



How to
implement
the organic
regulation
to increase
production
& use of
organic seed

*policy recommendations
for national and regional
authorities*



LIVESEED

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Introduction

According to the principles of European Regulation 834/2007 (Art 4) organic farming should use organic inputs, wherever external inputs are necessary. The implementing rules laid down in Regulation EC 889/2008 state that vegetative propagating material and seed used in organic agriculture should also be organic (Art. 45). In all European Member States, there currently is a lack of organic seed, therefore organic farmers can apply for a derogation to use non-treated conventional seeds. According to the new Organic Regulation 2018/848 that will enter into force in 2021, derogations should be phased out and only organic seed should be used by the 1st of January, 2036.

Individual applications for such derogations can help raising awareness about the fact that farmers should 'in principle' use organic seed. Of course, this is only effective if there is at least some organic seed available. Strict derogation rules in a situation where there is no organic seed on the market might be counter-productive.

Conversely, where a substantial offer of organic seed from suitable cultivars available already exists, strict derogation rules can be an effective policy measure to reduce the amount of derogations and increase the use of the available organic seeds. A desirable outcome from such a regime, would be that farmers start asking for more organic seeds of their cultivars of choice, motivating seed producers to increase organic seed production.

The LIVESEED research project was developed with the intent of exploring ways to expand the production and use of organic seeds and thus contribute to creating a level playing field among organic producers in different EU countries. As a multi-actor project, LIVESEED combines complementary knowledge from researchers, practitioners and policy-makers. The project conducted an in-depth analysis about the current implementation of the organic regulation with respect to organic seed in different European countries, with the aim of enhancing and harmonising the implementation of legislative requirements and increasing the availability of organic seeds on the market. Technical improvements in national databases can increase the visibility of available organic seeds and facilitate the implementation of any derogation policy. Further policy measures may contribute to addressing legislative gaps, facilitating access to information on organic seed and managing any derogation system effectively. This booklet compiles specific recommendations and best practices to improve the use of organic seed and vegetative propagating material at national level. It contains practical examples that will provide answers useful to national or regional authorities, certifiers, seed companies and farmers to these questions:

- How to implement the organic regulation on organic seed at national (regional) level?
- How to stimulate organic seed production and use?



Part One

- Policy Measures

1.1 Measures to stimulate organic seed production and use

To increase the availability of organic seed, more organic seed producers are needed. National or regional authorities can support this development in various ways. Measures can be integrated in national or regional organic action plans, informing the right strategies to achieve the policy goals¹. Some examples of supportive measures and practices are given below.

1.1.1 Training

In Latvia the ministry offers a training for organic farmers. It is mandatory in order to be eligible to receive any governmental subsidy.

The 180-hours training includes lectures on seed production, especially farm saved seed, in which seed health is also addressed.

Romania has established a rule by which all seed producers (conventional and organic) must follow a training and pass a test run by the National Seed Authorisation body before being officially registered as a seed producer. There are different levels of certification depending on the seed production activities, seed producer, seed company, seed trader.



1.1.2 Subsidies

Subsidising seed production or usage of certified seed are strategies that some countries have implemented in their Rural Development Programmes.

Supporting organic seed production

In Estonia cereal and potato organic farmers that use certified organic seed receive 20% higher CAP area payments. Similar measures within the organic area payments are known from Czech Republic and Slovenia. The amount (number) of subsidies provided for certain crops depend on the national policies². In Latvia, subsidies exist for organic and conventional seed producers, with a minimum production per hectare. Lithuania supports organic seed producers, under Rural Development Plan measures for organic farming.

Supporting usage of certified seed

In several countries, the use of farm-saved seed can be up to 90%, in both conventional and organic agriculture depending on the crop and region. On the contrary, national authorities usually wish to stimulate the use of certified seeds by conventional and organic farmers through subsidies. In Lithuania, farmers receive a subsidy if they use certified seed (either organic or conventional): in 2016 this amounted to 16 EUR per hectare for cereals. Farmers who use farm-saved seed do not receive this extra area funding. The specific conditions for such subsidies are defined in the national regulation.

¹ Meredith, S., Lampkin, N., Schmid, O., (2018). *Organic Action Plans: Development, implementation and evaluation*. Second edition, IFOAM EU, Brussels.

² Stolze, M., Sanders, J., Kasperczyk, N., Madsen, G., Meredith, S., (2016): *CAP 2014 - 2020: Organic farming and the prospects for stimulating public goods*. IFOAM EU, Brussels.

1.1.3 Access to cleaning facilities for organic seed producers

According to European rules on organic agriculture, processing facilities for organic seed need to be certified specifically as organic. Sharing facilities with conventional operations is possible if strict management protocols are followed which ensure that contamination is avoided.

As setting up and running entire seed cleaning facilities is expensive, organic seed production could be stimulated by the establishment of facilities such as small mobile stations or fixed ones made available at a central location (e.g. at research centre) and easily accessible also to smaller organic seed producers or farmers wishing to safely reproduce their own organic seed.

1.1.4 Organic cultivar trials

Post-release trials for organic cultivars, where cultivars or populations are tested for performance under organic farming conditions, allow farmers, researchers and breeders to evaluate the performance of organically or conventionally bred cultivars in organic conditions. Organic cultivar trials are indispensable to develop recommended lists of most suited cultivars for organic production in specific regions. Such lists play an important role in increasing the marked demand for organic seed and cultivars adapted to organic agriculture. Results of organic cultivar trials can also serve as basis for evaluating whether a cultivar is appropriate or equivalent to other cultivars. The organization of post-release cultivar trials is very different across European countries (see Boxes for some examples).

