



**EURAF European Agroforestry
Federation**

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1. EURAF ACTIVITIES

The EURAF activities during the last two months have been very relevant for the agroforestry in Europe. Thanks to the lobbying funds of the members of the Spanish Agroforestry Association (AGFE), María Rosa Mosquera and Christian Dupraz visited all relevant parties of the European Parliament to foster an “Agroforestry Strategy in Europe” with an excellent feedback. The most relevant European Parliament Parties agreed to push the development of a European Agroforestry Strategy to be launched in the next [World Agroforestry Conference](#). Moreover, Louis Dolmans and Mark Vonk, as representatives of the Dutch Agroforestry Association, organized an extraordinary [IV EURAF Conference](#) in Nijmegen (The Netherlands). They also conducted the development of the [Agroforestry Declaration](#) built upon the feedback of the EURAF conference participants and session chairs. The EURAF General Assembly took also place the last day of the Conference and a new EURAF executive team was elected, lead by Patrick Worms from ICRAF. I personally wish to the whole 24 members of the new [EURAF Executive Committee](#) good luck and a lot of commitment to foster Agroforestry in Europe. I would also like to thank to all members of the previous Executive Committee for the support I received, that put Agroforestry as a core point in the European Commission and Parliament. If any of you wish to support and work with me on agroforestry at international policy level, I will be working for this as President of the Spanish Agroforestry Association, as Chair of the [Arable Crop Division of the Global Research Alliance](#) where a sub-section on agroforestry was created, as chair of the [Enabling Environment Action Group of the Global Alliance for Climate Smart Agriculture](#) (FAO), and as coordinator of the unique agroforestry innovation thematic network in Europe, [AFINET](#).

Source: María Rosa Mosquera-Losada (EURAF President), July 2018.

2. REGIONAL AGROFORESTRY NEWS

2.1 Five-years-experiment on agroforestry systems in the Tchepinska valley, Bulgaria

Agroforestry has been practiced in Bulgaria from many years, and more often vegetable are intercropping among young trees. An interesting experiment has been carried out with fast growing tree species (*Paulownia*) in central part of Southern Bulgaria near Pazardgic town in Tchepinsks valley. In 2012 the plantation of Paulownia was established by the Assist. Prof. Angel Ferazliev,

person in charge of the Scientific Base in Velingrad town, that belongs to the Forest Research Institute – [Bulgarian Academy of Sciences](#). The experiment was carried out in a private land (total area 0.1 ha and a scheme 4x4 m) in the scope of Dorkovo villidge Pazardgic county. Seventy seedlings of Poulownia (*Paulownia tomentosa*) were planted after being produced by the Station of fast growing species in Svishtov town from seeds of mother plant.

During the summer of 2012, the plantation was added with 0.07 ha fruit species (apples, pears, plums, peaches). During the autumn 2015 and the spring 2016, between and under canopy of *Paulownia* trees have been planted additional number of fruit trees (apples, pears, plums). From 2012 to 2017, vegetables (potatoes, beans, peas, maze, salad beet, carrots, cabbage, and tomatoes) have been growing in intercrops. In 2017, a vineyard with three red and two white dessert varieties has been established. The ending row of *Paulownia* trees has been used as a prop construction for vine.

The Paulownia trees create favorable microenvironment for growing vegetables and fruit species. Moreover, these trees prevent the young fruit trees from negative influence of the abiotic factors. The production is diversified. More species may go to the market. The land is used in its full capacity.

Because of early autumn frosts around 10th October, there is a shortening of the vegetation period, which is necessary for *Paulownia* trees to fill up completely their vertical woody profile, thus the core remains empty. This made them economically unprofitable for wood processing, and furthermore to be easily broken by winds. This, together with the death of around 15-20% of trees, due to low winter temperatures, has made this tree species unsuitable for growing in Tchepinska valley. On the other hand, the early blossoming before the other tree leafing in spring has made *Paolownia* trees valuable for honey and support the development of beekeeping in the region, which has a long tradition here and is a livelihood for many inhabitants of the village of Dorkovo.



Figure 1: Paulownia combined with vegetables and vineyard in the Tchepinska valley, Bulgaria.

