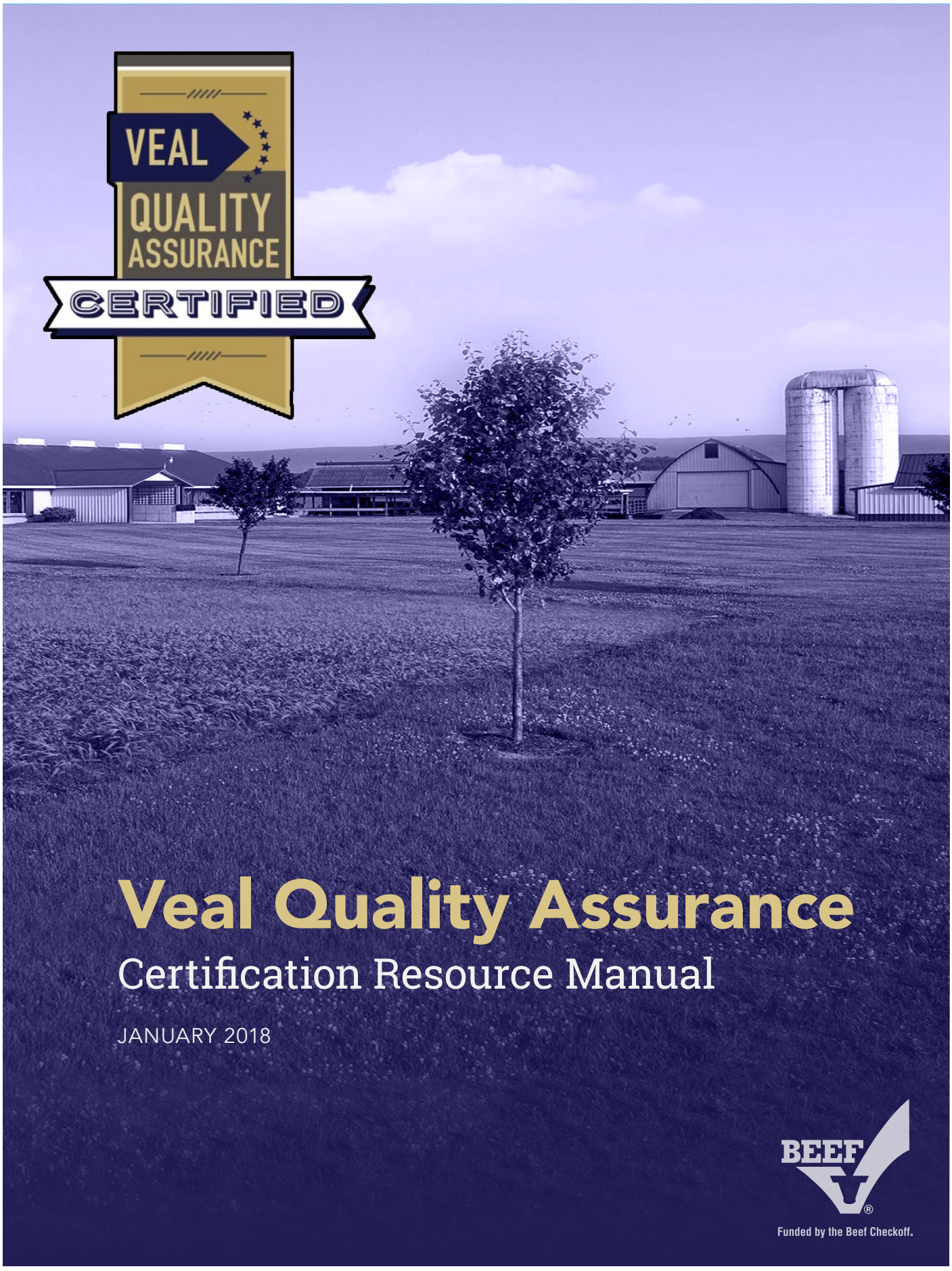

Veal Quality Assurance

Certification Resource Manual

JANUARY 2018

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Foreword

Today more than ever, consumers seek information about how their food is produced. Their interest in food goes beyond taste, nutrition, convenience and price. They desire to know how and where their food was produced, and who was involved. Most importantly, they want to know if the process and the people engaged can be trusted, and if the food reflects their values.

> The Center for Food Integrity consumer research indicates **65 percent** of consumers want to know more about farming and how their food is produced.

The goal of the Veal Quality Assurance (VQA) program is to inspire consumer trust and confidence in milk-fed veal and to demonstrate the industry's ongoing commitment to producing safe, nutritious, humanely-raised veal for their customers. Simply put, consumers, food service and retail managers, and policy makers deserve to know that they can count on the veal industry to do what's right and for the right reasons.

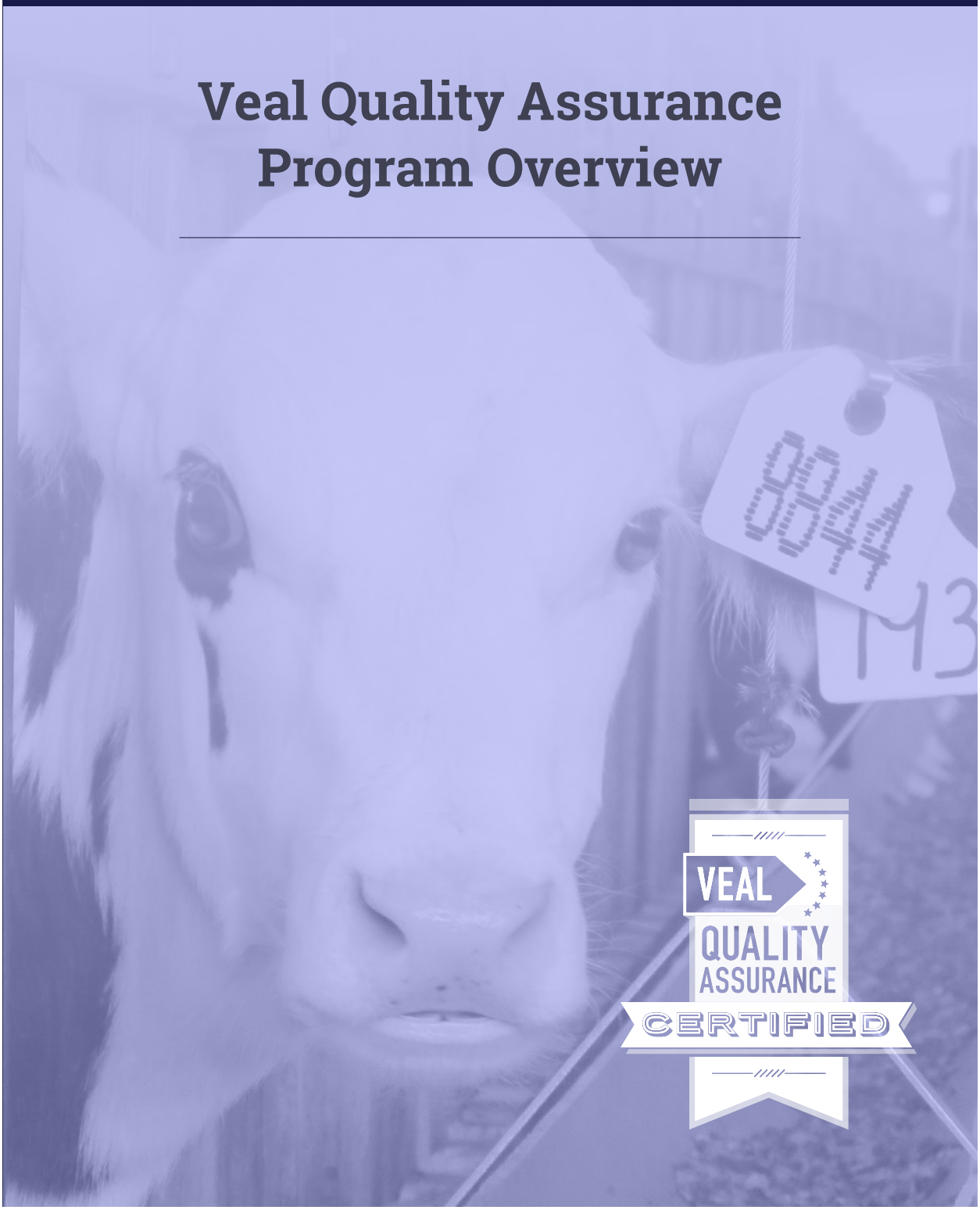
The VQA program provides veal farmers and industry leaders with the educational resources to develop and follow a comprehensive herd health plan and calf care program dedicated to producing consistent and exceptional quality veal. It also helps identify potential problem areas and solutions to ensure that every veal farmer meets the obligations and responsibilities inherent in raising animals for food.

The milk-fed veal industry has made extraordinary advancements since the practice of raising milk-fed veal was first introduced by Europe to the U.S. nearly 100 years ago. The most noticeable advancement is the voluntary commitment to shift housing practices to group pens, and the dedication to decreasing veterinary drug residues. This commitment to continuous improvement is vital to the long-term success of the U.S. veal industry.

> The Veal Quality Assurance program **does not tolerate** abusive behavior towards animals. **Any** questionable behavior should be reported **immediately** to farm management and local authorities.

Chapter 1

Veal Quality Assurance Program Overview



What is Veal?

Veal is meat obtained from young calves that originate from dairy farms. The U.S. veal industry is comprised of two major markets, milk-fed veal and bob veal.

Formula-fed Veal *(also known as milk-fed or special-fed)*

- Approximately 85% of the veal produced in the U.S. is formula-fed veal. These calves are marketed around six months old (approximately 450-500 pounds) and consume milk, grain and some roughage, which makes them very different than their bob veal counterparts.
- The VQA program provides best management practices for producing milk-fed veal.

Bob Veal

- Less than 10% of the total volume of all veal produced in the U.S. is bob veal. Bob veal calves are usually sold directly from the dairy farm to a meat processor/packer or through a sale barn to a meat processor for harvesting. Calves typically weigh less than 150 pounds.
- Dairy farmers should be very careful not to use medications that can cause residues.
- Dairy farmers should refer to and follow the best management practices for new born calves and dairy beef outlined in the National Dairy FARM program.

The success of all calves entering the veal market is **highly dependent** on early care at the dairy farm. The same principles of calf care used for dairy heifers **should be applied** to the care of bull calves, regardless if they are entering the beef or veal market.

History

The VQA program was created in 1990 to certify producers in humane care methods, general animal husbandry practices and the regulatory requirements that govern veal production.

The VQA program brings together family veal farmers, veterinarians, veal feed company nutritionists, animal health representatives, and veal packers/processors to ensure the well-being of calves as they are raised, and to produce the safest, most wholesome product possible for consumers.

In 1995, 2004 and again in 2014, the industry revised the VQA program, building on the original initiative by adding additional veterinarian oversight. In 2010 the program adopted the Ethical Standards and Code of Conduct for the U.S. veal industry. This current edition was reviewed and updated by a Technical Advisory Group in 2017.

Guiding Principles

Ethical Standards and Code of Conduct for the U.S. Veal Industry adopted by the American Veal Association (AVA) in 2010

The U.S. veal industry recognizes that consumers and customers expect us to produce food in a responsible manner – consistent with their values. To foster more confidence in our practices and promote a better understanding of our guiding principles, we affirm the following ethical standards and code of conduct for those involved in the U.S. veal industry:

Food Safety: Producing safe and nutritious food is our first responsibility

Veal farmers are expected to:

- Adopt on-farm and management practices consistent with producing safe food
- Adopt animal care practices consistent with producing safe food
- Use animal health products judiciously
- Continually review practices for improvements that protect food safety

Animal Care: We have an ethical obligation to provide appropriate care for our animals at every stage of life

Veal farmers are expected to:

- Safeguard and promote the health and well-being of animals in their care
- Provide appropriate water, food, shelter, handling and transportation at all times
- Respect the special considerations and needs of young calves
- Provide appropriate veterinary care at all stages of life, and when necessary, timely euthanasia.

