
Visualization of research activities at Wageningen UR

Based upon co-citation of journals in articles published by research groups between 2006 and 2011

Marco G.P. van Veller, [Wageningen UR Library](#)

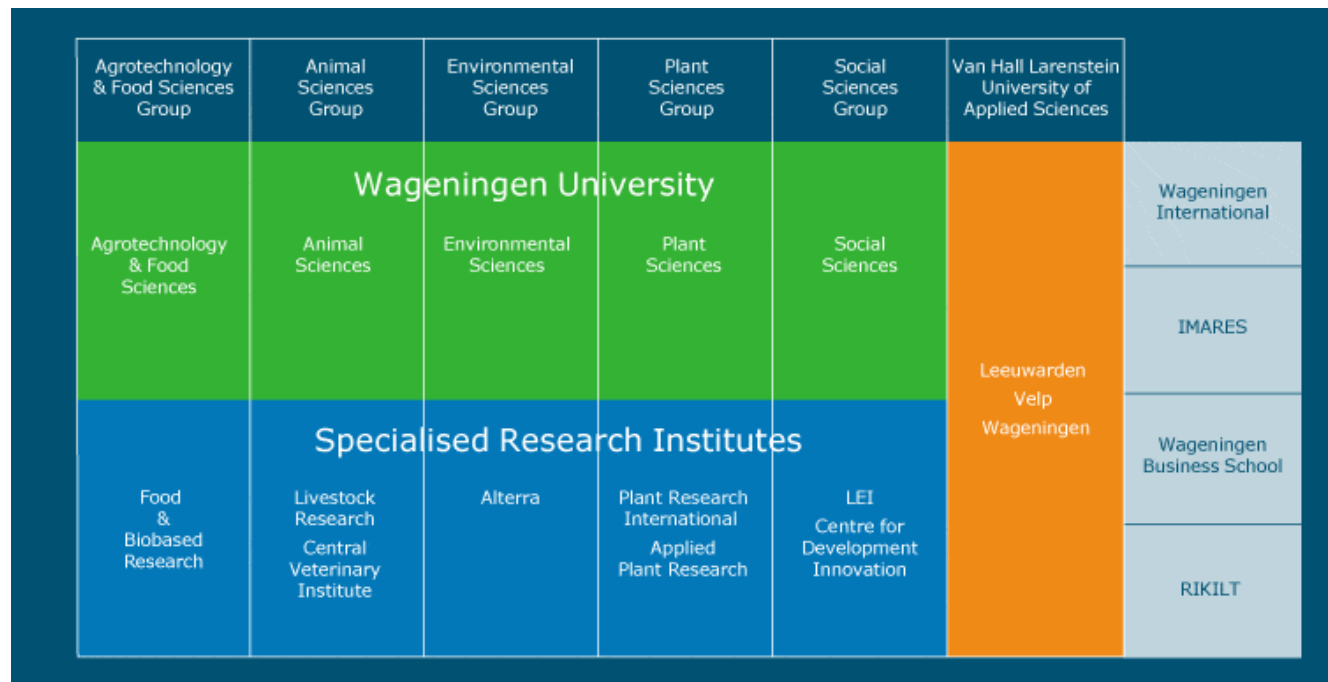


Research domains



Wageningen UR

- Hybrid organization
- Wageningen U(niversity) and R(earch)



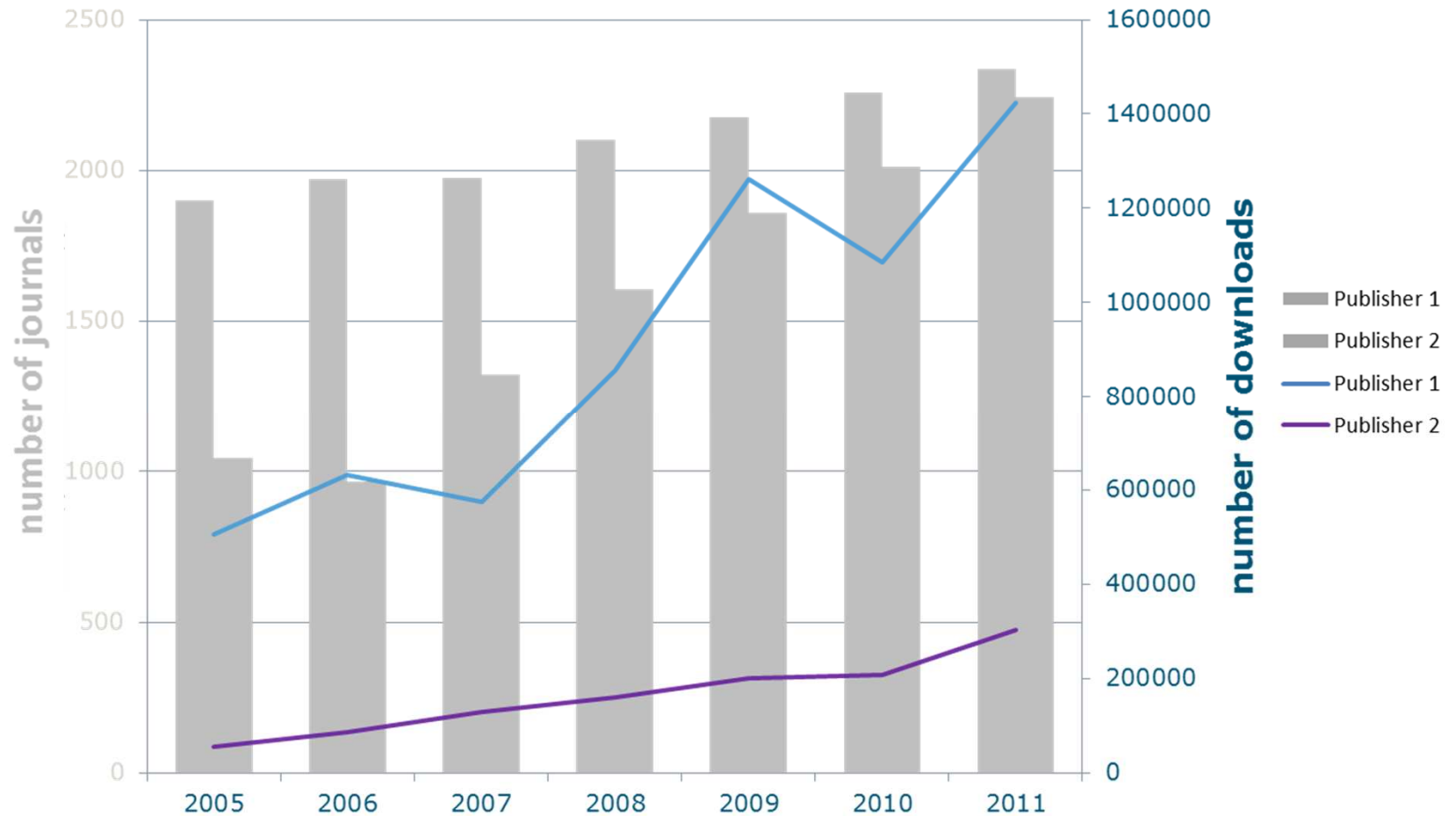
Research organization

- Graduate schools (6 coordinated by Wageningen UR)
- Research departments (5 at Wageningen UR)
 - Animal, Plant, Environmental, Social, Agrotechnology & Food Sciences)
- Research institutes (9 at Wageningen UR)
- Chair groups (92 with sometimes more than 1 chair)
- Individual staff

