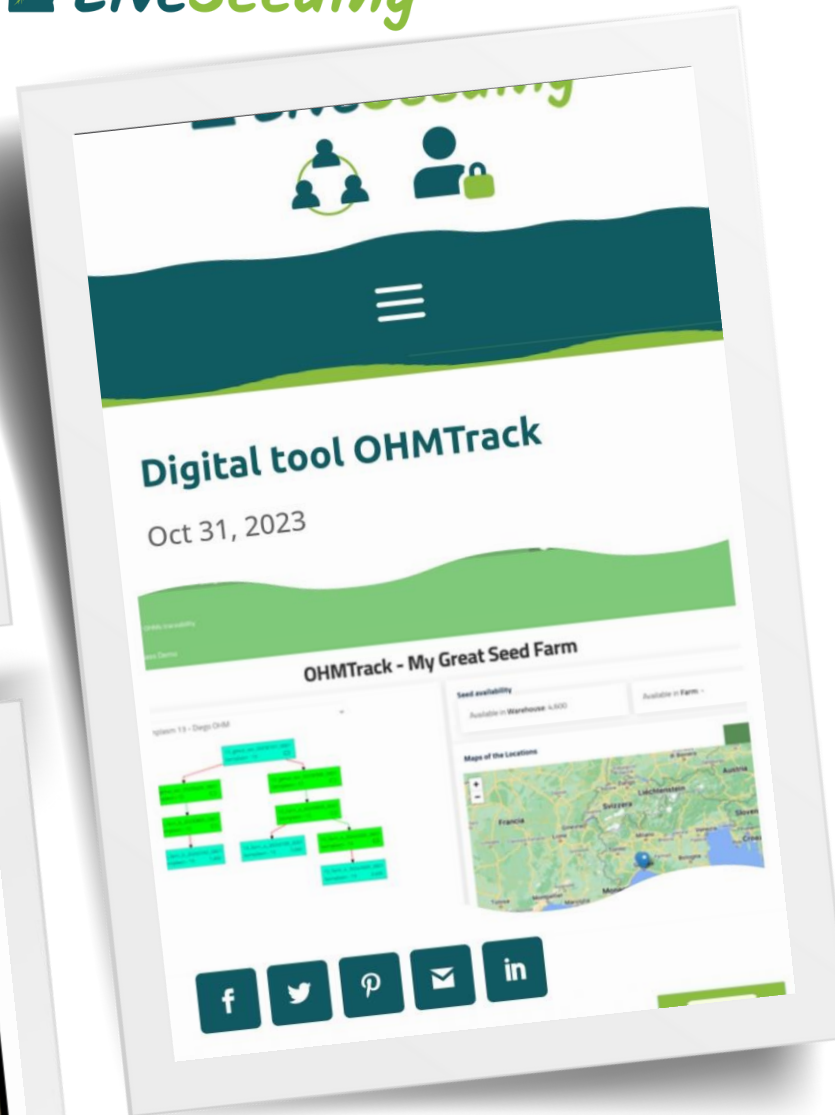
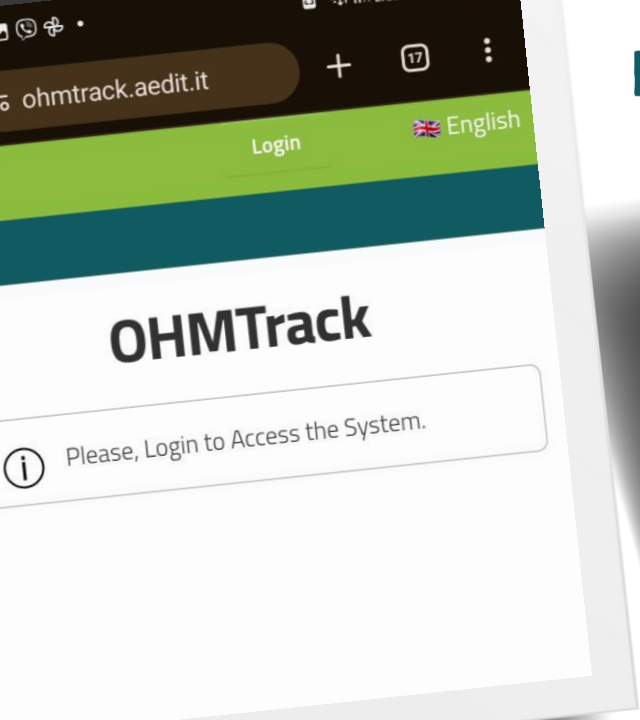




