

## **Comments on the draft concept “The ECPGR concept for on-farm conservation in Europe“**

### **Comments from Bulgaria**

In accordance with the received conceptions for in situ and on farm conservation at national and European level, after a consultation with the IPGR's experts on in situ and on farm conservation and participants in the relevant working groups, we consider that the presented in that way conceptions correspond completely to the strategic objectives underlying in the Global strategy for preservation of the plants 2020 and the Protocol from Nagoya for access to genetic resources and fair and equal allocation of the benefits, resulting from their usage, to the convention for biodiversity.

We consider that the proposed method, for creation of National and regional strategies, is clearly presented, simplified to the highest degree, easy for application and it will lead to the creation of European Network of Unique Material for in situ and on farm conservation.

The determination of the existing gap analyses and hot spots is very important for the priority species. These strategies will give a possibility to extract the most appropriate and vital plant species, connected with the feeding of the humanity and resistant to the climatic changes.

In order to realize the European strategy it is necessary an understanding of the state institutions and financing at national and regional level. The ambitious objectives set in these programs could not be implemented without availability of adequate financing.

We agree the presented conceptions and we will work for their realization in order to reach the global objectives.

Tencho Cholakov  
ECPGR National Coordinator of Bulgaria

### **Comments from Czech Republic**

I distributed both concepts for in situ and on farm to our collection curators within the Czech National programme. I got only one response up to now. I am afraid people are busy in the vegetation /harvest season and do not like to study long texts.

Both texts are very detail and widely describe the problems. It is difficult to find points that would not be addressed in the text. I consider both concepts like a „political programme“ very urgently needed to push in life. There are large differences among regions of Europe in the present status and range of conservation, possibilities and difficulties. This will result in different ways to the target.

WE do have on farm and proposals for in situ, but we do not have information system that would connect them to ex situ. It could be a good international activity to elaborate reasonable system or improve existing one, that would respect all regional and national differences.

On-farm situ concept

Country differences- Most of EU countries have small family farms, that maintaining some landraces for their properties and commercial small scale use. That is excellent for on farm. But, some countries like Czech Republic do not have such farms historically due to the process of nationalization in socialistic period. If former owners got land back in restitutions they mostly did not returned to farming and let the land to agricultural companies. It is

practically impossible to arrange classical on farm system. We succeeded 2 cases only (for cabbage landrace) and only temporarily. As an exception can be considered several farmers/producers managing production of old cultivars for special use of „country life“ food producers (emmer and einkorn wheat,...).

If we want to participate within on farm system, we need any other applicable and living system. We decided to change target from production to education. We decided to make agreements with Open-air musea of folk architecture (skansens), and National Parks/Protected Landscape Areas. They both have spaces – demonstration fields and orchards where they can display and long time keep several to many landraces. I think this option should be considered as alternative for classical on farm.

Hope, my comments at least provoke discussion.

Vojtech Holubec  
ECPGR National Coordinator of Czech Republic

### **Comments from Finland**

These are fine.

No other comments from Finland.

Elina Kiviharju  
ECPGR National Coordinator of Finland

### **Comments from Germany**

The Steering Committee of the ECPGR provided terms of reference for the task to create a concept for on-farm management and conservation of LR. This was based on discussions about the nature of these two approaches. In our opinion the presented draft concept contains no appropriate differentiated discussion on the question what on-farm management in opposition to on-farm conservation means. We feel this is a fundamental and basic question for an on-farm concept. It is the question of a dynamic versus a static approach. Which landraces could be conserved in their historical characteristics? In which cases could it be useful and preferable? And for which landraces do we wish a dynamic and further development as on-farm management?

Another question is the scope of on-farm management and conservation, which we see rather in a specific niche of agricultural production as in a broader scope. The concept makes the impression that on farm conservation in combination with participatory breeding approaches and the connected adaptation of landraces to climate change should substitute modern plant breeding and modern agriculture. We feel that “sustainable agriculture and food security” have to be seen more differentiated and knowledge based.

In this context the following questions should be clarified:

- Is participatory plant breeding a political aim in Europe?
- If yes, for which crops should the approach be used?
- In which way shall the use or on-farm management of landraces for the adaptation to global changes be carried out, e.g. natural selection?
- Is there scientific evidence how far the approaches mentioned in the draft are superior to modern plant breeding?

There are cases, where on-farm management could be useful (e.g. for crops that are currently not in improvement or breeding programmes, for the development of typical regional products or niche markets, for the broadening of genetic diversity) or on-farm

conservation of LR is still possible (e.g. for certain categories of LR in specific parts of Europe). These aspects could be further elaborated.