Source: Assist. Prof. Angel Ferazliev (leader of the Scientific Base in Velingrad town, Forest Research Institute, Bulgarian Academy of Sciences), April 2018.

2.2 Modern approaches and applications of agroforestry in Germany

One of the most important options to integrate modern approaches and applications of agroforestry into today's commonly applied agriculture practices in central European countries like Germany may be the so called "alley cropping system" with short rotation coppices (SRC). The main reasons are:

- SRC with fast growing trees like poplar and willow can produce high yields of woody biomass in relatively short time periods.
- The woody feedstock material is suitable for both, the energetic and the material use.
- All management and processing units for the SRC application as such, e.g. planting devices, harvesting machineries, feedstock handling and storage measures, as well as technologies for producing high quality wood products are well developed and practically approved.
- Farmers' management and process sequences can easily be adapted to an alley cropping system with SRC.
- SRC can provide a set of desired ecosystem services (e.g., protection from wind and water erosion, support of biodiversity through habitat provision, protection from nutrient leaching etc.).
- SRC are already legally accepted as an agricultural crop and can also serve as greening measures within the CAP regulations.

Still, there are some obvious problems of such mixed cultivations, related to e.g. the reduction of light for the agricultural crops, a generally higher water consumption by trees, compared to the common field crops, as well as the need for a locally adapted infrastructure for processing the SRC feedstock material, to finally reach an acceptable economic outcome for farmers. Thus, quite a few interesting activities and innovative solutions for the entire SRC land use system were developed through various project activities in Germany during the last decade (see for instance [AGROWOOD](#), [AgroForstEnergie](#), [AgroCop](#), [AGROFORST](#)). However, with respect to a scientifically substantiated insight into advantages and disadvantages of such mixed land-use systems, there is still a strong need for a better understanding of plant and soil processes and interactions. Some of the major issues and questions are for instance (i) how will nutrient cycling as well as nutrient use efficiencies or the entire element budgets of such mixed cultures be affected, (ii) could obvious yield reductions of the field crops next to the shaded edges of the tree strips be compensated by increasing harvests in the center of

the crop alleys or, (iii) might deep rooting trees help to provide additional water sources due to a so called “hydraulic lift” for field crops in dry periods? Furthermore, thematic aspects with respect to the impact of SRC alley cropping systems on biodiversity issues, the local climatic conditions, the potential of extra carbon sequestrations, the reduction of greenhouse gas emissions, as well as on socio-economic aspects, are of high interest.

Most of these topics were addressed within the joint interdisciplinary [SIGNAL](#) project, which started its activities in 2015 (“Sustainable intensification of agriculture through agroforestry”). SIGNAL’s agroforestry approach was recognized as one of the most innovative and significant inputs of the “[BonaRes](#)” (“Soil as a sustainable resource for the bioeconomy”) funding initiative of the German Federal Ministry for Education and Research. The general focus of BonaRes is on the sustainable use of soils as a limited resource. Its goal is to extend the scientific understanding of soil ecosystems and to improve the productivity of soils and other soil functions while developing new strategies for a sustainable use and management of soils.

Within SIGNAL, six research sites with different site conditions in northern Germany are operated and 12 scientific disciplines are involved (e.g.; soil chemistry, soil biology, soil physics, bioclimatology, plant nutrition, grassland science, agricultural economics, applied crop science, modelling). The main goal of SIGNAL is to evaluate whether and under which site conditions agroforestry in Germany can be a land use alternative that is ecologically, economically and socially more sustainable than conventional agriculture. The central hypothesis is that on marginal sites and sites with high potentials for leaching losses or soil erosion, innovative agroforestry systems are ecologically and economically more sustainable and socially more acceptable than conventional arable farming systems and, thus, improve the societal sustainability of modern agriculture. Just recently, SIGNAL was positively evaluated for the second of the three envisaged funding periods until 2021. Based on the results of the first funding phase, the central hypotheses of the second phase will be:

- In agroforestry systems, the positive effects of a reduction of fertilizer input (reduced costs, reduced leaching losses) will outweigh the negative effects (reduced nutrient availability) while in conventional agriculture this will not be the case since agroforestry systems have better functioning soil-biological processes compared to conventional agriculture.
- The establishment of agroforestry systems leads to a quick reduction in nitrate leaching losses compared to conventional agriculture, because of a combination of effective soil biological mechanisms such as root distribution, production of root exudates, stimulation of denitrification and N immobilization.