Training in organic seed quality & health

Module 17: Tracking OHM: a digital tool for the notification, traceability of OHM seed

Unit 17.1: Digital tools to manage OHM traceability

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UK Research
and Innovation

About the module

Module 17 - Tracking OHM: a digital tool for the notification, traceability of OHM seed

Unit 17.1 - Digital tools to manage OHM traceability

Unit 17.2 - Online tutorial on OHM track

- Downloadable user guide.
- Learning assessment: link of the quiz: <https://forms.gle/zbqLpN9RJUvsEQUV6>

Target learner - breeders, seed companies,
national authorities;
basic knowledge on OHM tarceability



LiveSeeding

Digital Tools to Manage OHM
Traceability



What is the traceability

Keep track of the exchange of seeds related to Organic Heterogeneous Material

- Who: organisation involved in seed exchange (breeder, seed banks, seed producers)
- What: keep track of the seed amounts during
 - Diffusion: seed exchange between organisations
 - Reproductions: sowing and harvesting
- When: track seed exchanges in time
- Where: locations of farm and seed storages

Best practices

Best practice to manage the seeds inside an organisations:

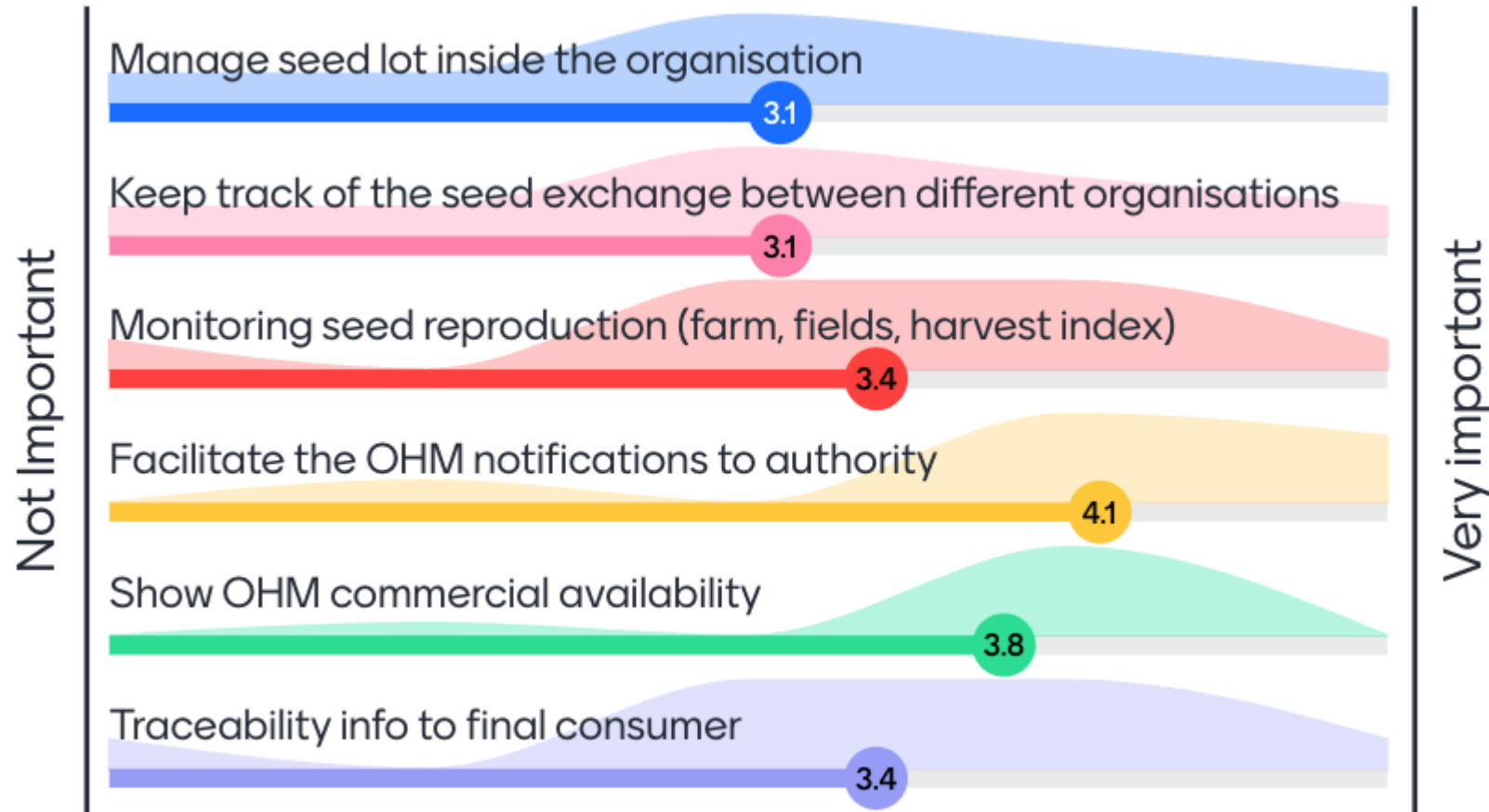
- Do I keep track of the entrance of seed lots in my organisations?
 - Who gives me the seed?
 - Do they have a code to the seed (es. Accession code)
 - There are any related passport data?
- Internal management
 - Do I have internal codes for accessions or seed lots?
 - Do I track in internal seed exchanges? (data, amount, locations)
- Do I keep track of the organisation I send my seeds?

