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PPILOW, a European project dedicated to welfare in Poultry and PIg Low-input outdoor and Organic production systems - Newsletter issue 6

Anne Collin, Raffaella Ponzio, Martina Re, Laura van Vooren, Claire Bonnefous, Sanna Steinfeldt, Jarkko Niemi, Vasile Cozma, Elisa Angelucci, Marlene Sciarretta, et al.

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PPILOW

Poultry and Pig Low-input and Organic
production systems' Welfare



PPILOW, a European project dedicated to Welfare in Poultry and Pig Low-input outdoor and Organic production systems (2019-2024)

Newsletter - Issue 6

December 2022



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Editorial - by Anne Collin (INRAE)

Ensuring poultry and pig welfare has become a crucial issue for low-input outdoor and organic farms, currently threatened in Europe by the international sanitary and economic crisis contexts. The PPILOW project helps providing keys for proposing and testing strategies and practices favouring welfare in these production systems. In this 6th PPILOW Newsletter, you will find news about the PPILOW partners' last meeting in Venice, an update of the activities of the PPILOW National Practitioners Groups and information about a BioForum initiative to promote outdoor area design in Belgium. You will also discover four recent PPILOW project results, get to know two new PPILOW researchers and learn about events in which PPILOW partners will be involved to disseminate their results. All the PPILOW partners wish you a beautiful end of the year!

PPILOW 3rd Annual meeting in Venice - by Anne Collin (INRAE)

PPILOW 3rd annual meeting in Venice was dedicated to the sharing of 3 years project results and the means to amplify their impact. The European PPILOW project partners gathered in Venice from the 11th to the 13th of

October, 2022: fortunately, after 2 years of sanitary restrictions, it was possible for 47 members from 20 PPILOW partner organizations in 8 European countries to meet lively and share advances. Thanks to the Italian partners AIAB, Slow Food Biodiversity, University of Perugia (UNIPG) and EAAP, and to INRAE Transfert, PPILOW collaborators had the chance to valorise working together on both scientific and applied points of view in this wonderful city, and met Italian producers. To stimulate idea exchanges, three interactive sessions held in subgroups focused on:

- supporting the development of the business models based on the use of PPILOW levers for improving animal welfare in low-input outdoor and organic producers, in pigs, broilers and laying hens, organized by LUKE (Finland) and Thuenen Institute (Germany) partners.
- playing roles in focus groups dedicated to 3 topics: “From doing to saying: traceability starting from the taste”, “Who is going to feed us in the future?”, “Pig and Poultry welfare: where is Europe going?” including the participation of Italian member of the Italian Practitioner Group sharing his experience and farm products. The focus groups were facilitated thanks to the great investment of AIAB, Slow Food Biodiversity, UNIPG and EAAP partners
- refining PPILOW results exploitation and impacts in a workshop proposed by INRAE Transfert with EAAP and the other project partners, allowing to identify the end-users of the project innovations for poultry and pig welfare, and how to reach them at best.

Thanks to the project multiactor participatory approach, and despite the difficulties to meet and visit farms due to SARS-COV-2 pandemic and avian influenza, many results of the project were released this year, among which a review on barriers and levers for improving [welfare in laying hens](#) and a review on the current [challenges faced by the egg industry](#), the development and extension of 2 smartphone applications available in 9 and 7 languages, the [PIGLOW®](#) app for pigs and [EBENE®](#) apps for poultry, respectively, presented in [2 videos](#), results on [range use](#) and [behaviour](#) of slow-growing broilers, a publication on [pig gastrointestinal parasites](#), and one on [egg production and quality in dual-purpose breeds](#). PPILOW partners and the project’s National Practitioner Groups are now fully engaged in the field studies, among which some are testing the PPILOW-proposed levers for avoiding piglet castration and feather pecking in laying hens without beak trimming, the use of dual-purpose poultry breeds, and levers to favour robustness, positive behaviours and health in pigs and poultry.



