Enhancing animal health security and food safety in organic livestock production systems

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SAFO Sustaining Animal Health and Food Safety in Organic Farming

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Content

Infectious diseases treatment in Poland as an element of public health protection

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Infectious diseases of animals in Poland are regulated by the Act of 11th March 2004 on animal health protection and treatment of infectious diseases of animals (Dz. U. No 60, item. 625). They are defined as "diseases of animals caused by infectious factors, which in relation to character, manner of formation and propagating oneself are threat to the health of animals or people". The threat to people are diseases originating from animals i.e. zoonosis so that diseases and infections are transferred in natural ways from vertebrate animals to people. Infectious factors can be viruses, bacterium, funguses, protozoan, worms, arthropods (l).

In 2 annexes, the Polish veterinary law divides these diseases according to the duty of treatment - 27 diseases (annex 2) and the duty of registration - 47 diseases (annex 3).

The annex 2 to the act mentions more diseases than Decree 82/894 of 21st December 1982 about notifying infectious diseases in the European Community. This Decree qualifies way of treatment (procedures, time-limits, kind of delivered information) in the case of ascertainment and eradication of certain diseases.
In general, it mentions 18 diseases, except BSE and scrapie, that are placed on OIE list A (Organization International Epizootic). The diseases mentioned in both annexes are correspondent to OIE list A and B.

The basic Union low act in the range of zoonosis is Decree 92/117 of 17th December 1992 on the matter of protective activities directed against definite zoonosis relative to their infectious factors responsible for infections and poisonings of animals and food of animal origin. It mentions 2 groups of diseases:

I tuberculosis caused by Mycobacterium bovis, brucellosis and its infectious factors, salmonellosis, trichonosis, campylobakterioza.
II echinococoza, listerioza, rabies, toxoplasmosis, jersinioza, other zoonosis

Currently, a more detailed regulation in relation to the matter of zoonosis is under development in the EU.

The executive document to the Act on protection the health of animals and treatment of infectious diseases of animals is Decree of Ministry of agriculture and development rural areas on 18th May 2004 on the matter of zoonosis and zoonotic factors dependent of duty of registration (Dz. U. No 130, item. l394). Among diseases dependent to notifying, treatment and registration of zoonosis and so called potential zoonosis determine over 40 % diseases.

Zoonosis i.e. diseases of animal origin are not only the epidemiological and epizootic problem, but also socio-economic. Most of countries have initiated and realized many programs, which are aimed at the eradication of defined zoonosis.
In Poland eradication of most well known zoonosis such as tuberculosis, brucellosis was finished in 1975 and 1980. Nowadays control studiespermanently monitoring the epizootic and epidemiological situation are carried out. In chance of rabies and e.g .BSE the action is continued.
In the paper the epizootic situation in Poland on example of chosen zoonosis will be presented taking into account:

I Rabies as incurable infectious disease with greatest coefficient of mortality, well-known from nearly 4000 years;
II Tuberculosis – multiorganic disease with character of pandemic;
III Brucellosis - infectious disease found mostly at cattle and caused by Brucella abortus bovis.
IV Bovine spongiform encephalopathy (BSE) - in Poland officially should be notified and treated.

From presented dates in range of occurrence of some zoonosis in Poland it can be concluded, that Poland is country, where the system of activity in range of prophylaxis of infectious diseases treatment on the ground of obligatory acts is the guarantee of public safety.

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Animal Health: key element for wholesome food and animal welfare

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The paper will be available at the workshop

Toxoplasma Gondii Infection in organic pig production systems

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Purpose
Consumption of undercooked pork meat products has been considered a major risk factor for contracting toxoplasmosis in humans. Indoor farming and improved hygiene have drastically reduced toxoplasma infections in pigs over the past decades. Whether introduction of animal friendly production systems may lead to a re-emergence of toxoplasma infections in pigs is not yet known and was the purpose of this study.

Methods
Blood was obtained from slaughter pigs and tested for toxoplasma antibodies using latex agglutination, indirect immunofluorescence testing and confirmation by immunoblotting.

Results
Of the 660 organic pigs tested (16 farms), 8 were positive (1.2 percent). These 8 animals originated from three different farms. Thirteen organic farms (72 %) were able to raise toxoplasma negative pigs. Of the 17 free-range farms, more than half of the farms (59 %) had delivered one or more toxoplasma seropositive pigs for slaughter. Of the 635 free range pigs tested, 4.7% were toxoplasma positive. None of the slaughter pigs raised on a conventional farm type showed evidence of a previous toxoplasma infection. The combined data show that 38 (2.9 %) animals from a total of 1295 pigs raised under animal friendly conditions had evidence of previous toxoplasma infection.