“Life cycle” of an OHM

code	Status	Activity
pre_breed	initial phase (choosing parental, field test);	Genetic material traceability
breed	the OHM has a name; testing the OHM with some associated farms; not yet notified	Genetic material traceability
notification	Collected the data for the notification (pedigree; phenotype etc...) Send a notification; the OHM is registered	Receive / analyze notifications
propagation	OHM propagation (seed producers sell/distributed certified OHM)	Seed and Phytosanitary controls; Seed traceability
ohm_new	after a few generations the result of propagation may have changed and require a new registration	(re-registration?)

comments?

User's requirements for OHM traceability





OHM Notification Data

Reviewed countries

Country	Organisation	Procedure
France	Geves	Document
Italy	CREA	Draft (not publicly available)
Germany	BSA	Online
UK	Animal & Plant Health Agency	Document

Notification - cross country comparisons

Topic	DE	IT	FR	UK
Species and name	species	Specie - denominazione botanica Specie - nome comune	Specie	Species and varieties used to create population
	the designation and identification no.: (if already approved under the "Regulation on the marketing of seed of populations of the species oats, barley, wheat and maize":)			
	the name of the ecological heterogeneous material:	Denominazione del MEB (1)	Nome proposto	Name of population (or proposed name)
Notifier	Notifying person or company/other name	Nome e cognome o ragione sociale dell'operatore che effettua la notifica Codice Fiscale o Partita IVA CUUA	Nome del richiedente, fornitore dell'attrezzatura	Name and address of applicant (where the applicant is not an individual, the person responsible for participation in the experiment)
	Address Address Number:	Indirizzo Numero civico Codice postale	Indirizzo	Address
	Long distance call:		Telefono	Telephone: :
	E-mail:		Email	Email
	Trademark at German Patent Office (if available)			

