

A survey of forages C&E data in Europe

State-of-the-art



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Background

- User-friendly access to all information concerning PGR
- Search and selection of valuable accessions for special purposes in breeding and research
- ...

Overall, there is a long discussion process to find the right solution for a suitable database system.

Aims

Enlarge EURISCO with C&E data!!!



For User's

Overview about
C&E data

Availability of C&E in
different Genebank's

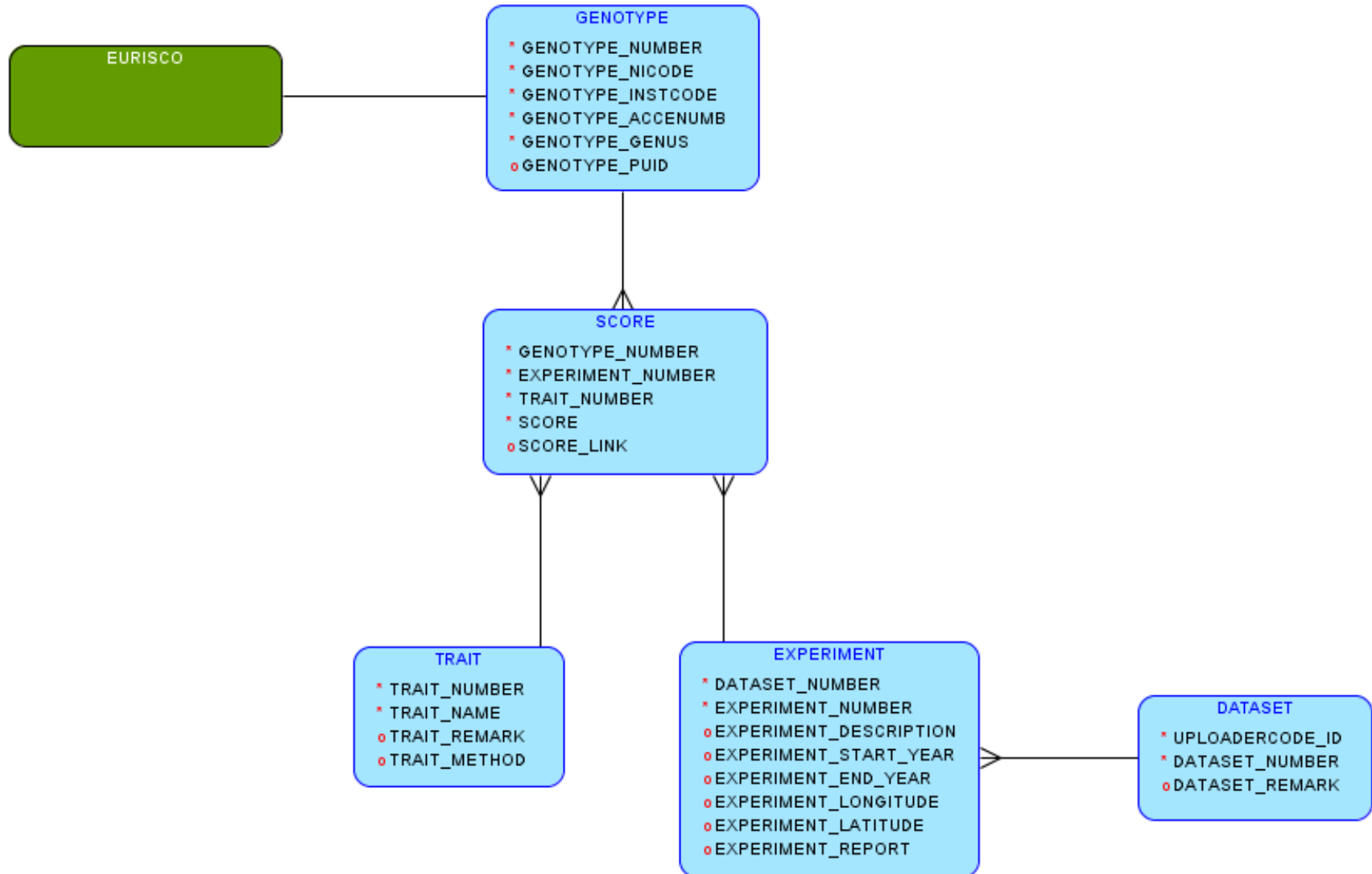
Which C&E data?
Which genus/species?
Which quality?

