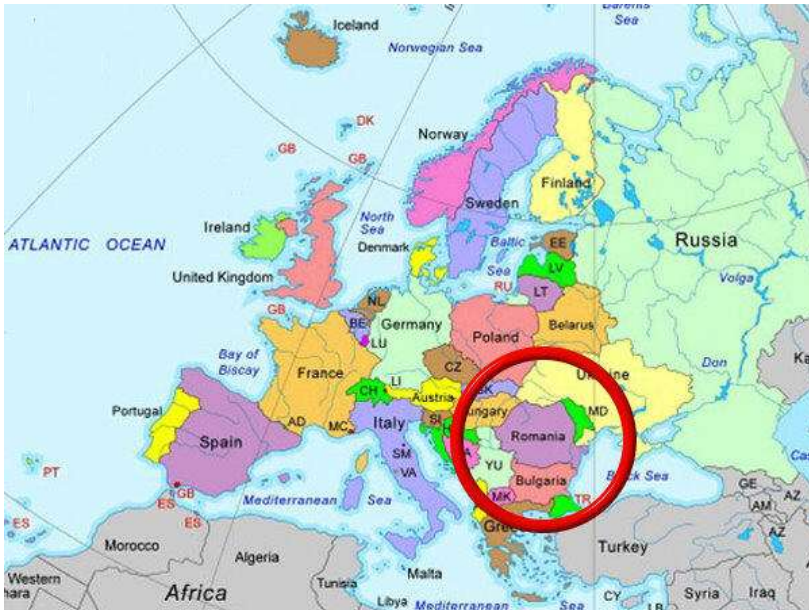


# ***STATE OF ART ON GRAIN LEGUMES ROMANIAN NATIONAL COLLECTION - Lathyrus collection -***



***Grain legumes Working group meeting on ECPGR activity  
Bucharest, 10-11 April 2019***

***Diana Batîr  
Suceava Genebank, Romania***

# Ex situ of grain legumes conservation in Suceava Genebank

**3420** accessions kept in two types of collections: base, active.

Number of accessions: 3420 from our country  
Number of species: 23  
Number of accessions in active collection: 3420  
Number of accessions in base collection: 1355  
Number of accessions in EURISCO: 6075 from 28 species

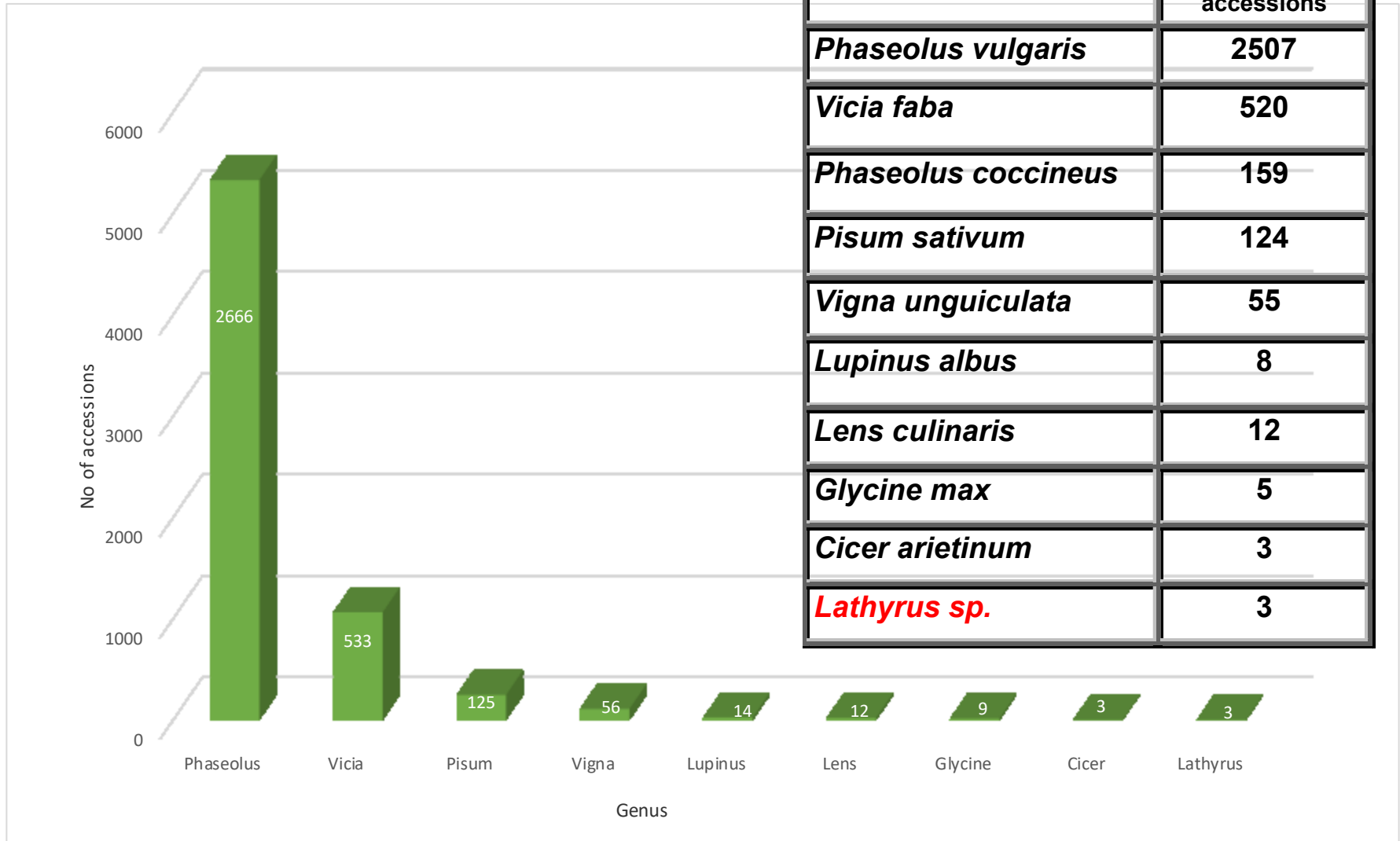
← the base collection (-20°C) contains **1355** accessions under long-term storage conditions, from 13 species;