Notifications #2

Topic	DE	IT	FR	UK
Maintainer (if different)		Nome e cognome o ragione sociale dell'operatore che effettua il mantenimento del MEB		Name and address of the person responsible for the breeding, production and maintenance
Parental	Description of the parent material , if applicable, indicate the varieties or genotypes used to create the ecological heterogeneous material:	Parentali del MEB (2)	Parentali, descrizione	Species and varieties used to create population
Breeding scheme	Breeding Scheme	Metodo utilizzato per realizzare il MEB (3)	Descrizione del metodo e delle tecniche utilizzate per creare il materiale proposto.	* Objectives of the breeding programme * Description of the type of technique used to generate the population, including the breeding scheme
Production protocol	Description of own production protocol program (for 7.1 and 7.3) or on-farm management and selection practices (for 7.2):			
Country / Locations	country of breeding or production, indication of region if applicable	Località in cui il MEB è stato selezionato (4)	Localizzazione dei siti di selezione e	Region or proposed region of production

Notifications #3

Topic	DE	IT	FR	UK
Pedo-climatic	Description of soil and climate conditions	Caratteristiche agro-pedoclimatiche della località (5)	Localizzazione dei siti di selezione e condizioni agro-pedoclimatiche.	
Phenotypic	Phenotypic characterization of essential features common to the material:	Caratteristiche descrittive (6) Se il materiale è omogeneo per un carattere, indicare il livello di espressione del carattere. In caso contrario, indicare se possibile l'intervallo di variazione o la proporzione nelle diverse tipologie.	Descrizione dei caratteri del materiale, delle caratteristiche comuni e dell'eterogeneità	A description of the population's characteristics, including—(ii) whether it is selfpollinating; (vi) disease resistance; (vii) taste or colour; and (viii) any other characteristic which the applicant regards as relevant. * Results of any experimental trials concerning the characteristics specified, outlined in the previous section
Heterogeneity	Degree of heterogeneity			(i) the degree of heterogeneity;

Notifications #4

Topic	DE	IT	FR	UK
Agronomic value	9.4 Documentation of relevant traits including agronomic aspects (e.g. yield, yield stability, suitability for extensive management, direction of use, performance, resistance to abiotic stress, disease resistance, quality, taste or color):	Valore agronomico (7) Valore di utilizzazione (8)	Valore agronomico e di utilizzazione	(iii) yield, yield stability and quality; (iv) performance;
Organic condition			Condizioni favorevoli alla coltivazione e all'uso di questo materiale biologico eterogeneo (FACOLTATIVO)	(v) usability in lowinput agriculture;
Period of production	indication of the year of production			
Amount of seed to be marketed				Quantity of seed intended to be marketed during the period of participation in the experiment

