
Collaboration between CGN and the seed industry

ECPGR workshop on EVA-vegetables

Albania 2-3 April 2019

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Collaboration CGN – breeding companies

	Lettuce	Spinach
Bejo	✓	✓
Enza	✓	✓
Monsanto (Bayer)	✓	✓
Nunhems (Bayer; Basf)	✓	✓
Rijk Zwaan	✓	✓
Syngenta	✓	✓
Vilmorin	✓	
Pop Vriend		✓
Sakata		✓
Takii		✓

Collaboration CGN – breeding companies

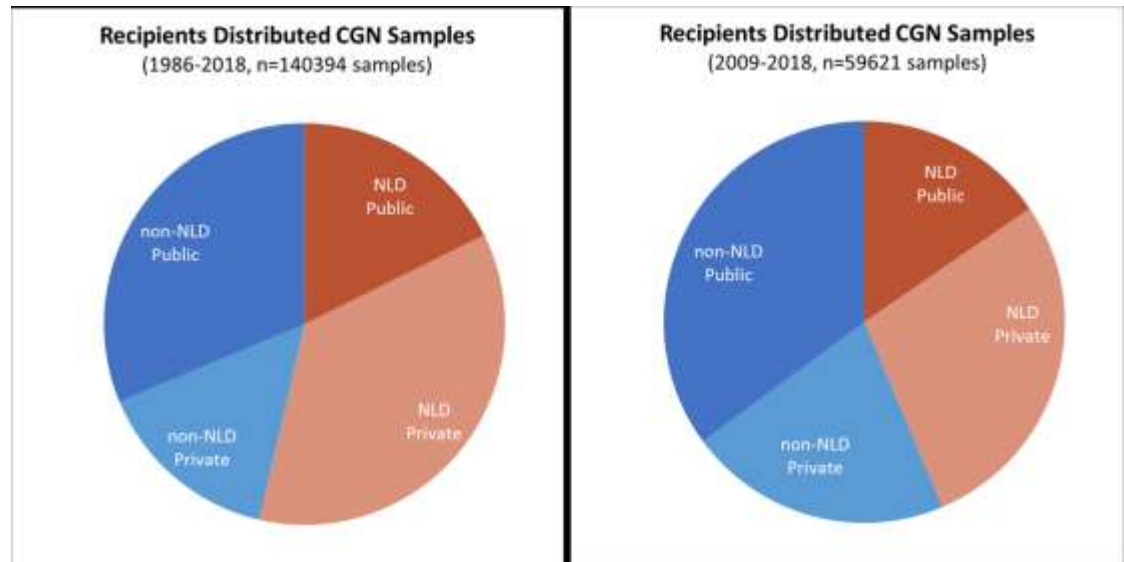
■ Public-private partnerships

- Collaboration formalized in Letter of Intent/Memorandum of Understanding (currently 7 breeding companies)
- Development, maintenance, evaluation of CGN collections
- Transparent and open collaboration
 - Preferably multilateral initiatives
 - Approval of Dutch government



Collaboration CGN – breeding companies

- Services provided by CGN
 - Organizing collecting expeditions
 - Providing access to accessions, associated information
 - Advising user community
 - Choice of material for use
 - ABS issues



Collaboration CGN – breeding companies

■ Services provided by seed industry

- Via the Dutch association of plant breeders (Plantum)
- Services
 - Policy advice (advisory committee)
 - Technical input (materials, working groups)
 - Support to collecting missions
 - Input in kind (regeneration, evaluation)



Collaboration CGN – breeding companies

■ Evaluation of genetic resources

1. Morphological description

- During regeneration
- Field trials
 - Work organized and carried out by CGN
 - Feedback on trials by breeders
(e.g. accession identity)
 - Data made publicly available by CGN



Collaboration CGN – breeding companies

■ Evaluation of genetic resources



2. Trait evaluation

- Collaborative pre-competitive research
 - Coordination by CGN (material distribution, processing of results, etc.)
 - Decision on traits and experimental work by breeders
 - Data made publicly available by CGN (after embargo period)
 - Support in contractual issues by Plantum
 - Framework agreement (general) and evaluation agreement (specific)
 - Testing methods, workplan, use of data, confidentiality, reference to SMTA, etc.

Collaboration CGN – breeding companies

■ Example collaborative phenotyping

- Resistance against downy mildew (*Bremia lactucae*)
- Testing performed in duplo by breeders
- Data on *Bremia* pathotypes Bl:1 – Bl:31
- 39,679 available observations (2088 accessions)



Collaboration CGN – breeding companies

■ Access to phenotypic data

CGN downloadable data

Downloadable data for lettuce

The complete [passport data](#) can be downloaded in Excel format.

The phenotypic data can be downloaded per trait in Excel format.

Bolting time	2651 observations in 22 experiments (last entry date: 2014-10-02) on 1679 accessions
Bremia lactucae	39679 observations in 14 experiments (last entry date: 2018-07-09) on 2088 accessions
Erwinia carotovora (bacterial soft rot)	22 observations in 1 experiment
Erysiphe cichoracearum	94 observations in 2 experiments
Flower anthocyanin content	1751 observations in 21 experiments
Flower color	728 observations in 9 experiments
Flowering time	1996 observations in 23 experiments
Growing conditions	321 observations in 2 experiments
Harvest time	256 observations in 2 experiments
Head formation	310 observations in 1 experiment
Head height	2053 observations in 17 experiments
Head leaves overlap	2229 observations in 18 experiments
Head shape	1982 observations in 18 experiments

	A	B	C	D	E	F	G	H	I	J
1		M-0444	M-0446	M-0843	M-0844	M-0846	M-0847	M-0848	M-0849	M-0850
2		E-0236	E-0236	E-0713	E-0713	E-0713	E-0713	E-0713	E-0713	E-0713
1836	CGN22028			9	9	9	5	7	9	7
1837	CGN22029			9	9	9	1	7	8	8
1838	CGN22030			7	9	9	3	7	9	c
1839	CGN22031			9	c	9	1	7	8	7
1840	CGN22032			5	3	9	3	9	8	7
1841	CGN22033			9	9	9	1	9	8	7
1842	CGN22034			7	9	9	1	7	8	7
1843	CGN22035			9	9	9	1	7	8	c
1844	CGN22036			9	9	9	3	7	9	c
1845	CGN22037			9	9	9	1	9	9	8
1846	CGN22038			9	9	9	3	8	9	9
1847	CGN22039			9	9	9	1	8	9	9
1848	CGN22040			9	9	7	1	8	8	c
1849	CGN22041			9	9	9	3	7	9	7
1850	CGN22042			9	9	7	3	7	9	3
1851	CGN22043			7	8	1	1	8	8	2
1852	CGN22044			7	9	9	3	7	9	9
1853	CGN22045			9	9	9	3	9	8	9

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■ Searching based on phenotypic traits



head height						
<u>Description:</u>	low	←	medium	→	high	Unknown
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nr. of accessions	58	710	407	66	15	33

head shape					
<u>Description:</u>	elliptic	broad elliptic	circular	transverse elliptic	Unknown
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nr. of accessions	196	98	658	121	216

plant diameter						
<u>Description:</u>	small	←	medium	→	large	Unknown
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nr. of accessions	6	216	489	538	24	16

Search menu

Submit the form, or reset the form to its default settings.

Collaboration CGN – breeding companies

■ Evaluation of genetic resources

3. Genotypic evaluation

- Project-based research
 - National or international funding
 - Research institutes, breeding companies, CGN
 - Tomato, lettuce, melon pepper, Solanaceae