In order to encourage breeders to select specifically for organic growing conditions, it is vital that the evaluation of the Value for Cultivation and Use (VCU-Trial), which is mandatory for the registration of arable crop varieties, is also conducted under organic conditions. Today, this is only possible in few European Member States and only for a small number of crops (mainly for wheat).



France

A collaborative network for cultivar trials of arable crops, was set up in the early 2000s by the French Research Institute for Organic Farming (ITAB). ITAB coordinates various stakeholders such as advisors, organic cooperatives, the chambers of agriculture, local organic farmers' organisations, seed companies and researchers. Trials are set up both at organic farms and experimental stations. The cultivar trials complement organic breeding activities, and half of the tested cultivars are from other countries such as Switzerland, Austria and Germany. Local organizations receive public financial support for setting up and organizing the trials. ITAB covers its own costs and receives support through farmers' subscriptions for coordinating the network and disseminating its results. The information of cultivar performance under organic conditions has improved the choice of cultivars for the organic farmers in the country. In France it is also possible to have official VCU testing for winter wheat cultivars with supplementary organic trials. (Laurence Fontaine and Frédéric Rey from ITAB).



Poland

The Institute of Soil Science and Plant Cultivation – State Research Institute (IUNG-PIB), which operates under the Ministry of Agriculture and Rural Development, started with organic cultivar trials 15 years ago, when the national area under organic farming significantly increased. There was a demand from the market, organic farmers, agricultural advisors and the government to know how conventional cultivars performed under organic conditions. To meet this demand the IUNG-PIB set up the on-station and on-farm network of cultivar trial experiments. In 2018 the National Organic Cultivar Testing program was established on the basis of cooperation with the Research Centre for Cultivar Testing (COBORU). In 2018 organic field trials started for winter (rye, wheat, triticale) and spring cereals (barley, oat, wheat). In the future also grain legumes will be included. As a result of this testing, a list of recommended cultivars for organic farmers will be developed over the coming years. Cultivars are selected in consultation with breeders, according to their market share and specific traits (i.e. pathogen resistance, competitiveness against weeds, etc.). The IUNG collaborates with the Centre for Agricultural Advisory Services for the dissemination of results among farmers. (Jaroslaw Stalenga from IUNG-PIB).

1.2 Derogation Rules

In order to ensure that farmers have access to sufficient amount of seed and planting material the EU regulation 834/2007 allows derogations for the use of non-organic seed or vegetative propagating material in those cases in which these are not available from organic production. Exceptions to using organically produced plant material shall be kept at a minimum: authorizations shall only be granted for one season and for non-chemically treated seed, and only if the farmer can demonstrate that no organic seed is available before sowing time based on the national organic seed database.



According to Implementing EU Regulation 889/2008 Article 45, an authorisation to use seed or seed potatoes not obtained by organic production methods may only be granted in the following cases:

- (a) where no cultivar of the species which the user wants to grow is registered in the national seed database;
- (b) where no supplier is able to deliver the seed or seed potatoes before sowing or planting in situations where the user has ordered the seed or seed potatoes in reasonable time;
- (c) where the cultivar which the user wants to obtain is not registered in the database, and the user is able to demonstrate that none of the registered alternatives of the same species are appropriate;
- (d) where it is justified for use in research, test in small-scale field trials or for cultivar conservation purposes agreed by the competent authority of the Member State.

Different categories based on availability of organic seed per species:

Species for which organically produced seed or seed potatoes are available in sufficient quantity and for a significant number of cultivars in all parts of the Community - hence for which derogations are not admitted - are set out in what is known as **Annex X**.

For other species derogations shall be granted only to individual users for one season at a time (single derogations) and the authority or body responsible for the derogations shall register the quantities of seed or seed potatoes authorised.

The competent authority of the Member State may grant a general authorisation, valid for all users, if there is no organic seed available from a given species in the seed database.

