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DATA MANAGEMENT IN COMMUNITY SEED BANKS

Context

Community seed banks (CSBs) collect and record different types of data that can be stored and analysed to support actors in managing crop diversity. Databases are efficient tools to store and manage information in CSBs. A survey was conducted to identify how DIVERSIFOOD seed savers' and farmers' networks manage their data: ProSpecieRara (PSR) in Switzerland, Réseau Semences Paysannes (RSP) in France, Rete Semi Rurali (RSR) in Italy, Red Andaluza de Semillas (RAS) in Spain and Arche Noah (AN) in Austria. The findings of this survey are presented below.

Wide diversity of species and varieties

Each organisation works with different categories of varieties from the public domain (e.g. local varieties, landraces, new farmers varieties/populations or registered varieties), covering many species including cereals, forage crops (grasses), legumes, potatoes, beet (sugar, fodder), oilseed crops, fibre crops, vegetable crops, ornamental crops and trees.

Type of data and descriptors.

All five organisations record data about varieties grown in different locations and/or over a period of several years, store information about agronomic performance, and results of organoleptic trials. The information collected includes farmers' personal data and extensive data about the varieties: country of origin, information about their sources, date of entry of the accession, seed lots, plants in the seed lots, photos, location of multiplication, field within that location, history of seed lots within a network, climate where the accession are grown, traditional knowledge linked to the varieties, traditional uses, local names, etc. Several examples of data descriptors are listed in Table 1. Some are close to institutional standards: AN and PSR have EURISCO passport descriptors for all accessions, while RSR uses Bioversity International descriptors for farmers' knowledge. On the other hand, RSP and RAS do not use any standards, rather they have drawn up their own descriptors. In all cases, databases are seen as one of the key elements of the organisation and are often in daily use. For AN and PSR, the database is the core of their operation, while for RSR, RSP and RAS, the database is becoming an increasingly important tool.

AT FIRST GLANCE

There is a remarkable range of data storage, data organisation and rules for data management in community seed banks. We investigated this diversity in five civil society organisations that are partners of DIVERSIFOOD.

Embedding crop diversity and
networking for local high quality
food systems



Specific rules concerning data accessibility

Specific rules concerning data accessibility. Two different approaches are used: the data is available to everyone (open access) or access is limited to a group, with password protected (online) access. There are also differences in the availability of raw and processed data: several reports with analysed data are freely available for all organisations, but there is no access to the raw data. RSP is an exception here, with its Spicilege on line database (<http://www.spicilege.org/>).

Specific rules concerning data accessibility

Data management and IPRs. Important questions regarding big data (i.e. the amount of data normalised and organised in a centralised data base) and data mining in CSB functioning are currently the subject of debate. A pertinent aspect is how these tools are handled within an organisation, concerning breeding and biodiversity management (traditional knowledge versus numeric data, etc.). For example, in the context of research programmes, data collected through on-farm trials or questionnaires and analysed, and molecular data produced, need to have a clear status regarding ownership and accessibility. Establishing the status must be done with the help of a data management plan as an integral part of the consortium agreement. Furthermore, the political environment regarding patents on genes, based on numerical data, is a threat to biodiversity cultivation and use. There is a need for further legal work on the status and ownership of the data in relation to the Nagoya protocol and the International Treaty on Plant Genetic Resources for Food and Agriculture. Financial support is also needed for the maintenance of organisations' databases and to ensure data quality.

The way forward

DIVERSIFOOD offers several data management solutions which may be useful for new CSBs. CSBs who wish to organise their data in a database can ask for advice, find out if software that matches their needs already exists. Often such software is under an open source licence and is freely available (e.g. <https://sourcesup.renater.fr/projects/shinemas>).

A community on data management and use could be created. This community could improve existing software, exchange experience on how to process data and develop good technical and legal practices.

| Spicilege (RSP) |
|---|
| Species |
| Name? Identity? of the person who grows the variety |
| Location of cultivation |
| Origin of the variety |
| Origin of the seeds |
| Identity of the person who filled in the data sheet |
| Interest of the variety |
| Breeding methods |
| Latin name of the species |
| Use of the plant, ethnobotanic characteristics |
| Synonyms, etymology |
| Bibliography, history |
| Morphological and botanic description |
| Agronomic behaviour |
| Plant characteristics when fully developed |
| Fruit characteristics |
| Seed characteristics |

Table 1. Example of descriptors in the database Spicilege of RSP

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