For Genebank's

Management
priority in maintenance

AEGIS and EFC
accessions
(unique and valuable)

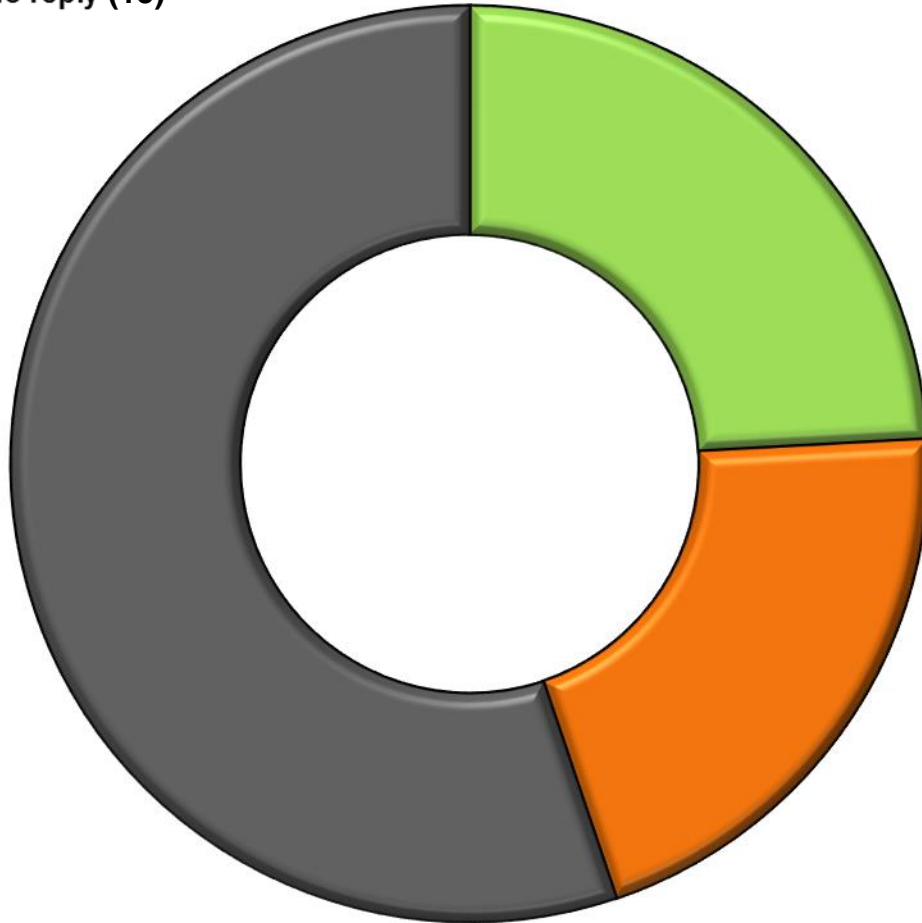
Data model for C&E data II



Survey results I

Request of C&E data – ECPGR Listserver

■ No reply (15)



■ Reply to query - fill out of templates (8)

