

# Professional Master's Degree

## Swine Production and Clinical Practice





## Professional Master's Degree

### Swine Production and Clinical Practice

Course Modality: **Online**

Duration: **12 months**

Certificate: **TECH Technological University**

Official N° of Hours: **1,500 h.**

Website: [www.techtute.com/pk/veterinary-medicine/professional-master-degree/master-swine-production-clinical-practice](http://www.techtute.com/pk/veterinary-medicine/professional-master-degree/master-swine-production-clinical-practice)

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# 01

# Introduction

The Swine Production and Clinical Practice program addresses the most important aspects of this area so veterinary professionals can acquire specialized, global and comprehensive knowledge of the swine sector. The team of professors on this Professional Master's Degree is made up of specialists with teaching, research and practical experience in farms and Insemination Centers.



A close-up photograph of a pig's ear and snout, showing the texture of its skin and the shape of its ear. The pig is white, and the background is slightly blurred.

“

*The most complete, effective and specialized program in Swine Production and Clinical Practice you will find in the online academic market”*

The Professional Master's Degree in Swine Production and Clinical Practice analyzes the different Swine Production Models and their characteristics with a focus on Animal Production, Health and Welfare. It is necessary for veterinary professionals to become aware of the importance of correctly choosing future breeding females on the farm and become familiar with the new technologies and protocols used in artificial insemination for both nulliparous and multiparous sows.

It examines the tools necessary to optimize and improve management at three critical points in swine production: gestation, farrowing and lactation. Regarding piglets, farrowing and lactation will be the pillars of both their survival and their future health.

The program will delve deeper into the most frequently observed diseases in the productive phases of gestation, maternity, transition and fattening, establishing the diagnostic methodology and the most appropriate treatment, management and prophylaxis plans for each case.

The origin of Reproductive Pathology can be congenital, traumatic, endocrine, infectious or due to management failure. The most important thing, besides diagnosis and treatment, is to look for the causes of reproductive failure and correct them.

An important objective of this program is to exhaustively review the most important points that will determine boar success. The operation at insemination centers will be studied, the technologies used to perform seminal contrast today and the new technologies that are expected to be implemented in the coming years will be analyzed.

The biosafety conditions in swine breeding and production require that both anesthetic and surgical procedures must be performed on the farm itself. Therefore, it is essential to adapt anesthetic and surgical techniques to field conditions, far from the sterility of an operating room and the safety provided by anesthetic monitoring.

Swine Clinical Veterinarians must be prepared to face these situations by providing adequate anesthesia and analgesia for the correct performance of any surgical intervention.

There are situations in which, given the impossibility of resolving animal pathology and avoiding suffering, professionals must resort to humane euthanasia.

The Professional Master's Degree in Swine Production and Clinical Practice contains the most complete and up-to-date online academic program on the market. The contents will be available to access from any fixed or portable device with an Internet connection guarantees students will be able to use their available time to achieve his double objective: training and qualification. Furthermore, the program's methodological design integrates the latest advances in educational technology that will facilitate learning.

The **Professional Master's Degree in Swine Production and Clinical Practice** contains the most complete and up-to-date academic program on the market. The most important features include:

- ◆ The latest technology in online teaching software
- ◆ A highly virtual teaching system, supported by graphic and schematic contents that are easy to assimilate and understand
- ◆ Practical cases presented by practicing experts
- ◆ State-of-the-art interactive video systems
- ◆ Teaching supported by telepractice
- ◆ Continuous updating and recycling systems
- ◆ Autonomous learning: full compatibility with other occupations
- ◆ Practical exercises for self-evaluation and learning verification
- ◆ Support groups and educational synergies: questions to the expert, debate and knowledge forums
- ◆ Communication with the teacher and individual reflection work
- ◆ Content that is accessible from any fixed or portable device with an Internet connection
- ◆ Supplementary documentation databases are permanently available, even after finishing the course



*Join the elite with this highly effective Professional Master's Degree, which will open new paths for your professional development"*

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*A comprehensive, specialized program that will allow you to acquire the most advanced knowledge in all specialized veterinarians' areas of intervention”*

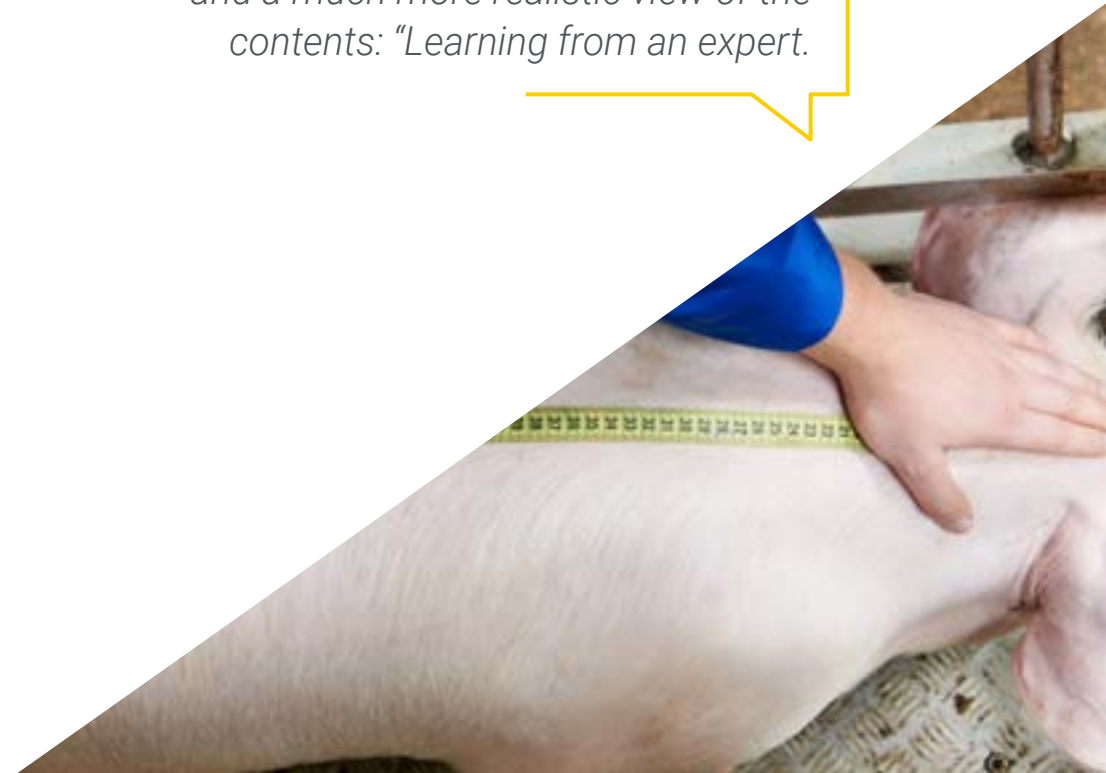
Our teaching staff is made up of professionals in different fields related to this specialty. That way, TECH ensures to offer you the updating objective it intends. A multidisciplinary team of professionals specialized and experienced in different environments, who will develop the theoretical knowledge in an efficient way, but above all, they will bring their practical knowledge from their own experience to the course: one of the differential qualities of this training.

The efficiency of the methodological design of this Professional Master's Degree, enhances the student's understanding of the subject. Developed by a multidisciplinary team of e-learning experts, it integrates the latest advances in educational technology. This way, you will be able to study with a range of easy-to-use and versatile multimedia tools that will give you the necessary skills you need for your training.

The design of this program is based on Problem-Based Learning: an approach that conceives learning as a highly practical process. To achieve this remotely, TECH uses telepractice learning: with the help of an innovative, interactive video system, and learning from an expert, you will be able to acquire the knowledge as if you were actually dealing with the scenario you are learning about. A concept that will allow students to integrate and focus their learning in a more realistic and permanent way.

*With the experience of working professionals and the analysis of real success stories, in a high-impact training approach.*

*Our innovative telepractice concept will give you the opportunity to learn through an immersive experience, which will provide you with a faster integration and a much more realistic view of the contents: “Learning from an expert.”*



# 02 Objectives

Our objective is to train highly qualified professionals for the work environment. An objective that is complemented, moreover, in a global manner, by promoting human development that lays the foundations for a better society. This objective is materialized in helping professionals to reach a much higher level of competence and control. A goal that, in just a few months you will be able to achieve, with a high intensity and effective training.





