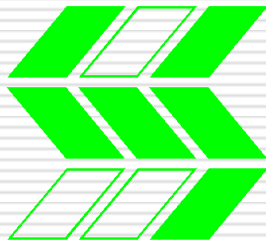


Tirana, May 19th. - 21st. 2015

SLOVENE PLANT GENE BANK AND GENETIC RESOURCES PROGRAMME

Lovro Sinkovič



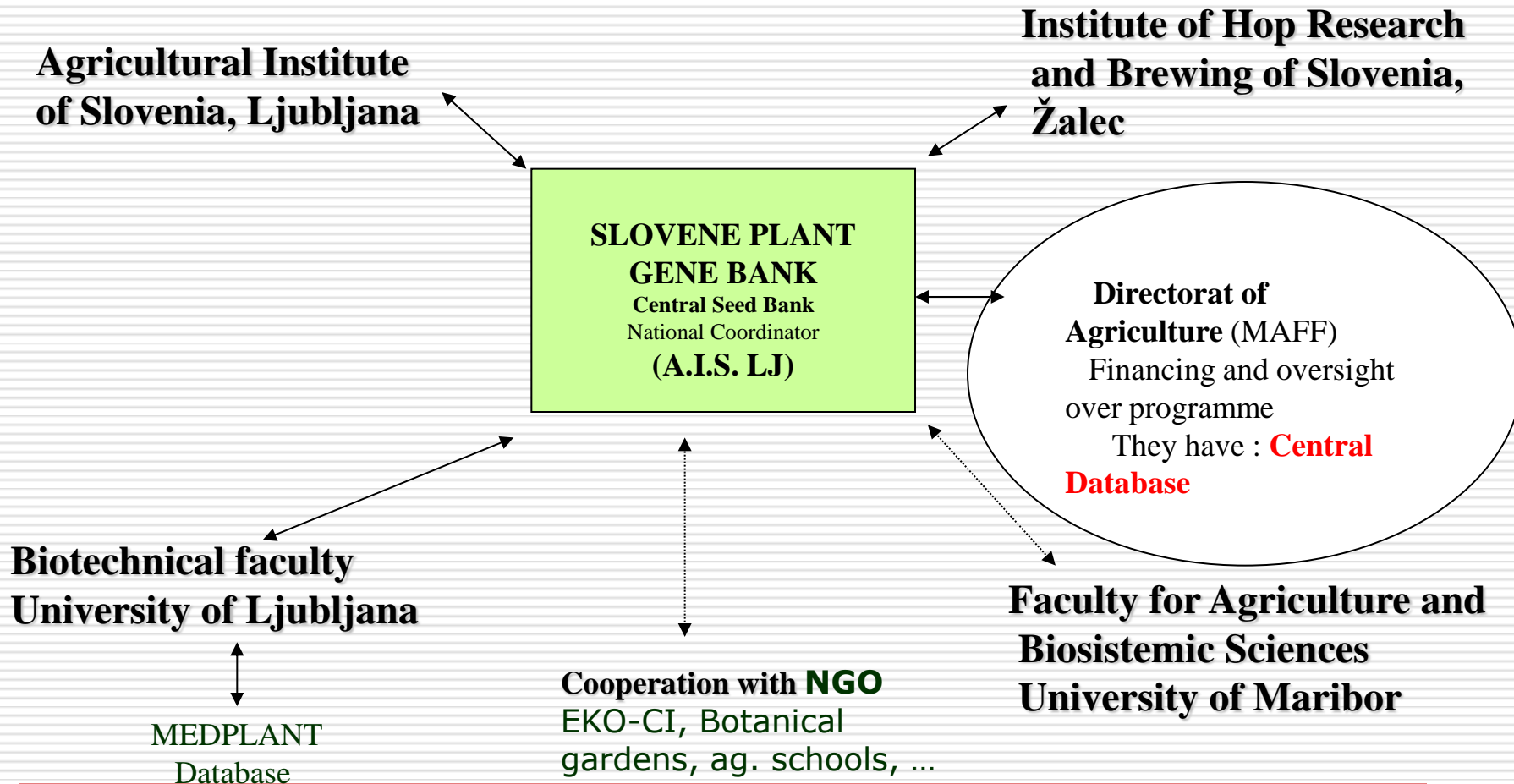
Kmetijski inštitut Slovenije
Agricultural Institute of Slovenia
Hacquetova 17, 1000 Ljubljana

