ORGANIC SEED PROPAGATION: CURRENT STATUS AND PROBLEMS IN EUROPE

REPORT

SEMINAR

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According to EU Regulation 2092/91 for organic farming the organic sector had to close the organic chain using organic propagation material in Europe firstly by December 31, 2000, but it was concluded that there was a general shortage of organic seed for most crops. For instance, A. Cook wrote in 1999 about UK: "…in UK … there is a general shortage of organic seed for most crops, but the main shortage must be defined as those crops that have no organically produced varieties commercially available. These crops include: oats, rye, triticale, parsnips, swedes, turnips and grasses and clovers. … survey has shown that there is a severe lack of organic seed that is commercially available to UK farmers and growers. Therefore, the extra three years given by the EU as an extension to the derogation for the use of conventional seed, should be used to stimulate and encourage organic seed production". The next date for closing organic chain according to EU Regulation 2092/91 was by January 1, 2004 and it demanded to develop efficient schemes to produce adequate quantities of organically produced seeds and planting materials. What does it means: organically produced seed (planting material)?

Organic seed (planting material) is seed (planting material) produced by a crop that is planted and raised organically for at least one generation in the case of annual crops, and two generations in the case of biennial and perennial crops (Lammerts van Bueren, 2002). It is naturally that organic seeds are obtained by purchasing conventional non-treated seeds (C1), which are grown organically for one season and then sold on to organic farmers as organic seeds (C2).

E. Lammerts van Bueren (2002) nominated the main problems in organic seed production:

1. Market problems are related to the limited area of organic agriculture and thus of the area of seed production per variety resulting in higher cost compared to conventional seed production. This will imply that the organic assortment of varieties per crop will be limited.
2. Technical problems have to do with the lack of experience of the formal sector with organic seed production without chemical inputs.
3. Problems with quality standards. The main problems are: disease and pest management, and weed control. Among the diseases the seed-born diseases require special attention. This also brings up questions and research needs related to seed quality.

The expectation was that by 2004 for the most important crops there would be sufficient quantities of adequate quality organic seed and planting material. However, ongoing optimisation of organic seed production management will require to enlarge the cultivar assortment and to control the quality of organic seed and planting material.

Until 2004 a lot of research was done on adapting and improving cultural practice for organic seed production. This implies developing adapted varieties for healthy seed production, developing protocols for seed health test, assessing threshold values, designing organic seed treatment, etc.

I will give a few illustrations on research, done for optimising organic seed propagation in late 1990-ties and in the first years of the new millennium.

B.Boelt, L.Deleruan, R.Gislum have dealt with different problems of organic legumes and grasses seed production in Denmark: mode of sowing, provision with nitrogen without artificial fertilisers, restriction of insects' damage, etc. (Boelt *et al*., 2001; Deleuran, Boelt, 2001; Boelt, Gislum, 2002; Boelt, 2003). In Denmark organic forage seed production has been established since 1992 and in 2000 organic grass and clover seed were produced on nearly 1000 ha. Production of one of the main constituents of forage mixtures, perennial ryegrass already in 2001 met the requirements set for organic seed in Denmark and this grass species and its seed was available for export. Of other grass species used in forage mixtures only smooth stalked meadow grass is not organically produced, however the request is rather small. Among the clovers, there is now a production of organic seed of red clover that

matches the demand however another main constituent of forage mixtures white clover is still in request. (Boelt et al, 2001). In 2003 in Denmark production of white clover (*Trifolium repens* L.) was still in request, too. Yields in organic white clover seed production are reduced by approximately 80 % compared to conventional production. Research activities did not solve up to now problem of clover seed weevils. A survey in organic clover seed fields have shown that weevils are found in all organic white clover fields, that the yield reduction from these range from the weevil larvae may be 12 – 77 %. Currently research activities are continued (Boelt, 2003).

A new EU project on Seed Treatment for Organic Vegetable production (STOVE) is developed. With the current changes within organic farming regulations with regards to the use of organic and non-organic seeds, the issue of seed health has become critical for some organic vegetable producers. The development of new techniques for seed sanitation and the control of seed-borne diseases are now more urgent than ever and are of interest to both producers and users of organic vegetable seeds. Project started in 2003 and will end in 2005. In the project 2 new physical seed treatment methods will be tested. (www.stove-project.net)

New Zealand's experience suggests that organic vegetable seed production in covered area. Worldwide a lot of seed production (both conventional and organic) is now done in greenhouses because the environment and pollination can be controlled. It helps to keep seed free from fungal diseases, too (Walker, 2003).

Prohibiting chemicals in organic crop production increases the risk of diseases for many crops, especially for biennials, which are exposed to infection during two subsequent seasons. A lot of research has been done to ensure seed health and healthy plant community development. Combination treatments were tried to develop using milder physical treatments with compounds of natural origin (essential oils, organic acids etc.). Groot *et al*. (2005) when testing 30 essential oils found that thyme oil exhibited the highest *in vitro* inhibiting activity against two bacterial and two fungal seed-borne pathogens of carrot. A.Borgen (2001) wrote that the most effective preventive method for control of seed borne diseases is to only introduce healthy seed into the system. It is of vital importance that the seeds purchased are free from diseases – this is not automatically the case even though it has been grown on the basis of disinfected plant material. Seed borne diseases occur equally often in conventional non-treated seed as in certified organic seed. The choice of resistant varieties is also an important component in the preventive strategy. No cereal variety is, however, completely resistant to all diseases - this would probably also be contrary to the wish of maintaining biodiversity. All things considered, it will be advantageous to use mixtures of several varieties, but this strategy is difficult to be implemented in the multiplication phase of the propagation, due to practical reasons as well as due to the degree of purity required by the rules for certification of seed. The cultivation conditions influence the occurrence of seed borne diseases, but we only have limited knowledge of this. It has been stated that row cropping may reduce the impact of some diseases, but the importance of this has not been determined (Borgen, 2001). Also early harvesting has an influence on some diseases (Olvång and Poulson, 2002).