the active collection (+4°C) contains **3420** accessions under medium-term storage conditions, from 28 species.



# Structure of grain legumes collection conserved in Suceava Genebank

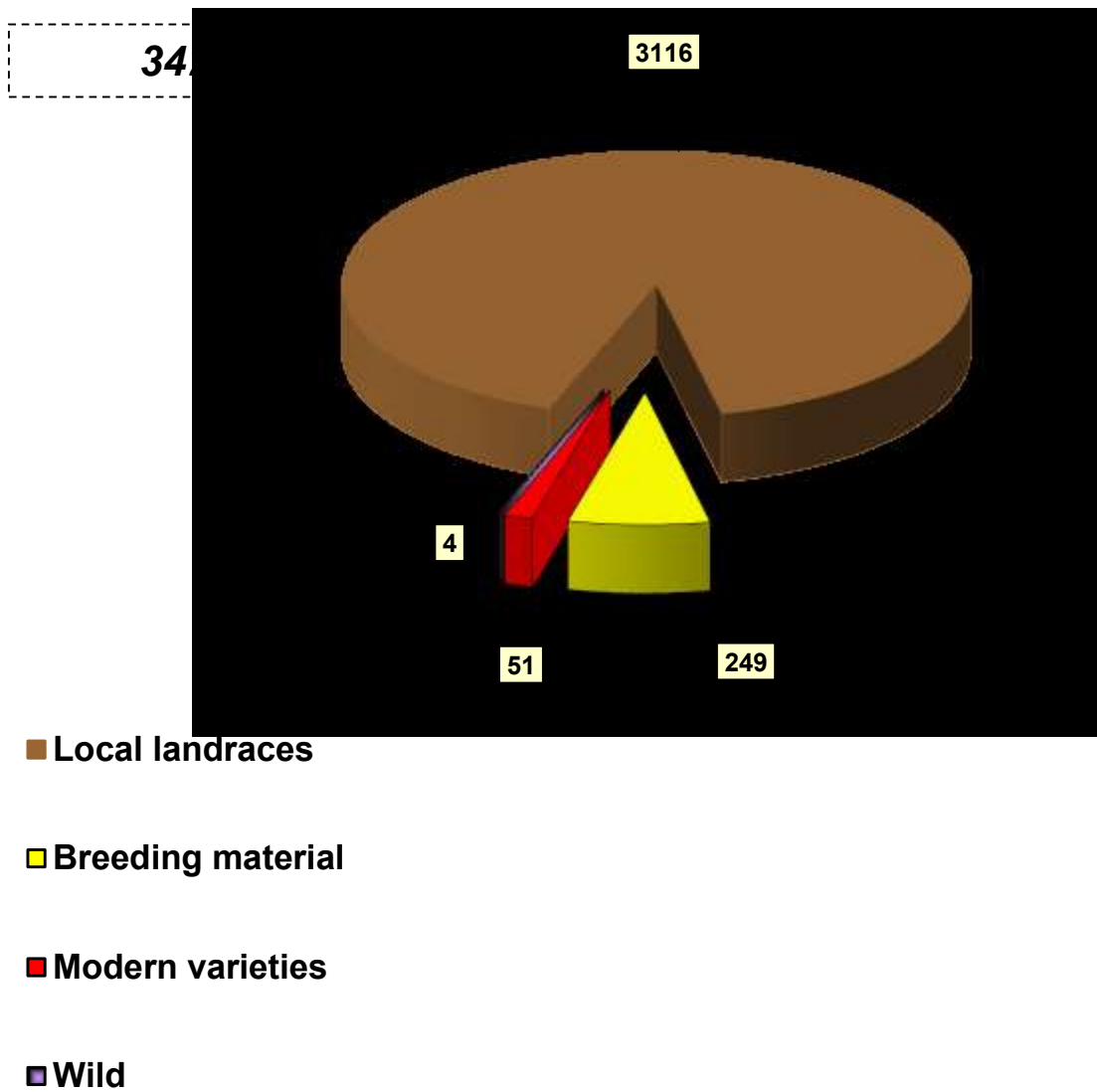
- Suceava Genebank holds 3420 grain legumes accessions in active collections distributed on genus as:



