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Swedish University of Agricultural Sciences

Faculty of Veterinary Medicine and Animal Sciences
Faculty board

Decision

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Faculty strategy for Veterinary Medicine and Animal Sciences for the period 2021-2025

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1. Faculty Introduction:

The strategy of the Faculty of Veterinary Medicine and Animal Science (VH) is part of the Swedish Agricultural University's (SLU) strategy and shows the Faculty's concretisations of SLU's overall objectives and associated

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subcomponents. The document is intended to serve as an internal written policy that provides guidance in connection with planning and prioritising the Faculty's activities.

The Faculty's work is based on the best interests of animals, rooted in the UN Sustainable Development Goals. We are responsible for research, education and collaboration in relation to animal care, feeding, breeding, health and welfare and our work is based on an evidence-based approach. The Faculty's teaching is rooted in our research, which maintains a high quality.

Following internal Faculty-wide work, the following three strategically important research areas are prioritised: System perspective on the circular food system, One Health and Digitisation.

Systemic perspective on the circular food system

To achieve the goals of Agenda 2030 and meet consumer expectations while increasing the competitiveness of Swedish livestock production, the entire food production system must change. The transition involves a shift from existing, linear production systems to more integrated, circular systems.

Animals form an important part of the sustainable circular system where, for example, imported feed materials have to be replaced by, among others, domestic residue products. On the animal side, a systematic conversion is required, in relation to breeding, feed development, feeding, care, animal health and welfare and safety of new feed materials and animal food. In addition, crops better suited as materials for food and feed must be developed. In new food systems, food safety and system resilience will be of greater importance. Aquaculture will have a clear role in producing new food and feed materials.

If SLU is to be a leading university in the transition process to circular systems, the VH Faculty's researchers will need to intensify collaborations with external partners and with colleagues at SLU's other faculties, for example in plant production, soil science and systems analysis. Close cooperation with researchers in economics and management, and with external actors such as advisory organisations is required for the Faculty's research to contribute to profitability of the companies and industries for which the Faculty's researchers work.

One Health

In a sustainable future with secure food supplies, good public and animal health, and high animal welfare and food safety, the "one health" (One Health) perspective is central. Animals, both wild and domesticated, and humans live close together in the same ecosystem. This entails a risk of spread of infection between humans and animals. Cooperation is needed between human and veterinary medicine research, as well as with ecologists and researchers in several other disciplines to understand and treat such infection.

The global negligent use of antimicrobial drugs in both veterinary and human medicine leads to an increase in resistant microorganisms (bacteria, viruses and parasites), which today is a global threat to humans, animals and the sustainability of society. For a long time, Sweden has systematically developed animal production with moderate and needs-based antibiotic use. The knowledge gained as a result is very useful for purposes of controlling the development of resistance and gives Sweden a head start when it comes to preventive animal health management.

Developing new infection control systems is a major challenge on the path toward a sustainable society. Research is needed, among others, on new vaccines, medicines and treatment options, and on biosafety and food safety. New feed materials and foodstuffs may pose new risks of infection, and a multidisciplinary intersectoral approach is necessary to identify and prevent these. In this area, the Faculty's research contributes to safe feed and food production.

Pets largely share their living environment with their owners. Normally aging pets develop lifestyle diseases similar to those found in humans such as cancer, diabetes, obesity, chronic inflammatory diseases and others. Such spontaneously occurring diseases can act as "bridges" between traditional rodent models and human clinical trials and contribute to achieving key goals within 3R (Reduce, Refine and Replace) by limiting the need for laboratory animals.

To diagnose, prevent and treat diseases in animals, we need to understand the origin and development of the various diseases. The Faculty continues to invest in translational research with the best interests of animals in clear focus and based on the assumption that animals should be able to benefit from new medical advances. Translational research means that problems identified in the healthcare system are studied with the aim that the results should benefit patients as quickly as possible. This type of research can create synergies that also improve public health and quality of life. These synergies improve the prospects of obtaining large research grants. SLU University Animal Hospital (UDS) is an important resource for the Faculty's translational research.

Digitisation

Digitisation offers many opportunities for virtually all subject areas in which the Faculty operates. Applications (and the field of research) range from bioinformatics at the molecular level to automated systems for monitoring animal health and animal populations, and to analysis of large amounts of data for new discoveries. New technologies contribute to improved management, animal welfare and food safety, safe infection control and improved business profitability. Modern animal health care benefits greatly from the opportunities offered by digitisation, for example through the large amounts of data generated within medical record systems and image analysis systems.

Digitisation within the Faculty's subject areas opens up for collaborations with technically oriented universities and colleges, as well as with commercial

companies. Existing infrastructures such as the Faculty's animal facilities and UDS offer great opportunities for research into the development and application of digitised tools.

2. Focus areas, overall objectives and subcomponents

2.1 The faculty's concretisation of overall objectives and sub-components for Focus Area 1

Focus Area 1: SLU's Next Steps for Sustainable Development

Overall Objective: In a changing world, SLU is a world-class university that plays a key role in the transition to a sustainable society.