Different research projects and results from the whole world providing better availability of quality organic seed were documented in the "Proceedings of the First World Conference on Organic Seed" (Rome, Italy, 2004) (www.organicseedconf.org).

Research results mainly show ways and possibilities to solve problems in organic seed sector both providing sufficient amounts and adequate seed quality.

Despite of these activities and existing EU regulations problems in organic seed use still exist even in European countries. They are specified by Groot *et al.* in 2005 and they still are very similar to those mentioned by E. Lammerts van Bueren in 2002:

1. Organically produced propagation material is not available for all the crops or there are not appropriate varieties.

2. To produce seeds under organic conditions and to obtain seeds of the same quality similar to conventionally produced seeds may often prove more difficult.
3. For several crops organically produced seeds are more expensive and in practice farmers may choose the cheaper conventional seeds.
4. Seeds may be obtained through farm-saved seeds or through exchange within the community, which are not always a certified organic production. Seed quality can be a serious problem (Groot *et al*, 2005).

Despite of problems the field of organic production and the use of organic seeds are rapidly evolving. Due to this training of farmers, extension staff, researchers and policy makers needs attention. Education and comprehension can help to solve problems much easier. Several institutions such as IFOAM (International Federation of Organic Agriculture movements) and ISTA (International Seed Testing Association) can contribute to this need. For instance, apart from pioneering research on organic seeds, the Wagening University and Research Centre (the Netherlands) also provides courses both on seed technology and organic farming. (http://www.seedcentre.nl) (Groot *et al*., 2005)

The expectation was in 2001, as mentioned above, that by 2004 for the most important crops there will be sufficient quantities of organic seed and planting material of adequate quality. In the course of time it became clear that sufficient quantities of organic seed and propagation material would not be available for all crops and methods of cultivation on January 1, 2004. On August 14, 2003 an EC Regulation was adopted (1452/2003) under which exemptions are permitted under certain conditions and member states are obliged to implement it as from January 1, 2004. In order to grant exemptions, information must be available concerning the availability of organic propagating material. By this Regulation information regarding organic propagating material availability must be made transparent by setting up an electronic database containing information on availability.

Now a year has passed under this EC Regulation. Current situation in European countries in organic seed sector was investigated, both searching information in web pages as well as contacting responsible persons by e-mails shown mainly in pages of organic seed databases. Answers to following questions were sought:

1. Do you produce enough double certified organic seed in your country or do you import it?
2. Do farmers widely use Organic seed database? Whose responsibility is to comprise this database?
3. Are there some field crops for which derogation to use conventional seed is allowed? What is system like and to whom do farmers have to apply for derogation?
4. Is it allowed to use so called 'home saved' seed? Do farmers test quality of such seed?
5. What are the main problems for seed lots' rejection: variety purity, diseases, germination etc.?
6. How do you organize organic seed production: is it organic from initial stages (starting with breeder′s seed) or only one or two generations are grown under organic conditions?

In order to help farmers and companies to obtain organically produced seed Member states were demanded **to establish an online database, where suppliers of seed can register seed and seed potatoes, produced by the organic production method, which they want to put in the market.** If there is no seed available of the species which organic farmer wants to grow, or if there is no appropriate variety available, the farmer can ask the inspection body for a derogation to use non-organically produced seed. With regards to vegetative propagating material, other than seed potatoes, this falls under the discretion of the member states, until appropriate criteria can be adopted at Community level. From the following web page www.europa.eu.int/comm/agriculture/qual/organic/seeds/index_en.htm it is possible to get to links to databases for organic seed in Member states. 15 countries are shown in this page on April 1, 2005, even if broadening of EU occurred on May 1, 2004. Countries mentioned in

web page are as follows: Belgium, Denmark, Germany, Greece, France, Italy, Luxemburg, the Netherlands, Finland, Sweden, United Kingdom (links to web sites are provided) Austria (link to web sites is provided, but it is not possible to open the page), Spain, Ireland, Portugal (without links to web sites). Mainly databases and web pages are made in countries' languages and it is not possible to use them for people not speaking and reading in every European language. B.Boelt in 2003 wrote that it is in project that after some years the availability of organic seed will be evaluated, and then the European Commission will consider establishing a common European database. Then wide information will be available for every coterie.

And now I will try to answer the questions mentioned above. I am very thankful to people, providing me with information through the personal communication (see names at the end of the paper). Without their responsiveness it could not be possible to write this paper.

Organic seed database availability and use in European countries, responsible body to comprise this database.

OrganicXseeds is an organic seed database for Europe www.organicXseeds.com: UK, Germany, Luxemburg, Belgium and Switzerland. The organisation responsible for the database is FIBL (Research Institute of Organic Agriculture) in Switzerland, in cooperation with SA (Soil Association) and NIAB in England, AIAB in Italy, the LBI (Lois Bolk Institute) and the Stichting Zaadgoed in Holland and the German working group ALOG. The organicXseeds database allows easy search of organic seeds or in case of not good offer it gives the possibility to farmers directly call for derogation via a web blank form.