Thus we will i) include a reduced fertilizer input treatment at one of our study sites to analyze how agroforestry deals with conditions of lower nutrient availability compared to conventional agriculture,

and ii) establish a new agroforestry site in an area, which is typical for areas in Germany that have high nitrate concentrations in groundwater: sandy soils with high nutrient input.



Figure 2: SIGNAL site Wendhausen, near Braunschweig, Germany (photo: N. Lamersdorf).

Source: Norbert Lamersdorf (EURAF National Delegate for Germany) and M. Bredemeier, April 2018.

2.3 Agroforestry - potential for regional development and sustainable rural landscape in the Czech Republic

Recently the Technological Agency of the Czech Republic approved the project “Agroforestry - potential for regional development and sustainable rural landscape”. This project will last two years and will be coordinated by the [Czech University of Life Sciences](#). The organisations involved in this project are [Research Institute Silva Taroucy for Landscape and Horticulture](#), [Mendel University in Brno](#), [Academy of Science of Czech Republic](#), Association of Private Farmers and Czech Agroforestry Association.

The aim of this project is to evaluate the benefits and constraints of using agroforestry systems in Czechia with a focus on the socio-economic, legal and environmental context. The project will evaluate planting of trees on arable land in areas affected by soil erosion and drought, and animal husbandry combined with tree components. Based on detailed literary review, socio-ethnological surveys, production and economic data gathered from farmers, the agroforestry benefits on the agricultural land would be fully evaluated. Furthermore, legislative constraints and opportunities for tree growing on agricultural land will be analysed. The final outputs will be the scientific publications and, in particular, the documents (methodologies) for the application and implementation of the agroforestry system in Czechia.

A basic and clear definition, classification and inventory of the agroforestry systems will be made for the conditions of the Czech Republic. Project partners will do in-depth ethnological, historical and broader sociological research, identifying farmers' knowledge of tree growing. Literary research will be conducted to evaluate the environmental benefits of agroforestry systems (defense against drought,

erosion, climate change and biodiversity loss) and, on this basis, a typology map of suitable habitats for the use of their environmental benefits. In cooperation with farmers, primary data will be collected to assess production and economic aspects. Economic models will be developed to assess the basic types of agroforestry systems and the analysis of the Czech legislative and subsidy environment, identifying barriers and opportunities for tree growing on agricultural land.

Source: Bohdan Lojka EURAF (National Delegate for Czech Republic), April 2018.

3. FEATURED FARM: SERIDA experimental farm at Carbayal, Illano, Asturias, Spain

The experimental farm of the Regional Agrifood Research and Development Service (SERIDA) is located in Sierra de San Isidro at 850-1000 m altitude in western Asturias. Its vegetation mostly consists of heathlands, representative of large areas in Western Europe and characteristic of poor and acid soils. The farm aims to develop sustainable livestock production systems (especially focused in meat) with different herbivore species (cattle, sheep, goats and horses) stocked according to available vegetation, also considering the effects of grazing management on plant dynamics and biodiversity.

The farm started in 1991 thanks to the funding of a European project (CEE N° 8001-CT90-0011 "Development of mixed grazing systems of animal production for the management of seminatural vegetation to protect the rural environment in sparsely populated areas"), coordinated with other research centres of United Kingdom (MLURI, Scotland), France (INRA, Clermont-Ferrand) and Ireland (TEAGASC, Galway). Initially 150 ha were fenced and different percentage areas were improved by means of ploughing, fertilizing and sowing perennial ryegrass and white clover to enhance animal nutrition and get sustainable grazing systems with breeding females. The flattest lands were also improved to get forage for winter feeding. Nowadays, the farm has 225 ha with approximately one third of improved pastures. In the last years, Iberian pigs have been introduced to study their adaptation to Cantabrian mountain conditions and the effects of chestnut feeding on performance and meat quality. Also agroforestry systems are being studied with recent plantings of birch and pine saplings on cleared heathlands grazed by mixed flocks of sheep and goats.