Conclusions
The following conclusions may be derived from this study: 1) conventionally (indoors) raised pigs are free from toxoplasma infection 2) animal friendly production systems may lead to a re-emergence of toxoplasma infections although many of these farms remain toxoplasma free. Slaughterhouse monitoring of pigs from animal friendly production systems combined with on farm prevention strategies should be implied to ensure food safety of the meat products obtained from these animals.

Grants
This study was supported by a grant (LNV program-349) from the Dutch Ministry of Agriculture, Nature and Food Quality

Campylobacter and *Salmonella* in Finnish organic egg production

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Campylobacter and *salmonella* in organic egg production was studied in association of a project Organic Egg Production: Management of Animal Welfare and Food Safety in 2003-2004. The farms were sampled twice: 1st time in August – September 2003 and 2nd time in March – April 2004. Faecal material was either sampled directly from cloaca or fresh dropping were collected from the floor by using sterile cotton swabs. The size on the farms varied from a few hundred to two – three thousand of hens. The samples were collected into transportation media and sent directly to Helsinki. Most of the samples were studied within one day of the sampling. Same time 10 fresh eggs were also sampled from all farms. In autumn 18/19 of the farms were *Campylobacter* positive and the respective rate was 13/17 in spring was 2004. Only one of the farms did not have campylobacters either in autumn or in spring. Some of the farms had a new hen population in spring 2004 compared to autumn 2003. The number of positive samples within a flock varied from 20 to 100%. More positive samples were obtained after enrichment than after direct culture. *C. jejuni* was isolated from a egg shell sample but not from any of the egg yolk + egg white samples Most of the isolates (99%) were *Campylobacter jejuni.* Pulsed field gel electrophoresis of the isolates showed that several PFGE types occurred in a flock and the PFGE patterns identified in a flock in autumn were not similar to those detected in spring. Comparison of the PFGE patterns of hen isolates to respective patterns of the isolates from chickens and cattle from summer 2004 revealed that the hen isolates had quite unique patterns. Antimicrobial susceptibility of the isolates was studied by disk diffusion test. Most of the studied isolates were sensitive to nalidixic acid ciprofloxacin (27/28), erythromycin, ampicillin, tetracycline and streptomycin. Some increased resistance was found to sulphonamides and metronidazole.

Salmonella was studied from sets of 10 combined faecal samples by pre-enrichment in buffered peptone water, selective enrichment in Rappaport medium and culture on XLD. None of the faecal samples were positive. Similarly, none of the egg shell nor egg yolk + egg white samples were positive for salmonella.

In conclusion, hen flocks were found to be commonly colonised by campylobacters. Our figures seem to some lower than in many other countries where 100% of the flocks are colonised. Organic hens have free access to outside environment during summertime in Finland. Having several PFGE genotypes colonising same time in a flock also indicates that the birds have had several contacts with outside *Campylobacter* reservoirs. That most of genotypes were unique to organic hens may also indicate unique sources, e.g. such as wild birds. Antimicrobial sensitivity of the isolates was high and some decreased susceptibility to sulphonamides and metronidazole corresponds the situation found among *C. jejuni* from other animal sources in Finland. The results of Salmonella study are similar to those found also in official monitoring programs for organic hens in Finland. The consumer risk for exposure to campylobacters or salmonella through handling and eating organic eggs is low.

Health security in organic livestock production: a UK perspective

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This paper discusses health security, as part of positive health promotion on organic farms in the UK. The potential impact of organic standards on health security on organic farms is discussed in general, and specific issues arising from stratified and outdoor production systems are highlighted. Special reference will be made to UK endemic contagious cattle and sheep disease situation and results of research into farmer attitudes to health security.

Organic movement and FMD: The history of the 2001 outbreak in the UK

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The paper will be available at the workshop

No difference in *paratuberculosis seroprevalence* between organic and conventional dairy herds in the Netherlands

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Purpose
Paratuberculosis or Johne's disease in cattle is considered to play a role in the pathogenesis of Crohn's disease in humans. Whether organic production may influence the prevalence of paratuberculosis in dairy herds was not known until now and was therefore the purpose of our study.