SPGR Programme

- Early projects to collect Slovenian autochthonous populations, ecotypes and landraces of agricultural species were initiated about 40 years ago.
- In 1996 the **MAFF** Ministry of Agriculture, Forestry and Food started financing the **Slovene Plant Genetic Resources Programme** with *the goal to maintain, evaluate, regenerate and preserve Slovenian autochthonous species, ecotypes, populations and landraces of agricultural, medicinal and aromatic plants*. They include Slovenian cultivars, old cultivars, landraces, various populations, clones and lines bred from autochthonous plants and ecotypes from the natural habitat important for food and agriculture.



Organisational chart



Responsability

Agricultural Institute of Slovenia, Ljubljana

Grain legumes, Allium, Solanum, Triticum, Brassica, Lactuca, forage and fodder crops,
Rubus, Vitis, fruit trees

Biotechnical faculty, Agronomy Dept., University of Ljubljana

Fagopyrum, Zea mays, fruit trees, forage crops, medicinal and aromatic plants

Faculty for Agriculture, University of Maribor

Prunus, Vitis, Rubus

Institute for Hop Research and Brewery, Žalec

Humulus, medicinal and aromatic plants

Institution	Species	Number of accessions
KIS	all	3203
UNI LJ BF	all	1635
UNI MB FKBV	all	346
IHPS	all	143
	SUM	5327



Agricultural crop	Species	Number of accessions	Agricultural crop	Species	Number of accessions
Zrnate stročnice	Phaseolus spp.	1116	Vinska trta (kloni lastnih selekcij)	Vitis	39 (Ivanjkovci, Vrhpolje)
	Vicia faba	41			50 (Amp. vrt BF - Kromberk pri N.G.)
	ostale	7			
	Skupaj	1164	Vinska trta (stare sorte)	Vitis	
Krmne rastline	Trifolium sp.	216		Skupaj	89
	Medicago sp.	43	Jablana	Malus sp.	245 (na Brdu)
	Vicia sp.	42	Jagoda	Fragaria sp.	56 (na Brdu)
	Lotus sp.	35		Skupaj	301
	Lolium sp.	31	Malina	Rubus sp.	29 (na Brdu)
	Festuca sp.	102	Robida	Rubus sp.	7 (na Brdu)
	Dactylis	116	Črni ribez	Ribes sp.	53 (na Brdu)
	Phleum	45	Rdeči ribez	Ribes sp.	13 (na Brdu)
	Travniške zeli	112	Beli ribez	Ribes sp.	6 (na Brdu)
	ostale	242	Kosmulja	Ribes sp.	12 (na Brdu)
		Skupaj	984	Ameriška borovnica	Vaccinium corymbosum
Poljščine	Zea mays	13	Bрусnica	Vaccinium macrocarpon	2 (na Brdu)
	Triticum	6			Skupaj
	Secale	12		SKUPAJ	3203
	Papaver	26			
	Panicum	15			
	ostale	63			
	Skupaj	135			
Zelenjadnice	Lactuca sp.	227			
	Allium cepa	31			
	Brassica oleracea	11			
	Diplotaxis spp.	18			
	ostale (Cichorium, Valerianella, Solanum Lyc.)	16			
	Skupaj	303			
Krompir Druge vrste krompirja	Solanum tuberosum L.	34			
	Solanum sp.	18			
	Solanum sp. diploidne populacije	14			
		Skupaj	66		

Genetic resources are distributed to several collections:
Grain legumes, forage crops, field crops, vegetables, vines and fruit species



Agricultural crop	Species	Number of accessions
Navadna ajda	Fagopyrum esculentum	391
Tatarska ajda	Fagopyrum tataricum	15
Divja homostilna ajda	Fagopyrum sp.	5
Primitivna pšenica iz Črne gore	Triticum sp.	60
	Skupaj	471
Jablana	Malus domestica	119
Hruška	Pyrus communis	44
Oreh	Juglans regia	10
	Skupaj	173
Koruza	Zea mays	611
Pšenica	Triticum aestivum	2
Pšenica	Triticum turanicum	1
Oves	Avena sp.	5
Rž	Secale cereale	3
Ajda	Fagopyrum esculentum	2
Ječmen	Hordeum vulgare	1
Pira	Triticum spelta	1
Tritikala	× Triticosecale	1
Lan	Linum usitatissimum	1
Proso	Panicum milliaceum	1
Tobak	Nicotiana tabacum	1
Fižol	Phaseolus vulgaris	2
Buče	Cucurbita sp.	4
	Skupaj	636