Database for **United Kingdom** derives from www.organicXseeds.com – since 2001, administrated by Soil Association (SA) of UK. SA entered all the data to database for UK companies. For farmers who lack access to Internet SA publishes as well a printed organic seed list. At the www.organicXseeds.co.uk it is possible to find available seeds on 47 pages: species, varieties, contact addresses, where seed is possible to buy. In addition a lot of company databases on organic seed availability in UK are accessible in the web, for instance, MAS Seed Specialist 'Aubergine to carrot organic vegetables' in www.meadowmania..co.uk/default.cmf/loadindex.138. Book on seed production and English website on biodiversity is located on www.kokopelli.asso.fr/en, etc.

Database located at www.iol.ie/~organic/seeds/seeds.html gives information on organic seed availability in different countries and by different seed suppliers: Ireland, UK, France, Germany, Holland, Italy, Israel, Switzerland, and North America.

In Ireland a database has been developed for users showing the seed and vegetative propagation material that is registered and available here. The database is available on the website of the Department of Agriculture and Food:
www.agriculture.gov.ie/index.jsp?file=organics/rules/rules.xml.

The Netherlands. The database is to be set up by the Netherlands Inspection Service for Horticulture by order of the Ministry of Agriculture, Nature and Food Quality (LNV) www.biodatabase.nl. Easy accessible and there is an English version, too.

In **Sweden** it is the Swedish Board of Agriculture responsible for the database of available organic seed. The address is www.sjv.se/ekoutsade/Tillgång och generella dispenser/Databasen.

In **Denmark** the database is called "The database for organic seed and vegetative propagating material", in short: Den okologiske frodatabase (the organic seed database). The database is available in the following homepages: www.pdir.dk/okofrodatabasen and www.landscentret.dk/oekoudsaed. The database was established at the beginning of 2004 in cooperation with Landscentret (an organization for Danish farmers). The registration in the database is regulated in an administrative order No. 1089 from December 12, 2003. This administrative order contains necessary rules. The seed suppliers can register the species and

the amounts they wish to sell via a login to the database. Organic farmers are obliged to use organically produced seed, seed potatoes or vegetative propagating material, if the required species is registered in the database. The seed suppliers must record immediately, when a species is not longer available in the market and in certain period they must update the database on a weekly basis. The database is divided into 3 main groups: agricultural crops, vegetable crops, and vegetative propagating material. In Denmark the database includes all registered vegetative propagating material, and not only seed potatoes.
Norway is not a member state of EU and Norway does not have database for organic seed. Although, Mattilsynet (the Norwegian Food Safety Authority, a governmental body under the Ministry of Agriculture and Food) has a list in web page:
http://www.mattilsynet.no/multimedia/archive/00011/Liste__kologisk_pro_11963a.pdf (in Norwegian language). Mattilsynet is responsible for this list.
In **Austria** up to date 'database is simply pdf-files which do not at all serve the purpose of a well working database' (S.Eigenschink, March, 2005, personal communication). It is AGES (Austrian Agency for Health and Food Safety) responsibility to comprise the database: www.ages.at
Database in **Finland** is made and updated by Plant Production Inspection Centre. Telephone: 358 2 7605 6259; Fax: 358 2 7605 6220.

Asking about real practical use of organic seed databases I got the following answers:

1. Database is widely used by farmers - Finland, Switzerland.
2. Database is widely used by farmers and by advisors for their clients –Denmark, Germany.
3. Database is mainly used for seeking information on seed availability, but not very usually for application for derogation. Explanation is that database is working only since May 17, 2004 – Belgium.
4. Not all the farmers have possibility to use online database. They got information through advisors or farmers' papers - Sweden.
5. Information on database use by farmers is not available – Norway.
6. Austrian case is described above in the same page.

Very important is the question about amount of organic seed production in European countries. If there are not seed produced, database should be empty and cannot help. Answers to the question **"Do you produce enough double certified organic seed in your country or do you import it?"** were dependent from a specific country.
In **Germany** it depends on the crops and varieties. There is a considerably high production on vegetable seeds, sufficient amount of organic field crops' seeds. At the same time a lot of vegetable seeds originates from the Netherlands.
Switzerland recognizes that they are not a breeders' nation anymore. They have an organic (as well as conventional) seed production nearly only for main field crops: wheat, rye, barley, spelt, *Triticum monococcum* and potatoes there are Swiss certified seed production in farmers cooperatives providing nearly 100 % of organic seed supply. Price difference from conventional is moderate. Seed for other field crops and all the vegetable crops' seed are imported. Price difference from conventional is high to very high.
Sweden is almost self-sufficient considering organic seed of wheat, winter rye, triticale, pea and broad bean. They are self-sufficient in some extent for oat, barley, potatoes, winter rape, timothy, meadow fescue, alsike clover and red clover. Considering horticultural crops there is enough seeds on the market, but most of them are imported.
In **Denmark** there is sufficient Danish produced seeds of most species that is possible to produce in Denmark. But especially vegetable seeds are not produced organic in Denmark. They also have problems producing sufficient amounts of white clover, lupine, and pea. But –

taking into account very wide research work performed in Denmark (I have mentioned several examples above in this paper) it is believable that Denmark will solve their deficiency problems in near future.
In **Norway** double certified organic seed is not produced in sufficient level. They import some grass seed.
In **Finland** situation is good with reference to some species – oat, barley, spring wheat, spring rape, red clover and timothy. Organic seed of other species are not produced sufficiently.
There are 6 Belgium seed suppliers and 1 Dutch seed supplier registered now in official web site of **Belgium** www.organicXseeds.be. Agriculture in Belgium depends a lot from imports when speaking about conventional seed supply as well as about organic. For instance, vegetable seeds are imported from the Netherlands, maize – from France, grass and clover seeds from Denmark and the Netherlands.
Not all demand of organic seed is self-assured in **Austria**, too. For instance, they import vegetable seeds; not all wanted varieties are propagated in Austria, too.

