

Final Seminar Valerie Perspective of the tool builders

Brussels, 14 November 2017

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Outline



Our objective – helping advisors, farmers and foresters to find useful innovations

Our analysis – what is out there, what is needed?

Our solution - ask-Valerie.eu



Our objective



Helping advisors, farmers and foresters to find useful innovations

Innovations: new solutions for existing problems

Partly from scientific developments e.g. in EU projects
Partly from best practices in other countries

Useful: applicable in practice!

Note: innovations for farmer A may be run-of-the-mill for farmer B. Any solution may be innovative.



Our analysis



For easy access to innovations, we need an online tool

Typical entry points:

- Google, Bing, Yahoo!, ...: text-based search in all web-accessible documents, mono-lingual
- OrgPrints: text-based search in organic ePrintscollection, multi-lingual





Search results – generic search





sowthistle

Q

Alle

Afbeeldingen

Maps

Video's

Meer

Instellingen

Tools

Ongeveer 1.060.000 resultaten (0,53 seconden)

Bedoelde u: sow thistle

Sonchus - Wikipedia

https://en.wikipedia.org/wiki/Sonchus ▼ Vertaal deze pagina

Shopping

Sonchus is a genus of flowering plants in the dandelion tribe within the sunflower name: thistle stems can range from 30 cm to 2 m (1 to 6 feet) tall, depending upon species and growing conditions. Colouration ranges from green ...

Sonchus oleraceus · Sonchus asper · Sonchus arvensis · Sonchus brachyotus

Sonchus oleraceus - Wikipedia

https://en.wikipedia.org/wiki/Sonchus oleraceus ▼ Vertaal deze pagina

Sonchus oleraceus, with many common names including common sowthistle, sow thistle, smooth sow thistle, annual sow thistle, hare's colwort, hare's thistle, ...

Sow Thistle: Pictures, Flowers, Leaves and Identification | Sonchus ...

www.ediblewildfood.com/sow-thistle.aspx ▼ Vertaal deze pagina

Sow Thistle (Sonchus arvensis) is wild, edible and nutritious food. Identify sow thistle via its pictures. habitat, height, flowers and leaves.

Sow Thistle - Eat The Invaders

eattheinvaders.org/blue-plate-special-sow-thistle/ ▼ Vertaal deze pagina

26 mei 2014 - Captain Cook's men, foraging, find a Sow Thistle at Queen Charlotte Sound in New Zealand. Which they proceed to devour along with several ...

Approximately 1M documents found

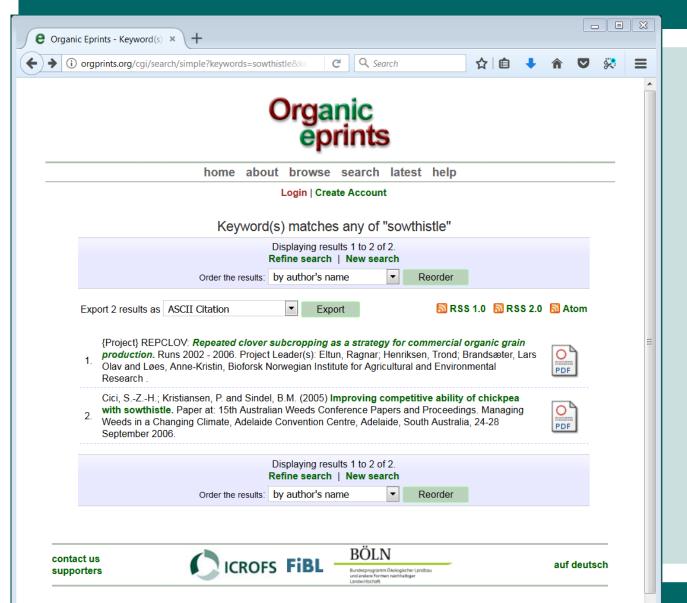
General information on sow thistle

Identification information on sow thistle

Historical anecdote involving sow thistle

Results – specific search





2 documents found

Both are documents on sowthistle in organic farming

Searching on Sonchus arvensis gives 18 more documents

Our analysis



For easy access to innovations, we need an online tool

Typical entry points:

 Google, Bing, Yahoo!, ...: text-based search in all web-accessible documents, mono-lingual



- → low relevance for most documents, high number of results
- OrgPrints: text-based search in organic ePrintscollection, multi-lingual



- → highly relevant, low number or results
- Both: user needs to know a lot about his/her question: synonyms,
 flexibility to change query when search results are not useful.





relevant

many results



generic

Organic eprints

few results

Our solution



We want to provide our users with a digital advisor:

- Access to relevant domain-specific documents from 50 different sources in 7 different languages
- Help in specifying the query
- Using the advisor's knowledge of the domain to find all relevant documents
- Using the advisor's network to connect to other people for interaction on the problem

The created tool and its pillars





Valerie ontology



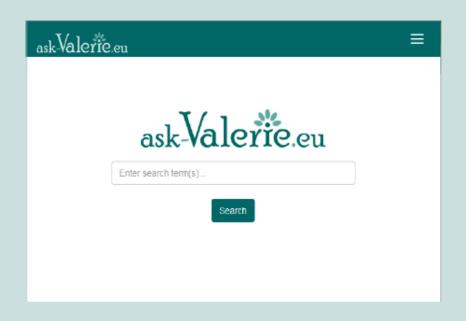
Document base



Digital advisor algorithms



User community



Digital advisor algorithms



Three algorithms mimic the digital advisor:

- Auto-completion: when a user starts asking a question, Valerie helps by suggesting key words from the ontology
- Query editing: when a user has asked a question, Valerie provides terms that are related to the question to specify the question better
- Ranking: when a user has asked a question, Valerie searches the document base for relevant documents and ranks them on predicted relevance

Note: Valerie is still learning to do better!

