

Minnesota Dual-Training Pipeline

Competency Model for Agriculture

Occupation: Livestock Veterinary Technician

Employer-Specific Requirements

Occupation-Specific Competencies

Administer emergency first aid	Process and document medical information
Obtain relevant medical information	Perform laboratory operations
Perform basic dental work	Administer medication
Communicate with supervisors, peers, and customers	Schedule medical procedures
Assist with anesthesia procedures	Perform basic medical procedures
Monitor recovery	Restrain livestock animals
Practice personal safety	Clean and sterilize equipment or materials
	Prepare equipment for the veterinarian(s)

Industry-Sector Technical Competencies*

Large animal surgery	Preventive medicine	Pathology	Pharmacology
Physiology	Livestock production medicine	Animal behavior	Veterinary imaging
Veterinary toxicology	Anatomy	Livestock production safety	Obstetrics and animal husbandry
Food and fiber animal problems	Veterinary genetics	Large animal medicine	Immunology

Industry-Wide Technical Competencies

Principles of agriculture	Agriculture production	Biology	Quality assurance, continuous improvement	Sustainability	User and customer support	Health, safety, security
		Privacy		Chemistry		

Workplace Competencies

Teamwork	Customer focus	Planning and organizing	Creative thinking
Problem solving and decision making	Working with tools and technology	Scheduling and coordinating	
Checking, examining and recording	Business fundamentals	Sustainable practices	Health and safety

Academic Competencies

Reading	Writing	Mathematics	Science and technology	Communication	Critical and analytical thinking	Basic computer skills
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Personal Effectiveness Competencies

Interpersonal skills	Integrity	Professionalism	Initiative	Dependability and reliability	Adaptability and flexibility	Lifelong learning
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Based on: Building Blocks for Competency Models – Foundational Competencies, Employment and Training Administration, United States Department of Labor, February 2025. For more detailed information about competency model creation and sources, visit dli.mn.gov/business/workforce/agriculture.

Competency Model for Livestock Veterinary Technician

Livestock Veterinary Technician – This position supports livestock veterinarians in diagnosing and treating livestock—defined as beef and dairy cattle, swine, poultry, goats, mules, farmed cervidae, ratitae, bison, sheep, horses, and llamas (MS17.118, Subd. 2b). Responsibilities include administering medications and vaccines, assisting with surgeries, performing lab work, and cleaning and sterilizing equipment in clinical and farm settings.

*Pipeline recommends the Industry-Sector Technical Competencies as formal training opportunities (provided through related instruction) and the Occupation-Specific Competencies as on-the-job (OJT) training opportunities.

Industry-Sector Technical Competencies

Related Instruction for dual training means the organized and systematic form of education resulting in the enhancement of skills and competencies related to the dual trainee's current or intended occupation.

- **Large animal surgery**— Knowledge of orthopedic disorders, lameness, hoof and foot disorders, and abdominal surgery in large animals.
- **Preventive medicine** – Knowledge of preventive care of common domestic species; covers behavior, nutrition, vaccinology, parasite control, reproduction control, management of neonates, biosecurity, backyard poultry, and non- traditional pets.
- **Pathology** – Knowledge of the reactions of cells and tissues to injury, including retrogressive changes, cell death, pigments, circulatory disturbances, inflammation, and alterations of cell growth.
- **Pharmacology** – Knowledge of the principles of pharmacokinetics as applied to the use of antimicrobials and other drugs in agriculture animal patients; includes understanding of clinical pharmacology of antibacterial, antifungal, and antiparasitic drugs.
- **Physiology** – Knowledge of the fundamental principles of systemic physiology through survey of major organ systems, including gastroenterology, urology, and reproductive biology in livestock animals.