We believe in the introduction of the concept it should be clarified, that on-farm management (rather than conservation) is an interesting approach for niche marketing, but no universal remedy for food security.

There are further open questions and issues that are of special importance for stakeholder in genebanks. Besides, the interface between on-farm management (and conservation) of LR and in situ conservation of CWR has to be clearly defined. It becomes not fully clear, if the material has to be regenerated or only re-collected by the genebanks. Who is responsible for ensuring that the material is still viable and stays viable? How is it planned to be financed? We recommend to invite experts of ex situ conservation to the WG for on farm management and conservation, in order to give the ex situ experts the opportunity to comment ideas and to explain the own perspective.

Furthermore we have doubts, if the instrument of MAPA's is useful for on-farm conservation. We fear, that we only conserve historical situations/landscapes and forget the stakeholder outside these areas. In our point of view, on-farm management (and conservation) is based on farms/gardens independent of the location. Quite the contrary it can be useful for the marketing of such products, if the farm is located near a town.

We also have problems with the definitions. The differentiation of the different classes of varieties (sensu stricto LR, Re-introduced LR, Introduced LR, Broad Genetic Base Varieties (BGBV), Obsolete cultivars (OC), 'diverse' varieties) is in our opinion unclear and not practical.

Further missing aspects are related to the themes access, availability and knowledge to/on PGR. This themes should be based on legal requirements, especially the new or upcoming seed legislation.

Last but not least a small advice to the German Agency for Technical Cooperation (page 25). The name is now Agency for International Cooperation.

Due to the described difficulties we have with the draft concept, we cannot adopt this text in its current form and rather suggest to have further discussions in the Steering Committee on the basic orientation of such a concept.

Frank Begemann  
ECPGR National Coordinator of Germany

## **Comments from the Netherlands**

Chapter 2 provides a definition of on-farm conservation of PGRFA which I find controversial. On-farm conservation is defined as the "conservation of ecosystems and natural habitats" in addition to the "maintenance and recovery of viable populations of domesticated and cultivated species...". I miss the logics in deducing this definition from the more precise definition in the CBD and IT which focuses on the latter only. I question whether ECPGR and this WG should take up such a wide mandate rather than limit itself to the latter part, i.e. on-farm management of PGRFA. It would drastically widen ECPGR's mandate if it would not only focus on the genetic level but also on the higher integration eco-system level and it would bring many additional stakeholders on board. I also wonder how effective criteria for MAPAs could be set. A decision on these principles would warrant wider discussion in the Steering Committee.

As a consequence I similarly find the concept of Most Appropriate Areas (MAPA) questionable. Many landraces, farmers' varieties, and obsolete cultivars can be effectively maintained in any setting and do not require a Most Appropriate Area for their maintenance. Unlike in the case of CWRs, since this document concerns domesticated germplasm, it may be propagated at any place and in any agro-ecosystem and farming system context. I

believe the proposed concept seriously limits options for on-farm management of PGRFA, or at least provides for a skewed attention to certain on-farm management initiatives and environments.

Since my concerns are fundamental, I do not see how the current document could be easily adjusted, and I regret to believe that a more fundamental discussion is needed in the SC before an on-farm concept as submitted could be adopted.

Bert Visser  
ECPGR National Coordinator of the Netherlands

## Comments from United Kingdom

*Review: The ECPGR Concept for in situ (On-Farm) Conservation in Europe. Mike Ambrose (JIC), Charlotte Allender (Warwick Univ.), Matt Ordidge (Reading Univ.), and Julian Hosking (Natural England). August 2014*

This document aims to set out high level strategies for dealing with the issue of In situ (On-Farm) conservation in Europe cross-referenced to In-situ and Ex-situ activities and potential synergies between them. The document includes a series of recommendations of priority actions to member states and suggestions as to routes of potential funding.

On-farm conservation is an important component of PGRFA that is becoming better researched and understood and is strengthening in certain areas in Europe but not uniformly so. The On-farm task force and associated players from the current PGR Secure programme are well placed to develop a detailed and well-argued consensus view of the current state of the art and roadmap for the primary objectives for collaborative actions to enhance this area within the terms of reference as set out by the Steering Committee.

