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*Artículos científicos*

## **Competencias del eje de salud de la educación veterinaria en la Universidad Autónoma de Zacatecas**

***Competencies of the Health Axis of Veterinary Education at the Universidad  
Autónoma de Zacatecas***

***Competências do eixo saúde do ensino veterinário na Universidade  
Autónoma de Zacatecas***

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## Resumen

El nuevo modelo educativo de la Licenciatura de Medicina Veterinaria y Zootecnia de la Universidad Autónoma de Zacatecas (UAZ) demanda que los docentes y estudiantes identifiquen las competencias por ejes (producción animal, sociohumanístico, conservación y protección del medio ambiente, higiene y tecnología de los alimentos y el eje de salud) y las materias que desarrollan activamente la función de los servicios de la medicina veterinaria y la zootecnia para eficientar sus procesos desde una perspectiva global. La formación integral de los estudiantes y un esquema terminal de competencias profesionales requiere de una evaluación y actualización constante de la currícula mediante la colaboración y elaboración de informes de la planta docente. El presente estudio tiene como objetivo identificar las competencias del eje de salud y materias que lo desarrollan con el fin de conocer las necesidades actuales de la carrera de Médico Veterinario Zootecnista de la UAZ.

**Palabras clave:** competencias, medicina veterinaria y zootecnia, salud.

## Abstract

The new educational model of the Veterinary Medicine and Animal Husbandry degree of the Universidad Autónoma de Zacatecas (UAZ) demands that teachers and students identify competencies by axes (animal production, socio-humanistic, conservation and protection of the environment, food hygiene and technology and the health axis) and the subjects that actively develop the function of veterinary medicine and animal husbandry services in order to make their processes more efficient from a global perspective. The comprehensive training of students and a terminal scheme of professional competencies requires constant evaluation and updating of the curriculum through the collaboration and preparation of reports by the teaching staff. The objective of this study is to identify the competencies of the health axis and the subjects that develop it to know the current needs of the career of Animal Husbandry Veterinarian at UAZ.

**Keywords:** competences, medicine veterinary and zootechnics, health.



## Resumo

O novo modelo educacional da licenciatura em Medicina Veterinária e Zootecnia da Universidade Autónoma de Zacatecas (UAZ) exige que professores e alunos identifiquem as competências por eixos (produção animal, socio-humanística, conservação e proteção do ambiente, higiene e tecnologia de alimentação e o eixo saúde) e as disciplinas que desenvolvem ativamente a função dos serviços de medicina veterinária e pecuária para tornar seus processos mais eficientes em uma perspectiva global. A formação integral dos alunos e um esquema terminal de competências profissionais exige constante avaliação e atualização do currículo através da colaboração e elaboração de relatórios por parte do corpo docente. O objetivo deste estudo é identificar as competências do eixo saúde e os sujeitos que o desenvolvem para conhecer as necessidades atuais da carreira de Zootecnista Veterinário na UAZ.

**Palavras-chave:** competências, medicina veterinária e zootecnia, saúde.

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## Introduction

The One Health concept integrates an idea that has been known for more than a century: human health, animal health and the health of the environment are closely linked and interdependent. The health of one is intrinsically related to the health of all. It is a global collaborative approach aimed at understanding and managing risks to the health of the planet and advocating for sustainable ecosystems (Salas and Concepción, 2022).

However, zoonosis is the result of a process where various factors closely related to variables of different types interact: epidemiological, economic and social, among others. The importance of the concept of one health is resized by understanding and facing the risks of global epidemics such as the coronavirus disease 2019 (covid-19), which is a disease of probable animal origin that triggered a public health crisis. without precedents. Precisely, the concept in question is used to coordinate prevention and response efforts against zoonotic crises (Evans and Leighton 2014).

Problems such as world trade, global warming and changes in human behavior also open the door for pathogens to colonize new territories and be modified into new forms of expression. Health risk problems are not only limited to human beings; animal health is

strongly threatened by human-transmitted diseases. Tuberculosis, influenza viruses, among others, can cause damage and be fatal to countless animal species (Evans y Leighton, 2014).