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*If your objective is to broaden your skills set to include new paths of success and development, this is the course for you: a training that aspires to excellence"*



## General Objectives

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- ♦ Develop advanced expertise in the field of swine production
- ♦ Generate specialized knowledge to efficiently and effectively address real problems, models and solutions that exist in swine production
- ♦ Gain specialized, technical knowledge to add value to future farms who seek advice on matters of production, facilities, animal welfare, waste, etc.
- ♦ Examine the reproductive sow anatomy and physiology as a basis for the use of reproductive biotechnology on the farm
- ♦ Provide a rationale for proper sow reproductive management guidelines
- ♦ Analyze appropriate methods of hormonal reproductive control for sows
- ♦ Evaluate the characteristics of replacement sows in breeding
- ♦ Identify best timing for first insemination
- ♦ Propose productive farm parameters
- ♦ Define the concept of hyperprolific sows
- ♦ Establish the guidelines to correctly detect estrus in sows
- ♦ Develop a general and specific vision of artificial insemination in sows
- ♦ Implement the design of new technologies for heat detection and artificial insemination
- ♦ Analyze the principles and characteristics of other reproductive technology components that could be incorporated to future farms
- ♦ Establish an appropriate methodology to manage sows during gestation, farrowing and lactation
- ♦ Identify and analyze the critical points in sow gestation, farrowing and lactation phases
- ♦ Gain specialized knowledge sow diets throughout the productive cycle and incorporate the requirements of the new hyperprolific genetic lines
- ♦ Specify the work on a pig farm from insemination to the end of lactation, and manage resources, analysis and methods to achieve objectives
- ♦ Identify all the critical points of piglet environmental needs from birth
- ♦ Establish the basis to correctly manage neonates in nursery
- ♦ Establish proper piglet placement and adoption process protocols
- ♦ Develop the keys to properly manage weaning and subsequent phases
- ♦ Maximize animal welfare in all its phases based on fundamental key points
- ♦ Deepen knowledge of the etiology, pathogenesis and epidemiology of the most frequent infectious diseases in pigs during gestation and maternity phases
- ♦ Establish an appropriate methodology to identify the infectious processes
- ♦ Develop plans for resolution, control and clinical treatment of infectious diseases of interest in swine in the productive phases of gestation and maternity
- ♦ Analyze the legal measures established for the surveillance and control of infectious diseases in swine in gestation and maternity
- ♦ Establish criteria to carry out bibliographic searches and analysis of the different diseases in the gestation and maternity phase
- ♦ Deepen knowledge of the etiology, pathogenesis and epidemiology of the most frequent infectious diseases in pigs during transition and fattening
- ♦ Establish an appropriate diagnostic methodology to identify the infectious process
- ♦ Develop treatment and prevention plans for infectious diseases of interest in swine in the productive phases of transition and fattening
- ♦ Analyze current legislation regulating surveillance and control of infectious diseases, especially officially declared diseases by the competent authority
- ♦ Establish criteria to carry out bibliographic searches and analysis of the different diseases in transition and fattening phase
- ♦ Identify the different types of reproductive failure on farms
- ♦ Establish the causes of embryonic and fetal mortality during gestation



- ♦ Evaluate the incidence of reproductive infections both after insemination and after parturition
- ♦ Demonstrate that management failures are the origin of many reproductive pathologies
- ♦ Substantiate reproductive seasonality in sows
- ♦ Present boar anatomical and physiological information
- ♦ Substantiate the needs and requirements of a boar to be used for breeding
- ♦ Generate specialized knowledge of the current operation at swine insemination centers
- ♦ Identify all clinical signs associated with pain in swine
- ♦ Establish an anesthetic and analgesic protocol in pigs according to the surgical intervention to be performed
- ♦ Establish the most appropriate surgical technique either based on the pathology or prophylactically-based
- ♦ Establish the criteria for euthanasia in swine and select the most appropriate method in each case
- ♦ Perform anesthetic management of pigs as a model for animal experimentation



## Specific Objectives

### Module 1 The Swine Sector

- ◆ Develop a Specialized Vision of the Swine Sector
- ◆ Know the morphological and physiological characteristics of pigs
- ◆ Autonomously analyze and apply concepts, tools and management related to current production, health, animal welfare and environment regulations for swine
- ◆ Confidently diagnose and define the elaboration processes for farm reports, certifications and audits
- ◆ Propose methods of control, treatment and prevention of occupational hazards in the swine industry
- ◆ Improve facilities to obtain the maximum productive performance
- ◆ Demonstrate that animal welfare conditions allow for higher production yields
- ◆ Plan projects to reduce farms' negative impact on the environment
- ◆ Identify opportunities for farm improvement and transmit knowledge to personnel working in the swine industry





## Module 2 Breeding Females

- ♦ Evaluate Appropriate Guidelines to Select Future Breeding females
- ♦ Present the sexual cycle of sows as a basis for reproductive hormonal management and control
- ♦ Define puberty and its management
- ♦ Propose different hormonal control protocols in breeding sows
- ♦ Identify at what reproductive moment the use of each type of hormone is required
- ♦ Establish nulliparous sow diets
- ♦ Specify the most important reproductive indexes in swine production
- ♦ Analyze the reproductive features hyperprolific sows should present

## Module 3 Estrus Detection and Artificial Insemination

- ♦ Examine the Main Protocols for Heat Detection
- ♦ Apply current artificial insemination techniques
- ♦ Diagnose the factors that can affect estrus detection and artificial insemination
- ♦ Specify the most appropriate tools to implement good practices in artificial insemination
- ♦ Present the principles and component features of other reproductive technologies associated with artificial insemination
- ♦ Propose application methods for these protocols in swine farms with excellent results
- ♦ Analyze the reproductive results of the different reproductive biotechnologies in swine farms
- ♦ Develop effective solutions for potential incidences in artificial insemination

#### **Module 4 Sows: Gestation, Farrowing and Lactation**

- ♦ Manage Facilities During Gestation, Farrowing and Lactation
- ♦ Present sow gestation, farrowing and lactation physiology
- ♦ Diagnose the most frequent physiological problems in gestation and how to deal with them
- ♦ Learn the fundamentals of gestation diagnosis in sows
- ♦ Identify the problems in gestation and differentiate the management guidelines to be taken in each situation
- ♦ Define the fundamentals of sow nutrition and requirements during gestation, farrowing and lactation
- ♦ Establish the key points associated with hyperprolific lines and study how to address them
- ♦ Analyze the organization and management of the sow cycle and the available resources

#### **Module 5 Piglets**

- ♦ Examine the Different Types of Facilities and Environmental Needs in the Different Phases after Piglet Birth
- ♦ Recognize the critical points of neonatal management to reduce mortality and pathologies
- ♦ Determine the physiological and ethological needs of piglets and mothers to guarantee welfare
- ♦ Analyze the appropriate methodology to minimize the negative effects of weaning
- ♦ Propose new alternative protocols to surgical castration: lymphocastration

#### **Module 6 Gestation and Maternity: Main Diseases**

- ♦ Identify the Main Problems Caused by Infectious Pathology During Gestation and -Maternity
- ♦ Define the economic and sanitary importance of infectious diseases in swine during gestation and maternity
- ♦ Delve deeper into the process and method of diagnosis used in the field for each disease
- ♦ Establish treatment plans for the main swine diseases during gestation and maternity
- ♦ Propose and develop control and prevention plans for the main swine diseases during gestation and maternity
- ♦ Analyze and solve proposed clinical cases
- ♦ Demonstrate the necessary agility to deal with infectious diseases in swine

#### **Module 7 Transition and Fattening: Main Diseases**

- ♦ Identify the Main Problems Caused by Infectious Pathology During Transition and Fattening
- ♦ Define the economic and sanitary importance of infectious diseases in swine productive during transition and fattening
- ♦ Delve deeper into the process and method of diagnosis used in the field for each disease
- ♦ Establish the basis for designing treatment plans for the main swine diseases transition and fattening
- ♦ Develop control and prevention strategies for the main swine diseases during transition and fattening
- ♦ Analyze and resolve proposed clinical cases using different strategies
- ♦ Demonstrate the necessary agility to deal with infectious diseases in swine