Online journal use at Wageningen UR



Online journal use at Wageningen UR



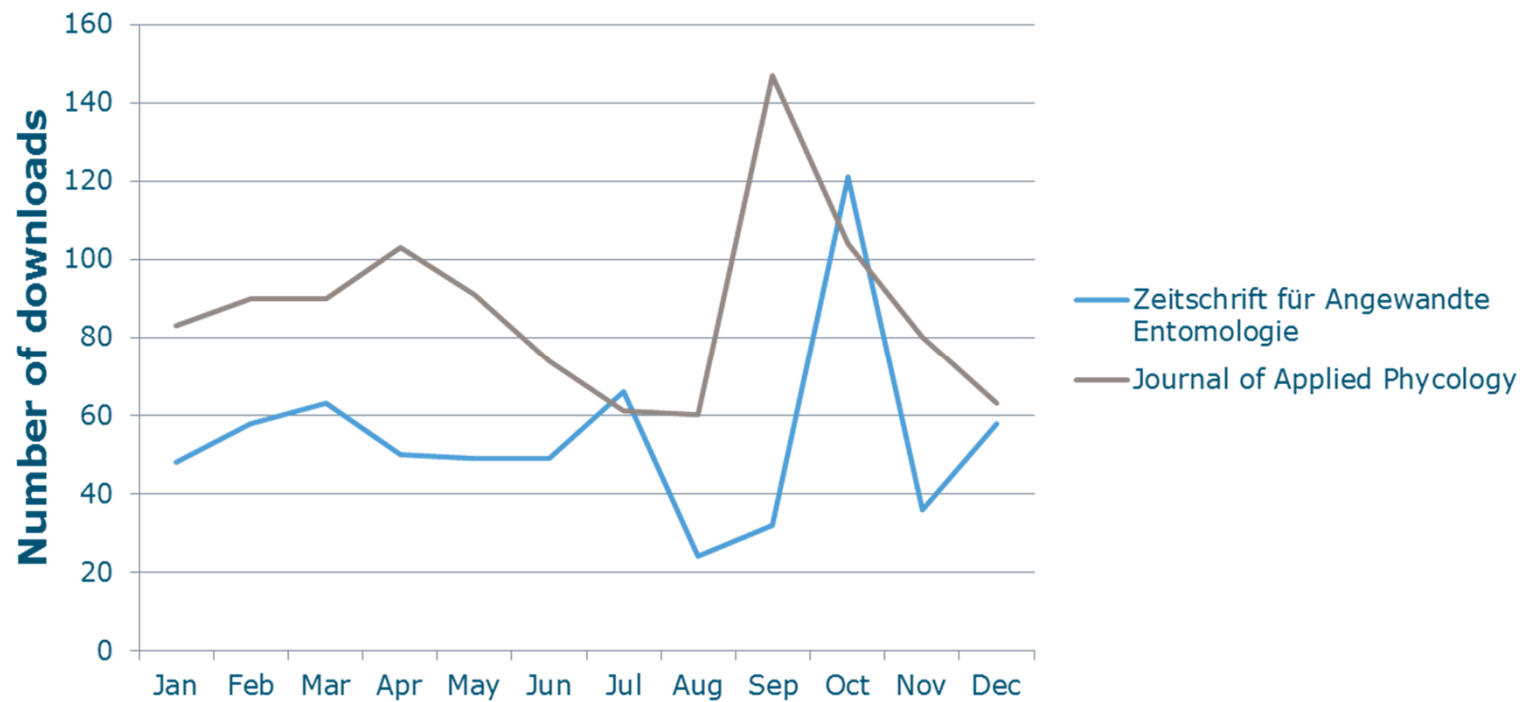
Article downloads

- Counter reports
- IP range: 137.224.0.0-137.224.255.255
 - not linked to research groups
- Usage for Wageningen UR as a whole

Journal Requests: Number of Successful Full-text Article Requests by Month and Journal													
Wageningen UR Library - 3_149													
Date run:													
6-1-2011													
	Publisher	Platform	Print ISSN	Online ISSN	jan-10	feb-10	mar-2010	apr-10	may-2010	jun-10	jul-10	aug-10	sep-10
Total for all journals	IOP	IOPscience			0	0	237	209	208	260	143	151	277
Acta Physiologica	IOP	IOPscience	1004-423X		0	0	0	0	0	0	0	0	0
Advances in Space Research	IOP	IOPscience		2043-6262	0	0	0	0	0	0	0	1	0
Biofabrication	IOP	IOPscience	1758-5082	1758-5090	0	0	0	0	0	0	0	0	1
Bioinspiration & Biomimetics	IOP	IOPscience	1748-3182	1748-3190	0	0	1	1	1	1	1	8	43
Biomedical Engineering Online	IOP	IOPscience	1748-6041	1748-605X	0	0	0	0	0	0	0	0	1

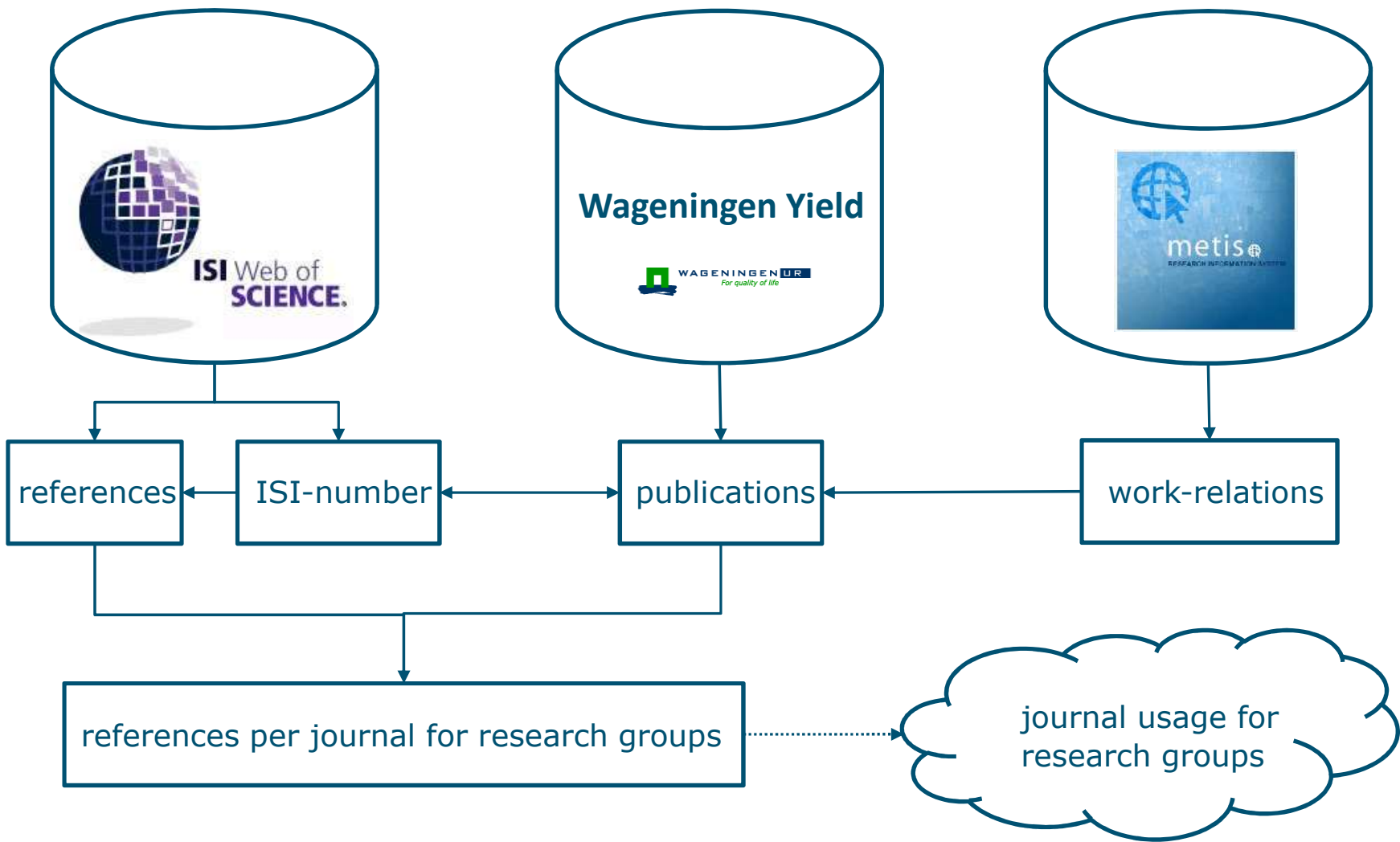
“Real” article downloads

- Representativeness of downloads for usage
- Journal importance for research
 - citing & publishing



Journal usage per research group

- Collection management (library)
 - Include appropriate journals
 - Cost allocation journal subscriptions
 - Journal recommendation (users)
 - Core journals for scientific disciplines
 - Research strategies (management)
 - Collaboration between groups
 - Appointment of new staff
- } similarity analysis



References per journal

	Number of references in articles				
	Group 1	Group 2	Group 3	Group 4	Group 5
Journal 1	107	52	170	72	32
Journal 2	25	0	359	171	394
Journal 3	366	136	0	5	205
Journal 4	10	4	135	56	158
Journal 5	0	8	14	6	0
All journals	508	200	678	310	789

Relative contribution of citations to journal j by group g

$$R_{j,g} = \frac{r_{j,g}}{\sum_{j=1}^n r_{j,g}}$$

Relative contribution per journal

	Relative number of references per journal				
	Group 1	Group 2	Group 3	Group 4	Group 5
Journal 1	0.21	0.26	0.25	0.23	0.04
Journal 2	0.05	0.00	0.53	0.55	0.50
Journal 3	0.72	0.68	0.00	0.02	0.26
Journal 4	0.02	0.02	0.20	0.18	0.20
Journal 5	0.00	0.04	0.02	0.02	0.00

Similarity between groups g and k based upon relative contributions of citations in journals $j=1\dots n$

$$1 - \left| \frac{\sum_{j=1}^n (R_{j,g} - R_{j,k})}{\sum_{j=1}^n R_{j,g} + \sum_{j=1}^n R_{j,k}} \right|$$

Similarity between research groups

	Group 1	Group 2	Group 3	Group 4	Group 5
Group 1	1	0.91	0.28	0.3	0.37
Group 2	0.91	1	0.29	0.29	0.32
Group 3	0.28	0.29	1	0.96	0.74
Group 4	0.3	0.29	0.96	1	0.74
Group 5	0.37	0.32	0.74	0.74	1

