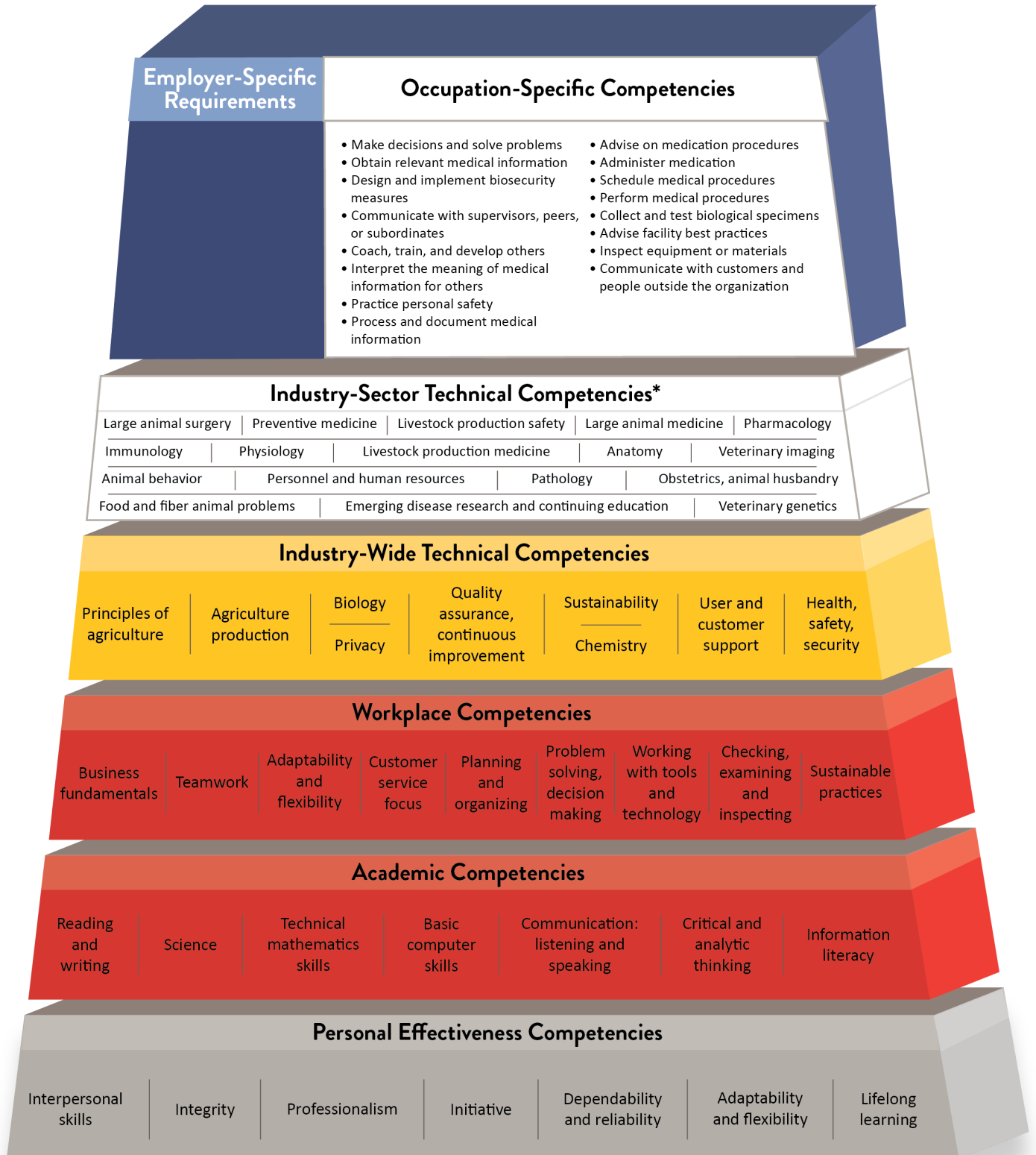


Minnesota Dual-Training Pipeline Competency Model for Agriculture Occupation: Livestock Veterinarian



Based on: Competency Model Employment and Training Administration, United States Department of Labor.