Environment: We have an obligation to protect the air, land and water on which we all depend

Veal farmers are expected to:

- Conserve and manage manure and other nutrients as a resource
- Assure that production and other management practices protect our natural resources, including land, air and water
- Continually review environmental management activities for improvement and sustainability

Employees: We have an ethical responsibility to provide a safe, healthy and rewarding work environment for our employees

Veal farmers are expected to:

- Treat every employee with dignity and respect
- Provide proper education and training in all areas of farm management and animal care
- Promote a safe and healthy work environment
- Promote understanding of and adherence to veal industry ethical principles

Community: We have a duty to promote a quality way of life in the communities where we live and work

Veal farmers are expected to:

- Actively participate in activities that strengthen the community
- Engage neighbors and the community in an open and honest manner
- Resolve to listen to and address reasonable community concerns
- Seek to leave the community and natural resources in a better condition for future generations

Food Safety, HACCP and VQA

The USDA Food Safety and Inspection Service (FSIS) requires meat packing plants to adopt the Hazard Analysis and Critical Control Point (HACCP) food safety system. HACCP is designed to protect public health through food safety by addressing problems proactively to identify and limit potential hazards before they are in danger of reaching the consumer. The veal farmer has a responsibility under the packer's HACCP plans to provide animals that are free from harmful residues of antimicrobials and other known concerns. Farmers should also follow VQA recommended practices to reduce bruises and injection site blemishes as well as follow practices that assist in reducing the burden of food borne pathogens.

Currently, packers address microbial contamination at the plant although producers certainly help with that responsibility by presenting healthy and clean animals that are free from any prohibited products for processing.

The seven basic principles of the HACCP system include:

1. Conduct a Hazard Analysis
2. Determine Critical Control Points
3. Establish Critical Limits
4. Establish Monitoring Procedures
5. Establish Corrective Action
6. Establish Record Keeping and Documentation Procedures
7. Establish Verification Procedures

VQA has embraced the principles of HACCP as part of its guidelines. Proactively recognizing and correcting potential hazards is an achievable best practice. Each farmer, service representative and veterinarian continually completes the "HACCP circle" as they identify, monitor, correct, verify, and record each step in raising VQA-certified veal.

Licensed veterinarians who maintain a Veterinarian-Client-Patient-Relationship **(Appendix A)** play a **critical** role in the certification process to assess that best management practices are being followed on farms raising milk-fed veal. Industry representatives provide program leadership to veal farmers and employees with ongoing education and assistance.

Program Components and Requirements

The VQA program is a collection of science-based best practices and standards developed by farmers, veterinarians and other industry experts to ensure that veal calves receive quality care through every stage of life and are raised using production standards that result in a safe, wholesome, high quality product that meets regulatory and customer expectations. Specifically, VQA is designed to address all aspects of animal care and on-farm practices that will enhance veal calf well-being and veal quality.

As part of the VQA certification process, veal farmers must comply with best management practices **(Appendix B)** outlined in the following areas:

- Animal Health
- Feed and Nutrition
- Housing and Facilities
- Handling and Transportation
- Overall Management

Certification Requirements

To be VQA certified, each farm and its owner/manager producing milk-fed veal must:

- Maintain a Veterinarian/Client/Patient/Relationship (**Appendix A**)
- Adhere to the best management practices (**Appendix B**) outlined in each section of the VQA manual
- Have a licensed veterinarian (preferably the one identified in their VCPR) assess and provide documentation that Best Management Practices are being followed (**Appendix C**)
- Participate in a VQA educational presentation by an industry representative, and document completion of the training
- Complete and pass a VQA test following the educational presentation
- Continually review practices for ongoing improvement and innovation on the farm

Re-certification is required every three years.

Veterinarians and industry representatives are certified to administer the VQA program through participation in a training webinar, completion of a thorough review of the VQA certification program materials, and passing an examination demonstrating their competency on the VQA best management practices and technical production knowledge.

Submit completed VQA Certification documentation (Appendices A, B & C) to:

Veal Quality Assurance Program
2900 NE Brooktree Lane, Suite 200
Gladstone, MO 64119

The VQA program and resource materials are intended for educational purposes **only**. It is **not** a legal document. Veal farmers are individually responsible for determining and complying with **all requirements** of local, state and federal laws and regulations regarding all aspects of animal care and production practices.

2017 VQA Technical Advisory and Review Group

Developed by farmers, veterinarians, animal health specialists, feed and nutrition consultants, and other animal care experts, the VQA program provides educational resources and Best Management Practices necessary to ensure that those who care for veal calves meet their ethical obligation to the animals' health and well-being through responsible, science-based best practices and standards.

Members of the group include:

Marissa Hake, *DVM, MPH, Strauss Veal Feed*
Rich Sommers, *DVM*
Don Höglund MS, *DVM, Dairy Stockmanship*
Jim Metz, *DVM, Animart LLC*
Dale Bakke, *Marcho Farms, president of the American Veal Association*
Annie Dubuc, *Delimax (on behalf of Catelli Brothers)*
Robert Supancik, *Formula One Feeds*
Jurian Bartelse, *Provitello Farms, New York veal farmer*
Chris Landwehr, *Wisconsin veal farmer*
K. Fred Gingrich II, *DVM, American Association of Bovine Practitioners*
Keith York, *Wisconsin dairy farmer, Beef Board Consumer Confidence Committee*
Dan Kniffen, *PhD, Penn State, Beef Faculty/Extension, National Beef Quality Assurance Program Chairman*
Tiffany Lee, *DVM, PhD, North American Meat Institute*
KatieRose McCullough, *PhD, North American Meat Institute*
Donna Moenning, *Program Manager and Facilitator, Look East*

In addition, content from the National Dairy FARM and Beef Quality Assurance programs were reviewed and included as it related to veal production practices.

Funding and Management

Every beef and veal farmer, and every beef or veal importer, contributes to a fund called the national beef checkoff, which is used to support the Veal Quality Assurance Program. This program is administered by the North American Meat Institute, a contractor to the beef checkoff.

BEEF®
Funded by the Beef Checkoff.

Contact Information

PROGRAM MANAGER
Donna Moenning • DonnaM@LookEast.com

For more information and resources, visit **VEALFARM.COM**

Chapter 2

Animal Health

Calf Health – A Team Effort

A healthy calf is a priority at the farm. Veal calves have special animal health needs as young calves have not developed a strong defense system and are more prone to challenges associated with stress.

Veal farmers have an ethical obligation to provide each animal with appropriate quality care through each stage of life. This can best be achieved by establishing on-farm protocols and training that seek to maximize animal health while minimizing stress, disease and pain. In conjunction with providing essential nutrition, access to water, and a clean, comfortable environment, timely and appropriate response to treating sickness or disease is important. By working directly with a veterinarian to establish a comprehensive herd-health program, veal farmers are able to provide quality animal care, prevent disease and determine the best option for addressing any animal health concern.

Best Management Practices Checklist

- ❑ A veterinarian has been identified and a **valid** VCPR has been established to assist in planning and conducting the animal health program.

- ❑ **Appropriate** personnel have been provided **proper** training and contact information for the veterinarian.

    - ○ A training manual for this should be **developed**, training by employees should be **documented** in this manual and it should be kept **on site**.

- ❑ All medications and other AHCPs used are **labeled** to meet the requirements of the Food and Drug Administration (veterinarian, active ingredient(s), dosage, frequency, and duration of treatment, methods of administration, withdrawal times, and expiration date.) Treatment protocols should be in a **notebook** and kept **on site**.

- ❑ Everyone having access to the medications is familiar with the farm's record keeping system, follows the information on the **medication label** and knows the importance and methods of **keeping accurate records**. This should be **documented** in the training manual.

- ❑ **All** animals are identified by **ear tags**. The identity of animals is necessary for properly recording the treatment of individual animals in a record system.

- ❑ A withdrawal table, provided by the veterinarian, is **clearly displayed** and is used along with the labeled information on the product container to determine withdrawal times. Monitor withdrawal times and dates **carefully** and document them in records.

- ❑ Medications and other animal health care products (AHCPs) should be obtained from a **reputable** supplier, **properly** stored and disposed of according to label directions.

- ❑ A few pens in a **designated area** of the barn should be used to place sick or injured calves; ideally, these calves should be placed in an isolation area **separate** from the main calf housing room(s).

- ❑ **All calves** are checked carefully at least **twice daily**, and preferably three or more times each day. Any necessary health-care action is taken **immediately**, either by contacting the veterinarian or by administering the treatment prescribed by the veterinarian for other calves in the same group with similar symptoms.

- ❑ The **veterinarian**, or a **diagnostic laboratory**, conducts tests on feces, urine, blood, or other appropriate tissues from sick animals in order to identify: (A) the organisms or diseases that have caused the sickness, and (B) medications that are most effective in treating the sickness.

- ❑ In consultation with a **veterinarian**, veal farmers should establish **on-farm protocols** for monitoring and determining when euthanasia is the best option for sick or injured calves.

Establish a Veterinarian-Client-Patient Relationship (VCPR)

(Appendix A)

To diagnose, treat and manage herd health, farmers must establish a veterinarian/client/patient relationship (VCPR) with a licensed veterinarian. A valid veterinarian-client-patient relationship is one in which:

> **(1)** A veterinarian has assumed the responsibility for making medical judgments regarding the health of (an) animal(s) and the need for medical treatment, and the client (the owner of the animal or animals or other caretaker) has agreed to follow the instructions of the veterinarian;
>
> **(2)** There is sufficient knowledge of the animal(s) by the veterinarian to initiate at least a general or preliminary diagnosis of the medical condition of the animal(s); and
>
> **(3)** The practicing veterinarian is readily available for follow-up in case of adverse reactions or failure of the therapy regimen.

Such a relationship can exist only when the veterinarian has recently seen and is personally acquainted with the keeping and care of the animal(s) by virtue of examination of the animal(s), and/or by medically appropriate and timely visits to the premises where the animal(s) are kept.

Administering Animal Health Care Products (AHCP)

Procedures

To ensure calf comfort, use proper care while restricting calf movement when the AHCP is administered. All calf caretakers should be trained in proper animal handling procedures to minimize calf stress and the possibility of personnel or calf injury.

Follow label instructions to determine the optimal method of administration unless a veterinarian prescribes a different use of the medication. All persons helping to care for, feed or treat calves should receive proper training and supervised practice in administering AHCPs prior to administering these products by themselves.

Administration Methods

There are several methods by which medications can be administered. **(Appendix D)** Subcutaneous (SQ) administration is the preferred method if the AHCP is labeled for Intramuscular (IM) or SQ administration. Injections should be limited to 5 cc per IM injection site. No more than 10 cc of the AHCP should be deposited in one site if SQ administration is used.

- Oral – as a drench, bolus or pill
- Subcutaneous (SQ) – beneath the hide on the side of the neck only
- Intramuscular (IM) – neck muscles only
- Intravenous (IV) – in the jugular vein (neck)
- Topical – applied to the outside of the hide (usually along the back)

Definitions of Prescription, Extra Label and Veterinary Feed Directive Medications

Prescription Drugs: Drugs that are labeled with the statement "Federal law restricts this drug to use by or on the order of a licensed veterinarian" must be prescribed and used within the context of a valid VCPR. This includes injectable and water-soluble antimicrobials.

Extra Label: As its name implies, "Extra Label" means a veterinarian has advised using a medication in a way not specified on the label or package insert. The extra-label use of AHCPs is allowed under the Animal Medicinal Drug Use Clarification Act of 1994. Under AMDUCA, the FDA recognized the professional judgment of veterinarians, but in order to be prescribed in an extra label manner, a valid VCPR must exist. When veterinarians authorize giving a higher dose of drug than is listed on the label or package insert, using a drug to treat a disease not listed on the label or package insert, or treating another type of animal (e.g., veal calf as opposed to a heifer calf replacement), they are prescribing drugs in an "extra-label" manner.

