



Valorising European Research for Innovation in Agriculture and Forestry



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Goals of VALERIE in brief

The VALERIE project started in January 2014 with the following aims:

- Improve **access** for practitioners and advisers to existing **information for innovation** in agriculture and forestry, from European and national sources
- Build the **ask-Valerie** tool to enable this access; and to support **communication** among practitioners and advisers
- Work with stakeholders in **case studies** to **guide the development** of the tool and to **jointly find and test innovations** from research

The case studies

Consulting stakeholders (advisers, farmers, processors, researchers, decision makers etc.) in case studies is a **key part of the project** particularly in terms of developing the *ask-Valerie* tool. In the process, the project has provided the case studies with information on innovations and given them the opportunity to test and refine these in trials in a process of co-innovation.

The ten VALERIE case studies were: i) catchment scale resource use efficiency (UK), ii) soil management in livestock supply chains (UK), iii) sustainable forest biomass - recycling of wood ash (Finland), iv) agroecology - managing plant protection (France), v) innovative arable cropping (France), vi) sustainable forest management and ecosystem services (Navarra and Basque Country, Spain), vii) improving milling wheat quality (Italy), viii) drip irrigation management in tomatoes and maize (Italy), ix) sustainable onion supply chains (Netherlands), and x) sustainable potato supply chains (Netherlands/Poland).

In this Newsletter we focus on case studies v, vi and x.

Case study v: Innovative arable cropping

The Berry region in Central France has historically produced winter oilseed rape, winter wheat and winter barley, grown in rotation on calcareous clay (stony) soils. Farms are typically about 100-500 hectares. For the last 20 years, yields have been decreasing/stagnating, which has been linked to a short crop rotation, as well as weed and pest (especially insect) pressures. Other limiting factors to the crop reaching its yield potential have been associated with the quality of drilling, germination, rooting and autumn crop growth.

The case study involved 15 farmers and 5 public and private sector advisors whose activities were facilitated by Gilles Sauzet, an agronomist from Terres Inovia (the French technical agronomy centre for oilseeds, grain legumes and industrial hemp). The group was keen to test innovative practices and define the technical barriers to support more productive and sustainable cropping systems.

From the list of identified issues, on farm trials were carried out on **companion cropping** (winter oilseed rape with legume cover crops; wheat with grain legumes) in reduced or no tillage systems. Trials compared conventional and innovative practices on the same farm. Collected data were used to develop and assess a **Decision Support Tool** based on the assessment of soil structure, cultivation system, climate, weed burden and environmental risk. The tool aims to help farmers and advisers choose the most appropriate management practices to achieve successful innovative cropping systems.

Gilles Sauzet of Terres Inovia presents a step by step guide to establishing oilseed rape based on the **Decision Support Tool** developed in VALERIE at <https://youtu.be/u4fE-4x6Ypw>. A simple guide for assessing soil structure was also refined and tested in the field on a succession of oilseed rape and wheat crops, with and without a grain legume companion crop.

Key findings:

The innovative cropping system (oilseed rape in association with cover crops, in no tillage or reduced tillage systems) resulted in:

1. Reduced **weed and insect pressure**. Dense crop covers at the beginning of winter were associated with lower weed and insect pressure
2. **Yield increases** in oilseed rape and in the following wheat crop
3. A **Decision Support Tool** that can help farmers/advisors select the best management practices in these new cropping systems

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❖ Case study vi: Sustainable Forest Management and Ecosystem Services

The Roncal Valley in the Basque Pyrenees is environmentally important due to a large, legally protected forested area. However, there are many different land holdings and owners, who manage their land on an individual basis without any co-ordinated effort to enhance (or maintain) biodiversity or reduce the environmental impact of forestry activities.

This VALERIE case study focused on improving the economic and environmental performance of forestry in the Basque Region of Spain with specific goals to: a) promote rational forest management and more efficient planning through the joint action and cooperation between landowners; b) design a new forestry management project with new silvicultural practices, c) obtain sustainable forestry management certification; and d) optimise the use of resources and infrastructure to reduce associated environmental costs and impact.

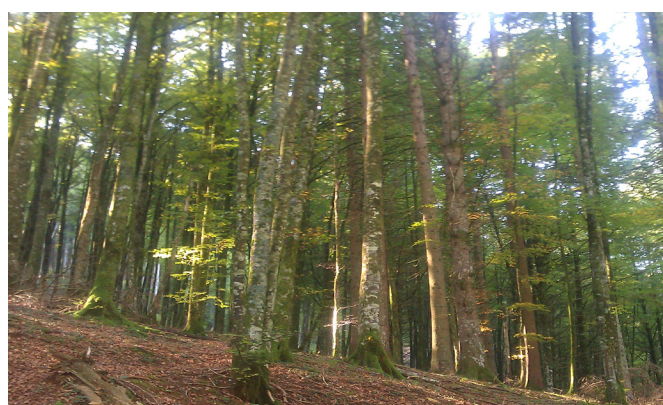
Together with the Union of Foresters of Southern Europe (USSE)/Forestry Association of Navarra (Foresna) and The European Forest Institute (EFIMED) a number of case study meetings were held with local stakeholders. Forest owners in Roncal were invited to identify their own needs, as well as challenges and required innovations in the establishment of a Forest Owners' Group and the development of a **Joint Forest Management Plan**.