Figure 3: On the left, place where the SERIDA experimental farm was established; in the middle, partly improved area; and on the right, impact of the SERIDA farm on the site.

Many research projects have been developed in these 27 years of farm history (3 European, 3 from the National Plan, 11 from the INIA Sectorial Plan, and 2 from the Regional Plan). The obtained results have been published as many articles in scientific journals (more than 30), as well as book chapters, conference proceedings and informative articles (the references can be found in SERIDA webpage: <http://www.serida.org/areadetalle.php?id=40>). Among the most important results, we could highlight the greater productive efficiency of small ruminants compared to large herbivores in heathland-grassland mixtures, the woody phytomass control by goats, thus reducing fire risk, the beneficial effect of heather tannins by reducing gastrointestinal parasitic infections in goats, and the effective control of gorse by horses, enhancing heathland floristic diversity.

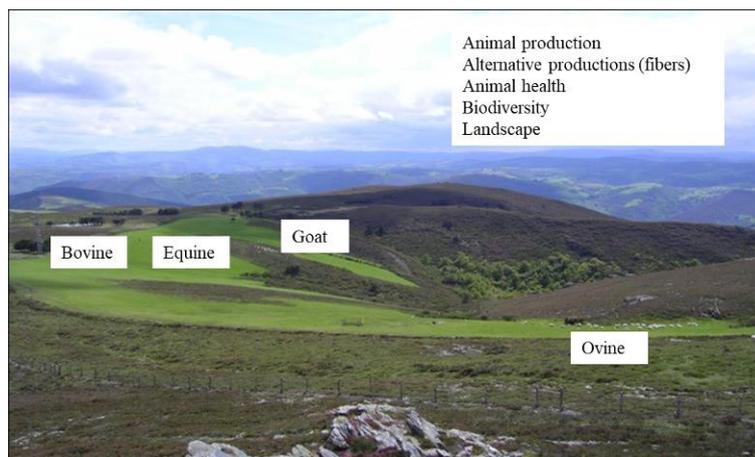


Figure 4: The image of the partly improved area shows the differences in the grazing pattern of the four different livestock species, e.g. the complementary pattern by goats in the heather-tojal, and the competition between horses and cows in the sown area. It is not advisable a mixed grazing by these two species, but only in a time sequence.

The experimental farm has been visited by researchers from the whole Europe, from Portugal to Turkey and Sweden, including Italy, Greece, France, United Kingdom, Ireland, the Netherlands, Germany and Norway. Also research delegates from the Tibetan Plateau and Latin American countries (Chile, Peru and Mexico) have visited it. Therefore, the farm is available to all those who want to acquire or contribute the knowledge that helps to the sustainable development of the different territories of the planet.



Figure 5: An open day with presentation and discussion of the experiences established in the SERIDA experimental farm.

The experimental results obtained over these years in the farm reveal the potential to produce quality food under differential production systems in territories that undergo a great fire risk. These silvopastoral systems are environmentally and socially beneficial since they favour high biodiversity levels while maintaining an integrated landscape of shrublands, woods and open pasture lands, which in addition may act as efficient firebreaks, unlike mechanically cleared areas that need high costs and offer uncertain results.

Source: Koldo Osoro and Rafael Celaya Aguirre (SERIDA, Villaviciosa, Asturias, Spain), April 2018.

4. 4th EUROPEAN AGROFORESTRY CONFERENCE

The [4th European Agroforestry Conference “Agroforestry as Sustainable Land Use”](#) took place in Nijmegen (European Green Capital 2018), The Netherlands, between 28th and 30th May 2018. The conference was organised by EURAF and brought together over 250 people from the five continents.

