Bibliometric analysis tools on top of the university's bibliographic database, new roles and opportunities for library outreach

W. Gerritsma, P.L. van der Togt, M.G.P. van Veller
Wageningen UR Library

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Outline

- Introduction
- Research assessment and bibliometrics
- Our approach
- Some results
- The library, the place to be

Introducing Wageningen UR

- Wageningen University & Research is the result of the merger between Wageningen University and the former DoA research institutes
- Life Sciences domain
- Some 5500 researchers, 6400 students
- Strong international focus

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Bibliometrics at Wageningen UR Library

- Since the 1990s' few citation analyses with SciSearch on Dialog and DIMDI
- 2001: Web of Science
  - Collection analysis
  - Finger exercises with citation analysis
- 2004: Essential Science Indicators
  - Citation analysis for graduate school WIAS
- 2008: Implementation as a service on our (metadata-)repository Wageningen Yield

Research assessment in the Netherlands

- Supervised by VSNU/QANU
  - 6 year cycle for external peer reviews
  - After 3 years midterm review
  - Quality, Productivity, Relevance, Vitality & Visibility

- Citation analyses are not stipulated in the current Standard Evaluation Protocol. But have become mandatory at Wageningen UR

Metis and our repository Wageningen Yield

- Metis is a Current Research Information System
  - Information on all labour relations of all faculty and staff
  - Information on all projects
  - Information on all outputs (metadata of publications)
  - Data entry at the chair group level
  - Quality control by the library (inclusion of DOI)
- Wageningen Yield (WaY) is the repository of Wageningen UR
  - Synchronized each night with the updates from Metis
  - Wageningen Yield is also an OA repository

Bibliometrics in Wageningen Yield

- Coupling of WaY metadata and Web of Science incorporating UT number in WaY.
  - Using the InCites API, majority of coupling by DOI
- Updating citation data/baselines 2 to 3 times per year
- Determination of “advanced” bibliometric indicators
- All citation data, publication lists and bibliometric indicators open for inspection by faculty and staff

My article has been cited 22 times!

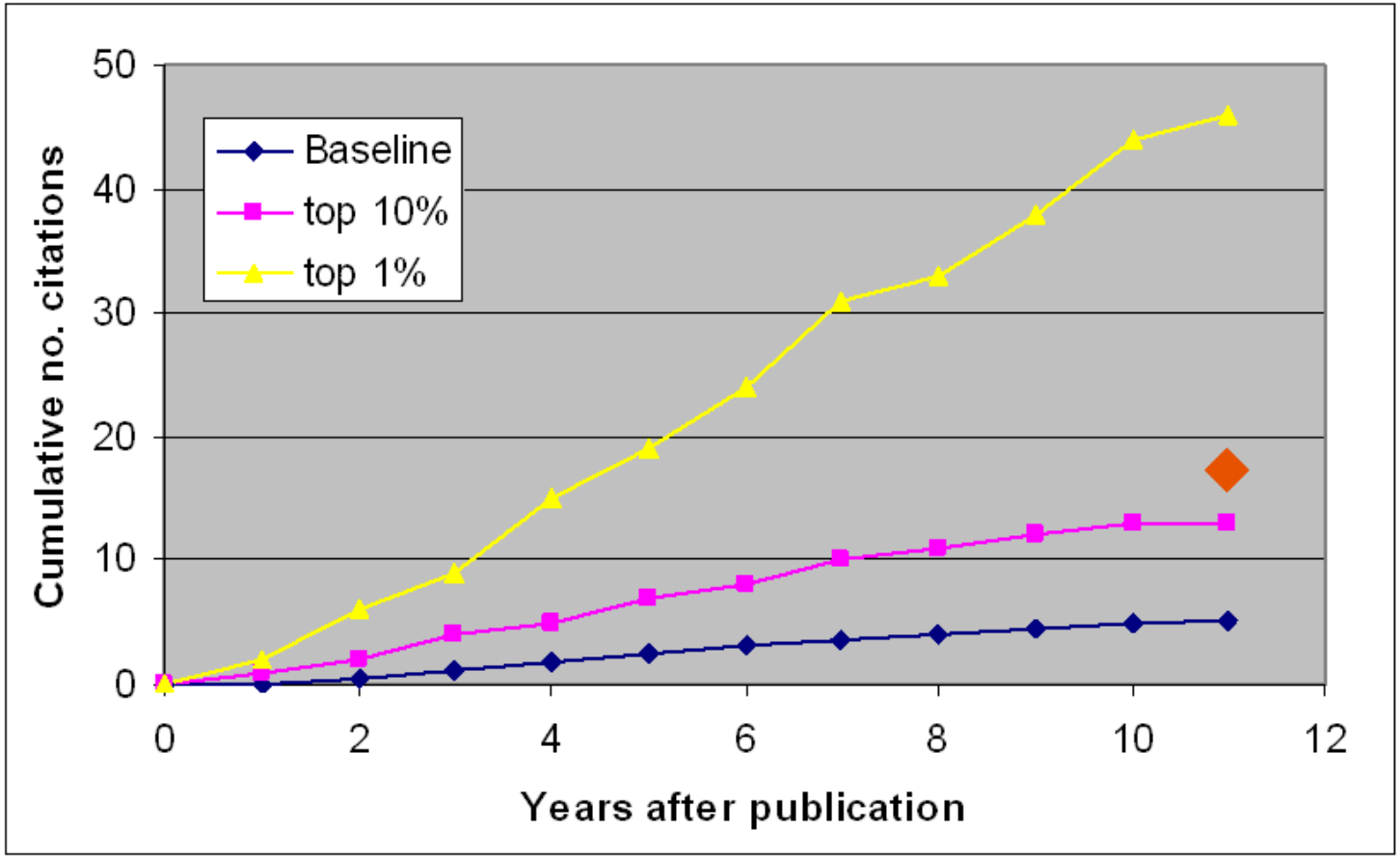
But was does it mean?