Auto-completion



appl	I	
apple size		
apple scab		
apple pest		
apple tree		
apple rust		
apple yield		
apple borer		
application		
apple weevil		
apple maggot		

When typing "appl", all kinds of concepts from the ontology appear in which "apple" or "application" occur.

Irrelevant words like "applause" are not shown.

Auto-completion

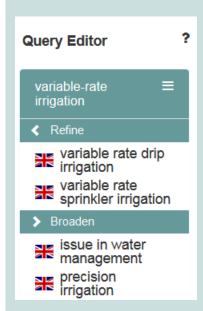




When typing "unif", all kinds of concepts from the ontology appear in which "unif" occur, including concepts where "unif" is not part of the first word.

Query editing

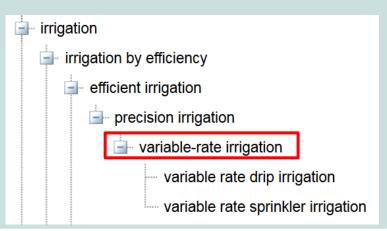




When searching for a concept, Valerie looks up the term in the ontology and shows its broader, narrower, related, solutions, innovations terms.

This helps the user in making the question more specific (refine) or more generic (broaden)

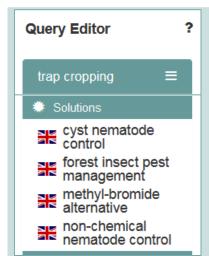
Example: variable rate irrigation



Note that a term may have more than one broader term (parent)

Query editing





When searching for a concept, Valerie looks up the term in the ontology and shows its broader, narrower, related, solutions, innovations terms.

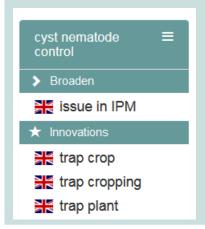
This helps the user in understanding the innovation-solution pairs

Example: trap cropping is an innovative solution in the area of

- Cyst nematode control
- Forest insect pest management
- Methyl-bromide alternative
- Non-chemical nematode control

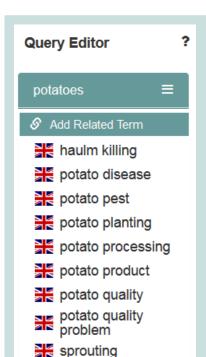
Example: cyst nematode control has potential innovations in the area of

- Trap crop
- Trap cropping
- Trap plant



Query editing





tuber tuber

When searching for a concept, Valerie looks up the term in the ontology and shows its broader, narrower, related, solutions, innovations terms.

This helps the user in associative browsing of the query domain through the related terms

Example: searching for **potatoes** gives areas in which the user could be interested in: **potato diseases**, **potato pests**, **potato quality** etc.

Ranking



Selection & ranking algorithm:

• During search, the <u>documents</u> containing the ontology terms from the search query are identified

Query: I want info on B and D

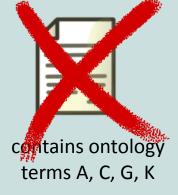


contains ontology terms A, B, C, D, E, F, G, H



contains ontology terms B, D, F, H, J, L, N, P







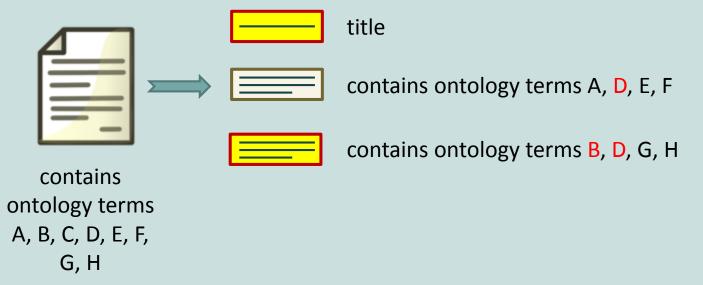
Ranking of documents takes place on four criteria. For each of the four criteria, a score is determined, and then the scores are combined.

- 1. search terms occur in the title
- 2. search terms occur on the first page of the document (e.g. abstract)
- 3. all search terms occur equally often in the document
- 4. the number of times that a search term occurs in the document



When the documents have been found, for each document a paragraph (snippet) is selected to be displayed

The title and the first paragraph in which all search terms occur is shown.



Valerie Template 21

Language functionality



You can select your preferred language and the other languages that you speak.

