

ask-Valerie

From Science to Practice: bringing Innovations to Agronomy and Forestry


June 30th 2015, Don Willems

(don.willems@wur.nl)




FOOD & BIOBASED RESEARCH
WAGENINGEN **UR**

Dialogue



My pastures are overrun
with weed! How do I get rid
of it?



Do you know what
kind of weed?
Perhaps black grass,
White goosefoot, or Common
groundsel?

We call it slender meadow
foxtail, do you know it?

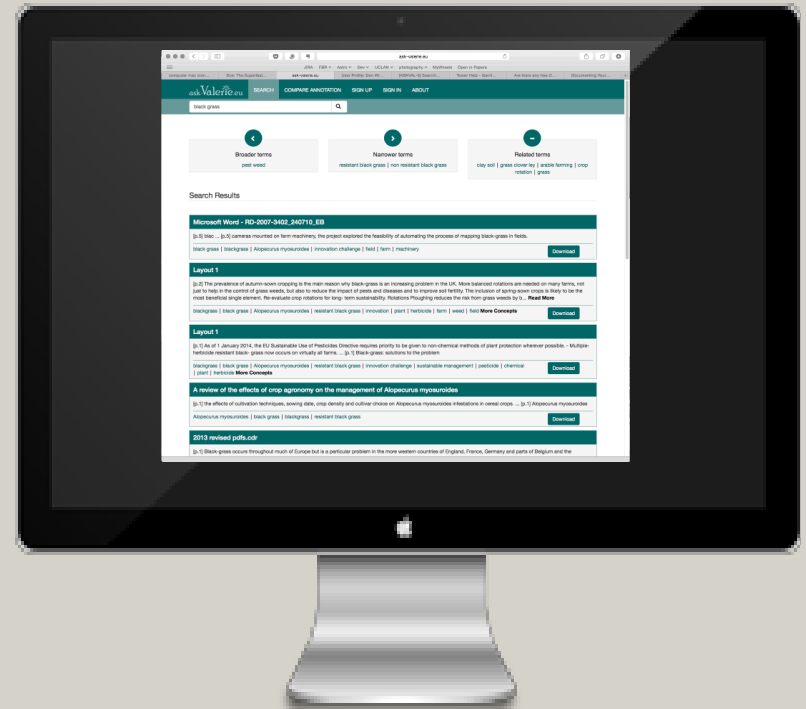
Yes, that is the same
as black grass. Good. I will look for
recently discovered approaches to
your problem.



Dialogue

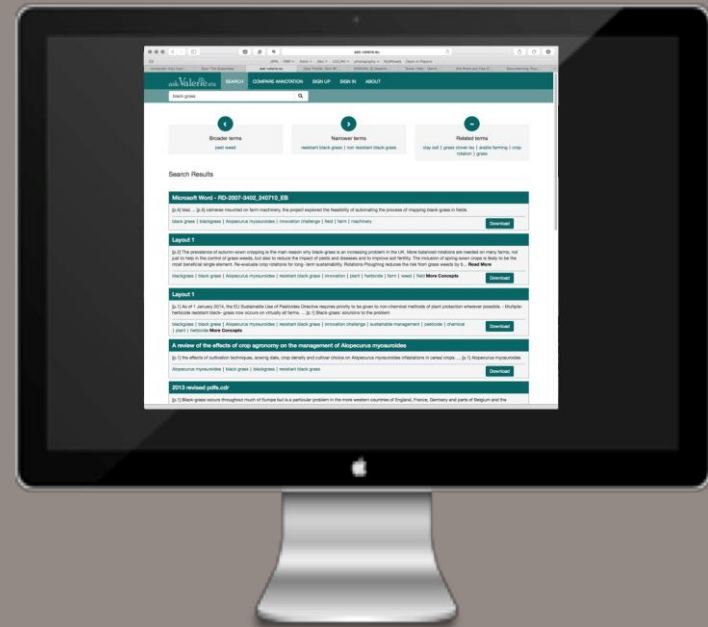
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We call it slender meadow foxtail, do you know it?