Species	No. of accessions
<i>Phaseolus vulgaris</i>	2507
<i>Vicia faba</i>	520
<i>Phaseolus coccineus</i>	159
<i>Pisum sativum</i>	124
<i>Vigna unguiculata</i>	55
<i>Lupinus albus</i>	8
<i>Lens culinaris</i>	12
<i>Glycine max</i>	5
<i>Cicer arietinum</i>	3
<i>Lathyrus sp.</i>	3

# Inventory of biological status of grain legumes accessions from the active collection in Suceava Genebank

Status of samples	Number of accessions
Local landraces (traditional varieties)	3116
Breeding material	249
Modern varieties	51
Wild	4



# Documentation of Grain legumes collection

## National collection database

Passport data - 6075 accessions

Genebank collection database - 3420 accessions (68 accessions in AEGIS)

Passport data / Conservation data

The screenshot shows a web-based form for entering passport data for grain legume accessions. The form includes several sections:

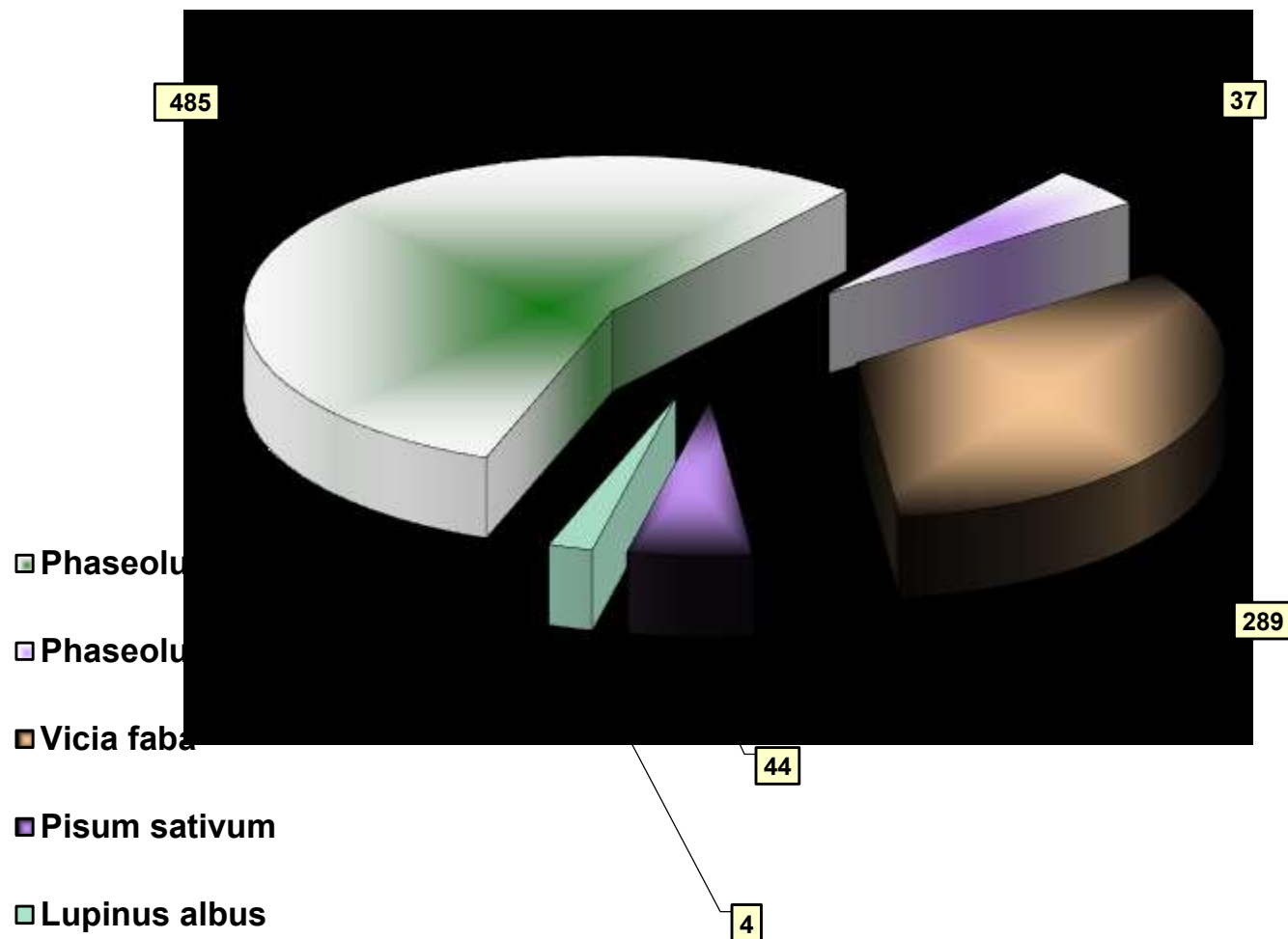
- Accession information:** Fields for 'Accession number', 'Number of seeds', and 'Date of entry / Date collected'.
- Species and variety:** Fields for 'Species' and 'Variety / Cultivar'.
- Origin and collection:** Fields for 'Local collection / origin' and 'Institution / collector'.
- Plant characteristics:** Fields for 'Plant height', 'Seed shape', 'Seed color', and 'Seed texture'.
- Storage and handling:** Fields for 'Storage conditions' and 'Special requirements'.
- Additional information:** A 'Remarks' field for any other notes.

The screenshot shows a spreadsheet with columns for accession ID, accession number, species, variety, origin, and other details. The data is organized into a table with the following columns:

ACCESION	ACCESION NUMBER	GENUS	SPECIES	VARIETY	ORIGIN	COUNTRY	COLLECTOR	DATE	TYPE	STATUS	LOCATION	OTHER
1	3104-0129	Vicia	vicia	L. vicia sativa	Italy	Italy			1980	1980	1980	
2	3104-0130	Vicia	vicia	L. vicia sativa var. minor	France / Italy	France			1980	1980	1980	
3	3104-0131	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
4	3104-0132	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
5	3104-0133	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
6	3104-0134	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
7	3104-0135	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
8	3104-0136	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
9	3104-0137	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
10	3104-0138	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
11	3104-0139	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
12	3104-0140	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
13	3104-0141	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
14	3104-0142	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
15	3104-0143	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
16	3104-0144	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
17	3104-0145	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
18	3104-0146	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
19	3104-0147	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
20	3104-0148	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
21	3104-0149	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
22	3104-0150	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
23	3104-0151	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