## Module 8 Reproductive Failure in Sows

- ♦ Define the Types of Repeat Estrus
- ♦ Present prevention methods for "dirty" sow syndrome
- ♦ Examine the metritis, mastitis and agalactia syndrome involved in postpartum dysgalactia syndrome
- ♦ Discuss the different symptoms that can occur in sows with ovarian cysts
- ♦ Demonstrate the influence of mycotoxins on reproduction
- ♦ Differentiate anestrus from pseudo-anestrus
- ♦ Evaluate the role of water in preventing certain urinary and reproductive pathologies

## Module 9 Boars

- ♦ Examine Porcine Sperm Cells to Understand What May Affect Development and Maturation
- ♦ Analyze the type of diet is necessary for a breeding boar's needs
- ♦ Evaluate the different semen analysis methodologies
- ♦ Identify the techniques that can help identify subfertile boars
- ♦ Analyze the most commonly found reproductive pathologies
- ♦ Compile the most common semen-transmissible diseases
- ♦ Identify the critical points at insemination centers

## Module 10 Anesthesia and Surgery

- ♦ Accurately Recognize the Signs of Acute or Chronic Pain in Swine
- ♦ Analyze preventive measures for caudophagia by farm type
- ♦ Adequately administer the analgesia required for pain management
- ♦ Determine an anesthetic and surgical approach to female and male pig castration
- ♦ Propose an anesthetic and surgical approach to perform a cesarean section
- ♦ Develop an anesthetic and surgical approach to resolve different types of hernias and situations of uterine or rectal prolapse
- ♦ Present the decision-making criteria regarding animal euthanasia and propose the most appropriate method on the farm
- ♦ Review physiological and anesthetic considerations in the case of experimental swine models



*A path to achieve specialization and professional growth that will propel you towards a greater level of competitiveness in the employment market"*

# 03 Skills

Professionals will be able to acquire the skills of an expert in the Animal Health and Production sector, through an educational approach that will turn the knowledge imparted throughout this intensive Professional Master's Degree into experience. An exceptional opportunity to give a boost to your skills, making you one of the most competitive experts in the sector.







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*An intensive program created to provide you with the necessary skills to successfully intervene in each of the areas of Animal Production and Health, with the quality of a high-impact training approach”*



## General Skills

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- ♦ Generate specialized knowledge to efficiently and effectively address real problems, models and solutions that exist in swine production
- ♦ Provide a rationale for proper sow reproductive management guidelines
- ♦ Develop a general and specific vision of artificial insemination in sows
- ♦ Identify and analyze the critical points in sow gestation, farrowing and lactation phases
- ♦ Establish proper piglet placement and adoption process protocols
- ♦ Develop plans for resolution, control and clinical treatment of infectious diseases of interest in swine in the productive phases of gestation and maternity
- ♦ Deepen knowledge of the etiology, pathogenesis and epidemiology of the most frequent infectious diseases in pigs during transition and fattening
- ♦ Evaluate the incidence of reproductive infections both after insemination and after parturition
- ♦ Present boar anatomical and physiological information
- ♦ Perform anesthetic management of pigs as a model for animal experimentation





## Specific Skills

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- ◆ Confidently diagnose and define the elaboration processes for farm reports and certifications
- ◆ Define puberty and its management
- ◆ Diagnose the factors that can affect estrus detection and artificial insemination
- ◆ Analyze the reproductive results of the different reproductive biotechnologies in swine farms
- ◆ Identify the problems in gestation and differentiate the management guidelines to be taken in each situation
- ◆ Examine the different types of facilities and environmental needs in the different phases after piglet birth
- ◆ Analyze the appropriate methodology to minimize the negative effects of weaning
- ◆ Demonstrate the necessary agility to deal with infectious diseases in swine
- ◆ Establish the basis for designing treatment plans for the main swine diseases transition and fattening
- ◆ Evaluate the role of water in preventing certain urinary and reproductive pathologies
- ◆ Determine an anesthetic and surgical approach to female and male pig castration
- ◆ Review physiological and anesthetic considerations in the case of experimental swine models

04

# Course Management

Within the concept of total quality of our program, we are proud to put at your disposal a Teaching Staff of the highest level, chosen for their proven experience. Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team. A unique opportunity to learn from the best.





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*Our teaching team, experts in Swine Production and Clinical Practice, will help you achieve success in your profession”*

## Management



### Dr. Falceto Recio, Victoria

- ◆ Degree in Veterinary Medicine from the University of Zaragoza
- ◆ President of the board of directors AVPA at Pig Veterinary Association of Aragon
- ◆ Secretary of the board of directors ANAVEPOR National Association of Pig Veterinarians
- ◆ Spokesperson for the Board of Directors of ANAPORC Association of Scientific Pork Producers
- ◆ Member of AERA Spanish Association of Animal Reproduction
- ◆ Diploma in Pedagogical Training for university professors at the Institute of Education Sciences, University of Zaragoza
- ◆ Advanced Course in Animal Production (Animal Reproduction Cycle from the Mediterranean Agronomic Institute of Zaragoza)
- ◆ Substitutions as a rural veterinarian
- ◆ Specialization stays at several universities and institutions
- ◆ Responsible for the Reproduction and Obstetrics Service at the Veterinary Hospital, University of Zaragoza
- ◆ Member of the Instituto Universitario de Investigación Mixto Agroalimentario de Aragón IA2 (University Institute of Mixed Agrifood Research of Aragón)

## Professors

### Ms. Ausejo Marcos, Raquel

- ◆ Degree in Veterinary Medicine from the University of Zaragoza
- ◆ Master's Degree in Swine Health and Production, Universities of Zaragoza, Lérida, Madrid and Barcelona
- ◆ Training Diploma to perform procedures with experimental animals
- ◆ Doctoral Program in Animal Medicine and Health
- ◆ Member of the reference research group RAYSA: Assisted Reproduction and Animal Health
- ◆ Speaker at national and international swine reproduction congresses
- ◆ Member of the Association of Swine Veterinarians of Aragon
- ◆ Adjunct professor for the Master's Degree in Swine Health and Production
- ◆ Extraordinary collaborator in the Department of Animal Pathology

**Dr. Bonastre Ráfales, Cristina**

- ◆ Degree in Veterinary Medicine from the University of Zaragoza
- ◆ Certificate in Pedagogical Aptitude (CAP), University of Zaragoza
- ◆ Member of the Spanish Society of Veterinary Anesthesia and Analgesia (SEAAV), the Association of Pig Veterinarians of Aragon (AVPA), the National Association of Iberian Pig Veterinarians (ANVEPI) and the Spanish Association of Small Animal Veterinarians (AVEPA)
- ◆ Assistant Professor in the Department of Animal Pathology
- ◆ Veterinarian in small animal clinics with special dedication to Anesthesia and Surgery, 1999-2017
- ◆ Anesthesiologist in the Anesthesiology and Resuscitation Service at the Veterinary Hospital, University of Zaragoza, 2009-present
- ◆ Anesthesiologist in the Minimally Invasive Surgery Service at the Veterinary Hospital of the University of Zaragoza, 2017-present

**Dr. Cantin Labarta, Julia**

- ◆ Degree in Veterinary Medicine, CEU Cardenal Herrera University
- ◆ Master's Degree in Swine Health and Production (University of Lleida, Zaragoza and Madrid)
- ◆ Doctoral student in Animal Medicine and Health Study of the Metabolic Alterations Produced by Nutritional Deficiencies in Relation to Hyperprolific Sow Productivity (University of Zaragoza)
- ◆ Member of the Association of Swine Veterinarians of Aragón, Aula Porcina (University of Zaragoza) and Club de Ganadería Porcina (CEU Cardenal Herrera University)
- ◆ BOEHRINGER INGELHEIM ANIMAL HEALTH SPAIN Swine Veterinary Technical Support, 06/2020-present
- ◆ Co-owner of GRANJA CANTÍN LABARTA S.L. 06/2019-present
- ◆ NUTEGA CCPA GROUP Research Work (R&D&I) On-farm management and collaboration in a research, development and innovation project on the metabolic problems associated with hyperprolific sow nutrition 12/2018-03/2020