An unusual dinner in Venice with Slow Food producers – by Raffaella Ponzio (Slow Food)

At the 3rd annual meeting of the PPILOW project held in Venice (Italy) on October 12th, Slow Food organized a visit to a local farm that is part of the Slow Food Presidia network, Slow Food's main project to protect agri-food biodiversity. Papaveri & Papere is a small-scale organic farm in Santa Maria di Sala, a few kilometers from Venice, that practices free-range farming of an ancient Veneto poultry breed: the Paduan Hen. Twenty years ago, Slow Food started the recovery project of this avian breed together with an agricultural high school in Padua, the “Duca degli Abruzzi” Institute. Paduan Hen is a breed once very present on farms in the Veneto region but now reduced to about 1,500 animals totally raised on four small-scale farms. Thanks to the promotion and communication activity of Slow Food Foundation for Biodiversity and the association that brings the breeders together, over time a quality local market for the meat of this breed has been found. Today the Paduan has returned to the plates of many restaurants in the Padua and Venice area, at remunerative prices for the breeders. Indeed, Slow Food's bet to save plant varieties, traditional animal breeds, as well as cheeses, breads, and cured meats at risk of disappearing, focusing on their gastronomic, environmental, and cultural value, explaining to chefs, consumers, and retailers the need to commit to buying and consuming these agricultural products at a fair and remunerative price for producers. Even native breeds, such as plant biodiversity and even traditional processed products, disappear from the market the moment they can no longer provide adequate income for producers in a global food environment that is becoming profoundly standardized and industrialized. The Slow Food Presidia project succeeded, and today there are more than 600 Presidia (by this name Slow Food means the group of producers who adhere to a production specification based on sustainability and animal welfare) in more than 80 countries around the world. In Italy -where there is the largest number of Presidia- there are 360 projects involving more than 2,300 small-scale farms that have found a reason to continue living and producing even in certain difficult production contexts.





Nicola Marchiori, the owner of Papaveri & Papere Farm, took the 36 meeting participants on a tour of his poultry houses, all strictly outdoors, where chickens from Paduan breed and others live from 4 to 5 months in total animal welfare, developing a very delicate meat that is rich in flavor thanks to a natural diet and its genetics. The farm is organic and also raises free-range pigs and other farm animals and offers agritourism hospitality and meals based on vegetables grown in Nicola's garden - a necessary diversification since this breed consists of a few individuals that could not be raised by conventional methods, and as is often encountered in such cases, the

farm's income comes from a mix of sources. After visiting the animals, the following dinner was prepared with products from the Veneto Region Presidia and other agricultural products grown not only on the farm itself but also in the gardens of Sant'Erasmus, one of the islands in the Venetian lagoon that still provides the city with quality agricultural products grown by dozens of small family farms. After an aperitif of cured meats made from a native breed of pork called "cinta senese" from the Tenuta di Paganico farm, which raises Maremma pigs and cattle in Tuscany and has been involved in the PPILOW project since its inception, the dinner allowed participants to take a sensory journey of discovery of the Venice area and the lagoon. The choice of dishes, but especially of ingredients, was a kind of journey back through the agricultural history of the Venetian area. Galdino Zara (chef and one of the founders of Slow Food), together with Davide Tozzato, Slow Food's contact person in Venice as well as a farmer himself in Sant'Erasmus, explained, course by course, the reasons for the choice of products and the link the products had with the island context, capable of giving them specific characteristics. In addition to pickled St. Erasmus Violet Artichokes, grown on the islands of the lagoon, also a Slow Food Presidium, the dinner featured risotto with go (goby fish), the traditional small fish of the lagoon. The Paduan hen was cooked, like the sardines, in saor (that is, macerated in extra virgin olive oil, vinegar, onions, bay leaves, raisins and almond fillets). The dinner ended with a selection of Veneto alpine pasture



cheeses protected by Presidia: Morlacco del Grappa, a 24-month-old Asiago stravecchio and Monte Veronese di malga, tasted together with barena honey (a type of honey made with the spontaneous flowers of the lagoon's sandy shores). To close, sweets from the Jewish tradition of the Venice Ghetto paid tribute to the historical contribution of this community, closely linked to the history of Venice. The wines that accompanied the meal were also produced on the island of Sant'Erasmus, except for the extraordinary passito Recioto di Soave, kindly donated by La Cappuccina Winery.