Joint forest management can create challenges (e.g. forest owners' internal dynamics including organisation, trust, transparency, negotiation and conflict resolutions skills etc.), which often preclude or hinder uptake. These can be minimised with the help of public and private advisors. This **collaborative interaction** between forest owners and the VALERIE team resulted in the "Roncal Forest Owners' Group", and with landowners agreeing on shared management strategies, a comprehensive Joint Forest Management Plan was drafted, providing guidance on forestry management and planning for the next ten years. In the preparation of the Plan, **LIDAR** (Light Detection and Ranging; a remote sensing technology) was successfully used as a **novel technique** to assess the nature and health of vegetation in the highly fragmented forest holdings.

Key findings:

1. **LIDAR** can be used to provide a biomass inventory required for the preparation of a Joint Forest Management Plan
2. The **role of advisors is crucial** in promoting and facilitating Joint Forest Management Groups
3. Interest has been shown from other Spanish regions in developing **Joint Forest Management Plans**

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❖ Case study x: Sustainable Potato Supply Chains

This VALERIE case study centred on sustainable potato production for the French fry industry, in the Gdansk region of northern Poland. Farm size ranges from 50-800 hectares. Internal black or brown discoloration in potatoes is a major problem for growers and also impacts across the whole French fry supply chain. Processors and retailers require blemish-free, white flesh and long potatoes. Innovator is one of the potato varieties that meet their requirements, however it is susceptible to **Tobacco Rattle Virus (TRV)**, causing internal **brown spots** in the tuber flesh and a consequent risk of rejection by the factory. TRV is transmitted by nematodes, especially *Trichodorus* spp., and although infection rates vary, in some years the damage can be >25%.

DLV/Delphy working with the VALERIE project brought together stakeholders from the French fry industry in northern Poland, including seed potato producers and 'Farm Frites', a producer of French fries. Together they identified the potato brown spot as an issue and, through scanning the scientific literature, possible solutions. A field experiment and demonstration plots were set up to test the susceptibility of current, and potentially new **potato varieties** for specific strains of TRV transmitted by the *Trichodorus* spp. of nematodes.

Results from both the field experiment and demonstration plots showed significant differences in the percentage of tubers infected with TRV between varieties. In the field experiment, it was clear that the range of infection levels was substantial. Between 0- 50% of Innovator tubers were infected with TRV, indicating an uneven distribution of nematodes. In the demonstration plots, three new varieties showed promising low TRV infection rates and will be tested further for other key agronomic characteristics. The results also prompted stakeholder discussion on strategies for managing the nematode population, and the virus load of the nematodes, through the adoption of specific agronomic measures, such as the use of green manures and cover crops.

Key findings:

1. Ivory Russet and Ludmilla are **good alternative varieties** to Innovator with less susceptibility to TRV. However, other variety characteristics need to be taken into account
2. In the demonstration trial, three new varieties showed **little susceptibility to TRV**. These varieties will be tested further, assessing infection and other characteristics
3. The **nematode control strategy** needs more attention on contract grower farms. Most growers do not have accurate information about infestation levels in their fields
4. **Future research** is required on how the choice of **cover crop and green manure** affects the population of nematodes and the virus load of the nematodes



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Latest news on the ask-Valerie tool

The VALERIE project has created the **ask-Valerie tool**, which helps practitioners and advisers in the field of agriculture and forestry to find and share documents that respond to their specific queries. It operates in multiple languages and covers a series of thematic domains with a focus on sustainability and profitability. These include sustainable soil and water management, integrated pest management, recycling of biomass, supply chain optimisation, and ecosystem and social services from agriculture and forestry.

The highly interactive tool has at its core a purpose built vocabulary of key agricultural and forestry terms, which are integrated with: (1) a specially constructed document base; (2) a dedicated search tool; (3) an interactive user-interface; and (4) a communication platform. To date the **ask-Valerie tool** has:

- 10,300+ terms in the vocabulary
- the vocabulary translated into 7 languages (English, Dutch, Finnish, French, Italian, Polish & Spanish)
- links to documents from about 50 existing repositories (e.g. practical guidelines in 'Food & Farming Futures' etc.) with a further 15+ identified
- 70,000+ documents of the 170,000+ identified are currently in the document base, including:
 - 1,500+ documents from EU projects (FP5-6-7 & H2020) held in the European CORDIS database
 - 200+ Factsheets of innovation produced from the 500+ identified innovations

The **ask-Valerie tool** is due to 'go live' imminently and be publically accessible via the **ask-Valerie.eu portal**.

What next for the ask-Valerie tool

The **ask-Valerie tool** is to be tested in the platform of the EIP-AGRI Service Point; and there are plans to enable access to the tool from other platforms. A suitable form of implementation would be a 'widget', a window shown on the host page to provide access to the **ask-Valerie** page, with or without transferring user-profile details.

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Valerie