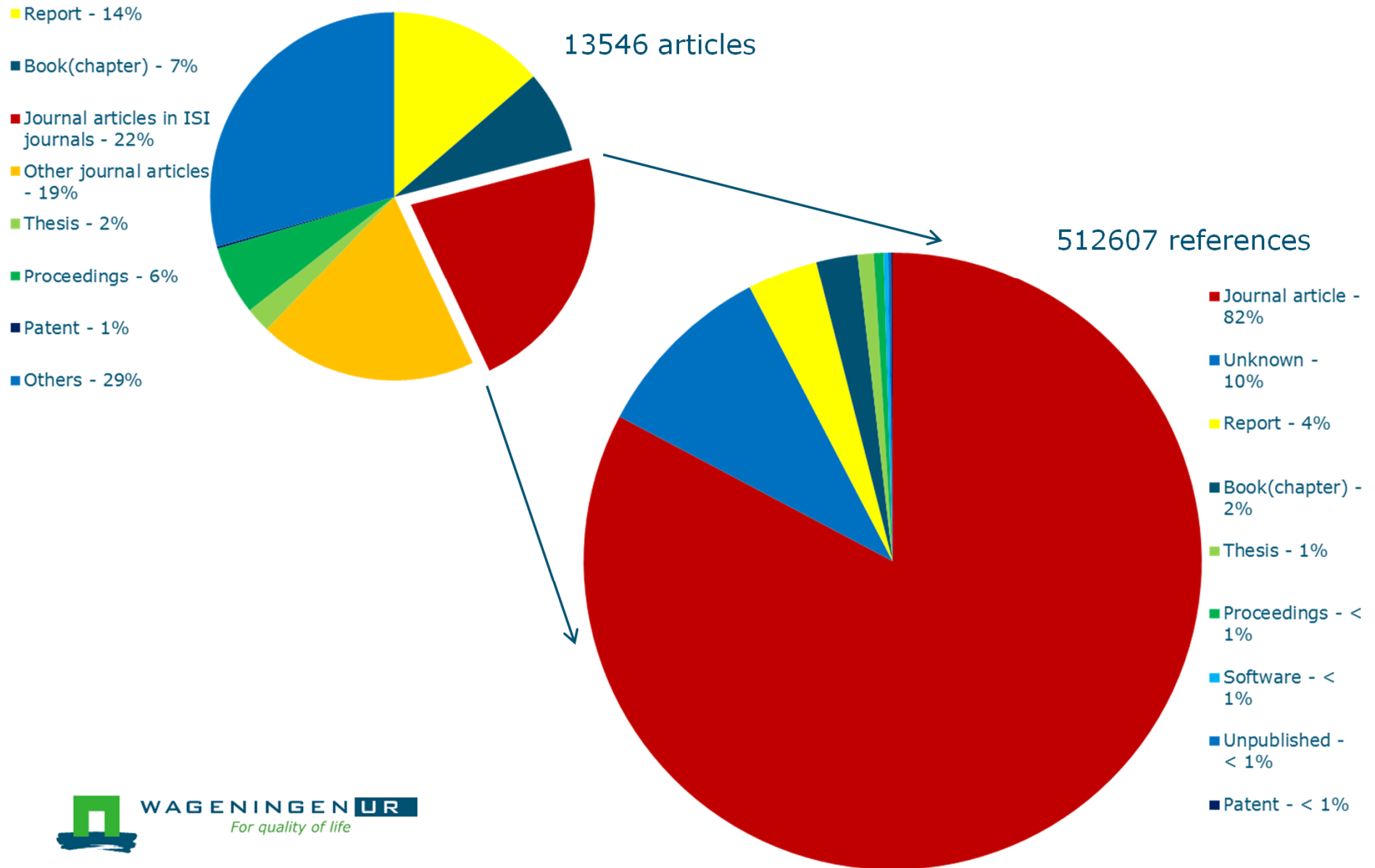
	Group 1	Group 2	Group 3	Group 4	Group 5
Number of articles	20	4	18	7	35