Subcomponents:

a) SLU's education programmes recruit enough qualified students and doctoral students to meet the needs of a sustainable society.
b) There is an increased demand for scientifically based knowledge and decision-making data from SLU.
c) SLU is an attractive cooperative partner and driving force for the green transition of industry and other social actors.
d) The ability to adopt a system perspective and to integrate all sustainability dimensions has been developed.
e) SLU leads the way by conducting ambitious internal sustainability work that includes all sustainability perspectives.

Sustainability is a complex issue involving environmental, social and economic aspects. In particular, the Faculty would like to stress the need for long-term investments in interdisciplinary research where animals play an important role.

We will vigorously support the development of systems for sustainable and competitive food production and optimal consumption of food of animal origin. The "One Health" perspective will be central, as will research into new medical advances, for the benefit of both animals and humans.

The sustainable keeping of animals for sporting purposes and pets is central to good animal health and welfare. Our research contributes, among others, to breeding for healthy pets, advice and other preventive measures, as well as to the development of new diagnostics and treatment of disease. Interaction between subject areas, industry and companies and other external actors is crucial to solving complex issues in this area (subcomponents: b, c, d).

The Faculty intends to conduct targeted systems perspective courses for students as well as for research and teaching staff. With an increased system understanding and knowledge of the roles of animals in these systems, Faculty staff can be better equipped for future research applications and contribute to improved quality in teaching regarding sustainability aspects. The Faculty also believes that it is necessary to raise the knowledge level among Faculty researchers and teachers in relation to sustainability analysis methods (e.g. life cycle analysis) to facilitate the development of Faculty research and teaching and active participation in social

debates. In order to enable students to contribute to a sustainable society, teaching in all programmes will take into account sustainability aspects (subcomponents: a, d).

Our animal facilities are of an internationally high standard and have come a long way in their efforts to limit the environmental impact of farms. We will increase efforts to market the Faculty's animal facilities to both research financiers and researchers at other universities (subcomponents: c, e).

2.2 The Faculty's concretisation of overall objectives and sub-components for Focus Area 2

Focus Area 2: SLU in the Digital Society

Overall Objective: SLU contributes to the digital transformation and uses it to support the transition to a more sustainable society and increase the quality of our activities.

Subcomponents:

a) In its education, research and environmental monitoring and assessment, SLU makes full use of the opportunities of digitalisation.
b) The content of the courses is adapted to the future professional role of students in the digital society.
c) SLU is on the cutting edge of research related to digitisation within our areas.
d) SLU has developed the infrastructure and system capacity and ensured the necessary competence and expertise to meet the opportunities and needs of the digital transformation.

The use and development of digitisation is a priority research area within the Faculty. Improved management, animal welfare and food safety and diagnostics can be achieved by using large amounts of data, known as "Big Data", from sensors and other automatic monitoring. The development of machine learning models together with bioinformatics will create new possibilities for diagnostics and forecasting based on molecular techniques such as genomics, metabolomics and proteomics.

With new digital tools, we will be able to integrate data from food-producing animals to farm level and from farms to new circular system levels. Each level needs specific development work. The Faculty has ongoing research on Big Data at animal level and aims, within the next five years, to improve the research at farm, population and system level (subcomponents: a, c, d).

Modern animal health care can benefit greatly from the opportunities of digitisation, for example through genomic and other analyses of the Big Data generated, and the Faculty's investment in bioinformatics supports this development. Our animal facilities and UDS provide access to this type of data and various external actors are also very interested in accessing research data, a collaboration that the Faculty is happy to encourage. A high degree of digitisation in all facilities will be required to meet society's expectations in relation to our graduates' level of knowledge (subcomponents: a, b, c, d).

Within the courses, the Faculty will continue to develop and use/implement digital pedagogy, which provides an opportunity for improved quality and efficiency in

education, in particular in distance learning. Examples are digital exams, recorded lectures for flipped classroom pedagogy, different types of filmed teaching materials, seminars and meetings via various web-based learning platforms. Digitisation of teaching also provides more opportunities for interaction and communication training. Filmed material can be particularly valuable in teaching, to illustrate care routines, animal behaviour, clinical signs in sick animals, animal owners' opinions (interviews) and other aspects that are difficult to capture during, for example, study visits (subcomponent: a).

2.3 The Faculty's concretisation of overall objectives and sub-components for Focus Area 3

Focus Area 3: One SLU

Overall objective: A stronger, unified SLU – both internally and in our external contacts

Subcomponents:

a) Active and systematic work to promote a good work environment, gender equality and equal terms is conducted, wherein proactivity and internal learning are guiding principles.
b) SLU has stronger, cohesive environments, wherein our mission to conduct firct-cycle education plays a larger role and has gained increased status.
c) SLU has seized the opportunities offered by a geographically dispersed organisation by facilitating and strengthening collaboration across geographical and organisational boundaries, as well as between areas of activity.
d) The harmonisation of routines and processes has created more equal opportunities, regardless of the part of SLU to which employees and students belong.