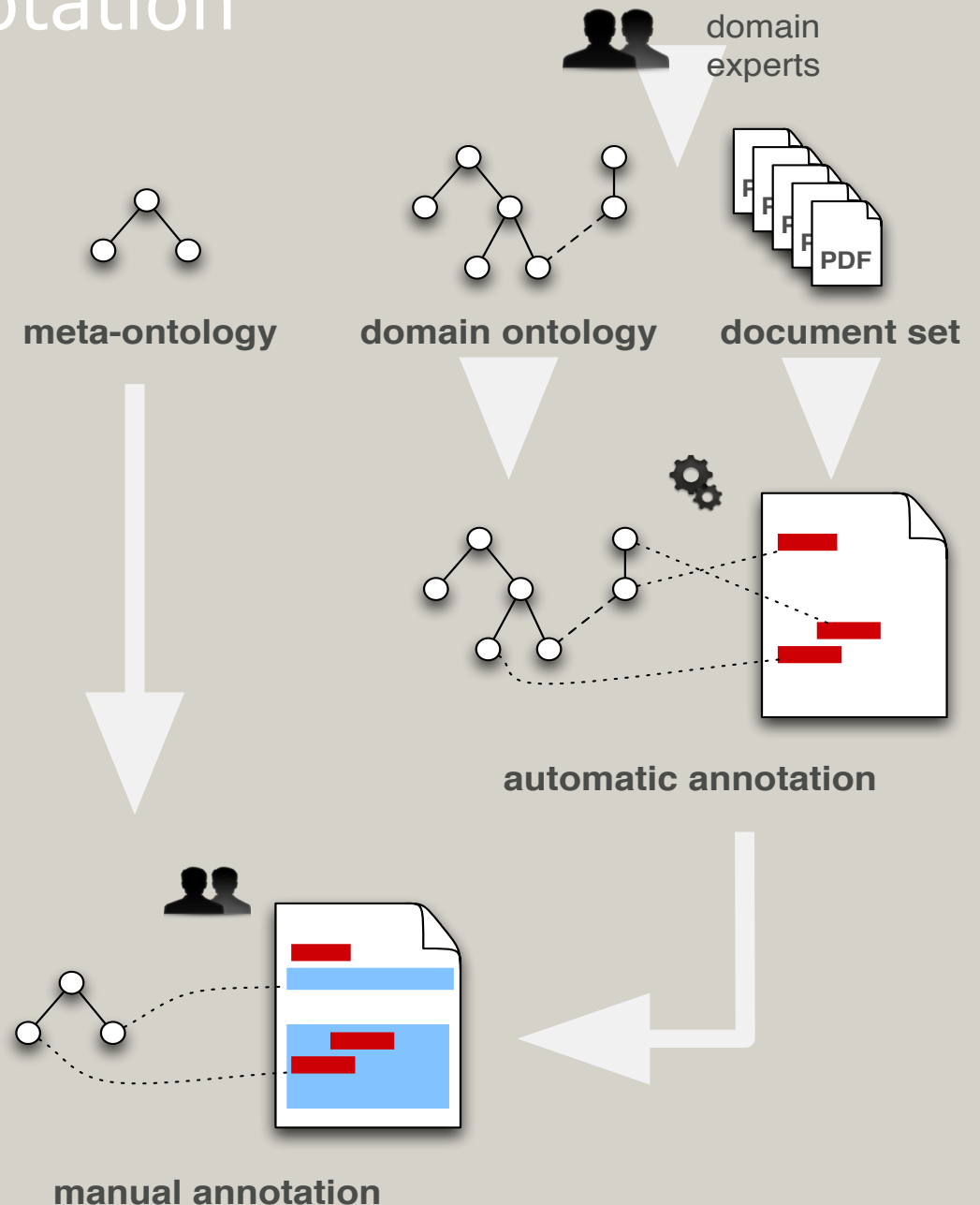
Method

- Pre-processing
 - Ontology Creation
 - Document Selection
 - Annotation
- ask-Valerie




Documents and Annotation

- Creation of domain ontology by experts
- Selection of initial document set by experts
- Automatic Annotation
- Manual Annotation using domain and meta-ontology
- Results in a set of annotated documents



- Manual Annotation Tool
 - Meta annotation
(innovation/innovation challenge)
 - Domain annotation


Annotative Authoring

SAVEEXPORT

Integrated Control **Strategy** for Onion
White Rot Disease in Spring Onions
 and Other Bunching Allium **Crops**

Project VG 01096 supported by AusVeg, HAL, DPI Victoria, Lincoln University NZ
 and Agrimm Technologies Pty Ltd NZ

Project VG01096 - two years project update
 research results
 DEPARTMENT OF
 PRIMARY INDUSTRIES

Ontologies
 Select the ontologies to be used in your annotations.