Only a veterinarian may use or advise using a drug in an "extra-label" manner, and then only with strict limitations. It is illegal for a veal farmer, as a layman to use medications in a manner not specified or allowed on the label, unless instructed by a veterinarian with whom the farmer has a valid VCPR. Failure to comply with this policy could result in prosecution under the federal Food, Drug and Cosmetic Act. Note that label information can be obtained for most AHCPs electronically.

Veterinary Feed Directive (VFD) Medications – A VFD drug is intended for use in animal feeds, and such use of the VFD drug is permitted only under the professional supervision of a licensed veterinarian. Fluid milk and milk replacer is considered a feed, thus requires a VFD from your veterinarian. A VFD drug may not be used in an extra-label manner. A written VFD from your veterinarian is only good for a 6-month duration.

FDA Oversight

All animal medicines are required to meet stringent FDA standards, including significant human and food safety benchmarks, prior to approval. Compared to other livestock species, a limited number of AHCPs are approved for use in veal calves. Work with your veterinarian to determine which drugs are allowed for use in veal calves.

Dairy farmers should note that when anticipating selling male bull calves to a veal farm or if selling calves to be harvested as bob veal, many medications approved for use in dairy calves are prohibited for use in veal calves and will quickly cause violative residues when administered to veal calves. Avoid any products with the statement "not for use in calves to be processed for veal".

Hormone implants are strictly prohibited for use in veal calves.

Farmers should consult **FARAD's VetGRAM** search for products that are approved in veal: http://www.farad.org/vetgram/search.asp

Food Animal Residue Avoidance Databank (FARAD)

FARAD is a national, USDA-sponsored, cooperative project, with a primary mission to prevent or mitigate illegal residues of drugs, pesticides and other chemicals in foods of animal origin. Producers should work with the veterinarian with whom they have a valid VCPR for drug residue information first. The veterinarian is the ideal resource to discuss FARAD-specific information regarding withdrawal times, especially for extra-label drug use.

FARAD provides the following services:

- Advice on residue avoidance or mitigation
- VetGram search for required withdrawal times for approved food animal drugs
- FARAD-recommended withdrawal intervals for extra-label use of approved food animal drugs

Visit farad.org for more information.

All AHCPs are approved by the Food and Drug Administration (FDA) only after the manufacturer demonstrates that when given according to label directions, the AHCP was effective in accomplishing the purpose for which the product was approved without causing violative residues.

The FDA requires that medications used at the farm must have the following information contained on the label of each bottle or container.

- Name and address of the veterinarian or other source
- Active ingredients in the product
- Species for which the drug is approved
- Diseases or conditions for which the drug is approved
- Directions for use including dosage, frequency, route of administration and how long the treatment should be administered
- The specified withdrawal time and expiration date for the product
- Any cautions by the veterinarian, such as not using the medication with other specified medications or compounds (including warnings about possible adverse reactions)

Euthanasia

Providing quality care is the priority of veal farmers, but occasionally, when calves cannot recover from illness or injury, euthanasia is the most humane option. In consultation with their veterinarian, veal farmers should establish on-farm protocols for monitoring and determining when euthanasia is the best option for sick or injured calves. The on-farm protocols should include proper training of employees.

Euthanasia Guidelines

- Veal farmers consult with their veterinarian to determine the options and guidelines for euthanizing such animals in accordance with practices outlined by the American Vet Medical Association (AVMA) and state law.
- The veterinarian routinely conducts an extensive post-mortem evaluation (with pathogen identification) to determine the cause of sickness or death and to monitor the efficiency of treatments.
- Carcass disposal is conducted in accordance with state laws and guidelines.

Storage of Animal Health Care Products

Medications and other animal health care products (AHCPs) should be obtained from a reputable supplier and properly labeled. It is also essential to follow label instructions for storing and administering AHCP. For example, a label may state that the entire bottle should be used within a certain time period and then be discarded. Those instructions are important for maintaining the safety and effectiveness of the product.

Administer AHCP using the approved route or method of administration. A correct delivery route makes the AHCP most effective. In addition, inappropriate delivery methods may cause trauma, prolonged withdrawal times, or inactivity of the AHCP. Improper techniques (such as contaminated needles, syringes or storage bottles) can also transfer disease-producing organisms from one calf to another or to animal caretakers. Clean, sharp needles are recommended.

AHCP Storage and Disposal Recommended Guidelines

- Store AHCPs according to label instructions; most medications from which some product has been used should be stored in a refrigerator at constant temperature of 35-45°F. Coolers are not an appropriate form of permanent storage.
- Antiseptics, wound dressings, vitamin or mineral products, and other products that do not require refrigeration can be stored in cabinets. Store in cool, dry conditions. Re-seal containers as much as possible between uses.
- A thermometer is kept in the refrigerator to determine if the temperature is accurate; discard any vaccines, medications or other AHCPs that become frozen.
- Sanitize the tops of bottles that have been opened, and from which some product has been withdrawn (e.g., with alcohol), before storing and just prior to reuse.
- Store AHCPs in a refrigerator, special cabinet, separate room or other protected area that can be locked.
- Use a new or sanitized needle for each animal injection to minimize disease transmission and contamination.
- Keep syringes, needles and other administration supplies in their individual wrappers until use, then thoroughly clean, sanitize, and store in airtight plastic containers, or discard.
- Syringes to be used for modified live virus vaccines (MLV) should be thoroughly rinsed with sterile water or saline after disinfecting to remove any disinfectant residue; disposable needles and syringes are preferred.
- When withdrawing AHCPs from bottles, a new, clean needle should be placed in the bottle but not used to inject the product into the calf, thereby reducing the chance of transmitting

organisms calf-to-calf; transfer needles are used for mixing products such as MLV vaccines.

- Never leave needles or syringes in the AHCP container between uses.
- Do not mix different AHCP in syringes.

Disposal

Return outdated drugs to the supplier. Empty bottles of medicine – biological or pharmaceuticals – must be disposed in a landfill and cannot be recycled.

- **DO** immediately place used needles and other sharps in a sharps disposal container to reduce the risk of needle sticks, cuts or punctures from loose sharps.
- **DO** use an FDA-cleared sharps disposal container, if possible. If an FDA-cleared container is not available, consult your veterinarian regarding appropriate disposal containers and methods including:
  - ...where and how to get an FDA-cleared sharps disposal container,
  - if they can dispose of your used needles and other sharps, or
  - if they know of sharps disposal programs near you.
- **DO** keep all sharps and sharps disposal containers out of reach of children and pets.
- **DO** ask the manufacturer of your drug products that are used with a needle or other sharps if they provide a sharps disposal container to clients at no charge.
- **DON'T** throw loose needles and other sharps into the trash.
- **DON'T** flush needles and other sharps down the toilet.
- **DON'T** put needles and other sharps in your recycling bin -- they are not recyclable.
- **DON'T** try to remove, bend, break, or recap needles used by another person. This can lead to accidental needle sticks, which may cause serious infections.
- **DON'T** attempt to remove the needle without a needle clipper because the needle could fall, fly off, or get lost and injure someone.

Record Systems

Keeping proper and timely records is vital to any animal health program and achieves several goals:

- Assures documentation of proper use of all medication, vaccinations and animal health products at the farm
- Indicates when it is necessary to reorder commonly used products
- Helps determine whether products have been misused or taken from the farm
- Identifies effective treatments for future herds by establishing records of what treatments were effective for specific concerns
- Documentation of the herd health records, which is required by FDA for two years after marketing a group of calves. Keeping accurate records is required by law.

Document the items below in an animal health treatment record. Sample record forms are provided below.

- Animal identification
- Product used
- Treatment date
- Duration of treatment and follow-up treatments
- Dosage
- Withdrawal time
- Method of administration
- Person administering the medication
- Disease or impairment being treated

VQA recommends that using a coding system for animal observation as a way to trace the health status of each calf and to pass on information from one calf caretaker to another. Such systems can also help you identify sub-quality calves or calves with potential volatile residues. On the following page are sample observation codes.

EXAMPLE Calf Observation Codes

NEED FOR OBSERVATION

1 Watch	2 Questionable	3 Not Good	4 Bad

SYMPTOMS

HB Heavy Breather	S Sunken Eyes	¼ Refused 3/4	LL Left a Little
RN Runny Nose	D Droopy Ears Appetite	½ Refused 1/2	
L Loose	0 Did Not Eat	¾ Refused 1/4	

Record Keeping Forms

Animal Health Product Inventory (Form 1)
This form is designed to help you keep track of all product purchases, including date purchased, the amount received, lot numbers, and the company from which these products were purchased. Receipts, packing slips, and other information about each shipment of AHCPs are retained for at least two years after calves are marketed.

Individual Animal and Group Treatment Record (Form 2)
This form helps you keep records of the medication or AHCP given to each calf. These records are saved in a file for at least two years after each group of calves has been marketed.

Daily Animal or Group Treatment Record (Form 3)
This is a convenient barn record that can be carried each time you check/treat calves. These records can be transferred to a more permanent file such as Form Number 2 discussed above.

Individual Calf Treatment Record (Form 4)
Sometimes it is more convenient to have an individual calf treatment record for each calf in the room, perhaps fastened to the stall or pen in a plastic cover. This information can be transferred to a more permanent record such as Form Number 2 above.

Withdrawal Table: Ask your veterinarian to provide a table that lists all withdrawal times for your AHCPs.

Animal Health Product Inventory

Form 1

Grower's Name _____ VQA Certification No. _____

Room/Group No. _____ Start Date _____ Market Date _____

Date Purchased	Name of Medication	Amt. Received; Bottles/Bags/etc.	Lot No.(s)	Supplier	Initials

Individual Animal Group Treatment Record

Form 2

Grower's Name _____

Calf # or Group Trt.	Treatment Date AM		PM	Medication Used	Dosage Amount	Route of Admin.	Withdrawal Time	Initials	Comments

Daily Animal or Group Treatment Record

Form 3

Grower's Name _____ Room/Group No. _____ / _____

Start Date _____ Market Date _____

Day _____ Date _____ Initials _____ Day _____ Date _____ Initials _____

Day _____ Date _____ Initials _____			Day _____ Date _____ Initials _____		
Calf # or Group Trt	**Treatment/ Dosage, Administration Route**		**Calf # or Group Trt**	**Treatment/ Dosage, Administration Route**	
	AM	**PM**		**AM**	**PM**
	/	/		/	/
	/	/		/	/
	/	/		/	/
	/	/		/	/
	/	/		/	/
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	/	/		/	/

Day _____ Date _____ Initials _____			Day _____ Date _____ Initials _____		
Calf # or Group Trt	**Treatment/ Dosage, Administration Route**		**Calf # or Group Trt**	**Treatment/ Dosage, Administration Route**	
	AM	**PM**		**AM**	**PM**
	/	/		/	/
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Individual Calf Treatment Record

Form 4

Calf No. _____ Start Date_____ Market Date_____

Date	Product Used	Dosage/ Admin Route	Initials	Comments

Date	Product Used	Dosage/ Admin Route	Initials	Comments

Calf No. _____ Start Date_____ Market Date_____

Date	Product Used	Dosage/ Admin Route	Initials	Comments

Date	Product Used	Dosage/ Admin Route	Initials	Comments

Guidelines for Immunizations

Collaborating with veterinarian and other specialists to create an immunization program plays an important role in keeping calves healthy. However, vaccination programs for veal calves have sometimes given unpredictable responses. There are several reasons for this lack of predictability.