The search terms will only autocomplete on these languages

The search results will only show documents in the selected languages

The query editor will show terms in your preferred languages (if they exist), otherwise in one of the other languages that you speak, otherwise in English.













ask-Valerie.eu – your virtual advisorOverview: Community features

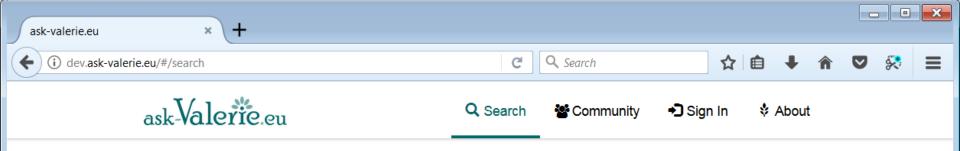


Community

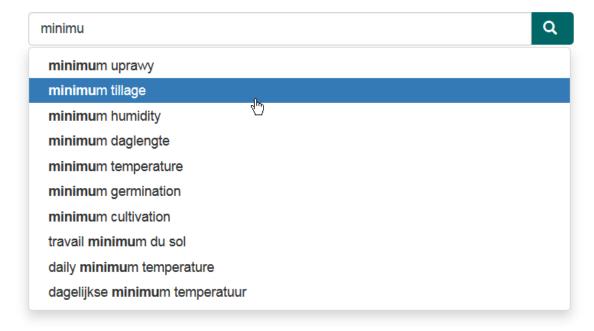
- Building up thematic communities
- Sharing documents with others
- Discussing innovation
- Connecting through social media
- Connecting with other users
- Searching (content, communities and experts)
- Activity feed, ...

ask-Valerie.eu – your virtual advisor

Time for a demo!



ask-Valerie eu



dev.ask-valerie.eu



✓ Spanish ==

✓ Polish

Q Search Community



About

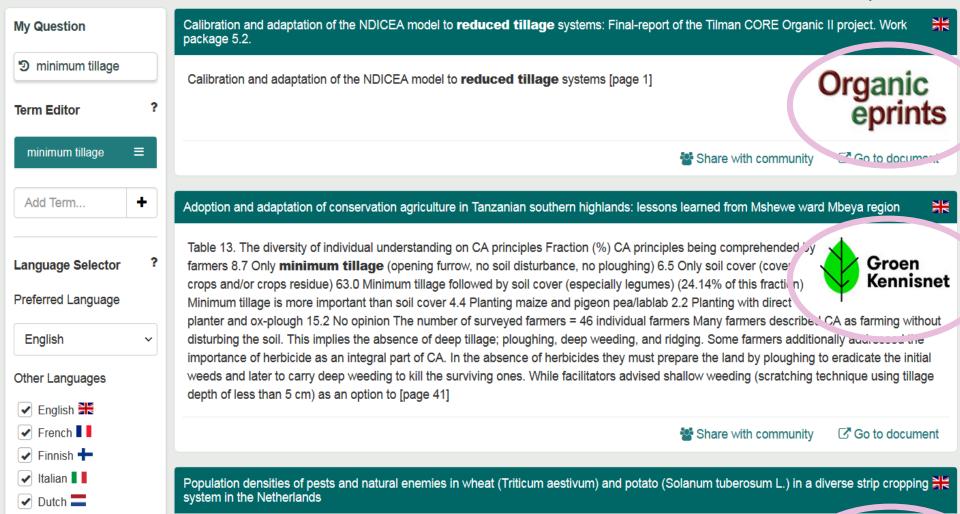
Groen

Kennisnet

Type another question...

Q

I found 771 Documents that are related to your Question.



Aphids density: Parasitized aphids A total of 300 parasitized aphids were counted by visual observation on plants of

tillage treatment and 39 on mulching treatment. Parasitized aphids showed to be at its highest value on July 3rd

potato. Out of those, 93 were found on strip treatment, 90 on plant treatment, 17 on tillage treatment, 40 on minimum



✓ Polish

Q Search Community



About

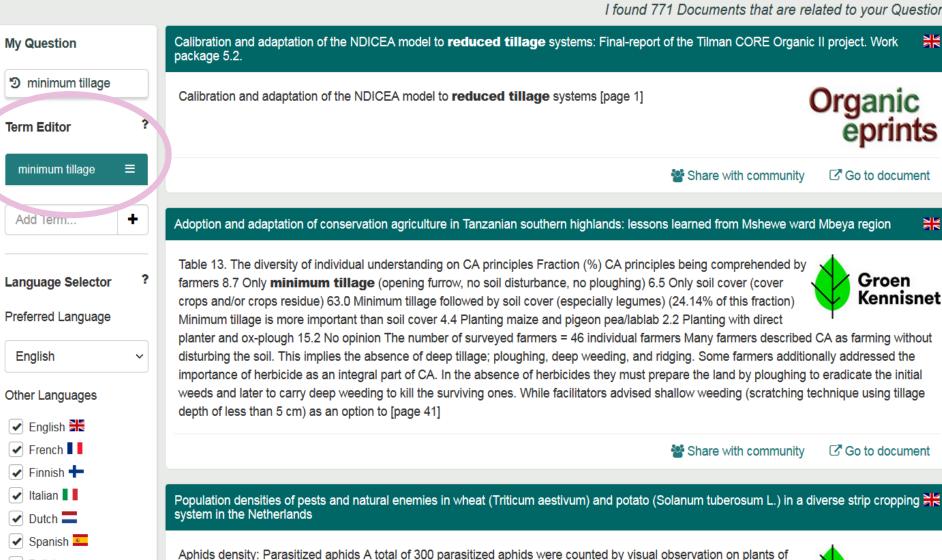
Groen

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My Question

minimum tillage

Term Editor

minimum tillage

Ħ



- Broaden
- innovation in soil and nutrient management
- soil conservation measure
- tillage system

= Synonyms

- + kevennetty muokkaus
- aboreo mínimo
 - minima lavorazione
 - minimale grondbewerking
 - minimum cultivation
 - minimum tillage
 - minimum uprawy
 - niet-kerendegrondbewerking
 - NKG



