

Summary of the key findings

Results achieved and recommendations to further promote Good Agricultural Practices.

Main findings from the pre-workshop questionnaire

Most of the farms surveyed do not cultivate fields (grassland/pasture/crops) and therefore do not have land on which to spread their manure. In the poultry sector, manure is mainly stored and handled, although it is not specified whether the manure is stored for further sale and then spread on arable land. Most of the cattle farms in the panel are large and very large farms with only a few small or medium-sized farms. It should be noted that this does not represent the large number of small farms with only one or a few cows, which may not share the knowledge of larger farms. The majority of livestock holdings have no arable crops. Only 3 cattle holdings have arable land, the others have very little or no arable land. This is an important feature as there is no real emphasis on the value of manure and maintaining its quality as a valuable fertiliser.

→ *On most farms, manure is considered waste rather than a potentially useful fertiliser. Finding a solution to this problem is a priority as it also affects the way manure is stored. Large livestock farms need to work on finding and contracting arable farms that can use their manure, and for small farms, local authorities could think about organising a collection system and ensuring that collective manure storage is efficient. Poorly managed manure piles that are not covered with plastic sheeting should gradually disappear.*

Diet

None of the poultry farms grow their own feed, preferring to buy commercial feeds that may be better suited to the needs of the poultry at different growth ages. Reducing the crude protein content can therefore be discussed with the suppliers. Similarly, all but one of the poultry farms either use specially formulated commercial diets or prepare the diet using mainly purchased feed. While all farms use mainly purchased feed, only one third of the respondents pay attention to the crude protein content of the purchased feed. Paying attention to CPC is therefore a question of awareness.

Most of the cattle farms in the sample do not follow a grazing system and have already replaced fresh grass by feed with a lower protein content (maize, silage, hay, straw, etc.). The selection of feed rations is based on the development phase of the animal (change in crude protein content), which means that knowledge of the animal's needs is shared. Only one type of feed is produced on the farm, mainly maize silage and cereals, but temporary grassland for feeding is not common in cattle farming.

All pig farms use commercial feeds specially formulated for the different growth stages of the animals. It should be emphasised that pig farms seem to have paid the most attention to nutrition, although not all take the CPC of the feed into account.

→ *As most of the farm uses commercial feed, the CPC of the ratios can easily be adjusted with the suppliers to meet the animals' needs. For the feed produced on the farm (mainly maize silage), feed analyses should be considered as something necessary.*

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Housing

All poultry farms follow good practice with regard to the need to keep litter dry and clean and most have good ventilation and exhaust air cleaning with appropriate water distribution to prevent water spillage. Laying hen farmers regularly use belts to remove manure. Pig farmers generally pay attention to manure drainage and ventilation and temperature conditions, with some variation between farms. For cattle, most farms follow the recommendations for continuous cleaning of the floor, which is concrete in half of the sample. Half of the farms have good ventilation. Quick separation of faeces and urine is still not used on all farms, while some farms wash the floor with water. Straw bedding systems are not used.

→ *The need to separate faeces from urine as quickly as possible and to prevent their accumulation is still not understood, and the use of straw to absorb cattle urine is not widespread.*

Manure management

Most of the manure produced on the farms is solid or a mixture of solid and liquid, except in pig farming where 2 out of 5 farms have liquid manure but no field to spread it. Half of the poultry farms sell the manure directly, while one farm uses bags to store the manure, and only one cattle and one pig farm use a tank to store the manure. No specific storage facility is used for manure storage, but one pig farm stores manure in a lagoon (not covered). If solid manure is stored outdoors, no manure storage facility is used, only one pig farm mentioned the use of a concrete wall. If cattle farms generally use their manure, most poultry farms sell their manure, while pig farms do not use the slurry produced, which is either stored or left in the environment. The main finding is that manure is not used as fertiliser, either because the farm does not have land to spread it on, or it is sold immediately, and in general it is simply not seen as a valuable fertiliser. As a result, little attention is paid to manure.

→ *There are a number of improvements that can be made quickly in terms of manure storage: building manure storage facilities that don't require costly investment, as a concrete floor with walls is sufficient as a first priority. Another finding is that covering manure heaps with plastic sheeting is not used, even though it does not require a large investment. Awareness raising in this respect could help to implement good practices. Lagoons are not used for slurry storage and again awareness raising and training could help to improve slurry storage.*

Manure use

All farms report that they do not analyse their manure to know the amount of nutrients it contains to match the needs of the crops, which is understandable, as they generally do not use fertilisers. However, although they do not analyse their manure, two farms report that they take into account the composition of the manure (probably based on references for manure composition). Immediate incorporation of manure is sometimes used, but needs to be generalised. Only half of the farmers who spread solid manure on their fields incorporate it into the soil. Most farmers report that they incorporate liquid manure immediately after application

within the following 12 hours. Only one farm in the poultry and cattle sector does not incorporate manure immediately after application.

Most of the farms surveyed that use manure as fertiliser apply it according to soil type, nutrient status and crop needs, with only one farm not taking these factors into account. It appears that farmers have some information about the possible nutrient content of their manure, although they do not carry out manure analyses. Meteorological conditions such as wind and temperature are generally not taken into account when deciding to apply manure.

→ *Rapid incorporation of manure into the soil and appropriate meteorological conditions during manure application need to be generalised as these factors play a significant role in ammonia emissions. The use of soil and manure analysis needs to be widely disseminated through training and awareness-raising, as the matching of fertiliser supply to crop needs is done by some farmers in a very approximate way.*

Challenges

Awareness of the Code of Good Agricultural Practice is not widespread. Most poultry farms are unaware of the Code, partly because they sell their manure immediately without worrying about storage or application. The diet is the most closely followed, especially in the poultry sector, but most good agricultural practices are not applied, with a few exceptions.

The main factor highlighted to explain the barriers to adopting good practices is the need for investment and modern equipment. Cost is an obstacle particularly for pig farms and only for half of the poultry and beef farms. An important point mentioned by almost all farms is the lack of technical experience, which highlights the need for training farmers in the application of good practices. While some farmers are considering adopting good practices to reduce ammonia emissions, either because they are already doing so or because they plan to do so, for most farmers implementing good agricultural practices is not on their agenda. However, all expressed an interest in attending the workshop, demonstrating the need for further information, training and eventually technical support to implement these practices on their farms.

→ *Although the main barrier to adopting good practices is often financial, given the need for investment at farm level, the demand for training and information on these practices shows that there is some scope for implementing low-cost practices, provided training and technical support is available.*

→ *In the Georgian context, the initial focus should then be on these low-cost practices and on training to manage total nitrogen at farm level.*