This habilitation thesis presents the professional distinctions and scientific results obtained through my academic and research activity, since being awarded the title of Doctor in Veterinary Medicine for my PhD thesis in 2003. It also sets out my intended academic development for the future.

My thesis, entitled “Scientific Contributions in Farm Animal Hygiene, Welfare and Ethology”, reviews the most relevant achievements in my scientific research, describing the significant results most recently published. The scientific activity presented includes specific topics of the main study areas, namely the hygiene, welfare and ethology of animals, specifically with regards to farm animals. The thesis is based on original contributions, resulting from the scientific research performed in the University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, the Faculty of Veterinary Medicine, in collaboration with field specialists.

The paper is structured in three parts. The first part describes my professional development. The second part, which consists of three chapters and several subchapters, presents the main research directions which underpin the realisation of this thesis. The third part presents the evolution and future development plans for my academic career. Below is a summary of the chapters.

Chapter 1 sets out my scientific contributions to the field of farm animals’ hygiene, with two subchapters presenting the original studies of the air quality in animal farm houses and of the quality of the water consumed by these animals.

Chapter 1.1 is divided in two subchapters describing studies of the air quality and certain influence factors in Transylvanian dairy cows’ barns.

Chapter 1.2 presents the most significant results obtained as a result of my studies on the quality of water consumed by farm animals and on the recognition of the factors that contribute to water quality depreciation.
Chapter 2 sets out my scientific contributions to the field of farm animal welfare. It presents a research theme developed since 2007, in relation to farm animal welfare. The five subchapters describe my most relevant studies on the welfare of dairy cows and working and breeding horses. Together with my collaborators, I performed the first studies in Romania on the welfare of dairy cows and horses.

Chapter 2.1 presents my first research on the welfare of dairy cows carried out in Transylvanian farms, with the aim of assessing the welfare of dairy cows in different housing systems by using the Austrian ANI 35L/2000 system.

Chapter 2.2 describes an extensive study performed in 52 dairy cattle farms in Transylvania, where the welfare assessment used animal-based indicators (health and behavioural parameters), which we considered more appropriate than the resource and management related indicators to show the real welfare degree of the animals.

Chapter 2.3 presents three ample studies on the influence of the housing system and management practices on the welfare of dairy cows. The results of the research project PN II - Program IDEI – Exploratory research projects (project code: 1492, no. 1095/2009), performed between 2009 and 2011 are presented. Over these three years, we carried out the most laborious research in Romania on the welfare of dairy cows. This was the first study to connect the influence of the housing systems and management practices with the welfare of the housed animals. A second important study is described, which compared the welfare quality of the dairy cows housed in two different systems: the tied system with access to outdoor exercise (paddock, pasture or both) and the tied system without access to free movement. In this study, we also investigated the relationship between several welfare indicators in dairy cows kept in tie stall housing. In the third study we explored the effect of the housing system on the welfare quality of dairy cows.

Chapter 2.4 shows the results of a reference study performed in working horses that investigated the relationships between the behavioural responses of the horses toward people and the health - and management - related welfare indicators. This study used, for the first time in Romania, a welfare assessment protocol for horses.

Chapter 2.5 describes an original study, which, for the first time at both national and international level, assessed the relationship between the welfare score (as a welfare quality indicator) and the neutrophile:limphocyte (N:L) ratio (as stress indicator) in working and breeding horses. This study aimed to establish if the N:L ratio increases in the horses with a poor welfare degree. We concluded that the N:L ratio is a good indicator of acute or chronic stress, induced by the management conditions these horses were subjected to.

Chapter 3 sets out my scientific contributions to the ethology of farm animals, presenting in three subchapters the most significant studies recently performed in the research of behaviour in dairy cows and horses.

Chapter 3.1 presents the results obtained by the comparative assessment of the human-animal relationship quality in dairy cattle farms with tie stall and loose housing systems, through the investigation of the animals’ behavioural reactions toward people, during certain specific tests.

Chapter 3.2 describes the results obtained in the comparative assessment of behavioural reactions in several horse categories toward humans.

Chapter 3.3 shows the results of a recent study regarding the behaviours of stallions housed individually in boxes in the presence of a novel object in their living environment.
My scientific research and published articles since my PhD (2003-2017) can be summarized as follows:

- coordination of two research contracts as project manager;
- attendance as active member in the research teams of six projects funded by national grants and in an international project;
- three books published by a national publishing house (single author in one of the books, first author in the other two);
- three didactic text books as single author;
- two practical work books (as single author in one and co-author in the other);
- ten ISI research articles (as first author in eight of these);
- seven ISI proceedings articles/summaries (first author in three);
- 152 IDB articles, of which 126 were original research articles in extenso (first author in 61) and 26 summaries (first author in nine); and
- 9 articles non-indexed IDB.

The impact of the results published is demonstrated by the 189 citations (75 in ISI articles and 114 in IDB indexed articles) of specialists both within the country and abroad, and also by the awards received. Within the ISI papers, three were awarded by UEFISCDI (awarding the research results, red zone) and one by Elsevier - Journal of Equine Veterinary Science for the most cited article in 2016.

In 2013 USAMV Cluj-Napoca awarded me the excellency diploma "Senior lecturer of the year" for the academic year 2012/2013.

The third part presents my career development plan. My main objective is to continue to enhance the scientific quality, visibility and national and international recognition of my research.

My actual and future research directions are aimed at obtaining valuable results within national and international projects with opportunities for involving PhD students. The development of my teaching activity is based, primarily, on the continuous improvement of my didactic methodology. I strive to achieve this by actively involving the students in the educational and research process, by constantly updating the course and laboratory materials, and by keeping up to date with, and sharing my own, research at national and international level.