Network of research groups

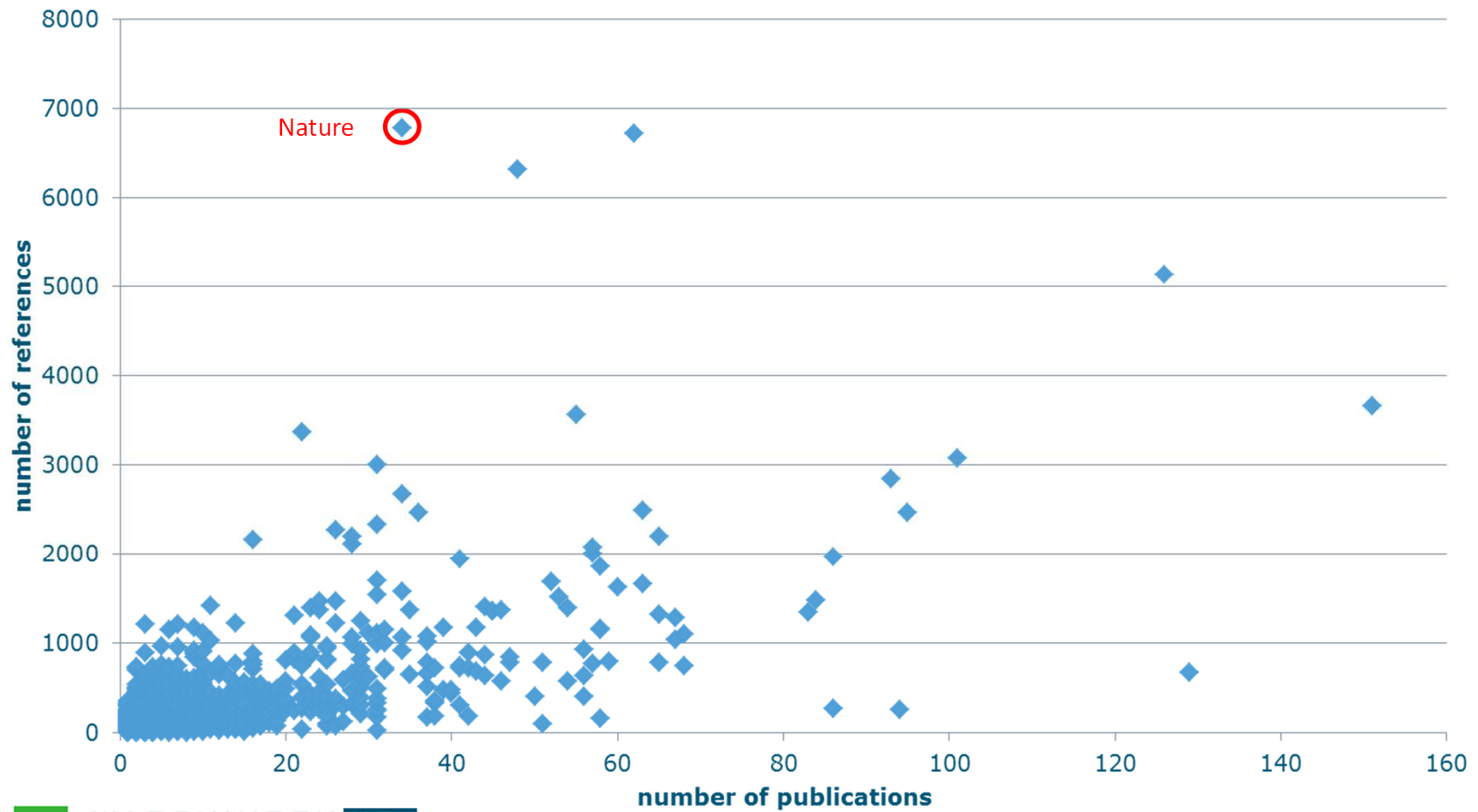


VOSviewer

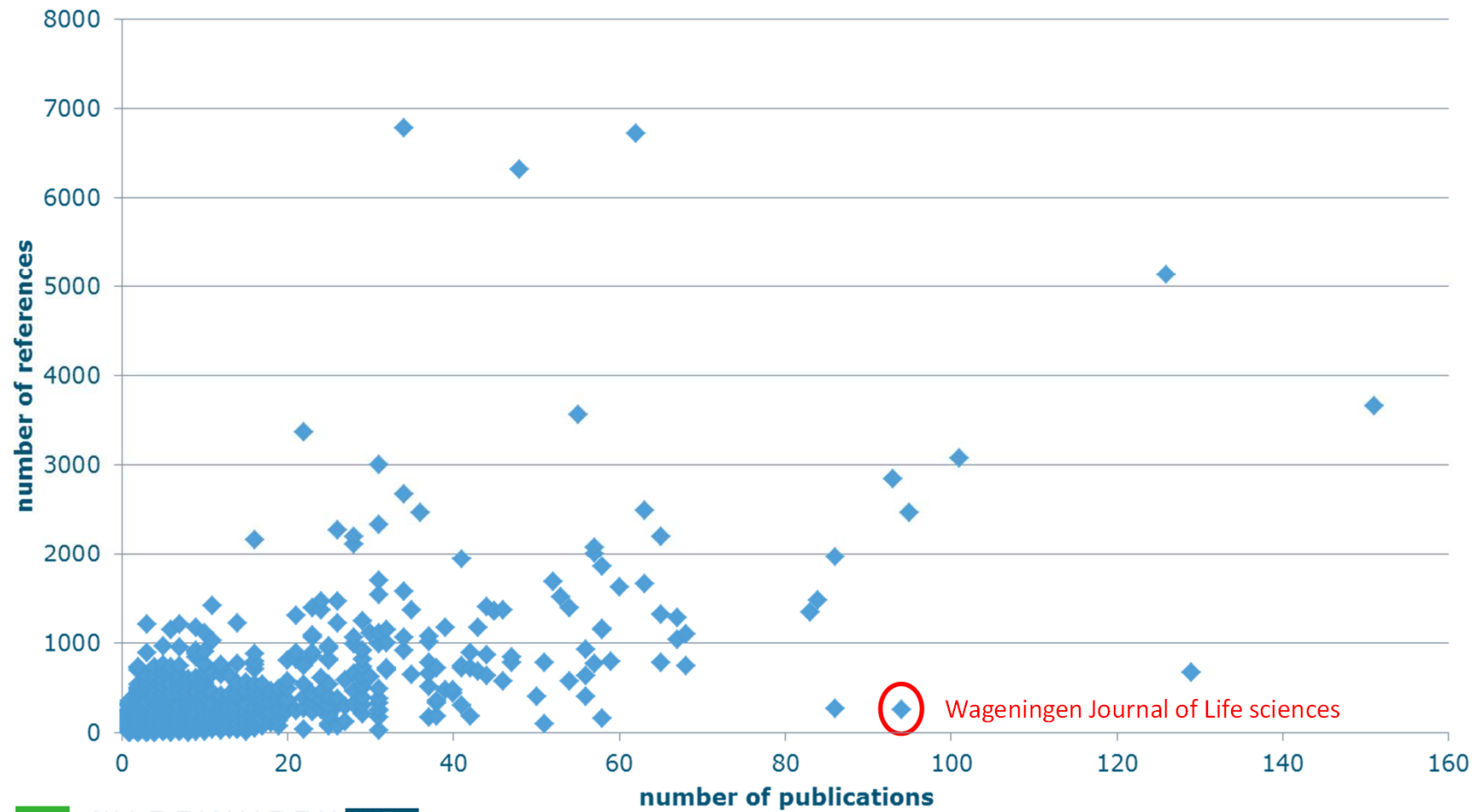
Publications and references 2006-2011



Journal citations related to journal publications



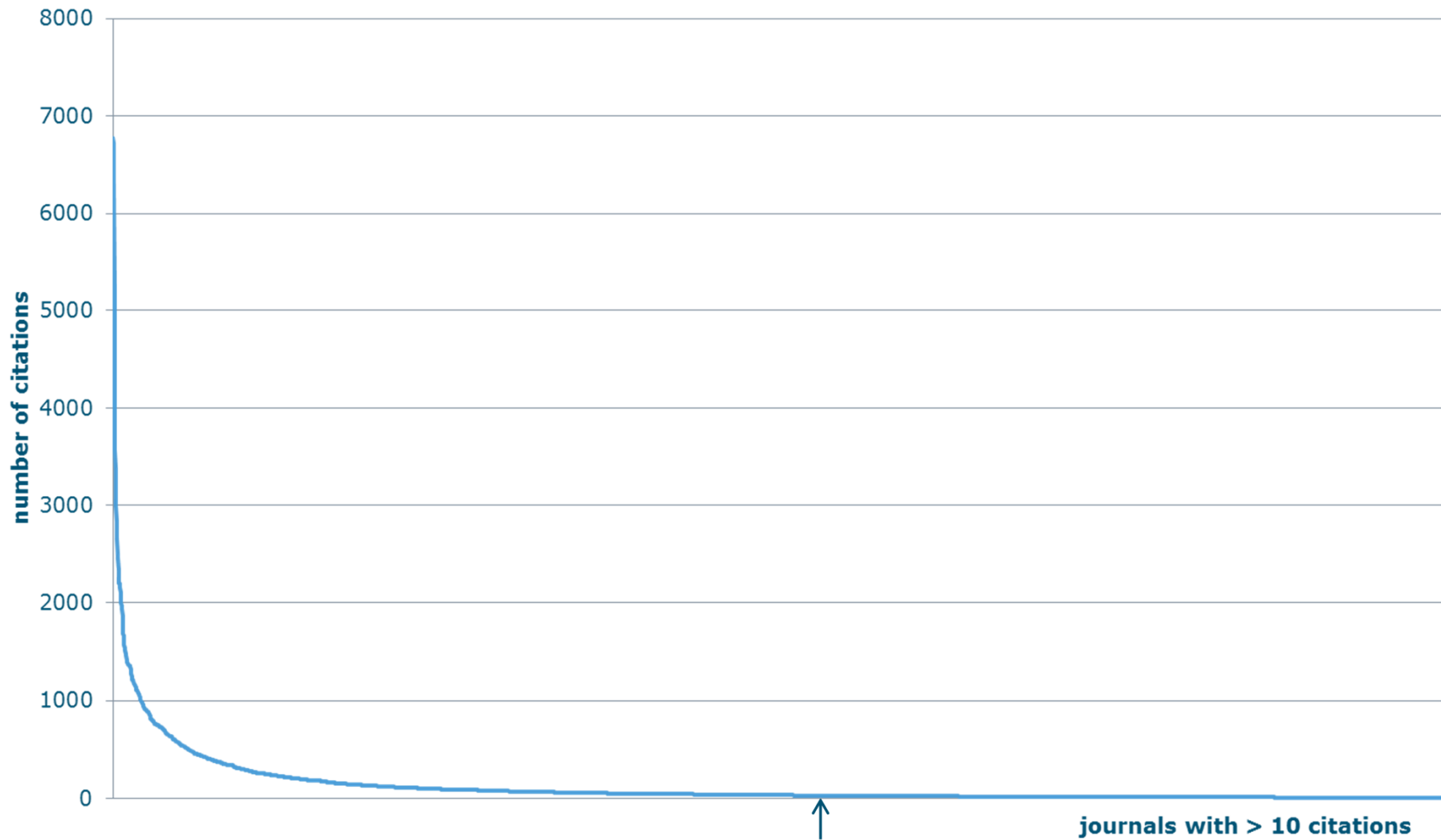
Journal citations related to journal publications



Most cited journals (n=9343)

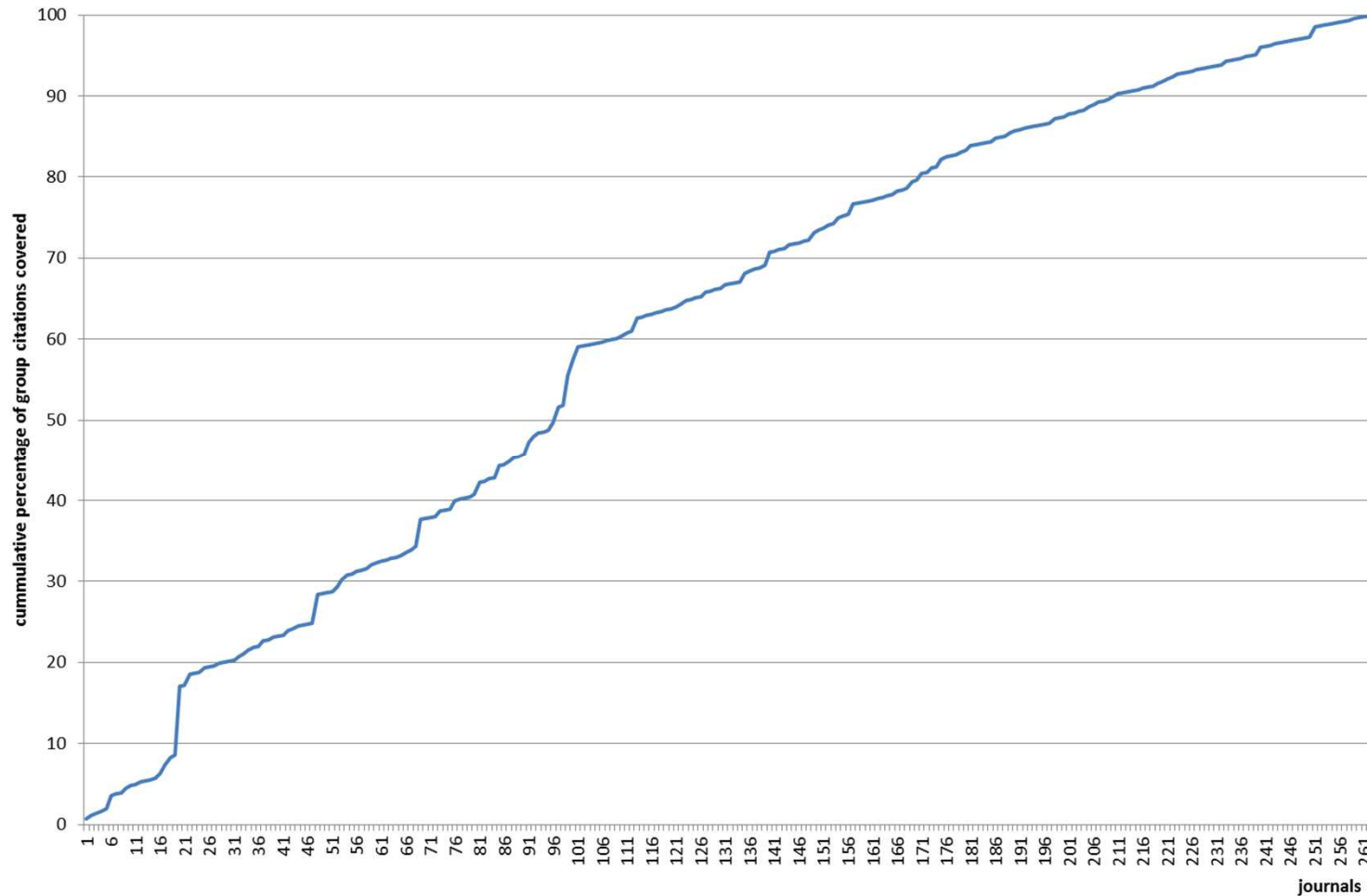
Journal	2006	2007	2008	2009	2010	2011	2006-2011
Nature	764	947	999	1233	1365	1467	6775
PNAS	699	904	1020	1158	1375	1573	6711
Science	663	840	918	1133	1271	1486	6311
Applied and environmental microbiology	640	692	986	969	966	875	5128
Journal of dairy science	413	499	603	518	691	933	3657
Plant physiology	533	543	608	591	663	623	3561
...
World agriculture	0	0	0	0	0	1	1