The opening of the conference was carried out by María Rosa Mosquera-Losada, President of EURAF, with a presentation titled “We have a dream: fostering agricultural transition towards agroforestry” highlighting the benefits of agroforestry, the needs of innovation for a farmer transition and providing key messages about current mistakes done by policy makers when agroforestry is considered. After this opening presentation, the keynote speakers of the conference outlined the resolving power of the agroforestry. Professor P.K. Ramachandran Nair (University of Florida, USA) underlined the importance of carbon sequestration, considering agroforestry as a major component of most sustainability related development paradigms. The main issue dealt with by Professor Pablo Tittone (National coordinator of the Natural Resources and Environment Program of INTA, Argentina) was that trees have a lot to offer and in fact can feed the world. Professor Jan Willem Erisman (Earth and Climate, VU Amsterdam) pointed to the decline of biodiversity and explained the

need of system-based knowledge of nature to find the links between agriculture and healthy food. Finally, Robert Hódosi (European Commission) informed us about the main features of the new CAP. He indicated possibilities for a stronger position of agroforestry and for acceleration of transitions.



Figure 6: Opening session of the 4th European Agroforestry Conference.

The first day of the conference, several [scientific sessions](#) took place: "Factors of success and failure in the transition into agroforestry", "Costs and revenues of agroforestry on the scale of the individual farm, a region and a state; proven practice and theoretical models", "Agroforestry policies" and "Agroforestry as a form of sustainable land use to fight against climate change". The second day, the participants in the conference enjoyed the most relevant agroforestry innovations in The Netherlands in the visited farms. The last day of the conference, five [scientific sessions](#) were carried out in the morning: "Testimonies of farmers from Europe", "Environmental benefits of agroforestry", "Biodiversity and added value", "Tree fodder: food for thoughts?" and "Innovations in agroforestry" and five more scientific sessions in the afternoon: "Social and economic aspects in developing agroforestry", "Tree-Crop-Animal competition and facilitation", "Agroforestry and multiple products value chain", "Education and tools to investigate agroforestry" and "Dutch practice and Dutch transition".



Figure 7: Some pictures taken during the scientific sessions and the field tours of the 4th European Agroforestry Conference.

During the conference some works were presented as posters in the [poster sessions](#) and two EURAF prizes for best posters were awarded. The titles of the winner posters were “How to make agroforestry systems pay off? Using its values to create economic development pathways” (authors: Lieve Borremans, Bert Reubens and Erwin Wauters) and “Hedgerow agroforestry in England and Wales: Increasing width to sequester additional carbon” (authors: Matthew Axe, Ian Grange and John Conway).

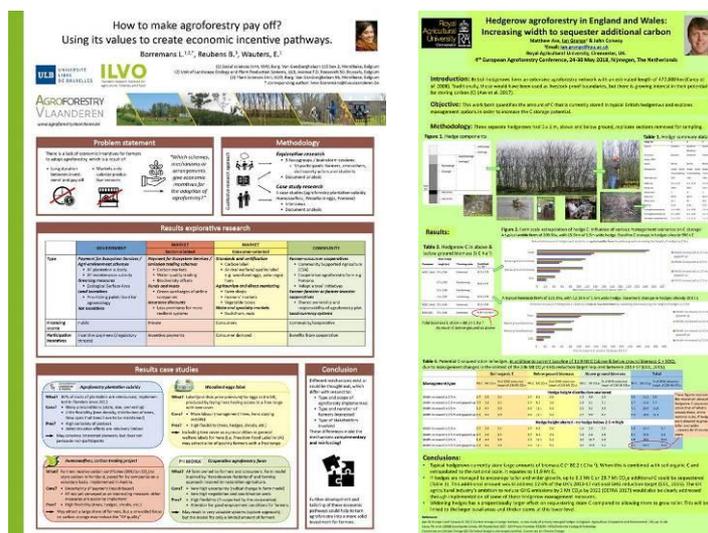


Figure 8: Winners of the EURAF prizes for best posters.

Above all, the [Statement of the EURAF Conference 2018](#) was delivered based on a bottom up approach conducted by Louis Dolmans with the help of Jan Willem Erisman and María Rosa Mosquera-Losada who presented it and handled it to the Vice Major of the Nijmegen city. The Conference Statement expresses the main message of the conference: building bridges between farmers and scientists, consumers and producers, ecology and economy, healthy food and agriculture. These bridges will lead us to the aims of “Accelerating inspiring transitions towards agroforestry as a sustainable land to fight against climate change” and “50% of farmers adopting agroforestry by 2025”. The Conference Statement also asks for a European Agroforestry Strategy because the European Common Agricultural Policy (CAP) for the period 2021- 2027 will be essential for the breakthrough of agroforestry.