Agricultural crop	Species	Number of accessions	
Krmne rastline	Arrhenatherum elatius	2	
	Dactylis glomerata	13	
	Holcus lanatus	5	
	Lolium multiflorum	13	
	Lolium perenne	53	
	Phleum pratense	1	
	Poa pratensis	1	
	Lotus corniculatus	16	
	Medicago lupulina	1	
	Medicago sativa	15	
	Trifolium dubium	1	
	Trifolium hybridum	1	
	Trifolium pratense	52	
	Trifolium repens	23	
Fagopyrum esculentum	3		
	Skupaj	200	
Zdravilne in aromatične rastline	Achillea millefolium L.	15	
	Hypericum perforatum L.	10	
	Origanum vulgare L.	10	
	Satureja montana	7	
	Gentiana lutea	3	
	ostal vrste	110	
		Skupaj	155
		SKUPAJ	1635



SRGB

FKBV UNIMB

Inventory 1/2015

Agricultural crop	Species	Number of accessions
Koščičarji	<i>Prunus domestica</i>	48
Vinska trta	<i>Vitis vinifera</i>	288
Jagodičevje	<i>Rubus idaeus</i>	10
	SKUPAJ	346

SRGB

IHPS

Inventory 1/2015

Agricultural crop	Species	Number of accessions
Zdravilne rastline	<i>Acorus calamus</i>	11
	<i>Salvia officinalis</i>	2
	<i>Arnica montana</i>	2
	<i>Valeriana officinalis</i>	3
	Skupaj	18
Hmelj	<i>Humulus Lupulus</i>	125
	SKUPAJ	143



Documentation of SPGB

Content is divided in five fields:

active **Multicrop passport descriptors** - (EURISCO
in NI) DB maintained by MAFF

next step **Additional passport descriptors**

next step **Characterization**

next step **Evaluation**

active **CPGB holdings** – each Institution has own
registry



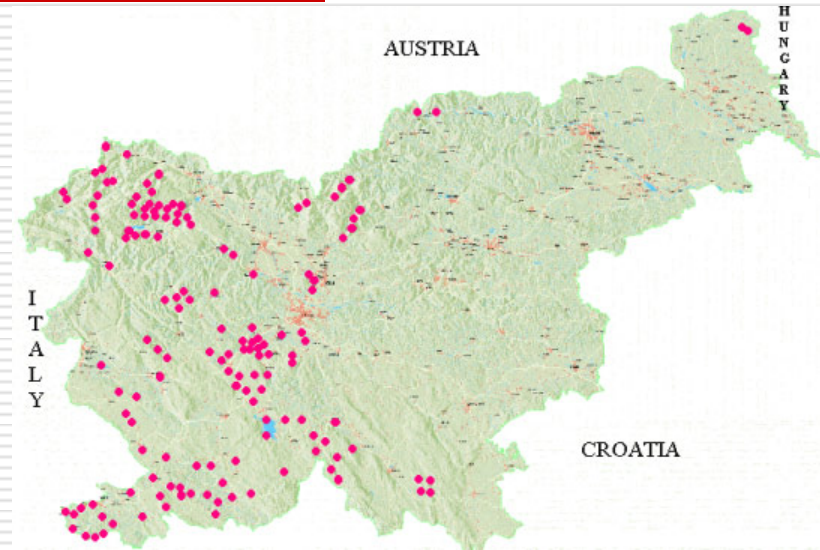
Collecting

Priority:

Wild relatives of cultivated crops

Landraces and populations

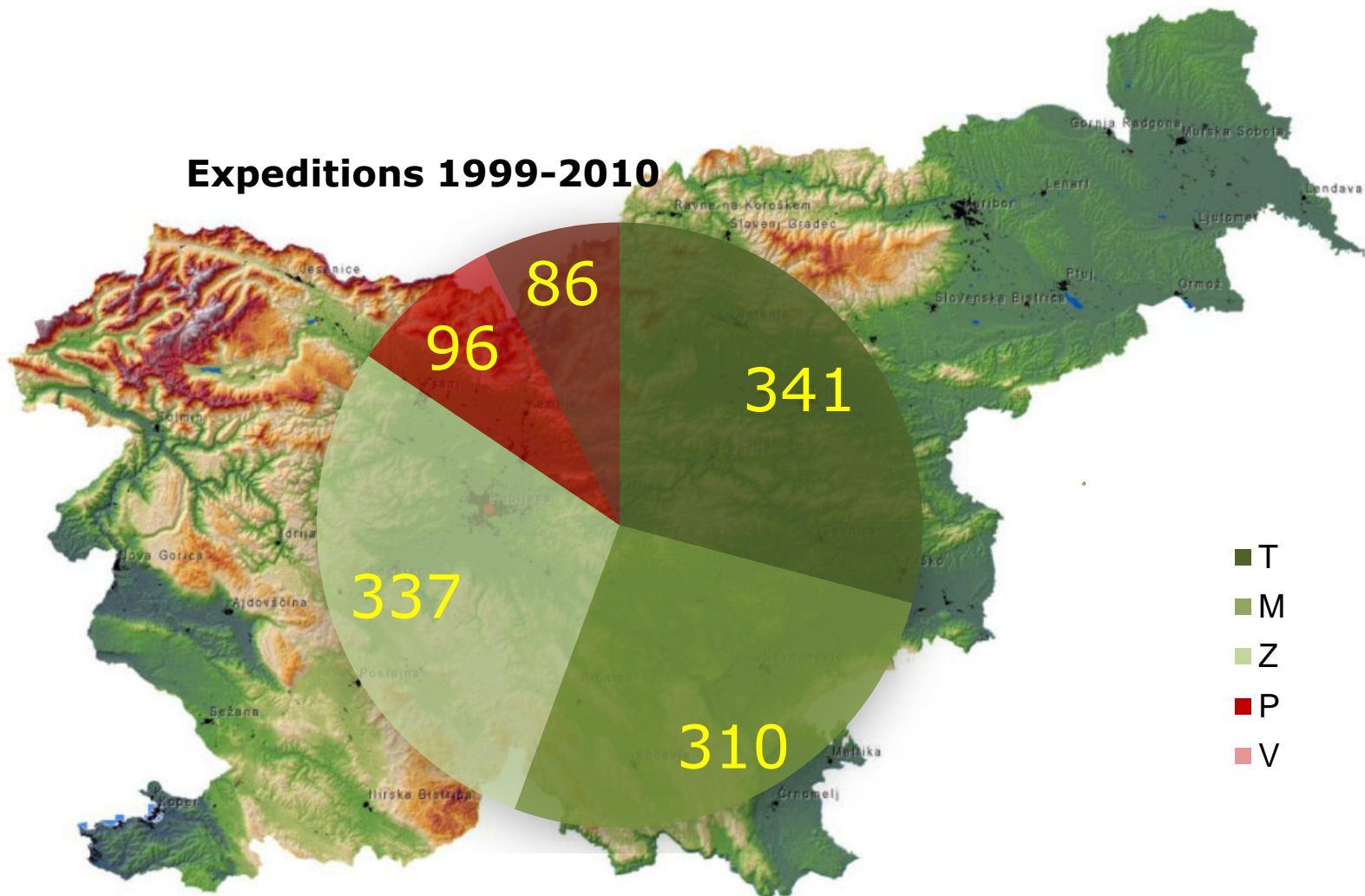
Old cultivars



Collecting was organized through: Expeditions throughout Slovenia
Bilateral and multilateral projects (CZ, SVK, HUN, CRO, SEEDNET, ...)
Donations and exchanges, Schools, adds,



