



Genetic Resource Center for grain legumes INRA UMR Agroecologie Dijon- France PEA , FABA BEAN, LUPIN



Pea collection

Core Collection : 93 accessions

Reference Collection : 372 accessions

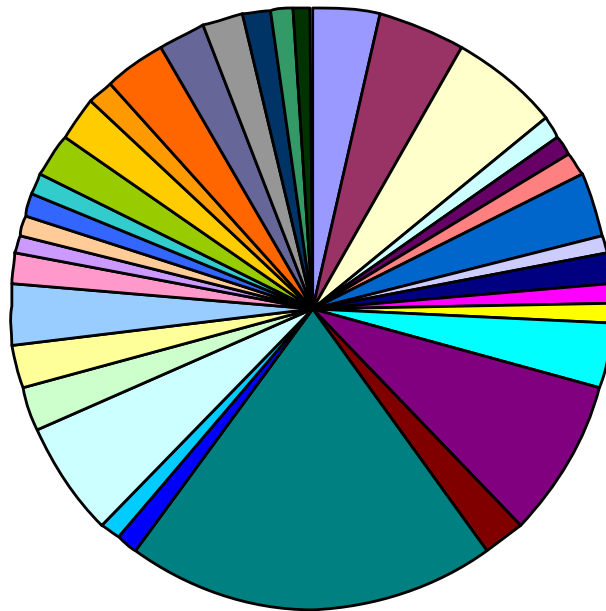
**Mainly Cultivated forms, including
field (29%), fodder (24%), and garden (46%) peas
spring (65%) and winter (35%) types,
some wild representatives (6%)**



National Collection : 260 accessions (public)

Base Collection : 2900 accessions (10 % public)