☐ Valerie
☒ Valerie Annotation

chemical


Acknowledgments

This project is funded by the National Vegetable Levy (AusVeg), **Horticulture** Australia (HAL), DPI Victoria, Lincoln University New Zealand and contribution by Agrimm Technology Pty Ltd New Zealand. We thank Soheir Salib for laboratory and **field work**. We thank Rocky & Tony Lamattina, Peter Butler, Greg Rankin and Shane Osborne (Mulgowie Qld) for allowing **field trials** on their properties and helping to maintain and **harvest the trials**. We also thank Elliott **Chemical**s Limited and Serve-Ag Research for supplying DADS (Alli-up) and Agrimm Technologies Pty Ltd New Zealand and Rob Stanic for supplying Trichopel Ali52 .

Project Team

Oscar Villalta, Ian Porter and Denise Wite
 PIRVic, DPI Knoxfield Victoria
 Tel (03) 9210 9222
 Fax (03) 9800 3521
 Alison Stewart and Kirstin McLean
 Lincoln University New Zealand
 John Hunt
 Agrimm Technologies Pty Ltd, New Zealand
 Craig C. Murdoch
 Technology Transfer, DPI Knoxfield Victoria
 Project VG 01096 Stop the rot
 managing onion **white** rot in spring onions

This project began in July 2002. The overall objective of the project is to develop an **integrated disease management** programme in which