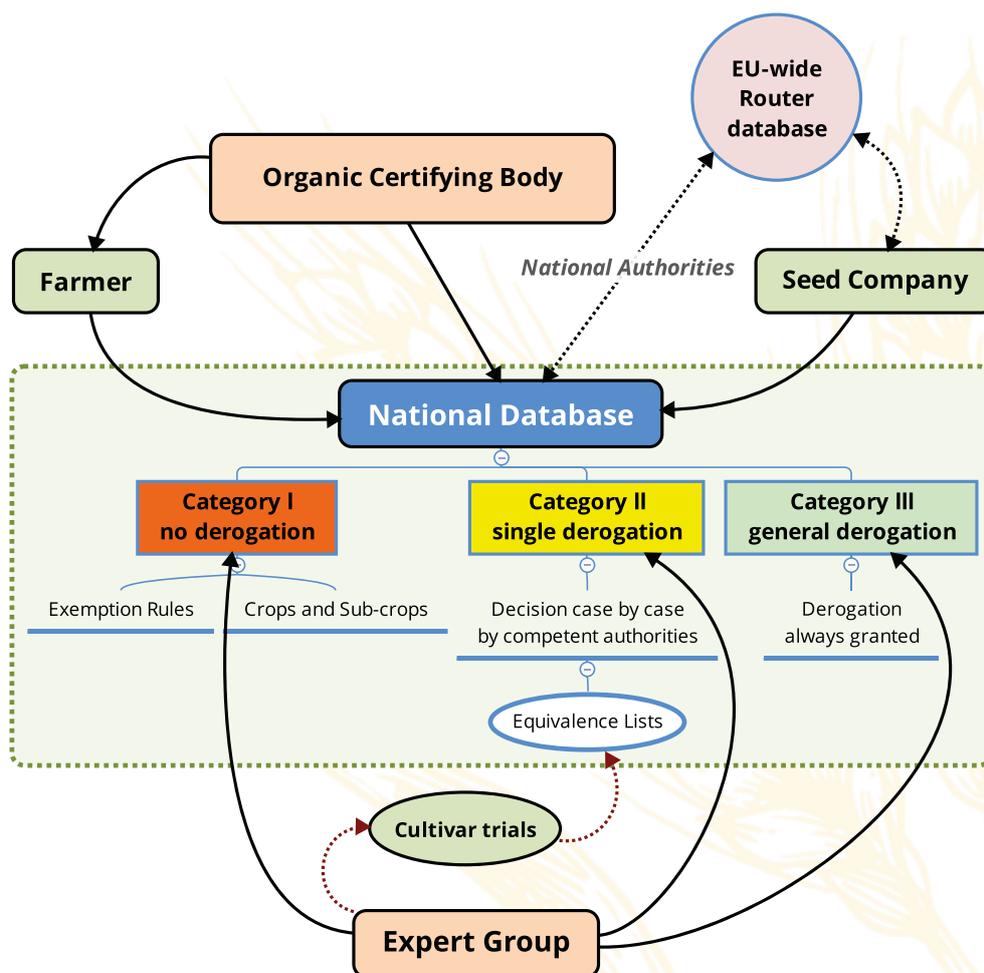


FIGURE 1. Model for the implementation of derogations for the usage of non-organic, chemically untreated seed. Category I, II and III determines whether no, single, or general derogation system is applied. Expert Groups (see 1.6) assign each crop species or subspecies to one of three categories depending on the availability of organically propagated seed and the choice of adequate cultivars adapted to the region and to organic growing conditions (Cultivar Trials, see 1.1.4). Seed companies list their commercially available organic seeds on the national organic seed databases (see Part 2), where farmers can check the seed supply. This model is based on regulation EC 834/2007 and its implementation regulation EC 889/2008, in force until 1st January, 2021, when they will be replaced by the new organic regulation EC 2018/848. This may entail the extinction of Category III.

1.3 National Annex

Up to date, it was not possible to list a single species in the EU Annex X, for which sufficient organic propagated seed or vegetative propagating material is available across the EU. Therefore, some countries (the Netherlands, France, Germany, Luxembourg, Sweden, Belgium, and Switzerland) developed and implemented a National Annex listing species or subspecies for which sufficient organic seed is available in their territory and thus no derogation is granted. In these countries, crops are divided into three categories with respect to the applied derogation regime: (I) no derogation

corresponding to National Annex; (II) single derogation per farmer; and (III) general derogation (Fig. 1).

In those countries where a National Annex exists, clear criteria for the classification need to be defined. This task is usually undertaken by one or more Expert Groups, which are also involved in the annual classification procedure itself (Fig. 1). The Expert Groups' multi-actor composition ensures that the knowledge and experience of all relevant stakeholders are included in the process (see Chapter 1.6 Expert Groups). To define which (sub)species can be placed on the National Annex (also called Category 1) the following questions

need to be considered for each crop:

- Is organic seed available for the main cultivars used by organic farmers?
- Is the assortment sufficient in quantity and variation for different soil types, regions, seasons and markets?
- If the assortment is not sufficient for the whole crop, can the crop be divided into sub-crops?
- Can the (main) cultivars in case of shortage be substituted by

other equivalent cultivars?

- Is the number of organic seed producers large enough to avoid monopolies?

The main tools for an informed decision-making process are:

- An overview of the cultivars from which organic propagated seed is available in the national organic seed database. In addition, seed companies in the Expert Group provide information about the new cultivars that will become

The Dutch National Annex³

Given the strong seed sector in the country, the Dutch government decided in 2003 to develop their own National Annex - a list of crops and sub-crops for which sufficient organic seed is available on the National database and for which no derogations will be granted.

Together with farmers and seed producers, the Louis Bolk Institute developed criteria to determine which (sub)crops could be placed on the National Annex. In 2003, Expert Groups (see chapter 1.6 Expert Groups) were established and in 2004 the first Dutch National Annex was in place. Since then this system has spread as a proven system to increase the production and use of organic seed and vegetative propagating material step by step.

TABLE 1. An extract from the Dutch organic seed database in 2016, showing the classification of cereal crops and sub-crops into three categories applying different derogation systems for non-organic, chemically untreated seeds.

Category I or National Annex	Category II	Category III
Sufficient organic seed of a broad choice of cultivars available	Insufficient quantity of organic seed of limited cultivars available	No organic seed available
No derogation	Single derogation possible	General derogation
Spelt Wheat, Summer Wheat, Spring Barley, Winter Triticale	Buckwheat, Oat, Winter Rye	Durum Wheat, Summer Rye, Summer Triticale, Winter Barley, Sorghum

Warning list

In the French system of seed classification for derogations, a fourth category exists; the so-called warning list. Here, national Expert Groups identify candidate crops to be added to the National Annex in the coming 2-3 years. The aim of this warning list is to give seed companies and farmers the opportunity to anticipate on the new situation, creating an important incentive for seed companies to increase organic seed production and for farmers to try new cultivars of which organic seed is available. Farmers must clearly justify the use of non-organic seeds for crops on the warning list to their certification body.

³ For an overview of Category I crops at European level, see LIVESEED booklet: "The State of Organic Seed in Europe" https://www.liveseed.eu/wp-content/uploads/2019/12/FNL-FNL-Web-Interactive-NOV19-Booklet2-LIVESEED_web.pdf

available in the following growing season.