Cited journals – Wageningen UR

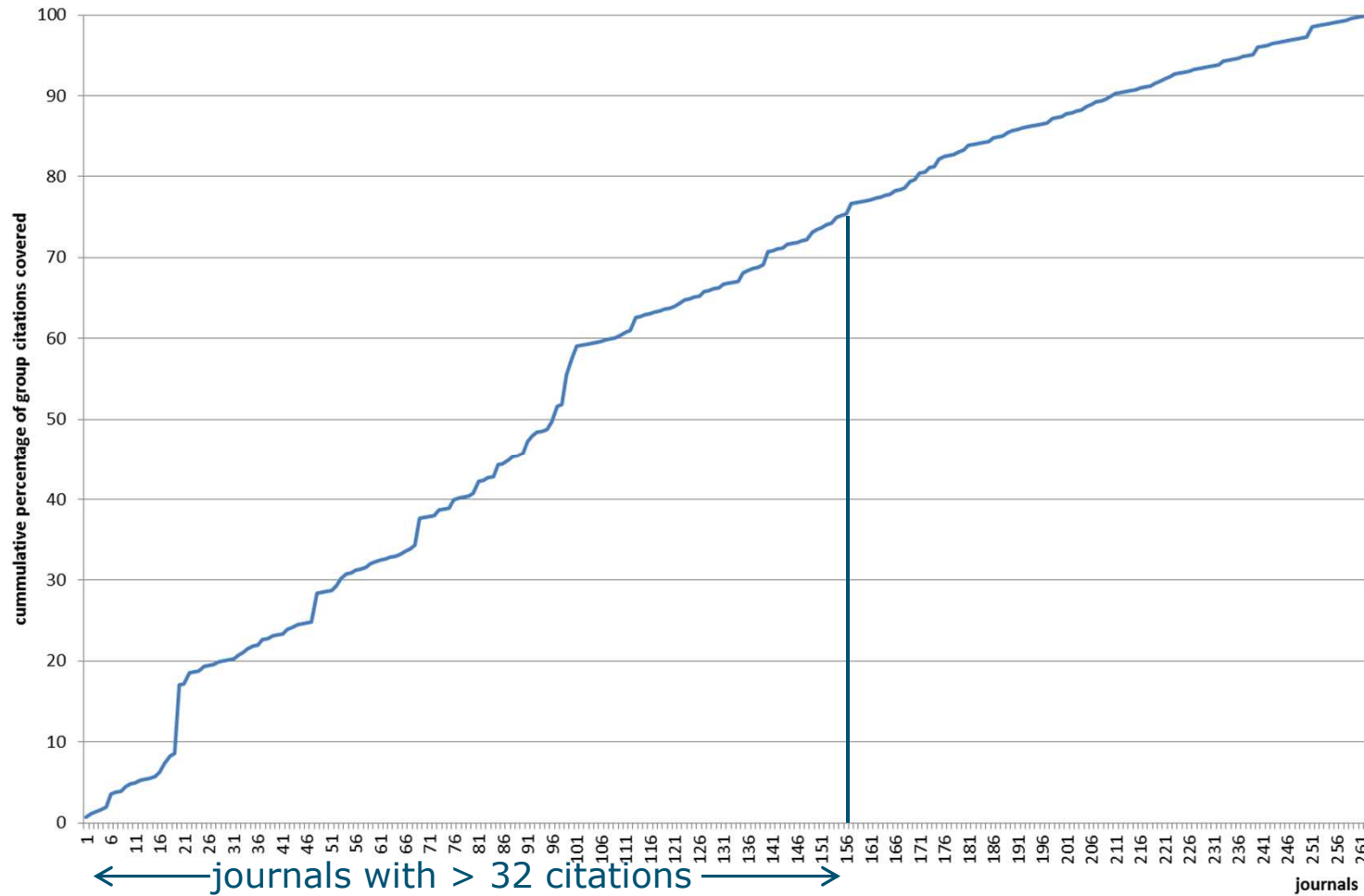


↑
Journal of hepatology
32 references - #1791
90% of all citations covered

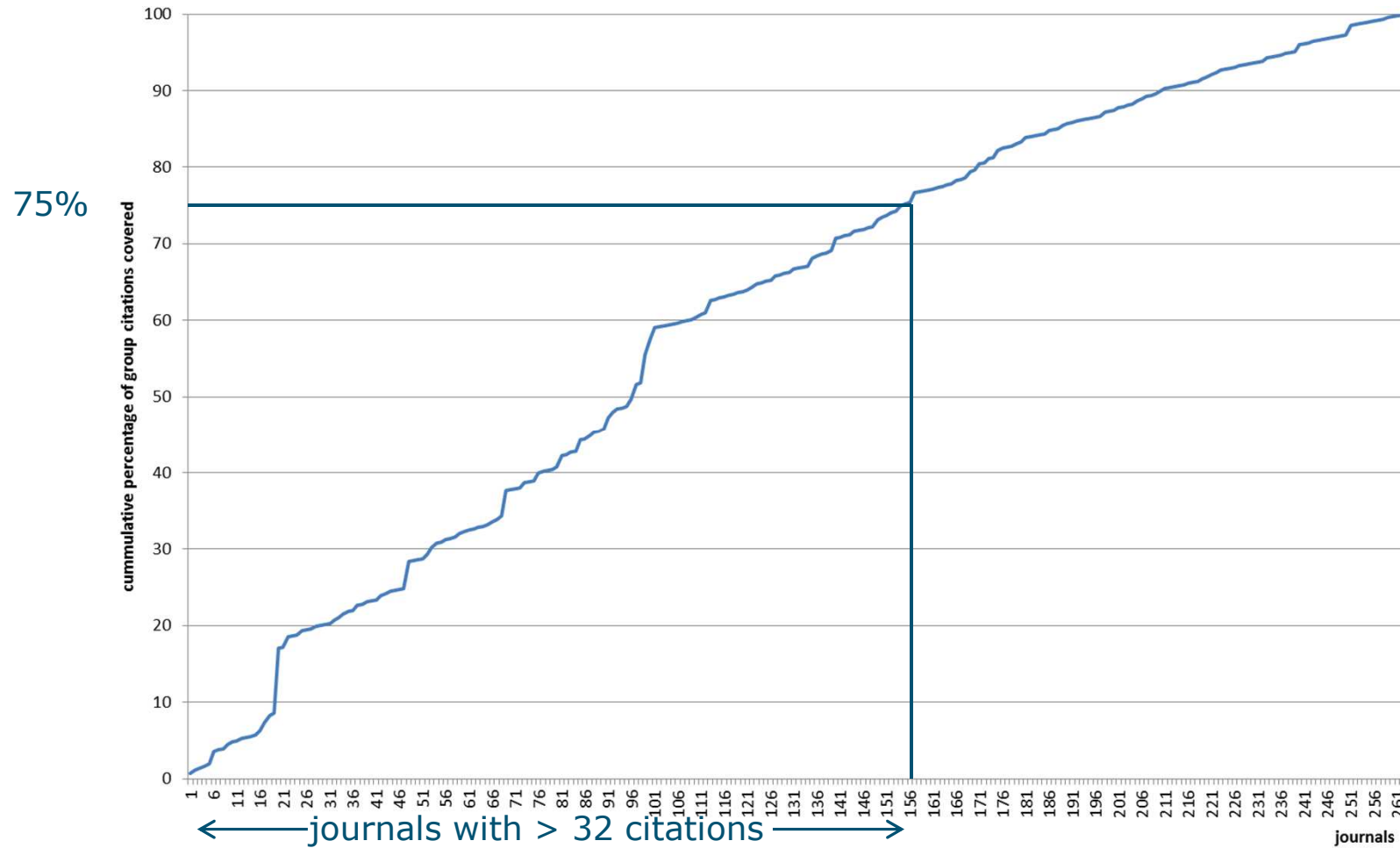
Cited journals – Operations research and logistics group