Methods
Blood samples were taken in 2003 from cows older than three years, originating from 76 organic dairy herds. Samples were tested for antibodies against *Mycobacterium paratuberculosis* using an ELISA. Data were compared with a similar analysis performed by the Animal Health Service on 579 dairy farms participating in the National Dutch Paratuberculosis Program, which includes a few organic herds.

Results
The mean number of animals tested was 48 and 56 for the organic versus the control group, respectively. Of the 3688 organic sera tested, 43 revealed the presence of *M. paratuberculosis* antibodies. These seropositive animals originated from 22 farms (28.9 %). Fourteen farms (18.4 %) only had one seropositive animal. Two farms had 6 seropositive animals. In the control group 197 farms had seropositive animals (34 %), which was not statistically significant from the organic farms. In the control group 107 farms only had one seropositive animal (18.5 %), which was also not different as compared to the organic group.

Conclusions
These data show that the incidence of Johne's disease is not different between organic and regular dairy herds. The slightly higher incidence in the control group may be due to the fact that the number of animals tested per farm was larger.

Grants
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Bioland-Position Paper on FMD

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During the FMD Epizootic in Great Britain and the Netherlands in 2001 a public discussion about culling and eradication policy began in Germany.

People were upset about the high number of healthy animals that were culled and burnt. Especially organic farmers and other breeders were very worried about their livestock in case of an outbreak of FMD in Germany. There was a great lack of specific information about FMD, the legal situation and the legislative competence of the authorities.

Bioland together with other German organisations of organic farmers, held a workshop to which experts in animal diseases as well as politicians and active farmers were invited.

It was the aim of the workshop to express the concerns of the farmers to the responsible people in the administration and to the specialist on disease defence. This provided the basis to work out a strategy for organic farming organisations how to help their members to protect themselves as far as possible.

It became soon obvious in the discussion that organic farmers would not get any special rights in the fight of the disease. The only hope was, that by acting carefully and using every possibility to prevent the infection, the epizootic could be stopped.

As a consequence of the workshop Bioland set up a paper of information on FMD which was distributed to all farmers. This paper will be presented, including an explanation of the intention of each passage.

The regulation of livestock production in organic farming, chances and perspectives of Polish farmers

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Organic food production in last years has become very important branch of agriculture production. This tendency arose from the expectations of consumers seeking safe food and everyone's expectations, who want the agriculture to be very environmentally friendly and to maintain the biodiversity.

The existence of low regulations on organic agriculture in EU, since 1991 for plant production and since 1999 for animal production, and since 2001 in Poland, determines the consumers' confidence in those methods of food production. A domestic regulation on organic production was modelled after EU requirements. Since 1 May 2004 a new regulation on organic agriculture of 20th April 2004 quoting decree 2092/91, is in force.

Production on organic farm should be sustainable. It means that plant production should satisfy needs of livestock production and vice versa. This equilibrium decides about self-sufficiency of organic farm. The feature of organic farm should be introduction in the lowest level of production means from outside of farm.

In Poland, organic farms were from the beginning characterised by the principle of having livestock on every farm. This allowed the production of compost, mainly animal origin and caused that organic matter content in the soil increased. Animals have to a high degree access to pastures and are fed with green forages. These tendencies in organic livestock production were very strong highlighted in the Decree of the Council No. 1804/1999.

In 2003 in Poland 2300 farms was controlled as organic, but only a few specialise in animal production. Livestock numbers on organic farms are on average similar for the whole country.

So far accurate statistic for organic livestock production does not exist, but since 2004 the main Inspector of Market Quality of Agro-Food Products, the body that carries out the inspection of authorised certification unit's, will collect those dates.
It should be underlined, that animals in Polish farms were and are in the highest level kept in natural way, taking care of animal welfare. Low level of the use of chemicals in Polish agriculture and agri-environment conditions cause that animal products from organic farms to be characterised by high level of safety, taste values and often regional specific.

Old domestic breeds are used (hen zielononózka, sheep wrzosówka, pig złotnicka etc.). It should be stated, that organic farms are good place for maintenance those breeds.
The present number of 2300 organic farms in Poland is low in relation to the possibility of Polish agriculture (it is over 0,1% of all farms) and does not satisfy needs of country market and consumers expectations in other EU countries in relation to organic products.

Poland works for increase of the number of organic farms. Particularly organic milk production and dairy products, poultry and eggs production, meat and its processing should be developed.