- SWE
- DEU
- CHE
- EST
- LTV
- GBR
- FRA
- **NLD**

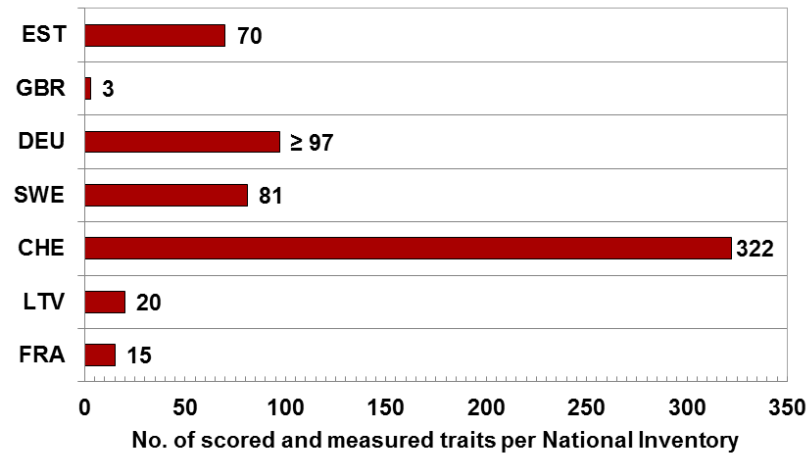
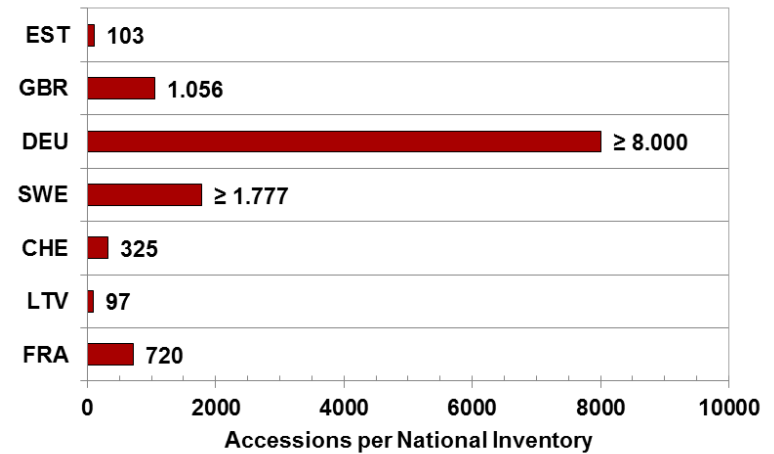
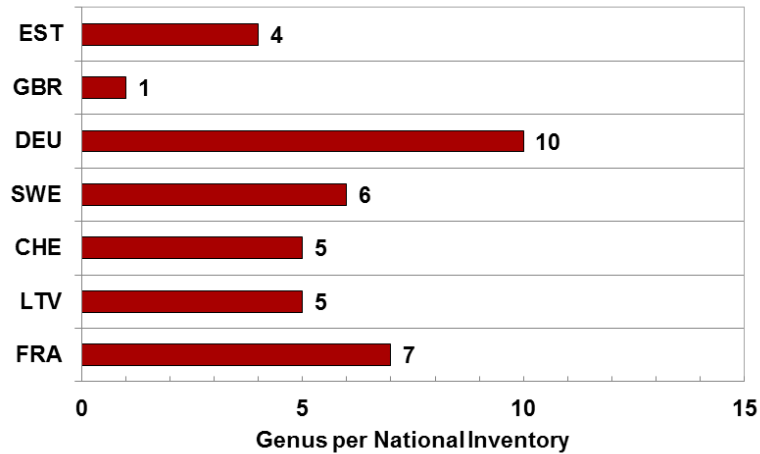
■ Reply to query - diffus statements (6)

Statements

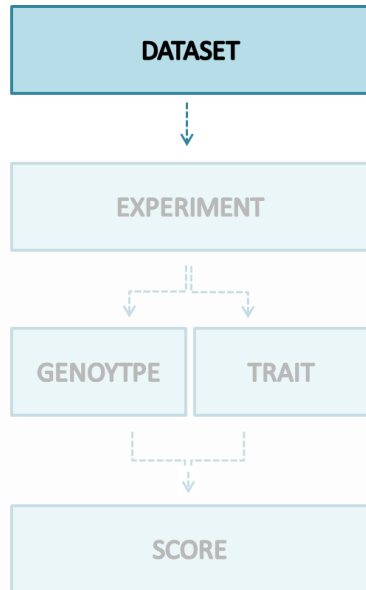
- Database is under construction!
- Data can't be provided because it is too difficult to export data from the current Genbank database to the EURISCO template.