Figure 9: María Rosa Mosquera-Losada presenting and giving the Statement of the EURAF Conference 2018 to the Vice Major of the Nijmegen city.

Source: Louis Dolmans, Mark Vonk, Nuria Ferreiro-Domínguez, María Rosa Mosquera-Losada and Anastasia Pantera (Organisers of the 4th European Agroforestry Conference), June 2018.

5. WHAT DOES PREVENT FARMERS FROM AN EXTENSIVE ADOPTION OF AGROFORESTRY IN EUROPE?

Agroforestry innovation is moving thanks to the [AFINET](#) thematic network, that had the [second meeting of the regional agroforestry innovation networks](#) (RAINs) of the project in 9 regions of Europe with over 300 actors (farmers, policy-makers, retailers, researchers...).

During those meetings, AFINET actors were asked about what does prevent them from adopting agroforestry. After discussions at regional level, AFINET actors claimed as the main challenge the lack of knowledge about the best combinations of the woody component and the understory to increase profitability at short, medium and long term. Economic and environment decision support tools are key to help farmers to implement agroforestry locally adapted and in an adequate way. Moreover, AFINET actors also asked for more agroforestry education at various levels including undergraduate students and consumers. Peer learning and knowledge about where best practices are that should be mapped is another key aspect claimed by AFINET actors. Healthy and sustainable agroforestry products recognition is key to add-value to products that take care of the environment and combat climate change at its both aspects: mitigation and adaptation. Agroforestry policy is also key for those stakeholders that wish to get benefit for the ecosystem services that they deliver. Both, agroforestry establishment and, in some cases, the area needed to grow up the tree that take out agricultural products should be paid by the CAP. Agricultural, environmental and social research is indeed needed to make agroforestry more profitable at local level and to understand the reasons behind the best combinations functioning to be able to spread adapted solutions to other European environment contexts.

Source: María Rosa Mosquera-Losada (EURAF President and Coordinator of the AFINET project), Antía Villada (AFINET project manager, University of Santiago de Compostela) and Pieter Verdonck (AFINET partner from INAGRO, Belgium).

6. MISCELLANEOUS

IUFRO Conference

The IUFRO conference will take place in Posadas, Misiones, Argentina during 1st – 5th October 2018. The conference includes a session on agroforestry “Agroforestry: building relationships between human populations and nature to make forest and agricultural landscapes sustainable”. To submit an abstract, please follow this link <https://iufro2018posadas.com/sessions/guideline-for-authors/>. More info [here](#).

Forest Europe Workshop

The Forest Europe Workshop “Understanding the contribution of Agroforestry to landscape resilience in Europe-How can policy foster agroforestry towards climate change adaptation?” will take place in Budapest, Hungary during 9th – 10th October 2018. More info [here](#).

German Forum on Agroforestry

The German Forum on Agroforestry, i.e. the “6. Forum Agroforstsysteme” titled “*Brücken Bilden - Agroforst als Bestandteil einer zukunftsgerichten und regional angepassten Landnutzung - Status quo, Bedarf und Perspektiven*“ will take place in Göttingen, Germany on the 9th and 10th of October 2018. For further details please see the Forum [website](#) or write an e-mail to Leonie Göbel (agroforstforum2018@gmail.com). Guests are highly welcome!

4th World Congress on Agroforestry

The 4th World Congress on Agroforestry “Agroforestry: Strengthening links between science, society and policy” will take place in Montpellier, France during 20th – 25th May 2019. The overall objective of the Congress is to contribute to the strengthening of agroforestry science and practice in order to provide opportunities for strengthening links between science, society and policy and to bridge the science-policy gap. More info [here](#).

This is your newsletter! If there's anything you think should be included, please send suggestions to info@eurafagroforestry.eu for the next issue

This newsletter is carried out in collaboration with the European [AFINET](#) Project

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