

INFORCE 3[®] AND ONE SHOT[®] BVD: PROTECT CATTLE THROUGH THE STRESS OF ARRIVAL.

INFORCE 3 & ONE SHOT BVD



VACCINATION TIMING MAKES A DIFFERENCE.

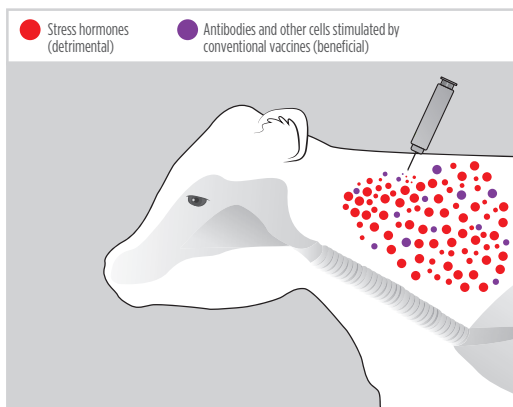
For cattle arriving at stocker and feedlot operations, the stress of transportation and commingling — combined with exposure to disease-causing organisms — can spark outbreaks of bovine respiratory disease (BRD).

Mounting a protective immune response during the arrival period can be challenging, but research has shed light on vaccination programs that can do just that. When administered to cattle during times of stress, INFORCE 3[®] and ONE SHOT[®] BVD stimulate a robust immune response to help provide rapid respiratory disease protection.^{1,2}

BRD CONTINUES TO TAKE A TOLL ON STOCKER AND FEEDLOT OPERATIONS.

BRD is the No. 1 cause of death across all classes of cattle including stocker and feedlot cattle.³

- Each year, BRD can account for \$1 billion in losses due to forfeited production, increased labor expenses, medication costs and death.^{4,5}
- Rapidly establishing effective herd immunity to BRD pathogens is crucial to help minimize BRD illness and deaths.



Stress hormones can compromise the efficacy of conventional vaccines and suppress the calf's ability to mount an adequate immune response to fight disease.

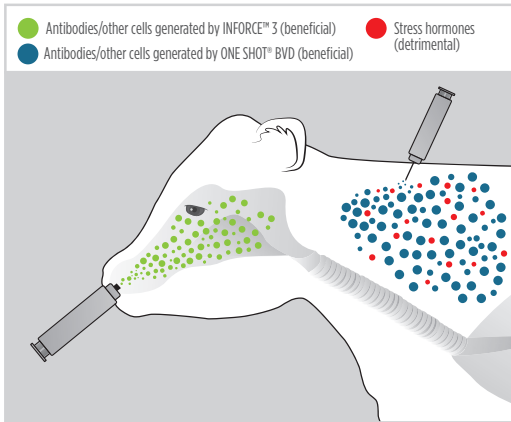
STRESS CAN INTERFERE WITH SOME VACCINES.

Stress can decrease an animal's ability to fully mount an immune response to vaccines or infectious agents.

- Stress can suppress the immune response to vaccination, leaving the animal not fully protected.
- Stress depresses the immune system and increases the animal's susceptibility to disease.

INFORCE 3[®]

ONE SHOT[®] BVD



Vaccinating with INFORCE 3 and ONE SHOT BVD stimulates a rapid and complete immune response even in the face of stress hormones.

TOGETHER, INFORCE 3[®] AND ONE SHOT[®] BVD HELP PROTECT CATTLE IN THE FACE OF STRESS.

Studies show that vaccination on arrival can make a difference:

- Vaccinating at stressful times with INFORCE 3[®] and ONE SHOT[®] BVD can provide rapid protection against key respiratory diseases.^{1,2}
- During a 60-day receiving period, high-risk cattle vaccinated on arrival with both vaccines demonstrated a 41% reduction in second BRD treatments and a 45% reduction in third BRD treatments compared with calves that received Vista[®] Once SQ.²
- When vaccinated with INFORCE 3, immunosuppressed cattle demonstrated equivalent or greater innate and adaptive local immune responses to infectious bovine rhinotracheitis (IBR) than those vaccinated up to 12 days before stressful events.¹

COMPLETE PROTECTION HELPS CATTLE THROUGH THE ARRIVAL PERIOD.

The leading vaccine on the market,⁶ INFORCE 3:

- An intranasal vaccine that prevents bovine respiratory syncytial virus respiratory disease
- Delivers at least six months of immunity against IBR respiratory disease
- Can be administered in a single nostril for greater convenience

ONE SHOT BVD, the second-fastest-growing respiratory vaccine on the market:⁶

- Provides rapid onset of immunity and highest level of protection available against *Mannheimia haemolytica*⁷
- Has been demonstrated to provide onset of immunity against *Mannheimia haemolytica* within as early as seven days of administration⁷
- Is a descendant of BOVI-SHIELD GOLD[®] BVD, which demonstrated rapid protection against bovine viral diarrhea (BVD) virus in early weaned calves when administered with INFORCE 3.⁸

Help protect your cattle from respiratory disease through arrival. Contact your veterinarian or your Zoetis representative, or visit CompleteCalfProtection.com.

¹ Cortese V, Woolums A, Hurley D, Bernard J, Berghaus R, Short T. Comparison of interferon and BoHV1 IgA levels in nasal secretions of dairy cattle vaccinated with Inforce 3 prior to calving or on day of calving, in *Proceedings*. 29th World Buiatrics Congress 2016;436.

² Step DL, Krehbiel CR, Hixon C, et al. Evaluation of Commercially Available Multivalent Modified-Live Viral Vaccines on Health and Performance in Feedlot Cattle. *JJ Vaccine Vaccination*. 2015;1(3):1-8.

³ U.S. Department of Agriculture. Cattle and Calves Nonpredator Death Loss in the United States, 2010. https://www.aphis.usda.gov/animal_health/nahms/general/downloads/cattle_calves_nonpred_2010.pdf. Published December 2011. Accessed December 8, 2016.

⁴ Brodersen BW. Bovine respiratory syncytial virus. *Vet Clin North Am Food Anim Pract*. 2010;26(2):323-333.

⁵ Griffin D, Chengappa MM, Kuszak J, McVey DS. Bacterial pathogens of the bovine respiratory disease complex. *Vet Clin North Am Food Anim Pract*. 2010;26(2):381-394.

⁶ AnimateX[®] data, January 2019, Zoetis Inc.

⁷ Data on file, Study Report No. B835R-US-15-419, Zoetis Inc.

⁸ Data on file, Walz PH, Riddle KP, Richardson AP, et al. Impact of passive immunity induced by maternal vaccination on subsequent immunization and disease-sparing in early-weaned beef calves challenged with highly virulent BVDV, Zoetis Inc.