Expeditions 1999-2010



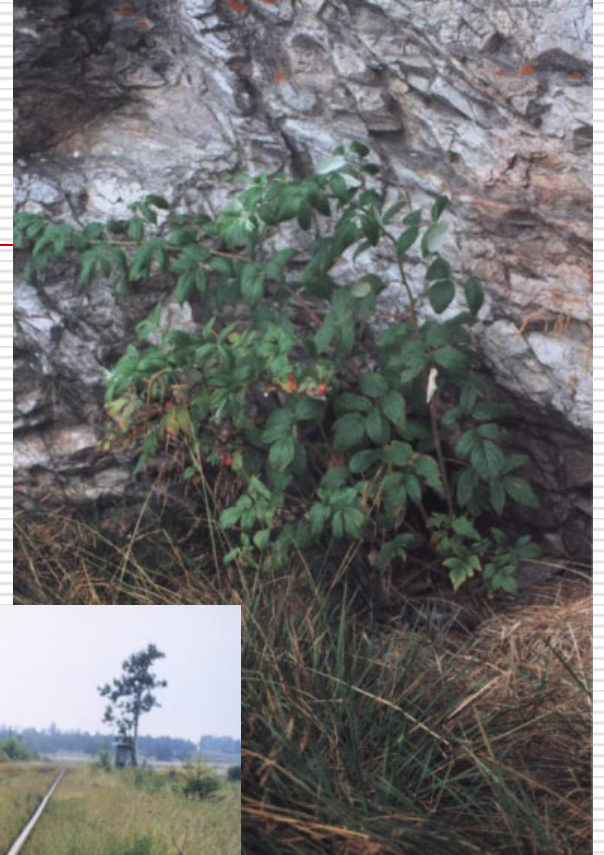


Diversity of collecting sites, use...





Some examples
of collecting







There was carried out informations on different:
1. Production methods





2. Ways of harvesting, drying, processing





3. Traditional dishes and home-made products



Multiplication of collected samples is performed in the:

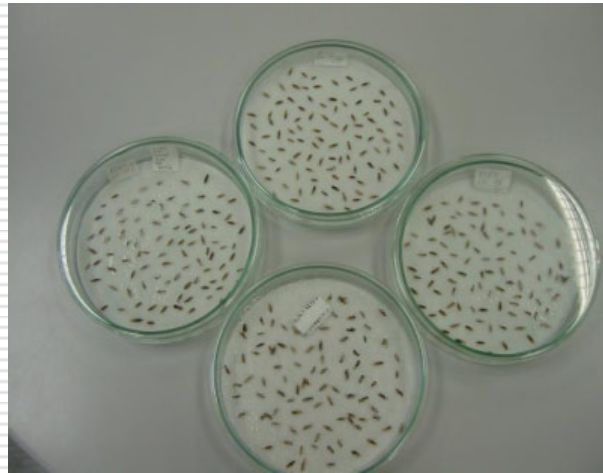
field, screenhouses, greenhouses and *in vitro*



Conservation – seed quality

For conservation purposes we checked seed quality in the ISTA accredited LAB with several descriptors:

- **Germination**
- **Moisture content**
- **Seed purity**



Storage methods

Depends on plant species – form of seeds or as a clone material (*ex situ*, *in situ* and *in vitro*):

- Between 500 and 1000 seeds/accessions stored in aluminum bags or glass jars at + 4 °C in working collections.
- Basic collection (long term storage at -20°C) is located at the Agricultural Institute of Slovenia
- Accessions are also kept in '*in vitro*' conditions and '*in vivo*' in permanent plantations for hops, fruit, grapevine and some species of medicinal and aromatic plants.



Characterization and evaluation

For all genetic resources we have fulfield MCPD with general informations (place, date, location,...)

Descriptors **EURISCO**

Multi Crop Passport

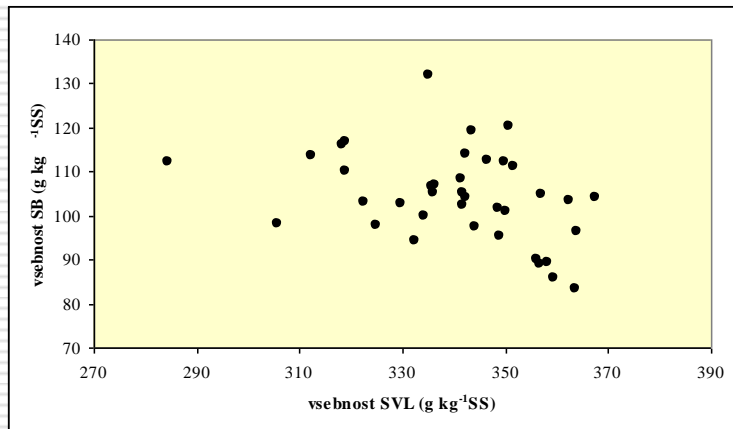
Descriptors (MCPD)