The study, the management of these global health risks, as well as the control of diseases and global warming, cannot be carried out in isolation, but requires a cooperation plan from the different sectors of human health, animal health and the environment (World Organization for Animal Health [OIE], 2012). Regarding the OIE, it has played a leading role in the development of global strategies to deal with various diseases and major health threats, thanks to its experience in animal health and welfare (OIE, 2012).

Thus, the One Health approach should be promoted by recognizing the interrelationship of animal health, human health and the environment. Indeed, we must not lose sight of the fact that human activities largely depend on animal health and the environment, and both determine the health of humanity (Salas and Concepción, 2022). Therefore, the dependencies involved in this triad must comply with the actions, strategies of the programs for the control and prevention of zoonoses, as well as the identification of the problems that are associated to have a complete knowledge of prophylactic measures.

Unfortunately, zoonoses are diseases little known by the population; There is a prevailing confusion of what they really are, what their transmission mechanisms are and their effects on the human being. Therefore, it is essential that public health institutions promote the study and dissemination of information on these diseases from a comprehensive perspective, considering the means of transmission, symptomatology, prevention, and control (Marín, 2020).

It is essential to know each and every one of the zoonotic diseases through health education; know the transmission and prevention mechanisms; know that zoonoses are fundamentally, more than an animal health problem, a public health problem that can be fully contextualized in an environmental, social and cultural perspective.

Hence the need to implement strategies and develop multidisciplinary research between human medicine and veterinary medicine to jointly address the health risks of zoonotic diseases. In short, it is important to consider zoonotic diseases from a biological-environmental and social perspective. (Sánchez, Contreras, Corrales y de la Fe, 2022).

## Objective

The objective of this study is to identify the competencies of the health axis and the subjects that develop it in order to know the current needs of the Zootechnical Veterinary Doctor career at the Autonomous University of Zacatecas. (UAZ).

## Theoretical framework

The destruction and ecological crisis are largely due to ignorance of the environment and the lack of formation of values, strategies, habits, attitudes, behaviors and actions that allow, from an early age, to care for the environment. Without a doubt, the absence of an environmental culture is what has led to drastic changes in all natural resources, and therefore, to the destruction of ecosystems (Marbá, Mattar and González, 2019). Precisely for this reason, veterinary medicine and zootechnics careers in Mexico and the world aim to train professionals and agents of change to create an ecological culture.

Societies as a whole have the responsibility to encourage and promote environmental education and culture to achieve sustainable development of present and future generations, that is, to train and educate new generations through values and good environmental practices for construction of a culture that allows protecting, conserving and maintaining the environment, and thus, no less importantly, avoiding as far as possible the presence of zoonotic diseases in the world.

Due to the growth of the human population and its expansion into new geographic areas, many human beings live in close contact with wild and domestic animals. And this increased contact with each other makes it more likely that animal diseases will spread to people. They are called zoonoses. Thus, derived from animal-man coexistence, a high number of diseases are shared.

According to the OIE (2012), 60% of known human infectious diseases are of animal origin (domestic or wild animals). Likewise, 75% of emerging or re-emerging infectious diseases in humans can be considered zoonoses (Zunino, 2018). The changes experienced on the planet due to climate change and the use that is given to the land, deforestation and the increase in intensive livestock farming, this type of change in environmental conditions and in habitats, we said, can favor the passage of zoonotic diseases.

It should be noted that this intensive livestock farming brings deforestation, high water consumption and soil contamination through feces, as well as ammonia from the feed

consumed. That is why it has been associated with a negative impact on the environment and global human security. In fact, according to the Food and Agriculture Organization of the United Nations [FAO] (September 29, 2006), livestock production produces more greenhouse gases than transportation.

Similarly, the abuse of antibiotics in animals and the appearance of zoonoses represent a serious problem for human health. Deforestation entails no less negative effects for the environment. One of the biggest impacts is the loss of species habitat. As a result of this loss, these species seek new niches ever closer to people, come into contact with them and thus increase the risk of zoonoses (Evans y Leighton, 2014).