- reduced processing
- # reduced tillage
- ridotta lavorazione
- technique culturale simplifié
- travail minimum
- uprawa zminimalizowana

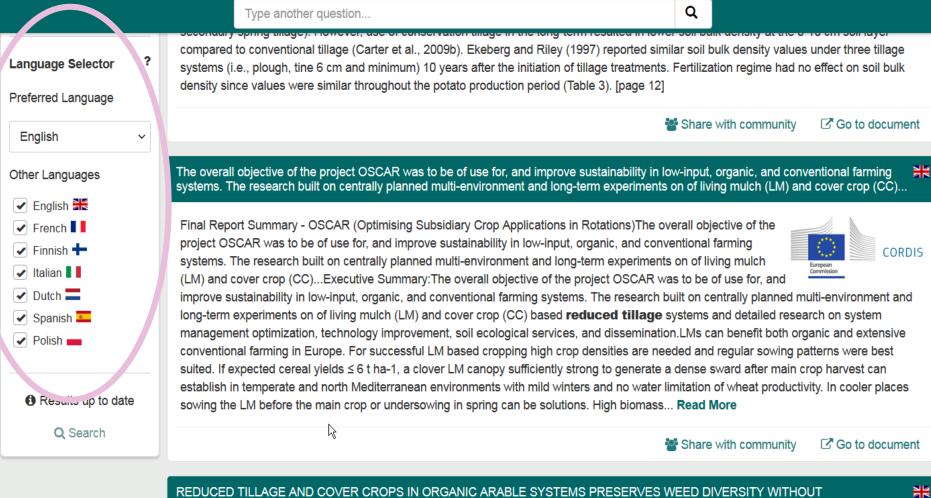
* Solutions

- Bad soil structure
- forest soil quality
- low soil organic matter
- soil conservation measure

S Add Related Term

- conservation tillage
- disc harrowing
- non-inversion tillage
- tine cultivation





REDUCED TILLAGE AND COVER CROPS IN ORGANIC ARABLE SYSTEMS PRESERVES WEED DIVERSITY WITHOUT JEOPARDISING CROP YIELD

Organic

In the French trial very superficial tillage and reduced tillage had higher weed infestation and consequently lower undersown alfalfa biomass at wheat harvest. W eed diversity was also higher in these two treatments. W heat yield was lower in the reduced tillage system and higher with shallow than deep ploughing. Mid-term trials In the Estonian system experiment weed presence was strongly influenced by green manure crop, rye being the most suppressive one and r yegrass the least. This had a carry-over effect on weed density in the next pea crop. Perennial weeds dominated in red clover. [page 2]



Q Search Sign In Community About

Q Type another question...



Q Search

Functionele agrobiodiversiteit: van concept naar praktijk

We hebben veldonderzoek uitgevoerd op bedrijven met niet-kerende grondbewerking (NKG) om vast te stellen in hoeverre de bodemstructuur effectief wordt verbeterd door een beter functionerend bodemleven, en op welke termijn na omschakeling op **NKG** resultaten kunnen worden verwacht. Onze studie sloot aan op door de Provincie Limburg gestimuleerd onderzoek naar bodembiodiversiteit en functionele agrobiodiversiteit, uitgevoerd door Praktijkonderzoek Plant & Omgeving. We hebben het bodemleven en de bodemstructuur onderzocht op diverse bedrijven in Limburg in een oplopende reeks

onafgebroken NKG, telkens met naastgelegen bedrijven of percelen met conventionele grondbewerking. Hierbij werd gekeken naar regenwormen, schimmels, bodemaggregaten, indringingsweerstand en waterinfiltratie. Daarnaast konden we gebruik maken van een experiment in Ierland om effecten van het achterlaten van stro bij NKG te onderzoeken. [page 44]



Go to document

Groen

Kennisnet

Duurzame onkruidbestrijding bij Niet-Kerende Grondbewerking

8.2 Schoffelen in NKG-systemen Een kenmerkend probleem voor bouwplannen waarin NKG al langer wordt toegepast is dat de organische stof zich meer in de toplaag bevindt. [page 18]





