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Sommario/riassunto	The world’s population is predicted to hit 9 Billion by 2050, and with it food demand is predicted to increase substantially. The World Bank estimates that cereal and meat production needs to increase by 50% and 85% respectively between 2000 and 2030 to meet demand, putting serious pressure on the global agricultural industry. Critical to meeting this demand for food are mechanisms to reduce the incidence of animal disease. With in excess of 1.3 billion cattle globally, the total cost of infectious diseases is difficult to estimate. However in North America alone, the cost is predicted to be $18 billion annually. Non-infectious diseases also account for another major impediment to the production capacity and welfare of animals as well as the economic sustainability of farming. However animal diseases have implications that spread far beyond the farm gate. Infectious agents can also contaminate the food chain, and potentially affect human health. Controlling diseases, through better preventative and treatment methods requires a detailed understanding of the immune response in livestock species. Multiple studies have identified associations between variation in immune genes and disease susceptibility, which potentially opens up new avenues to select animals with superior disease resistance. Detailed understanding of immunity in cattle is leading to

the design of more effective vaccines. Furthermore, appreciation of the significant differences between rodent and human immune responses has also led to bovine models being developed for some human diseases.The publication of the bovine genome and the advent of next-generation sequencing technologies have facilitated a massive expansion in our knowledge of the immune response in cattle. As a result there has been an explosion of exciting research findings including in metagenomics and epigenetics. Recently, there has been a welcome move to integrate our emerging understanding of the immune response with detailed studies of other important physiological processes including nutrition and reproduction. The interactions between the reproductive system, nutrition and the immune system are of particular interest, since each places significant demands on the animal at various stages through the production cycle. The interplay between these morphologically diffuse systems involves widely distributed chemical signals in response to environmental input, and each system must interact for the normal functioning of the other. A comprehensive “systems” approach is improving our understanding of normal physiological interactions between these systems and furthermore, how dysregulation can lead to disease.The successful translation of bovine immunological research into improved treatments for animal disease requires tight interaction between diverse scientific and clinical disciplines including immunology, microbiology, endocrinology, physiology, nutrition, reproduction and clinical veterinary medicine. With so much recent progress in the field, we believe that it is valuable and well-timed to review the broad variety of the relevant studies that attempt to increase our understanding through comprehensive collaboration between these disciplines.We are looking forward to a wide and vivid discussion of developments in bovine immunology and related issues, and we expect that our readers profoundly benefit from new exciting insights and fruitful collaborations.