The concept note in its present state falls considerably short of doing this, rather it reads as a very discursive state of the art and fails to address a number of key points in the Terms of Reference as set out by the Steering Group. Rightly, the concept document draws on significant materials and approaches as developed within the current PGR Secure project funded through FP7 '*Novel characterization of crop wild relative and landrace resources as a basis for improved crop breeding*'. The most significant being the descriptors for web-enabled national In-situ landrace inventories (annex 4). This is a significant output from the project and clearly demonstrates interaction between both task forces and the documentation and information network. Given the breadth of the PGR Secure project and members, it is somewhat surprising that the document is so light on supportive evidence. There are a very limited number of case studies entirely focused on exemplars from Italy. This represents a missed opportunity in presenting a more coherent and balanced overview of the state of play across Europe as a whole and identifying issues or regions where special focus might be targeted for maximum effect.

The recommendations rely almost exclusively on actions by ECPGR and WG member whereas the truth is that to achieve the overall objectives will require forming strategic partnerships and alliances with others to build up more of a critical mass which will be important for lobbying and fundraising. This needs to be articulated in the concept note. What is also missing is any sense of a roadmap, additionally outline costs of some of the components facilitating actions could be helpful. Without these the concept ends up as a series of aspirations set over too wide a canvas.

Further specific comments and recommendations:

- The document is too long and lacking in focus and clarity when the 12<sup>th</sup> ToR suggests that it should not exceed 10 pages. It would benefit greatly from rationalisation focussing on the principal elements required.

- The title is confusing and needs clarification (e.g. conservation of what in Europe?). Could “landrace” or some other contextual refinement be added into it? This confusion then follows in the document, whereby the term ‘(on farm)’ is made practically redundant by re-definition but then continued to be used throughout. Similarly, the concept of considering agriculture and mankind as part of nature, whilst continuing to talk of ‘wild species’ and ‘in situ’ conservation appears illogical.
- The concept would have been helped if it had included more direct examples of On-farm conservation from National Programmes across European Countries rather than focusing on what is going on in regions of Italy.
- The document refers to the need for input and support from the Documentation and Information network but does not read as having been written in close collaboration with them as requested.
- The document does highlight the interface between in situ conservation and on-farm management and ex-situ conservation. Better integration of on-farm activities with the crop-specific working groups is needed in order for future activities to have coherence within ECPGR. We need to pool the expertise of the crop groups with those with knowledge of on farm systems. However, in the era of ECPGR operating as virtual networks there is a need to explore new approaches to extending specific focus/ interest groups to generate critical mass and synergies.
- The focus of the Concept Note sets out a plan and mechanism for the identification of high diversity hotspots for on-farm LR which it develops into a scheme of European MAPA (most appropriate areas) Network that has both bottom-up and top down elements. This is a useful concept and there is a statement about the need for further research into how this could be achieved. As one of the three primary actions of importance this should be developed into a more detailed work plan.
- The Concept note gives special attention to the development of National Inventories of LR maintained on-farm and the different mechanisms by which this might be implemented. An overview of what has been achieved to date across Europe is required here rather than the general comments made of the situation in Italy. The Italian case might be the most developed in Europe but it is not presented as such and misses the point somewhat.
- The document is too focused on the general overarching processes that it fails to address approaches to handling unique and important accessions for In-situ conservation.
- The on-farm sector needs to undertake activities to raise the profile of such work and this means engaging with all the actors identified in the document. All activities require the creation of national inventories as without data, objective decisions cannot be met. Compiling and curating data so that it can be used by all players is essential. This would then allow the concept of Most Appropriate Protected Areas to take into account variability in the distribution and utilisation of materials conserved on-farm as, in some instances (where landraces are sparsely distributed and more likely to be about to disappear) it is not clear this approach will suffice.

- There needs to be a succinct summary early on in the text of both the formal (e.g. CBD Target 13, EU Biodiversity 2020 Strategy, etc.) and the informal (Global and European Plant Conservation Strategies, UN-FAO State of the World's PGR, the second GPA for PGR, current policy context(s)).
- We can provide a brief example of RDP support for *in situ* PGR conservation support in Poland if that would be helpful to diversify the examples referred to (?).
- Gene banking should also include having duplicates elsewhere (preferably in another/other reliable country/countries – e.g. the GSV, the MSB, Fort Collins, etc.) as is good practice and required by AEGIS and a mention should be made of the types of germplasm, tissues and other samples that could be placed in long-term storage.
- The concept should also refer to the role of ABS including possible access legislation resulting from the entry into force of the Nagoya Protocol. This should address both the incentivisation of conservation through benefit sharing and outline possible regulatory requirements including: national ABS access legislation; EU and national compliance mechanisms set out by Parties to the Nagoya Protocol; and possible developments agreed by the Governing Body to address in-situ access under Article 12.3 H.