→ Lack of time and resources

Survey results II

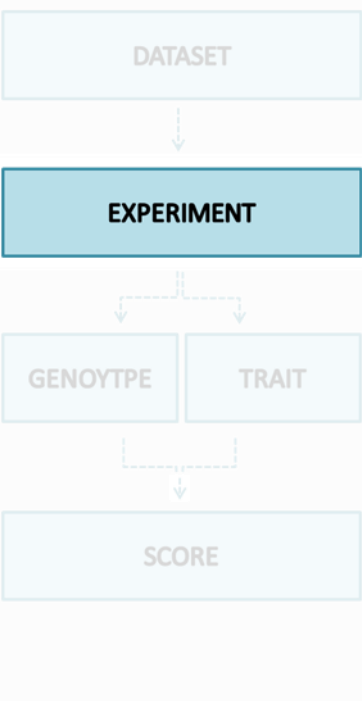


Templates for C&E data – an example



DATASET		
UPLOADERCODE	DATASET_NUMBER	DATASET_REMARK
DEU271	1	

Templates for C&E data – an example



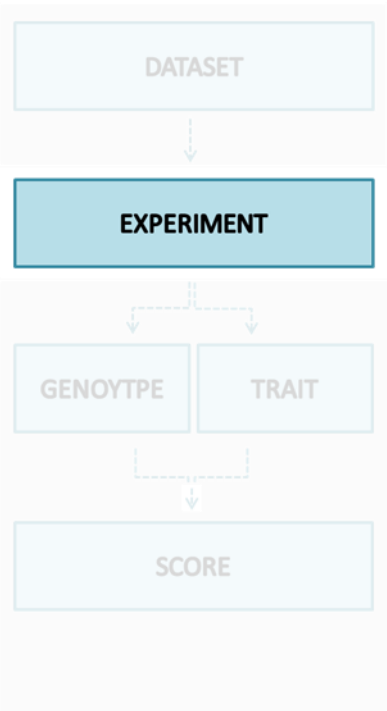
Ⓟ EXPERIMENT

DATASET NUMBER	EXPERIMENT NUMBER	EXPERIMENT DESCRIPTION	EXPERIMENT START_YEAR	EXPERIMENT END_YEAR	EXPERIMENT LONGITUDE	EXPERIMENT LATITUDE	EXPERIMENT REPORT
1	1	Characterisation data of Lolium perenne	1999	2000	11.498333	53.957778	
1	2	Characterisation data of Lolium perenne	2000	2001	11.498333	53.957778	
1	16	Characterisation data of Dactylis glomerata	1999	2000	11.498333	53.957778	
1	17	Characterisation data of Dactylis glomerata	2000	2001	11.498333	53.957778	
1	31	Evaluation data of Lolium perenne (4 REPS), ESP	2004	2006	11.498333	53.957778	
1	32	Evaluation data of Lolium perenne (4 REPS), ROM	1994	1997	11.473889	53.994444	
1	33	Evaluation data of Lolium perenne (4 REPS), HRV	1998	2000	11.473889	53.994444	
1	34	Evaluation data of Lolium perenne (4 REPS), BGR	2002	2004	Niendorf		
1	35	Evaluation data of Lolium perenne (4 REPS), IRL	2008	2010	11.473889	53.994444	
1	36	Evaluation data GLP ROM	1998	2000	11.498333	53.957778	
1	37	Evaluation data GLP ROM	1999	2001	11.498333	53.957778	
1	40	Evaluation data POA project	2002	2004	11.473889	53.994444	
1	41	Evaluation data POA pre project	2000	2002			
1	42	Evaluation data LOL biomass					
1	43	Evaluation data LOL drought stress (field experiment)	2012	2015	11.498333	53.957778	
1	44	Evaluation data LOL drought stress (rainout shelter)	2012	2014	11.498333	53.957778	