By organizing this event, Slow Food wanted to give an example of how the association works to safeguard agrifood biodiversity. The sensory experience has always been an indispensable key to bring consumers closer to quality artisanal productions linked to virtuous and sustainable traditional practices. The flavors, scents,

knowledge and practices passed down through generations, together with the telling of direct experience by producers can most effectively communicate the value, and the necessity, of making production choices marked by more sustainable practices as free-range and organic husbandry. On the morning of October 12, in fact, the workshop organized by Slow Food in the Don Orione Artigianelli Center placed organic Cinta Senese artisanal cured meats produced by Tenuta di Paganico in comparison with similar but industrial productions from conventional farms, revealing the qualitative difference between the two types of charcuterie. The purpose of the workshop was to get those present to think about the point of view with which consumers look at animal production, what aspects they look for when purchasing these products, and what is really needed to encourage them to focus on products from organic and low-input farms¹. As shown by Slow Food projects, producing cured meats with high-quality meats, from free-range animals, raised organically and in total farmer commitment for welfare, is a choice that can offer attractive economic opportunities for farmers due to a growing number of consumers seeking quality and animal welfare.



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Progress and updates of the PPILOW National Practitioners Groups – by Martina Re (AIAB)

The pig and poultry National Practitioners Groups (NPGs) are currently engaged in the project on two levels: the first one is contributing to the sustainability multicriteria assessment, by providing information on priorities and perception of different aspects of sustainability. This activity has been carried out through the Deck Card Method methodology, either on-site or online depending on the NPG members' availability. The second one is the implementation of innovative practices developed by WP 4-5-6: farmers involved in the NPGs have been informed about the experiments carried out within the project through the NPG facilitators. Farmers interested in the innovations have started to implement the selected practices for improving animals' welfare. Together with the partners involved in the experiments, the implementation of practices is monitored through protocols for collecting data on the experiment progress. During the 3rd Annual Meeting, partners and facilitators have proposed new innovations to be implemented on farms, for addressing specific farmers' needs.

¹ Tenuta di Paganico is one of the breeders selected to test the sow sheds developed by the Danish company Vangaard as part of PPILOW and Papaveri & Papere Farm will test the EBENE® app.

NPG organizes contest to promote outdoor area design for increased animal welfare – by Laura Van Vooren (BioForum)

In order to demonstrate the efforts of the organic farmers for animal welfare, the Flemish NPG on layers has set up a contest to select the ‘best outdoor area for chickens’. In May and June, farmers could sign up for the election by answering a questionnaire on the design of their outdoor area and on their motivation to work on animal welfare and by providing several pictures of the farm and surroundings to the jury. The jury consisted of several researchers with expertise in animal welfare and poultry, as well as a member of a farmers’ association and a member of a consumers’ organization. The jury selected three laureates and on each of these farms a short video was made. In October, both the jury and consumers could vote for their favourite farm. The contest was closed on the 24th of October and both the jury, and the consumers chose the same farm as the final winner. More than 1000 consumers have voted in this contest. [More information and the videos of the farms can be found here.](#)

PPILOW scientific publications

1: Welfare issues and potential solutions for laying hens in free range and organic production systems: A review based on literature and interviews - by Claire Bonnefous (INRAE)

In free-range and organic production systems, hens can make choices according to their needs and desires, which is in accordance with welfare definitions. Nonetheless, health and behavioural problems are also encountered in these systems. To identify welfare challenges observed in free range and organic production systems in the EU and the most promising solutions to overcome these challenges, we reviewed published literature and research projects, and we complemented this information by interviews with experts. In our recent publication in the journal *Frontiers in Veterinary Science*, we tackled the health problems and behaviour issues encountered in these systems, and especially those due to the provision of an outdoor range such as the increase the risk of infection, predation or feather pecking. We also summarized potential solutions such as management practices, free-range design, biosecurity measures, phytotherapy and the use of insect-derived products for example. In short, we provided information about the practices that have been tested or still need to be explored and this information can be used by practitioners, technicians and researchers to help evaluate the applicability of these solutions for welfare improvement in laying hens.