Image: www.rcac.net.au

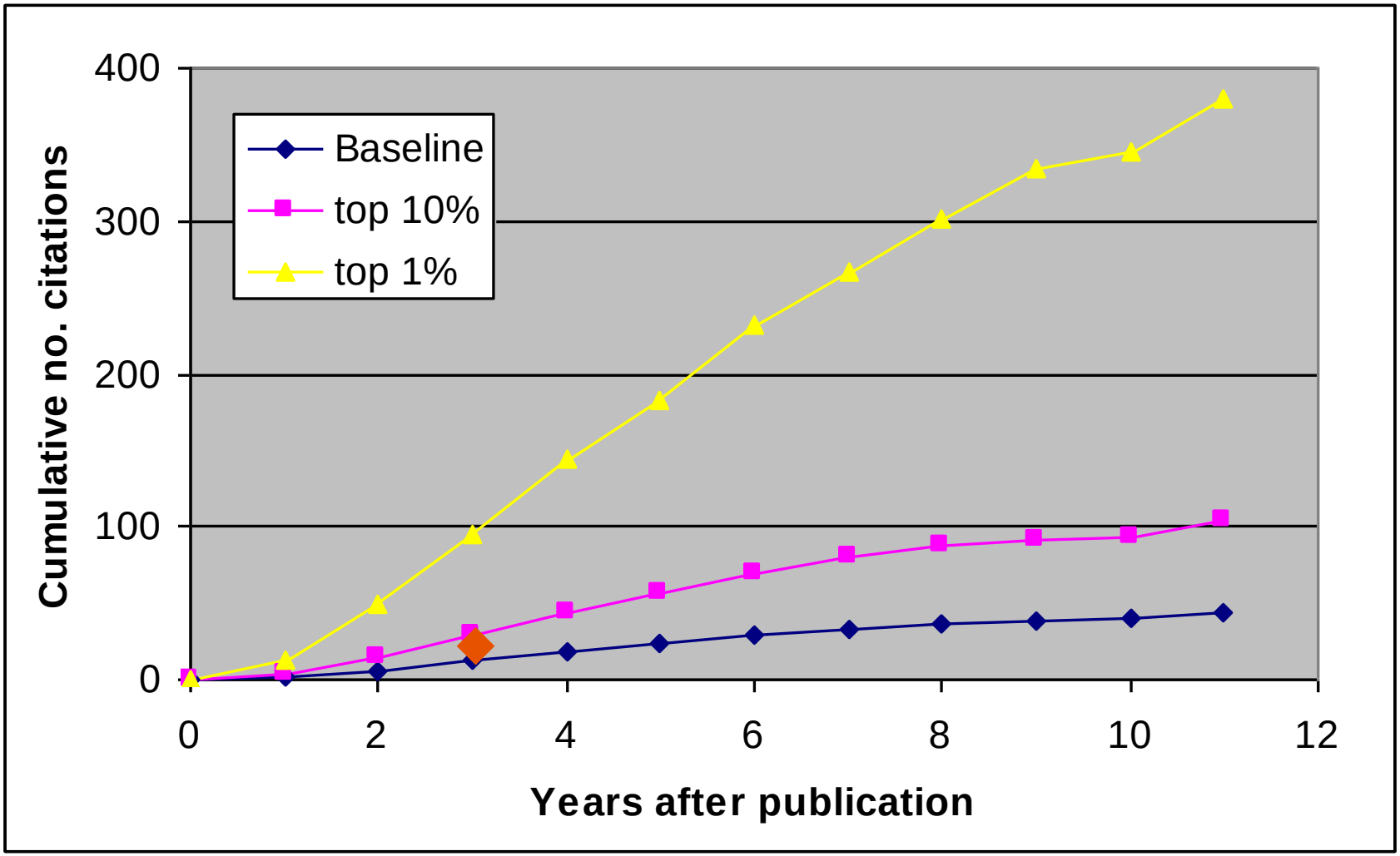
How do we compare numbers?