24	3104-0152	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
25	3104-0153	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
26	3104-0154	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
27	3104-0155	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
28	3104-0156	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
29	3104-0157	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
30	3104-0158	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
31	3104-0159	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
32	3104-0160	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
33	3104-0161	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
34	3104-0162	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
35	3104-0163	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
36	3104-0164	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
37	3104-0165	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
38	3104-0166	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
39	3104-0167	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
40	3104-0168	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
41	3104-0169	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
42	3104-0170	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
43	3104-0171	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
44	3104-0172	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
45	3104-0173	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
46	3104-0174	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
47	3104-0175	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
48	3104-0176	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
49	3104-0177	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
50	3104-0178	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
51	3104-0179	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
52	3104-0180	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
53	3104-0181	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
54	3104-0182	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
55	3104-0183	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
56	3104-0184	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
57	3104-0185	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
58	3104-0186	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
59	3104-0187	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
60	3104-0188	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
61	3104-0189	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
62	3104-0190	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
63	3104-0191	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
64	3104-0192	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
65	3104-0193	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
66	3104-0194	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
67	3104-0195	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
68	3104-0196	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
69	3104-0197	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
70	3104-0198	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
71	3104-0199	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	
72	3104-0200	Vicia	vicia	L. vicia sativa var. major	France	France			1980	1980	1980	