- An overview of the derogations granted in the past with the quantities for the different cultivars. This overview gives information about the cultivars that are still missing in the organic assortment.

In a stepwise approach, crops can be divided into sub-crops depending on the type (e.g. beef or cherry tomato), the season (e.g. summer or winter wheat), the type of production (under shelter or full field or the market segment (e.g. fresh or processing), to reach full coverage with organic seed. For instance, in the Netherlands green beans for the fresh market are in Category I, while green beans for processing are still in Category II. In order to promote that more crop species are listed in Category I, it is also important to allow for some flexibility (i.e. exception from the rule) to temporarily reclassify a crop to Category II by the competent authority. For instance in case of unexpected seed shortage (e.g. if organic seed is lacking due to severe drought or if new pests and diseases evolve, for which resistant cultivars are not yet available as organic seed).

1.4 Equivalent cultivars

For crop species in Category II, organic farmers can apply for a single derogation but have to prove that no organic seed of adequate cultivars is available, based on what is listed in the national organic seed database.

Since organic seed tends to be more expensive than conventional seed, some farmers try to avoid using organic seed of Category II by switching to another, similar cultivar, for which they know there is no organic seed available. To prevent this malpractice, the use of so-called equivalence lists, which associate equivalent or similar cultivars, can help. By consulting these lists, a derogation request can be denied if there is organic seed available from a cultivar with equivalent traits. A prerequisite to implement this measure is that the cultivars on the list have been tested in the region of use, preferably under organic conditions, and that the person handling the derogation request has knowledge about the performance of the cultivars in question.

The case of Denmark

Expert Groups evaluate all cultivars (except vegetative propagating material) listed in the organic seed database with regard to their suitability for organic production in the Danish (or a similar) climate. As a first step, experts record whether a cultivar in the national seed database has been tested in cultivar trials in Denmark (or under comparable climatic conditions) in the national seed database. If a cultivar showed specific disease susceptibilities or other unfavourable characteristics, it will be classified as not suitable for organic conditions (e.g. if a wheat cultivar has a high yield under conventional conditions but is susceptible to yellow rust, it will not be classified as suitable). Results from organic and conventional cultivar trials of most arable crops are made available shortly after harvest in a cultivar database⁴. This database is used widely by farmers, consultants, companies etc. and its data are also published in an annual report.

A derogation request can be safely denied by the Expert Group in those cases in which there is organic seed available from an equivalent cultivar. This practice reduces the amount of derogations in crops for which there is enough supply of organic seed such as cereals, legumes, grass and clover, since farmers know they will not get a derogation for those crops easily.

⁴ <https://sortinfo.dk/oversigt.asp?Sprog=uk>

1.5 Vegetative propagating material

The production and use of vegetative propagating material constitute a special challenge. Unlike most seeds, vegetative propagating material cannot be stored for a long time. For example, seed potatoes, fruit trees, strawberry plants, all have to be sold and replanted soon after they are produced and harvested. Therefore, vegetative planting

material is often produced on a pre-order basis, so that nurseries or seed companies know exactly how many trees, plants or potatoes they have to produce. In some EU countries, specific rules have been established that make it mandatory for organic farmers to order their vegetative propagating material in advance. The aim of these measures is to increase the production and use of organic vegetative propagating material.

Seed potatoes in the Netherlands

In the Netherlands seed potatoes are on the national Annex since 2004. This means that farmers won't get any derogation for the use of conventional seed potatoes, unless there is a sudden shortage in the market and all organic seed potatoes are sold out. When this rule was introduced, some farmers tried to circumvent the use of organic seed potatoes by delaying their orders until the end of the sowing period. By that time, the producers of organic seed potatoes had already sold their remaining stock on the conventional market, therefore single authorisations were granted. To avoid this malpractice, the "February rule" was introduced, by which organic potato farmers in the Netherlands are obliged to order their seed potatoes before the 1st of February. If they order their seed potatoes after that date, they do so at their own risk: if all the organic seed potatoes are sold out, they won't get a derogation anymore and will not be able to grow organic potatoes that year. This additional rule works very well: all organic seed potatoes produced by seed companies are sold to organic farmers.

Fruit Trees

Fruit tree producers are able to deliver most fruit planting material in organic quality, providing that they receive orders with sufficient notice. In Germany, for example, FÖKO (an organisation gathering 180 organic fruit producers) proposed and implemented a dedicated set of rules for apple, pear, quince and nashi pear trees, which have become mandatory in all regions of Germany since 2018. According to these rules, farmers are required to order their trees in advance with a minimum ordering notice of 12 months before planting. Minimum quality criteria and a list of equivalent cultivars and clones have also been developed. When a specific cultivar (e.g. the apple cultivar Topaz) is not available as organic stock, an equivalent clone (e.g. Red Topaz) must be used. Similar rules are implemented in South Tyrol (Italy) and the Netherlands.

1.6 Expert Groups

Expert Groups on organic seed are national groups of stakeholders involved in the organic seed supply chain. They advise the national competent authority on implementing the regulation on organic seed in the country. The establishment of an expert advisory group is not mandatory, according to the organic regulation. However, the involvement of relevant actors in the implementation process can facilitate a broader acceptance and faster implementation of the regulation itself. In general, it is desirable that all relevant stakeholders of the organic seed sector (including users) are represented in this group. Until today there are no common rules or guidelines on how an organic seed Expert Group should be set-up and organized and therefore Expert Groups differ from country to country. At present, Expert Groups exist in Austria, Belgium, France, Germany, Latvia, Denmark, the Netherlands, the United Kingdom, Sweden, Switzerland and Italy.