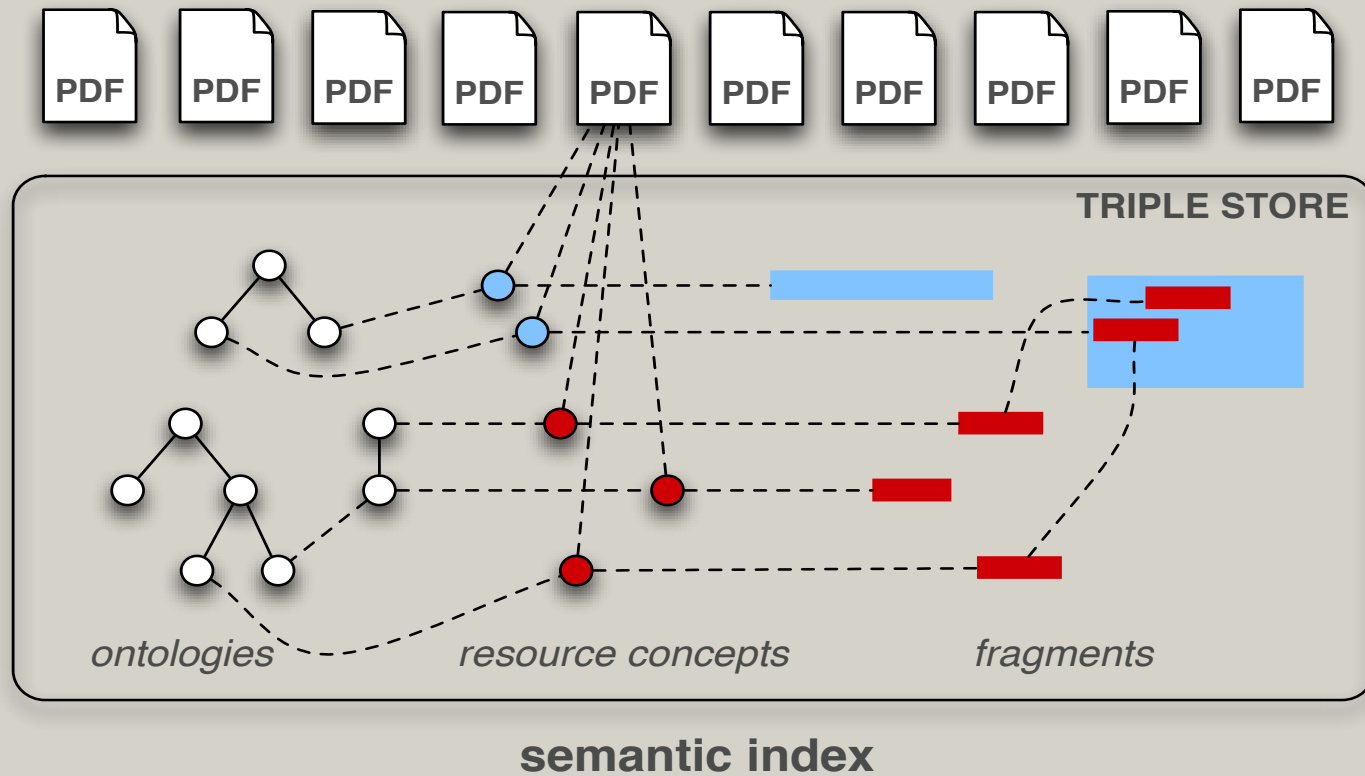
COMMIT/E-FOODLAB
 A PUBLIC-PRIVATE RESEARCH COMMUNITY

Pre-processing Results

- Domain Ontology with 1726 terms
 - Soil management, Fertilisation,...
 - 526 synonyms
 - Max depth: 11, 3.5 child-concepts on average
- Meta-ontology with 2 terms
 - Innovation and Innovation Challenge
- 710 Annotated Documents
 - 566 Documents with Manual Annotations



Semantic Index



- chemical
- chemical store
- chemical control
- chemical pollution
- chemical fertilizer
- chemical pesticide
- chemical fertiliser
- chemical weed control
- chemical soil property
- chemical use reduction

>

Narrower terms

herbicide | fungicide | insecticide

-

Related terms

pest management | pollution | pesticide application | pollution regulation | reliance | chemical use reduction | chemical control | crop growth regulator | agronomy

IJPBNF7T Herbicide resistance definition and management strategies.pdf

[p.4] Table 1. Herbicides, their mode of action, and herbicide classes registered for use in California (Resistance has evolved in many groups and is listed in terms of weeds worldwide, in the United States, and in California. Chemical families marked with the same code have been shown to result in cross-resistance among weed species.) Number of resistant weed species Resistance Trade Common Chemical World- United Cali- code (HRAC) Mode of action name(s) name class wide States fornia A Lipid syn... [Read More](#)

chemical | insecticide | herbicide | innovation | herbicide resistance | management | weed | resistance | urea | species | photosynthesis | pulp | growth | destruction **Less Concepts**

[Download](#)