There are not legal problems to use so-called 'home saved seed' in organic farming. It is allowed in all 8 countries, replying to my questions, to use home saved seed. Farmers are stimulated to test quality of such seed, but mainly there are not official data about the samples tested, and officials are of the opinion that farmers do not test home saved seed very usually or that testing mainly depends from specific farmer (**Sweden, Denmark, Norway, Finland, Austria**). Chris Dybvad from Norway remarks that it is illegal to market seed if it is not a 'certified seed'.
Kris De Rider told that for home saved seed **Belgium** applies the EU Regulation 1768/95 and they have as well a national legislation about this subject, too. EU Regulations do not exclude use of home saved seed.
Klaus-Peter Wilbous reported that it is allowed to use home saved seed in **Germany**, but farmers are not allowed to sell or change it to other farmers, but only use it on their own farm. This issue plays a certain role in cereals and a few other crops, but not in vegetables. Only few of the farmers who are saving their own seed do seed quality test on a regular basis (e.g. bio-dynamic farmers).
Andreas Thommen from FIBL told that home saved seed is very rarely used in **Switzerland** neither by conventional nor organic farmers. Most of them use official certified seed. But the organic guidelines are not an obstacle to use home saved seed. If an organic farmer produces his own seed, he fulfils the seed production guidelines and therefore his seeds would be organic.

Describing **process of organic seed production** mainly all the countries answered that organic seeds are per definition and in accordance with EU Regulations seeds, which had be grown for annual crops one season on organic farmland and for biannual or perennial crops for two seasons on organic farmland (Belgium, Sweden, Danmark, Norway, Finland, Austria).
Switzerland specifies that their breeders or basic seed producers produce organic basic seed or F1-generation of certain varieties. Since the demanded varieties change quite fast, it is often not possible to produce several generations under organic conditions and therefore the use of non-organic basic seed is possible. The organic seed production cooperatives ask in this case for derogation, since they want to have the right to sell the remaining after triage or failed seed lots as organic food.
In Germany there are breeders who do breeding and multiplication of seed under organic conditions like Bingheimer Saatgut AG (www.oekoseeds.de) or Dr. Karl Josef Müller (www.darzau.de), but most of seeds are conventionally bred and multiplied for 1 or 2 generations under organic conditions.

Seed quality is issue of very high importance. Organic crop production may demand even higher quality propagation material compared to conventional farming. Farmers should rely on the quality of the seeds they are using. But light-minded farmers attention to quality testing is described above. Preventing measures using chemicals are prohibited and competition with weeds requires high vigour planting material. Moreover, for organic farmers, seed health and the absence of genetically modified contamination is also very important. Some tools for obtaining adequate quality seed are described already above in the section about research importance for organic seed provision. There some additional examples will be shown. Seed priming – primed seeds germinate faster in the field and this may contribute to an improved competition with weeds. Research shows that plants derived from primed seeds show a faster initial growth and an earlier ground cover (Groot et al., 2005). New seed sorting technologies – a technique has been developed to sort seeds on the basis of their level of chlorophyll fluorescence (CF). For instance, the most mature cabbage seeds, with lowest level of CF, had highest percentage germination, more uniform and higher speed of germination and lower amount of infected seedlings. For barley seeds, a relationship was established between the strength of the CF signal and the level of contamination with *Fusarium* spp. Seeds from the fraction with the highest of signals were always most heavily infected (Groot et al., 2005). I would like to stress that research in European countries are solving a lot of problems in different aspects of organic seed production and Baltic countries should follow this good example and investigate problems under their specific agro-ecological conditions.

Despite effort of researchers as well as producers some lots of organic seed are rejected like in conventional seed production. **What are the main problems of seed lots' rejection in European countries?**

Germany. In field inspection the main problem are diseases. Seed health in laboratory is tested by cold test and threshold of spores. But the test is not legally obliged.

Switzerland. Seed production cooperatives are provided with very high quality basic seed, sometimes in organic quality, often in non-organic quality. Therefore there is not so big risk of diseases. They had occasionally problems with seed borne diseases like *Tilletia* in spelt or late blight in potatoes. Sometimes these lots were reduced to non-organic seed and could be treated then with chemical seed treatments. A study of how many lots are rejected initiated by the EU organic revision project lead by IFOAM will be done in summer 2005.

Sweden. The most common problem for seed lots' rejection is germination and the second common is variety purity, and the third common is seed moisture. More information about seed quality in different crops in Sweden could be got contacting Swedish Seed Testing and Certification Institute (www.utsadeskontrollen.se).

Denmark. There can be different reasons depending on species, but the most common are seed health and germination.