There can be more than one Expert Group in each country, focusing on different crop categories: for example, splitting between horticultural and arable crops proved to be useful, as these crop groups are quite different in terms of cultivation, seed multiplication, seed marketing etc. In Sweden, for instance, there are four Expert Groups, each working on pulses, forages, vegetables and potatoes, respectively. For countries wishing to establish an organic seed advisory group, one single Expert Group responsible for all crops is a good starting point, as was done in Latvia.

1.6.1 Role and mandate of Expert Groups

The role and mandate of organic seed Expert Groups is to make recommendations on the classification of the crops in the different categories. These recommendations are based on seed availability in the national database, expert knowledge and internal discussions in the group. Farmers or farmer representatives should also be included in these Expert Groups, to ensure that the availability of organic seed for (future) Category I crops (no derogation) is adequate for the market demand, and that the available cultivars are suitable to the needs of farmers in the country. Expert groups discuss how to increase production and use of organic seed and, if needed, have a closer look on single species and the derogations granted within these.

A change of categorisation from general authorisation to single authorisation or to a no-derogation level (Category I) can increase the request for organic seed. This category change results from a negotiation between the different stakeholders, which occurs within the Expert Group. As a result, seed suppliers commit to produce more organic seed while farmer/producer at the same time agree to requesting more organic seed. The competent authority, in cooperation with the control bodies and the database manager will implement the necessary administrative steps (e.g. include a no-derogation list or establish special derogation rules). It's important to stress that the recommendations of the Expert Groups should be accepted and implemented by national authorities in an effective manner, to avoid a loss of motivation among stakeholders towards working in these groups.

Organisational examples of Expert Groups

In the Netherlands, Expert Groups are funded by the competent authority but have an independent chair. A report for the competent authority summarizes the groups' recommendations for further implementation. In other countries, Expert Groups are hosted by the competent authority. In cases where more than one control body/certifier (and sometimes more than one competent authority) are present, they adopt a rotating chair to represent them in the Expert Group. For example, in Germany there are 16 regional competent authorities and more than 20 control bodies: on the seed Expert Group these are represented by one competent authority and one control body, nominated to represent the other authorities. However, to ensure that this system is truly representative, it is crucial that the other authorities and control bodies are still involved in interim Expert Group discussions. With relation to the seed industry, it is important to have all relevant seed suppliers and producers for all relevant crops in the Expert Group.

TABLE 2. Expert Group members may include national and regional authorities, as well as relevant stakeholders of the organic seed sector, their different knowledge and expertise.

Expert Group member	Expertise on	Contribution to the Expert Group
National and regional authorities	Regulatory requirements for organic seeds	Fulfil legal requirements and achieve a broad agreement on their implementation.
Control body/ Organic certifier	Formal requirements for the organic inspection	Reduce the administrative burden. Develop standard procedures for the derogation process.
Database manager	Technical implementation of the national organic seed database	Improve the function and quality of the database for farmers, seed suppliers and competent authorities.
Seed certification / Seed health office	Formal requirements for seed certification	Ensure that seed quality and health issues are considered.
Seed supplier / Seed producers' association	Crops and cultivars under organic multiplication	Increase the demand for organic seed. Reduce the economic risk in producing organic seed and improve the market situation for organic seed.
Farm advisor/ Farmer representative	Relevant cultivar traits needed by farmers	Increase the quality and quantity of organic seed of cultivars adapted to organic growing conditions.
Farmers' association	Organic production in general	Inform Expert Group on the demand of certain crops and cultivars.
Biodiversity conservation office / NGO	Use of traditional/local varieties in organic farming	Promote agro-biodiversity in the organic seed sector.
Organic agriculture research institute	Research results on cultivar performance	Promote growth of the organic seed and breeding sector.

Part Two

- Organic Seed Databases

Through the introduction of EC Regulation, No. 2092/91, which came into force on January 1st, 1992, the use of organic seed (if available) was made mandatory for organic farmers across the EU. However, the implementation of the regulation differed among Member States, as the term “available” was not defined in the regulation. The amendment EC Regulation No. 1452/2003, which came into force on January 1st, 2004, defined the issue of “availability of organic seed”. Furthermore, the use of chemically treated seed was prohibited, the establishment of a national database listing all organic seed and seed potatoes on the market in a given Member State became mandatory and the procedure to authorise the use of non-organic seed, if organic seed was not available, was established. EC Regulation No. 834/2007

replaced the previous regulations, whilst article 48 of EC Regulation No. 889/2008 outlines the requirements of the national organic seed databases in detail. Any organic seed which has not been registered in the national organic seed database shall be considered as “unavailable” and derogations to allow the use of untreated, conventional seed will be granted based on this “unavailability”. If national databases remain empty or nearly empty, derogations for the use of untreated, conventional seed are granted frequently by the competent authorities. Listing all available organic seeds in the national databases is therefore the first step to limit the number of derogations, since these lists constitute the evidence for denying the use of non-organic seed.



2.1 Upload of seed offers on national databases

In Europe, there are currently two main methods adopted by Member States to organize the organic seed offers in their national databases.

The first method is through a database manager: seed suppliers need to report their seed offer to the database manager (e.g. in Austria, Spain, Latvia), who is the primary organiser of the database and is responsible for the accuracy of the entries and its regular update. This task can be undertaken directly by the national competent authorities or delegated to a private organisation (examples can be found in Greece, the Netherlands, Spain and Bulgaria). The advantage of this method is that organic seed offers are entered correctly in the database, but the downside is that the system is very labour intensive and as a result, that the databases might be updated more slowly. Thus, the status of organic seed offers inquired by the farmers might not always reflect the actual current organic seed availability.