☑ Go to document

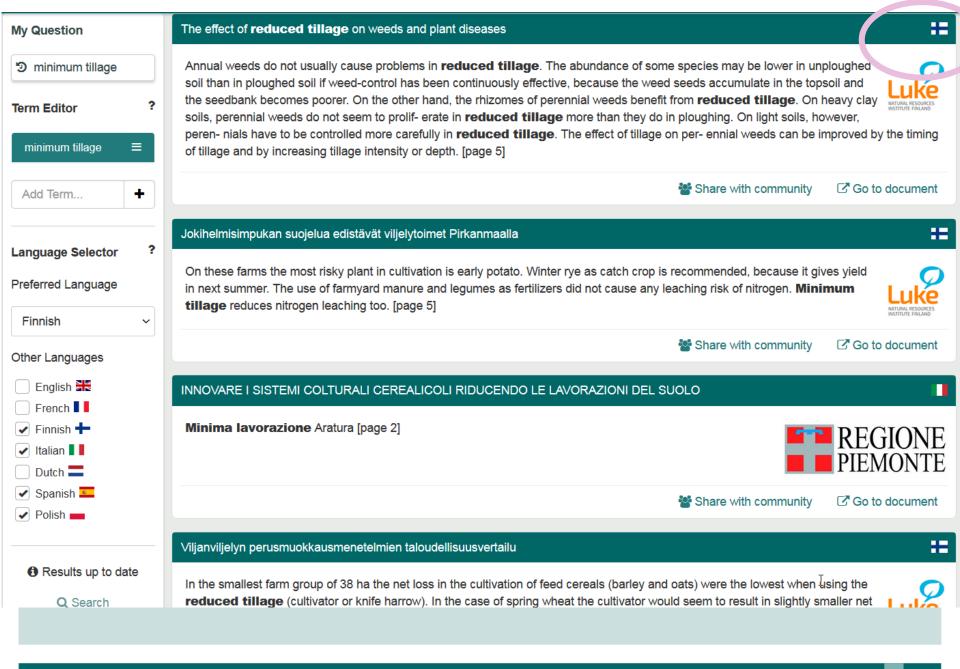
Groen

Kennisnet

Aan de slag met niet-kerende grondbewerking

Niet-kerende grondbewerking • 17 Granen De teelt van graan zonder te ploegen lijkt in eerste instantie eenvoudig, maar de mogelij- ke problemen worden onderschat. Proble- men waar je tegenaan kan lopen zijn: • Moeilijke start van de granen bij late in- zaai in november-december • Ziekteoverdracht in een teeltplan met meer dan 50% granen • Opslag van tar we in brouwgerst • Vertraagde stikstofmineralisatie in de wintermaanden Granen inzaaien

na rooivruchten in de herfst vraagt om een goede voorbereiding. Zorg dat alles k laar staat voor je begint met oogsten, zodat je direct na of tijdens het oogsten kan starten met inzaaien. Vroeg inzaaien noodzaakt tot het omlaag brengen van de zaaizaadhoeveelheid zoals beschreven in de tabel 4. Wacht je met zaaien, dan loop je het risico dat een regenbui het haast onmogelijk maakt om granen in te zaaien met een woeler-zaaicombinatie. [page 17]





Tiivistelmä

Avainsanat: auraton viljely, kasvitaudit, kevennetty maanmuokkaus, kultivointi, kyntämättä viljely, rikkakasvit, siemenpankki

Kyntämättä viljelyn tavoitteena on muokkauskustannusten alentaminen, maan rakenteen parantaminen sekä eroosion ja ravinteiden huuhtoutumisen vähentäminen. Kyntöä korvaavissa menetelmissä maata muokataan yleensä matalampaan ja kasvijätteitä mullataan vähemmän kuin kynnössä. Kirjallisuuden mukaan perusmuokkauksen vaikutukset rikkakasveihin ja kasvitauteihin vaihtelevat. Eri tutkimuksissa käytetyt muokkausmenetelmät ja olosuhteet ovat olleet erilaisia. Monesti menetelmät on raportoitu liian puutteellisesti, jotta voitaisiin varmuudella osoittaa muokkausmenetelmien aiheuttamat erot rikkakasvi- tai tautitilanteeseen. Joitakin johtopäätöksiä voidaan kuitenkin tehdä.

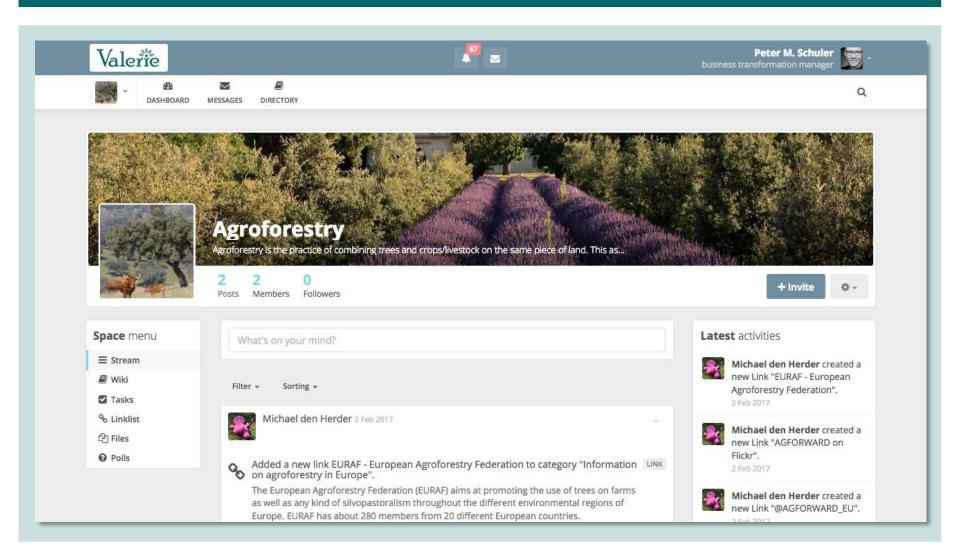
Kynnöstä luovuttaessa siemenrikkakasvit eivät yleensä muodostu ongelmaksi. Tietyt lajit voivat vähentyä ilman kyntöä, jos torjunta on vuodesta toiseen tehokasta. Tämä johtuu siementen kertymisestä maan pintaosiin ja siemenvaraston köyhtymisestä. Kestorikkakasvien monivuotinen juu-

rakko yleensä hyötyy maanmuokkauksen vähentämisestä. Jäykillä maalajeilla monivuotisten rikkakasvien on todettu pysyvän melko hyvin kurissa kyntämättä viljelyssä, mutta kevyillä mailla niiden torjuntatarve on lisääntynyt kyntöviljelyyn nähden. Muokkauksen tehoa kestorikkakasveihin voidaan parantaa ajoittamalla muokkaukset syksyyn, parantamalla kaluston multaustehoa sekä lisäämällä ajokertoja ja työsyvyyttä.