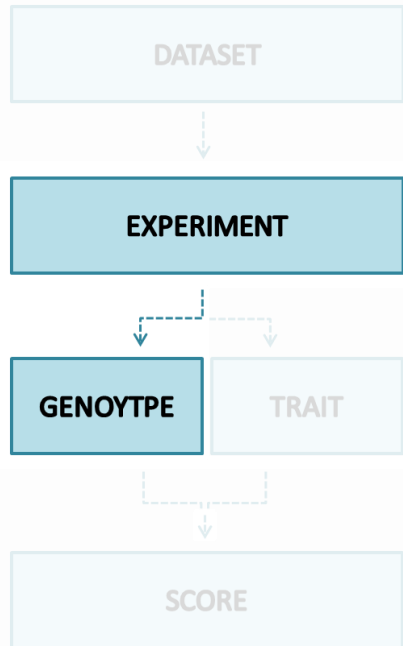
Templates for C&E data – an example

EXPERIMENT

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Templates for C&E data – an example

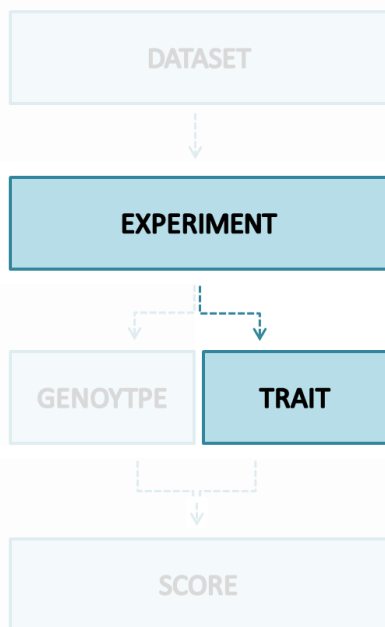


⊖ GENOTYPE

GENOTYPE NUMBER	GENOTYPE NICODE	GENOTYPE INSTCODE	GENOTYPE ACCENUMB	GENOTYPE GENUS	GENOTYPE PUID
1	unknown	unknown	Astonenergy	Lolium	
2	unknown	unknown	Brio	Lolium	
3	DEU	DEU271	GR 13010 (Cosmolit)	Festuca	
4	unknown	unknown	Lipalma	Lolium	
5	unknown	unknown	Preval	Lolium	
6	unknown	unknown	Prior	Lolium	
7	DEU	DEU271	GR 6354 (Respect)	Lolium	
8	DEU	DEU271	GR 12046	Lolium	
9	DEU	DEU271	GR 12053	Lolium	
10	DEU	DEU271	GR 12735	Lolium	
11	DEU	DEU271	GR 12743	Lolium	
12	DEU	DEU271	GR 12745	Lolium	