The second method provides seed suppliers direct access to the database and the possibility to update their own offers through their private account (e.g. Germany, Switzerland, Belgium, Sweden and Portugal). The main advantage of this approach is that the seed supplier can update the offer according to his current organic seed stock, in real time. The seed supplier ensures, through a contract with the national database manager, that the requirements of certification for organic seed marketing are fulfilled.

2.2 Features and operation of national organic seed databases

The legal requirements for national organic seed databases are quite limited, and even a static list (e.g. a pdf file) complies with the current organic regulation (EC 889/2008, Art. 51). However, fully computerized databases are to be preferred as they can be more easily and frequently updated and offer many additional functions and features, such as the following.

Functions: The **history function** allows farmers, control bodies, seed suppliers and other authorities to trace back at what time which cultivar was available and by who it was offered (e.g. Germany). The **activity alert function** automatically creates an **email alert** to remind seed suppliers to update their offers if they were not active on the database for a certain period of time (e.g. 14 days). A search tool allows users/farmers to easily find the **contact details** and available offers of a specific seed supplier (e.g. Belgium). The **mark function** allows farmers to receive updates on selected crops e.g. about updated offers, change of category, etc. directly through their account (e.g. the Netherlands).

Features: A feature of some databases allows to **establish sub-groups within one crop species** based on the growing season (e.g., spring or winter cultivars) or the market channel (e.g. industrial use, fresh market). With this feature it is possible to implement a more fine-tuned classification of crop subgroups in different derogation Categories as described earlier. Some database can include **additional information about the**



cultivars or seed batches such as the breeding method (organic, conventional...), the seed quality or the suitability of a cultivar to special regions or management approaches. The National seed database of Denmark, for instance, signals if cultivars have been tested for their local adaptability and suitability in the country. If a cultivar is not suitable, the supplier is asked to remove the cultivar from the database. Another very important feature is the **possibility to apply for a derogation and its processing through the database**. This allows farmers to file a derogation form directly in the database, and the control body receives all necessary information for granting or rejecting the derogation online. The collected data can be extracted to compile an annual report on granted derogations for the European Commission (this happens in Germany⁵). This process is very time-efficient and facilitates the successful implementation and usage of the organic seed database by farmers and control bodies.

2.3 EU Router database

The demand for organic seed in a given country can be better covered if seed suppliers of neighbouring countries or similar pedoclimatic conditions are also taken into consideration. This is especially true as the organic seed supply is very limited in some European countries, while there is a growing supply in others. Moreover, there are international organic seed suppliers that offer a broad range of cultivars that could potentially be grown in several European countries. As of today, seed suppliers must enter and update the amounts of the organic seed they make available in each country of interest in the respective National Databases (which may also mean in different local languages). If the market potential of a given country is too small, there is limited interest to enter available organic seed in that country's database. Moreover, some Member States only allow organic seed to be listed in their National Database if the seed supplier has a registered office in their country. This further limits the availability of organic seed.

⁵ This feature is offered by the organic seed database tool www.organicXseeds.com

To improve this situation, the LIVESEED project is developing a common European router database that can significantly lower the administrative burdens for organic seed suppliers and will give international seed companies access to national organic seed databases through a single uniform portal. This shall help creating a level playing field for organic seed trade and increase the transparency around the offer of organic seed within the EU. The seed supplier will be able to enter its offer of organic seed in the pan-European router database and will then select the countries where his cultivars are expected to perform well and to which they can be shipped to at a reasonable cost.

This information will be forwarded to the National seed databases via an Application Programming Interface (API) or softcopy (Fig. 2). National Authorities can then decide whether they will accept the offers added by the seed suppliers or not, as the derogation system is based on the National Database and available organic seed in "its territory". In case a National Authority does not accept an organic seed offer, it shall inform the seed supplier and provide reasons for the decision. The seed supplier can also be requested to provide evidence that the cultivar of the organic seed offer is suitable for the pedoclimatic conditions of the respective country.

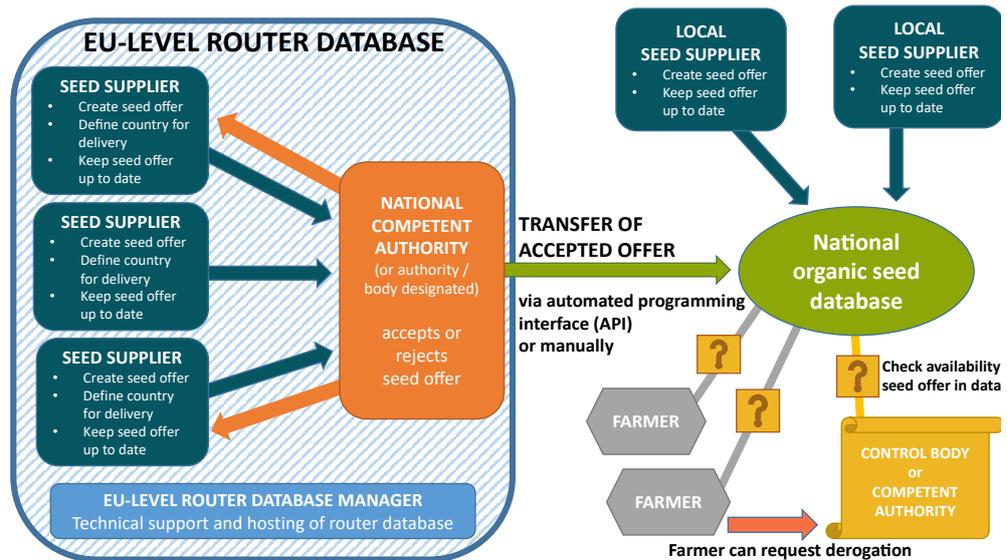


FIGURE 2. Flowchart of the router database and data output to national organic seed databases. Blue arrows indicate seed offer uploads performed by seed supplier; red arrows indicate offers rejected by the competent authority; green arrows indicate offers accepted by the competent authority with a data output into the respective national organic seed databases (via Application Programming Interface API or manually). Farmer and control bodies can check the availability of organic seed in national databases. If no appropriate organic seed is available, farmers can request a derogation for the use of non-organic untreated seed.