Core Collection

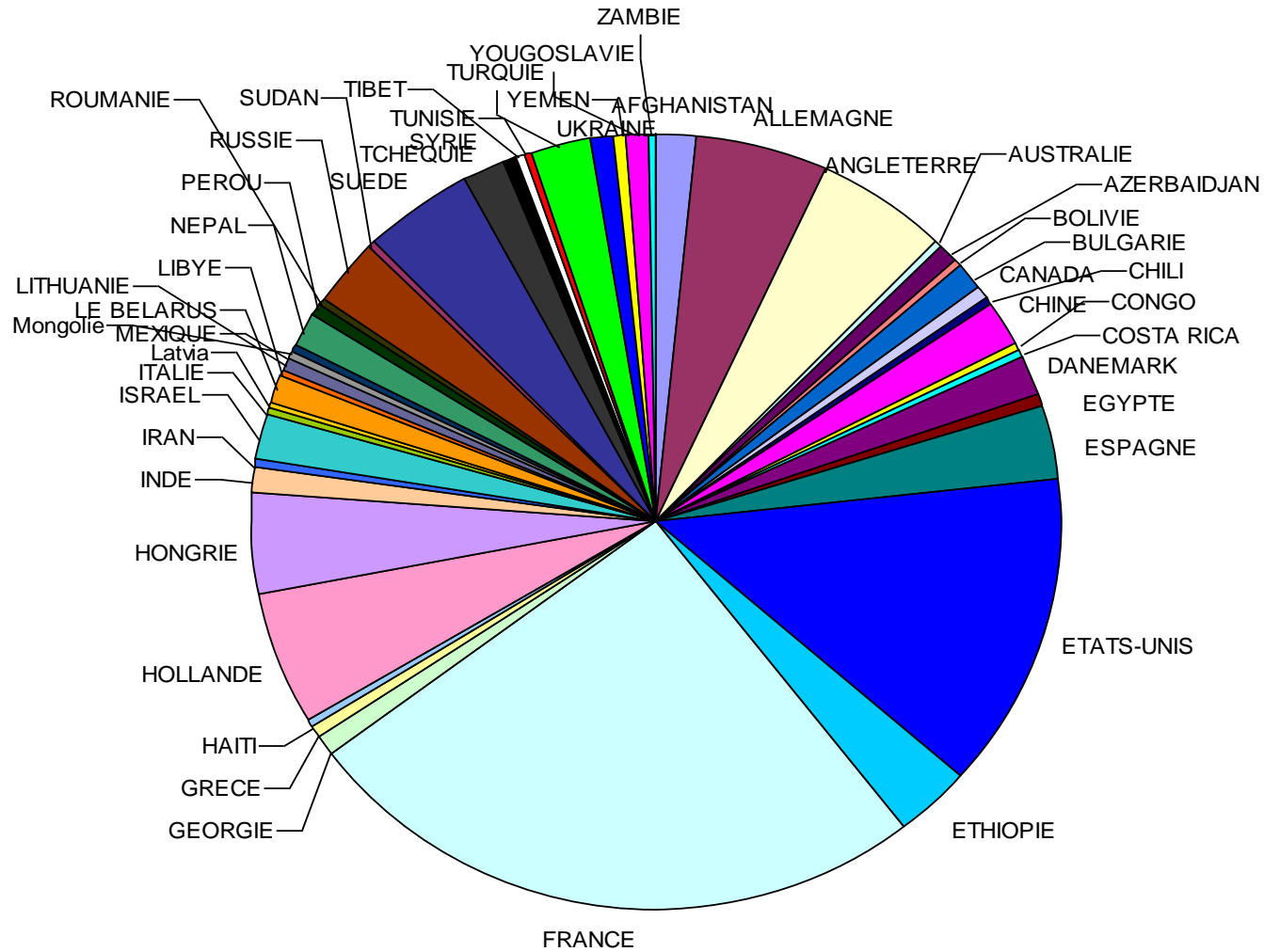


- AFGHANISTAN
- ALLEMAGNE
- ANGLETERRE
- AZERBAIDJAN
- BOLIVIE
- BULGARIE
- CHINE
- CONGO
- COSTA RICA
- DANEMARK
- EGYPTE
- ESPAGNE
- Etats-Unis
- ETHIOPIE
- FRANCE
- GEORGIE
- HATI
- HOLLANDE
- HONGRIE
- INDE
- ISRAEL
- LIBYE
- LITHUANIE
- MEXIQUE
- MONGOLIE
- NEPAL
- PEROU

⇒ Many geographic origins (35 countries)

Reference Collection

From 47 countries



Research Collection

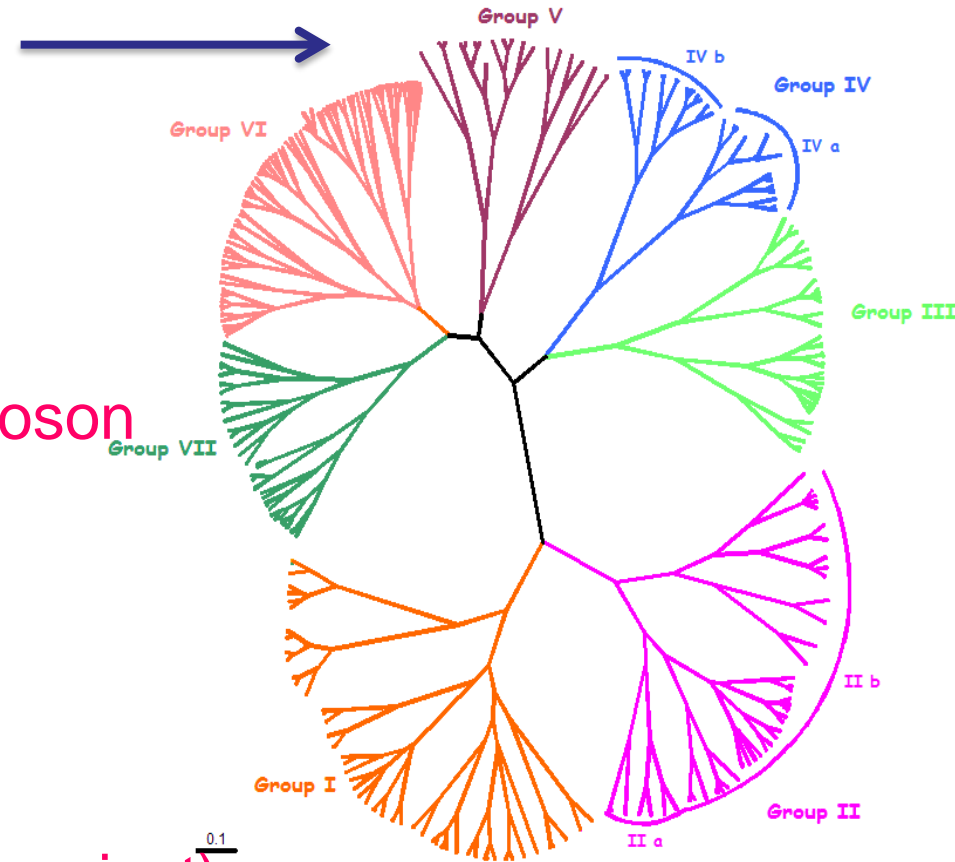
- ✓ More than 1500 Recombinant inbred lines
- ✓ 5000 TILLING Mutants
- ✓ 120 Mutants for root symbioses