Julian Jackson  
ECPGR National Coordinator of United Kingdom

## **Comments from NGO (Béla Bartha)**

The comments received were placed in the text of the document.  
Please see next pages for the comments.

## 2. A Concept for *In Situ* (On-farm) Conservation in Europe

### 2.1. On-farm conservation definition

In the most relevant documents that bind signatory countries to a proper conservation of Plant Genetic Resources (PGR), the following definitions for *in situ* conservation can be found, i.e.:

- The Convention on Biological Diversity (CBD 1992, Definition Article 2: Use of Terms) and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA 2001, Article 2: Use of Terms):

*"In-situ conservation means the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties"*.

We can eventually note that, similarly,

- The Commission Directives 2008/62/EC 20 June 2008 and 2009/145/EC 26 November 2009 state:  
*"conservation in situ means the conservation of genetic material in its natural surroundings and, in the case of cultivated plant species, in the farmed environment where they have developed their distinctive properties"*.

No specific mention to the term 'on-farm' conservation is given in these documents, although it should be acknowledged that, with specific reference to cultivated taxa, the term 'on-farm conservation' came into use.

Considering the principal need to refer to the above mentioned documents, by virtue of their binding nature, the Task Force decided to

- maintain the exact meaning of '*in situ conservation*' that is given by the CBD and the ITPGRFA and consequently define "on-farm conservation" as the *"conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of domesticated or cultivated species in the surroundings where they have developed their distinctive properties"*
- refer about *in situ* (on-farm) conservation in this document. The term '*in situ* (on-farm)' will be used for conservation activities that are carried out on-farm, but also in home and community gardens. Likewise the term 'farmer/s' is meant to include 'gardener/s' and 'maintainer/s'.

The primary characteristic of *in situ* (on-farm) conservation is its dynamic nature in contrast with *ex situ* conservation which is primarily static. In addition, *ex situ* conservation is generally focused on a single genetic resource, while a complex of populations can be preserved and evolutionary processes can continue through *in situ* (on-farm) conservation. *In situ* (on-farm) populations continue to evolve in response to biotic and abiotic pressures and to adapt to their environment. They are, therefore, an always updated source of adaptive alleles for crop improvement, particularly of crops that are growing in adverse environmental conditions resulting from climate change (see for example Negri and Tiranti, 2010; Nevo *et al.*, 2012; and references therein).



I very much appreciate and support that initiative!!

## 2.2. Aims of *in situ* (on-farm) conservation

- to maintain and develop landrace (LR) diversity for local communities and breeding (including participatory plant breeding), as a pre-requisite to ensure food security, productivity as well as resilience to biotic and abiotic stresses in a scenario of climate change and unpredictability,
- to maintain viable agro-ecosystems and useful agro-ecosystem services,
- to develop new (e.g. environmentally friendly) farming systems that are based on 'diverse' varieties in such answering the changing needs of farmers (like organic farmers) and the consumer demand for a sustainable production systems,
- to develop farming systems that rely on landraces to produce high value typical products,
- to maintain different traditions and uses of a crop while extending crop and varietal uses,
- to increase farmer capacities that are related to selection for improving yield, adaptation and quality and to conservation methods.

## 2.3. *In situ* (on-farm) conservation focus

In the context of the definition given above, and taking into account available bibliography on the matter (Maxted *et al.* 2002; Negri 2003, 2005), there are two possible focuses for *in situ* (on-farm) conservation:

- on a certain cultivated Plant Genetic Resource (PGR) population/clone *per se* and
- on a certain agro-ecosystem where a/several population/s is/are cultivated, i.e. a holistic approach.

Both are presented below.

The first one is the most common approach. Never the less, the CBD and ITPGRFA, that we used to define on-farm conservation [and also the definitions given by European Union (EU) Directives on the commercialization of 'conservation variety' seeds], implicitly suggest a comprehensive approach that takes into consideration all the biotic and abiotic components of a certain agro-ecosystem, i.e. a holistic approach to conservation.

### 2.3.1. The approach aimed to conserve a certain Plant Genetic Resource (PGR) *per se*

If the focus is on a certain cultivated PGR *per se*, considering the above mentioned aims, only genetically diverse populations are suitable for *in situ* (on-farm) conservation.