- Scientist *Z. Math* has a publication from 2000 with 17 citations
- Scientist *M. Biology* has a publication from 2008 with 24 citations

Baselines for Mathematics

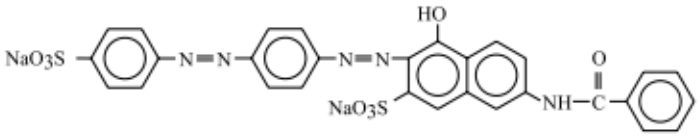


Baseline Molecular Biology



Bibliometric indicators: An example

- Zee, F.P.v.d., G. Lettinga, and J.A. Field (2001) Azo dye decolourisation by anaerobic granular sludge. *Chemosphere* 44:1169-1176.
  - Citations from WoS: **94**
- Journal: *Chemosphere*
  - Categorised by ESI in **Environment/Ecology**
- Baseline data for Environment/Ecology.
  - Article from 2001 in Environment/ecology:
  - On average: **19.36** citations; top 10%: 44 citations; top1%: 141 citations
- Relative Impact: 94 / 19.36 = **4.9**



Direct red 81

Advanced bibliometric indicators

- Follow van Moed (1995) as closely as possible; but.....
- Web of Science is used for citation data
  - We can't make corrections for self citations
- Essential Science Indicators for baseline data (World average, Top 10% and Top 1%)
  - Limited number of research fields (22)
  - Same baseline data used for selected document types
    - (articles, reviews, notes and letters (and selected proceedings))
- We can determine the representativeness of the citation analysis

Representativeness

SEP Table "Plant Production Systems"		2002-2008
1. Academic publications	**a. in refereed journals**	**351**
	b. in other journals	6
	c. refereed book chapters	36
	d. non-refereed book chapters	21
	e. monographs	2
	f. edited books	6
	g. proceedings (full papers only)	119
	h. scientific reports	41
	Total academic publications	**582**
2. PhD Theses		43
3. Professional publications and products (incl. IP)		59
4. Publications for the general public		5

Results:

Some screen shots

Home
Search
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Information for authors
Specials

Basic search | Advanced search | Author search | Affiliation search | Search result

? Search tips

All fields:
Title word:
Author:
Year of publication: 2002-2008
Reporting year:

Show publication of:
- (•) All organizations
- ( ) Wageningen UR
- ( ) Wageningen University
- ( ) Research Institutes

Show Publications:
- [ ] Containing link to full-text

Hide form for organization and project ? Search tips

Research Institute:

Chair Group: Plant Production Sys... (PPS)

Graduate School:

Project:

Research Theme:

Project:

Show form for document type(s) ? Search tips

Search | Reset

Home
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Dissertations
Information for authors
Specials

Basic search | Advanced search | Author search | Affiliation search | Search result

Print

Bibliometric analysis of WUR publications for (dept=PPS AND year of publication=2002 2003 2004 2005 2006 2007 2008 AND isi-nummer=*)

Research Field	N	C	Wavg	CPP	CI	RI	%T10 (T10)	%T1 (T1)	%NC (NC)
Agricultural Sciences	122	959	718.91	7.86	1.33	1.58	16% (20)	3% (4)	11% (13)
Biology & Biochemistry	8	31	100.33	3.88	0.31	0.35	0% (0)	0% (0)	13% (1)
Computer Science	3	31	6.18	10.33	5.02	4.54	67% (2)	0% (0)	0% (0)
Economics & Business	4	12	6.83	3.00	1.76	1.82	25% (1)	0% (0)	25% (1)
Engineering	3	14	9.84	4.67	1.42	1.25	0% (0)	0% (0)	0% (0)
Environment/Ecology	116	1702	1077.71	14.67	1.58	1.71	20% (23)	4% (5)	2% (2)
Geosciences	5	53	38.45	10.60	1.38	1.35	20% (1)	0% (0)	20% (1)
Mathematics	1	0	1.44	0.00	0.00	0.00	0% (0)	0% (0)	100% (1)
Microbiology	1	24	22.58	24.00	1.06	1.06	0% (0)	0% (0)	0% (0)
Molecular Biology & Genetics	1	17	37.95	17.00	0.45	0.45	0% (0)	0% (0)	0% (0)
Plant & Animal Science	17	185	120.02	10.88	1.54	1.83	35% (6)	0% (0)	6% (1)
Social Sciences, general	9	47	32.89	5.22	1.43	1.21	11% (1)	0% (0)	11% (1)
All research fields	**290**	**3075**	**2173.13**	**10.60**	**1.42**	**1.62**	**19% (54)**	**3% (9)**	**7% (21)**

Year of publication	N	C	Wavg	CPP	CI	RI	%T10 (T10)	%T1 (T1)	%NC (NC)
2002	42	421	620.41	10.02	0.68	0.69	2% (1)	0% (0)	2% (1)
2003	41	697	457.93	17.00	1.52	1.54	12% (5)	5% (2)	2% (1)

Some screenshots: Publication list

- Ewert, F.; Rounsevell, M.D.A.; Reginster, I.; Metzger, M.J.; Leemans, R. (2005)
  Future scenarios of European agricultural land use. I. Estimating changes in crop productivity
  Agriculture, Ecosystems and Environment 107 (2-3). - p. 101 - 116.

  WoS:000228596400001; TC: 79; RF: Environment/Ecology; RI: 8.1275720164609; [Top 10% publication] [Top 1% publication]

- Ewert, F. (2004)
  Modelling plant responses to elevated CO2: how important is leaf area index?
  Annals of Botany 93 (2004). - p. 619 - 627.

  WoS:000221871800001; TC: 19; RF: Plant & Animal Science; RI: 2.2274325908558;

- Ewert, F.; Rodriguez, D.; Jamieson, P.; Semenov, M.A.; Mitchell, R.A.C.; Goudriaan, J.; Porter, J.R.; Kimball, B.A.; Pinter, P.J.; Manderscheid, R.; Weigel, H.J.; Fangmeier, A.; Fereres, E.; Villalobos, F. (2002)
  Effects of elevated CO2 and drought on wheat : testing crop simulation models for different experimental and climatic conditions
  Agriculture Ecosystems and Environment 93 (2002). - ISSN 0167-8809 - p. 249 - 266.

  WoS:000179350600019; TC: 35; RF: Environment/Ecology; RI: 2.14460784313725;

- Farahpour, M.; Keulen, H. van; Sharif, M.A.; Bassiril, M. (2004)
  A planning support system for rangeland allocation in Iran with case study of chad egan sub-region
  Rangeland Journal 26 (2). - p. 225 - 236.