The Polish system of control and certification of organic farming fulfils the highest requirements of Decree of the Council (EWG) No. 2092/91 and works ensuring high reliability of organic products

from controlled farms and processing plants. The labelling of organic livestock products as accepted in the EU law assures the possibility of following their way from farm to table.

Certified organic livestock production in Poland: an overview

Dorota Metera, Poland

The abstract will be available at the workshop

Prevention of farm animal diseases in organic farming system in Poland

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The general principle of animal disease prevention on organic farms is to stimulate the animals' natural ability to resist the effects of surrounding infectious factors. This can be achieved by creating an atmosphere which is similar to the natural atmosphere the animal is genetically adapted for. Convenient feeding based on the farm's own forages (which takes into account digestive and metabolic systems in particular) and balanced food doses are necessary to maintain the animals' good condition and to allow the digestive system to work properly. Long feeding of milk produced by female mammals for their young is necessary for building the young mammals' immune system. Supplements to animal feed such as homeopathic medicines which don't have side effects, and adding herbs to forages, especially in periods of higher sickness risk, also assist in maintaining good health. Biologically-active substances occurring in the forementioned supplements on the one hand act as antibacterial, antiviral, antiparasitic and antifungal agents; on the other hand, they positively influence the immune system by stimulating the natural immune process. All necessary steps which are necessary to increase the animals' welfare such as proper feeding and nurturing also increase the quality of the food that is produced from those animals.

Natural and economic conditions of development of organic farms in Poland

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In this paper, the actual situation of Polish agriculture, and its not utilized potential - both in plant and animal production will be discussed. The situation is characterized by drastic decrease of livestock, e.g. of 5 mlllion sheep 80. years ago only a small percentage (approximatately 340 thousand) was still kept in 2002. Poland has 18.6% of arable lands of EU but generates only a bit 10% of its yields. Simultaneously, the land area of fallow and unused lands increase, in 2002 it was 3.4 mlllion ha (20 %), in this year over 1.1 million ha of permanent grasslands. These changes are accompanied by increasing unemployment, especially on rural areas in the form of the potential unemployment. In Poland, in rural areas live approx. 4-times as many people than on average in EU countries. The reasons of this situation are:

- natural conditions that are worse than in other EU countries - coefficient of valorization of agricultural productive area (WWRPP) according to IUNG (covering soils, agro-climate, sculpture of ground, water conditions) in Poland is 60-70 scores, in relation to 100 in Western Europe. The utilization of soil and destination of arable lands is also different, resulting mostly from the climate. In Poland, 59 % of land area is utilized by agriculture and arable grounds occupies 76 %;
- crumbling of farms and productive plots (the average size of a farm is on average 7 ha);
- ower utilization of inputs of production, such as fertilizers, pesticides, qualified seed material;
- lower technological development ;
- the lack of profitability of production, because of permanent import of subsidized foods.

The possible directions of necessary changes are shown,, in which organic agriculture is one of several possible alternative activities. The actual state of agriculture, ie. extensive and low-input technologies, is close to the criteria of organic farming. So, organic production could be a chance for the better utilization of unused and fallow lands.

Organic production of meat cattle would not require many inputs (e.g. not necessary to have similar cow-sheds as for dairy cattle and specialized dairy processing plants). Also the production of goats and sheep for meat production especially in mountains, as well as poultry or horses (for export to countries with the tradition of horse meat consumption) could be alternatives. The directions of this production will be created by demand on organic products in Poland as in more rich than Poland of EU countries. Products produced in Poland can be competitive of the first of all because of the qualitaty and because of the lower price.

According to Kuś and Stalenga [2003] two options of development of organic agriculture exist:

- free-market – the dynamics of this direction will be decided by the demand for certified products, mainly close to greater cities,
- promoted (controlled) – as part of agro-environment projects on natural precious or protected areas, in regions of declining agriculture.

- In Poland, small farms prevail, particularly in the regions of South Poland, Mazowieckie, Lódzkie or Podlaskie province, which can develop this direction, especially in connection eg. with agro-tourism.

The combination of organic production with agro-tourism is likely to be successfull. Agro-tourism stimulates the production of healthy foods for immediate consumption by agro-tourists and has many other beneficial aspects: gives alternative incomes from agricultural production, stimulates organic production of plants, integrates environment of village and cities, penetration of cultures, enriches intellectually of village people, ways to reduce unemployment, stimulates development of infrastructure and maybe in future little enterprises.

