

# Dairy Cattle Vaccination Programs

---

## General considerations when designing vaccination protocols

### Introduction

Infectious diseases threaten dairy cattle health and welfare and can decrease productivity and profitability. Vaccination is an important component of control and prevention of diseases. A vaccination program, however, is not a substitute for good nutrition, adequate ventilation, effective sanitation, and other health management procedures.

Vaccines help prevent infectious diseases, but no vaccine provides 100 percent immunity for all animals in a herd. Vaccines raise the general level of herd immunity so that the spread of an infectious disease or severity of clinical illness is minimal.

Vaccination programs should be developed in cooperation with the herd veterinarian. Individual herd circumstances, including disease history, biosecurity, management, housing, and other factors, affect the specific vaccination programs in a dairy operation. Type of vaccine, such as killed or modified live, stage of production, costs, benefits, and other factors must be considered. Rigid recipes that fit all production units are impractical and even dangerous if not instituted in individual herds with professional care. Improper use of vaccines can result in cattle that are not adequately immunized.

## Recommendations for dairy herd vaccination programs

### NEONATAL CALVES

- An oral vaccine containing bovine rotavirus and bovine coronavirus can be given orally to newborn calves. The oral MLV vaccine should be given 30 minutes prior to ingestion of colostrum or it will be inactivated. Some veterinarians prefer to use injectable rotavirus/coronavirus/E. coli in the dam prior to calving and depend on colostral antibodies to protect calves.
- Vaccination of calves for infectious bovine rhinotracheitis (IBR), bovine virus diarrhea (BVD), parainfluenza-3 (PI-3), and bovine respiratory syncytial virus (BRSV) is usually delayed until 3-6 months of age. Veterinarians occasionally advise use of this vaccine in selected herds with a history of these diseases in young calves, but this is not a standard recommendation. Vaccination of neonatal calves with intranasal IBR/PI-3/BRSV vaccine may be more beneficial than standard injectable vaccines in calves. In order to assure adequate immune response, intranasal

respiratory vaccines should be administered at 3 days of age or older. Intranasal vaccines generally have a shorter duration of immunity than injectable vaccines.

- Recent research suggests that vaccinating calves against Johnes disease is an effective aid in the control of this disease. The vaccine can only be administered by a veterinarian and must be done according to state regulations. Consult with your veterinarian regarding the need to use this vaccine in your herd.

### 4 to 6 MONTHS OF AGE

- IBR, BVD, PI-3, BRSV
- Leptospirosis (5 strain)
- Clostridial group – 7 or 8 way
- *Histophilus somnus* (Needs to be risk based-consult with your veterinarian)

### PRE-BREEDING

- IBR, BVD, PI-3, BRSV
- Leptospirosis (5 strain)
- Clostridial group – 7 or 8 way

### PRE-CALVING

- Clostridial group – 7 or 8 way
- E. coli mastitis vaccine at least twice, at six and three weeks prior to calving
- Rotavirus, coronavirus, and E. coli scours vaccine twice, at six and three weeks prior to calving

### ADULT COWS

Cows are generally vaccinated for IBR, BVD, PI3, and BRSV virus, leptospirosis, clostridial, E. coli mastitis, and calf diarrhea diseases during the lactation period and/or the dry period. Modified live virus vaccines may not be able to be used at this time. Consult with your veterinarian before using MLV products in pregnant cows.

---

### Acknowledgements

Prepared by G. Dewell, D.V.M., M.S., Ph.D., Beef Extension Veterinarian, ISU Veterinary Diagnostic and Production Animal Medicine; P. Gorden, Senior Clinician, ISU Veterinary Diagnostic and Production Animal Medicine, and Ryan Breuer, D.V.M., NW ISUEO Dairy Specialist

Funding for this project was provided by the North Central Risk Management Education Center and the USDA National Institute of Food and Agriculture.

Iowa State University Extension and Outreach does not discriminate on the basis of age, disability, ethnicity, gender identity, genetic information, marital status, national origin, pregnancy, race, color, religion, sex, sexual orientation, socioeconomic status, or status as a U.S. veteran, or other protected classes. (Not all prohibited bases apply to all programs.) Inquiries regarding non-discrimination policies may be directed to the Diversity Advisor, 2150 Beardshear Hall, 515 Morrill Road, Ames, Iowa 50011, 515-294-1482, [extdiversity@iastate.edu](mailto:extdiversity@iastate.edu). All other inquiries may be directed to 800-262-3804.

## Dairy Herd Vaccination Protocol

Herd name:		Date:	
Herd health challenges:		1.	2.
		3.	4.
Age	Current Protocol	Recommendations	Notes
<b>Calf-hood:</b>			
1 Day Old	1	1	
	2	2	
1 Week Old			
5 Weeks Old			
Pre-weaning	1	1	
	2	2	
<b>Replacement Heifers:</b>			
4 Months Old	1	1	
	2	2	
	3	3	
5 Months Old	1	1	
	2	2	
	3	3	
Pre-breeding (12 Months)	1	1	
	2	2	
	3	3	
Pregnancy Confirmation			
Pre-freshening Heifer 5 to 6 weeks pre-fresh	1	1	
	2	2	
	3	3	
Pre-freshening Heifer 2 to 3 weeks pre-fresh	1	1	
	2	2	
	3	3	
<b>First Calf Heifers:</b>			
Post-fresh Heifers	1	1	
	2	2	
<b>Adult Cows:</b>			
Post-fresh	1	1	
	2	2	
Pre-breeding	1	1	
	2	2	
Early Pregnancy Confirmation	1	1	
	2	2	
Late Pregnancy Confirmation	1	1	
	2	2	
Dry-off	1	1	
	2	2	
	3	3	
Pre-freshening Adult 5 to 6 weeks pre-fresh	1	1	
	2	2	
	3	3	
Pre-freshening Adult 2 to 3 weeks pre-fresh	1	1	
	2	2	
	3	3	

\* Work and consult with your herd health veterinarian to develop and establish an appropriate vaccination protocol for your herd