About 5 – 10 % of the seed lots are rejected in **Belgium**. During the field inspection the main reason is lack of variety purity, but in laboratory test – germination.

The last question clarified was about derogation system in European countries for the cases when organic seed supply is insufficient.

The EEC Regulation No. 2092/91 states that organic seeds shall be used where available. However, it allows non-organic seed to be used where no suitable/appropriate organic alternative is available. The EC Regulation No. 1452/2003 does not allow treated seed to be used any longer (as of January 1, 2004). There are also no grounds for a derogation to use non-organic seed on the grounds of seed quality if the variety a user wants to use is registered in the database. Availability of the seed should be transparent. Transparency should be provided by electronic databases, which would contain information about availability of seed

(see above section about Organic seed databases). Derogation system and derogations issued during 2004 vary from country to country.

United Kingdom. Application to use non-organic seed in line with European Council Regulation (EEC) No. 2092/91 and European Commission Regulation (EC) No. 1452/2003 has to be addressed to Certification body. Application form that should be used for single varieties of seed, for grass & forage mixes and for seed potatoes can be found in database web page. Certification body needs the reason(s) for wanting to use non-organic seed before any purchases. Where grass& forage mixes are used containing 50 % or more organic seed, details of the non-organic seed within the mix can be submitted to certification body after purchase. However derogation must be obtained prior to your next inspection.

Single seed varieties: if variety that you require is not available as organic seed, and alternative varieties of the same crop are not suitable your certification body will consider your request to use non-organic seed. The justification must be from the following list:

1. No variety of the species which I want to use are registered in the UK organic seed database;
2. The seed supplier is unable to deliver the seed or seed potato before sowing or planting despite ordering the seed or seed potato in reasonable time;
3. The variety which I want to use is not registered in the database and I can demonstrate that none of the registered alternatives of the same species are appropriate for my production (you will need to indicate the reason they are not appropriate);
4. For research purposes;
5. To test in small-scale field trials;
6. For variety conservation purposes;
7. The seed is part of a grass or forage mix containing at least 50 % organic seed.
   From 31 December 2004, DEFRA (Department for Environment, Food and Rural Affairs, UK) will require organic farmers to sow organic grass and forage seed mixes with a minimum organic content of 60 per cent by weight. This requirement will stand until 31 December 2006 (Centre for organic seed information (COSI: www.cosi.org.uk; www.soilassociation.org))

Potatoes – seed potatoes must be sourced organically. Approval for non-organic varieties may be given in exceptional circumstances. Certification body has to be contacted to discuss the requirements. Use of organic seed potatoes will become mandatory in 2005.

The government is not in favour of the percentage approach. The rule is difficult to fit within the European legal framework. A percentage rule for individual growers was discussed but eventually rejected. This particular subject is likely to be part of the European evaluation in 2005.

According to the Soil Association, the present use of organic seed in vegetable cultures (with the exception of *Brassica* species) is as much as 50 to 75 %.

The database is being discussed in so-called seed working groups. Reports are to be found at www.cosy.org.uk

In **Ireland**, three private inspection bodies (i.e. Demeter Standards Ltd, Irish Organic Farmers and Growers Association and the Organic Trust Limited) give the required formal permission to the producer to use seed and vegetative propagation material that has not been produced by the organic production method. Producers should ensure that the prior approval of the inspection body is obtained before using such seeds. (Source: www.iol.ie/~organic/seeds/seeds.html)

In the **Netherlands** from January to June 2004, 1392 derogations were given for 2093 varieties. This includes derogations for research/field trials done by seed companies. Seed propagators more often asked for derogation than individual farmers did it. In order to encourage the use of organic propagation material as much as possible in organic agriculture

and to make exemption system as easy as possible, crops in the Netherlands are divided into three groups:

1. crops for which no exemption will be granted because there is sufficient organic seed available (for instance, potato, barley, oats, wheat etc.).
2. crops thereby exemption is possible because although propagating material is available, it is not in sufficient quantities or for all cultivation methods (for instance, timothy, field pea, ryegrass etc.).
3. crops for which a general exemption is granted because no organic propagating material is available (for instance, asparagus, sweet corn, chicory, caraway, ornamental crops and trees, hemp etc.). (www.biodatabase.nl)

Main reasons for derogation were:

- no organic seed available of the variety asked;
- variety is not appropriate for soil type;
- variety doesn't have the desired resistance, this is especially a problem with lettuce;
- the market asks for another variety.

For crops on the national annex in principal no derogation is possible (see above: group 1), but a few exceptions where made by the government after consulting with the national control body (Skal). For instance:

- there was no potato variety available which is suitable for the production of fries;
- lucerne seed was sold out after a while;
- durum wheat for the production of pasta was not available;
- rye was on the annex but there was no summer-rye available; now only winter rye is on the annex.

Main issues of organic farmers:

- The implementation of EC regulations differs between countries, leading to unfair competition.
- For organic growers, the obligation to use organically produced seed limits their choice of crops; because the market for organic seeds is small, seed companies produce organic seed for only few cultivars and crop varieties.
- Every year, new cultivars are brought onto the market (for example, *Bremia* resistant lettuce varieties), but organic seed for these varieties is not immediately available.
- It is difficult for organic growers to meet market demands for special vegetable varieties (with different tastes, shapes, colours) if organic seed or propagating material for these varieties is not available. Among others, this is a problem for growers of greenhouse vegetables such as tomatoes and sweet peppers.
- The price of organically produced seed is unnecessarily high, partly due to the limited number of market players (seed companies).
- The higher price of organically produced seed cannot (yet) be passed on to the consumers therefore organic growers have to sacrifice part of their profits.
- Farmers who do not use organic seed are able to produce their crops at lower costs, leading to unfair competition.