Part Three

- Alternative sources of organic seed



Organic agriculture by its nature requires a much broader portfolio of cultivars compared to conventional farming. This is particularly relevant for marginal environments or regions (such as many of those in the Mediterranean basin), characterized by a large variability of climates, soils, agro-ecosystems and food cultures. Resorting to seed sources alternative to commercially available seed, can be a strategy to enhance the level of agrobiodiversity, broaden the overall availability and use of organic seed, and diversify market strategies (e.g. local market, Community Supported Agriculture). This is particularly true where organic seed production is not sufficiently developed or financially viable for seed companies or when farmers are looking at varieties with very specific qualities and taste.

3.1 Traditional cultivars & farm saved seed

Traditional or local cultivars are cultivars obtained by farming communities in specific regions

before the advent of commercial plant breeding and plant variety protection rules. This implies a strong connection between these cultivars and local or regional agronomic practices, as well as the socio-cultural aspects surrounding farming and food production. Organic farmers are allowed to re-sow the harvest of the different cultivars they grow, with specific rules only for protected cultivars (see EU Reg. 2100/94 and 1768/95 for details). Training farmers on how to save their own seeds and access interesting genetic material is key for their empowerment and guaranteeing good seed quality. Access to traditional cultivars is possible through:

- Gene-banks - requests for direct use, in which case no Standard Material Transfer Agreement (SMTA) is required. Access to material tends to be limited to very small amounts of seed;
- Community Seed Banks (CSB)⁶ - allow access to local cultivars, often in larger quantities than gene-banks;
- Seed Networks - based upon exchanges of seeds and knowledge among farmers.

⁶ <http://www.communityseedbanks.org/>

The Example of Greece

Many Greek organic farmers conserve their own cultivars or get their seeds from seed saving networks and Community Seed Banks. They claim that seeds from their traditional cultivars or some modern cultivars bred by State institutes are the most appropriate as they are better adapted to their local, low input farming conditions and also cheaper than imported seeds. To enhance this behaviour and help local communities valorize their agrobiodiversity, the AEGILOPS⁷ network started training programmes on seed multiplication for organic farmers in 2012. Each year, regional seed schools take place in cooperation with local authorities, targeting organisations of farmers, gardeners, agronomists, consumers, food chain actors and seed producers. Regional Community Seed Banks work on cultivar evaluation and seed testing, whilst research institutes, universities and food chain actors have been invited to participate.

During the 15 years of AEGILOPS network's activity, some precious traditional cultivars have been reintroduced into cultivation and also new selections have been made: "Limnos" (an old durum wheat cultivar), "Skliropetra" (an old bread wheat cultivar), and the unique greek einkorn landrace "Kaploutzas" are some examples of local cultivars, which are now being cultivated on a large scale in north and central Greece. Some traditional cultivars (einkorn "Kaploutzas", durum wheat "Saritsam" from Lesvos Island and local pepper "Mpachovitiki" from Aridaia region) have been submitted for registration as conservation varieties⁸ in the national catalogue. Basic seed for the subsequent production of certified organic seed will soon be made available. (Kostas Koutis, Aegilops – Greece)



⁷ <http://www.aegilops.gr/en/>

⁸ The concept of "conservation varieties" exists in EU legislation since EU Directive 98/95, applying to "vegetable landraces and varieties traditionally grown in certain regions, threatened by genetic erosion and varieties with no intrinsic value for commercial production but developed growing under particular conditions"; the regulation of their registration in varietal catalogues and of their legal seed circulation is contained in a number of subsequent legal instruments (EU Directives 2008/62; 2009/145; 2010/60).

3.2 Populations and Organic Heterogeneous Material

Plant populations are obtained through complex crossings of different parental lines of self-pollinating species, or by growing together different varieties of a cross-fertilising species, followed by bulking of the progeny and exposing the stock to natural selection in successive generations for both cases. With implementing decision 2014/150 the European Commission paved the way to the experimental marketing of populations of wheat, barley, oats and maize until 31 December 2018. To date, Denmark, France, Germany, Italy, the Netherlands and the UK have taken part to the experiment, registering heterogeneous populations of cereals for marketing.

With implementing decision 2018/1519⁹, the Commission extended the experiment till February 2021, **allowing all Member States to participate in the registration of heterogeneous populations of the same species** (deadline for new applications: December 2019)¹⁰. This extension will bridge the ongoing population marketing experiences with the provisions of the new Organic Regulation coming into force in January 2021, allowing the use of seed from Organic Heterogeneous Material (OHM) in organic agriculture (Regulation EU 848/2018, Article 13). The implementation of OHM seed marketing in the new Organic Regulation, will be however subject to delegated acts by the European Commission. Ongoing experiences with population seed marketing in organic agriculture, which are being analysed by LIVESEED, are therefore key to informing the Commission on successful OHM registration, characterisation, marketing, tracing and certification models.