The supporting means for development of organic farms, such as EU premiums for conversion, should be helpful. Also negotiated with the Union was a system of direct premiums (for land area but not animal production) which will encourage extensive production, support the wider utilization of low yielding and abandoned grasslands that is suitable to extensive breeding of animals.

Application of Hygiene Regimen in Obtaining and Treatment of Milk on Organic Farms

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The study was focused on evaluation of hygiene level in the process of obtaining milk. Bacteriological swabs were taken and examined before and after milking from the following parts of milking machine: teat holder – rubber, distributor, milk pipe, filter, individual teats, towels and bedding. Milk samples were examined in parallel.

Potential transfer of secondary infections is related to insufficient cleaning and disinfection of the milking equipment, absence of teat dipping as well as treatment of dairy cows in the dry period (it is not allowed to use chemical disinfectants).

According to the requirements of the Decree No. 3259/1999-10, paragraph 18, the milking and milk-cooling equipment can be disinfected only with drinking water heated to 85oC and with steam from drinking water, with 0.5 % solution of nitric acid and 0.5 % solution of sodium hydroxide. The results obtained on organic farms were compared with the hygiene level of milk production on conventional farms.

Challenges of the organic milk production in Hungary

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Organic farming is a pillar of sustainable development, which is an applied science of environmental protection. This type of farming has been developing from the mid of the 1990ies. The size of the organic land was 11,390 hectares in 1996, which incresed by almost ten times, and in 2003 it was around 130,000 hectares in Hungary. The recent study is based on deep interviews with Hungarian organic milk producers, and it is intended to answer the questions on the reasons of the difficulties and the opportunities of organic milk production. Further aim was to define the motivating factors of starting organic farming, other activities and servises beside milk production and opportunities of the sector. The challenges in processing, marketing and payments are also investigated; and other difficulties, such as animal hygiene will be mentioned, as well.

In the first part of the research, secondary information and data were collected in the available litreture. The primary reaserch was based on deep interviews with each of the producers, which was reasonable due to the low number of the farmers. A great help was given this study by the Biokontroll Hungária Kht. The data was collected in 2003. The questionnaire inquired on keeping, feeding and the natural parameters of the livestock and also on the farmers' opinion on processing and marketing. Beside of objective judging, it was important to discover subjective factors such as motivation and external effects in order to achieve a better understanding of the organic farmers' situation.

Organic horse-breeding in Estonia

Egon Palts

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About 11 per cent of horses is kept organically in Estonia. There are about 5000 horses in Estonia from which about 570 horses are under organic control. For example at the same time 7900 cattles are under organic control, what conceive only 2,9 per cent of all cattle in Estonia. In the organic farming register were approved and entered 56 farmers, who rise horses organically. The sizes of farms are 1-5 horses in 40 enterprises, 6-10 horses in 5 enterprises and more than 11 horses are in 11 enterprises. The biggest horse-breeding farm has about 130 horses. Furthermore we have 35 producers with the total of 350 horses, where plant production is managed organically and horse-breeding is non-organic. The main reason, why farmers wish to start organic animal husbandry including horse-breeding, is to get the support for organic farming. If in the enterprise horses or other animal are reared organically, the farmers will get higher support per hectare of perennial grasslands. EU regulation 2092/91 Annex I part B 2.2.1 enact conversion. If livestock products are to be sold as organic product, the conversion of horses is 12 month for meat production. But, if horses are not reared for the meat, it means, they have no conversion period! Another problem is the castration of stallions. Castration of organically reared animals is permitted only if the aim is to improve the quality of organic animal products – meat.

Main areas of concern:

1. The castration of stallions
2. Intensive use of veterinary-medical treatments
3. The manure contains too much medical residual-substances
4. Often transportation of saddle-horses

The question remains: if the purpose is not to produce the meat how should equines reared organically?

Development of organic farming in Czech republic

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Organic farming in the Czech republic nowadays pose already a stationary sector of national economy, that is generally supported way of agricultural production. First mention about organic farming between scientific community was as lately as at the end of socialistic era in between years 1985 - 1987. With upping of consumer interests about organic farming rise pressure on agricultural producer, who reacted till in the year 1989, when started first experimental organic cooperatives, which from beginning exploited information from IFOAM.
Main development of organic farming started as late as after a year 1989, when the political system was changed. In the year 1990 was general accepted standards from IFOAM and thanks supports from state was development of organic farming in Czech republic relatively fast. Expansion and inspection in organic farming at the beginning practise selves association of farmers, later taked up it Ministry of agriculture. In the year 2000 was passed law about ecological agriculture, which already cleary determine conditions for organic farming and conditions for

production of bioproducts. Also determine system for inspection and certification, which was charged the KEZ o.p.s. and which is accredited by IFOAM.
In the year 2003 was passed and publicated the operational development plan for organic farming in the Czech rep. for next 10 years, which go from European commission plan for organic farming.