Main issues of seed companies:

- Organic seed production is difficult, pioneering work. For example, a seed company trying to meet market demands for 200 metric tonnes of spring wheat seed had to double its production area to produce 350 tonnes: the extra production is necessary as part of the harvest is of inferior quality and another part may be rejected because of root rot.

- It is too easy for farmers to obtain derogations, leaving seed companies with unsold stock.
- To avoid the use of (expensive) organic seed, farmers may misuse the database, and this could lead to great profit losses for seed producers. For example, when the *Bejo* seed company registered on the database an onion variety that used to be a non-treated seed variety popular with organic growers, many farmers tried to avoid the obligation to purchase the more expensive organic seed by switching to other onion varieties, for which organic seeds were not available.
- There is a serious lack of organic seed producers. Seed companies should be stimulated to participate.
- A level playing field for farmers is necessary.

The Netherlands plans for 2005. The Netherlands will introduce a new National Annex of species and varieties excluded from the scope of derogation. Early November 2004, expert meetings were held to determine which crops should be listed on the 2005 Annex. Crops were tested by the following criteria:

- Are the main varieties of the species available?
- Are suitable varieties available to cover all growing seasons and possible uses? If not, the Dutch government wishes to know what is needed to improve coverage for 2006 and/or later years.
- Is a division into subspecies or sub-varieties advisable?
- Are some of the varieties interchangeable?
- Are there at least two seed suppliers for this crop?
- In the case of "small" crops (for which total planting area is small): Is suitable organic seed available from at least one supplier? And have there been derogation requests for this species in 2005?

Percentage rule

The sector has requested the government to consider the introduction of a so-called percentage rule. In this approach, a specified percentage (25 %) of the seed used should be organic. The percentage rule should apply to crops for which organic seed supplies are too limited to list them on the Annex, and for which supplies are not expected to increase because demand will remain low; partly due to high seed prices and unfair competition. With this percentage rule farmers want to show their commitment to the seed companies. The percentage should be raised in the following years (50, 75, 100 %) if the supply increases and other countries follow this example. At this moment, it is yet unclear whether a percentage rule will be implemented, because the government is concerned about legal implications. A pilot project with a limited number of crops may be initiated.
(Source: Maaike Raaijmakers, the Netherlands, raaijmakers@biologica.nl)

Germany. There are two categories of derogation according to Regulation 1452/2003: general derogation where no or small amount of seed is on the market and the single derogation where the good deal of the needed seed is on the market. For a general derogation grower can download a confirmation from the official database www.organicXseeds.de, confirming that there is no seed of that variety listed in the on-line database. With regards to single derogation the grower submits the derogation request via organicXseeds to his inspection body that decides upon this request. The most common reasons for derogation requests are the unsuitability or unavailability of a crop variety. Some seed producers have indicated that the demand for organic seed has increased in 2004 compared to 2003, but statistics are not yet available. Organic horticulturists complain that organic seed is not available for some resistant varieties: this is especially the case with lettuce.
The classification into crop categories will be revised based on an evaluation by the expert groups. There will not be a national annex for 2005; however, there is an ongoing discussion

about a possible list of crops, which should be excluded from the scope of derogation because adequate amounts of seed are available.
Many crops on this year's general derogation list will be registered on the organic seed database next year. This should lead to an increase in the use of organic seed.
Specific concerns:

- Only private rules;
- The database is very small;
- Any changes have to be agreed upon by all sixteen German states;
- The people deciding about the organic seed database do not have an organic-agricultural background.

Fleuren company, a Dutch producer of organic apple trees selling most of its trees in Germany, reports that German growers request written confirmations when required varieties are not available. This indicates that the derogation process is closely monitored.
(Source: M.Raaijmakers information from FIBL - Forschungsinstitut für biologischen Landbau*; Vitalis, Fleuren* (seed companies and Klaus-Peter Wilbous, Klaus-peter.wilbous@fibl.org)

Switzerland established the 3-step system, which reflects the EU system. The great difference is that we did not only classify whole species, but divided the species into variety groups (like winter wheat, first quality etc., cauliflower for under glass production etc.).

Annex 1 – there is sufficient offer of organic seed and use of it is obligatory. Derogation can be earned only for varieties' trials, conservation purposes etc. Request must be submitted in writing.

Appropriate 2 – available at least one "top" variety, adapted for professional use *id est.* "appropriate" variety. Reasons for derogation as above, there can be added other reasons, based on agronomic or economic evidence. Request must be submitted in writing.

General derogation – no variety adapted for professional use. From organicXseeds downloaded confirmation is sufficient, no request in writing is demanded.

Nearly all of arable crops are on the step one or two, which means that farmers need derogation for the use of non-organic seeds. The following four commissions of the label-organisation BIO SUISSE are doing classification: arable and fodder crops, vegetables, ornamentals, herbs and spices. These commissions are composed of advisors, researchers and mainly of organic farmers. This is a certain guarantee that the classification is well accepted by farmers.
Special regulations have been set up for mixtures of grass seeds. Since not all desired components of grass and clover are available in organic quality, it is asked for a minimal amount of organic seeds of 30 % on mixtures. These 30 % organic seeds may be used without any derogation. Mixtures with less than 30 % (next year 40 %) organic components need derogation.