Maternally derived antibodies, provided through colostrum, may partially inhibit the calf's own immune responses and interfere with the effectiveness of vaccines. In addition, almost any environmental factor or management practice that causes distress to the calf will decrease the ability of the vaccine to "immunize" the calf. Most pharmaceutical companies are investing in research and development programs to improve the effectiveness of vaccines, and several of these developments have made vaccination programs in veal calves more predictable. Veterinarians and other specialists help plan and coordinate vaccination plans. The specific vaccination program depends on the disease prevalence where the calves originate, and the location/background of the veal barn.

The information provided here **does not replace** the advice of a veterinarian and is intended to provide a **better understanding** of the benefits and shortcomings of vaccination programs.

Most veterinarians servicing veal production units communicate with each other to determine the success of different vaccination programs and vaccines.

Some o f the diseases that are usually considered in a vaccination program for veal calves are:

Diseases	Signs
Infectious Bovine Rhinotracheitis (IBR)	Cough, fever, red nose, pinkeye
Parainfluenza-3 (PI3)	Cough, fever, nasal discharge
Bovine Respiratory Syncytial Virus (BRSV)	Fever, cough, fluid accumulation in lungs
Bovine Viral Diarrhea (BVD)	Eye or nasal discharge, mouth sores, diarrhea, incoordination
Haemophilus somnus, "Thrombo," TEME	Pneumonia, fever, nervous system signs, "downers," incoordination, arthritis
Enterotoxemia	Sudden death, diarrhea, weakness
Pasturella-multocida	Pneumonia, swollen joints, dropped ears, fever
Mannheimia hemolytica (similar to P. Multocida family)	Pneumonia, swollen joints, dropped ears, fever, depressed immune system

The timing of vaccines is important. In most cases, calves respond best to viral vaccines if given a few days to one week after the calf arrives at the farm. Because of stress and other factors, animals do not respond as well to vaccines upon arrival at the farm. The viral vaccine is repeated two to three weeks later.

When giving multiple injections (vaccines or drugs) designate a side and location that each injection should always be given. This will help avoid interactions between products. Never give vaccines and antibiotics in the same location. Make sure bacterial and viral vaccines are given in different locations.

Modified Live Vaccines (MLV) tend to produce a broader spectrum of protection. MLV vaccines require special handling, since once a vial is mixed, it must be used within a few hours. In addition, alcohol or other disinfectants should not be used to sanitize syringes or needles unless rinsed thoroughly with sterile water.

Intranasal vaccines are a special class of MLV. They cause minimal stress, produce rapid nonspecific protection in the upper airway, and do not interfere with the use of other vaccines later.

Killed vaccines are safe for all classes of animals. A few doses can be used at a time from a bottle (assuming aseptic techniques), require a booster 2-to-4 weeks after the first dose, and tend to give a slower immune response.

Bacterial agents may be included but are more controversial in their cost effectiveness. Use should be evaluated on an individual farm basis. Some vaccines useful in certain farm situations include Clostridium perfringens types C and D, E. coli, Salmonella spp, Pasturella, Mannheimia, and Haemophilis.

Immunization Checklist

- ❑ **Discuss** and **plan** your vaccination program with your veterinarian.
- ❑ Obtain **necropsy, blood titer levels**, and **culture analyses** through your veterinarian and/or diagnostic laboratory. This information allows the farm and the veterinarian to have a **more** accurate knowledge of the diseases that should be addressed in the vaccination program.
- ❑ Allow calves a **three- or four-day rest period** after arrival **before** vaccinating. Some veterinarians may recommend that an intranasal vaccine or all vaccines be given at arrival. Follow your veterinarian's advice and use a follow-up dose **between 6 and 10 weeks of age** (depending on facility.) **Do not** vaccinate sick or stressed calves unless recommended by the veterinarian.
- ❑ **Purchase** current dated, refrigerated vaccines from a **reliable source** and keep vaccines refrigerated until using.
- ❑ Follow label directions **exactly**, retain labels from the vaccine containers, and give the recommended dose by a recommended method. **The four methods of applying vaccinations are**:
  - ○ **Intramuscular (IM)** – Because of the blood supply in muscle tissue, substances injected into the muscle are distributed by the blood to all tissues of the body quite rapidly. If IM administration is used, inject in a low-value muscle, preferably in the shoulder to reduce potential muscle irritation. A 3/4 or 1-inch long, 18-gauge needle is usually used for IM injections in calves.
  - ○ **Subcutaneous (Sub-Q)** – Practically all types of vaccines can be given Sub-Q. Since the needle does not enter the muscle, there is much less chance of muscle irritation or injection site blemish, and still the product administered is effectively distributed throughout the calf's body. Sub-Q products are usually administered on the side of the neck. The hide is grasped between the thumb and forefinger to create a "tent," with a space beneath the skin into which the vaccine is deposited. The needle should be inserted at about a 30o angle to the skin. A needle 1- inch in length and 18- gauge in diameter is recommended.
  - ○ **Intranasal (IN)** – These vaccines are packaged with aerosol applicators that fit on the end of a syringe to distribute the vaccine into the nasal passages. This special applicator is used to squirt aerosol droplets quickly through the nasal passages. Some of the recent developments in vaccines use this method of administration; it appears that some IN vaccines are more effective in young calves than IM or Sub-Q.
  - ○ **Oral** – Only a few orally-active vaccines are available and most are used in newborn calves. A disposable plastic syringe containing the vaccine is placed at the side of the calf's mouth and the vaccine is slowly discharged into the mouth. Hold the calf until all the vaccine is swallowed, and the calf's head should be slightly elevated while the vaccine is being administered.
- ❑ Use **sterile, disposable syringes** to administer vaccines. **Label** syringes for **each** vaccine used to prevent contamination between products.
- ❑ **Do not use** unnecessary vaccines or mix vaccines unless directed by your veterinarian.
- ❑ Know that **modified live vaccines (MLV)** are susceptible to inactivation with time after mixing the two separate products (powder and liquid or diluent portion) obtained when the vaccine is purchased, and to such sanitizing agents as alcohol. If alcohol is used either on the hide of the animal before injection, on the needle, or in the syringe, the needle and syringe **must be thoroughly rinsed** with either sterile water or saline solution prior to use. It is **best** to use disposable syringes and needles and **not** use alcohol when a MLV product is involved.
- ❑ **Keep careful records** as to the types of vaccines used on different groups of calves, the age of the calves when the vaccines are administered, and the source of the products.

Chapter 3

Feed, Water & Nutrition

Best Management Practices Checklist

- ❑ Work with a **reputable nutrition expert** to provide quality feed that meets the nutritional requirements of veal calves and contains the nutrition necessary to maintain health, growth and energy.

- ❑ Veal calves provided grain should be fed a **high-quality** starter that promotes rumen development.

- ❑ Feed should have **proper** protein and fat levels for the age and size of the calf.

- ❑ Feed mixing and distribution equipment should be designed to facilitate **easy, thorough cleaning and sanitizing**.

- ❑ Buckets, bottles and all equipment used for mixing or distributing feeds should be **completely** cleaned and sanitized **daily** between uses.

- ❑ **Maximize** water intake immediately upon arrival of the calves.

- ❑ All calves should have access to **clean, fresh water** to maintain proper hydration from the first day of life.

- ❑ Every barn should have access to an **adequate** and **reliable hot water** supply necessary for appropriate feed-mixing and equipment sanitation.

- ❑ Animal caretakers are trained in **calf care, nutritional requirements** and **feeding techniques**, including the use of esophageal tube feeders and other feeding mechanisms.

- ❑ Maintain **close communication** with your feed representative and keep the representative **informed** about the progress and **any** health complications of the calves.

Nutrition

Veal calves should be provided adequate nutrition and water through every state of life to promote growth and development, disease abatement and thermoregulation. Although dairy products and by-products, particularly whey protein concentrate, still form the basis for most veal feeds, there are alternative nutrient sources that give satisfactory results when the ingredients are combined correctly and thoroughly tested through research and development. Veal farmers should work with reputable experts (animal nutritionist, veterinarians, feed company representative, etc.) to design a nutritional program for veal calves. As a reminder, higher milk intakes will result in looser feces but this is not always associated with increased diarrhea or other health problems.

The environment can also have a substantial impact on calf growth. A clean housing facility will help limit the influence of infectious agents (bacteria, viruses and protozoa) on calf growth. Steps should be taken to limit calves' ingestion of manure and the infectious agents it may carry. Special attention to cleaning all calf-feeding equipment daily is necessary for calf health and development. **(Appendix E)**

Water

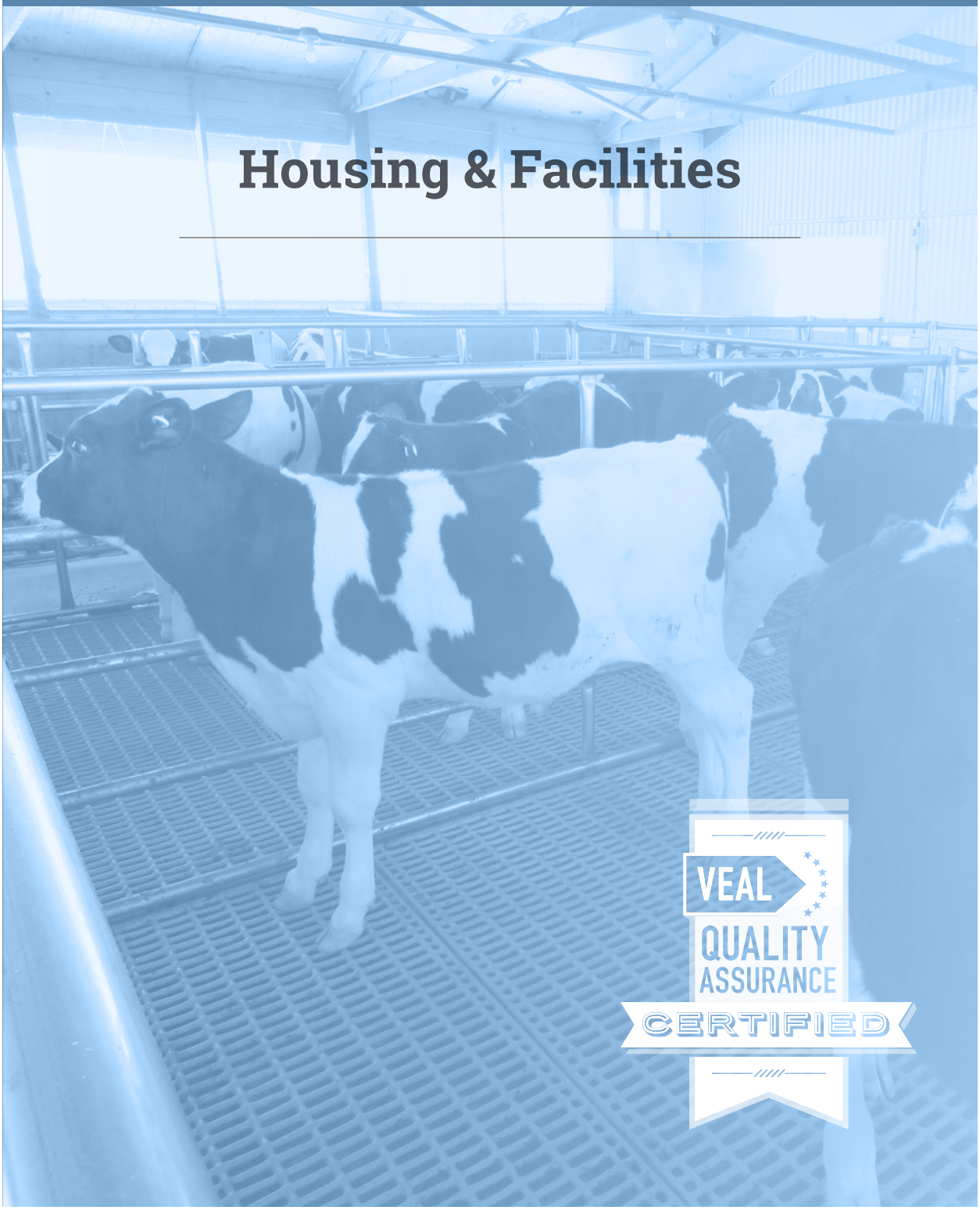
All calves should have access to fresh water to maintain proper hydration from the first day of life. Feeding milk or replacer should not be a substitute for water. Water used with milk replacers needs to be fresh, palatable and free of contaminants. Water analyses should be performed annually to monitor water quality.