Genotyping the INRA pea reference collection

➤ Structuring using 29 SSR and 3 morphological markers

➤ Structuring using retrotransposon markers Jing et al 2012

➤ Structuration using SNPs in progress (National PEAMUST project)



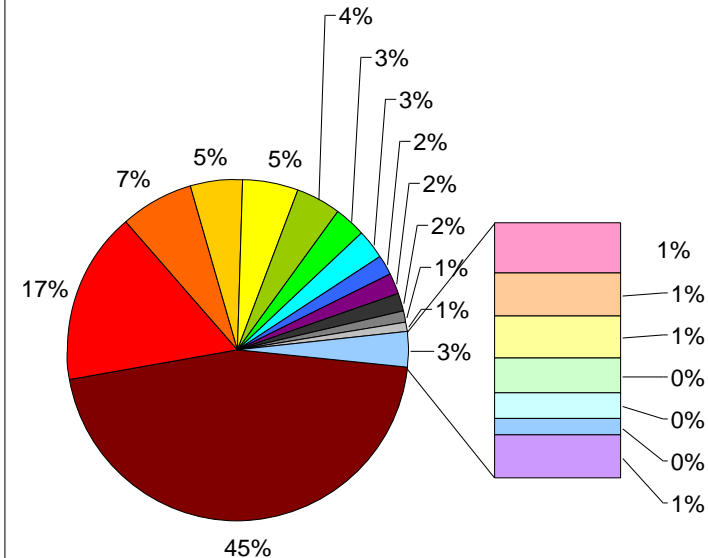
Vicia faba collection

- ✓ **Number of accessions :**
 - **Base collection : ~1500**
 - including mutants : 50**
 - and near isogenic lines : 30**
- ✓ **Geographic origins**

✓ **Focus on european origins**



Distribution of European accessions (%)



Regeneration and Description

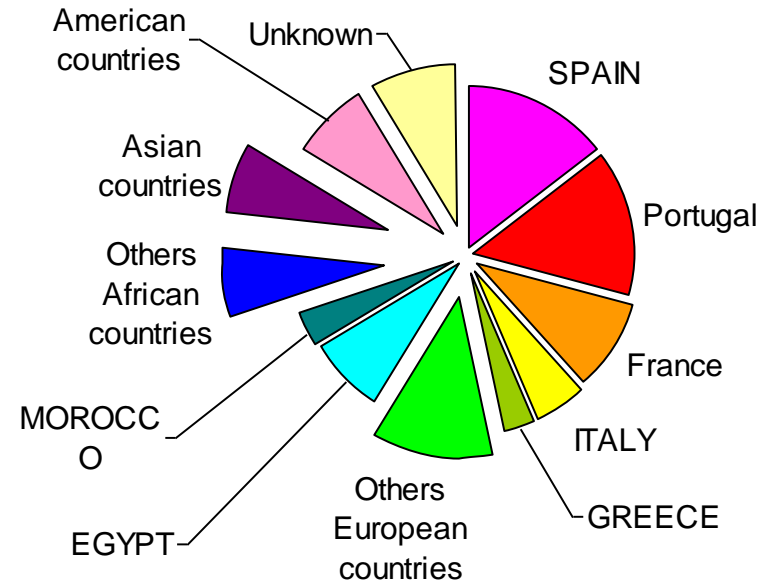
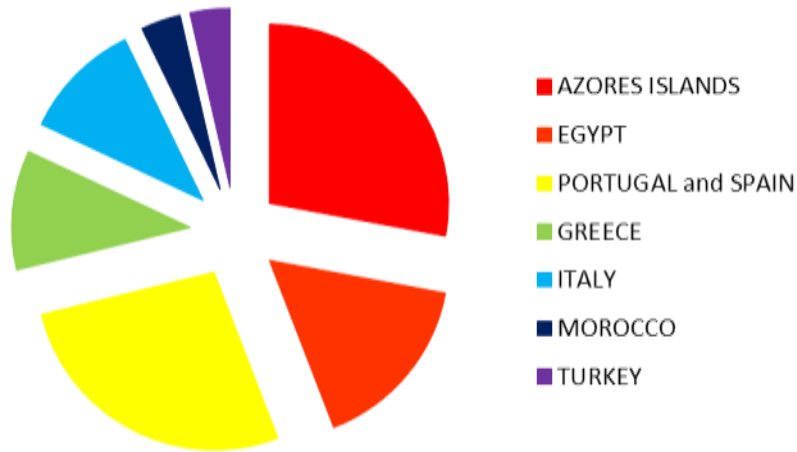
- ✓ Regeneration in insect-proof cages with manual self-pollination
- ✓ Morphological description following the international IPGRI standard has been begun
- ✓ Seeds Storage at 4-6 °C, 25-35 % Hygrometry
- ✓ Collection with an International interest (recognised by CGIAR TRUST)
- ✓ Programs with international partners (ECONET, China)
- ✓ Structuration using Kaspar markers (Consortium built by D. Sullivan) Cottage et al. Mol Breeding (2012) 30:1799–1809 DOI 10.1007/s11032-012-9745-4 et al. 2012 (national PEAMUST project)