Aspects Concerning the Evolution of Ecological Agriculture in Romania

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Usamv Cluj-Napoca

Romania has exceptional conditions for promoting the ecological agriculture. After 1997, when BIOTERRA, the first association of Bio-agriculture from Romania was founded with Swiss support. This field became dynamic and results are seen since the beginning of 2000. A dynamic evolution in the field of plant culture and animal production was also recorded.

The area ecologically cultivated and certified was 17,400 ha in 2000, 57,200 in 2003,and 75,000 ha in 2004.
The effective of the number of animals bred in ecological system was: 2,500 heads of dairy cows in 2000; 7,000 in 2003; and 10,000 in 2004. Numbers of sheep bred for milk production were: 7,600 heads in 2002, and 41,000 in 2003, with the perspective of 70,000 in 2004.
Laying hens: 2000 heads in 2002, and 6,000 in 2004.

The number of commercial societies (small and middle farms), small producers, and processors in ecological system also increased. In 2003, 129 societies and physical persons were registered as ecological producers. Among these were 65 in vegetal production, 19 in animal production, 4 high processors, 41 apicultures, and one importer.

The Ministry of Agriculture temporarily authorised 10 control and certification organisations from Germany, Italy, Switzerland, and Greece, and recently the first Romanian organisations for control and certification was founded.

Romanian legislation is in concordance with the legislation of the European Union. The National Authority for Ecological Agriculture was also founded. Non- governmental associations were reunited under a single coordination, NATIONAL FEDERATION OF ECOLOGICAL AGRICULTURE.

The evolution of the agricultural area ecological cultivated, the main agricultural cultures, information concerning the animal breeding in ecological system, the main BIO products and their use, organisations of inspection and certification, national legislation in this field, and subventions supplied by Romanian state, in one word a mirror of the present state of the bio-agriculture in Romania, are presented in this paper.

Organic Animal Production In Turkey

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Organic agriculture in Turkey started in 1984 with dried fruits (fig, grape, apricot and haselnut) upon the request of foreign countries. Due to this request, various product and the number of farmers increased steadily in organic plant production. Organic animal production started to develop since 2-3 years, except beekeeping that has a long history (organic honey production is approximately 1116 ton in 2003). Although it started later, there is an increasing interest going on for organic animal production. The reasons of improvement in organic plant production can be stated as follows: Turkey is the traditional exporter and big producer of dried fruits in the world, fruit growing is not integrated with animal production like many other Mediterranean countries and there are general problems even in conventional animal production. Turkey is one of the few countries that have their own national regulation among the developing countries. Organic agriculture regulation in Turkey based on European Community Legislation (Council Regulation EEC No 2092/91) was prepared by The Turkish Republic, Agriculture and Rural Affairs Ministry and came into force on 18 December 1994 (No:22145). This regulation was revised on 11 July 2002 (No:24812) and animal production and aquaculture production were included and modified according to Council Regulation EC No 1804/1999. There are seven independent control and certification bodies authorized by “Organic Agriculture Committee” in the Ministry for organic agriculture.

The northern and eastern part of Turkey is especially in a suitable position in organic livestock due to small and large animal stock, land and pasture capacity. In addition, the regions where organic plant production is widespread (like Düzce and Göksu delta), when integration with animal production are taken into consideration, can easily convert to organic animal production. Few examples of organic animal production in Turkey can be given as: an organic dairy farm which has about 510 dairy cows in Kelkit (in conversation), an organic Imbros sheep raising in Gökçeada and a turkey farm (is about to get certification) in Çanakkale.

Organic farming in Bulgaria: starting of development and problems

Sonia Ivanova, Bulgaria

Bulgarian agriculture is at a crossroad, after a post-communism crisis, started in 1990 when the cooperatives were dismantled and the slow process of land restoration began. Fifteen percent of Bulgaria's arable land is now in the hands of 1.8 million small farmers, who have often not been able to afford pesticides and fertilisers, while vast tracts are still lying fallow.