Welfare issues and potential solutions for laying hens in free range and organic production systems: A review based on literature and interviews. Bonnefous, A. Collin, L.A. Guilloteau, V. Guesdon, C. Filliat, S. Réhault-Godbert, T.B. Rodenburg, F.A.M. Tuytens, L. Warin, S. Steinfeldt, L. Baldinger, M. Re, R. Ponzio, A. Zuliani, P. Venezia, M. Väre, P. Parrott, K. Walley, J.K. Niemi, C. Leterrier. (2022), *Frontiers in Veterinary Science*, 9/952922. <https://doi.org/10.3389/fvets.2022.952922>

2: Dual-Purpose poultry in Organic Egg production and Effects on Egg Quality Parameter- by Sanna Steinfeldt (AU)

Laying hens of different genotypes have been selected for generations for high yield and egg quality. Male chickens of egg-laying genotypes are therefore killed as day old. Due to the ethical dilemma and for better resource utilization, there is more focus on other genotypes, the dual-purpose breeds, where male chickens can be used for meat production. The purpose of the study was to evaluate potential dual-purpose genotypes for the quality of their eggs compared to an effective layer genotype. Two dual-purpose genotypes with divergent characteristics were evaluated: genotype A represented an experimental crossbreed based on a broiler type male and an egg layer female, and genotype C was a crossbreed of a layer type. These were compared to a rustic genotype B and a control genotype D, which was an egg layer. Eggs were collected from 21-54 weeks of age and a total of 990 eggs were analysed. Parameters for egg weight, proportions of shell, yolk and albumen, along with quality parameters were measured. The layer genotype D produced the smallest eggs with the lowest frequency of blood and meat stains, compared to eggs from the two dual-purpose genotypes. The shell quality was best for layer genotype D. However, genotype A laid eggs of comparable shell quality, dry matter content in the albumen and yolk weight, and with the darkest and most reddish-yellow yolk. Genotype C, the second dual-purpose genotype, as well as the rustic genotype B, produced eggs of low-medium quality. In conclusion, genotype A can serve as a dual-purpose genotype from an egg quality perspective and male chickens can be used for sustainable meat production.

Dual-Purpose poultry in Organic Egg production and Effects on Egg Quality Parameter Hammershøj, M., Kristiansen, G. H. and Steinfeldt, S. Foods 2021, 10, 897. <https://doi.org/10.3390/foods10040897>



All pictures © AU

Dual-
purpose
genotypes
→
shell egg
quality



3: Increase in organic product consumption is product-specific - by Jarkko Niemi (LUKE)

There are ambitious policy objectives to increase the market share of organic food in Europe. Currently the importance and market share of organic food varies by product and country. While organic crop production has increased and, in some countries, it already covers a substantial proportion of agricultural land, organic livestock production is lagging behind. Especially the market share of organic pork and poultry meat is still small in almost all European countries. In Finland, for example, the most popular organic livestock products are eggs, milk and beef, but only 0.4% of Finnish pork is organic and the share in chicken meat is even smaller. The most common reasons for consumers to purchase organic foods are their cleanness, taste, quality, and friendliness to the environment as well as desire to support small farmers and producers. Even though almost a fifth of consumers choose an organic product without considering its price, the price is still the main obstacle to buying organic products. Moreover, although people appreciate organic production and prefer it compared with non-organic production, the majority of consumers have a poor understanding of the methods of animal production. Hence, consumer communication and dialogue should be increased to clarify the benefits of organic production to the consumers. The small volume causes some challenges in the organic value chain. For example, small production batches result in elevated production cost per unit of output. Small number of organic farmers in a region may also limit the availability of high-quality support services such as veterinary or advisory services. Even though organic livestock production has several animal welfare benefits, there is still room for improvement. For example, the price and availability of organic protein feed, the use of outdoor range under different weather conditions, animal disease risks and the interpretation of regulations may pose challenges to organic farms. However, favourable farm conditions, ethical benefits and easy-to-use features of measures and responding to the consumer demand were seen as factors enabling animal welfare improvements.