Tools to collect data for notifications

SHiNeMaS

Breeding data

Seedlinked

Phenotypic observation

EU Router DB

organic seed databases

OHM-Track

Interoperability and seed producers data

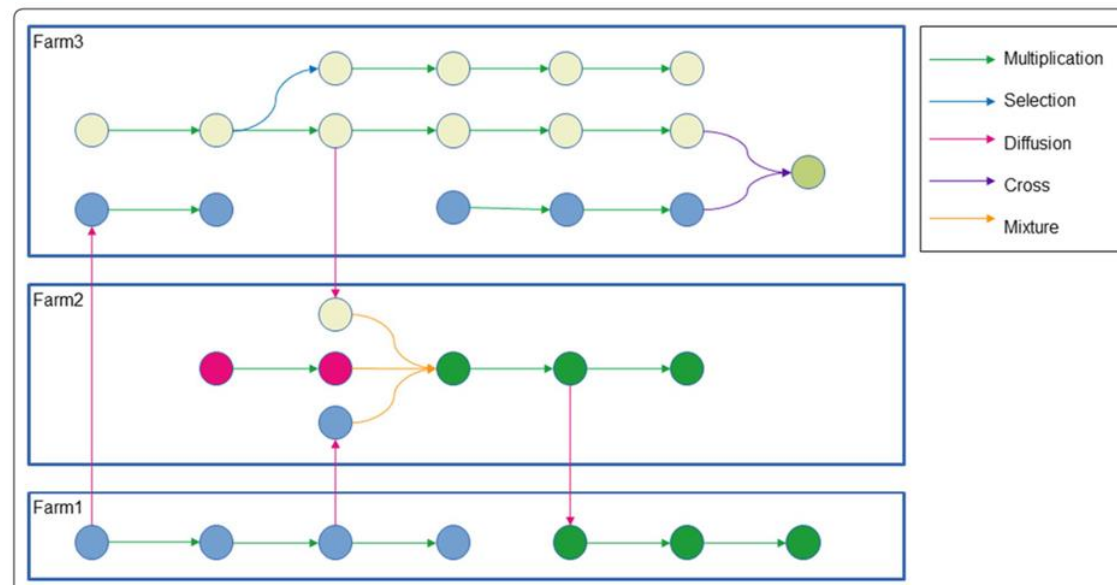
General data

Country	Italy
Requester	Questa è la mia org!
Request Date	2023-11-09
Status	Draft
Specie	Cicer arietinum L.
OHM name	Cece Ascolao - germplasm Cece Bianco #line A12

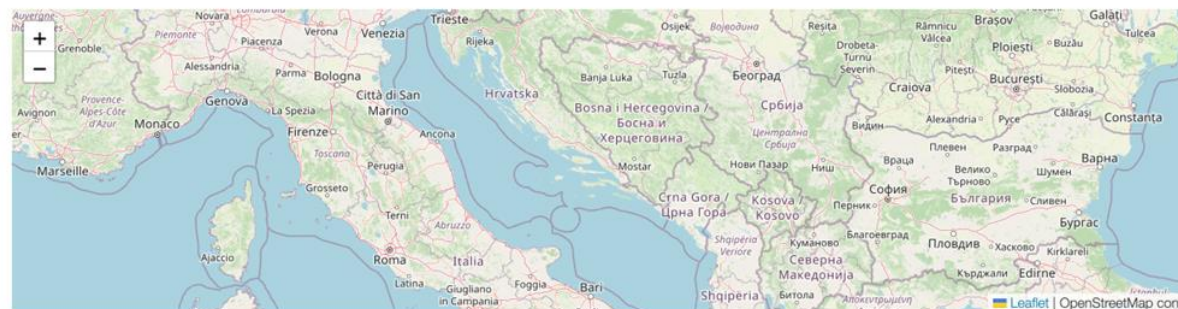
Phenotypic observation

height	★★★★★
yield	★★★★☆
resistance	★★★★★
quality	★★★★☆

Pedigree



Breeding locations





OHM-Track

Access the demo



<https://ohmtrack.aedit.it>

OHM-Track - objective

- support Breeder, Seed Producers, Seed traders and Authority in the traceability of the OHM
- Trace the seed lots exchange between different organisations
- Facilitate the notification of the OHM

OHM-Track

The OHM-track **will not be** used for:

- Take track of the breeding activities (crossing, mixture, selection) -> SHiNeMaS
- Manage the field trials -> Seedlinked
- Keep track of the organic seed availability -> European Router DB

We are exchanging data with the other tools

Current Status

- The website has been published and presented to the users
- We have currently receiving feedbacks from users to improve the systems
- We are testing with the organisation that participates to Liveseeding but we are open to open ti to other organisations
- New functions will be delivered in the next months

OHMTrack

LIVESEEDING tool for OHMs traceability

Home

OHMTrack



Please, login to access the system.

Login

OHMTRACK

Sign in to your account

Username or email

guidotti@aedit

Password

.....

Sign In

Or sign in with



Google

New user? [Register](#)

If you have not the login you can:

- If you have google account you can use it (you will not need to remember a password)
- Otherwise click on register to create a new user

At the moment I did not ask to verify the password to have less barrier for testing

OHMTrack

LIVESEEDING tool for OHMs traceability

Home

OHMTrack



Dear test7@aedit.it, welcome to OHMTrack. Please, setup the system.

What is your role?

Breeder

Are you interested in breed an OHM?



Farmer/Producers

Are you interested in propagate OHM?



Dealer

Are you interested in selling OHM?



Authority

Are you interested in monitoring the OHM market?



What is your organisation?