To the purpose of developing an *in situ* (on-farm) concept that is suitable for different countries and taking into account that a) the Task Force must be respectful of the decisions already taken by some countries on the use of terms as well as of each country sovereignty over its own genetic resources (ToR, Annex 1), b) it is acknowledged (from contacts between ECPGR on-farm WG members and from personal knowledge of the Task Force members) that different materials are involved in *in situ* (on-farm) conservation activities that are carried out in Europe,

to maintain and provide alternative pgr-opportunities in comparison to the maincrops (hybrids, gmo's).

Beside the presence of intraspecific diversity (i.e. different varieties and variable materials of the same crop), the diversity of other living beings (i.e. interspecific diversity) and of the agro-ecosystems should be considered in a holistic approach.

The areas that are richest in the above mentioned components should be considered the Most Appropriate Areas (MAPAs) where to set or enhance *in situ* (on-farm) conservation activities. Among them, those areas where other important and threatened genetic resources (like Wild Relatives, CWR) are present appear to deserve the highest conservation attention and priority.

It has to be noted that agriculture is a process that indeed belongs to nature, also when it takes advantage of resources that have been developed by mankind (as LR), since mankind is part of nature; there is no substantial reason why the dichotomy between natural world and mankind world (including agriculture) should be maintained. On the other hand, agriculture does take advantage of wild species that are components of agro-ecosystems (e.g. nitrogen fixing wild legumes or wild pollinators) and, in some cases, is based on wild species (e.g. natural grasslands).

Negri *et al.* (2012) considered as MAPAs the areas where different LR of different crops, different types of agro-ecosystems, high number of protected areas and of CWR species, have the highest concentration. By making specific reference to LR, the concept of MAPAs proposed by Negri *et al.* (2012) develops that of 'High Nature Value Farmland' (HNVF), initially proposed by Baldock *et al.* (1993) and Beaufoy *et al.* (1994), and defined at the EU level (SEC(2011) 540 Final) as "*farmland/forested areas characterised by high biodiversity*".

The introduction of this concept appears to be fully justified also taking into account the following relevant documents.

The 2<sup>nd</sup> Global Plan of Action (GPA, FAO 2012) recommends that "*agricultural biodiversity and biodiversity more generally are not addressed as separate entities*", underlines that "*ecosystems contain important PGRFA, including rare, endemic and threatened CWR and wild food plants*" and suggests to "*include, as appropriate, among the purposes and priorities of National parks and protected areas, the conservation of PGRFA, in particular appropriate forage species, CWR and species gathered for food or feed in the wild, including in their biodiversity hotspots and genetic reserves*" and to "*consider integrating the conservation and management of PGRFA, particularly CWR and wild food plants, in land-use plans in their centres of origin, centres of diversity and biodiversity hotspots*".

The EU 2020 Biodiversity Strategy (European Parliament Resolution, 2012) first target is: "*Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss*"; the second is the 2050 vision: "*By 2050, EU biodiversity and the ecosystem services it provides – its natural capital – are protected, valued and appropriately restored for biodiversity's intrinsic value and for their essential contribution to human wellbeing and economic prosperity, and so that catastrophic changes caused by the loss of biodiversity are avoided.*" It also "*calls for a strengthening of Pillar II [of the Common Agricultural Policy, CAP] and for drastic improvements in all Member States to the environmental focus of that pillar and to the effectiveness of its agri-environmental measures, including ... support for High Nature Value and organic farming...*"

On the other hand, "*Maintain and restore ecosystems and their services*", "*Increase the contribution of agriculture and forestry to maintaining and enhancing biodiversity*", "*Halting biodiversity loss*" were clear

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Number: 1 Author: belab Subject: Notiz Date: 7/16/2014 5:44:33 PM  
Areas of high LR-diversity but low CWR-diversity like the alpine regions are included here???

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Number: 2 Author: belab Subject: Notiz Date: 7/16/2014 5:45:29 PM  
secondary center of diversity

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rules set by the European seed legislation, where appropriate. None of these activities can be carried out without an adequate information base.