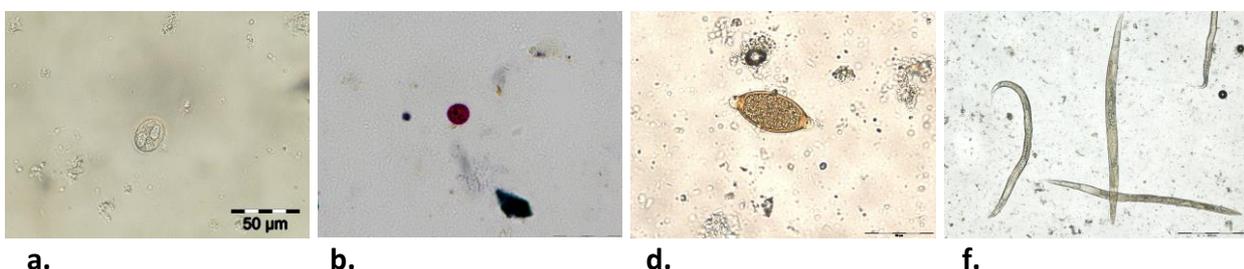
Increase in organic product consumption product-specific. Niemi, J. & Väre, M. 2022. Pages 82-86 in: Finnish agri-food sector outlook 2022. <https://jukuri.luke.fi/handle/10024/552051>

4: Prevalence of Swine Gastrointestinal Parasites in Two Free-Range Farms from Nord-West Region of Romania - by Vasile Cozma (USAMV)

The cost-effectiveness of raising pigs primarily depends on the health of the farmed animals. Swine diseases pose a significant economic problem throughout the world, with losses from parasitic diseases being substantial compared to those caused by bacterial and viral infections. Parasites precede bacterial and viral diseases, exacerbated by the deteriorating condition of pigs. Parasitic infections cause significant economic losses on swine farms by decreased production and reproduction, and also by augmented morbidity and mortality. The vast majority of swine in Romania, are raised on low input farms, the number of which has been registered as increasing in the last decades. Organic farming depends on the ecological factors focusing on environment protection, plant health, animal health, food safety, and consumer health. The free-range raising system is a type of farming where the animals, for at least part of the day, can roam freely outdoors rather than being confined in an enclosure for 24 h each day. The current study aimed at identifying the parasitic profile of swine raised on two free-range farms in Transylvania included in three age categories. Romania has a temperate-continental climate of transitional type, with four clearly defined seasons, therefore

systematic sampling over a year would also allow the investigation of possible seasonal trends of the identified parasitic infections. The samples were collected from two free-range farms, both raising Mangalitza and Bazna local swine breeds. The farms were located in Nord-West Region of Romania, a hilly area defined by abundant pastures, forests and specific temperate-continental climate. Drinking water for the animals was provided from a local fresh water source. The shelters were periodically cleaned throughout the year. The animals had access to outdoor areas at all times. A total of 960 fecal samples from the two farms were collected and examined during the experiment. Collected samples were examined by centrifugal sedimentation, flotation—Willis method, fecal smear stained by modified Ziehl-Neelsen technique, Blagg method, McMaster egg counting technique, and fecal cultures. The coproparasitological examination revealed co-infections with several species of parasites, respectively, *Eimeria* spp., *Balantidium coli*, *Ascaris suum*, *Trichuris suis*, *Oesophagostomum* spp., *Strongyloides ransomi* and *Cryptosporidium* spp. This study provides essential information on Transylvania's distribution of gastrointestinal parasites in pigs. It was demonstrated that different species of gastrointestinal parasites are present in most pigs reared in free-range farms in the study area. The current information has great value to farmers, policy makers, and researchers alike, that should contribute to safer and healthier pork production for public consumption. Specifically, control strategies are needed to raise awareness among pig farmers about the negative impact of these parasites on the productivity and health of pigs and, in some cases, on human health (certain pig parasites are zoonotic).