With vegetables Switzerland has more problems, because there the quality standards of the whole trade are very tough and some breeders who dominate certain species are not willing to produce organic seeds or giving licences to organic seed producers.
All organic farmers' addresses are registered on organicXseeds. All farmers have access to the derogation tools with a personal password. In Switzerland the derogations are handled by FIBL Institute. In the other organicXseed-countries (U.K., Germany, Luxemburg, Belgium), the private control bodies are responsible to give derogations.
Andreas Thommen from FIBL is of the opinion that the Swiss solution has the advantage: FiBL as an independent institute has to decide about calls for derogations. To let the control bodies decide means, private bodies, which are in concurrence with one another, may give derogations to their own customers, from which they depend. This may lead to too much allowed derogations. Andreas Thommen would strongly recommend the Swiss solution,

which is much more fair and just. (Source: Andreas Thommen, FIBL, andreas.thommen@fibl.org).

In **Sweden** for all crops that are not mentioned in Annex 1 there is a general derogation e.g. for flax, sugar beet and buckwheat. The farmers have to apply for derogations to the Swedish Board of Agriculture. If there is missing an essential variety of a crop (e.g. for a region, for market purpose, for resistance to diseases) or the farmer wants to test a new variety in a small scale field trial the Board is authorizing derogations (when possible a general and otherwise individuals). (Source: Gunilla Idestrom, information@sjv.se)

Juha Kieksi (juha.kieksi@mmm.fi) told that in **Finland** farmers have to apply for derogation to local governmental organization according to Regulation 1452/2003.

In **Norway** farmers are allowed to use non-organic seed if they can't get the variety they need. This seed has to be non-treated (but cedomon treatment is allowed) and the farmers must get a statement from the seed merchants that they are not able to deliver organic seed of this variety. This system applies to all the crops. This system is found to be the most suitable as long as the organic sector is quite small and due to the latter the supply of organic seed from different varieties is rather limited. (Source: Chris Dybvad, Debio: chris.dybvad@debio.no)

Denmark has adopted a stringent derogation system and therefore considers a national annex unnecessary. For example, since Denmark is self-sufficient in cereals, farmers will never get derogations for these crops. Also for grass seeds and potatoes Denmark has 'in fact' a national annex. The Danish Plant Directory issues derogations, and this institution has made an annual report on the derogations issued in Denmark in 2004: www.pdir.dk/files/filer/oekologi/virk/froedatabase/report_2004_seed.pdf. The possibility of getting derogation is explained in this survey, too.

The problem with seeds for vegetable crops is that most of them are not tested. For instance, ten varieties of organic carrot seed are imported, but only two varieties are tested in Denmark. Farmers refuse to use organic seed unless it is tested on quality and vigour in Denmark itself. The fact that the seeds are thoroughly tested in the country of origin is apparently not sufficient. (Source: The Danish Ministry of Food, Agriculture and Fisheries, Inger Bertelsen, INB@landscentret.dk and Report 2004 on Danish authorisations to use…, January, 2005).

In **Belgium** all the species are devided into two levels. The species that belong to level 1, are not entitled to authorisations pursuant to the derogation referred to in paragraph 1 unless it is justified by one of the purposes referred to in Article 5(1)(d) of EC Regulation No 1452/2003 (for instance, *Allium sativum* L., *Brassica*, diverse species, *Cichorium intybus* L., *Cichorium intybus* L., *Cucumis sativus* L., *Portulaca oleracea* L., etc.). All crop groups that are not put on level 1 belong to level 2, which means that article 5 of EC Regulation No 1452/2003 of 14 August 2003 has to be applied. To apply for derogation a farmer can use two options. He can log in on the Belgian database using his password and user name. On this personal site he can search for his wanted variety. When the variety, that he wants, belongs to a crop group on level 2 he may ask for derogation by using the derogation form on the database. He can also contact his inspection body that provides him with a derogation form. Finally his inspection body answers to his request after having analysed the data given by the farmer and the data available on the database (Source: Kris De Rider, Ministerie van de Vlaamse Gemeenschap, kris.deridder@ewbl.vlaaderen.be).

The organic sector in Flanders has come to the conclusion that the present derogation system is failing. Although the system requires growers to motivate their requests, the fact is that derogation is always possible if the requested variety is not registered on the database. The result is that it is too easy to obtain derogation. Therefore, the Flemish sector has proposed the introduction of a percentage rule. For example, for onion and carrot 20 % of the seed used should be organic; for species that were close to making the annex, 50 %; and for crops with adequate amounts of seed available (i.e., crops listed on the national annex), 100

%. In addition, the sector has proposed a general derogation for all crops with non-existing organic seed supplies. The Flemish government backs the percentage approach, but the complication is that the Walloon provinces should also agree. At this moment it is yet unclear what will happen in 2005; the Flemish and Walloon governments are presently discussing the matter.

Other specific issues:

Supplies of organic seed for cereal crops are far too limited. Flemish seed companies apparently are not interested to produce these seeds. (Source: M.Raaijmakers information from PCBT - Interprovinciaal proefcentrum voor de biologische teelt).