NEW SEED s.r.l.

Save

OHMTrack

LIVESEEDING tool for OHMs traceability

[Home](#)[Shinemass Demo](#)

OHMTrack - NEW SEED s.r.l.

Add a new location

Name

Seed Bank



Short Name

HOME_NEWSEED



Location Type

Seed-Bank



Latitude

44.43463091034144

Longitude

11.68259604805055

double click on the map to set the location



Save

OHMTrack

LIVESEEDING tool for OHMs traceability

[Home](#)[Shinemass Demo](#)

OHMTrack - NEW SEED s.r.l.



There is no germplasm in the system. Please, add a new one.

Germplasm Type

OHM



Name

EVOLDUR_NEWSEED



Specie

Triticum durum Desf.



Add germplasm

OHMTrack

LIVESEEDING tool for OHMs traceability

[Home](#)[Shinemass Demo](#)

OHMTrack - NEW SEED s.r.l.

Add a new seedlot

Location

Seed Bank ✓

Date

2020 ▼

March ▼

8 ▼

Germplasm

14-EVOLDUR_NEWSEED ✓

Quantity

1200 ✓

Comments

New Entrance! ✓

Save

OHMTrack

LIVESEEDING tool for OHMs traceability

Home

Shinemass Demo

OHMTrack - NEW SEED s.r.l.

Seedlots for Germplasm 14 - EVOLDUR_NEWSEED

14_HOME_NEWS_20200308_0001
Germplasm - 14 1,200

Seed availability

Available in Warehouse: 1,200

Available in Farm: -

Maps of the Locations



Seedlot info



Seedlot: 14_HOME_NEWS_20200308_0001 -

Location: Seed Bank - seedbank

Date: 2020-03-08

Initial Quantity: 1200

Transferred to other lots: null

Available Quantity: 1200

Diffuse - transfer the seed to another location

Reproduce - Seed & Harvest

Germplasm - 14

1,200

Maps of the Locations



Seedlot info



Seedlot: 14_HOME_NEWS_20200308_0001 -

Location: Seed Bank - seedbank

Date: 2020-03-08

Initial Quantity: 1200

Transferred to other lots: null

Available Quantity: 1200

Diffuse - transfer the seed to another location

Reproduce - Seed & Harvest

Location

FarmA



Date

2020



Month



day



Quantity

1200

Splitted

No



Save

OHMTrack

LIVESEEDING tool for OHMs traceability

[Home](#)[Shinemass Demo](#)

OHMTrack - NEW SEED s.r.l.

Seedlots for Germplasm 14 - EVOLDUR_NEWSEED



Seed availability

Available in Warehouse: -

Available in Farm: 1,600

Maps of the Locations



OHMTrack

LIVESEEDING tool for OHMs traceability

[Home](#)[Shinemass Demo](#)

OHMTrack - NEW SEED s.r.l.

