

# Animal Vaccines

## BENEFIT ANIMALS

Animal vaccines are considered the first line of defense against diseases.

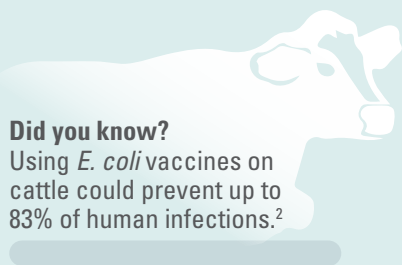


Vaccines help prevent disease and reduce the need for treatment, which leads to **less antibiotic use**.<sup>1</sup>



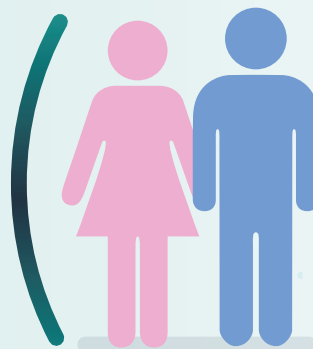
**Less disease and illness** means improved animal health and well-being.

## BENEFIT PEOPLE



**Did you know?**  
Using *E. coli* vaccines on cattle could prevent up to 83% of human infections.<sup>2</sup>

Vaccines protect animals from contracting diseases that they may then transmit to humans.<sup>2,3</sup>



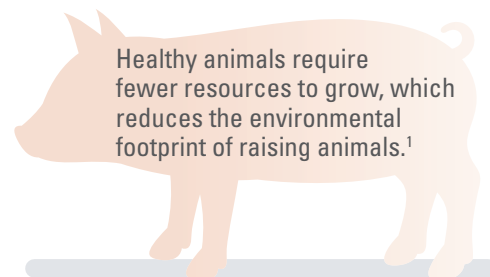
Vaccines **minimize the likelihood and spread** of food-borne pathogens.<sup>4</sup>



Vaccines help **keep food affordable**. By keeping animals healthy, food can be produced using fewer resources.<sup>1</sup>

## BENEFIT THE ENVIRONMENT

Animal vaccines help prevent animals from becoming sick, which means fewer animals need to be treated for disease. Fewer sick animals means reduced death loss in animal herds and fewer resources are used or wasted.<sup>1</sup>



Healthy animals require fewer resources to grow, which reduces the environmental footprint of raising animals.<sup>1</sup>

<sup>1</sup> Roth, J. A. Veterinary Vaccines and Their Importance to Animal Health and Public Health. *Procedia in Vaccinology*. 2011. 5:127-136. [http://www.elsevier.com/locate/S0177222X1100027011-s2.0-S1877222X11000270-main.pdf?\\_tid=3b9e9e9d-9803-11e7-ac0d-00000aacb35e&acdnat=1505252922\\_65fef46b434f096a9017c3861906543b](http://www.elsevier.com/locate/S0177222X1100027011-s2.0-S1877222X11000270-main.pdf?_tid=3b9e9e9d-9803-11e7-ac0d-00000aacb35e&acdnat=1505252922_65fef46b434f096a9017c3861906543b). Accessed August 3, 2017.

<sup>2</sup> Mathews, L. R. Reeve, D. L. Gally, J. C. Low, M. E. J. Woolhouse, S. P. McAteer, M. E. Locking, M. E. Chase-Topping, D. T. Haydon, L. J. Allison, M. F. Hanson, G. J. Gunn, and S. W. J. Reid. 2013. Predicting the public health benefit of vaccinating cattle against *Escherichia coli* O157. *Proc Natl Acad Sci USA*. 110(40):16265-16270.

<sup>3</sup> Rose, N. and Andraud, M. The use of vaccines to control pathogen spread in pig populations. *Porcine Health Management*. 2017. 3:8 DOI: 10.1186/s48813-017-0053-6. <https://porcinehealthmanagement.biomedcentral.com/articles/10.1186/s48813-017-0053-6>. Accessed August 3, 2017.

<sup>4</sup> Farrington, C. P. On vaccine efficacy and reproduction numbers. *Math Biosci*. 2003. 185:89-109. [http://cit.ens.ucvve/ecologia/Archivos/ECOLOGIA\\_DE%20\\_POBLACIONES\\_Hasta%202004/ECOL\\_POBLAC\\_Hasta%202004\\_\(A-G\)/Farrington%202003.pdf](http://cit.ens.ucvve/ecologia/Archivos/ECOLOGIA_DE%20_POBLACIONES_Hasta%202004/ECOL_POBLAC_Hasta%202004_(A-G)/Farrington%202003.pdf). Accessed August 3, 2017.