

## Getting results on the farm.

Protecting herd health with ENDOVAC-Bovi begins with a call to the veterinarian. The vaccine is available in 20-, 50- or 100-dose bottles from veterinarians and most major distributors. It has a shelf life of 36 months when properly refrigerated.

### ENDOVAC-Bovi at a Glance

Dosage                    2 ml intramuscularly  
                              2 ml booster in two to three weeks  
                              One annual booster

Available sizes        40 ml/20 dose  
                              100 ml/50 dose  
                              200 ml/100 dose



Inject the vaccine into the muscle structure of healthy cows, and then repeat in two to three weeks. Annual booster doses are all that is needed to maintain immunization. IMMVAC recommends administering ENDOVAC-Bovi on dry cows. This timing will optimize protection before early lactation, when *E. coli* mastitis usually is most prevalent.

In today's dairy economy, optimizing herd health is essential. By raising the bar for cross protection, ENDOVAC-Bovi is helping producers do more with less.

For more information about ENDOVAC-Bovi, please contact your veterinarian, visit [www.immvac.com](http://www.immvac.com) or call (800) 944-7563.



**IMMVAC**

Superior Science

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[www.immvac.com](http://www.immvac.com)

<sup>1,2</sup>National Mastitis Council, Current Concepts of Bovine Mastitis

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# ENDOVAC-Bovi® for dairy herds:

## Cross protection helps producers do more with less.

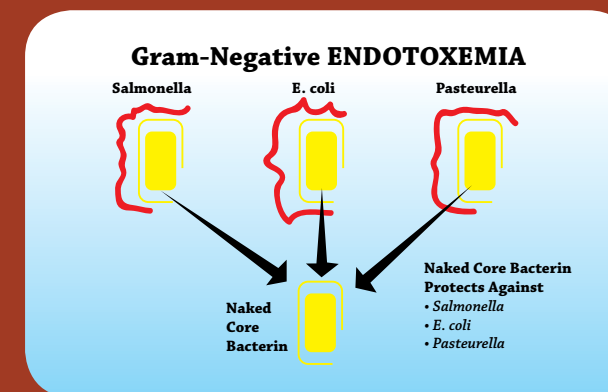
The margin between profit and loss has become razor thin for today's dairy producers. Few things can have a more devastating impact on the bottom line than mastitis or other conditions that decrease milk production and herd health.

Mastitis is a widespread problem, and the costs can add up quickly. At least one in 10 lactating cows has mastitis at any given time<sup>1</sup>. Infection takes a heavy toll, not only in reduced milk production and treatment costs, but also in discarded milk, the need for replacement cows and decreased sale value. Mastitis can cost producers more than \$1,500 for each incident and as much as \$1 billion annually<sup>2</sup> for the U.S. dairy industry.

Add in the numerous other pathogens that can infect a herd, and the expense can become staggering. Vaccination, the obvious solution to maintaining herd health, presents its own challenges. With so many potential pathogens to guard against, with each requiring a specific antibody, a cost-effective

vaccination program has been extremely difficult, if not impossible. ENDOVAC-Bovi® with IMMUNE Plus® provides a solution.

ENDOVAC-Bovi with IMMUNE Plus offers unprecedented cross protection against three of the most prevalent disease pathogens – *E. coli*, *Salmonella* and *Pasteurella*. In fact, it was the first USDA-licensed core-antigen vaccine developed to help prevent diseases associated with these three pathogens.



Simply put, the innovative technology of ENDOVAC-Bovi enables dairy producers to do more with less:

- No other vaccine on the market delivers this type of cross protection against multiple pathogens.
- ENDOVAC-Bovi nearly doubles lymphocyte production while increasing antibody levels ten-fold.
- Only two primary injections and one annual booster are necessary.
- Vaccination results in the longest lasting immune response of any product on the market.
- Fewer vaccinations are required, and the ones that are made are more effective.
- Vaccination results in higher milk production and lower treatment costs, which go straight to the bottom line.
- A recent study shows that Endovac-Bovi significantly lowers somatic cell counts thereby decreasing mastitis in lactating dairy cows.

The impressive performance of ENDOVAC-Bovi begins with the groundbreaking technology behind it.