Monet viljojen tautien aiheuttajista talvehtivat menestyksekkäästi pinnalla olevassa satojätteessä. Siksi kyntämättä viljelyssä lehtilaikkutaudit näyttävät olevan yleisempiä kuin kyntöviljelyssä. Tautiepidemian riski riippuu kuitenkin maan pinnalle jääneen kasvijätteen määrästä ja laadusta. Myös maan muuttuminen kosteammaksi ja hieman viileämmäksi kyntämättä viljelyn takia voi vaikuttaa tauteihin. Tyvitautien esiintyminen on vaihtelevaa, joskus niiden on havaittu jopa vähenevän kyntämättä viljelyn seurauksena.

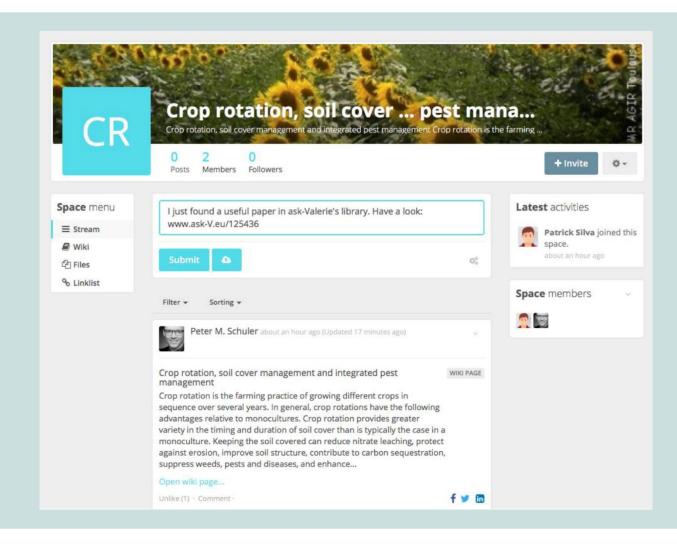
ask-Valerie.eu Community **Building up thematic communities**





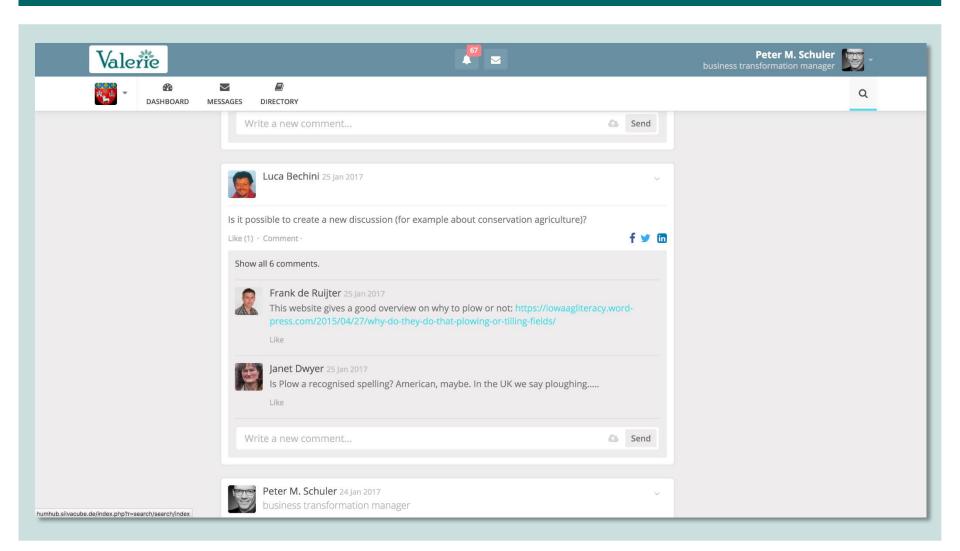
ask-Valerie.eu Community Sharing documents with others





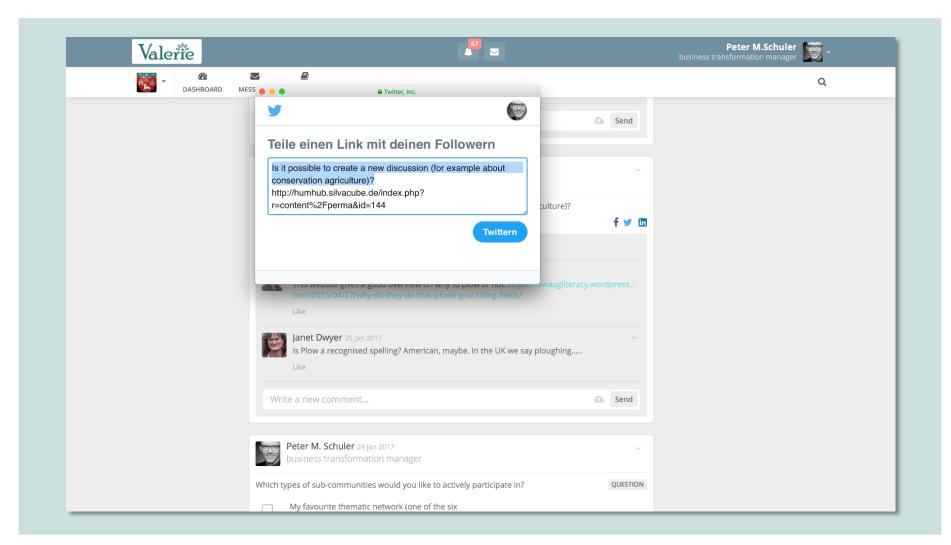
ask-Valerie.eu Community **Discussing innovation**





