



## Biedrība „Zemnieku saeima”

### Summary Report on the Project “Manure Standards” Results

On 27th of November, 2019 at “Ozolnieku tautas nams”, Union “Farmers’ Parliament” in the cooperation with “State Plant Protection Agency” organized the final conference of the “Manure standards” project.

The conference was opened with speeches from Kristīne Līfānova (State Plant Protection Agency), Maira Dzelzkalēja-Burmistre (Union “Farmers’ Parliament”) and a video-speech from project leading partner of LUKE institute, and project coordinator - Sari Luostarīnena. The informative part of this event was then continued by “State Plant Protection Agency” director of Agrochemical department- Skaidrīt Rulle, who informed about the actions and results of “Manure standards” project, as well as the benefits in regard to improved guidelines for sampling and analysis of manure. There are also guidelines created for calculation of manure content. With this tool, the consultants as well as other interested parties have the possibility to calculate the amount and content of manure, by putting the variables of animal size and feed amount into a special formula. From farmers’ perspective, there is an instruction created which regulates the process of taking manure samples as well as instruction for more effective manure usage. For policy makers, scientists and other actors, there are reports about the economic and environmental assessment of manure handling, which are made in accordance with the project results.

Further, State plant protection agency senior expert Lauris Leitāns was introducing the audience with methodology behind the manure content calculation, results of manure analysis with a wide scope of samples across many manure types. The audience was also introduced to demo farms of this projects, the results of surveys, and comparison with the results from other states. The first part of conference was concluded with a presentation from professor Aldis Kārklīņš (Latvia University of Life Sciences and Technologies) – “Manure – terminology and its meaning in agriculture”. The audience was introduced to terminology of manure both in traditional and contemporary understanding, as well as types of N within the manure itself. Professor also elaborated on environmentally friendly manure usage and handling.

On the second part of conference, Kalvi Tamm from Estonian Crop Research Institute introduced us with livestock situation in Estonia and their experience with manure handling. Representatives from Lithuanian Crop Agency – A. Strukčinskas and E.

Cikockaite were telling about the requirements and controls for manure in Lithuania, from legislative perspective. This conference was concluded by Silvija Dreijere, director of livestock department at Latvian Rural Advisory and Training Centre, who introduced the audience with impact of feed and diet on dairy cows as well as ammonia emissions. Ammonia emissions were also analyzed across animal groups, type of manure and handling method.

On 28th of November, 2019 an experience exchange trip to farms in Zemgale took place. Thanks to Juris Cīrulis, owner of Mežacīruļi Ltd. and VECAUCE farm of LLU for hosting!

More info: <http://zemniekusaeima.lv/projects/projekta-manure-standarts-nosleguma-konference/>

## **CONCLUSIONS:**

Iveta Grudovska, agriculture expert of the Farmer's Parliament: "With this seminar, the Farmers' Saeima concludes five years of work on various projects related to manure management. Key Conclusions: Manure is a very valuable source of nutrients that needs to be managed properly, otherwise manure handling will cause environmental pollution. Much work remains to be done in Latvia to educate farmers about the value of manure and to set up a support system for the purchase of modern technology. Only a comprehensive approach will make a significant contribution to the economic growth of farms while respecting the environment".

Skaidrīte Rulle, Director of the Agrochemical Department of the National Plant Protection Service: "The main benefit of the project is the exchange of information on manure management in the Baltic Sea Region (Denmark, Estonia, Latvia, Lithuania, Poland, Finland, Germany, Sweden) and the Russian Federation and the development of uniform guidelines (instructions) for the sampling of manure, the evaluation of laboratory methods used for the analysis of manure and the development of a calculation program for the calculation of manure volume and chemical composition. 22 Latvian livestock farms were involved in the project and 124 samples were analyzed, thus the amount of manure and its chemical composition were updated according to modern production conditions, which are influenced by many different factors: livestock productivity, used feed and its doses, animal housing, methods of manure removal and storage. The instructions and calculation programs developed during the project will be used by farmers and agricultural consultants in their daily work, and by policy makers in the development of rules and requirements for manure management".

Silvija Dreijere, director of livestock department at Latvian Rural Advisory and Training Centre. Livestock feeding strategies decrease NH<sub>3</sub> emissions from manure in both housing and storage, and following application to land. Livestock feeding strategies are more difficult to apply to grazing animals, but emissions from pastures are low and grazing itself is essential measure. Livestock feeding strategies for reduction NH<sub>3</sub> emissions are implemented through phase feeding, low-protein

feeding, with or without supplementation of specific synthetic amino acids, ruminal by-pass protein, minerals, increasing the non-starch polysaccharide content of the feed and increased digestability of forages.

For animal housing, reduction NH<sub>3</sub>emissions is based on one or more of the following principles: 1) decreasing the surface area fouled by manure; 2) rapid removal of urine; rapid separation of faeces and urine; 3) decreasing the air velocity and temperature above the manure; 4) reducing the pH and temperature of the manure; 5)increasing grazing time. The costs of techniques used to lower NH<sub>3</sub>emissions from housing are related to: a) depreciation of investments; b) return on investments; c) energy; and d) operation and maintenance. In addition to costs, there are benefits related to increasing animal health and performance. These benefits are difficult to quantify and have not always been included in the total cost estimate.

For manure storages, reduction of NH<sub>3</sub>emissions is based on one or more of the following principles: a) decreasing the surface area where emissions can take place, i.e., through covering of the storage, encouraging crusting and increasing the depth of storages; b) decreasing the source strength of the emitting surface, i.e., through lowering the pH and ammonium (NH<sub>4</sub>) concentration. These principles are generally applicable to slurry storages and manure (dung) storage. However, the practical feasibility of implementing the principles are larger for slurry storages than for manure (dung) storages. Straw-based systems producing solid manure for cattle are not likely to emit less NH<sub>3</sub> in the animal houses than slurry-based systems. Further, N<sub>2</sub>O and di-nitrogen (N<sub>2</sub>) losses due to (de)nitrification tend to be larger in litter-based systems than slurry-based systems. While straw-based solid manure can emit less NH<sub>3</sub> than slurry after surface spreading on fields, slurry provides a greater opportunity for reduced emissions applications. The physical separation of faeces (which contains urease) and urine in the housing system reduces hydrolysis of urea, resulting in reduced emissions from both housing and manure spreading.

The main benefit of the project is the exchange of information and the development of a calculation program for the calculation of manure volume and chemical composition. That will be great tool not only for farmers but also for consultants.

Thanks for possibility to be a part of project.