- **Livestock production medicine** – Knowledge of specific training and contemporary veterinary medicinal approaches to livestock practices which includes components of livestock production, disease diagnosis, control, treatment, and eradication. Livestock include beef cattle, dairy, cattle, swine, poultry, goats, mules, farmed Cervidae (deer), ratitae, bison, sheep, horses, and llamas.
- **Animal behavior** – Knowledge of abnormal and undesired animal behavior and how to diagnose that behavior as well as treat it with either behavioral or pharmacological modifications.
- **Veterinary imaging** – Knowledge of how to conduct radiography.
- **Veterinary toxicology** – Knowledge of the mechanisms by which common toxicants encountered in residential, natural, and agricultural or industrial settings exert their deleterious effects in animals; approaches to treating common toxicoses from toxicant exposure.
- **Anatomy** – Knowledge of gross and developmental anatomy of domesticated mammals, includes a carnivore dissection.
- **Livestock production safety** – Ability to safely mitigate biological, chemical, physical, and psychological hazards at the actual livestock production setting and/or at the veterinary medicine clinic.
- **Obstetrics and animal husbandry** – Knowledge of best practices for livestock animal breeding that deals with medical and surgical care of together with adjustments to the female animal in breeding, gestation, labor, postpartum and care of the newborn. Understanding of how to perform a frenotomy for large animals should be included as well.
- **Food and fiber animal problems** – Knowledge of the problem-oriented approach to food animal cases.
- **Veterinary genetics** – Knowledge of the principles of genetics and genomics, with the goals of illustrating how an understanding of these molecular biosciences enables a better understanding of the many mechanisms at play in animal health and disease.
- **Large animal medicine** – Knowledge of multisystemic infectious diseases and hematological and immunological disorders of large animal species.
- **Immunology** – Knowledge of immunology, including innate and adaptive immunity and cells and molecules involved in protection against infectious agents and cancers; an overview of antibody-antigen-based testing and immune-mediated disease.

Occupation-Specific Competencies

On-the-Job Training is hands-on instruction completed at work to learn the core competencies necessary to succeed in an occupation. Common types of OJT include job shadowing, mentorship, cohort-based training, assignment-based project evaluation and discussion-based training.

- **Administer emergency first aid** – Know how to administer emergency first aid, such as performing emergency resuscitation or other lifesaving procedures.
- **Obtain relevant medical information** – Ability to observe, receive, and otherwise obtain medical information from all relevant sources.
- **Perform basic dental work** – Know how to perform basic dental work, such as cleaning, polishing, and scaling. Will often assist veterinarian in more complicated dental tasks such as tooth extraction.
- **Communicate with supervisors, peers and customers** – Understand how to communicate information to supervisors, co-workers, and customers who work in a veterinary medicine setting with livestock by telephone, in written form, e-mail, or in person.
- **Assist with anesthesia procedures** – Understand anesthesia in livestock animals, and under the direction of a veterinarian be able to provide help to the veterinarian as anesthesia is given as well as help monitor animals' responses to anesthetics so that dosages can be adjusted.
- **Monitor recovery** – Know how to care for and monitor the condition of animals recovering from surgery.
- **Practice personal safety** – Ability to use proper medical and industry standards to maintain a safe work environment to ensure personal well-being.
- **Process and document medical information** – Know how to compile code, categorize, calculate tabulate, audit, or verify information or data for veterinary medical purposes. Also know how to properly document and record the medical information so that an animal's patient/ record can potentially be established.
- **Perform laboratory operations** – Ability to perform laboratory tests on blood, urine, or feces, such as urinalyses or blood counts, to assist in the diagnosis and treatment of animal health problems.
- **Administer medication** – Know how to prepare and administer medications, vaccines, serums, or treatments, as prescribed by veterinarians.

- **Schedule medical procedures** – Understand how to schedule medical procedures to either be performed by the veterinarian or by the farmer on a detailed timeline and schedule that promotes the health of the agriculture animals.
- **Perform basic medical procedures** – Ability to provide personal assistance, conduct basic medical care, or other personal care for livestock animals.
- **Restrain livestock animals** – Ability to restrain animals during exams or procedures.
- **Clean and sterilize equipment or materials** – Know how to clean and sterilize instruments, equipment, or materials.
- **Prepare equipment for the veterinarian(s)** – Ability to prepare and provide veterinarians with the correct equipment or instruments, as needed.

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