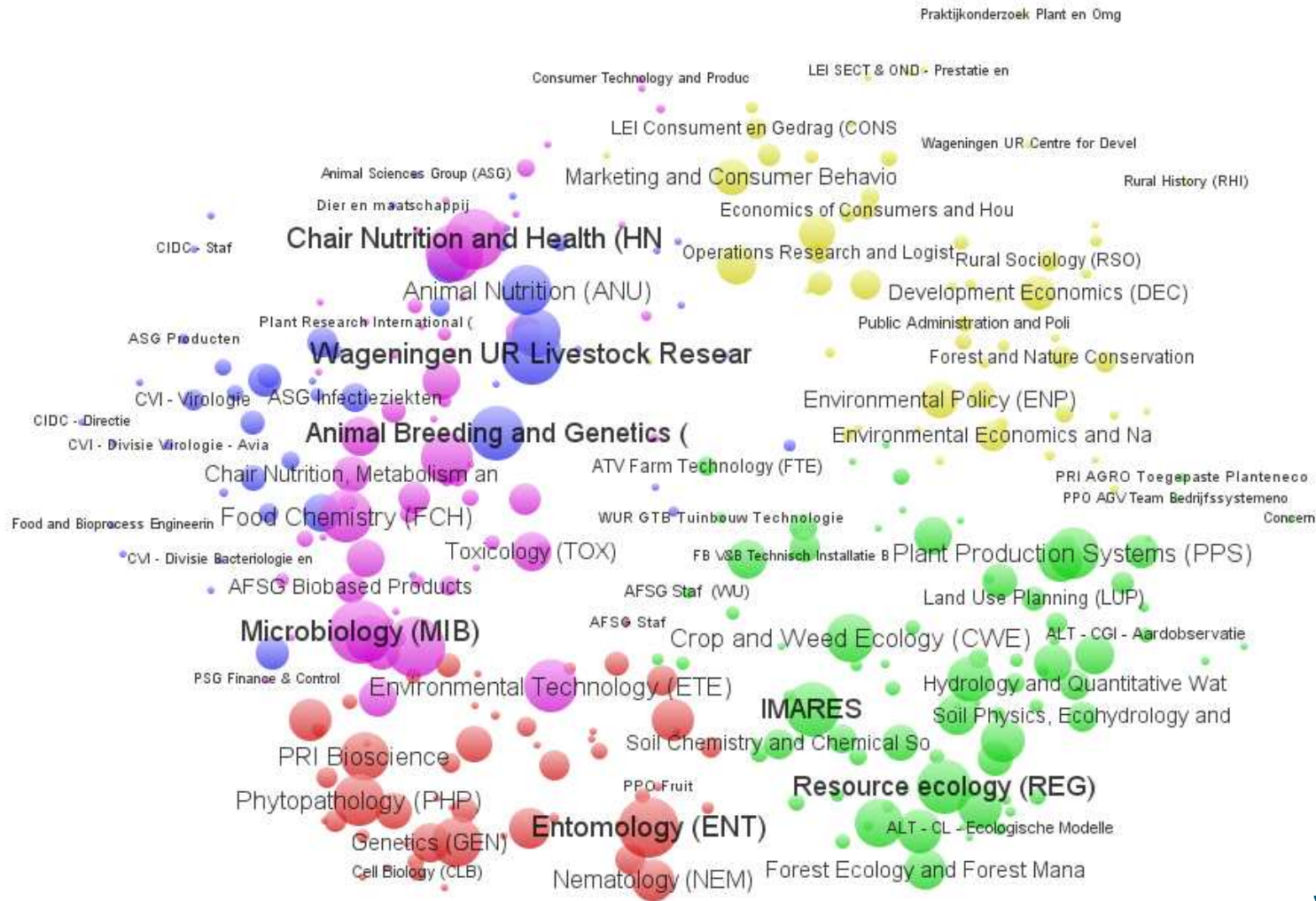
Cited journals – Operations research and logistics group



Cited journals – Operations research and logistics group



Visualization research output Wageningen UR



VOSviewer

Plant breeding 2006



Plant breeding 2007



Plant breeding 2008

PRI Bioscience

Molecular Biology (MOB)

Entomology (ENT)

PRI Gewas- en Productie-ecolog

PRI Biometris

Phytopathology (PHP)

PSG Directie

PRI Bio-interacties en Plantge

Bio-informatics (BIF)

Horticultural Supply Chains (H

Genetics (GEN)

Nematology (NEM)

Biosystematics (BIS)

Biometris - WU (MAT)

Plant Breeding (PBR)

PRI Biodiversiteit en Veredeli

Centrum voor Genetische Bronne

Plant breeding 2009

Phytopathology (PHP) Plant Physiology (PPH)

PRI Bio-interacties en Plantge

Cell Biology (CLB)

FB SC ICT Services

PRI BIOINT Ecological Interact

Genetics (GEN)

PRI - Biometris

PRI - Bio Interacties en Plant

PPO BBF Boomkwekerij

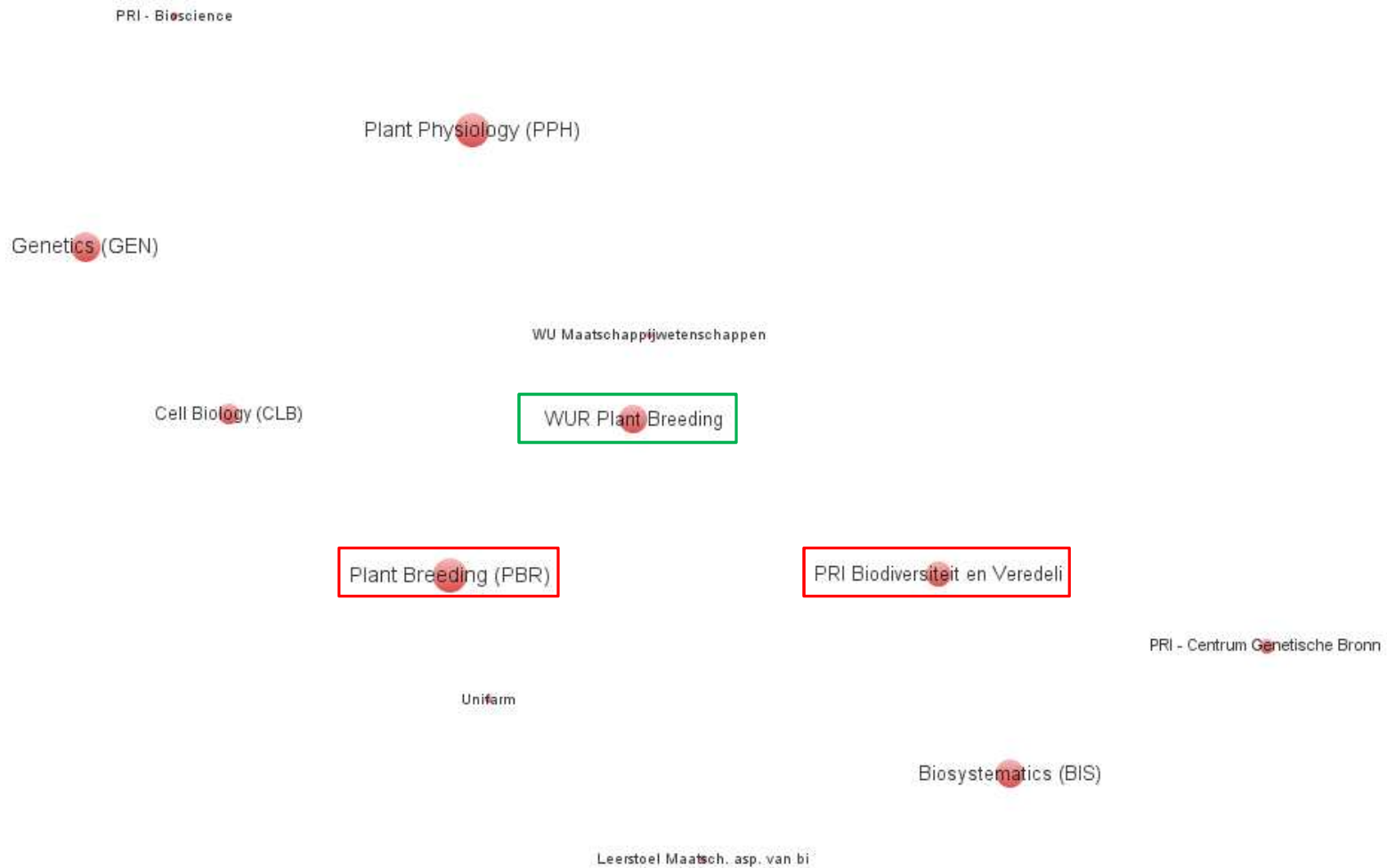
Plant Breeding (PBR)