  WoS:000226084300007; TC: 1; RF: Environment/Ecology; RI: 0.080450522928399;

- Gachimbi, L.N.; Keulen, H. van; Thuranira, E.G.; Karuku, A.M.; Jager, A. de; Nguluu, S.; Ikombo, B.M.; Kinama, J.M.; Itabari, J.K.; Nandwa, S.M. (2005)
  Nutrient balances at farm level in Machakos (Kenya), using a participatory nutrient monitoring (NUTMON) approach
  Land Use Policy 22 (1). - p. 13 - 22.

  WoS:000225260300003; TC: 5; RF: Social Sciences, general; RI: 1.11607142857143;

- Gan, Y.; Stulen, I.; Keulen, H. van; Kuiper, P.J.C. (2004)
  Low concentrations of nitrate and ammonium stimulate nodulation and N2 fixation while inhibiting specific nodulation (nodule DW g-1 root dry weight) and specific N2 fixation (N2 fixed g-1 root dry weight) in soybean
  Plant and Soil 258 (1). - p. 281 - 292.

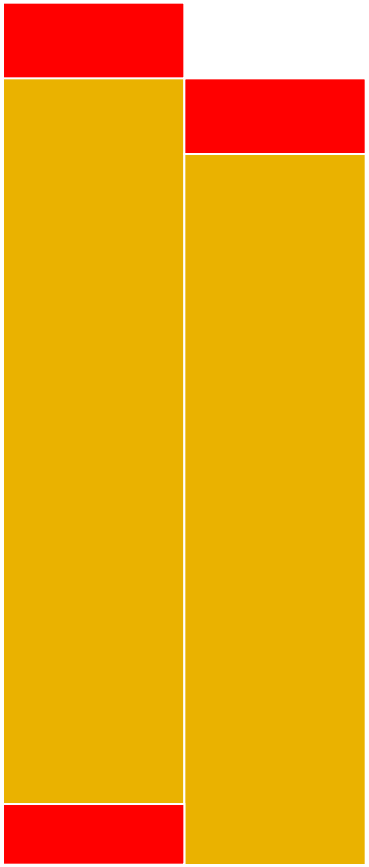
About the library role

Matching Wageningen Yield (WaY) and WoS

1161 peer reviewed articles not in ISI journals

WaY: 10933 articles

Missing in Way: 807 articles



Missing in WoS: 1159 articles

WoS: 9577 articles

Period: 2002-2007

Why at the library?

- Library is the functional manager of Metis / Way because of wide experience with bibliographic metadata
- Library manages contracts with publisher(s) of external databases
- Library has experience in developing and maintaining large databases
- Library has ample experience in searching complicated databases such as Web of Science

Advantage of using Metis / WaY

- Improvements in publication lists, etc. recorded
- Knowledge of, and experience with bibliometric analyses is better institutionalized
- Clarity / transparency for researchers
- Analysis of a single unit of the institute offers advantages for whole institute
- Better understanding of our own researchers
  - We know where they publish
  - We know what they cite
  - We know something about their impact

Raising library awareness

- Improvement of the (metadata) quality in the repository
- Many presentations for research groups during the preparation of peer reviews
- Presentations based on detailed studies of single groups
- Library gives advice on publication strategies for groups and individuals

Closing the circle: Collection analysis

- With the coupling of publication with WoS
- We have insight in the relation
  - Research unit – Researchers – Publications – Reference list
  - It is feasible to assign journal usage at faculty level

Journal title	Total	AFSG	ASG	ESG	Imares	PSG	SSG
NATURE	2584	511	341	753	93	989	59
PNAS	2467	787	325	166	20	1225	29
SCIENCE	2303	529	239	594	52	970	99
APPLIED AND ENVIRONMENTAL MICROBIOLOGY	2257	1320	257	139	12	696	27
PLANT PHYSIOLOGY	1597	379	4	58	0	1296	2
JOURNAL OF BIOLOGICAL CHEMISTRY	1543	931	223	13	6	379	8

Thank you!

This presentation: http://slideshare.net/wowter

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