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



Competency Model for Livestock Veterinarian

Livestock Veterinarian – This position is responsible for diagnosing, treating, and/or researching diseases and injuries of livestock animals which are defined as beef cattle, dairy cattle, swine, poultry, goats, mules, farmed Cervidae, ratitae, bison, sheep, horses, and llamas ([MS17.118, Subd. 2b](#)). An individual in this role must follow the rules and requirements for becoming and operating as a licensed veterinarian in Minnesota as overseen in law by the Minnesota Board of Veterinary Medicine.

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.

- **Anatomy** – Knowledge of gross and developmental anatomy of domesticated mammals, includes a carnivore dissection.
- **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.
- **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.
- **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.
- **Physiology** – Knowledge of the fundamental principles of systemic physiology through survey of major organ systems, including gastroenterology, urology, and reproductive biology in livestock animals.
- **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.
- **Personnel and human resources** – Knowledge of principles and procedures for personnel recruitment, selection, training, compensation and benefits, labor relations and negotiation, and personnel information systems if running the individual's own veterinary business.

- **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.
- **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.
- **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.
- **Large animal surgery** – Knowledge of orthopedic disorders, lameness, hoof and foot disorders, and abdominal surgery in large animals.
- **Large animal medicine** – Knowledge of multisystemic infectious diseases and hematological and immunological disorders of large animal species.
- **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.
- **Food and fiber animal problems** – Knowledge of the problem-oriented approach to food animal cases.
- **Livestock production medicine** – Knowledge of specific training and contemporary veterinary 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, ratitae, bison, sheep, horses, and llamas.
- **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.
- **Emerging diseases research and continuing education** – Know about the latest emerging diseases that are facing livestock animals and understand how to stay informed through ongoing research and continuing education about new diseases that may impact livestock animals.
- **Veterinary imaging** – Knowledge of how to conduct radiography as well as interpret diagnostic radiographs, musculoskeletal and abdominal radiography.

Occupation-Specific Competencies

On-the-Job Training (OJT) 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.

- **Make decisions and solve problems** – Know how to analyze medical information and evaluate results to choose the best veterinary medical solution and solve livestock animal problems.
- **Obtain relevant medical information** – Ability to observe, receive, and otherwise obtain medical information from all relevant sources.
- **Design and implement biosecurity measures** – Knowledge of procedures intended to protect livestock animals against disease or harmful agents.
- **Communicate with supervisors, peers, or subordinates** – Understand how to communicate information to supervisors, co-workers, and subordinates who work in a veterinary medicine with livestock by telephone, in written form, e-mail, or in person.
- **Coach, train, and develop others** – Understand how to identify the developmental needs of others and coaching, mentoring, or otherwise helping others to improve their knowledge or skills. This will likely include veterinary technicians as well as training and coaching of farmers/ customers who will use what is taught by the veterinarian to improve their practices with agricultural animals.
- **Interpret the meaning of medical information for others** – Ability to translate or explain what veterinary medical information means and how it can be used for those who work and/or own the livestock animal.
- **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.
- **Advise on medication procedures** – Understand how to prescribe medicine for livestock animals and how to train farmers how to give medications to their animals.
- **Administer medication** – Know how to give livestock animals medication via shots, pills, intravenous, etc.

- **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 medical procedures** – Ability to provide personal assistance, conduct medical care, or other personal care for livestock animals.
- **Collect and test biological specimens** – Understand how to collect biologic specimens from the agriculture animal and know how to either perform or facilitate the performing of testing of those specimens for disease.
- **Advise facility best practices** – Understand how to advise farmers on how to ensure that their facility operations are being conducted in a manner that will optimize agriculture animal well-being.
- **Inspect equipment or materials** – Understand how to inspect equipment or materials to identify the cause or errors or other problems for livestock that may be occurring at the farm.
- **Communicate with customers and people outside the organization** – Understand how to best communicate with customers and people outside the organization, representing the organization to customers, the public, government, and other external sources. This information can be exchanged in person, in writing, or by telephone or e-mail.

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