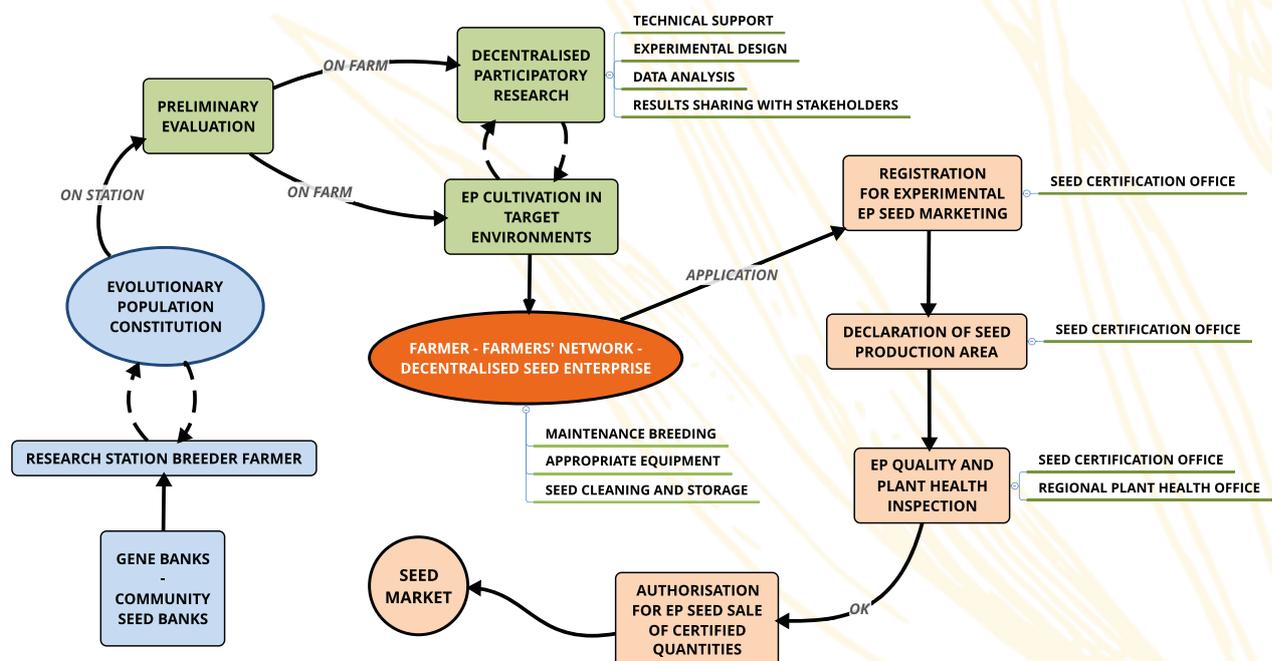


FIGURE 3. Implementation of Decision 2014/150/EU on heterogeneous material (or Evolutionary Populations, EP) in Italy: formal research institutions (blue) generate the initial populations. These are evaluated on-farm prior registration for marketing (green). EP seed is multiplied and marketed (orange) by seed companies or farmers holding a seed producing licence. The EP registration and subsequent seed quality & health certification follows the procedures outlined by EU and National regulations. Decentralised seed companies/enterprises are best suited to EP seed production and marketing, since best results are achieved when EPs are cultivated in their region of adaptation.



Boosting Organic Seeds of Adapted Cultivars

Seeds are the foundation of farming. Therefore, organic production should start with organic seed. Applying organic seed is mandatory according to the European organic regulation, but untreated conventional seed is still used to varying extent in different countries.

Cultivars adapted to organic systems are key for realising the full potential of organic agriculture in Europe. Specific traits are required: tolerance or resistance against pest, diseases and weeds, nutrient use efficiency. However, few organisations invest in organic breeding programmes, mainly due to the low return on investment.

To reach 100% use of organic seed of adapted cultivars we need to overcome several challenges:

- Technical difficulties in organic seed production
- Insufficient organic breeding programmes
- Lack of information regarding the availability and demand of organic seed
- Inconsistent implementation of EU organic regulation



What LIVESEED Will Do

The objective of LIVESEED is to improve transparency and competitiveness of the organic seed and breeding sector and encourage greater use of organic seed.

LIVESEED will:

- Foster harmonised implementation of the EU regulation on organic seed
- Strengthen organic seed databases in the whole EU
- Investigate socio-economic aspects related to production and use of organic seed
- Improve availability and quality of organic seed
- Develop guidelines for organic cultivar testing and registration
- Develop innovative breeding approaches to widen the choice of organic cultivars

Research will cover legumes, vegetables, fruit trees, cereals and fodder crops; considering different farming systems across Europe.



Working Together

LIVESEED has 36 partners and 14 linked third parties covering 18 European countries. The consortium includes multiple actors from: research institutes, breeding companies, seed companies, organic associations (farmers, processors, retailers) and national authorities.

LIVESEED is a unique opportunity to increase the volume and quality of organic seeds in Central-Eastern Europe.

*Dóra Drexler,
ÖMKi*



Networking of different initiatives in Europe is important to promote organic seed production, use, and enhance organic breeding.

*Gebhard Rossmanith,
Bingenheimer Saatgut*



I hope that at the end we can offer recommendations to the national authorities and the EU on how to harmonise the implementation of the EU regulation on organic seed.

*Monika Messmer,
FiBL-CH Scientific coordinator*



Establish a well-functioning organic seed and breeding sector is key for improving organic farming in Europe.

*Riccardo Bocci,
Rete Semi Rurali*

Duration: 4 years (2017 – 2021)
Project coordinator: IFOAM EU
Scientific coordinator: FiBL-CH



Budget: 7.5m EUR
from the European Union &
1.5m EUR from Switzerland



BOOSTING ORGANIC SEED AND PLANT BREEDING ACROSS EUROPE



www.liveseed.eu



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