



## Valorising European Research for Innovation in Agriculture and Forestry



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### About VALERIE

The VALERIE research project aims to boost innovation in agriculture and forestry through improving the accessibility and availability of new knowledge around six key themes (see below).

The central VALERIE activities are:

- Working with practitioners in 10 case studies to identify current issues within agriculture and forestry
- Extraction of knowledge from recent research projects & wider practitioner experience to help meet these challenges
- The development of the "ask-Valerie.eu" search engine that will interactively improve access to information and knowledge for farmers, growers and researchers

The "ask-Valerie.eu" search engine was presented at the EFITA (European Federation for Information Technology in Agriculture) Conference in Poznan, Poland on 2nd July 2015. The current version of "ask-Valerie.eu" is a first step towards a fully functional and practical questioning and answering system that will make innovative scientific research available to end-users making early-adoption of these innovations more likely.

### VALERIE themes

The VALERIE project extracts knowledge from recent research projects and works with practitioners in 10 case studies covering the following six VALERIE themes:

#### 1. Crop rotation, soil cover management and integrated pest management

Crop rotation, the practice of growing different crops in sequence over several years, has advantages which include improved soil fertility and an increase in the variety of timing and duration of soil cover. Maintaining soil cover can reduce nitrate leaching, protect against erosion, improve soil structure, contribute to carbon sequestration, suppress weeds, pests and diseases, and enhance biodiversity. Integrated pest management carefully considers pest thresholds and pest control techniques to reduce pesticide use and other interventions to levels that are economically justified and reduce or minimize risks to human health and the environment.

#### 2. Eco-system and social services in agriculture and forestry

Agricultural and forestry systems are both dependent on and, through good management, can provide a whole range of ecosystem services i.e. the benefits that people derive from ecosystems for health and well-being. Policies and management practices (e.g. soil management) can influence this ability through either positive or negative effects.

### 3. The management of agricultural soils as integrated agro-ecological systems

Agricultural soils can be managed to reduce soil erosion, organic matter loss, compaction and other threats to soil quality and agro-ecological systems. Soil management options include cultivation type, depth and timing; organic matter addition; cover cropping; and the nature and timing of access to land by machinery and livestock.

### 4. Water management in agriculture

Increases in population growth, energy crop production and water demand have resulted in an urgent need for improved water use efficiency in irrigated agriculture. Options for increasing water use efficiency include the breeding of drought-tolerant cultivars, growing more water demanding crops in wetter regions, ceasing irrigation on unsuitable land, and innovative irrigation methods and scheduling systems.

### 5. Integrated supply chain services and tools, including innovative farm management

The food supply chain consists of farm inputs, farm processes, transport and processing of food and the disposal or reuse of food waste. Logistics, quality control and reducing the amount of spoilage and/or waste generated are all important supply chain challenges, as well as product certification and supply chain optimization. In the forestry industry, novel logistic concepts are needed to respond to increased competition between different wood industries, more frequently occurring natural risks and to an increasingly volatile political and economic environment.

### 6. Recycling and smart use of biomass and food waste, in particular waste generated during primary production

Agricultural waste can be used for energy production and recycled to land as a valuable fertiliser, increasing nutrient use efficiency and the sustainability of agriculture. Forest residues and saw dust are an important form of biomass waste, whilst wood may also be purposely grown for use as a bioenergy feedstock.



## VALERIE case studies

In each case study real issues related to VALERIE themes have been identified by stakeholder groups and will be explored through repeated cycles of information gathering and relevance checking. Based on the knowledge gained, farmer-led field trials will use new solutions/innovations to address the specific issues identified.

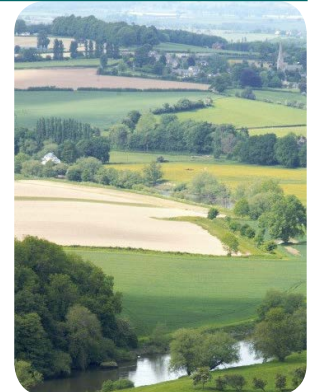
### 1. Catchment scale resource use efficiency

Driven in part by the requirements of the Water Framework Directive, this case study addresses challenges for sustainable arable cropping in the Welland River Valley, UK with a focus on catchment management to improve water quality, ecology & the sustainability of cropping systems. The VALERIE themes covered are 1, 2 & 3.

Issues addressed in the field trials:

- The value of non-inversion tillage and applied biological cultures for mobilisation of soil phosphorus
- Cover crops and their potential economic & environmental benefits

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### 2. Soil management in livestock supply chains

Soil management in UK outdoor pig production and improvements in the pork supply chain to ensure livestock welfare, quality and efficiency of production, and minimal environmental impact. The VALERIE themes covered are 1, 2 & 5.