With the rapid increase in international travel in recent decades, diseases and transmission vectors can rapidly spread across borders globally. In a society that is increasingly interconnected and interdependent on a global level, the outbreak of any infectious disease in a country can really become a health emergency situation for the entire world, like covid-19 (Trilla, 2020). Increased contact with wild and domestic animals makes zoonotic diseases more likely; drastic changes in environmental conditions and habitats can also favor it. All the aforementioned changes have favored the transmission of diseases between animals and people, since new opportunities for contact between humans, animals and the environment have appeared.

The increasing deterioration of natural resources is notorious. Among the most common causes are the deficiencies of the environmental management system and the lack of correspondence to a certain extent with the environmental policy of Mexico, in this case, and the world; the weakening of environmental awareness and culture, and the lack of consistent application of the various environmental standards, regulations or legislation considered to minimize the negative effects produced. Faced with this complicated situation, various organizations have established programs that increasingly promote the active participation of society, local communities, as a guarantee for the protection of the environment (an example of this is the United Nations Environment Program [UNEP]). In this line, the needs or problems of the various local populations must be identified by their own social actors, the common search for alternatives or solutions and, above all, the decision-making that affects them, according to Carvajal, García and Teijeiro (2021).

Although the growth of the human population demands a greater production of goods of animal origin, this production must be efficient, sustainable and ecological, for which the zootechnical veterinarian profession, as well as related professions, represent and play an



important role and They have gained great importance in the labor field, since they are linked to public health, animal production, conservation and protection of the environment, hygiene and food technology. During the process of academic formation of all degrees of veterinary medicine and zootechnics, competencies to master these axes must be developed. (Abraham, 2018).

The OIE (2012) designates that veterinary services must be supervised under the control and tutelage of the veterinary authority and, in turn, the acting veterinarian must have the competencies designated as skills and abilities to carry out specific veterinary tasks. your profession.

Changes in global society lead to innovations in all fields that concern human life. World organizations, therefore, have redoubled their efforts to design development plans strategically framed in the field of education to develop the specific disciplinary skills and generic transversal skills desirable to achieve the desired professional profile (Caballo et al., 2014).

University higher education needs an innovative vision for its design and planning, and be consistent with the needs of our society, so it is necessary to rethink the concepts of strategic planning of universities and explore new professional skills (Cambiaggi et al., 2012 ).

Here competence is understood as a characteristic of an individual in direct relation to an effective performance in a job or in a position; or also, as stabilizing sets of knowledge, of knowledge that can be put into practice. Competencies are that set of professional work behaviors to perform a job with a high degree of effectiveness, which is equivalent to competitiveness and economic progress of a given region (Viveros et al., 2011).

The World Declaration on Higher Education in the 21st Century: Vision and Action promotes curricular changes aimed at full disciplinary integration, as well as the development of new methods of the learning process, with the common goal of having a closer approach to performance of the profession in the real world, having as a central element that professional training always responds to the needs of the labor market (Jiménez, Hernández y González, 2013).

For its part, the Tuning project has been seen in Mexico as a benchmark of great importance for public universities that influence the lines of action of academic groups such as the Consortium of Mexican Universities (Cumex), whose work program includes the management of resources for its programs, such as the comparability of educational

programs between the universities of the consortium and the Latin American and European spheres using the Tuning methodology, as well as the mobility program for students and academics with recognition of credits (Victorino and Medina, 2008).

Employers today demand competent management leaders who are able to navigate threats. The student must be able to understand and cope with change under professional ethics. As Ramos and López (2019) indicate, the areas corresponding to the human talent of a company must obtain tangible results. The competency-based approach must ensure that the professional has the ability to solve the problems they face.

The competency-based education model in Mexico has a North American approach. Of course, the main elements are the knowledge, skills and abilities necessary to perform and master a given task and exceed the results. The learning package is of vital help, since it provides precise instructions for each topic, which consists of a task that brings feedback in order to practice and that knowledge is manifested in real behaviors and applied in specific situations (Climént, 2014b ; Hernandez, 2019).

Competencies in education are taken up from an integral approach that contemplates the integral development between cognitive aspects (knowing how to know), procedural (knowing how to do), value (knowing how to be) and attitude (knowing how to be) of the students. These four pieces of knowledge are an essential part of the professional training process and are designed to ultimately guarantee good professional performance (Jiménez et al., 2013).