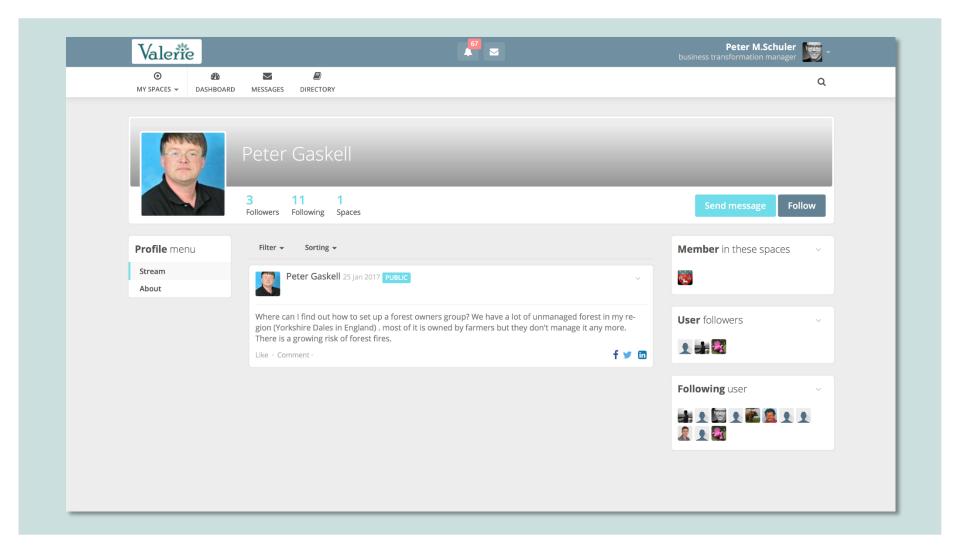
ask-Valerie.eu Community Connecting through social media





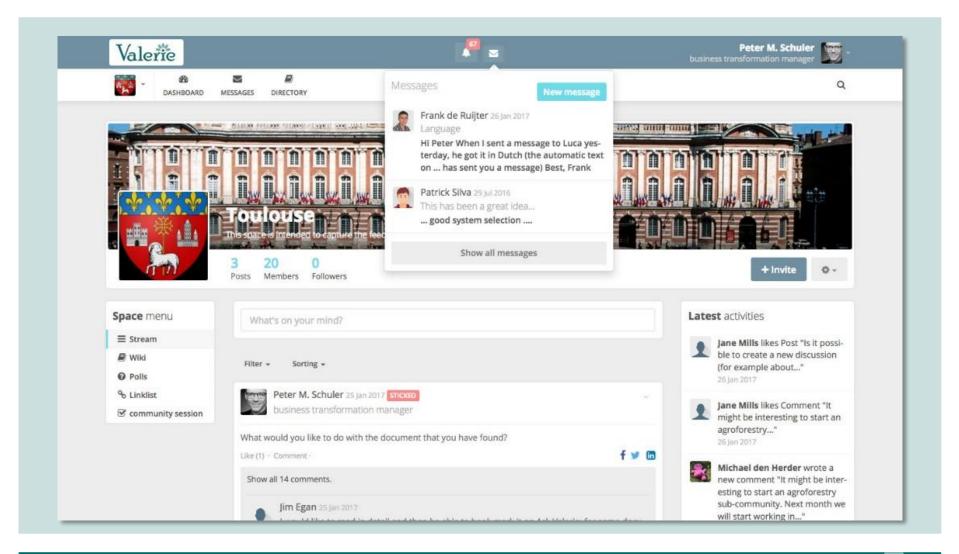
ask-Valerie.eu Community Connecting with other users 1/3





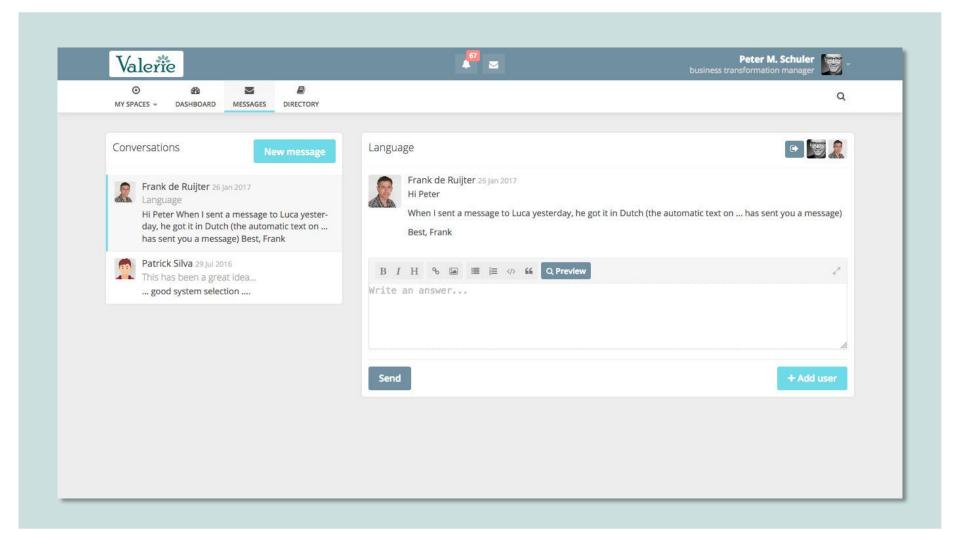
ask-Valerie.eu Community Connecting with other users 2/3