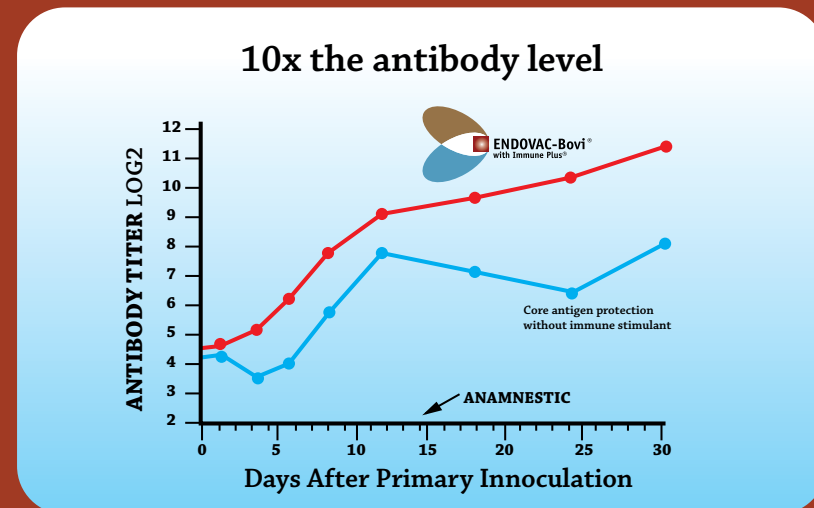
## Working with the cow's immune system.

Nature has given dairy cows a remarkable immune system to battle the numerous disease pathogens that they encounter each day. Two of the most important components of the immune system are the B- and T-lymphocytes.

However, just as with humans, pathogens can overwhelm the immune system and cause disease. ENDOVAC-Bovi protects herd health by quickly increasing the number of these B- and T-lymphocytes.

The vaccine is an Re-17 mutant *Salmonella typhimurium* bacterin-toxoid. It uses an antigen that is devoid of the outer O-side chains, which results in an exposed cell wall. Because the cell walls of gram-negative bacteria are virtually analogous, this "core antigen" vaccine provides cross protection from many gram-negative endotoxemic diseases, including coliform mastitis, diarrhea septicemia and various pneumonias. In fact, it controls 99 percent of gram-negative bacteria.

ENDOVAC-Bovi combines this core antigen bacterin with IMMUNE Plus, an immune stimulant, to provide much better performance than bacterin alone.



Dairy producers can achieve similar results in their own herds by following a few basic guidelines.

The combination of a bacterin and an immune stimulant provides impressive results.

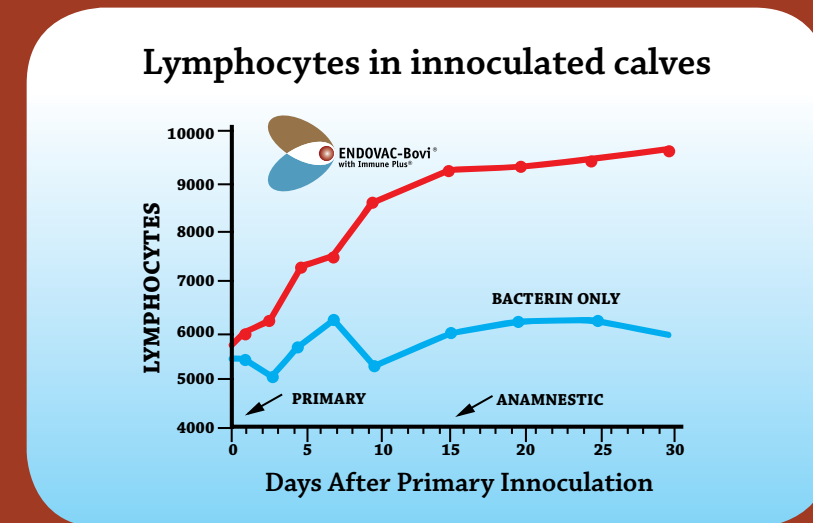
- **Immune stimulation** – By significantly increasing B- and T-lymphocytes, ENDOVAC-Bovi provides both cell-mediated (inside the cell) and humoral (outside the cell) immunity.
- **Cross-protection** – The cell walls of *E. coli*, *Salmonella* and *Pasteurella* are nearly identical, and by using a genetically engineered, naked core bacterin, ENDOVAC-Bovi protects against all three.
- **Herd safety** – The recombinant technology virtually eliminates the risk of anaphylactic reaction, making ENDOVAC-Bovi the safest core antigen protection against *E. coli*, *Salmonella* and *Pasteurella*.
- **ENDO-VAC-Bovi** has no effect on milk production in lactating dairy cows and no effect on dry matter intake in the lactating dairy cow.
- **Colostrum can be enhanced** with good cow vaccination. Higher antibody levels in the colostrum, more antibody passed on to the calf, creating longer duration of immunity in the calf.

Although the science behind ENDOVAC-Bovi is impressive, what counts most for producers is performance on the farm.

## Improved protection = Better performance

ENDO-VAC-Bovi has consistently proved itself in the place that matters most for producers – the milking parlor. In a comprehensive study of more than 2,600 dairy cows, the vaccine significantly reduced both the incidence and severity of coliform mastitis due to *E. coli*.

Research shows a much higher level of lymphocytes in inoculated calves when compared to bacterin only.



Dairy producers can achieve similar results in their own herds by following a few basic guidelines.