**Dr. Garza Moreno, Laura**

- ◆ Degree in Veterinary Medicine from the University of Zaragoza
- ◆ Master's Degree in Virology from the Complutense University of Madrid
- ◆ Doctor of Animal Medicine and Health (CUM LAUDE, International Doctorate) from the Universitat Autònoma de Barcelona
- ◆ Pre-doctoral student at the College of Veterinary Medicine, University of Minnesota
- ◆ Speaker at international and Spanish congresses in the swine sector
- ◆ Member of the Association of Swine Veterinarians of Aragon (AVPA)
- ◆ Swine Technical Service at Ceva Animal Health, Spain
- ◆ Research technician at Nutreco Swine Research Centre, the Netherlands

**Dr. Mitjana Nerin, Olga**

- ◆ Degree in Veterinary Medicine from the University of Zaragoza
- ◆ Official Master's Degree in Swine Health and Production from the University of Lleida, University of Zaragoza, Autonomous University of Barcelona and Complutense University of Madrid
- ◆ Diploma in Pedagogical Training for university professors at the Institute of Education Sciences, University of Zaragoza
- ◆ Advanced Course in Animal Production (Animal Reproduction Cycle from the Mediterranean Agronomic Institute of Zaragoza)
- ◆ Member of the board of the AVPA Pig Veterinary Association of Aragon
- ◆ Member of AERA Spanish Association of Animal Reproduction
- ◆ Assistant Professor in the Department of Animal Pathology, Faculty of Veterinary Medicine
- ◆ Veterinary Professional Practice until 2018
- ◆ Member of the Instituto Universitario de Investigación Mixto Agroalimentario de Aragón IA2 (University Institute of Mixed Agrifood Research of Aragón)

05

# Structure and Content

The contents have been developed by different experts, with a clear purpose: to ensure that our students acquire each and every one of the skills necessary to become true experts in this field.

A complete and well-structured program that will take you to the highest standards of quality and success.





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*A comprehensive teaching program,  
structured in well-developed teaching units,  
oriented towards learning that is compatible  
with your personal and professional life"*

## Module 1. The Swine Sector

- 1.1. The Importance of the Swine Sector
  - 1.1.1. The Swine Sector at a Global Level
  - 1.1.2. The Importance of the Swine Industry for the Rural World
- 1.2. Morphological and Physiological Characteristics in Pigs
  - 1.2.1. External Morphology
  - 1.2.2. Anatomy and Digestive and Respiratory Physiology
  - 1.2.3. Anatomy and characteristics of the Locomotor System
- 1.3. Breeds, Crosses and Genetic Lines in Swine Production
  - 1.3.1. The Main Swine Breeds
  - 1.3.2. Crossbreeding and Genetic Lines in White Pigs
  - 1.3.3. Selection and Genetic Improvement
- 1.4. Management Systems in Swine Production
  - 1.4.1. Swine Production Features
  - 1.4.2. Intensive White Pig System
  - 1.4.3. Alternative Production Systems
- 1.5. Swine Facilities and Housing: Environmental Control
  - 1.5.1. Reproductive Farm Facilities and Housing
  - 1.5.2. Transition Farm Facilities and Housing
  - 1.5.3. Fattening Farm Facilities and Housing
- 1.6. Legislation: Farm Management, Animal Welfare and Occupational Risk Prevention Audits and Certifications
  - 1.6.1. Farm Management and Biosafety Regulations
  - 1.6.2. Animal Welfare Regulations
  - 1.6.3. Occupational Hazards
- 1.7. Farm By-Products and Waste Management
  - 1.7.1. Carcass Management
  - 1.7.2. Slurry Management
  - 1.7.3. Other By-Product Management
- 1.8. Work Organization: Technical Management and Production Costs
  - 1.8.1. Production and Optimization Management
  - 1.8.2. Staff Management
  - 1.8.3. IT Management and Production Costs

- 1.9. Pork and Pork Product Food Safety, Hygiene and Quality
  - 1.9.1. Food Safety
  - 1.9.2. Pork Quality
  - 1.9.3. The Problem of Sexual Odor in Pork

## Module 2. Breeding Females

- 2.1. Genital Apparatus Anatomy in Sows: Reproductive Physiology
  - 2.1.1. Embryology
  - 2.1.2. Anatomy
  - 2.1.3. Histology
  - 2.1.4. Physiology
  - 2.1.5. Practical Applications on Farms
- 2.2. Puberty: Puberty Management
  - 2.2.1. Puberty
  - 2.2.2. Factors Influencing the Onset of Puberty
  - 2.2.3. Puberty Induction
  - 2.2.4. Puberty Diagnosis
- 2.3. Future Breeding Female Selection
  - 2.3.1. Early Puberty
  - 2.3.2. Genital Apparatus Development
  - 2.3.3. Weight and Body Condition
  - 2.3.4. Poise
  - 2.3.5. Temperament and Adaptability
- 2.4. Reproductive Cycles in Sows
  - 2.4.1. Reproductive Cycle Characteristics and Phases
  - 2.4.2. Hypothalamic-Pituitary-Ovarian Axis Function
  - 2.4.3. Follicular and Luteal Dynamics
  - 2.4.4. Luteolysis
- 2.5. Induction of Estrus: Delayed Puberty Treatment
  - 2.5.1. Reproductive Hormone Classification
  - 2.5.2. Gonadotropic Hormone Features
  - 2.5.3. Induction of Estrus

- 2.5.4. Delayed Puberty Treatment
- 2.6. Estrus Synchronization
  - 2.6.1. Progestogen Features
  - 2.6.2. Estrus Synchronization Protocol
  - 2.6.3. Causes of Estrus Synchronization Failure
  - 2.6.4. Practical Applications on Farms
- 2.7. First Insemination
  - 2.7.1. Age
  - 2.7.2. Weight and Body Condition
  - 2.7.3. Number of Estrus Cycles
  - 2.7.4. Practical Recommendations
- 2.8. Nulliparous Sow Diet
  - 2.8.1. Replacement Sow Needs in Fattening
  - 2.8.2. Diet Strategies
  - 2.8.3. Flushing
- 2.9. Main Reproductive Parameters
  - 2.9.1. Indicator Description
  - 2.9.2. Wean-to-Estrus Interval and Wean-to-Fertile Mating Interval
  - 2.9.3. Fertility
  - 2.9.4. Prolificity
  - 2.9.5. Breeding Sows and Neonatal Mortality
  - 2.9.6. Non-Productive Days
  - 2.9.7. Other Parameters
  - 2.10. Hyperprolific Sow Reproductive Features
    - 2.10.1. Definition
    - 2.10.2. Reproductive Possibilities and Limitations
    - 2.10.3. The Importance of Follicular Development and Ovulation Rate
    - 2.10.4. The Influence of Uterine Capacity

### Module 3. Estrus Detection and Artificial Insemination

- 3.1. Teaser Male
  - 3.1.1. Teaser Male Features: Preparation Techniques for Teaser Males
  - 3.1.2. Teaser Male Care, Diet and Housing
  - 3.1.3. Managing Teaser Males in Heat Detection: Pair-Housed Males
- 3.2. Heat Detection
  - 3.2.1. Immobility Reflex
  - 3.2.2. Ovarian Ultrasound
  - 3.2.3. Other Heat Detection Techniques
- 3.3. Semen Preparation in Artificial Insemination
  - 3.3.1. Semen Management from the Insemination Center to the Farm
  - 3.3.2. Semen Request, Reception and Storage
  - 3.3.3. Semen Doses Assessment: Semen Collection
- 3.4. Identifying the Right Time for Artificial Insemination
  - 3.4.1. Physiological Features of Oocytes
  - 3.4.2. Physiological Features of Sperm
  - 3.4.3. Choosing the Right Time for Adequate Artificial Insemination
- 3.5. Cervical Artificial Insemination
  - 3.5.1. Materials
  - 3.5.2. Methods
  - 3.5.3. Productive Results
- 3.6. Post-Cervical Artificial Insemination
  - 3.6.1. Materials
  - 3.6.2. Methods
  - 3.6.3. Productive Results
- 3.7. Fixed-Time Artificial Insemination
  - 3.7.1. Management Optimization for Fixed-Time Artificial Insemination
  - 3.7.2. GnRH agonists Application for Fixed-Time Artificial Insemination
  - 3.7.3. Encapsulated Semen Use