Issues addressed in the field trials:

- Maintaining good soil cover on outdoor pig breeding fields
- Cover cropping after removal of pig herds

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### 3. Sustainable forest biomass

Use of forest biomass for energy production and the subsequent recycling of wood ash in North Karelia, Finland. The 2 VALERIE themes covered are 1 & 6.

*Issues addressed in the field trials:*

- Impacts of using wood ash fertiliser on mineral soils
- The barriers, benefits & feasibility of using wood ash as a fertiliser

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### 4. Agroecology: managing plant protection

Reducing herbicide use in arable cropping systems to improve water quality in the Gimone catchment, Midi-Pyrénées, France. The VALERIE themes covered are 1, 2 & 3.

*Issues addressed in the field trials:*

- Combined cropping of durum wheat & legumes

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### 5. Innovative arable cropping

Sustainable oilseed rape drilling and intercropping management to improve soil fertility and profitability in the Champagne Berrichonne region of Central France. The VALERIE themes covered are 1, 2 & 3.

*Issues addressed in the field trials:*

- The effect of soil tillage & crop management on soil quality

Contact: Anne-Marie Tremblay; tremblay@cetiom.fr



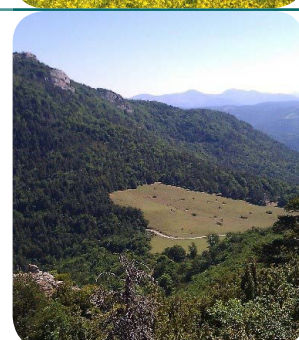
### 6. Sustainable forest management and ecosystem services

Improving the economic and environmental performance of forestry in the Basque Region of Spain; and enhancing (or maintaining) biodiversity and reducing the environmental impact of forestry in the Roncal Valley. The 2 VALERIE themes covered are 2 & 5.

*Issues addressed in the field trials:*

- The development of a forest management plan

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### 7. Improving milling wheat quality

Improving milling (bread) wheat quality in the Alessandria region of northern Italy through interventions at different stages of the supply chain. The VALERIE themes covered are 1, 2 & 5.

*Issues addressed in the field trials:*

- Rapid methods for assessing grain quality pre and post harvest

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### 8. Drip irrigation management in tomatoes and maize

Agricultural water management to improve water use efficiency and to maintain yield & quality is a key issue for highly productive crops in the Alessandria region of northern Italy. This case study focuses on drip irrigation management in maize and tomato crop production. The 2 VALERIE themes covered are 3 & 4.

*Issues addressed in the field trials:*

- Usability & economic evaluation of drip-system irrigation at farm scale

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## 9. Sustainable onion supply chains

Improving onion quantity and quality throughout the onion supply chain in the Netherlands. The VALERIE themes covered are 1, 3 & 5.

*Issues addressed in the field trials:*

- The effect of variety & harvest method on *Botrytis* spp. during onion storage

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## 10. Sustainable potato supply chains

Sustainable potato production in Poland for the French fry industry. Potato growers are challenged with maintaining quality, while reducing the environmental impact of production. The VALERIE themes covered are 1, 3, 4 & 5.

*Issues addressed in the field trials:*

- Potato varieties & susceptibility to Tobacco Rattle Virus transmitted by nematodes
- Optimising fertiliser strategies for calcium to avoid adverse effects on crop quality

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## What's on?

Upcoming events relevant to one or more of the six VALERIE themes:

- 5th International Symposium on Soil Organic Matter 2015, 20-24 September 2015, Georg-August-University Göttingen, Goettingen, Germany, <http://www.som2015.org/>
- Diffusion And Transfer Of Knowledge To Agriculture XXIX EURAGRI Conference, 27-29 September 2015, Luxembourg, <http://euragri.org/>
- Catchment Science 2015, 28-30 September 2015, Wexford, Ireland, <http://www.teagasc.ie/agcatchments/catchmentscience2015.asp>
- "SmartSOIL: Sustainable soil management aimed at reducing threats to soils under climate change", 30 September 2015, Halles des Tanneurs, Brussels Belgium, <http://smartsoil.eu/smartsoil-final-conference-30-sept-2015/>
- 4th Meeting of ENSA (European Network on Soil Awareness), 21-22 October 2015, Milan, Italy, <http://www.bodenbuendnis.org/ensa/>
- ERG Conference 2015 - 'Advances in Ecological Research and Soil Sustainability', 5 December 2015, venue to be announced, <http://www.canterbury.ac.uk/social-and-applied-sciences/human-and-life-sciences/life-sciences/research/erg-conference-2015.aspx>
- The 2015 International Fertiliser Society Agronomic Conference, 10-11 December 2015, Robinson College, Cambridge, UK, <http://fertiliser-society.org/event/the-2015-ifs-agronomic-conference.aspx>

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