



Research projects within Target research programmes (co)funded by the Slovenian Research Agency

Project

Member of University of Ljubljana	University of Ljubljana, Biotechnical Faculty
Code	V4-1604
Project	Animal welfare including health of poultry and pigs in conventional and alternative housing systems
Period	1.10.2016 - 30.09.2018
Head	Manja Zupan
Research activity	Biotechnical sciences
Research Organisation Partners	University of Ljubljana (Veterinary Faculty), University of Maribor (Faculty of Agriculture and Life Sciences), Empna, RCP d.o.o., Perutnina Ptuj d.d.
Co-financing Organisation	Ministry of Agriculture, Forestry and Food
Abstract	Sustainable development, which includes environmental and climatic conditions, and an emphasis on animal welfare, has been gaining an increased importance in the development of agriculture-livestock production in Europe. At the same time the consumers, when deciding to purchase animal products, pay more and more attention to the housing conditions farm animals were exposed to. Different rearing conditions in conventional or alternative systems, especially in group housed animals, affect differently the development of behavior abnormalities such as cannibalism in laying hens and pigs, as well as the onset of dermatitis in broilers and general welfare. There is no legislation (laws or directives) available in Slovenia to ensure the welfare of animals in various housing systems of poultry and pigs. Therefore, in this project we will test the protocols and indicators as a non-invasive way to assess the welfare of poultry and

pigs, and establish critical limits of animal welfare, including health care, with emphasis on an individual animal. With this we will make the first scientific assessment of the welfare of poultry and pigs in conventional and alternative housing systems in Slovenia and get the first detailed insight into the state of welfare on the commercial farms. Also, individual housing systems will be described the first time in terms of animal welfare, which will enable housing systems and the corresponding animal products to be better recognized. Furthermore, the project will test innovative approaches to reduce cannibalism as the use of repellents in laying hens and by testing different ways of creating groups of pigs after weaning. At the same time, we will monitor indicators of stress, such as biomarkers of oxidative stress in the blood and saliva of pigs and the concentration of corticosterone and immunoglobulins feathers and eggs in laying hens or broilers. As for laying hens in practice, in addition to cannibalism, keel bone damage represents a big welfare problem, so one of the project key objectives will include the monitoring thereof in the various housing systems. We will also prepare recommendations on the possibilities of their prevention. The last, but not the least key objective of the project is an interdisciplinary approach to investigate the problem of welfare including health care of poultry and pigs. The project will consist of the three scientific organizations from two different universities in Slovenia that will closely work with the industry. Together we want to introduce technological innovations that will allow the animal-friendly rearing conditions and provide safer food for consumers.

Researchers [link on sicris](#)

Tasks not related to year 2016 are marked in yellow. Other tasks have been done or are in the continuation of their collection.

The phases of the project and their realization		
LAYING HENS	DP1 (1.1.1.; 1.2.1.)	Animal Welfare assessment
	DP1 (1.1.1.), DP2 (1.3.1.)	Records of production traits, including some physical traits
	DP1 (1.1.1.)	Zoohygiene normatives, air quality measures
	DP1 (1.1.1.)	Collections of feathers for corticosterone
	DP1 (1.1.1.)	Egg sampling for immunoglobulins, kortisol
	DP1 (1.1.1.; 1.4.)	Sampling of dead and removed animals for patoanatomical investigation
	DP2 (1.1.2.; 1.3.1.)	Study using repellents
	DP2 (1.1.2.; 1.3.1.)	Records of production traits

		DP2 (1.1.2.)	Weighing of the animals, feather condition scoring
		DP2 (1.3.1.)	Physical analysis of eggs
		DP2 (1.3.1.)	Chemical analysis of eggs
		DP2 (1.2.1.)	Collections of feathers for corticosterone
		DP2 (1.2.1.)	Egg sampling for immunoglobulins, kortisol
		DP2 (1.2.1.) DP1 (1.4.)	Sampling of dead and removed animals for patoanatomical investigation
	BROILERS	DP1 (1.1.1.; 1.2.1.)	Animal Welfare assessment
		DP1 (1.1.1.)	Zoohygiene normatives, air quality measures
		DP1 (1.1.1.)	Collections of feathers for corticosterone
		DP1 (1.1.1.)	Sampling of dead and removed animals for patoanatomical investigation
	PIGS	DP1 (1.1.2.; 1.2.2.)	Animal Welfare assessment
		DP2 (1.1.1.; 1.2.2.)	Study plan
		DP2 (1.1.1.; 1.2.2.)	Realisation of the study Part 1
		DP2 (1.1.1.; 1.2.2.)	Realisation of the study Part 2
		DP2 (1.1.1.)	Behaviour scoring
		DP2 (1.1.1.; 1.2.2.)	Animal Welfare assessment
		DP2 (1.1.1.; 1.2.2.)	Weighing of animals
		DP2 (1.2.2.)	Blood and saliva sampling
Citations for bibliographic records	link on sicris		