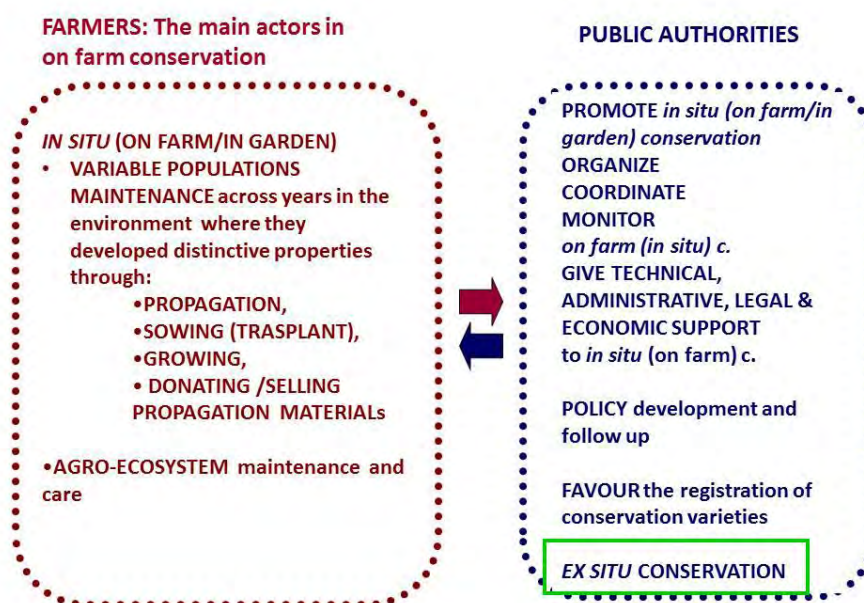


Figure 1. Respective roles of famers/gardeners/private citizens and Public Authorities in *in situ* (on-farm) conservation.

### 3. The ECPGR On-farm WG Action Plan for a Strategic Approach to *In Situ* (On-Farm) Conservation in Europe

#### 3.1. Identification of the actions of primary importance

On the basis of the international framework set by the 2<sup>nd</sup> GPA (FAO 2011) and the ITPGRFA (FAO 2001) and of the information reported in Veteläinen *et al.* (2009a,b; 2012) and gathered within the ECPGR On-farm WG and the EC FPVII PGR Secure project ([www.pgrsecure.org](http://www.pgrsecure.org)), the Task Force extensively lists in Annex 3 the issues to be considered towards a European strategic approach to conserving crop LR.

In summary, considering the practical implementation of *in situ* (on-farm) conservation, they concern conservation, utilisation, policies, legislation, public awareness and education, socio-economy and cooperation. The Task Force underlines that the promotion of use of variable materials in agriculture and in breeding is the mean to *in situ* (on-farm) conservation.

To support conservation actions, research is also needed to improve our knowledge on present level of *in situ* (on-farm) diversity, population dynamics in relationships to factors such as migration, drift and human and environmental selection pressures, impact of climate change on diversity, how variable populations should be managed to adapt, mitigate effects or be resilient to the climate change effects in the face of its

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 In my oppinion the role of NGOs is not depicted in this figure!!

NGOs are very much involved in policy work. Here you can't susumerize NGOs under the term of farmers. NGOs fulfill other taskts here. They organize networks. They monitore the situation of pgr on the market they promote on farm management of pgr. They create public awareness and in with that create a marketing plattform for the use of pgr.... in many countries they create a link between farmers-organizations and authorities. They participate in national coordiination plattformes for the conservation of pgr. In some cases they are the drivers for the sustainable on farm use of pgr...

Inventories of the type, that include the information mentioned in the 'Descriptors', have already been/are being developed in some countries (i.e. Italy and Finland).

In Italy they are compiled in the frame of Regional Laws and other initiatives that protect agro-biodiversity (also including animal and microbial diversity, see the exemplar Law of Lazio Region in Annex 5) and are retrievable from dedicated Regional web sites. Recently, The First inventory of *In Situ* Maintained Landraces of Italy (Negri *et al.* 2013) was also compiled based on these Regional works.

It is useful to note that these inventories are already used in Italian Regions to fund (through the European Agricultural Fund for Rural Development, EAFRD) activities aimed to protect, monitor and enhance utility of GRFA *in-situ* (on-farm) (Fig. 3) and specifically to:

- give technical and economic support to *in-situ* (on-farm) conservation of protected GRFA within the distribution area where they have been selected;
- where possible, favour the re-introduction or extension of culture of protected GRFA within the distribution area where they have been selected 
- constitute, on voluntary basis, 'guardian' farmer (or breeder, for animals) Networks,
- assign to 'guardian' farmers, under the strict control of the Region, the multiplication of GRFA that they themselves have conserved up to present day;
- control the exchange of the propagation material produced and make it available both to the farmers that apply for its cultivation (or for livestock rearing), and for scientific purposes such as genetic selection and improvement;
- apply cultivation (or livestock rearing) models, studied on the basis of those adopted by tradition, that should exalt the quality and productivity of the protected GRFA;
- coordinate the subjects included in the Network in order to promote the economic and cultural enhancement of the GRFA that are protected by law, through the establishment of protection associations, protected trademarks, consortia and their involvement in fairs.

