

**ABSTRACTS**  
**\* Author Presenting Paper**

**14 Genetic improvement of resistance to infectious diseases in livestock.** J.C. Detilleux\*<sup>1</sup>, <sup>1</sup>*University of Liege - Faculty of Veterinary Medicine.*

Despite traditional disease control measures, losses attributable to infectious diseases continue to impede the livestock industries. The emergence of previously undescribed pathogens has been a feature of the end of this century. Increased global travel and semen exchange has contributed to the dissemination of pathogens previously confined to specific regions. In addition, it is now clear that bacterial pathogens cause diseases previously thought not to be infectious. Old diseases have returned accompanied by the emergence of antibiotic-resistant strains. No new class of antibiotics has been discovered in the past three decades and derivative of current antibiotics soon encounter resistance. Other methods are thus desperately needed to counter diseases previously treated by conventional antibiotics. One approach is to improve genetic resistance to infectious pathogens. Evidently, selection for the most resistant animals necessitates the understanding of the components of the host response that lead to elimination of the invading pathogen and resolution of disease. But, it requires also the identification and characterization of the virulence factors and the *in vivo* survival mechanisms of the invading pathogen. The functional relationship between the pathogen transmission rate and its virulence within- and between-hosts should also be considered. Finally, it must be recognized that current host-pathogen relationships are shaped by co-evolutionary mechanisms between host defence mechanisms and pathogen genetic diversity. It is therefore distressing that studies dealing with infectious disease have developed until now separately. The joint efforts of many different teams with complementary expertises are necessary to evaluate simultaneously the impact of all disease determinants and of their interaction on natural resistance to infectious disease.

**Key Words:** Disease Resistance