

**Protect calves early with a first-of-its-kind intranasal vaccine**

Building calf immunity within the first weeks and months of life can set them up for long-term success. Your customers have a vaccine option to help do just that. BOVILIS® NASALGEN® 3-PMH is the **only** intranasal bovine respiratory disease (BRD) vaccine that protects against both viral and bacterial pathogens that adversely affect calf health and performance.

Its benefits include:

* Delivered directly to the mucosal surfaces in the nose, thereby not affected by maternal antibody interference thus providing protective immunity shortly after vaccination.1
* Safe to use in calves as young as 1-week old2
* Powerful, long-lasting duration of immunity (DOI) with at least:
	+ 195 days against infectious bovine rhinotracheitis (IBR)3
	+ 95 days against parainfluenza 3 (PI3)4
	+ 78 days against bovine respiratory syncytial virus (BRSV)5
	+ 125 days against *Pasteurella multocida*6
	+ 122 days against *Mannheimia haemolytica*7
* Given in a single 2-mL dose; available in 1 dose (2-mL), 10 dose (20-mL) and 50 dose (100-mL) packages
* Contains a unique BluShadow® diluent that clearly indicates which animals have been vaccinated
* No injection means less stress on calves and no injection site reactions; BQA compliant

To learn more about building a robust immune system with this newest option in intranasal respiratory vaccines, visit **Nasalgen.com or contact your Merck Animal Health sales representative.**

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1. Osman R, Malmuthuge N, Gonzalez-Cano P, Griebel P. (2018) Development and Function of the Mucosal Immune System in the Upper Respiratory Tract of Neonatal Calves. *Annual Review of Animal Biosciences*, Volume 6.
2. Bovilis Nasalgen 3-PMH product label
3. Report No. BLI-095R, dated June 18, 2019, entitled “Duration of Immunity of the Bovine Rhinotracheitis Virus Fraction Contained in Bovine Rhinotracheitis-Parainfluenza 3-Respiratory Syncytial Virus-Mannheimia haemolytica-Pasteurella multocida Vaccine, Modified Live Virus, Avirulent Live Culture, Administered Intranasally to One Week Old Calves.”
4. Report No. BLI-089R, dated September 27, 2018, entitled “Duration of Immunity of the Bovine Parainfluenza 3 Virus Fraction Contained in Bovine Rhinotracheitis-Parainfluenza 3-Respiratory Syncytial Virus-*Mannheimia haemolytica*-*Pasteurella multocida* Vaccine, Modified Live Virus, Avirulent Live Culture, Administered Intranasally to One Week Old Calves.”
5. Report No. BLI-090R, dated October 5, 2018, entitled “Duration of Immunity (DOI) for the Bovine Respiratory Syncytial Virus (BRSV) Fraction in Product Code 11C8.20, Administered Intranasally to One Week Old Calves.”
6. Report No. BLI-088R, dated October 5, 2018, entitled “Duration of Immunity (DOI) for the Pasteurella multocida Fraction in Product Code 11C8.20, Administered Intranasally to One Week Old Calves.”
7. Report No. BLI-092R, dated January 31, 2019, entitled “Duration of Immunity for the Mannheimia haemolytica Fraction in Product Code 11C8.20 Administered Intranasally to One Week Old Calves.”