81	DEU	DEU271	GR 8826	Lolium	
82	DEU	DEU271	GR 9013	Lolium	

Templates for C&E data – an example

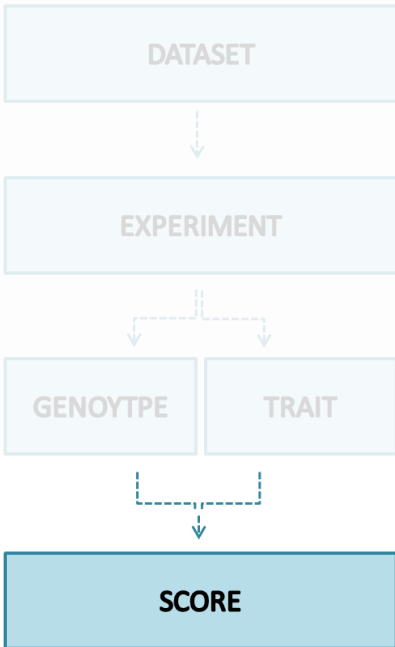


TRAIT

TRAIT NUMBER	TRAIT NAME	TRAIT REMARK	TRAIT METHOD
1	planting date		Date
2	growth before winter 1. year	GBW1	Rating score from 1 (poor) to 9 (very well)
3	growth after winter 2. year	GAW2	Rating score from 1 (poor) to 9 (very well)
4	growth in spring 2.year	GIS2	Rating score from 1 (poor) to 9 (very well)
5	fresh matter 2. year, 1. cut	FM21	Rating score from 1 (very low) to 9 (very high)
11	BBCCH stage before cut, 2.year, 1. cut	BBCH21	Text
16	growth fresh matter after cut 2. year, 1. cut	FMAC21	Rating score from 1 (very low) to 9 (very high)
21	fresh matter yield 2.year, 1. cut	FM21	Measured value [kg/m ²]
25	dry matter yield 2.year, 1. cut	DMCUT21	Measured value [dt/ha]
29	total fresh matter yield 2.year	SUMFMCUT2	Measured value [dt/ha]
30	total dry matter yield 2.year	SUMDMCUT2	Measured value [dt/ha]
31	Days until the appearance of Drought Symptoms 2.year, 1.drought stress	DDS21	Number of days
33	Drought Tolerance: Leaf Rolling, 2.year, 1.drought stress	DTLR21	Rating score from 1 (normal) to 9 (fully rolled leaves);
34	Drought Tolerance: Slacking of Leaves, 2. year, 1. drought stress	DTSL21	Rating score from 1 (normal) to 9 (slacked leaves)
35	Drought Tolerance: Yellowing of Leaves,2. year, 1. drought stress	DTY21	Rating score from 1 (no signs of yellowing) to 9 (100% yellowing)
41	Tendency to Heading 2. year after 2.cut	TH2	Rating score from 1 (very low) to 9 (very high)
75	Re-Growth after drought, 3.year, 1.drought stress	RG31	Rating score from 1 (no regrowth/recovery) to 9 (100% regrowth/recovery)
92	growth fresh matter after cut 4. year, 5.cut	FMAC45	Rating score from 1 (very low) to 9 (very high)

In general: additional scores: -2 (not scored), -1 (not scorable)


Templates for C&E data – an example



SCORE

GENOTYPE NUMBER	EXPERIMENT NUMBER	TRAIT NUMBER	SCORE	SCORE_LINK
1	44	2	2	
1	44	3	7	
1	44	4	5	
1	44	5	7	
1	44	6	4	
1	44	7	4	
1	44	8	2	
1	44	9	3	
1	44	10	4	
1	44	11	47,0	
1	44	12	52,0	
1	44	13	50,0	
1	44	14	30,0	
1	44	15	37,0	
1	44	17	5	
1	44	17	4	
1	44	18	3	
1	44	19	3	
1	44	20	4	
1	44	21	2.98	
1	44	22	2.06	
1	44	23	0.97	

Prototype of C&E data in EURISCO



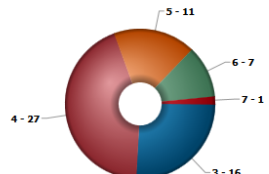
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Trait details



Descriptive statistics

Trait Name	Minimum	Maximum	Average	Stddev	Variance	First Quartile	Median	Third Quartile
Spreading	3	7	4.19	1.01	1.01	3.25	4	5

Genus:

Origin Country:

Accession scores for selected trait

Q Go Rows 10 Actions

1 - 10 of 62 >


NICODE	INSTCODE	GENUS	ACCNUMB	Score	Score Link	Origin Country	Biological Status	Details
NLD	NLD037	Poa	CGN21015	3	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Poa	CGN21018	5	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Poa	CGN21019	4	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Poa	CGN21032	3	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Poa	CGN21034	3	-	Germany	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Poa	CGN22440	6	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Poa	CGN24875	4	-	Netherlands	Wild	Accession details
NLD	NLD037	Poa	CGN24876	4	-	Netherlands	Wild	Accession details
NLD	NLD037	Poa	CGN24782	7	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Poa	CGN24783	3	-	Netherlands	Wild	Accession details

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0.02 s

release 1.2.0 dev

Prototype of C&E data in EURISCO



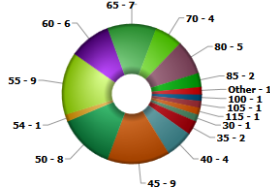
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Trait details



Descriptive statistics

Trait Name	Minimum	Maximum	Average	Stddev	Variance	First Quartile	Median	Third Quartile
Plant length	30	115	59.5	17.27	298.29	46.25	55	65

Genus:

Origin Country:

Accession scores for selected trait

Rows:

1 - 10 of 62 >


NICODE	INSTCODE	GENUS	ACCENUMB	Score	Score Link	Origin Country	Biological Status	Details
NLD	NLD037	Poa	CGN21046	100	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Poa	CGN21015	70	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Poa	CGN21018	65	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Poa	CGN21019	55	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Poa	CGN21032	54	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Poa	CGN21034	45	-	Germany	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Poa	CGN21038	45	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Poa	CGN22438	45	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Poa	CGN22440	45	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Poa	CGN24876	55	-	Netherlands	Wild	Accession details

1 - 10 of 62 >

0.01 s

release 1.2.0 dev

Prototype of C&E data in EURISCO



European Cooperative Programme for Plant Genetic Resources
ECP/GR
Finding seeds for the future

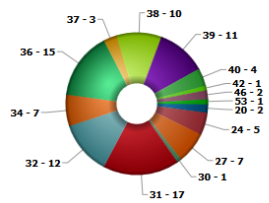
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Trait details



37 - 3, 38 - 10, 39 - 11, 40 - 4, 42 - 1, 46 - 2, 53 - 1, 20 - 2, 24 - 5, 27 - 7, 30 - 1, 31 - 17, 32 - 12, 34 - 7, 36 - 15

Descriptive statistics

Trait Name	Minimum	Maximum	Average	Stddev	Variance	First Quartile	Median	Third Quartile
Flowering time	20	53	34.03	5.4	29.18	31	34	38

Genus:

Origin Country:

Accession scores for selected trait

Rows 10
Actions

1 - 10 of 98

NICODE	INSTCODE	GENUS	ACCENUMB	Score	Score Link	Origin Country	Biological Status	Details
NLD	NLD037	Trifolium	CGN07448	40	-	United States	Breeding/research material	Accession details
NLD	NLD037	Trifolium	CGN21109	31	-	Netherlands	Traditional cultivar/landrace	Accession details
NLD	NLD037	Trifolium	CGN21110	32	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Trifolium	CGN21111	38	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Trifolium	CGN21112	31	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Trifolium	CGN21113	39	-	Germany	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Trifolium	CGN21114	31	-	Denmark	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Trifolium	CGN21115	31	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Trifolium	CGN21116	39	-	Belgium	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Trifolium	CGN21117	36	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details

1 - 10 of 98

0.01 s

release 1.2.0 dev

Conclusion and suggestions

- There are a lot of experiments/ data in the European community of PGR!

But there is of course a high diversity in the data !!!

- We have to get the C&E data in the correct shape in order to exchange data
 - as easy as possible,
 - and to provide data for EURISCO in developed data model
- **Outlook:**

Use these 5 data templates and we would like to encourage you to actively participate.

Questions, remarks and wishes



Outline



Survey results - CHE



<http://www.bdn.ch/>

- **Genus:** Lolium multiflorum – Italian ryegrass
- **No. of accessions:** 55
- **No. of scored traits:** 86
- **Sum data points:** 2.681