Lupinus sp. Collection

✓ *Lupinus albus* in majority

- Accessions : ~ 600
- Near Isogenic Lines : ~30
- Some mutants
- **Focus on collected mediteranean countries**



✓ *Other Lupinus (L. mutabilis, angustifolius, luteus, others annual and perennial species)*

- Keeping accessions : ~ 150
- Accessions returning to their origin country or an other Genetic center : ~250

LEGUMBASE

You can access to our genebank data legumbase : <http://195.220.91.17/legumbase/>



Welcome to LegumBase



[Login](#)

[Home](#)



Target

- All
- M. truncatula*
- Pisum sp.*
- Vicia faba*
- Lupinus sp.*

Data

- [Genotype](#)
- [Lot](#)
- [Annotation](#)
- [Publication](#)

Resources

- [Documentation](#)
- [Links](#)
- [Legal mentions and Copyright](#)

LegumBase is an application aimed at enhancing the legumns collections of scientific and heritage interest. It is developed in the frame of two centres for genetic resources.

It fulfills two objectives :

- To create a **genotype index** to make the exchanges between labs easier and,
- To provide a **secure tool for the internal management** of the genotypes of the labs.

Welcome !

To
You
Ma

M. truncatula: 4000 TILLING mutants
pea: 290 accessions of national collection
4818 Pea TILLING mutants
faba bean and lupin: data ready to be downloaded





Phenotypic data include pictures



Target

- All
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- Pisum sp.*
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Genotype - Search



Search

Details

Exact	Genotype Name	Type	Biological Status	Species	Lab
<input type="checkbox"/>	<input type="text"/>	breeding genotype <input type="button" value="v"/>	<input type="text"/> <input type="button" value="v"/>	<input type="text"/>	<input type="text"/> <input type="button" value="v"/>
<input type="button" value="Search"/> <input type="button" value="Advanced Search"/> <input type="button" value="Export Select"/> <input type="button" value="Reset"/>					

⏪ << ≤ 21 - 40 / 801 ≥ >> ⏩

<input type="checkbox"/>	▼ Genotype Name	Type	Biological Status	▼ Species	▼ Lab
<input type="checkbox"/>	ALASKA DOT	breeding	Advanced/improved cultivar	<i>P. sativum</i>	UMR LEG
<input type="checkbox"/>	ALASKA DWARF	breeding	Advanced/improved cultivar	<i>P. sativum</i>	UMR LEG
<input type="checkbox"/>	ALASKA EARLIEST OF ALL	breeding	Advanced/improved cultivar	<i>P. sativum</i>	UMR LEG
<input type="checkbox"/>	ALASKA GATERS	breeding	Advanced/improved cultivar	<i>P. sativum</i>	UMR LEG
<input type="checkbox"/>	ALASKA HUDSON	breeding	Advanced/improved cultivar	<i>P. sativum</i>	UMR LEG
<input type="checkbox"/>	ALASKA LABRADOR	breeding	Advanced/improved cultivar	<i>P. sativum</i>	UMR LEG
<input type="checkbox"/>	ALASKA LILASKA	breeding	Advanced/improved cultivar	<i>P. sativum</i>	UMR LEG
<input type="checkbox"/>	ALASKA M 163	breeding	Advanced/improved cultivar	<i>P. sativum</i>	UMR LEG
<input type="checkbox"/>	ALASKA MULTIPODS	breeding	Advanced/improved cultivar	<i>P. sativum</i>	UMR LEG
<input type="checkbox"/>	ALASKA NEBRASKA	breeding	Advanced/improved cultivar	<i>P. sativum</i>	UMR LEG
<input type="checkbox"/>	ALASKA SWEET	breeding	Advanced/improved cultivar	<i>P. sativum</i>	UMR LEG
<input type="checkbox"/>	ALASKA TEZIER	breeding	Advanced/improved cultivar	<i>P. sativum</i>	UMR LEG
<input type="checkbox"/>	ALDERMAN	breeding	Traditional landrace	<i>P. sativum</i>	UMR LEG
<input type="checkbox"/>	ALDERMAN IMPROVED	breeding	Advanced/improved cultivar	<i>P. sativum</i>	UMR LEG
<input type="checkbox"/>	ALMENE	breeding	Advanced/improved cultivar	<i>P. sativum</i>	UMR LEG