Additional feed and nutrition guidelines include:

- Make sure your feed service representative and your veterinarian are familiar with each other and communicate about the health and nutrition of your calves. Follow your advisors' recommendations for using electrolytes. Provide water between feedings to the calves.
- Carefully follow the feed manufacturer's recommendations on water temperature for mixing the milk replacer with water.
- Provide sufficient space for group-fed calves that allows all animals to feed at the same time or sufficient quantities of feed are available for all animals during a 24-hour period.
- When the feed is changed, such as from a starter to a grower or finisher, the blending of the different types of feeds takes place over a 6- to 10 day period.
- Nutritional amendments such as iron, selenium or vitamins are provided orally, if needed, and are based upon blood analyses and examination/recommendations by your feed service representative in consultation with your veterinarian.
- The FDA has prohibited the feeding of most ruminant-derived protein to cattle or other ruminants because bovine spongiform encephalopathy (BSE) may be spread by feeding such products. Meat and bone meals are prohibited, whereas milk and blood products can be fed. Check the ingredient list of products and contact the manufacturer if there is a question.
- Feeding and watering equipment must be in good repair, functional and free of sharp edges that may injure animals.
- Animal caretakers take care to use the appropriate weight of powder, and volume and temperature of water to ensure consistency when mixing milk replacers, and use clean feeders and sanitary practices.
- During heat stress, increase the amount of liquid consumption. Milk may also be fed at a cooler temperature (depending on manufacturer's recommendations) and water intake increased.
- Water is tested and monitored by your nutritionist, veterinarian, or feed service representative at least once each year.

Chapter 4

Housing & Facilities



Best Management Practices Checklist

- ❑ **Adequate space** is provided for calves to **easily** stand, stretch, lie down, turn around, groom naturally, and have visual contact with other calves.

- ❑ Calves are in group pens of two or more calves, and **no calf** is individually penned after 10 weeks of age, unless it is for health purposes such as sickness, injury or disease.

- ❑ Calves should **never** be tethered.

- ❑ Facilities are **ventilated** and protocols are in place to minimize airborne particles as a means to reduce odors, dust and/or noxious gases. **Properly** ventilated barns maximize animal health and comfort and provide a safer work environment for employees and calf caretakers.

- ❑ **All classes** of calves are provided with **reasonable** protection from heat and cold.

- ❑ Facilities provide **ample** natural and/or overhead lighting.

- ❑ Pens are **routinely cleaned**, and the resting area provides cushion, warmth, dryness and traction at **all times**.

- ❑ **All housing elements** including flooring, fans, waterers, gates and fences are **consistently** monitored and in **good** repair.

- ❑ **A plan is in place** for managing and eliminating pests, **especially** those that carry disease or contamination.

- ❑ A **visitor protocol** is established and **employees are trained** at following visitor procedures. **Best practices** include limiting the number of visitors at the barn or farm, limit the areas on the farm where visitors may go, and provide disposable plastic boots (and possibly coveralls) or foot baths to visitors who enter the calf housing areas.

Individual & Group Housing

Initially, each calf can be housed in separate pens or individual hutches. This method may help to minimize the risk of disease, avoid competition for milk and feed, allow intake to be individually monitored, and prevent cross sucking. As a best practice, the industry standard is to move calves to group pens of two or more by the ten weeks of age. Disease transmission is complex and other farm management practices, in addition to grouping, influence the incidence of these diseases, such as method of milk-feeding, hygiene, ventilation, colostrum practices, diet and health monitoring. Group housed calves must be strategically grouped to ensure they are housed with calves that have a similar size, age, and drinking habits. Calves must always have access to clean, fresh water. Veal farmers should adopt a protocol for individual monitoring that ensures maximum health and comfort for each animal. Consult with your veterinarian to develop a robust herd-health program specifically designed for group-housed calves.

Flooring/Bedding

Calves should be provided a dry, sanitary place to rest. There are many floor types on the market that will ensure these goals and other goals are met, including ensuring good hoof and joint health. Veal farmers should monitor and take action to reduce the risk of slips and falls. Under best practices, concrete flooring surfaces are acceptable when appropriately grooved or textured to reduce the risk of animals slipping, which can result in injuries, and should be designed to avoid injury. Skid-resistant surfaces must reduce injuries and retain their non-slip characteristic after cleaning, scraping or wear. High-traction, rubber flooring is desirable in pens. Calves should be monitored for potential leg injuries and lameness, and if routine issues occur, corrective action addressing the issue should be taken.

Area for sick or injured animals

Employ a sick pen that isolates the animal(s) from others until they have regained their health. Because sick or injured animals are more susceptible to discomfort than healthy animals, it is important that the pen be equipped to maximize animal comfort. It should provide adequate bedding, air movement and easy access to feed and water.

The information reviewed in this section should **not be substituted** for consultation with a veal/livestock housing (ventilation and heating) expert as well as **meeting necessary** local building code requirements.

Ventilation and Heating

A healthy environment promotes healthy calves. Veal farmers should ensure that barns are properly ventilated to maximize animal health and comfort. In addition, well-ventilated barns provide a safer work environment for employees and calf caretakers.

Ventilation allows fresh outside air to be brought into a barn (without causing drafts) and potentially contaminated air to be removed from the barn. Air should be moved throughout all parts of the building to supply oxygen, and dilute and remove excess moisture, heat, odors, dust particles and other air pollutants.

Air quality should be monitored to control the level of ammonia and other gases.
(e.g., ammonia < 10 ppm; carbon dioxide < 2,500 ppm; hydrogen sulfide, <3ppm; carbon monoxide, <15 ppm)

Other components of a complete environmental control system include a well-insulated, tightly constructed room or building, a control system, and a heater or furnace. Automatic controls will maintain more uniform conditions than manual controls. An environmental control system should maintain the best environment (proper temperature and humidity) for the calves with minimal temperature fluctuations and drafts. Design and operation of the system should take into account the heat and moisture produced by the calves as well as the location of the building, expected outside temperatures and wind, number of animals, changes in calf size, and airflow, which will vary with the change in seasons. Any environmental control system must be correctly designed and properly installed, monitored, and maintained. Although most of the discussion in this manual deals with powered ventilation/heating systems, natural-ventilation systems can also be effective. Consult with experts to determine the best system for the farm to create the best environment that provides optimum employee comforts and calf health.

Insulation, ventilation, and heating must all work together to achieve an optimum environment. Adjustments can usually be made for individual situations which are best determined by an expert in the field.

Some recommended guidelines:

- Discuss and plan your ventilation system needs with a veal housing (ventilation and heating) expert and learn how to properly operate, monitor and maintain the system to provide the best environmental conditions for the calves.

- Calf barns and room(s) should be well insulated. Good insulation keeps the barn warmer in winter and cooler in summer and minimizes cold inside wall or ceiling surfaces and condensation. A vapor barrier on the side of the insulation towards the interior of the building is necessary to keep moisture from getting into and damaging insulation and the building structure. Specific recommendations for your area should be discussed with a veal-housing expert and should meet local building codes as necessary. General guidelines for minimum insulation R-values are: mild climates – 11 walls, 19 ceiling; cold climates –19 walls, 35 ceiling.

- Exhaust fans should be properly sized and provide several ventilation rates. For adequate ventilation, 10 air changes/hour in winter, 15-45 air changes/hour in spring and fall, and 60 air changes/hour in the summer are needed.

- Install a fresh air inlet system in your calf barn that provides good air distribution and mixing. For fresh air inlets, the incoming air velocity should be 700-800 ft. per minute for adequate mixing (lower or higher speeds can result in drafts or poor air distribution). Air inlets should be adjustable to allow maximum airflow with all the fans running, and allow proper air velocity at lower ventilation rates. Remember—warm air currents passing over calves are not considered detrimental drafts.

- There should be adequate supplemental heat to maintain desired temperatures and allow minimum ventilation rates to remove moisture and gases. The heater should be able to maintain the temperature when the minimum ventilation fan is running and the building is full of small animals. Optimum temperatures are: 65-70° F for starting calves and 60° F for market age calves. There should be little temperature fluctuation within the building when the weather is cool (less than 5°F for calves less than 200 lbs. and less than 10°F for larger calves).

- Maintain humidity levels required for healthy calves. The optimum relative humidity for veal calves is 50% to 65%. There is increased condensation and more transport of airborne bacteria at humidity levels higher than 65%. At lower levels, there is increased dustiness and during cold weather, the building will require more heat. Dust levels should not exceed 2.5 milligrams per cubic meter of air. It should be noted that calves are a major source of humidity, releasing approximately 0.22 lbs. of moisture/100 lbs. body weight/hour into the air.

- Monitor temperature and humidity in your calf barn daily. You or your veal housing experts should regularly evaluate conditions within your calf barn by using instruments specifically designed to measure environmental factors. It generally takes a minimum of 24 hours to see changes in air quality after a change in ventilation is made.

- At least once a month, check and clean the following: fan shrouds, blades and shutters (so that the fans can deliver rated capacity); screens over the air inlets (so they don't become plugged); motors and controls to prevent overheating and allow proper sensing; fan belts for proper tension, excessive wear, and correct alignment, and lubricate any necessary components of the system.

- Have an emergency plan for maintaining adequate ventilation during power outages. An alarm system to notify you of power outage, or automatic cut-in natural ventilation, should be installed in your barn. There should be an auxiliary or back-up electrical source that can power the ventilation equipment if needed; this backup system should be checked and serviced periodically.

- Install thermometers in several places in the calf barn (at least one maximum/minimum thermometer and a portable thermometer) to allow you to track temperature changes and variations throughout the barn.

- Check the calibration of all controls and monitoring instruments.

Pest Control

Every farm should have a plan for managing and eliminating pests, especially those that carry disease or contamination. Best practices should focus on procedures to control flies, mosquitoes, lice, mites, ticks, grubs, fleas, rodents, skunks and pest birds (e.g., starlings, pigeons and sparrows). Specifically, exercise caution to avoid contaminating feedstuffs, as contaminants may pass into the human food chain via veal.
A certified pesticide applicator or a pesticide service may be used. Read and follow label directions for all pesticide products. Cats and dogs kept at the farm must be vaccinated for rabies. In some regions, wildlife can also spread rabies so it is important to know if this is a concern in your region.

Barn Sanitation

All parts of the barn, including the feed storage and mixing areas, and distribution hoses should be cleaned, sanitized, and dried to reduce the possibility of microbial growth.

Allow sufficient time between groups of calves for proper cleaning, sanitizing and drying of the barn and pens. The time allotted also allows for repairs to pens and other parts of the facility.

Water spraying or dripping equipment is available to thoroughly soak the pens, stall floors and areas beneath the pens immediately after the calves leave the barn for market.

High pressure or steam cleaning and/or scraping of all surface areas are thorough and include cleaning the bottoms of the stall floors when necessary.

Thoroughly clean and sanitize the ceilings, side walls, ventilation tubes, loading/unloading docks and chutes, as well as all other areas in the calf housing area. Use the sanitizing solution according to label directions.

Make any repairs or changes to the unloading docks or gates that will allow easier, safer and less stressful unloading and penning of calves.