Ramos and López (2019) point out that, with regard to competencies, effectiveness in the application of knowledge, abilities, skills and aspects of the person in carrying out an activity are involved, in order to achieve strategic objectives. As a summary, it could be said of the competences that they have the following characteristics:

- Built based on the sustainability of competitive advantages.
- Associated with both the efficiency of results and personal development.
- Aimed at strengthening business capacities.
- Built around the company's own process model.

In tune with all of the above, universities must be entities whose curricula go through certification, in order to update training and update trainers. Regarding the UAZ, it currently promotes educational programs planned in conjunction with productive and social sectors to develop schemes in accordance with the needs of the environment.



This approach to education is based on the didactic ideas of Jacques Delors, a representative of UNESCO (United Nations Educational, Scientific and Cultural Organization), who advocates comprehensive education made up of four dimensions:

- 1) Pedagogical dimension: learning to learn: combining knowledge of general culture with the possibility of delving into more specific levels.
- 2) Pragmatic dimension: know-how: ability to deal with professional experiences
- 3) Democratic dimension: learn to relate and to understand and resolve conflicts.
- 4) Ontological dimension: knowing how to be: development of judgment and autonomy.

These four principles must be considered in order to respond to current demands. Education-based competencies focus on attitudes, skills, and assessment (Barrón, 2009).

It should include: the teaching-learning design; the competencies to be built; disciplines as a reference framework for learning; the skills to develop; the promotion of attitudes related to values and disciplines; the processes; results-oriented study programs; the diagnosis; evaluation embedded in learning, in a large number of settings and in various situations; it must be performance-based and experience-based; feedback; self-assessment; the aspects used to evaluate the results; monitoring and social interaction (Alcántara and Fidel, 2010).

Therefore, the curriculum must be constantly subjected to permanent evaluation to promote changes. This with the purpose of complying with the professional profile demanded by the occupational market and those derived from self-employment (Alcántara and Fidel, 2010).

The unification of efforts to obtain the strategic objectives results in institutional development, the renewal of its resources, relationships and human potential. The goal is to exercise the ability to respond to adverse situations, giving the weight of importance required to transversal competence in collaboration with internal diversity in heterogeneous and multidisciplinary teams. Likewise, it is of great importance the alignment of strategies of the areas related to the management of human talent with the general strategies (Climént, 2014a).

The activities on the part of the teacher are to deepen the knowledge with a structured planning of the class, to transmit it according to suitable learning strategies, to create a pleasant atmosphere and there are evaluations with feedback.

The constructions of interpersonal relationships are essential for affective competence, to innovate in the practices of daily work in higher education institutions under collaborative competition, as well as to develop tasks efficiently and create competitive advantages individually, first, and later achieve a common goal (Climént, 2014a).

In this regard, it is essential to mention three key factors:

- Individual skills: these are characteristics and knowledge that give the person the ability to perform the functions of their activity in a satisfactory manner and according to the objectives and strategies of the organization.
- Disciplinary knowledge: it is what concerns the knowledge of the different fields of knowledge in the discipline.
- Management culture: these are characteristics that involve beliefs and knowledge.

Disciplinary skills are the basis and lead to the training of students, always taking into account the profile of the professional graduate. Disciplinary competencies must be inclusive of knowledge, skills and attitudes and are built from a logic of the disciplines; they allow establishing the spaces, activities and sequences focused on learning with which the generic competences will be sustained (Navío, 2000, Nicolescu, 2009 and Viveros et al., 2011).

Professional training with a competency-based model establishes as a fundamental requirement a teaching practice that necessarily has to be reflective with the inherent commitment to train professionals who have cognitive, ethical and practical development to promote social transformation in the environment of their professional activity ( Lopez, 2019).

Undoubtedly, the zootechnical veterinary doctor must immerse himself in different areas of knowledge and one of them is health as an important pillar of his professional training.

## Method

It is a research with a qualitative approach that is supported by bibliographic methods, analysis, synthesis and description of documents.