New collects

Bulgaria, Serbia and Srpska



V. faba landraces
RIVER MORODOVA
P. elatius
NORTH BLACK SEA
RHODOPI MOUNTAIN



ECONET PROJECT Balkans - France network

- 1 A. Mikić 4, S. Angelova 2, M. Vishnyakova 3, B. Đurić 6, J. Burstin1, P. Marget1, C. Delaitre1, I. Lejeune 1, JB. Magnin-Robert 1, M. Sabeva 2, S. Bulyntsev 3, B. Čupina 5, M. Vasić 4, V. Mihailović 4, Đ. Krstić 5, G. Duc1
- 2 1 INRA Dijon and Mons, France
- 3 2 Institute of Plant Genetic Resources, Plovdiv, Bugaria
- 4 3 N.I. Vavilov All-Russian Research Institute of Plant Industry, St.Petersburg, Russia
- 5 4 Institute of Field and Vegetable Crops, Novi Sad, Serbia
- 6 5 Faculty of Agriculture, University of Novi Sad, Novi Sad, Serbia
- 7 6 Faculty of Agriculture, Banja Luka, Republic of Srpska, Bosnia and Herzegovina

ECONET NETWORK

Phenotyping Yield

Some new sources of high freezing hardiness



IRENA
BTH001
BUL_ABBM0076-4L
BUL_ABBM0076
BUL_ABE001
BUL_ABE0049
KARL
GLADI

surviving wild
Pisum elatius

Winter hardiness

Clermont Ferrand F.

Dijon F.



V.Faba accessions	Location	PPSW (%)	SY (g m ⁻²)
Goettingen	Novi Sad	91	705
	Banja Luka	88	808
Diva	Novi Sad	89	745
	Banja Luka	90	820
Gema	Novi Sad	72	489
	Banja Luka	54	367
Jakubowski	Novi Sad	84	685
	Banja Luka	91	756
Debek	Novi Sad	79	512
	Banja Luka	85	576
Irena	Novi Sad	90	793

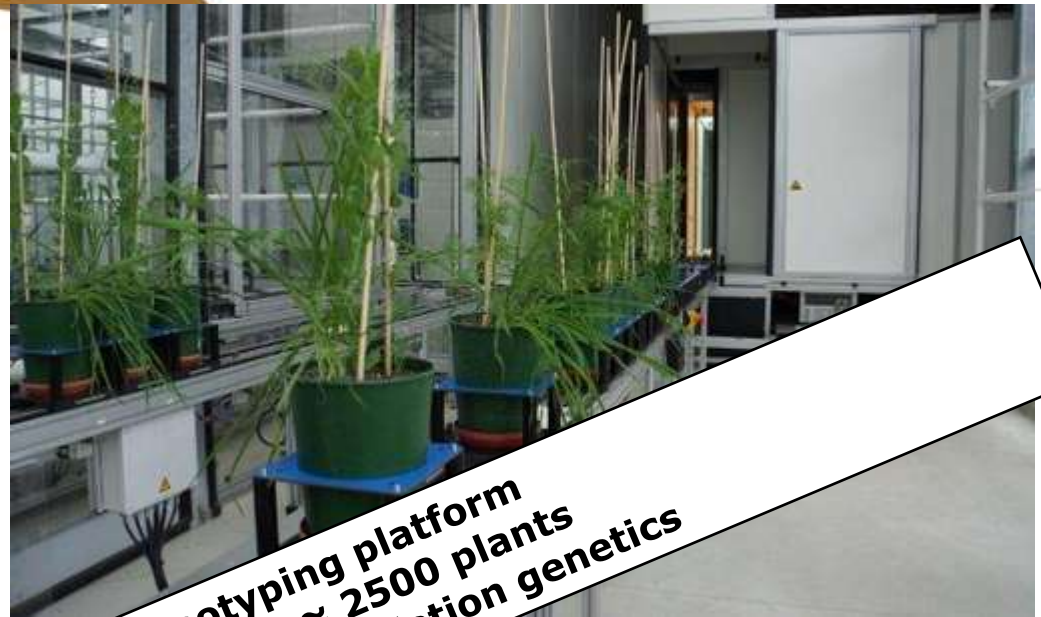
Pea accessions	Location	PPSW (%)	SY (g m ⁻²)
WT23	Novi Sad	24	189
	Banja Luka	35	264
Dove	Novi Sad	88	546
	Banja Luka	29	378
5105	Novi Sad	87	546
	Banja Luka	30	342
Drujba	Novi Sad	68	256
	Banja Luka	89	649
Vesela	Novi Sad	42	188
	Banja Luka	29	255
No.11	Novi Sad	45	345
	Banja Luka	27	460
Frijaune	Novi Sad	54	432
	Banja Luka	78	724
Frilène	Novi Sad	61	313
	Banja Luka	81	452