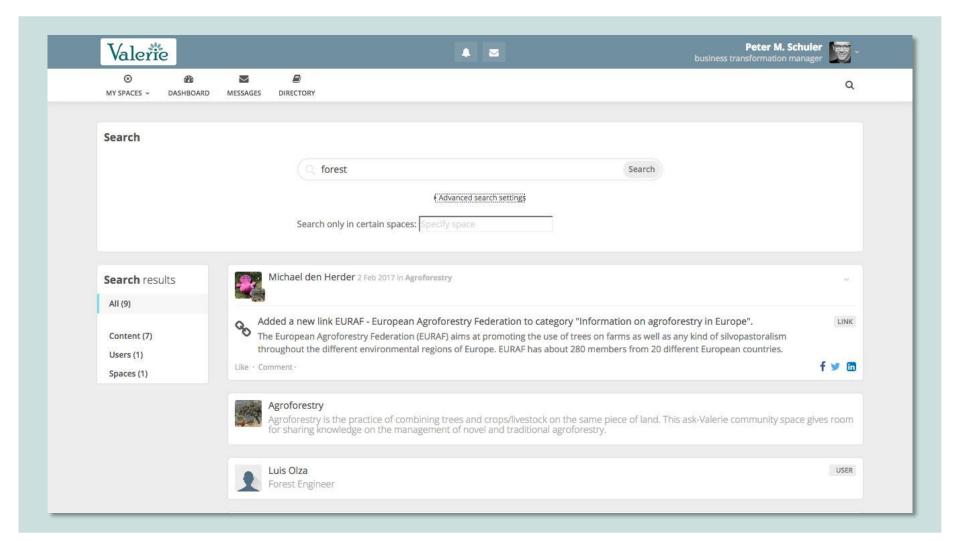
ask-Valerie.eu Community Connecting with other users 3/3





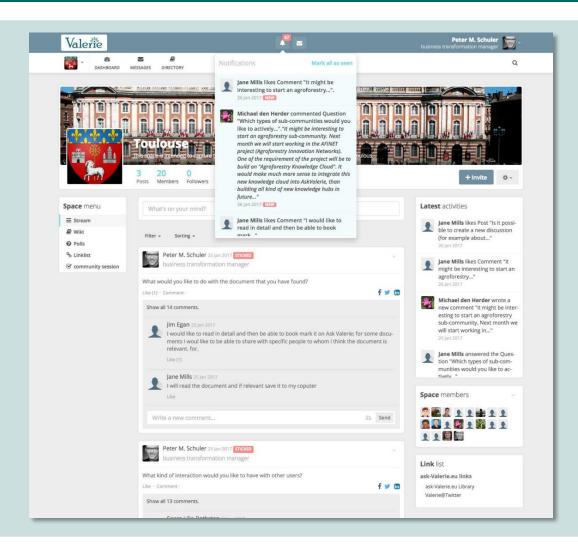
ask-Valerie.eu Community Searching (content, experts and communities)





ask-Valerie.eu Community Activity feed & Notifications





2017-11-14 Valerie @ Brussels

Any questions?

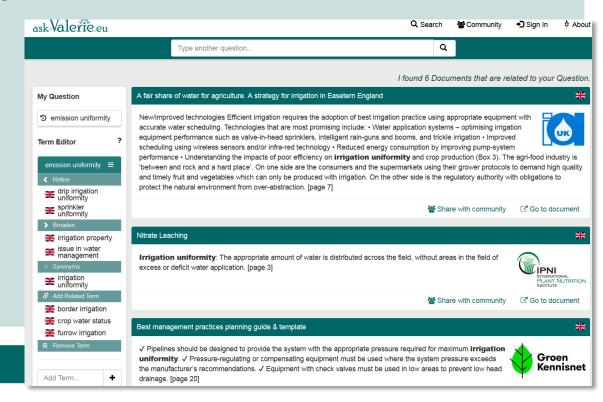


Thank you for your time and attention.

ask-Valerie.eu will be online soon. Please follow us on Twitter!



@Valerie_project



Knowledge & communication tools for innovation



Content (how to ensure end users get the best content)

1. What is the most suitable format for 'translating' research outcomes into practical outputs? Do the issue-solution pairs used in ask-Valerie, VALERIE factsheets and org-prints provide a good structure?

Process (how to ensure sustainability of such a platform)

2. What needs to be done to make a knowledge platform such as ask-Valerie work in the long run? What strategies can be used and what resources are needed to develop a community of users (e.g. How could users contribute towards maintaining the system?)?

Knowledge & communication tools for innovation



Timings

- 2:15 to 2:40 (25 mins) Appoint a group rapporteur and discuss the questions: take notes to formulate one sentence answers
- 2:40 to 2:45 (5 mins) Rapporteurs write out one sentence answers
- 2:45 to 2:50 (5 mins) Rapporteurs report back

Knowledge & communication tools for innovation



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- 2. What needs to be done to make a knowledge platform such as ask-Valerie work in the long run? What strategies can be used and what resources are needed to develop a community of users (e.g. How could users contribute towards maintaining the system?)?
- Discuss 25 mins
- Answers 5 mins
- **Reporting 5 mins**