# Morphological and physiological characterization

Species	No. of accessions
<i>Phaseolus vulgaris</i>	485
<i>Vicia faba</i>	289
<i>Phaseolus coccineus</i>	37
<i>Pisum sativum</i>	44
<i>Lupinus albus</i>	4



# Morphological and physiological characterization

Evaluare morfologica si fiziologica Vicia - SVGB-15805 Vicia faba DEIA ROM Suceava, Frumosu, Deia

Numar de acces:

Data semanatului:

Data inceputului infloririi:

Data sfarsitului infloririi:

Data maturitatii:

Inaltimea plantei [cm]:

Numar de lastari:

Numar de frunze:

Numar de flori:

Inaltimea de insertie a primei pastai [cm]:

Forma pastaii:

Lungimea pastaii [cm]:

Latimea pastaii [cm]:

Numar de pastai:

Forma bobului:

Lungimea bobului [mm]:

Latimea bobului [mm]:

Numar de boabe pe pastaie:

Numar de ovule pe pastaie:

Numar de boabe pe planta:

Masa boabelor pe planta [g]:

Masa a 1000 boabe [g]:

Rezistenta la Mycosphaerella pinodes [%]:  ▾

Rezistenta la Alternaria tenuis [%]:  ▾

Rezistenta la Uromyces [%]:  ▾

Rezistenta la Aphis [%]:  ▾



Rezistenta la Bruchus [%]:  ▾

Rezistenta la Botrytis fabae [%]:  ▾

Anul evaluarii:

Cod de depozit:

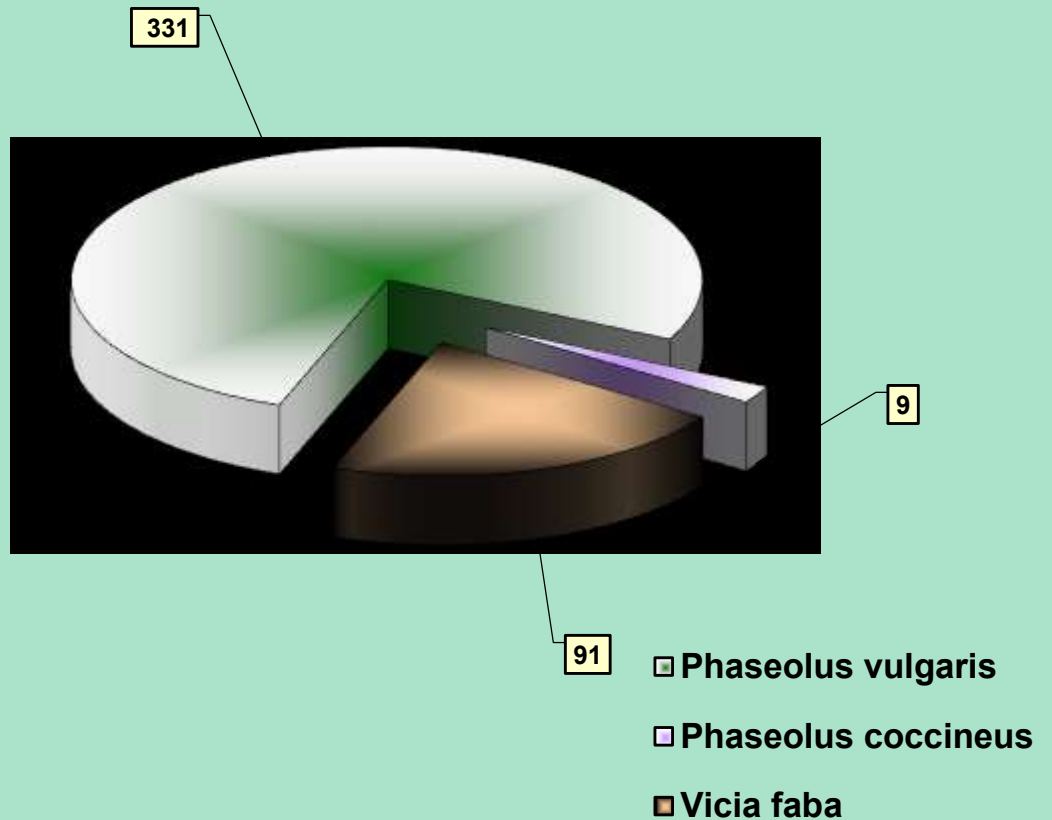
Numar de multiplicari:



