatures do not exist - they have a natural life expectancy (depending on species) of a few minutes.

Agriculture will be involved in order to grow the cellulose and deliver it to the factories do-so far they did the same, in order to fatten cattle and other farm animals mind!!!-also in factories, without light, sun and fresh air. In order to make these animals digest the food faster and give more meat or milk t, you have fed silage, grass or corn predigested with lactic acid bacteria that is also with the help of microbes.

The agricultural areas that are no longer needed due to the more efficient methods of the Biofermenter , could be renaturated so that animals and plants could get back from the territory once annexed by us. Other areas will be meadows, in more humid regions bamboo and reeds will be cultivated for the cellulose production; new nature and culture landscapes

would come into existence. The aided plant growth would also bind carbon dioxide from the atmosphere and combat climate change. Grass grows everywhere in the world, and everywhere Biofermenter can produce food for us.

“Economics is only possible if the Earth's ecosystem is conserved as much as possible!”

6) A new industrial branch with enormous advantages:

It is obvious that the Biofermenter technology **makes the assurance of food production independent from climatic and weather variations independent**. The rugged natural grasses are hardly threatened by storms and hail, also an increase in aridity and temperature would only have to be compensated by the settling of grasses from subtropical areas. It is obvious that the Biofermenter technology makes the assurance of food production independent of climatic and weather variations. The rugged natural grasses are hardly threatened by storms and hail, also an increase in aridity and temperature could be compensated by the settling of grasses from subtropical areas. Soils **with vegetation quickly recover and protect the soil moisture and flora from drying out**, which makes the water table increase, despite increasing drought due to climate change. It is not difficult to recognize that this industry creates new jobs, at least more than current agriculture. Since cellulose is always needed to feed the cultures, this would be the 'end of the agricultural misery', need for subsidation and the rural exodus, because it is a fact that people move to the cities, because they don't like the consolidated landscapes and monocultures. A city child has now often more experience of nature than a child from the country. Jobs in the processing industry would come into existence on a large scale-even in depressed areas in which they would have to be settled, namely near the areas where cellulose is harvested.

This high-tech innovation would also be an export hit, similar to other technologies such as wind turbines, solar panels and hybrid drive systems in the automotive industry. **Only the food industry still misses progressive developments that take into account the fact that it is significantly involved in the global environmental situation, particularly climate change.**

The subsidy policy has ensured that the agriculture sector could stick as far as innovative orientation to the future is concerned stick to conservative positions. Is there anyone who thinks seriously, that humanity of the future still fattens animals and grows potatoes and salad?

The end of one of the saddest chapters of the failures (to say the least) of people against animals would be here at last - the end of fattening and slaughtering for our (yet deeply unhealthy and polluting) nutrition's sake. No animal disease threats, no more dumping of manure on our fields, which contaminates the groundwater, and brings even the seas to the inversion; all this belonged to our inglorious past.

The end of the unbridled over-exploitation of our agricultural land, the end of the use of fertilizers and pesticides, because the fields were naturally grown, species-rich and therefore immune to 'pest infestation' of any kind.

7) Processing the raw materials derived from Biofermenters in palatable and appealing foods

For this, we quote excerpts from a statement from our on 07/10/2009:

(...)

What is needed is a food that looks like meat and sausage that smells so and, above all, it tastes so, so that we can place it people used to meat and sausage in place of the human parts of dead animals on the plate and behind the counter.

Raw meat is basically tasteless. The meat mash from which Leoneans, meatcheese or meat loaf is made could, by his consistency, paint, and taste even be pureed soybeans or **be originating from protein extract bacterially produced in Biofermenters.**

What makes the meat and sausage so desirable, is the spice!

As long as we have no no-animal products on the market, which are at least as good as meat and fish products, as long as mankind won't accept the environmentally and ethically sound alternative to it either.

Recently we watched a documentary on television: two butchers long afflicted working to develop a salami or fish (because of the fat and cholesterol problem) that looks like salami, smells like salami, and above all tastes like it.

At the same time it should not begin to smell like fish. They had actually reached their destination bordering on impossibility. People who were left free on the street noticed, not to any extent, that the starting material of this salami have been several fish species. And now they want to market the product, of course - as a low-cholesterol and easily digestible alternative to traditional salami made of meat!

If it is even possible to eliminate the fish smell and taste, how much easier would it be to do the same with plant materials - especially the soybean, which is rich in protein and free of saturated fatty acids and which is grown worldwide almost solely to produce food for livestock.

On demand are **products for all people**, you can buy anywhere, which are as cheap as meat (or even cheaper, since the raw material is also cheaper than meat), which exist in the case of sausages in as great a variety and in particular that taste at least as well, for ethical or environmental arguments simply don't work in the nation - **but the taste is an argument that is always convincing.**

Demands to the policy.

The development of Biofermenter technology and the necessary infrastructure and processing should be delegated by the EU to independent researchers and funded adequately. The first priority, the production of nutrients, especially proteins, should be comparatively tested on animal, plant and fungal microbes at first in genetically natural form.

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We are open for discussion and comments!