Sustainability of agriculture in Bulgaria could be obtained by developing of organic farming. Regardless of that organic farming is at its start level, there are a lot of good precognitions of developing low input systems. Good climate, cheap labour and restrained use of pesticides and fertilisers in the last decade, have created a favourable climate for organic farming. All good possibilities for its development were stressed on the conference on organic agriculture, held in November, 2003, in Plovdiv. According to the information provided by the Bulgarian MAF, 500 hectares are already being organically farmed. In 2001 were adopted two separate regulations concerning the organic farming: Regulation 22 and Regulation 35 on organic production of plants and livestock products and foodstuffs from plant and animal origin and its designation. The approval of the first national inspection body and the harmonization of legislation are considered by the government as an important steps of the Republic of Bulgaria.

In the same there are quite big efforts made to establish that new agricultural production, but they were mainly done by NGOs. Long time Bulgarian government and especially Ministry of agriculture were not engage with organic agriculture. It is still without any government support, that’s why it is not developed successfully. It is transferred and popularised European experience in organic agriculture through several International projects with the support mainly by Swiss government. It is thought, that a good possibility for development of organic agriculture will give the EU – program SAPARD, Measure 1.3. – “Agroecological measures”, starting in 2003. Positive aims of the program are presented, but also difficulties to be sponsored by this programme were given.

Situation in organic livestock farming is presented, according to information, mainly provided by NGOs. A lot of problems for successful development, comparing with plant production, are described by practical example of the establishment of milk production. Measures and possible solutions are suggested.

Dioxin Levels in Organic Eggs

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Purpose. EU regulations have set upper limits to the dioxin content of a wide range of foodstuffs from animal origin. The level in eggs has been set to 3 pg TEQ/ gram of fat, whereby organic and free range eggs are allowed a transition period until January 2005 to comply to this target. Outdoor access of chickens is known to lead to a higher dioxin content in the eggs. The purpose of this study was to quantify the amount of organic eggs exceeding the proposed dioxin limits, to identify factors that influence dioxin levels in organic eggs and to propose measures to keep these levels below the 3 pg limit.
Methods. Eggs, soil, feed, worms and spiders were sampled from 34 organic poultry farms. Dioxin levels were screened by bioassay (CALUX method) and confirmed by gaschromatography and mass spectrometry.
Results. Nine organic poultry farms (26%) produced eggs that exceeded the 3 pg limit. The highest value was 8.1 pg TEQ/gr fat. When taking the total egg production into account the data showed that 86% of the eggs had acceptable dioxin levels. Factors that may play a role in the egg dioxin level included farm size, use of vitamins, feeding green fodder, % of chickens going outside, grass coverage of the outdoor access and soil uptake. Soil dioxin levels in farms exceeding the 3 pg limit were 2.6 pg/gram soil as compared to 1.9 in the low dioxin level farms. No effect was seen concerning the race of the chickens used. From our own results and literature data a model was developed to calculate the role of various dioxin sources to the actual dioxin level in organic eggs.
Conclusions. These data show that the majority of organic eggs from the Netherlands are produced with dioxin levels that are within the 3 pg limit proposed by the EU. Of the various sources of dioxins in the outdoor access area our model indicates that access to soil and the actual amount of soil taken up, as the most important factor contributing to the dioxin level in eggs. Adequate coverage of the outdoor area, thereby limiting soil uptake, may lead to acceptable dioxin levels in organic eggs.
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Reduction of heavy metal input in organic animal husbandry

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Necessity of heavy metal reduction in agricultural systems (soil protection, consumer protection, etc.)

In Germany and on the European level there are efforts for limiting heavy metal inputs in soils and to avoid enrichments in the food chain. These efforts lead to legal rules, which have more or less influence on the farmers work. The discussion in Germany especially in the working group of Kuratorium für Technik und Bauen in der Landwirtschaft (KTBL) and Umweltbundesamt (UBA) shall be presented.

Sources of heavy metal input in the agricultural cycle

The main sources of heavy metal inputs in the nutrient cycle of a farm are supplements in animal nutrition, (Klauenbäder mit Cu-Vitriol), other medicaments and other remedies in stables and in plant production. The order and interaction of inputs shall be presented.

Potential of measurements to reduce heavy metal in agricultural soils

A valuation of reduction measurements is necessary. The results of a german working group (delegates from UBA, KTBL, Science, Bioland) are presented. The practicability of measurements give us hints, how to come to a transformable legal regulation for reduction of heavy metals in the food chain.