In **Austria,** inspection bodies grant derogations in accordance with the EC Regulation No 1452/2003. Sabine Eigenschink is of the opinion that the system does not work very well yet. (Source: Sabine Eigenschink, Austria Bio Garantie, S.Eigenschink@abg.at)

In **France**, a simple, accessible database offering ample supplies of organic seed varieties has been in operation since January 2004. Increased attention for the subject and the introduction of the derogation system has greatly enhanced the use of organic seed if compared to 2003. More than 10000 derogation requests were submitted in the first six months of 2004. A point of concern is that certification bodies often have difficulties to assess whether requests are justified.

French plans for 2005. French seed companies would like to see the following crops listed on a national annex (*id est.* organic seed use must be obligatory): maize, potato, cucumber, shallot, spinach, lettuce and strawberry. As for maize, more than half of the supply is unsold stock. Seed companies threaten to cut off investments in organic seed production if their supplies are not sold.

Farmers are worrying about the future of old, native varieties, which are still grown all over France. They fear that the cultivation of these varieties will become restricted in the future, as they are not listed on the database. Until this is clarified, they do not support the introduction of an annex.

Expert meetings were held at the beginning of November 2004. As it turned out, farmers' support for a national annex was far from overwhelming. The government therefore proposed a more stringent derogation system instead. A list of so-called "pre-annex crops" will be drawn up. Growers submitting derogation requests for pre-annex crops will be referred back to the database. If, after that, derogation is still being requested, a farmer is to substantiate the request, and the certification body will check whether the request is fully justified. Furthermore, grounds for derogations will be kept on record, to better harmonise supply and demand. The new derogation system will be evaluated after six months. In addition, the French hope to initiate a national annex in 2006. (Source: M.Raaijmakers information from GNIS - Groupement National Interprofessionnel des Semences et Plants).

In **Italy** derogation will be approved on condition that the variety in question is not listed in the database. The most common reason for a derogation request is lack of availability. Derogation requests have been rejected on formal grounds (e.g. failure to submit *before* seed purchase) or because the variety could be found on the database after all. Compared to previous years, the number of derogation requests is clearly decreased in 2004.

The production of organic seed of adequate quality proves to be problematic. Farmers refuse to use specific seed supplies if practice has shown that their quality is not adequate. Not surprisingly, demand for these stocks is decreasing.

Henceforth a relevant information from: On-farm seed production: integrity of organic farming system and biodiversity safeguard by Cristina Micheloni *and Andrea Giubilato (AIAB- Italian Association for Organic Agriculture)*

An important percentage of organic farmers in Italy, especially the ones producing vegetables and fruit, sell on local markets (farm-gate selling, village/city markets, farm restaurants etc.) where local, heritage or simply "old" commercial varieties are requested and

find good market opportunities. But besides the lack of certified organic seeds for heritage and local varieties or ecotypes that account for a niche market and can easily be derogated, commercial varieties too show a significant reduced availability.
We consider four important crops for Italian organic production as durum wheat, common wheat, processing tomato and corn.
What farmers usually claim as a derogation request are:

- available varieties do not fit to their agronomic system;
- available varieties do not fit to market request;
- available varieties do not perform good in terms of production;
- available varieties do not respect variety standards;
- available varieties have not sufficient quality (germinating ability, pureness, vigour...);
- sanitary status of available varieties is not adequate.

A lot of derogations in 2003-2004 were requested for crop groups such as herbs, sugar beet, cereals, fodder crops, oil and fibber crops, ornamentals, vegetables, and potatoes. Among varieties requested for derogation about 25 % are produced under organic conditions, too, but not in sufficient amount. Considering other crops the situation is more difficult to evaluate because no official data are available but for fodder crops such as lucerne only 7 varieties are available in organic conditions, while 38 have been requested for derogation; for fresh marketed vegetables estimation is given using data gathered from inspection bodies, consultants and farmers that about 60 % of used seed is conventional.

On-farm seed production is already running, both in conventional and organic farming, for “niche” heritage varieties such as Quarantina Bianca and Cannellina Nera potato varieties in Liguria mountains (Angelini and Lovatti, 2000) but also for “special” crops such as all radicchio types (Radicchio di Treviso tardivo and precoce, Radicchio di Verona, Radicchiodi Chioggia, Radicchio di Lusia, Radicchio di Castelfranco) produced by highly professional farmers (9.056 ha in Veneto Region, and 15.707 ha totally in Italy).

Among Veneto radicchio professional producers about 60 % is using on-farm produced seed, other 40 % are coming from seed companies but is used only for lower value products (sold in supermarket or in ready-for-eating packaging).

Few organic farmers started to run similar systems also for less “special” crops such as fennel, beans, spelt, wheat or fodder crops, starting from commercial varieties but selecting within their own population the plants that better fit to their systems and the product that have higher market recognition and value.

www.ense.it presents an overview of varieties requested by farmers.
(Source: M.Raaijmakers information from AIAB - Associazione Italiana per l'Agricoltura Biologica)

Although organic chain must be closed firstly from January 1, 2000 and after that due to lack of organic seed over the Europe from January 1, 2004, organic seed availability today is still below 100 %, and varies from country to country. A lot of derogations due to very different reasons more or less justified are granted to use conventional untreated seed. For making the system more transparent organic seed databases were established, but efficiency of their use again depended from a specific country. Not every country is satisfied with current derogation system. Seed quality is issue of tremendous importance. At the same time a lot of research has been done in different countries and a lot of projects are active just now to search for optimised organic seed production methods. It seems that a great work has been done for closing organic chain in Europe, but the same is ahead, especially for Baltic countries.

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