Genebanks and living collections are also established in some Regions. For plants, the implementation steps of these laws are summarized in Figure 3 below (details can be found in Annex 5).

It is on the basis of these regional experiences that Italy recently adopted the above mentioned 'Guidelines for Conservation of Plant Genetic Resources for Food and Agriculture'.



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Number: 1 Author: belab Subject: Notiz Date: 7/16/2014 6:45:38 PM

ProSpecieRara cooperates mostly with nurseries, local seedproducers (are they included in the term of farmers??). They have a completely different formation/education than farmers?? Here as weill you have to be more precise who the guardian farmers will be, because we need ohter tools to cooperate with nurseries than with farmers.

mentioned in there are included in the 'Descriptors for web-enabled national *in situ* landrace inventories'),

- facilitates the cooperation among ECPGR WG and support their activities within ECPGR,
- facilitates the cooperation among the formal sector and the networks of farmers and farmer organizations.

Finally, it will be a useful example to develop

- *in situ* conservation actions at the global level.

### 3.3. The compilation of country and European MAPA inventories

Considering the holistic approach that was described above, the identification of MAPAs would promote planning and implementing *in situ* conservation activities at National, European and global level. In fact, MAPAs could be proposed to National Authorities as the sites where to set or enhance *in situ* (on-farm) conservation activities with priority because of their high value for agro-biodiversity conservation.

On the basis of National inventories of on-farm maintained variable materials and the information contained in them, hot spots of diversity (MAPAs) could be identified following a bottom up or a top down strategy similar to that described above for variable material inventorying.

From National inventories of MAPAs, a European MAPA inventory could then be developed that would serve as a basis of an integrated system of high value areas for agro-biodiversity conservation in Europe (Figure 5). In particular, MAPAs could be usefully integrated into the Natura 2000 site network which currently only addresses wildlife protection. In addition, at the global level MAPAs might usefully be integrated into the FAO GIAHS – 'Globally Important Agricultural Heritage Systems' ([www.fao.org/giahs/giahs-home/en/](http://www.fao.org/giahs/giahs-home/en/)) which promotes the dynamic conservation and adaptive management of unique traditional agricultural heritage systems around the world.

This fits what is recommended by the 2<sup>nd</sup> GPA (FAO 2011) and the present EU policy requirements and foreseen achievements in terms of conservation of biodiversity and agricultural policies (The European Parliament Resolution 2012; SEC(2011) 540 Final) that were mentioned above (see pagg. 8-9).

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Number: 1 Author: belab Subject: Notiz Date: 7/16/2014 6:27:20 PM

Define what is a MAPA and what is not will be very tricky. There are NGOs they keep diversity on farm (about 5000 varieties in networks). Are they a part of a MAPA??? There are diversity seedproducers which hold catalogues of many hundreds of obsolete cultivars. Are they a national MAPA???

### 3.4. A European network of unique materials and sites for a coordinated and integrated *in situ* (on-farm) and *ex situ* conservation activities

It is important for agro-biodiversity conservation to maintain unique variable materials, like extant LR that are cultivated in just one farm and/or that are characterised by unique alleles, as well as unique MAPAs, like those including relic/irreplaceable habitats and include a high number of unique variable materials. Unique variable materials should immediately be sampled, conserved in genebanks, so to make them available for re-/introduction and research and breeding.

From the European inventories of variable materials and of MAPAs, material and sites that have the distinctive characteristics of being unique could be selected and proposed by ECPGR *in situ* (on-farm) WG members to European countries (and through them to the EU) as materials and sites that deserve the highest conservation priorities. For these materials and sites specific funding for conservation, monitoring and managing should be foreseen that allow an efficient and effective conservation across years.

The unique *in situ* (on-farm) maintained variable materials would be the source of unique *ex situ* collections meanwhile offering the opportunity to monitor how diversity evolve in response to climate changes and farmer management.

All the same, the unique MAPAs will offer the possibility of monitoring over time the changes of the three components of agro-biodiversity: habitats, number of species and level of intraspecific diversity.