+ - # < < > > [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

# Biochemical characterization

Species	No. of accessions
<i>Phaseolus vulgaris</i>	331
<i>Vicia faba</i>	91
<i>Phaseolus coccineus</i>	9

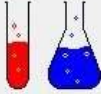




# Biochemical characterization

Evaluare biochimica - Phaseolus

SVGB-15492 ; Phaseolus vulgaris ; POIANA CRISTEII ; ROM - Vrancea, Dumbrava, Poiana Cristei



## Phaseolus

Numar de acces:

Continut in proteina [% s.u.]:

Continut in aminoacizi (ALT) [% s.u.]:

Timp de fierbere [minute]:

Anul evaluarii:

Cod de depozit:

Numar de multiplicari:

+ X # < < > > [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

# Grain legumes samples multiplied in experimental field



*Cicer arietinum*



*Lens culinaris*



*Glycine max*



*Lathyrus sp.*



*Vigna unguiculata /Lathyrus sp./ Cicer arietinum*



*Vicia faba*



*Pisum sativum*



*Phaseolus vulgaris*



*Lupinus* sp.

## ***Summary of Grain legumes collection***

<b>Specia</b>	<b>ORIGIN COUNTRY</b>	<b>Total no. of accessions</b>	<b>AEGIS accessions</b>	<b>AEGIS as % off total accessions</b>	<b>+4°C</b>	<b>-20°C</b>
<i>Phaseolus vulgaris</i>	<b>ROM</b>	<b>2507</b>	<b>66</b>	<b>2,43 %</b>	<b>2507</b>	<b>849</b>
<i>Phaseolus coccineus</i>	<b>ROM</b>	<b>159</b>	<b>-</b>	<b>-</b>	<b>159</b>	<b>30</b>
<i>Vicia faba</i>	<b>ROM</b>	<b>520</b>	<b>-</b>	<b>-</b>	<b>520</b>	<b>373</b>
<i>Vicia cracca</i>	<b>ROM</b>	<b>6</b>	<b>-</b>	<b>-</b>	<b>6</b>	<b>-</b>
<i>Vicia villosa</i>	<b>ROM</b>	<b>3</b>	<b>-</b>	<b>-</b>	<b>3</b>	<b>-</b>
<i>Vicia hirsuta</i>	<b>ROM</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>-</b>
<i>Vicia sativa</i>	<b>ROM</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>1</b>	<b>-</b>
<i>Vicia sepium</i>	<b>ROM</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>1</b>	<b>-</b>
<i>Vigna unguiculata</i>	<b>ROM</b>	<b>55</b>	<b>-</b>	<b>-</b>	<b>55</b>	<b>26</b>
<i>Vigna mungo</i>	<b>ROM</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>1</b>	<b>-</b>
<i>Pisum sativum</i>	<b>ROM</b>	<b>124</b>	<b>-</b>	<b>-</b>	<b>124</b>	<b>60</b>
<i>Pisum arvense</i>	<b>ROM</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>1</b>	<b>-</b>

## Summary of Grain legumes collection

<b>Specia</b>	<b>ORIGIN COUNTRY</b>	<b>Total no. of accessions</b>	<b>AEGIS accessions</b>	<b>AEGIS as % off total accessions</b>	<b>+4°C</b>	<b>-20°C</b>
<i>Lens culinaris</i>	<i>ROM</i>	12	-	-	12	8
<i>Lupinus albus</i>	<i>ROM</i>	8	-	-	8	5
<i>Lupinus perennis</i>	<i>ROM</i>	3	-	-	3	-
<i>Lupinus angustifolius</i>	<i>ROM</i>	1	-	-	1	-
<i>Lupinus polyphyllus</i>	<i>ROM</i>	1	-	-	1	-
<i>Cicer arietinum</i>	<i>ROM</i>	3	-	-	3	1
<i>Lathyrus sylvestris</i>	<i>ROM</i>	1	-	-	1	-
<i>Lathyrus sativus</i>	<i>ROM</i>	1	-	-	1	-
<i>Lathyrus latifolius</i>	<i>ROM</i>	1	-	-	1	-
<i>Glycine max</i>	<i>ROM</i>	5	2	40 %	5	2
<i>Glycine hispida</i>	<i>ROM</i>	4	-	-	4	1