The health competencies are identified within the current study plan of the Academic Unit of Veterinary Medicine and Zootechnics (UAMVZ) of the UAZ and are part of the

minimum required competencies that are expected of recently graduated veterinarians in order to guarantee the national quality veterinary medical service (OIE, 2012).

This work was carried out at the UAMVZ in work sessions where 40 zootechnical veterinary medical teachers and education specialists participated. Teams were formed by academy of the health axis. The teacher in charge of the course described the methodology to be followed and the evidence that was delivered to validate the competence by subject to be developed in the health axis, as shown in Table 1. A report was delivered with the corresponding information.

**Table 1.** Competences and subjects of the degree in Veterinary Medicine and Zootechnics, Health Axis

Competencia	Materias que la desarrollan
Gestiona y evalúa programas de prevención, control o erradicación de enfermedades endémicas y exóticas de los animales, así como las zoonosis, para promover una sola salud, aplicando aspectos normativos, demográficos, económicos, sociales, situaciones de emergencia, desastres naturales o provocados por el hombre.	Metodología de la Investigación, Epidemiología, Parasitología, Enfermedades Exóticas de los Animales Domésticos, Bacteriología, Inmunología, Virología, Salud Pública, Medicina de la Producción de Cerdos, Medicina de la Producción de Aves, Clínica de Rumiantes Menores, Clínica de Perros y Gatos, Clínica de Bovinos, Medicina y Cirugía de Equinos, Medicina de Fauna Silvestre en Cautiverio, Cirugía Especial en Pequeñas Especies, Medicina de la Producción Apícola, Medicina de la Producción Cunicula, Desastres y Gestión de Riesgo.
Establece el tratamiento, diagnóstico y prevención de enfermedades de forma sistémica en individuos y poblaciones animales.	Metodología de la Investigación, Medicina de la Producción de Cerdos, Medicina de la Producción de Aves, Clínica de Rumiantes Menores, Clínica de Perros y Gatos, Clínica de Bovinos, Medicina y Cirugía de Equinos,

	<p>Medicina de Fauna Silvestre en Cautiverio, Cirugía Especial en Pequeñas Especies, Medicina de la Producción Apícola, Medicina de la Producción Cunicola, Propedéutica, Bacteriología, Virología, Parasitología, Mejoramiento Genético, Fundamentos de Farmacología, Farmacología Aplicada, Fisiología Veterinaria, Patologías (General, Sistémica y Clínica), Etología y Bienestar Animal, Epidemiología, Animales de Laboratorio, Imagenología</p>
<p>Obtiene, manipula y transporta o envía especímenes o muestras específicas para diagnosticar enfermedades y establecer criterios en caso de aparición de una nueva enfermedad general y de aquellas que se contemplen como enfermedades de declaración obligatoria, transfronterizas, entre otras, aplicando la normatividad vigente.</p>	<p>Metodología de la Investigación, Anatomía, Histología, Patologías (General, Sistémica y Clínica), Epidemiología, Calidad e Inocuidad de Productos Pecuarios, Enfermedades Exóticas de los Animales Domésticos, Etología y Bienestar Animal, Bacteriología, Parasitología, Virología, Propedéutica, Animales de Laboratorio, Medicina de la Producción de Cerdos, Medicina de la Producción de Aves, Clínica de Rumiantes Menores, Clínica de Perros y Gatos, Clínica de Bovinos, Medicina y Cirugía de Equinos, Medicina de Fauna Silvestre en Cautiverio, Cirugía Especial en Pequeñas Especies, Medicina de la Producción Apícola, Medicina de la Producción Cunicola.</p>
<p>Aplica una metodología clínica apoyándose en la reseña, anamnesis, examen físico, pruebas de laboratorio y de gabinete e</p>	<p>Metodología de la Investigación, Propedéutica, Medicina de la Producción de Cerdos, Medicina de la Producción de Aves,</p>