In the end, to create a European network of unique materials and sites would lead to a fully coordinated and integrated *in situ* (and, via the population safety backup, *ex situ*) conservation (Figure 6) of salient agro-biodiversity hotspots and PGR for the benefit of the future European generations.

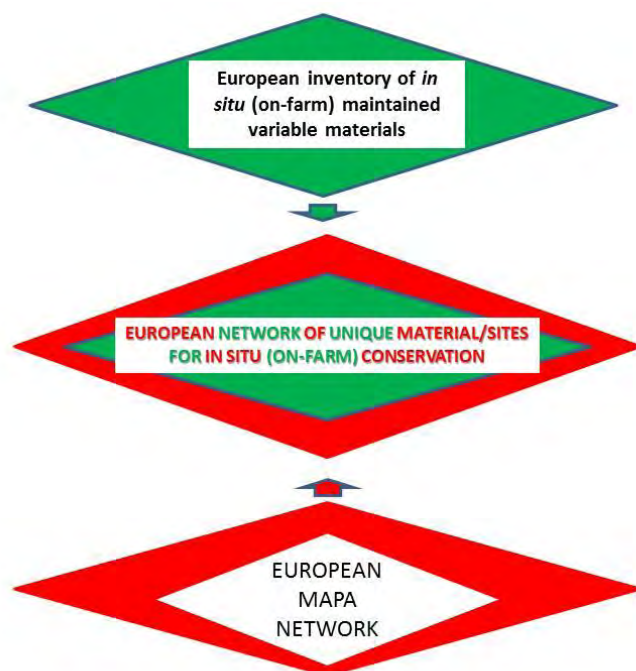


Figure 6. A European network of unique materials and sites for a coordinated and integrated *in situ* conservation.

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Very risky strategy. The on farm conservation can lead to a broadening of diversity. If we concentrate on unique material, what will be with duplicates in the same area and the interactions with other cultivars that could lead to new diversity. If we concentrate on unique cultivars this interaction will be diminished, because the other - not unique cultivars - will be taken out of the conservation context within a defined area?

these activities, farmers often need enough propagation material to sow (at least) small plots and are mostly interested in evaluation traits (especially adaptability, growth and quality traits) specifically recorded for their proposed environment.

About the use of *ex situ* material for re-/introduction purposes, it should also be noted that diversity and information on newly collected LR (i.e. those collected while making *in situ* inventories) should be compared with those related to previously collected LR to detect if the former contain novel diversity and if eventual duplicates are already present *ex situ*. All the same, a thorough control of the status of an accession is needed and a better integration between accession data of different genebanks is to be achieved to facilitate an effective use of *ex situ* stored PGR *in situ* (on-farm). In some cases, accessions of seed propagated crops (like old varieties that are constituted of one genotype only and not of different genotypes) are mislabeled as LR.

To make the information widely available to farmer communities interested in *in situ* (on-farm) conservation purposely developed genebank web sites are also needed. Information systems like the 'PGR Diversity Gateway' (under development in the PGR Secure project) could address this need.

In short,


- genebank materials that are available to farmers/farmer networks should be:
  - multiplied to a wider extent,
  - adequately publicized and made 'visible' to potential  users,
  - documented, not only with characterization data, but also with evaluation data,
- structures purposely developed to evaluate and multiply materials in a certain environment should be developed, and at the same time,
- small genebanks, which hold materials suitable to *in situ* (on-farm) use should be adequately supported to provide the above mentioned services to the potential users.

The development of public - private dedicated projects and companies, such as the 'Programme for Diversity of Cultivated Plants' developed in Sweden (<http://pom.info/english/index.htm>), could also help in achieving a better integration between the formal and informal sector, especially for the re-/introduction of genetic diverse material in cultivation.

## 5.2. To give technical support to *in situ* (on-farm) activities

A specific mention deserves the case of *sensu stricto* LR for which conservation activities are aimed at maintaining them in their adaptation area through financial support to the farmers, on a side, and promotion of the product, on the other side. In this case the formal sector is also called to assess the identity and distinctness of a certain LR from other LR and varieties available on the market, since cases of synonymy and mislabeling do exist. For the purpose, general criteria and specific case studies are reported in the Chapter 5 and 6 of the already mentioned 'Italian Guidelines for Conservation of Plant Genetic Resources for Food and Agriculture'. Morpho-physiological descriptors to record traits useful in distinguishing and ascertaining identity of LR are also reported in Annex 6 of the above mentioned document. They were worked out combining different types of descriptors (e.g. UPOV/CPVO and

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Recommendation lists would help.