PRI Biodiversiteit en Veredeli

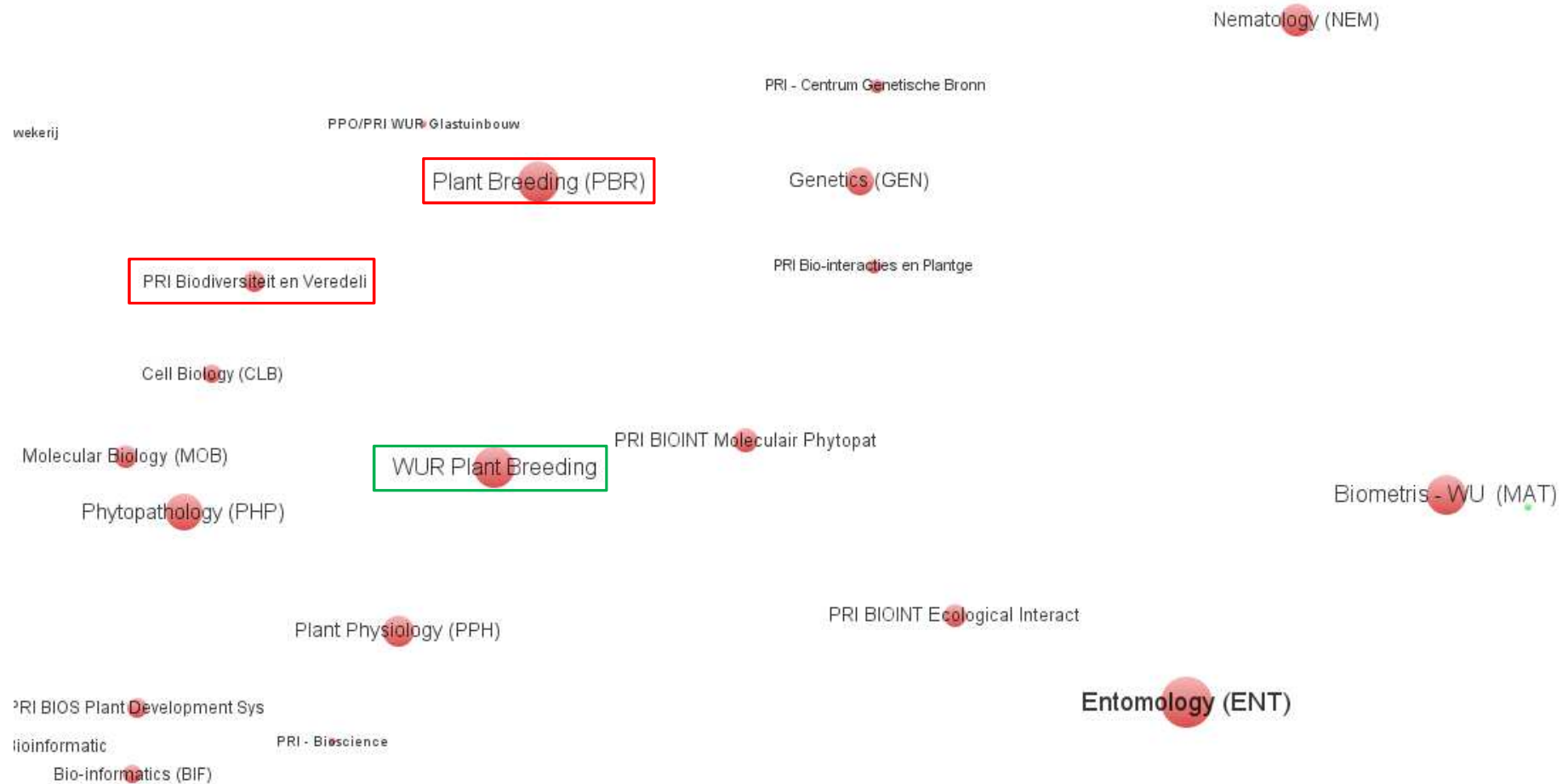
Centrum voor Genetische Bronne

PRI - Centrum Genetische Bronn

Plant breeding 2010



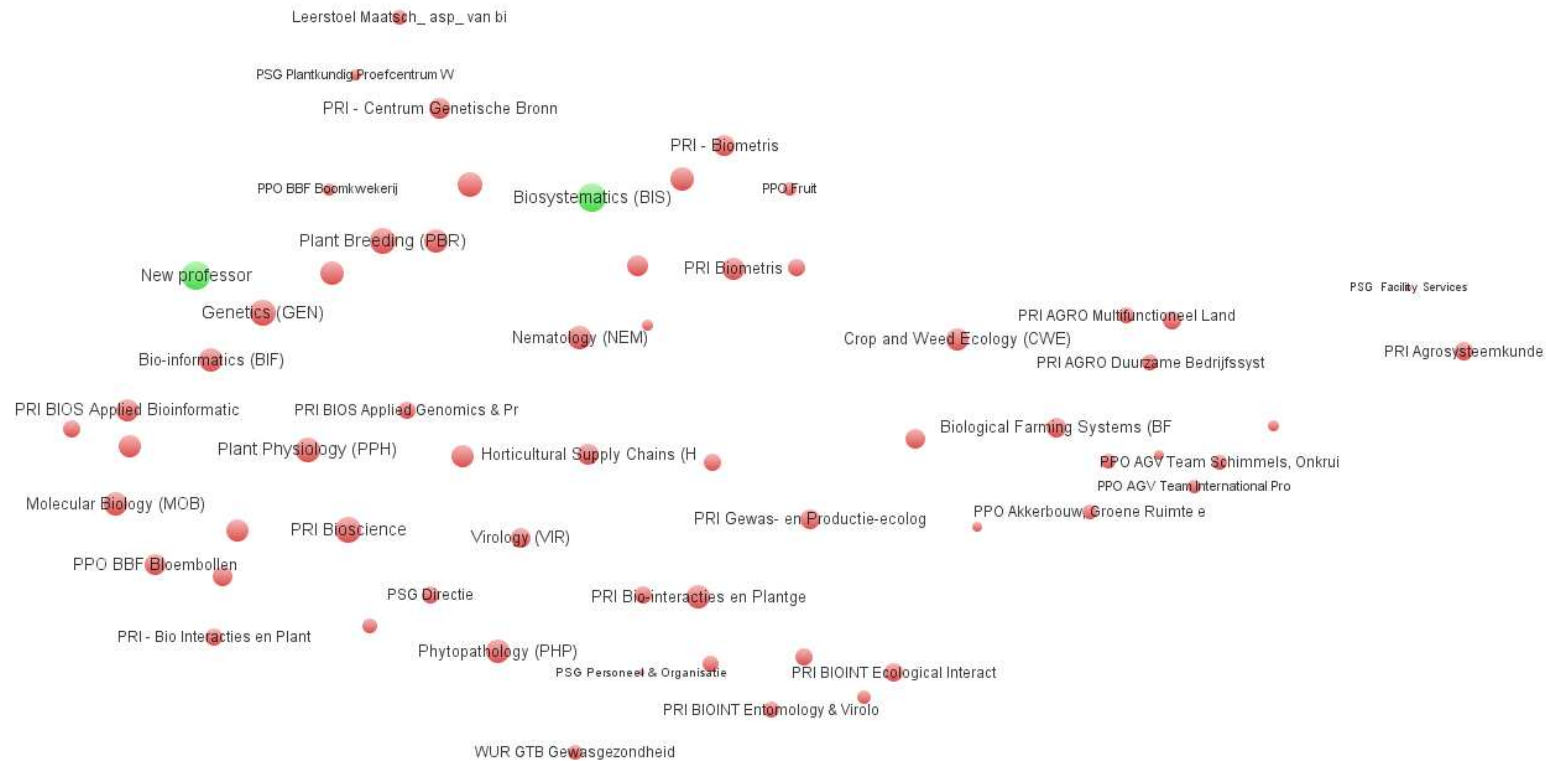
Plant breeding 2011



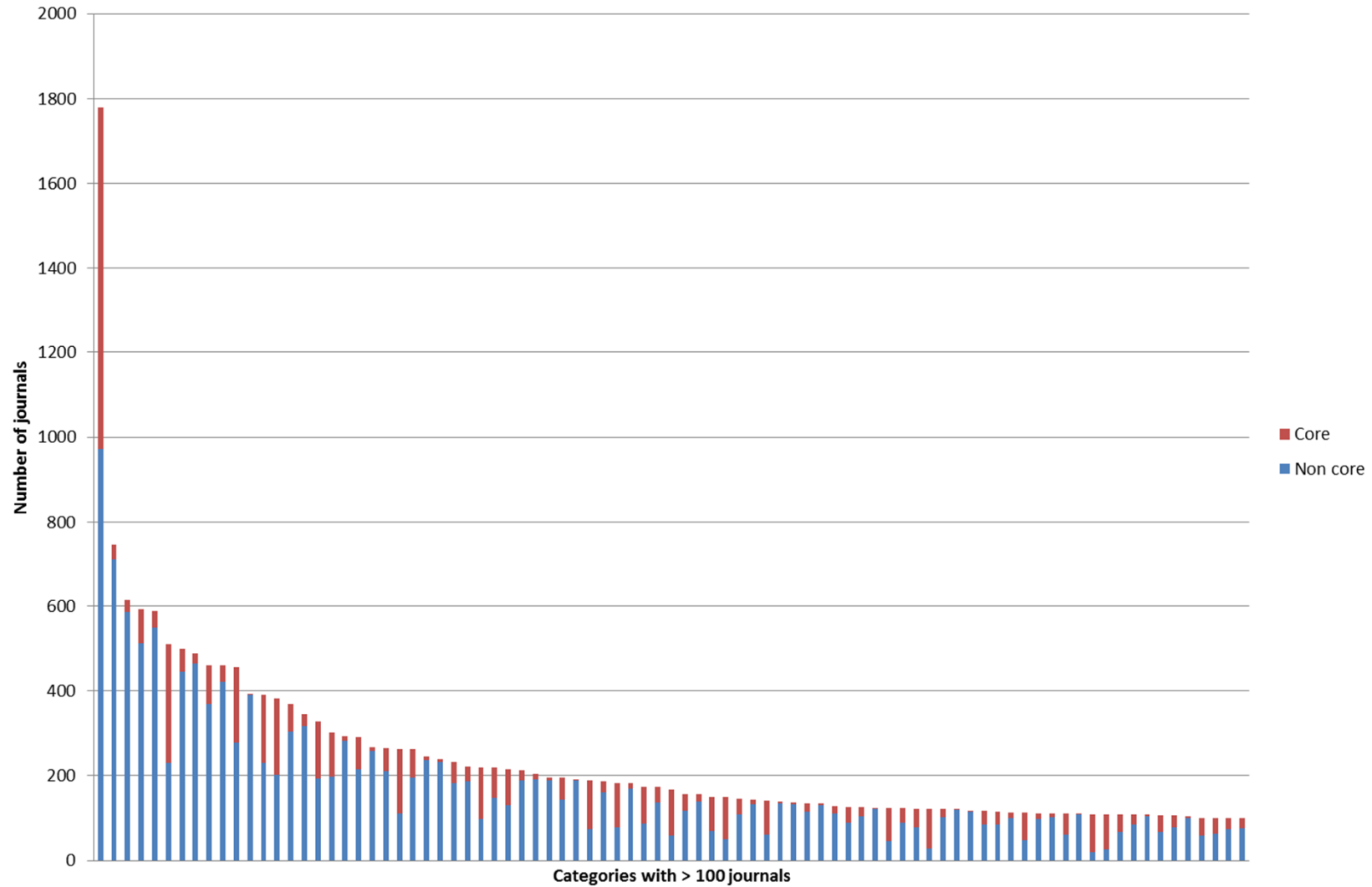
Similarity to Plant breeding 2006-2011

2006	2007	2008	2009	2010	2011
Plant breeding (PBR)	Plant breeding (PBR)	Plant breeding (PBR)	Plant breeding (PBR)	Plant breeding (PBR)	Plant breeding (PBR)
PRI Biodiversity	Genetics	PRI Biodiversity	PRI Biodiversity	WUR Plant Breeding	PRI Biodiversity
Phytopathology	Molecular biology	Genetics	Genetics	PRI Biodiversity	WUR Plant Breeding
AFSG Quality in chains	Plant physiology	Biosystematics	Centre Genetic Resources	Biosystematics	Genetics
Genetics	Plant cell biology	Centre Genetic Resources	Genetics	Cell biology	Centre Genetic Resources
Biosystematics	Phytopathology	Horticultural supply chains	PRI Biointeractions	Genetics	PRI Biointeractions
	PRI Biodiversity			Centre Genetic Resources	

Application new professor Biosystematics



Core journals in library catalogue



Allocation costs journal subscriptions - citations

Journal	PSG	ASG	SSG	AFSG	ESG	Total citations	Price
Nature	989	341	59	511	753	2653	\$ 2130
PNAS	1225	325	29	787	166	2532	\$ 471
Science	970	239	99	529	594	2431	\$ 609
Applied and environmental microbiology	696	257	27	1320	139	2439	\$ 993
Journal of dairy science	92	1169	149	212	38	1660	\$ 365
Plant physiology	1296	4	2	379	59	1740	\$ 292
...