The burden of mycotoxins in organic pig husbandry

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Mycotoxins are secundary metabolites of fungi that cause negative effects for human and animal health. Mycotoxins are mainly found in cereals, but also in, among other things, hay, straw and silage. The consequences of the toxins deoxynivalenol (DON) and zearalenon (ZEN) seem to be of importance predominantly in pigs; pigs will refuse food or vomit at high concentrates of DON and consumption of ZEN has strong oestrogenic effects in pigs.
Due to use of organically grown cereals, feeding roughage and applying straw as bedding material the possible risk of mycotoxins for animal health seems different in organic pig husbandry compared with conventional pig husbandry. A study was carried out to determine the daily intake of the mycotoxins DON, ZEN and T-2 toxin. The T-2 toxin is involved in this study because the combination of DON, ZEN, T-2 and Nivalenol is most frequently found in North-West Europe.

By means of a model the burden of mycotoxins is determined for the feed rations (with and without bedding materials and roughage) of fattening pigs, sows and piglets. Each calculated burden of mycotoxins of each pig ration is compared with national regulations, standards or recommendations.

The main conclusions of this study were:
In organic pig husbandry the calculated average mycotoxins content of raw materials does not exceed the standards for DON, ZEN and T-2.
The calculated burden of mycotoxins of organic pigs is the highest when pelleted feed together with maize silage is fed.
Feeding sows more roughage (including bedding materials has probably no influence on the content of mycotoxins in the total feed ration for sows.
When feeding maize silage to piglets the new Dutch standard is exceeded quickly.

However it should be mentioned that these results are obtained by a model. The model is made by means of a limited number of literature mainly from outside the Netherlands. Most of the known contents of mycotoxins are the contents of conventionally grown raw materials. Not much information is known of the organic raw materials, bedding materials and roughage.

Based on the results of this study we advice: 1) to analyse mais silage before feeding to pigs and 2) not to feed mais silage to piglets.

Mycotoxins in the milk from organic farms in the Florence province.

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The paper will present an introduction to the problem of M1 aflatoxin (AFM1) in milk and related to organic dairy production., and a short description of the analytical methods used to detect aflatoxin using HPLC (official), ELISA and the rapid Afla M1 ALITEST and legal limits set by the UE Reg Ce 1525/98, 20032/32/CE and 2003/100/CE.
It is believed that by not using preservatives, the risks linked to aflatoxin are higher in organic production than in conventional milk production. Additionally, production in the Mediterranean areas is even more problematic, because the warm climate increases the risk of aflatoxins contamination in the maize.
In effect, it appears that there are advantages and disadvantages in relation to aflatoxin in organic agriculture. Included in the advantages is the reduced use of N in organic agriculture, and also the use of organic N. This together whit the fact that pesticides are not used and harvesting is done earlier, serves to both increase plant biodiversity and reduce the presence of mould.
However, the disadvantages are that since no herbicides are used in organic farming there are more weeds, as well as the increased presence of Pyralidae.
In Tuscany, a crisis concerning AFM1 occurred in both conventional and organic farms during the autumn of 2003. The problem was discovered from sanitary control data performed by the Dairy Centre of FI, PT and LI (Mukki Latte). Thereafter, the farmers and sanitary services took immediate action and the processing companies increased the regulatory controls.
In this work, we studied the content of AFM1 derived from conventional and organic milk production processed by Mukki Latte.
The first positive evidence of the presence of AFM1 >50 ppt was first apparent in the summer 2003, four months before the crisis, as a result of routine analysis carried out by Mukki Latte.
Thereafter, the latter established a monitoring system to measure the levels of AFM1 (HPLC and ALITEST) not only to reject contaminated milk, but also in order to administer a monitoring service to the farms requesting it.
Even trough, the crisis peaked in late 2003, to date it is still possible to find positive samples from both conventional and organic production. For this reason it is possible to affirm that the problems are still not resolved.
In the beginning, the level of AFM1 in organic milk was equivalent to that in conventional milk. Fallowing the crisis the level in organic milk was then lower than conventional milk.
In organic milk derived from Mugello area (2 farms), the problem was restricted only to the month of October 2003.
This was because all the organic farms, as well as many conventional farms decided to suspend the use of infected maize grains, replacing whit guaranteed Aflatoxin free organic feed.