<p>interpreta resultados, con criterios éticos y de bienestar animal, para establecer el diagnóstico de enfermedades.</p>	<p>Clínica de Rumiantes Menores, Clínica de Perros y Gatos, Clínica de Bovinos, Medicina y Cirugía de Equinos, Medicina de Fauna Silvestre en Cautiverio, Cirugía Especial en Pequeñas Especies, Medicina de la Producción Apícola, Medicina de la Producción Cunicola, Biología Celular, Histología y Biología del Desarrollo, Patología Clínica, Virología, Inmunología, Parasitología, Bacteriología, Etología y Bienestar Animal, Imagenología, Instrumentación de Técnicas de Laboratorio, Diseño de Experimentos.</p>
<p>Aplica tratamientos médicos o quirúrgicos para prevenir o restablecer el estado de salud de forma individual o poblacional, promoviendo el bienestar animal y considerando la normatividad vigente, la salud pública y el ambiente.</p>	<p>Medicina de la Producción de Cerdos, Medicina de la Producción de Aves, Clínica de Rumiantes Menores, Clínica de Perros y Gatos, Clínica de Bovinos, Medicina y Cirugía de Equinos, Medicina de Fauna Silvestre en Cautiverio, Cirugía Especial en Pequeñas Especies, Medicina de la Producción Apícola, Medicina de la Producción Cunicola, Farmacología Aplicada, Etología y Bienestar Animal, Fundamentos de Cirugía, Cirugía en Rumiantes, Fundamentos de Farmacología, Cirugía Especial en Pequeñas Especies, Propedéutica, Salud Pública, Farmacología Aplicada.</p>
<p>Identifica los signos clínicos, la distribución y transmisión de agentes patógenos de las enfermedades transfronterizas de los</p>	<p>Metodología de la Investigación, Propedéutica, Enfermedades Exóticas de los Animales Domésticos, Epidemiología, Medicina de la Producción Cunicola,</p>

<p>animales para declararlas ante la autoridad competente.</p>	<p>Medicina de la Producción de Cerdos, Medicina de la Producción de Aves, Clínica de Rumiantes Menores, Clínica de Perros y Gatos, Clínica de Bovinos, Medicina y Cirugía de Equinos, Medicina de Fauna Silvestre en Cautiverio, Cirugía Especial en Pequeñas Especies, Medicina de la Producción Apícola, Virología, Bacteriología, Parásitos y Comunicación en Medicina Veterinaria.</p>
<p>Identifica las sanciones de los organismos oficiales en enfermedades zoonóticas de declaración obligatoria.</p>	<p>Microbiología y Toxicología Alimentaria, Salud Pública, Calidad e Inocuidad de Productos Pecuarios, Enfermedades Exóticas de los Animales Domésticos, Ciencia Tecnología de la Carne, Ciencia Tecnología de la Leche.</p>
<p>Diagnostica enfermedades exóticas de los animales domésticos con el fin de tratarlas y notificarlas a la autoridad correspondiente para evitar su propagación.</p>	<p>Enfermedades Exóticas de los Animales Domésticos, Inmunología, Patologías (General, Sistémica y Clínica), Virología, Bacteriología y Parasitología, Comunicación en Medicina Veterinaria y Microbiología y Toxicología Alimentaria, Farmacología Aplicada.</p>

Source: UAMVZ teachers

## Results

From the review of specialized literature on the subject both in Mexico and in Latin America, the identification of the competencies of the health axis for the degree in Veterinary Medicine and Zootechnics of the UAZ and the subjects that develop it in order to know the current needs of Veterinary Medicine and Zootechnics.

A report was prepared by the Health Academy of the UAMVZ, where the competencies that the students of the Veterinary Medicine and Zootechnics degree of the



UAZ must have been objectively identified, which were integrated into the academic programs of the subjects of the curriculum.

Having carried out an exhaustive review of the professional competencies in Veterinary Medicine of the Pan-American Association of Veterinary Sciences (Taylor, 2012), it is established that the identified competencies are fully important for the comprehensive training of the Veterinary Zootechnician in the area of health, and be able to face the labor market.

The UAMVZ of the UAZ offers a Veterinary Sciences curriculum, where it expresses its clear intention in health, in the process of training students, with a graduation profile that considers a satisfactory intervention in working life and improve standards of conservation and preservation of health in the market where the graduates of the career are inserted.