Coproparasitological examination: a- *Eimeria* spp. oocyst, b- *Cryptosporidium* spp. cyst, c- *Oesophagostomum* spp. egg, d- *T. suis* egg, e- *A. suum* egg, f- *S. ransomi* female and g- *B.coli* cyst



Prevalence of Swine Gastrointestinal Parasites in Two Free-Range Farms from Nord-West Region of Romania. H. Băieş, Z. Boros, C. M. Gherman, M. Spînu, A. Mathe, S. Pataky, M. Lefkaditis and V. Cozma. *Pathogens*, 11(9), 954, August 2022. <https://doi.org/10.3390/pathogens11090954>



Local breeds of Mangalitza and Bazna pigs, in different seasons – © USAVM

New people in the PPILOW project: Elisa Angelucci, Diana Olah



Elisa Angelucci (UNIPG, Fellow researcher)

Elisa is fellow research at the Department of Agriculture, Food and Environmental Sciences of the University of Perugia. She has a bachelor's degree in Economics and Culture of Human Nutrition and a master's degree in Food Technology and Biotechnology, both degrees earned in University of Perugia. Her main scientific activities focus on the poultry, rabbit and aquaculture sectors, with a special focus on the study of alternative and organic rearing systems and their effects on physiological status and on products quality. The main research activity within the PPILOW project is the study of many factors affecting the extensive and organic rearing systems in poultry (WP6).

Diana Olah (USAVM, Mission head)

From 2005 to 2008 Diana attended courses of Babeş – Bolyai University, Faculty of Letters, Romanian – English line. In 2008, she defended thesis *The Beauty. Crises of the Beauty in Modern Esthetics* and obtained the Bachelor's Degree in Letters. Between 2008 and 2010 Diana followed the courses of Comparative Literature Master *History of Images – History of Ideas*, Babeş-Bolyai University, Faculty of Letters. From 2009 until 2015 she attended the courses of Faculty of Veterinary Medicine within University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, Romania, and in 2015 she defended the thesis called *Clinical, electrocardiographic, and ultrasound changes in mitral valve disease in dogs*, obtaining the Bachelor's Degree in Veterinary Medicine. Starting with 2015 until 2019 Diana attended the doctoral program under the guidance of Prof. Dr. Spînu Marina, concluded with the thesis *In vitro* interaction of bacterial microbiome – vegetal antimicrobial extracts in Eurasian red squirrel (*Sciurus vulgaris*). From 2016, as a teaching assistant at the Department of Infectious Diseases and Preventive Medicine, Faculty of Veterinary Medicine, USAMV Cluj-Napoca, Romania, she started teaching Laboratory and Clinical works in Infectious diseases to students in their 4th and 5th year of study. In 2020, Diana occupied the position of Assistant Professor at the same Department. During these 6 years of teaching, she has had the chance to go on weekly field trips with groups of students and work with animals of all species. She spends a significant time working in the laboratory of microbiology. Diana is leader of a project called "*In vitro* testing of antibacterial potential with egg-derived lysozyme supplements, OVOIMUNO". In the PPILOW project, WP6, she approaches the bacteriological examination of samples taken from swine, from isolation to identification, susceptibility to antibiotics and to plant extracts.



Coming and past events

List of the upcoming and past events with PPILOW project partners attendance.

Event 	Date 	Location 	Partners 
5 th Plenary meeting of the European PIGMEAT reflection group	21 November 2022	Online	INRAE, EV-ILVO
ASPA 2023 Congress	13 – 16 June 2023	Bari, Italy	UNIPG
EAAP 2023 meeting	26 August to 1 September 2023	Lyon, France	INRAE, USAMV Cluj Napoca, ACTA (IFIP, ITAB), WUR, SYSAAF, Thuenen Institute, LUKE, JUNIA



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