- 3.8 Semen Additive Use during Insemination
  - 3.8.1. Potential Improvement of Semen Quality, Fertility and Prolificacy Results
  - 3.8.2. Semen Additive Types and Features
  - 3.8.3. Productive Results
- 3.9 Other Reproductive Biotechnologies
  - 3.9.1. Deep Intrauterine Artificial Insemination
  - 3.9.2. Embryo Transfer
  - 3.9.3. In Vitro Fertilization
- 3.10 Incidents in Artificial Insemination: Further Aspects
  - 3.10.1. Reflux, Bleeding and Infections
  - 3.10.2. "Inseminate and Release" Technique

## Module 4. Sows: Gestation, Farrowing and Lactation

- 4.1. Pregnancy Diagnosis: Work Organization in Pregnant Sows
  - 4.1.1. Pregnancy Diagnosis
  - 4.1.2. Work Organization in Pregnant Sows
  - 4.1.3. Planning Mating and Gestational Objective
- 4.2. Gestation Physiology
  - 4.2.1. First-Third Gestation: Implantation
  - 4.2.2. Second-Third Gestation: Embryogenesis
  - 4.2.3. Third-Third Gestation: Fetal Growth and Appendages
- 4.3. Pregnant Sow Management
  - 4.3.1. First-Third Gestation
    - 4.3.1.1. Detecting the Most Frequent Management Errors
    - 4.3.1.2. Proper Management
  - 4.3.2. Second-Third Gestation
    - 4.3.2.1. Detecting the Most Frequent Management Errors
    - 4.3.2.2. Proper Management
  - 4.3.3. Third-Third Gestation
    - 4.3.3.1. Detecting the Most Frequent Management Errors
    - 4.3.3.2. Proper Management
- 4.4. Pregnant Sow Diet
  - 4.4.1. Diet Curve in Pregnant Sows
  - 4.4.2. Pregnant Sow Needs
  - 4.4.3. Pathology associated with Dietary Failure during Gestation
- 4.5. Peripartum Physiology
  - 4.5.1. Three Day Prepartum
  - 4.5.2. Birth
  - 4.5.3. First Four Day Postpartum
- 4.6. Sow Management during Peripartum
  - 4.6.1. Delivery Preparation
    - 4.6.1.1. Detecting the Most Frequent Management Errors
    - 4.6.1.2. Proper Management
  - 4.6.2. Delivery Management
    - 4.6.2.1. Detecting the Most Frequent Management Errors
    - 4.6.2.2. Proper Management
  - 4.6.3. First Four Day Postpartum Management
    - 4.6.3.1. Detecting the Most Frequent Management Errors
    - 4.6.3.2. Proper Management
- 4.7. Sow Diet during Peripartum
  - 4.7.1. Sow Diet Curve during Peripartum
  - 4.7.2. Sow Needs during Peripartum
  - 4.7.3. Pathology associated with Dietary Failure during Peripartum
- 4.8. Reproductive Physiology during Lactation
  - 4.8.1. Lactation Physiology
  - 4.8.2. Uterine Involution and Ovarian Activity Onset
- 4.9. Sow Management during Lactation
  - 4.9.1. Common Errors in Sow Management during Lactation
  - 4.9.2. Environment Management
  - 4.9.3. Proper Sow Management during Lactation
  - 4.9.4. Wet Nurse Preparation

- 4.10. Sow Diet during Lactation
  - 4.10.1. Sow Diet Curve during Lactation
  - 4.10.2. Sow Needs during Lactation
  - 4.10.3. Pathology associated with Dietary Failure during Lactation

## Module 5. Piglets

- 5.1. Facilities and Environment Control in the Maternity Ward
  - 5.1.1. General Housing Criteria in the Labor-Lactation Phase
  - 5.1.2. Piglet Environmental Needs
  - 5.1.3. Types: Fixed and Removable Cages
  - 5.1.4. New Facility Models: Group Lactation
- 5.2. Neonatal Care
  - 5.2.1. Primary Care
  - 5.2.2. Suckling Piglet Physiology
- 5.3. Colostrum
  - 5.3.1. What Is Colostrum?
  - 5.3.2. Colostrum Function
  - 5.3.3. Techniques to Improve Piglet Colostrum
  - 5.3.4. Immunology and Perinatal Mortality
- 5.4. Adoptions and Nurturing
  - 5.4.1. The Litter Problem in Hyperprolific Sows
  - 5.4.2. Piglet Selection for Adoption
  - 5.4.3. Types of Adoption: 24 Hours vs. 24 Days after Birth
  - 5.4.4. Advantages and Disadvantages of Adoption
- 5.5. Litter Processing: Iron Deficiency Anemia
  - 5.5.1. Routine Litter Processes or Treatments
  - 5.5.2. Iron Deficiency Anemia
  - 5.5.3. Piglet Diet during Lactation
- 5.6. Non-Infectious Pathology in Newborns
  - 5.6.1. Congenital Malformations
  - 5.6.2. Litter Heterogeneity
  - 5.6.3. Other Pathologies

- 5.7. Piglet Management during Weaning
  - 5.7.1. Age at Weaning: Early vs. Conventional Weaning
  - 5.7.2. Post-Weaning Stress: Causes and Corrective Measures
  - 5.7.3. Intestinal Health
- 5.8. Facilities, Environment Control and Diet for Weaned Piglets
  - 5.8.1. Different Types of Enclosed vs. Open Housing in Weaning
  - 5.8.2. Piglet Environmental Needs in Weaning
  - 5.8.3. Diet
- 5.9. Piglet Management and Diet during Fattening: Immunocastration
  - 5.9.1. Intrinsic and Extrinsic Factors Influencing Piglet Growth
  - 5.9.2. Different Phased Production Systems: Conventional, Isowean and Wean-to-Finish Systems
  - 5.9.3. Male Immunocastration
  - 5.9.4. Female Immunocastration
  - 5.9.5. Welfare during Fattening
- 5.10. Piglet Behavior and Welfare
  - 5.10.1. Newborn Piglet Behavior: Cannibalism, Intra-Litter Competition, etc.
  - 5.10.2. Weaned Piglet Behavior: Hierarchization, Socialization, etc.
  - 5.10.3. Welfare in Maternity Wards
  - 5.10.4. Weaned Piglet Welfare

## Module 6. Gestation and Maternity: Main Diseases

- 6.1. Parvovirus: Leptospirosis Brucellosis
  - 6.1.1. Introduction
  - 6.1.2. Etiology, Epidemiology and Pathogenesis
  - 6.1.3. Clinical Signs and Lesions
  - 6.1.4. Diagnosis
  - 6.1.5. Treatment, Control and Prevention
- 6.2. Porcine Reproductive and Respiratory Syndrome (PRRS)
  - 6.2.1. Introduction
  - 6.2.2. Etiology, Epidemiology and Pathogenesis
  - 6.2.3. Clinical Signs and Lesions
  - 6.2.4. Diagnosis
  - 6.2.5. Control and Prevention

- 6.3. Neonatal Diarrhea caused by E. Coli
  - 6.3.1. Introduction
  - 6.3.2. Etiology, Epidemiology and Pathogenesis
  - 6.3.3. Clinical Signs and Lesions
  - 6.3.4. Diagnosis
  - 6.3.5. Treatment, Control and Prevention
- 6.4. Clostridiosis
  - 6.4.1. Introduction
  - 6.4.2. Etiology, Epidemiology and Pathogenesis
  - 6.4.3. Clinical Signs and Lesions
  - 6.4.4. Diagnosis
  - 6.4.5. Treatment, Control and Prevention
- 6.5. Rotavirus
  - 6.5.1. Introduction
  - 6.5.2. Etiology, Epidemiology and Pathogenesis
  - 6.5.3. Clinical Signs and Lesions
  - 6.5.4. Diagnosis
  - 6.5.5. Control and Prevention
- 6.6. Coccidiosis and Other Parasitic Diseases
  - 6.6.1. Introduction
  - 6.6.2. Etiology, Epidemiology and Pathogenesis
  - 6.6.3. Clinical Signs and Lesions
  - 6.6.4. Diagnosis
  - 6.6.5. Treatment, Control and Prevention
- 6.7. Streptococci
  - 6.7.1. Introduction
  - 6.7.2. Etiology, Epidemiology and Pathogenesis
  - 6.7.3. Clinical Signs and Lesions
  - 6.7.4. Diagnosis
  - 6.7.5. Treatment, Control and Prevention