WRAG herbicide resistance guidelines

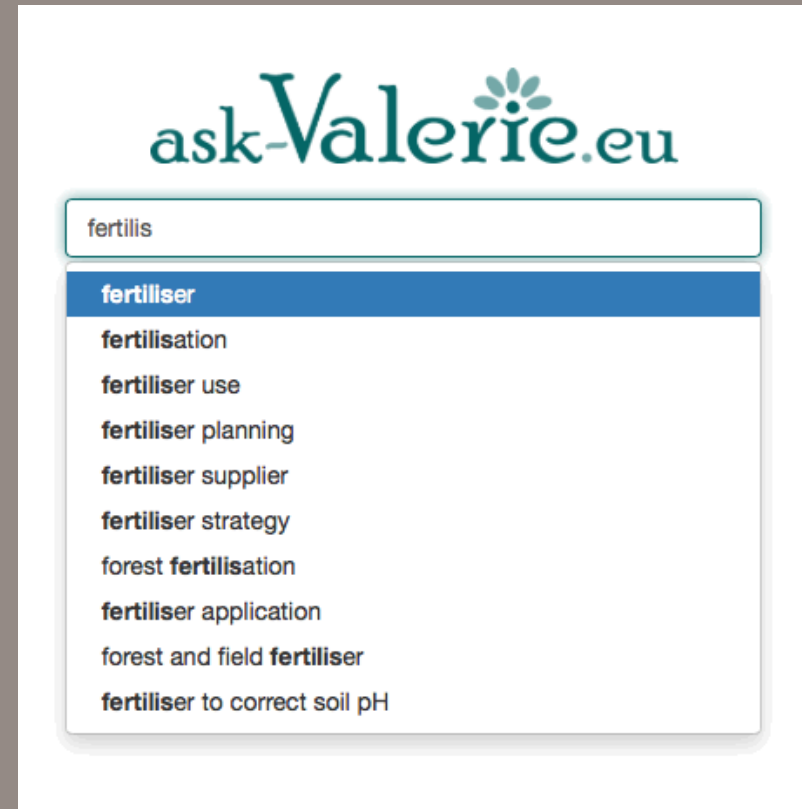
[p.4] Principles Cultural control Use cultural control to reduce the need for herbicides and the risk of resistance developing. Many options are available, although some may conflict with advice for control of pests and diseases or for reducing nitrate leaching. Plough to reduce resistance risk. It reduces weed numbers, particularly of species that are relatively non- persistent in the soil, eg black-grass and Italian rye-grass. It may also bring older, less selected seeds back to the soil surfa... [Read More](#)

chemical | insecticide | herbicide | fungicide | innovation | resistance | weed | cereal crop | herbicide resistance | black grass **More Concepts**

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Search in ask-Valerie

- Autocompletion
- Query Expansion
- Suggestions



Search in ask-Valerie

- Autocompletion
- Query Expansion
- Suggestions

Query: **Fruit**

Expanded Query: **Fruit** OR **Apple** OR **Pear** OR **Mango** OR **Banana** OR ...



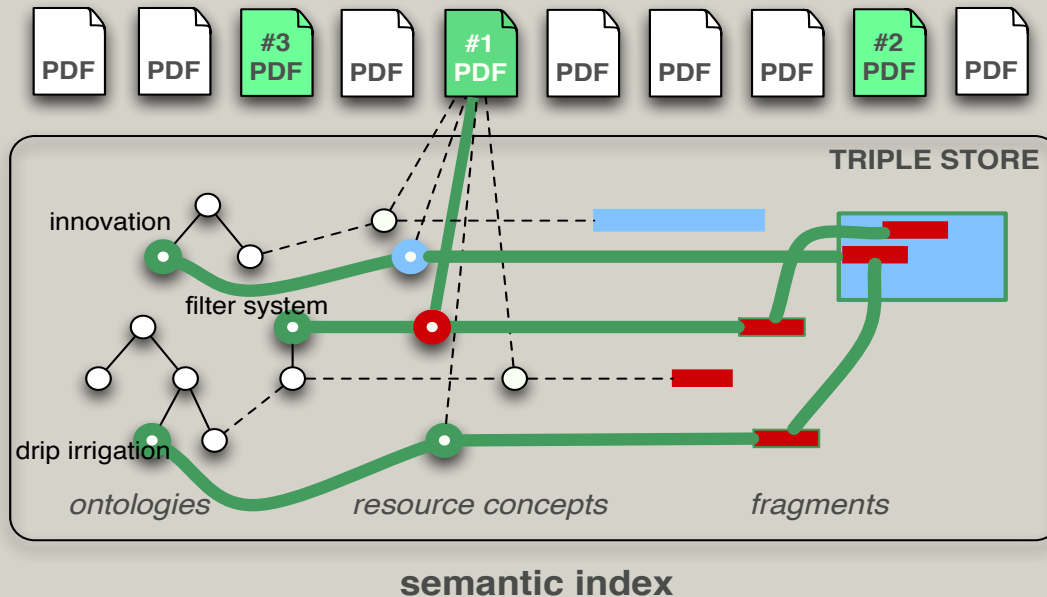
Search in ask-Valerie

- Autocompletion
- Query Expansion
- Suggestions

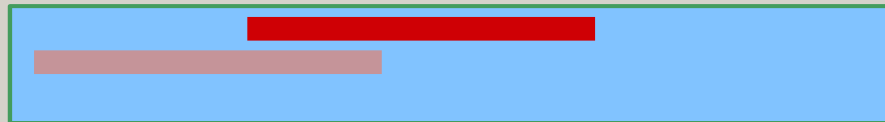
The screenshot displays the ask-Valerie.eu search interface. The header includes the logo and navigation links: SEARCH, COMPARE ANNOTATION, SIGN UP, SIGN IN, and ABOUT. The search bar contains the text 'fertiliser application'. Below the search bar, three panels provide query expansion and suggestions:

- Broader terms** (indicated by a left arrow): field operation
- Narrower terms** (indicated by a right arrow): side dressing fertilisation | band application | broadcast application | basal fertilisation | forest fertilisation | nitrogen fertilisation | top dressing fertilisation | preplanting fertilisation | presowing fertilisation | row application
- Related terms** (indicated by a minus sign): crop | ammonium nitrate | crop uptake | nitrogen loss | soil fertility | soil | calcium nitrate | crop residue | nitrogen excess | spad **More Suggestions**

Search - Fragments



Title Result #1



Concepts: filter system, drip irrigation, innovation

Long-term effect of tillage, nitrogen fertilization and cover crops on soil organic carbon and total nitrogen content

[p.1] The experimental variants are: conventional tillage (CT) and no-tillage (NT), four N fertilization rates (N0, N1, N2 and N3) and four soil cover crop (CC) types (C - no cover crop; NL - non-legume CC; LNL - low nitrogen supply legume CC, and HNL - high nitrogen supply legume CC). The nitrogen fertilization rates (N0, N1, N2 and N3) were: 0, 100, 200, 300 kg N ha⁻¹ for maize (*Zea mays*, L.); 0, 60, 120, 180 kg N a⁻¹ for durum wheat (*Triticum durum* Desf.); 0, 50, 100, 150 kg N ha⁻¹ for sunflower (*Helianthus annuus* L.). From 1993 to 2008, under the NT system the SOC and STN content in the top 30 cm soil depth increased by 0.61 and 0.04 Mg ha⁻¹ year⁻¹ respectively. In the same period, the SOC and STN content under the CT system decreased by a rate of 0.06 and 0.04 Mg ha⁻¹ year⁻¹ respectively. During the experimental period, N1, N2 and N3 increased the SOC content in the 0-30 cm soil layer at a rate of 0.14, 0.45 and 0.49 Mg ha⁻¹ year⁻¹. Only the higher N fertilization levels (N2 and N3) increased STN content, at a rate of 0.03 and 0.05 Mg ha⁻¹ year⁻¹. NL, LNL and HNL cover crops increased SOC content by 0.17, 0.41 and 0.43 Mg C ha⁻¹ year⁻¹ and 0.01, +0.01 and +0.02 Mg N ha⁻¹ year⁻¹. Significant interactions among treatments were evident only in the case of the N fertilization by tillage system interaction on SOC and STN concentration in the 0-10 cm soil depth in 2008. The observed SOC and STN variations were correlated to C returned to the soil as crop residues, aboveground cover crop biomass and weeds (C input). We conclude that, under our Mediterranean climate, it is easier to conserve or increase SOC and STN by adopting NT than CT. To reach this objective, the CT system requires higher N fertilization rates and introduction of highly productive cover crops. [Read Less](#)

fertilization | innovation | tillage | nitrogen | fertiliser application | cover crop | soil | no-tillage | dose | conventional tillage | input | biomass | climate | Fabaceae | durum wheat | threshold | treatment | crop residue | weed [Less Concepts](#)

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Ranking

- Based on
 1. Number of search concepts in innovation or innovation challenge fragments
 2. Number of search concepts in documents with innovation or innovation challenge fragments
 3. Number of search concepts in document



Conclusions & Future directions

- A Dialogue is a useful metaphor for modeling the interaction between practitioner and assistant-expert
- **Meta-annotation is a good way to present better results to the user**
- Restricting the meta-annotation to only a few terms, meta-annotation becomes feasible
 - In the future we will try to automate this process as much as possible



Thank you for your attention!

don.willems@wur.nl