Visitors in your Facilities

Ensure that visitors do not introduce contamination or disease to the farm or barns. Establish a visitor protocol and ensure that employees are trained at following visitor procedures. Best practices include limiting the number of visitors at the barn or farm, limit the areas on the farm where visitors may go, and provide disposable plastic boots (and possibly coveralls) or foot baths to visitors who enter the calf housing areas. Foot baths are also recommended between calf rooms within the same barn, especially when different rooms house calves of different ages, or if there is a disease outbreak in one of the rooms. In addition, ensure that visitors are advised of safety concerns at all areas of barns and farms.

Chapter 5

Handling & Transportation

Best Management Practices Checklist

- ❑ Calves are to be moved to their destination by walking them or lifting them **safely** and **efficiently** (for **short-distances** with handler arms **gently** supporting the animal from under the neck and under the loin or around the rump.)

- ❑ Transportation plans are **developed**, **documented** and **implemented** to eliminate thermal distress, dehydration, interruptions in routine feeding, physical exertion, exposure to pathogens and stress from weather changes.

- ❑ An **efficient** number of helpers are scheduled to **safely** perform any task related to handling and transportation.

- ❑ Calves are **always** handled in a **quiet, calm, consistent, non-threatening** and **gentle** manner.

- ❑ The movement of calves when sorting or moving them from **any** pen is completed with **safety** and **efficiency** in mind. Calves are **never dragged, pulled, thrown** or **caught** by the neck, ears, limbs, tail or other extremities.

- ❑ Caretakers are **properly trained** in **safe** and **efficient** animal handling. The consequence for startling, painful or rough handling of **all animals** is known and **enforced**.

The VQA program **does not tolerate** animal abuse of **any** kind.

Handling & Moving Calves

The safety of the animals and caretakers is always a requirement when handling and transporting veal calves. Abuse of any animal is not tolerated at any time. Animal caretakers should be trained in a qualified, safe, calf handling program and in veterinary approved animal restraint methods. In addition, producers should ensure that an adequate number of caretakers are available to safely perform all necessary animal handling tasks. The primary objective of safe and efficient veal calf handling eliminates any actual or potential animal distress.

All animal facilities should be designed with age-related, species typical behaviors in mind. Develop, post, and implement cattle handling Standard Operating Procedures (SOP) that cover all aspects of handling, including handling at the time of receiving the calves, handling during health evaluations, feeding, blood sampling, moving sick or injured animals, and at the time of transport.

Some recommended guidelines include:

(1) Producers should always ensure that the least amount of prodding is used to move the animal while ensuring the safety of all employees and other calves. All handlers should understand that cattle are observant creatures capable of learning from and remembering events in their environment. The use of flags, plastic paddles and a stick with ribbon attached to it are appropriate for stimulating animals to move, slow, stop or turn. However, no equipment should be used as a weapon. Any force used on animals must be applied quietly, calmly, and with sound logic that provides for a productive, safe outcome. Excessive or routine prodding can indicate underlying handling and animal avoidance problems that require management attention and correction. Conflict behavior in animals are direct indications of inefficient handling of subject animals.

(2) Handling problems could arise because:

- the caretakers may be inadequately trained in safe animal handling,
- the facility may be designed inefficiently,
- the animal may be injured, ill, or expressing unsafe avoidance or conflict behaviors.

(3) Cattle should be moved at a walk, particularly if the weather is extreme, for example, the temperature is excessively hot or cold, or humidity has caused slippery flooring. It is particularly important to control the calves' speed within lanes, around corners, and along alleyways to prevent crowding and injury around handlers, corners, gates, and places where passages narrow. Use full-sided panels rather than gates to move calves. Turns at 45˚ degree angles encourage efficient and safe calf flow. 90˚ turns should be avoided where possible. Teaching calves to walk around corners and pass handlers without an increased rate of movement is an excellent, scientific process for ensuring that animals learn to face and walk toward all destinations.

(4) Consider the flight zone and point of balance when you want to either start or stop a calf's movement. **(Appendix F)**

(5) Non-skid flooring and/or sand or other non-slip materials should be used where calves travel.

(6) The process of being moved, especially if it involves an elevated-loading ramp, could be unfamiliar to calves. Four procedures should be taken:

- train caretakers in safe and efficient transport loading and unloading practices,
- use efficiently located and designed loading areas,
- minimize the number of directional changes an animal encounters,
- train animals to face away from handlers and walk to all destinations.

(7) Loading areas should be accessible in all kinds of weather. Loading ramps should not exceed a 25-degree angle and should have non-slip flooring ensuring safe footing. Ramps should be equipped with wing gates and a self-aligning bumper to prevent animals from stepping up or down between the ramp and the transport or being stuck between the side of the chute and transport.

Transporting Calves

To keep calves healthy, take great care to minimize distress during transport. Ensure that employees and third-party transportation services are fully trained and skilled at handling and transporting calves. Transportation should be developed and implemented to eliminate thermal distress, dehydration, interruptions in routine feeding, physical exertion, exposure to pathogens and weather changes.

Veal calves are temperature sensitive and require special care during transport. Weather forecast should be monitored to avoid transporting calves during

inclement weather. Before loading animals, ensure that a health and behavior assessment has been done on all calves ensuring that ill or otherwise compromised calves are not loaded or transported.

Some recommended guidelines include:

(1) Increase the well-being potential of the calf during transport by feeding a combination of electrolytes, dextrose, and water about 6 hours before calf transportation. Avoid feeding milk just prior to moving calves.

(2) Use proper loading densities. Load and unload animals at a time of day that is best for moving calves **(Table 1)**. During hot weather, try to transport calves at night or early morning when temperatures are lower. During extreme cold weather, try to transport during daylight or early evening when temperatures are higher. Animals grouped together for the first time should not be crowded. It is best to try to keep group penned calves together in the truck, where possible. Sufficient handlers and appropriate equipment should be available for loading or unloading animals from transport.

(3) Trucks and trailer transport vehicles can have a direct impact on measurable animal well-being. Even though transportation vehicles are not stationary, they require the same type of safety features as other facilities.
These include:

- Sides high enough to prevent animals from jumping over them,
- Non-slip flooring that provides secure footing (avoid abrasive floor and wall surfaces),
- Ventilation adequate for the weather conditions,
- Proper bedding (to protect animals from weather extremes),
- Adequate vehicle and holding pen covering to protect animals from adverse weather,
- Trucks should have exhaust stacks that prevent the animals from being exposed to fumes.

(4) Producers should be familiar with the actual transport drivers or have reviewed their references to make sure animals will be cared for properly during transit. Also, managers should check the truck prior to loading to assure proper safety of the calves and that provisions have been made for unexpected, inclement weather.

(5) Producers should develop and follow a documented disease prevention protocol for the farm. This includes providing plastic boots and foot baths for visitor bio-security, spraying and disinfecting vehicles before entering the farm, and working with a veterinarian to develop a bio-security, vaccination and quarantine protocol before transported animals enter the farm.

(6) Producers should specify the documented loading and unloading times with the transport driver and coordinate those times with the processing facilities plant. The driver should know the real-time contact information and GPS directions to/from your farm and to the processing facility, if any problem or delay should occur.

(1) Table 1. Recommended area allowance in transportation accommodations

Body Weight (lbs.)	Number of animals per linear foot of truck floor (7.7 ft. wide)
100	2.6
150	2.2
200	1.8
250	1.6
300	1.4
350	1.2
400	1.0
600	0.9
800	0.7

Note:
Either greater or lesser density increases the possibility of injury.
For Example:
(12' length) x (2.2) = Twenty-six, 150 lb. calves

Chapter 6

Overall Management

Best Management Practices Checklist

- ❑ Maintain a **signed** and **valid** Veterinarian-Client-Patient-Relationship agreement.
- ❑ Working with your veterinarian and other consultants, **develop** and **follow** a **Herd Health Plan** that supports health and development of calves through each stage of development.
- ❑ Foster **open** and **ethical communication** with your sources of bull calves, your veterinarian, nutritionist or feed representative, hauler and packer.
- ❑ **Participate**, **provide** and **document** ongoing education to animal care providers to ensure understanding of essential animal stewardship principles and practices of milk-fed veal.
- ❑ Provide identification to **all animals** and maintain **accurate** and **accessible** records including the administration of all animal health treatments.
- ❑ **Create** and **follow written protocols** for handling, transportation, feeding, sanitation, animal health observations and treatment, euthanasia, and other practices necessary to promote a **high standards** of animal stewardship.
- ❑ **Never** market sick, injured or non-ambulatory animals.
- ❑ Identify **all** emergency contact information and post for **easy** accessibility **(Appendix F).**
- ❑ Comply with **all** applicable Federal, State and local statutes, rules and regulations.
- ❑ Maintain **effective** waste management systems.
- ❑ Practice **positive** neighbor relations in your community.
- ❑ **Recertify** your compliance to the Veal Quality Assurance standards **every three years**.

If not already noted in previous chapters, the additional Best Management Practices listed above are to further ensure the health and well-being of the animals, the work environment, expectations and responsibilities of employees, and the stewardship of natural resources.

Following the Best Management Practices in this manual enable veal farmers to achieve Veal Quality Assurance certification which demonstrate the industry's ongoing commitment to producing safe, nutritious, and humanely-raised veal for their customers

Appendices

Veterinarian/Client/Patient/Relationship (VCPR) Validation Form

Please fully complete the form and print clearly.

I. Farmer/Manager

Producer Name _____

Address _____ City/State _____ Zip _____

Farm Name and Location _____

Section _____ Township _____ County _____

Premise ID Number _____

Phone Number _____ Email _____

Signature _____

Date _____

II. Veterinarian

Name _____, DVM

Clinic Name _____

License No. or USDA Accreditation No. _____

Address _____ City/State _____ Zip _____

Phone Number _____ Email _____

"I hereby certify that a valid Veterinarian/Client/Patient Relationship (VCPR) is established for the above listed owner and will remain in force until canceled by either party."

Veterinarian's Signature _____ Date _____

Please make three copies of this document. Keep one for your records, provide a copy to your veterinarian, and submit a copy with your VQA certification documentation.

Submit completed VQA Certification documentation* (Appendixes A, B & C) *to:

Veal Quality Assurance Program
2900 NE Brooktree Lane, Suite 200
Gladstone, MO 64119

VCPR form was adapted from the Center for Dairy Excellence

The veterinarian should assess the adherence to these practices by indicating YES, NO or NEEDS IMPROVEMENT(NI)

To be VQA certified, a producer must satisfactorily meet each of these practices

Items on the checklist that receive a No or Needs Improvement should be addressed and re-evaluated prior to submitting certification documentation.

Animal Health Best Management Checklist

Y N NI A veterinarian has been identified and a valid VCPR has been established to assist in planning and conducting the animal health program.

Y N NI Appropriate personnel have been provided proper training and contact information for the veterinarian.

- A training manual for this should be developed, training by employees should be documented in this manual and it should be kept on site.

Y N NI All medications and other AHCPs used are labeled to meet the requirements of the Food and Drug Administration (veterinarian, active ingredient(s), dosage, frequency, and duration of treatment, methods of administration, withdrawal times, and expiration date). Treatment protocols should be in a notebook and kept on site.

Y N NI Everyone having access to the medications is familiar with the farm's record keeping system follows the information on the medication label, and knows the importance and methods of keeping accurate records. This should be documented in the training manual.

Y N NI All animals are identified by ear tags. The identity of animals is necessary for properly recording the treatment of individual animals in a record system.

Y N NI A withdrawal table, provided by the veterinarian, is clearly displayed and is used along with the labeled information on the product container to determine withdrawal times. Monitor withdrawal times and dates carefully and document them in records.

Y N NI Medications and other animal health care products (AHCPs) should be obtained from a reputable supplier, properly stored and disposed of according to label directions.

Y N NI A few pens in a designated are of the barn should be used to place sick or injured calves; ideally, these calves should be placed in an isolation area separate from the main calf housing room(s).

Y N NI All calves are checked carefully at least twice daily, and preferably three or more times each day. Any necessary health-care action is taken immediately, either by contacting the veterinarian or by administering the treatment prescribed by the veterinarian for other calves in the same group with similar symptoms.