Seedlots for Germplasm 14 - EVOLDUR_NEWSEED



Seed availability

Available in Warehouse: -

Available in Farm: 21,234

Maps of the Locations



OHMTrack

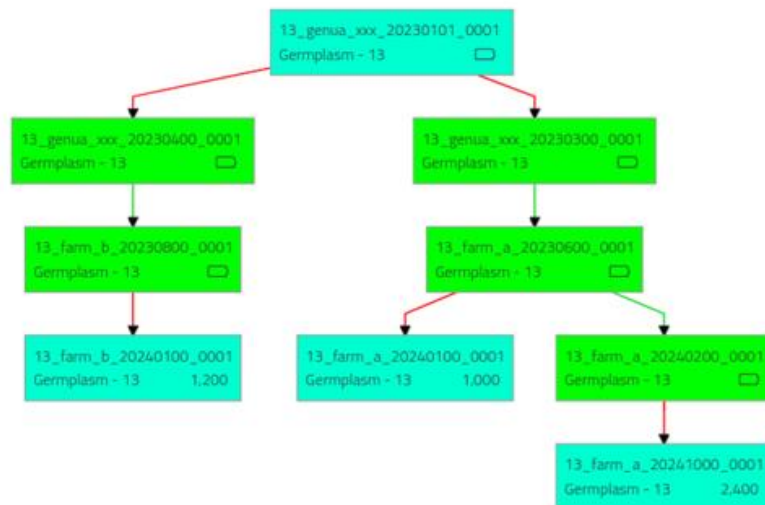
LIVESEEDING tool for OHMs traceability

Home

Shinemass Demo

OHMTrack - My Great Seed Farm

Seedlots for Germplasm 13 - Diego OHM



Seed availability

Available in Warehouse: 4,600

Available in Farm: -

Maps of the Locations





Interoperability



What is interoperability

Make digital tools
communicate with
each others
automatically



Why Interoperability

- Data already are managed by existing softwares
- User cannot re-enter the same data in different tools
- Traceability works if are able to share the data across different organisations

What do we need to be interoperable

- Have a way to exchange the data (using documented APIs
 - Application programming Interface)
- Share the same language
- Have a common vocabulary
 - Specie/Crop
 - Germplasm
 - Accession
 - Seed lot

Example of Tools - BRAPI: the language

<https://brapi.org/>

- A standards to exchange Breeding data
- Do not reinvent the wheel
- Already used by several softwares

Can be used to share data about Germplasm, Organisations, Seed Lots, and Phenotyping

Example of Tools - CPVO Variety Finder

<https://online.plantvarieties.eu/>

A plant variety registration repository

Vocabulary of Plant Species and Crops (UPOV code)

Accessible by API

Global Information System for PGRFA

<https://glis.fao.org/glis/>

Tools to support PGRFA - International Treaty on Plant Genetic Resources for Food and Agriculture

Provide tools to:

- Generate a global unique code for a seed lot (DOI)
- Share plant passport data
- Register also Genetic Material Transfer Agreement (Easy-SMTA)

Not all seed lots need to be registered but for important lots (e.g. seed lots of notified OHM) may be good practices to register to have a unique identification

Thank you

For any doubts or
suggestion contact me at
guidotti@aedit.it

Quiz

Are you ready to see how well you've understood the main points?

 *Take a few minutes to complete the short quiz for this unit before moving on → Link:*
<https://forms.gle/57AcazkvRvkWWHhx7>



If you have any questions for the lecturer, please contact him at the following email address: diego.guidotti@gmail.com

Contributions



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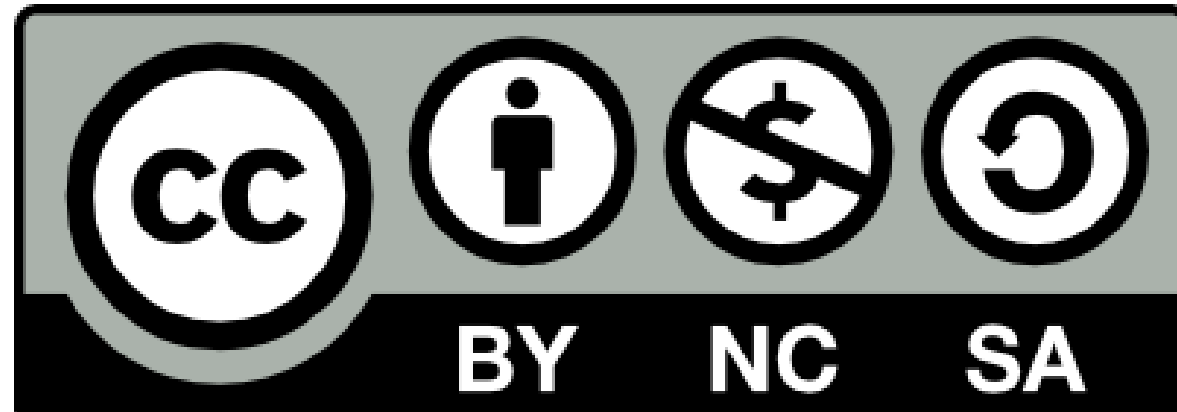
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Thanks for your attention!