# *Lathyrus* Conservation in Romania

*In situ* conservation - plant associations / protected areas

*Ex situ* conservation (Suceava Genebank)

- Medium term conservation + 4°C - Suceava Genebank (3 accessions)

## *Summary of Lathyrus collection*

<b>Specia</b>	<b>ORIGIN COUNTRY</b>	<b>SAMPSTAT</b>	<b>Total no. of accessions</b>	<b>County</b>	<b>G %</b>	<b>+4°C</b>	<b>-20°C</b>
<i>Lathyrus latifolius L.</i>	<i>ROM</i>	<b>110</b>	<b>1</b>	<b>Suceava</b>	<b>38 %</b>	<b>1</b>	<b>-</b>
<i>Lathyrus sylvestris L.</i>	<i>ROM</i>	<b>110</b>	<b>1</b>	<b>Suceava</b>	<b>70 %</b>	<b>1</b>	<b>-</b>
<i>Lathyrus sativus L.</i>	<i>ROM</i>	<b>300</b>	<b>1</b>	<b>Galati</b>	<b>96 %</b>	<b>1</b>	<b>-</b>



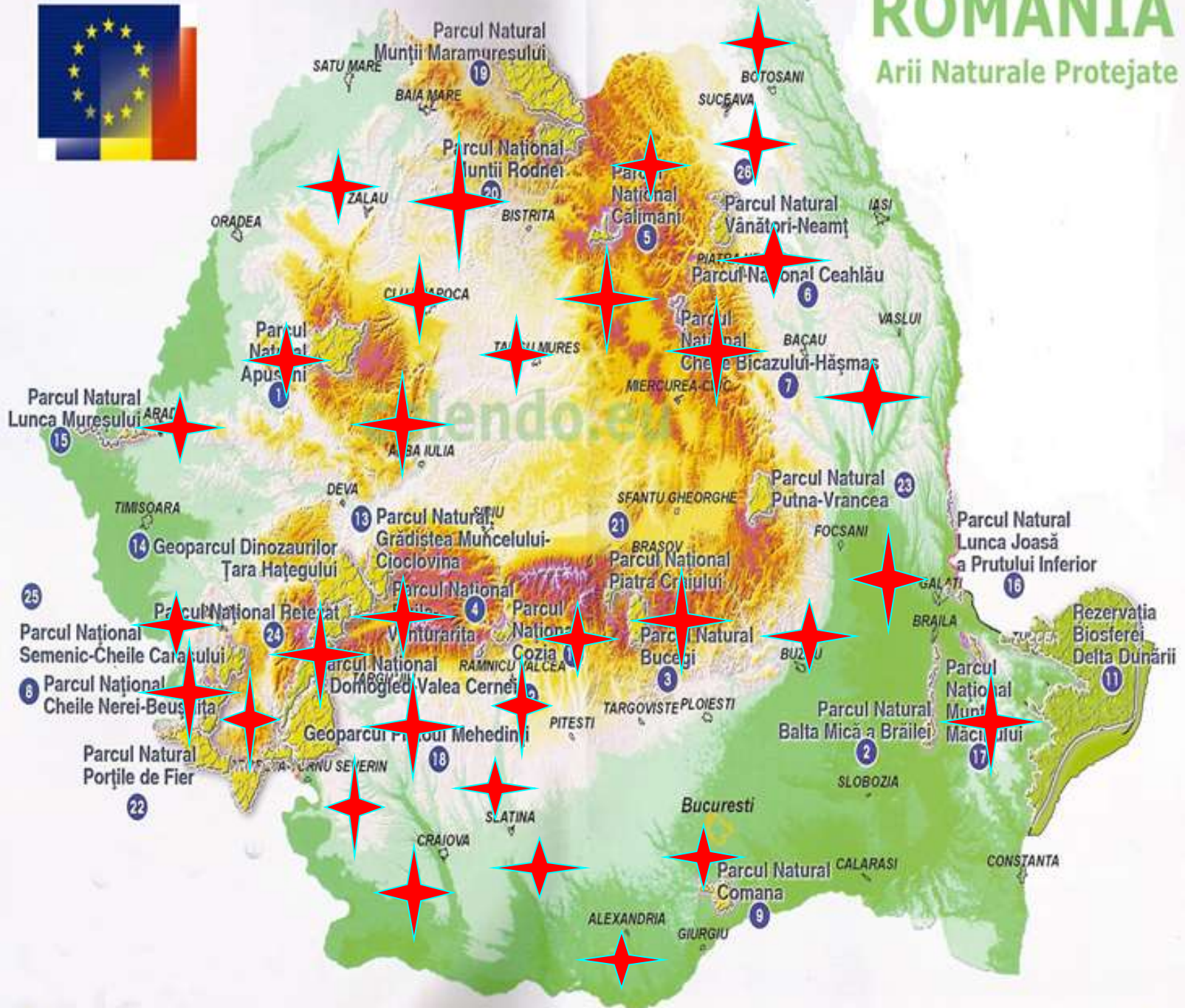
# Lathyrus CWR in protected areas

Species	County
<i>Lathyrus lacteus</i>	Suceava
<i>Lathyrus palustris</i>	Mureș
<i>Lathyrus transsilvanicus</i>	Sălaj
<i>Lathyrus latifolius</i>	Caraș Severin
<i>Lathyrus versicolor</i>	Sălaj
<i>Lathyrus linifolius</i>	Transilvania area
<i>Lathyrus niger</i>	Iași, Caraș Severin, Dolj, Olt, Mehedinți
<i>Lathyrus hallersteinii</i>	Dolj, Olt, Cluj
<i>Lathyrus tuberosus</i>	Iași
<i>Lathyrus pratensis</i>	Iași

Species	County
<i>Lathyrus setifolius</i>	Mehedinți
<i>Lathyrus vernus</i>	Argeș, Cluj, Satu Mare, Gorj, Bistrița Năsăud, Iași, Dolj, Mehedinți
<i>Lathyrus venetus</i>	Botoșani, Iași, Galați, Vaslui, Olt, Gorj, Mehedinți, Dolj
<i>Lathyrus pannonicus</i>	Suceava, Galați
<i>Lathyrus pannonicus ssp. collinus</i>	Vaslui
<i>Lathyrus pannonicus ssp. asphodeloides</i>	Buzău
<i>Lathyrus aureus</i>	Giurgiu
<i>Lathyrus sphaericus</i>	Giurgiu, Olt, Caraș Severin

# Lathyrus CWR in protected areas

## ROMANIA Arii Naturale Protejate



# ***Lathyrus* in plant associations (pasture and meadows)**

- *Lathyrus aphaca*
- *Lathyrus nissolia*. ssp. *nissolia*