Thus, the following priority competencies were established:

- 1) Evaluates, designs and manages programs for the prevention, control or eradication of endemic and exotic diseases that affect populations, as well as zoonoses, to promote a single health, applying normative, demographic, economic, social aspects, emergency situations, disasters natural or man-made.
- 2) Establishes the diagnosis, treatment and prevention of diseases in a systemic way in individuals and animal populations with ethical principles and in harmony with ecology by applying concepts, principles, standards and methods that support the welfare of animals to promote healthy
- 3) Obtains, handles and transports or sends specimens or specific samples to diagnose diseases and establish epidemiological criteria with the emergence of a general disease and those declared mandatory, cross-border, among others, applying current regulations.
- 4) Applies a clinical methodology based on the review, anamnesis, physical examination, laboratory and cabinet tests and interprets results, with ethical and animal welfare criteria, to establish the diagnosis of diseases.
- 5) Applies medical or surgical treatments to prevent or restore individual or population health status, promoting animal welfare and considering current regulations, public health and the environment.
- 6) Identifies the clinical signs, the distribution and transmission of pathogenic agents of transboundary animal diseases to declare them before the competent authority.

- 7) Identifies the sanctions of the official organisms in zoonotic diseases, transmitted by food and the pathogenic agents of obligatory declaration.
- 8) Diagnoses exotic diseases of domestic animals in order to treat them and notify them to the corresponding authority to prevent their spread.

## Discussion

In the definition of the competencies for the UAMVZ of the UAZ, what was established by Vargas (2009) and the classification of abilities and skills classified in the Tuning project were taken.

Regarding the defined competencies, the criteria of Viveros et al. (2011), who establish that the objective and purpose is to achieve transit in the accelerated social, technological and political mobilization that reigns in the present, which is equivalent to competitiveness and economic progress of each nation.

Likewise, these resulting professional competencies contain the criteria established by Andrade et al. (2018), authors who state that competent managerial leaders with human talent are currently required to obtain tangible results.

Likewise, the establishment of the competencies in the UAMVZ of the UAZ is in accordance with the criteria of Preciado (2012), who establishes that the competencies must be adapted to the continuous changes in the global professional world.

Likewise, it fully coincides with what was concluded by Andrade et al. (2018): competencies must be fully linked to the sector where effectiveness is established in the application of knowledge, abilities, skills and aspects of the person, in order to achieve strategic objectives in professional careers.

Of course, the degree in Veterinary Medicine and Zootechnics, like any other program, must be subjected to constant evaluation to promote and generate changes in it, as well as in the professional skills themselves (Preciado, 2012).

Finally, the embodied competencies adhere to the principles established by Navío (2000), who mentions that they are characteristics and knowledge that give the person the ability to perform the functions of their activity in a satisfactory manner, following the objectives and strategies of the livestock company or veterinary medicine, always preserving the principle of conservation and protection of the environment. In addition, as Nicolescu

(2002) mentions, they must master the disciplinary knowledge in the different fields of knowledge.

## Conclusions

In conclusion, it is established that the evaluation process of the competences of the health axis of the degree in Veterinary Medicine and Zootechnics of the UAZ seeks to propose a methodology so that the student acquires the knowledge and skills in relation to the development of the professional skills. Thus, once they graduate, as professionals within the labor market, they validate their skills and apply their knowledge in the role of conservation and protection of the environment, which is directly related to health and the provision of veterinary services, units of production to make their processes more efficient from a global perspective, elaboration, management of production projects, models of sustainable rural development, business activity in their area, effective communication with clients, communication with their peers and other professionals for the exchange of information related to the exercise of his profession.

The professional skills derived from the work of the group of teachers of the academic unit must be dynamic, that is, they must be continually reviewed to have a professional Veterinary Medicine and Zootechnics according to the needs of the environment.

In the same way, the subjects that make up each competence must be frequently reviewed by the base academic nucleus of each axis, with emphasis on the health axis, and thus be able to provide a solution to the demands of the livestock sector.

## Future lines of research

Based on the results obtained from the present investigation, where the competencies that the profession of Veterinary Medicine and Zootechnics must have in the health axis are clearly determined, the need to investigate the curricular axes of animal production, conservation and protection of the environment, socio-humanistics, among others, in order to have a complete map of professional competencies of the career.

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