Y N NI The veterinarian, or a diagnostic laboratory, conducts tests on feces, urine, blood, or other appropriate tissues from sick animals in order to identify: (A) the organisms or diseases that have caused the sickness, and (B) medications that are most effective in treating the sickness.

Y N NI In consultation with a veterinarian, veal farmers should establish on-farm protocols for monitoring and determining when euthanasia is the best option for sick or injured calves.

Feed, Water and Nutrition

- Y N NI Work with a reputable nutrition expert to provide quality feed that meets the nutritional requirements of veal calves and contains the nutrition necessary to maintain health, growth and energy.
- Y N NI Veal calves provided grain should be fed a high-quality starter that promotes rumen development.
- Y N NI Feed should have proper protein and fat levels for the age and size of the calf.
- Y N NI Feed mixing and distribution equipment should be designed to facilitate easy, thorough cleaning and sanitizing.
- Y N NI Buckets, bottles and all equipment used for mixing or distributing feeds should be completely cleaned and sanitized daily between uses.
- Y N NI Maximize water intake immediately upon arrival of the calves.
- Y N NI All calves should have access to clean, fresh water to maintain proper hydration from the first day of life.
- Y N NI Every barn should have access to an adequate and reliable hot water supply necessary for appropriate feed-mixing and equipment sanitation.
- Y N NI Animal caretakers are trained in calf care, nutritional requirements and feeding techniques, including the use of esophageal tube feeders and other feeding mechanisms.
- Y N NI Maintain close communication with your feed representative and keep the representative informed about the progress and any health complications of the calves.

Housing and Facilities

- Y N NI Adequate space is provided for calves to easily stand, stretch, lie down, turn around, groom naturally, and have visual contact with other calves.
- Y N NI Calves are in group pens of two or more calves, and no calf is individually penned after 10 weeks of age, unless it is for health purposes such as sickness, injury or disease.
- Y N NI Calves should never be tethered.
- Y N NI Facilities are ventilated and protocols are in place to minimize airborne particles as a means to reduce odors, dust and/or noxious gases. Properly ventilated barns maximize animal health and comfort and provide a safer work environment for employees and calf caretakers.
- Y N NI All classes of calves are provided with reasonable protection from heat and cold.
- Y N NI Facilities provide ample natural and/or overhead lighting.
- Y N NI Pens are routinely cleaned, and the resting area provides cushion, warmth, dryness and traction at all times.
- Y N NI All housing elements including flooring, fans, waterers, gates and fences are consistently monitored and in good repair.
- Y N NI A plan is in place for managing and eliminating pests, especially those that carry disease or contamination.
- Y N NI A visitor protocol is established and employees are trained at following visitor procedures. Best practices include limiting the number of visitors at the barn or farm, limit the areas on the farm where visitors may go, and provide disposable plastic boots (and possibly coveralls) or foot baths to visitors who enter the calf housing areas.

Handling and Transportation

Y N NI Calves are to be moved to their destination by walking them or lifting them safely and efficiently (for short-distances with handler arms gently supporting the animal from under the neck and under the loin or around the rump.)

Y N NI Transportation plans are developed, documented and implemented to eliminate thermal distress, dehydration, interruptions in routine feeding, physical exertion, exposure to pathogens and stress from weather changes.

Y N NI An efficient number of helpers are scheduled to safely perform any task related to handling and transportation.

Y N NI Calves are always handled in a quiet, calm, consistent, non-threatening and gentle manner.

Y N NI The movement of calves when sorting or moving them from any pen is completed with safety and efficiency in mind. Calves are never dragged, pulled, thrown or caught by the neck, ears, limbs, tail or other extremities.

Y N NI Caretakers are properly trained in safe and efficient animal handling. The consequence for startling, painful or rough handling of all animals is known and enforced.

Overall Management

Y N NI Maintain a signed and valid Veterinarian-Client-Patient-Relationship agreement **(Appendix A)**.

Y N NI Working with your veterinarian and other consultants, develop and follow a Herd Health Plan that supports health and development of calves through each stage of development.

Y N NI Foster open and ethical communication with your sources of bull calves, your veterinarian, nutritionist or feed representative, hauler and packer.

Y N NI Participate, provide and document ongoing education to animal care providers to ensure understanding of essential animal stewardship principles and practices of milk-fed veal.

Y N NI Provide identification to all animals and maintain accurate and accessible records including the administration of all animal health treatments.

Y N NI Create and follow written protocols for handling, transportation, feeding, sanitation, animal health observations and treatment, euthanasia, and other practices necessary to promote a high standards of animal stewardship.

Y N NI Never market sick, injured or non-ambulatory animals.

Y N NI Identify all emergency contact information and post for easy accessibility.

Y N NI Comply with all applicable Federal, State and local statutes, rules and regulations.

Y N NI Maintain effective waste management systems.

Y N NI Practice positive neighbor relations in your community.

Y N NI Recertify your compliance to the Veal Quality Assurance standards every three years.

Confirmation of Best Practices

Producer Name _____

Farm Name _____

Address _____

City/State/Zip _____

As a licensed veterinarian, I confirm that this producer is meeting all the Best Management Practices outlined in the Veal Quality Assurance program.

Veterinarian Signature _____

Veterinarian Name Clinic _____

Address City/State/Zip _____

Phone/Email _____

Submit the VQA Certification documentation along with a Veterinarian/Client/Patient Relationship (VCPR) and Best Management Assessment **(Appendixes A, B & C)** ***to:***

Veal Quality Assurance Program
2900 NE Brooktree Lane, Suite 200
Gladstone, MO 64119

Veal Producer Quality Assurance Certification Confirmation

Please fully complete the form and print clearly.

Name _____

Farm Name _____

Address _____

City/State/Zip _____

Phone _____ Email _____

Total number of calves raised annually by you/your farm? _____

Are calves transitioned to group pens after 8-10 weeks? Yes _____ No _____

Which describes your role? (Check all that apply)

_____Calf owner _____Labor-lease _____Contract grower _____Independent grower

_____Other (describe) _____

I, _____(print name) hereby confirm that I participated in a Veal Quality Assurance education program and test on _____(date) presented by _____(name & affiliation); maintain a Veterinarian-Client-Patient-Relationship agreement with _____(name), a licensed veterinarian; and I am fully committed to following the Best Management Practices outlined in the Veal Quality Assurance program manual.

Producer Signature _____ Date _____

VQA Education Program Presenter Name _____ Affiliation _____

Program Presenter Signature _____ Date _____

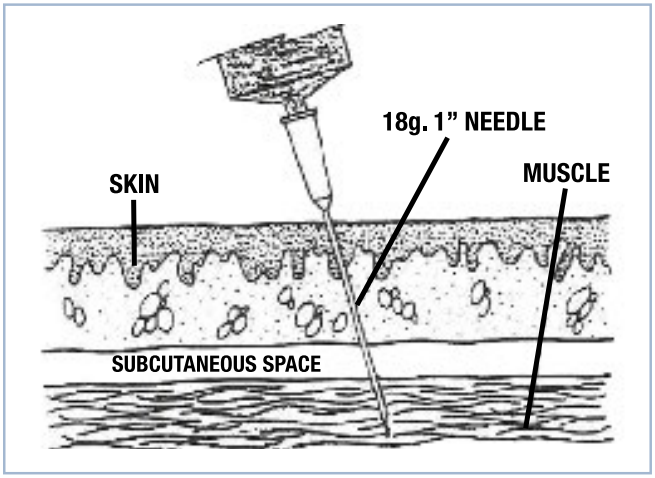
Address/City/State/Zip _____

Phone _____ Email _____

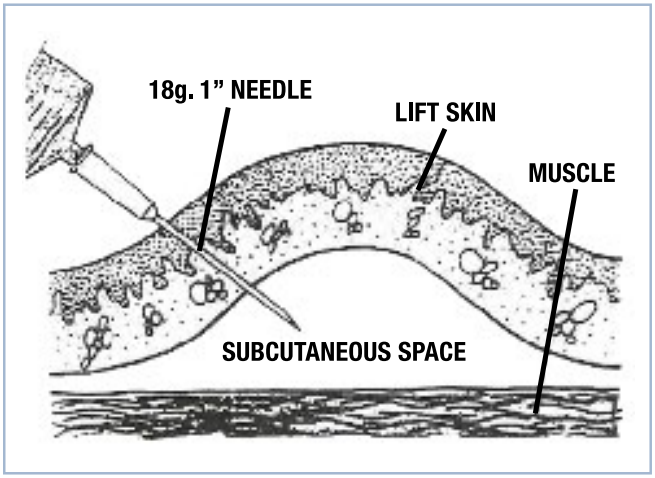
List others from the farm participating in the VQA Certification Education Program (include all persons with feeding, care and handling responsibilities on this farm):

Submit the VQA Certification documentation along with a Veterinarian/Client/Patient Relationship (VCPR) and Best Management Assessment* (Appendixes A, B & C) *to:

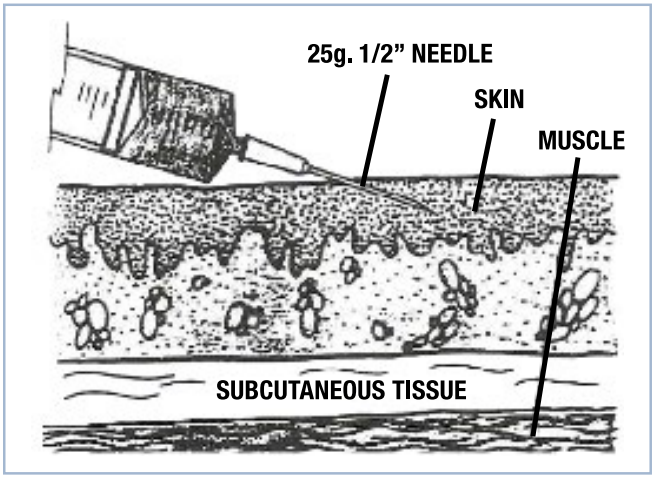
Veal Quality Assurance Program
2900 NE Brooktree Lane, Suite 200
Gladstone, MO 64119



Intramuscular Injection



Subcutaneous Injection



Intradermal Injection

Disinfectants

Table 1. General Information about some Disinfectants

Chemical	Gram + Bacteria	Gram - Bacteria	TB like bacteria	Fungi	Virus	Best pH for activity	Activity in organic material	*Common uses
Chlorhexidene	SA	SA	SA	SA	Most	Wide range	Good	EPF
Formaldehyde and aldehydes	++	++	++	++	++	Wide range	Good	EPF
Chlorine Chloramines	++	++	SA	++	SA	Acid	Very poor	CE
Iodophors	++	++	SA	++	SA	Acid	Fair to poor	CE
Sodium Hydroxide	++	++	SA	++	++	Alkaline	Good	P
Quaternary ammoniums	++	+	No	SA	SA	Alkaline	Fair	CE
Phenols	++	++	+	SA	SA	Acid	+Good	EPF
Potassium peroxymonosulfate	+	+	+	+	++	Wide range	Good	EPF