- 6.8. Glasser's Disease
  - 6.8.1. Introduction
  - 6.8.2. Etiology, Epidemiology and Pathogenesis
  - 6.8.3. Clinical Signs and Lesions
  - 6.8.4. Diagnosis
  - 6.8.5. Treatment, Control and Prevention
- 6.9. Aujeszky's Disease
  - 6.9.1. Introduction
  - 6.9.2. Etiology, Epidemiology and Pathogenesis
  - 6.9.3. Clinical Signs and Lesions
  - 6.9.4. Diagnosis
  - 6.9.5. Control and Prevention
- 6.10. Health Legislation
  - 6.10.1. Introduction
  - 6.10.2. The Concept of One Health
  - 6.10.3. World Organization for Animal Health International Standards (OIE)
  - 6.10.4. General Animal Health Legislation
  - 6.10.5. Current Plans for the Prudent Use of Antimicrobial Agents

## Module 7. Transition and Fattening: Main Diseases

- 7.1. Transition and Fattening: Main Diseases
  - 7.1.1. Swine Respiratory Complex
  - 7.1.2. Introduction
  - 7.1.3. Etiology, Epidemiology and Pathogenesis
  - 7.1.4. Clinical Signs and Lesions
  - 7.1.5. Diagnosis
  - 7.1.6. Treatment, Control and Prevention
- 7.2. Influenza: Atrophic Rhinitis Bordetellosis
  - 7.2.1. Introduction
  - 7.2.2. Etiology, Epidemiology and Pathogenesis
  - 7.2.3. Clinical Signs and Lesions
  - 7.2.4. Diagnosis
  - 7.2.5. Treatment, Control and Prevention
- 7.3. Swine Enzootic Pneumonia and Pleuropneumonia
  - 7.3.1. Introduction
  - 7.3.2. Etiology, Epidemiology and Pathogenesis
  - 7.3.3. Clinical Signs and Lesions
  - 7.3.4. Diagnosis
  - 7.3.5. Treatment, Control and Prevention
- 7.4. Swine Circovirus
  - 7.4.1. Introduction
  - 7.4.2. Etiology, Epidemiology and Pathogenesis
  - 7.4.3. Clinical Signs and Lesions
  - 7.4.4. Diagnosis
  - 7.4.5. Control and Prevention
- 7.5. Post-Weaning Colibacillosis
  - 7.5.1. Introduction
  - 7.5.2. Etiology, Epidemiology and Pathogenesis
  - 7.5.3. Clinical Signs and Lesions
  - 7.5.4. Diagnosis
  - 7.5.5. Treatment, Control and Prevention
- 7.6. Salmonellosis, Transmissible Gastroenteritis and Swine Epidemic Diarrhea
  - 7.6.1. Introduction
  - 7.6.2. Etiology, Epidemiology and Pathogenesis
  - 7.6.3. Clinical Signs and Lesions
  - 7.6.4. Diagnosis
  - 7.6.5. Treatment, Control and Prevention
- 7.7. Swine Dysentery: Proliferative Enteropathy
  - 7.7.1. Introduction
  - 7.7.2. Etiology, Epidemiology and Pathogenesis
  - 7.7.3. Clinical Signs and Lesions
  - 7.7.4. Diagnosis
  - 7.7.5. Treatment, Control and Prevention

- 7.8. African Swine Fever: Classical Swine Fever Red Disease
  - 7.8.1. Introduction
  - 7.8.2. Etiology, Epidemiology and Pathogenesis
  - 7.8.3. Clinical Signs and Lesions
  - 7.8.4. Diagnosis
  - 7.8.5. Treatment, Control and Prevention
- 7.9. Parasitic Diseases (Ascaris, Trichinellosis, Cysticercosis)
  - 7.9.1. Introduction
  - 7.9.2. Etiology, Epidemiology and Pathogenesis
  - 7.9.3. Clinical Signs and Lesions
  - 7.9.4. Diagnosis
  - 7.9.5. Treatment, Control and Prevention
- 7.10. Vesicular and Skin Diseases
  - 7.10.1. Introduction
  - 7.10.2. Etiology, Epidemiology and Pathogenesis
  - 7.10.3. Clinical Signs and Lesions
  - 7.10.4. Diagnosis
  - 7.10.5. Treatment, Control and Prevention

## Module 8. Reproductive Failure in Sows

- 8.1. Identifying Reproductive Failure on the Farm
  - 8.1.1. Computerized Production Management Systems
  - 8.1.2. Sterility
  - 8.1.3. Infertility
  - 8.1.4. Subfertility in Hyperprolific Sows
  - 8.1.5. Diagnostic Tests
- 8.2. Estrus Repetition
  - 8.2.1. Types and Causes
  - 8.2.2. Cyclical Repetition
  - 8.2.3. Non-Cyclical Repetition
  - 8.2.4. Control Mechanisms
- 8.3. Embryonic and Fetal Mortality during Gestation
  - 8.3.1. Environmental Miscarriages
  - 8.3.2. Nutritional Miscarriages
  - 8.3.3. Infection-Caused Miscarriages
  - 8.3.4. Sows at Farrowing
  - 8.3.5. Fetal Mummification and Maceration
  - 8.3.6. Stillborn Piglets
  - 8.3.7. Diagnosis and Control Mechanisms
- 8.4. "Dirty" Sow Syndrome
  - 8.4.1. Identification, Types and Origin of Vulvar Secretions
  - 8.4.2. Causes
  - 8.4.3. Diagnosis
  - 8.4.4. Treatment and Control
  - 8.4.5. Complications
  - 8.4.6. Prevention
- 8.5. Puerperal Pathology in Sows
  - 8.5.1. Postpartum Metritis
  - 8.5.2. Postpartum Mastitis
  - 8.5.3. Postpartum Dysgalactia Syndrome
  - 8.5.4. Metritis, Mastitis and Agalactia Syndrome
- 8.6. Ovarian Cysts
  - 8.6.1. Types of Ovarian Cysts
  - 8.6.2. Diagnosis
  - 8.6.3. Treatment and Control
  - 8.6.4. Para-Ovarian Cysts
  - 8.6.5. Ovarian Neoplasms
- 8.7. Mycotoxicosis and Reproduction
  - 8.7.1. Mycotoxin Origin and Types
  - 8.7.2. Zearelanone Effects on Reproductive Processes
  - 8.7.3. Diagnostic Methods
  - 8.7.4. Mycotoxin Control on the Farm



- 8.8. Seasonal Infertility in Sows
  - 8.8.1. Etiology
  - 8.8.2. Summer Anestrus
  - 8.8.3. Anestrus Diagnosis
  - 8.8.4. Induction of Estrus with Gonadotropins
  - 8.8.5. Anestrus Prevention
- 8.9. Pseudo-Anestrus
  - 8.9.1. Etiology
  - 8.9.2. Pseudo-Anestrus Diagnosis
  - 8.9.3. Hormone Control: Progestogens and Prostaglandins
  - 8.9.4. Pseudo-Anestrus Prevention
- 8.10. Other Causes of Infertility in Sows
  - 8.10.1. Obesity
  - 8.10.2. Second Labor Syndrome
  - 8.10.3. Cystitis and Other Urinary Problems
  - 8.10.4. Limping
  - 8.10.5. Others

## Module 9. Boars

- 9.1. Boar Genital Apparatus Anatomy: Reproductive Physiology
  - 9.1.1. Embryonic Development
  - 9.1.2. Genital Apparatus Anatomy
  - 9.1.3. Hormones Involved in Reproduction
  - 9.1.4. Sperm and Sperm Formation
  - 9.1.5. Sperm Maturation and Interaction at the Uterine Level
- 9.2. The Boar as a Future Breeder
  - 9.2.1. Management from Birth to Fattening
  - 9.2.2. Puberty and Sexual Development
  - 9.2.3. Selecting Boars
    - 9.2.3.1. Testicular Size
    - 9.2.3.2. Libido
    - 9.2.3.3. Age
    - 9.2.3.4. Poise and Conformation
    - 9.2.3.5. Body Condition