Limosa	4	0	0	0	22	26	\$ 39

Allocation costs journal subscriptions - fractions

Journal	PSG	ASG	SSG	AFSG	ESG	Price
Nature	0.37	0.13	0.02	0.19	0.28	\$ 2130
PNAS	0.48	0.13	0.01	0.31	0.07	\$ 471
Science	0.40	0.10	0.04	0.22	0.24	\$ 609
Applied and environmental microbiology	0.29	0.11	0.01	0.54	0.06	\$ 993
Journal of dairy science	0.06	0.70	0.09	0.13	0.02	\$ 365
Plant physiology	0.74	0.00	0.00	0.22	0.03	\$ 292
...
Limosa	0.15	0.00	0.00	0.00	0.85	\$ 39

Allocation costs journal subscriptions - prices

Journal	PSG	ASG	SSG	AFSG	ESG	Price
Nature	\$ 794	\$ 274	\$ 47	\$ 410	\$ 605	\$ 2130
PNAS	\$ 228	\$ 60	\$ 5	\$ 146	\$ 31	\$ 471
Science	\$ 243	\$ 60	\$ 25	\$ 133	\$ 149	\$ 609
Applied and environmental microbiology	\$ 283	\$ 105	\$ 11	\$ 537	\$ 57	\$ 993
Journal of dairy science	\$ 20	\$ 257	\$ 33	\$ 47	\$ 8	\$ 365
Plant physiology	\$ 217	\$ 1	\$ 0	\$ 64	\$ 10	\$ 292
...
Limosa	\$ 6	\$ 0	\$ 0	\$ 0	\$ 33	\$ 39

Allocation costs journal subscriptions – total prices

Journal	PSG	ASG	SSG	AFSG	ESG	Price
All journals	\$ 323,382	\$ 232,247	\$ 57,037	\$621,071	\$ 270,389	\$ 1,504,125

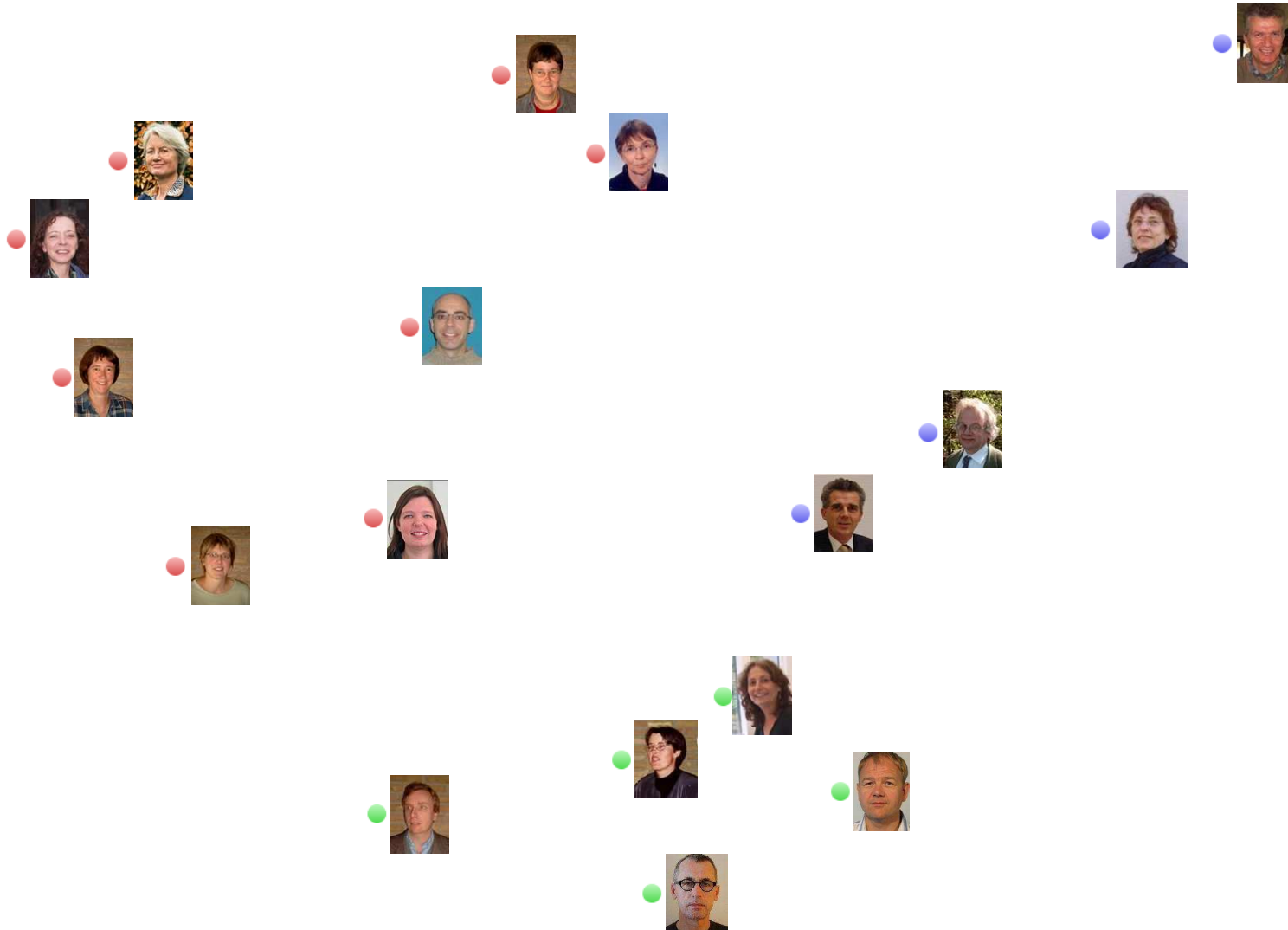
Allocation costs journal subscriptions – Spikman factor

Journal	PSG	ASG	SSG	AFSG	ESG
All journals	0.21	0.15	0.04	0.41	0.18

References

- Van Eck, N.J. & Waltman, L. (2011). VOSviewer version 1.4.0. Center for Science and Technology Studies. Leiden University. Available via <http://www.vosviewer.com/>
- [Web article](#)

Acknowledgements



Questions