VH encourages and facilitates a significantly increased cooperation between the departments of the Faculty, with SLU's other faculties and with external actors to jointly contribute to the transition to a knowledge-based, circular food system and a society with good animal and human welfare (subcomponent: b).

UDS is an important resource for research and teaching as well as a place where researchers, students and teachers meet the public. VH and UDS run the project *Together* for improved cooperation and utilization of VH's and UDS's competences. The project creates the conditions for sustainable and competitive animal health care, clinical education and top class research. This project will be in focus over the next few years (subcomponents: c, d).

The aim is also to increase public awareness of SLU's research and education with a focus on the role of animals in society. Therefore, VH will conduct activities and hold events aimed at the general public (subcomponent: e).

VH has an infrastructure with many branches of varying size and orientation. We will spread information about our animal facilities and laboratory infrastructure to achieve a more efficient use of these (subcomponent: d).

VH's study and working environment is characterized by a clear focus on developing employees, students and activities. Systematic work environment management and efforts to simplify administrative procedures are ongoing processes. Employee appraisals clarify expectations regarding each employee's role and responsibility in relation to their current job (subcomponents: a, c, d).

In order to increase participation and research-oriented teaching, all teaching staff must have be offered time for research, and all research staff are expected to regularly participate in the teaching (subcomponent: a).

It is now increasingly common for research grant providers to require a gender perspective to be included, if and when relevant, in the research funded by the grant provider. For the Faculty, this is not only a question of meeting the requirements of many research financiers, but also an important quality issue. All research that has an impact on people involves gender dimensions, which may be overlooked without a gender perspective. Therefore, to make our research even more competitive, the Faculty will investigate what support researchers need to integrate a gender perspective into research (subcomponent: a).

Teacher training will be offered continuously to ensure the Faculty's research and teaching staff have up-to-date teaching competence, for example in the field of e-learning and its various tools. The departments are required to enable international exchange annually for at least one researcher and teacher to further improve the competence of VH's research and teaching staff. All permanent research and teaching staff must be offered time to complete other skills development, such as leadership development (subcomponent: a).

3. The Faculty's additions to the objectives

All VH's courses have high levels of applications and are relevant to meet the needs of a sustainable society.

VH will, in collaboration with the communications department, promote our programmes and spread information about the professional roles available in the relevant vocational courses. We will be even better than before at explaining the different professional roles during the course. In the advanced courses, we will prepare the students for a future research career. VH allocate resources to maintaining accreditation according to EAEVE. Finally, we will also examine the possibilities for accreditation of the DSS programme according to ACOVENE.

Our research is carried out in collaboration, is nationally and internationally attractive and has at least 60 percent external funding.

The VH Faculty will develop strong, interdisciplinary research areas and potential strategic investments in the Faculty will be aimed at these areas. We will focus even more on interacting with relevant external partners, both with authorities (e.g. SVA, the Swedish Board of Agriculture, the Swedish Food Agency) as well as with industry associations (e.g. LRF, the Swedish kennel club) and the business community (Lantmännen, Växa, AniCura, Evidensia *etc.)* and continue to work for more joint industry doctoral students. VH will further develop the capital raising activities in close collaboration with the researchers and in harmony with our strategy. The research secretaries will focus even more on supporting the researchers in various ways in the application process in collaboration with the Grants Office.

Within the doctoral education, VH will offer annual basic courses for doctoral students and work to ensure that more courses are carried out jointly for masters and doctoral students as well as for residents.

4. The Faculty's long-term competence provision

The Faculty has a long-term and strategic approach in relation to competence supply. Within the next five years, 29 out of 50 professors and nine out of 49 senior lecturers will retire. The distribution of retirements is uneven among departments and subject areas. The uneven distribution means competence supply is more urgent in some departments and for certain subject areas.

The competence supply plans of all the departments indicate that there is a major need to review the overall staffing situation. The Faculty has also identified areas where new senior positions should be created, for example in animal care. Therefore, all competence supply plans from the departments will be reviewed and a Faculty-wide prioritisation of the appointment of senior academic positions will be made, based on SLU's and VH's strategies.

Many considerations are involved to make informed decisions about whether a retired employee should be replaced or whether the academic positions a should be reprioritised. SLU's and VH's strategic direction and external analysis must be taken into account and weighed together with the Faculty's circumstances and requirements such as increased research volume, educational assignments, financial resources, existing and related competences across departmental boundaries.

Discussions prior to decisions to hire for senior positions must be based on equivalent and transparent evidence. The Faculty is therefore developing a clear procedure for the Faculty Board that includes several different tools. In addition to background information from the department, the Faculty Board will start using a newly developed questionnaire as well as a so-called morphological analysis. The morphological analysis enables comparisons between subject areas with regard to research efforts and performance as well as educational responsibilities and needs. The tools will also be used as an aid in the inventory of senior positions that may need to be replaced in the long-term.