For some genetic resources we have further C&E based on

Specific descriptors for individual species



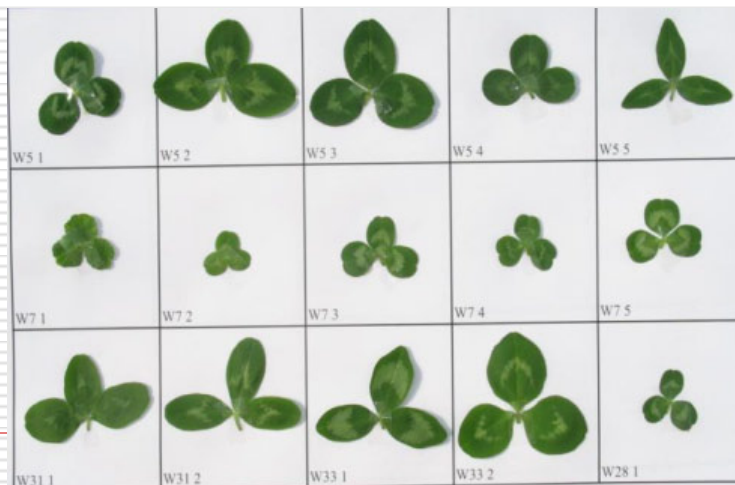
Characterization and evaluation examples



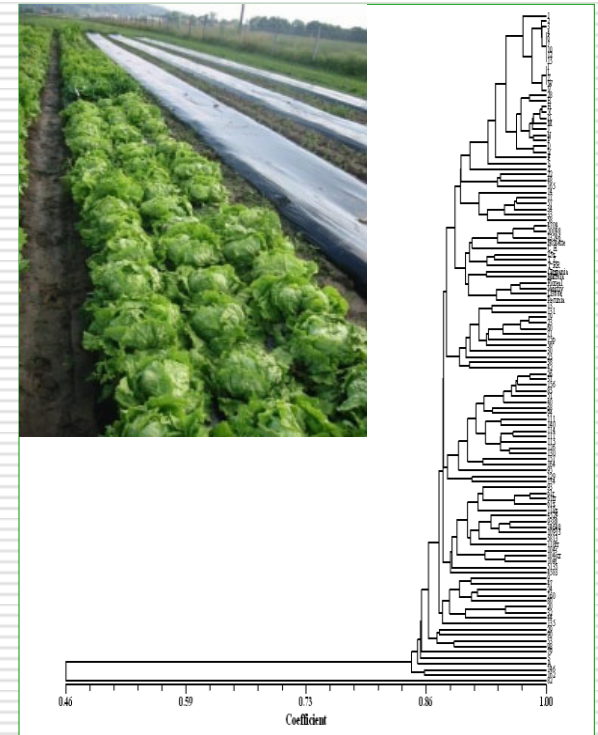
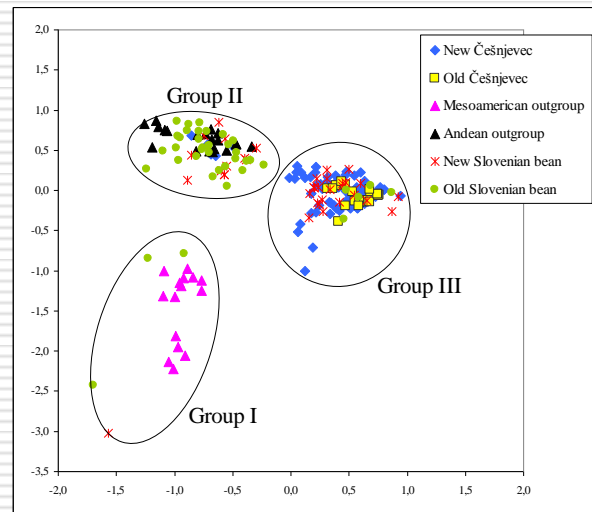
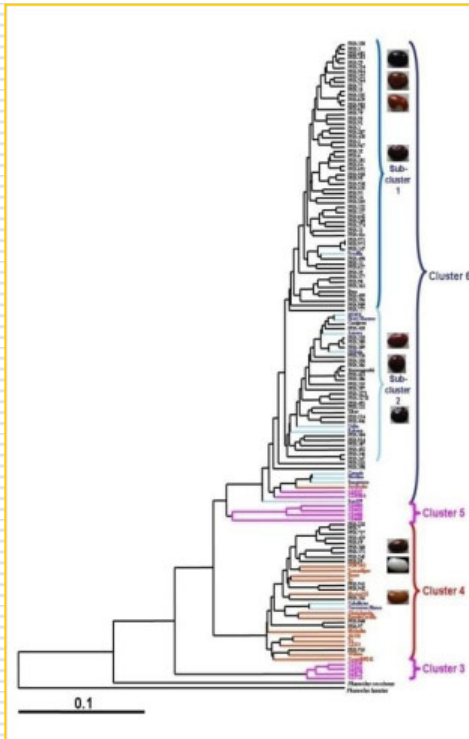
Characterisation and evaluation:
-Chemical analysis of 38 ecotypes of *Dactylis glomerata* L.