- 9.3. Facilities and Biosafety at Insemination Centers: Critical Points
  - 9.3.1. External Biosafety
    - 9.3.1.1. Localization
    - 9.3.1.2. Quarantine
    - 9.3.1.3. Supply Area
    - 9.3.1.4. Slurry and Carcass Deposit
    - 9.3.1.5. Others
  - 9.3.2. Internal Biosafety
    - 9.3.2.1. Staff Flow
    - 9.3.2.2. Facility Cleaning and Disinfection
    - 9.3.2.3. Animal Health Control
    - 9.3.2.4. Ejaculate Health Control
    - 9.3.2.5. Biosafety in Dose Delivery
  - 9.3.3. Installations
    - 9.3.3.1. Barnyard Area
    - 9.3.3.2. Laboratory
    - 9.3.3.3. Other Areas
- 9.4. Boar Diet
  - 9.4.1. Energy Needs
  - 9.4.2. Protein Needs
  - 9.4.3. Fiber Needs
  - 9.4.4. Vitamin Needs
  - 9.4.5. Mineral and Other Needs
  - 9.4.6. Water
  - 9.4.7. Diet Management
- 9.5. Sperm Collection and Boar Reproductive Management at Insemination Centers
  - 9.5.1. The Staff
  - 9.5.2. Task Planning
  - 9.5.3. Training
  - 9.5.4. Extraction Pace
  - 9.5.5. Pommel Horses and Extraction Pens
  - 9.5.6. Extraction

- 9.6. Semen Processing and Preservation: Semen Freezing
  - 9.6.1. General Routine Parameters
  - 9.6.2. Seminal Motility Analysis
    - 9.6.2.1. Agglutination or Clumping
    - 9.6.2.2. Movement Quality
  - 9.6.3. Seminal Concentration Analysis
  - 9.6.4. Semen Analysis Abnormal forms
  - 9.6.5. Endosmosis and Osmotic Resistance Tests
  - 9.6.6. Seminal Dilution
    - 9.6.6.1. Diluents
    - 9.6.6.2. Distilled Water
    - 9.6.6.3. Dilution Temperature
  - 9.6.7. Packaging and Cooling Curve
  - 9.6.8. Semen Conservation
  - 9.6.9. Critical Points
  - 9.6.10. Semen Freezing
- 9.7. Factors Affecting Sperm Production and Common Causes of Boar Removal from Insemination Centers
  - 9.7.1. Breed and Age
  - 9.7.2. Season: Temperature and Photoperiod
  - 9.7.3. Extraction Pace
  - 9.7.5. Other Factors
  - 9.7.6. Most Common Causes for Elimination
    - 9.7.6.1. Semen Quality
    - 9.7.6.2. Semen Contamination
    - 9.7.6.3. Genetics
    - 9.7.6.4. Physical Problems
- 9.8. Semen Transmitted Diseases
  - 9.8.1. Viral Pathogen Entry
    - 9.8.1.1. Brucellosis
    - 9.8.1.2. Leptospirosis
    - 9.8.1.3. Aujeszky
    - 9.8.1.4. PRRS
    - 9.8.1.5. Parvovirus
    - 9.8.1.6. Circovirus
    - 9.8.1.7. Others
  - 9.8.2. Bacterial Pathogen Entry
  - 9.8.3. Prevention Measures for Pathogen Entry
- 9.9. Boar Reproductive Pathology
  - 9.9.1. General Considerations on Genital Analysis in Slaughterhouses
  - 9.9.2. Testicular Abnormalities
  - 9.9.3. Epididymal Abnormalities
  - 9.9.4. Pampiniform Plexus Abnormalities
  - 9.9.5. Histopathology Study
- 9.10. Sub-Fertile Boars and New Semen Analysis Techniques
  - 9.10.1. What Is a Sub-Fertile Boar?
  - 9.10.2. New Semen Analysis Techniques to Identify Sub-Fertile Boars
  - 9.10.3. Flow Cytometry
  - 9.10.4. In Vitro Fertilization
  - 9.10.5. Sperm Sexing
  - 9.10.6. Karyotype
  - 9.10.7. Others

## Module 10. Anesthesia and Surgery

- 10.1. Pain and Pain Assessment
  - 10.1.1. Definition of Pain
  - 10.1.2. Pain Physiopathogenesis
  - 10.1.3. Signs of Pain in Swine
  - 10.1.4. PigGrimaceScale for Pain Assessment
  - 10.1.5. Implications and Consequences of Pain
- 10.2. Anesthesia and Analgesia
  - 10.2.1. General concepts
  - 10.2.2. Anesthetic and Analgesic Drugs in Swine
  - 10.2.3. Immobilization or Chemical Containment Techniques
  - 10.2.4. Injectable General Anesthesia Techniques
  - 10.2.5. Inhalation General Anesthesia Techniques
  - 10.2.6. Locoregional Anesthesia Techniques
  - 10.2.7. Prolonged Analgesia
- 10.3. Surgical Castration
  - 10.3.1. Introduction
  - 10.3.2. Anesthesia in Swine Castration
  - 10.3.3. Analgesia in Swine Castration
  - 10.3.4. Surgical Castration Techniques
  - 10.3.5. Postoperative Complications
- 10.4. Hernia Surgical Resolution
  - 10.4.1. Introduction
  - 10.4.2. Diagnosis and Hernia Types
  - 10.4.3. Anesthesia in Hernia Surgery Resolution
  - 10.4.4. Analgesia in Hernia Surgery Resolution
  - 10.4.5. Surgical Technique in Hernia Surgery Resolution
  - 10.4.6. Postoperative Complications
- 10.5. Caudophagia
  - 10.5.1. Definition of Caudophagia
  - 10.5.2. Etiology
  - 10.5.3. Types of Caudophagia
- 10.6. Rabbeting
  - 10.6.1. Definition of Rabbeting
  - 10.6.2. Rabbeting Methods
  - 10.6.3. Rabbeting Consequences and Implications
  - 10.6.4. Alternatives to Rabbeting
- 10.7. Cesarean Section, Rectal Prolapse and Uterine Prolapse
  - 10.7.1. Cesarean Section Objectives and Indications
  - 10.7.2. Anesthesia and Analgesia in Cesarean Sections
  - 10.7.3. Surgical Cesarean Section Techniques
  - 10.7.4. Rectal Prolapse: Definition and Etiology
  - 10.7.5. Anesthesia and Analgesia for the Resolution of Rectal Prolapses
  - 10.7.6. Surgical Technique for the Resolution of Rectal Prolapse
  - 10.7.7. Vaginal Prolapse: Definition and Etiology
  - 10.7.8. Anesthesia and Analgesia for the Resolution of Vaginal Prolapses
  - 10.7.9. Surgical Technique for the Resolution of Vaginal Prolapse
- 10.8. Euthanasia and Animal Welfare
  - 10.8.1. Introduction and Definitions
  - 10.8.2. Animal Welfare regarding Slaughter and Euthanasia
  - 10.8.3. Stunning and Slaughtering
  - 10.8.4. Decision Criteria for Euthanasia
  - 10.8.5. Animal Management during Euthanasia
  - 10.8.6. Euthanasia Methods on the Farm
- 10.9. Swine as Experimental Animals
  - 10.9.1. Introduction
  - 10.9.2. Physiological Considerations for Swine
  - 10.9.3. Anesthetic Considerations for Swine
  - 10.9.4. Anesthetic Technique Selection
  - 10.9.5. Anesthetic Procedure Monitoring
  - 10.9.6. Anesthetic Complications

# 05 Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.



“

*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program you will be presented with multiple simulated clinical cases based on real patients, where you will have to investigate, establish hypotheses and, finally, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

*With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.*



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, in an attempt to recreate the actual conditions in a veterinarian's professional practice.

“

*Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method”*

The effectiveness of the method is justified by four fundamental achievements:

1. Veterinarians who follow this method not only manage to assimilate concepts, but also develop their mental capacity through exercises to evaluate real situations and knowledge application
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. The feeling that the effort invested is effective becomes a very important motivation for veterinarians, which translates into a greater interest in learning and an increase in the time dedicated to working on the course.



## Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

This university is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.



*Veterinarians will learn through real cases and by resolving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.*



At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology more than 65,000 veterinarians have been trained with unprecedented success in all clinical specialties, regardless of the surgical load. Our teaching method is developed in a highly demanding environment, where the students have a high socio-economic profile and an average age of 43.5 years.

*Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.*

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and relearn). Therefore, we combine each of these elements concentrically.

The overall score obtained by TECH's learning system is 8.01, according to the highest international standards.



This program offers the best educational material, prepared with professionals in mind:



### Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.



### Latest Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current and procedures of veterinary techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.



### Interactive Summaries

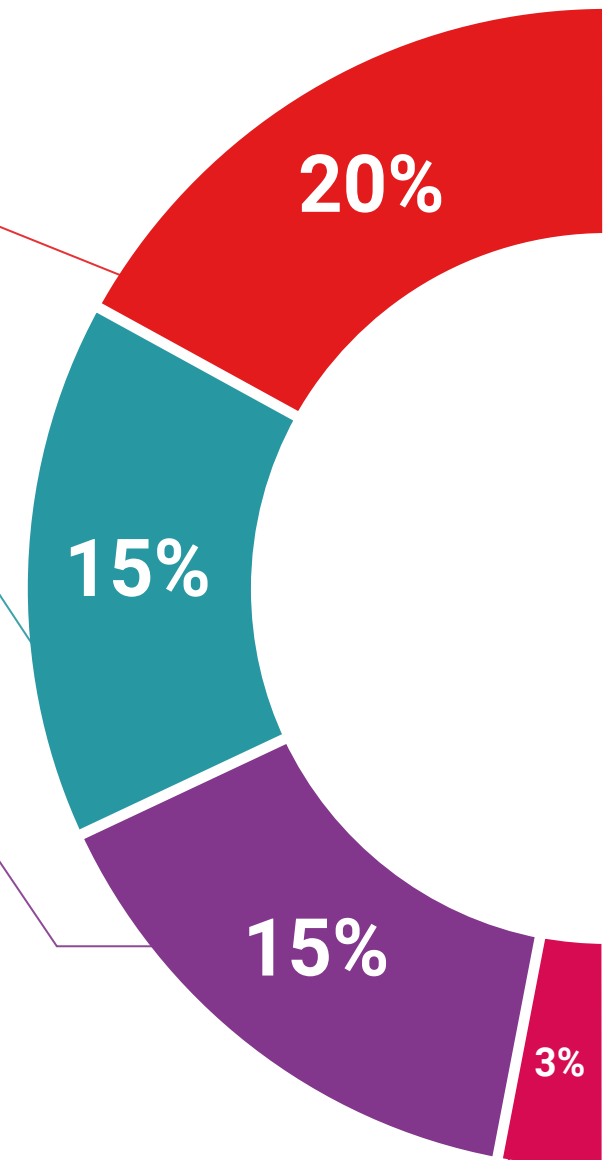
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

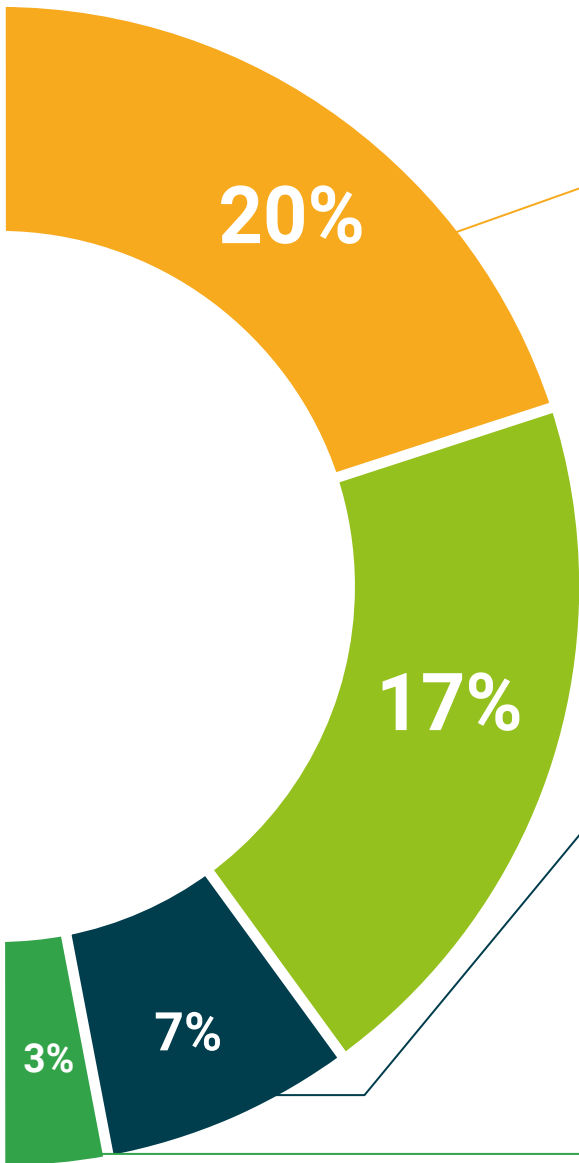
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



### Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





#### Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



#### Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.



#### Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



#### Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.



07

# Certificate

The Professional Master's Degree in Swine Production and Clinical Practice guarantees you, in addition to the most rigorous and updated training, access to a Professional Master's Degree issued by TECH Technological University.



“

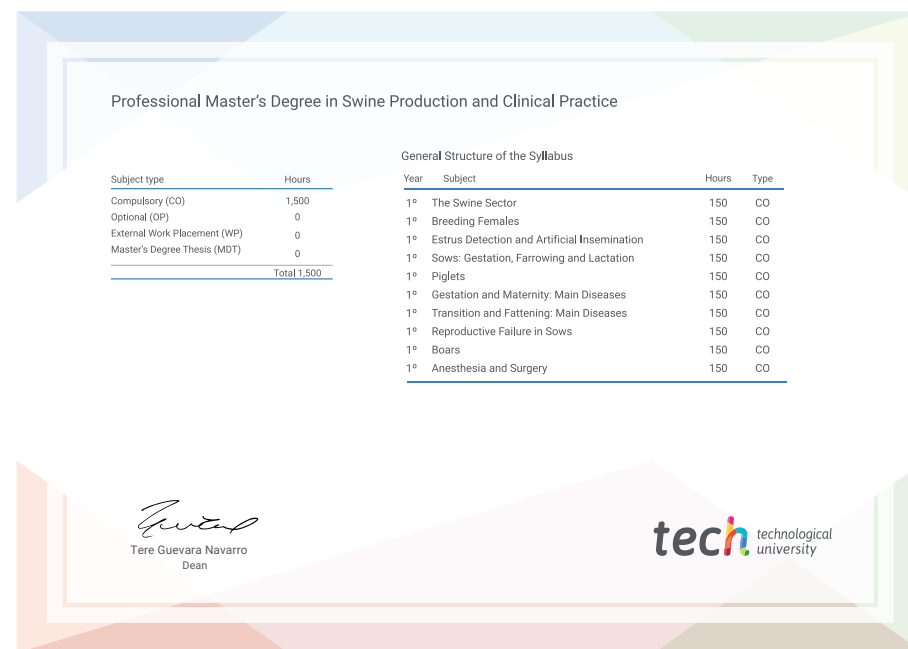
*Successfully complete this program  
and receive your university degree  
without travel or laborious paperwork”*

The **Professional Master's Degree in Swine Production and Clinical Practice** contains the most complete and updated scientific program on the market.

After the student has passed the evaluations, they will receive their corresponding **Professional Master's Degree** issued by **TECH Technological University** via tracked delivery\*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Professional Master's Degree, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Professional Master's Degree in Swine Production and Clinical Practice**  
 Official N° of Hours: **1,500 h.**



\*Apostille Convention. In the event that the student wishes to have their paper certificate issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

future

health

confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

personalized service innovation

knowledge present

online training

development languages

virtual classroom

**tech** technological  
university

**Professional Master's  
Degree**

Swine Production and  
Clinical Practice

Course Modality: Online

Duration: 12 months

Certificate: TECH Technological University

Official N° of Hours: 1,500 h.

# Professional Master's Degree

## Swine Production and Clinical Practice