- *Lathyrus nissolia* ssp. *pubescens*
- *Lathyrus palustris*
- *Lathyrus sylvestris*
- *Lathyrus latifolius*
- *Lathyrus hirsutus*
- *Lathyrus cicera*
- *Lathyrus sativus*
- *Lathyrus tuberosus*
- *Lathyrus pratensis*
- *Lathyrus aureus*
- *Lathyrus hallersteinii*
- *Lathyrus pallescens*
- *Lathyrus pannonicus* ssp. *pannonicus*
- *Lathyrus pannonicus* ssp. *collinus*
- *Lathyrus laevigatus*
- *Lathyrus transsilvanicus*
- *Lathyrus linifolius*
- *Lathyrus niger*
- *Lathyrus venetus*
- *Lathyrus vernus*
- *Lathyrus paluster*
- *Lathyrus silvester*
- *Lathyrus odoratus*
- *Lathyrus versicolor*
- *Lathyrus lacteus*
- *Lathyrus grandiflorus*

**IUCN RED list: *Lathyrus cicera* (VU), *Lathyrus laxiflorus* (CR)**

***Lathyrus aphaca*** - the source of disease resistance and productivity for cultivated form  
- in the plains, ruderal places, ***sporadic***

***Lathyrus sylvestris*** - ***it's common species***, is found in the area of oak forests, in sunny or semi-dark places

***Lathyrus latifolius*** - ***sporadic***, from the plain, meadows up to the mountain

***Lathyrus sativus*** - ***fodder crop. The species is occasionally cultivated for its edible seeds and as a green manure.***

***Lathyrus pratensis*** - resistant to excess of moisture

# Conclusions

- It's a widespread genus, well adapted to the conditions in our country (is found from the plain, meadows up to the mountain floor)
- Is not used in our breeding programmes
- Conservation measures:
  - a better inventory activities at national level of this genus
  - cultivation in botanical gardens of rare species
  - seeds to be conserved in genebank
- Undertaking of national collecting to improve no. of samples conserved in genebank (seed collection and also, herbarium collection)

***Thanks for your attention!***