-Characterisation of 21 red clover ecotypes (morph., quality (NIR)).

-Characterisation of 17 *Medicago falcata* ecotypes (morph., quality (NIR)).

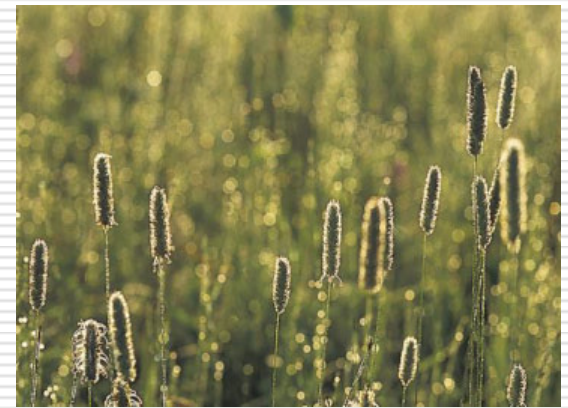
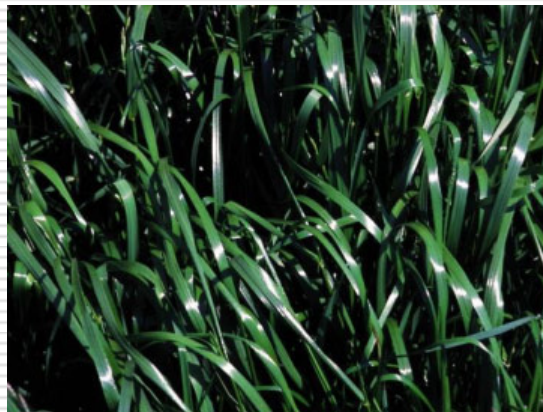
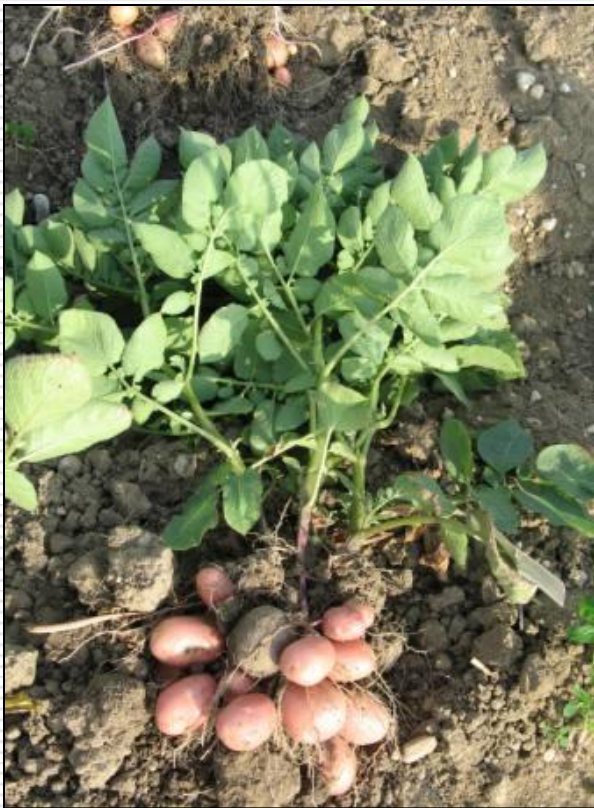


There were performed some Diversity studies using molecular markers



GR from genebank are used for Breeding programme

Focused on potatoes, grasses, cloves and legumes (especially beans)



The GR are as well returned for Immediate use on farms,



**And thank
you for your
attention!**