SA – some activity

***E – equipment**

P – premises

F – foot baths

C – clean equipment

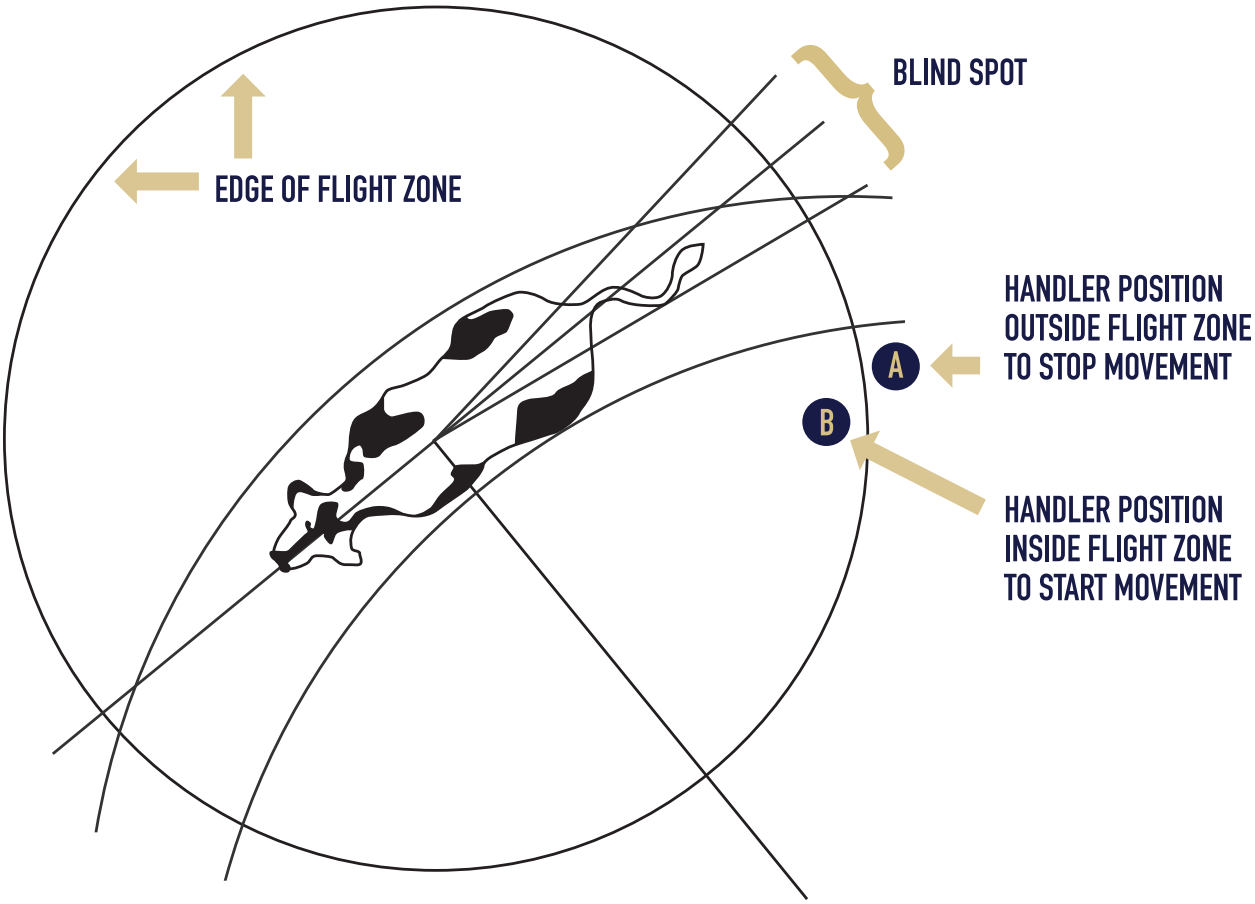
****Follow all warning labels for each disinfectant and keep away from children*****

extension.psu.edu/animals/health/biosecurity/fundamentals/table-of-disinfectants

Adapted from Purdue University Extension Bulletin PIH80

Cattle Panoramic Vision, Flight Zone & Point of Balance

Cattle can see with almost the full circle around them because of their panoramic vision. Their only blind spot is directly behind them, so never approach cattle from the rear. Consider the flight zone and point of balance when you want to either start or stop a calf's movement. The flight zone is the space surrounding an animal(s), that when a person enters the zone, the animal(s) will move away until it feels safe. If the person exits this zone, the animal will usually stop moving away. The size of the flight zone varies between animals and is dependent on several factors (e.g., tameness of the animal, animal's familiarity with the handler, etc.) An animal's point of balance actually relates to its flight zone. With most cattle, the shoulder is the point of balance. If a handler approaches in the front of this point, the animal moves backward and behind this point the animal moves frontward.



Consider the flight zone and point of balance when you want to start or stop an animal's movement.

From publications authored by Dr. Temple Grandin, Animal Handling Systems and Colorado State University, Fort Collins, CO.

Emergency Contacts

Fire	
Police	
Sheriff	
State Police Rescue	
Ambulance	
Veterinarian	
Electrician	
Oil Company	
Gas Company	
Heating Repair	
Water Company	
Plumber	
Extension Agent	
Service Rep.	
Veal Packer	
Veal Quality Assurance	816-556-3169

Other Important Numbers

Active Ingredient	The specific drug component part of an animal health care product.
AMDUCA	Animal Medicinal Drug Use Certification Act of 1994.
Anthelmintic	A substance that kills or ejects internal parasites (dewormer).
Antibiotic	A specialized substance that is able to inhibit or kill bacteria or other microorganisms.
Antibodies (Maternally Derived)	A specialized substance produced by certain blood cells (lymphocytes), especially in response to the presence of an antigen. These antibodies neutralize, and create immunity to, specific antigens. Maternally-derived antibodies (sometimes referred to as immunoglobulin) are those antibodies produced by the cow's body and released into her colostrum. These antibodies can then be passed on to the calf by its consumption of colostrum as soon as possible after being born.
Antigen	A substance, such as a virus, to which the body reacts by producing antibodies.
Disease prevention	The safeguards taken to reduce the possibility of passing diseases from outside sources to the calves or from one group of calves to another.
Blood Titer Levels	The degree of concentration of a substance in blood.
Bovine	All members of the cattle family.
CFM	Cubic feet per minute; a measure of ventilation capacity.
Ethical Production	The production of veal calves while practicing the following: • Responsible animal management and nutrition, with appropriate overall husbandry; • Provision for physical comfort, basic behavioral function, and animal health; • Prevention or relief of unnecessary pain or suffering; • Use of animal life for fully justified reasons.

Euthanize	To put to death painlessly to end suffering.
Extra-Label Drug Use	Veterinarian may choose to site a drug not labeled for an intended purpose under the following circumstances: • A medical diagnosis is made by an attending veterinarian within the context of a valid veterinarian/client/patient relationship (VCPR); • A determination is made that: o There is no available drug labeled to treat the condition diagnosed, or o Drug therapy at the dosage recommended by the labeling has been found clinically ineffective by the veterinarian in the animals to be treated; • Procedures are instituted to assure the identity (e.g., eartags) of the treated animals is maintained; • A significantly extended time period is assigned for drug withdrawal prior to marketing the animal; steps are taken to assure that the assigned time frames are met, and no illegal residues occur; • The extra-label drug (prescription legend or over-the-counter) bears labeling information that is adequate to assure the safe and proper use of the product. An additional label supplied by the veterinarian should contain at the minimum, the following: o Name and address of the veterinarian dispensing the drug o Active Ingredient o Directions for use as specified by the veterinarian (including the class/species or identification of the animals; and the dosage, frequency, route of administration, and duration of therapy) • Any cautionary statements by the veterinarian • The veterinarian's specified withdrawal prior to slaughter for meat.
FDA	Food and Drug Administration, charged with approval and use of drugs.
FSIS	Food Safety and Inspection Service, charged with food and animal inspections.
HACCP	Hazard Analysis and Critical Control Points; set of principles to be used to prevent food safety problems.

Hemoglobin	A protein contained within the red blood cells, which carries oxygen from the lungs to the body tissues, and carbon dioxide from the tissues to the lungs. Hemoglobin is also responsible for the red coloring of the blood.
Immunity	Resistance to or protection against a specified disease; power to resist infection, especially as a result of antibody formation.
Lesions (Injection Site)	An injury or other change (damage to the calf's body tissue -usually muscle) where the calf has received an injection.
Microbe	A microscopic organism such as a virus or bacterium; germ.
Necropsy	An examination of the calf's body after death; post-mortem.
Noxious Gases	Harmful gases (such as ammonia, carbon dioxide, carbon monoxide, hydrogen sulfide, methane) that can enter or build up within a veal facility and cause health problems, low growth performance, or death, depending upon concentration levels.
Over-the-Counter (OTC) Drug	• Bears a manufacturer's label explaining intended use in animal types for which drug is approved (may or may not include approvals for use in veal); • The drug label contains adequate directions for safe and effective use by the layman; • Available from suppliers without approval by a veterinarian.
Post-mortem	An examination of the calf's body after death; necropsy.
Prescription (Rx) Drug	• Drug label must contain "Caution: Federal law restricts this drug to use by or on the order of a licensed veterinarian"; • Supervision and knowledge of a veterinarian necessary to ensure safe and effective use; • A complete, properly labeled veterinarian prescription label must be applied to the animal health care product container.
Preruminant	A calf whose rumen is not yet functioning. Because veal calves are fed a milk diet, and not grain or hay, their digestive systems continue to function as preruminants.
Route of Administration	How AHCPs delivered to animal - subcutaneously, intramuscularly, orally, etc.
Rumen	The largest of the four stomach compartments in the adult bovine. The site of active bacterial digestion that allows the breakdown of hay, grass and other feedstuffs.

Sanitary	Absence of dirt and other causes of infection or disease.
Sharps	A medical term for devices with sharp points or edges that can puncture or cut skin
Transit	Being transported.
Vaccine	Any preparation of killed microorganisms, living weakened organisms, etc. introduced into the body to produce immunity to a specific disease by causing the formation of antibodies.
Veterinarian/Client/ Patient Relationship (VCPR)	The Food and Drug Administration defines a valid Veterinarian/ Client/Patient Relationship (VCPR) as follows: (1) A veterinarian has assumed the responsibility for making medical judgments regarding the health of (an) animal(s) and the need for medical treatment, and the client (the owner of the animal or animals or other caretaker) has agreed to follow the instructions of the veterinarian; (2) There is sufficient knowledge of the animal(s) by the veterinarian to initiate at least a general or preliminary diagnosis of the medical condition of the animal(s); and (3) The practicing veterinarian is readily available for follow-up in case of adverse reactions or failure of the regimen of therapy. Such a relationship can exist only when the veterinarian has recently seen and is personally acquainted with the keeping and care of the animal(s) by virtue of examination of the animal(s), and/or by medically appropriate and timely visits to the premises where the animal(s) are kept.
Withdrawal time	Amount of time that must be between administration of an AHCP and slaughter of the animal for meat production (usually should be longer in special-fed veal than in other animal types).

VealMadeEasy.com
Consumer-facing website featuring veal nutrition, recipes and cooking information.

VealFarm.com
Consumer information on veal farming and animal care practices as well as industry resources for the Veal Quality Assurance program.

FDA.gov/AnimalVeterinary/SafetyHealth/AntimicrobialResistance/JudiciousUseofAntimicrobials/
Judicious use of therapeutic antimicrobials is an integral part of good veterinary practice. It is an approach to maximize therapeutic efficacy and minimize selection of resistant microorganisms.

BQA.org
Beef Quality Assurance is a nationally coordinated, state implemented program that provides systematic information to U.S. beef producers and beef consumers of how common sense husbandry techniques can be coupled with accepted scientific knowledge to raise cattle under optimum management and environmental conditions. Visit the resources section on this website to download manuals specific to dairy beef quality assurance, livestock handling and transportation, and judicious use of antimicrobials.

NationalDairyFarm.com
The National Dairy FARM Program: Farmers Assuring Responsible Management™ provides consistency and uniformity to best practices in animal care and quality assurance in the dairy industry. Review the FARM website for additional resourses on dairy calf animal care best practices.

SeeItStopIt.org
See it? Stop it! is an initiative to provide those who work around animals with guidance to immediately report any instances of animal abuse, neglect, harm or mishandling. The initiative helps farmers confirm their obligation to great animal care and their commitment to ensure those in contact with their animals do the same.

Internal links within this document are funded and maintained by the Beef Checkoff. All other outgoing links are to websites maintained by third parties.

VealFarm.com