And also FP7 seelegume coordinated by B .Cupina Serbia

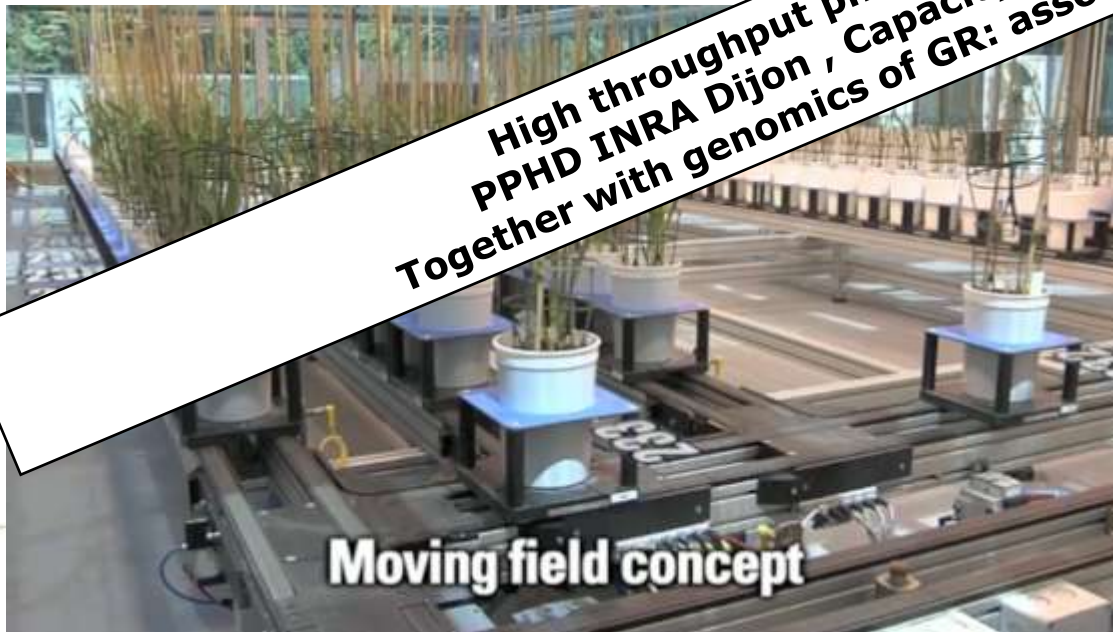
Phenotyping platform For freezing hardiness at INRA Chaux des prés in Jura mountains



Térèse Lucy Isard China
Cameor Cheyenne Blixt 195 Champagne



**High throughput phenotyping platform
PPHD INRA Dijon , Capacity \approx 2500 plants
Together with genomics of GR: association genetics**



Moving field concept



Thanks to ...

UMR agroécologie INRA Dijon

CRG and phenotyping :

J. Burstin, C. Delaitre, G. Duc,
H. Houtin, P. Marget, M. Martinello, JB Magnin-Robert,
C. Rond, C. Lecomte, C. Salon

Genotyping :

J. Burstin, G. Aubert, A. Bordat, J. Potier, A. Chauveau,
S. Blanc, H. Charrel, F. Jacquin

Legumbase :

V. Savoie

Collaborators of Balkan countries and China