

ceptibility" to experimental infection with one source of agent is controlled by a single gene and that the dominant allele confers "susceptibility". There is evidence that scrapie agent may replicate in some "resistant" sheep but at a slower rate than in "susceptible" sheep. For this reason, "resistance" is best regarded in terms of an extended incubation period. Also, "resistance" to one strain of agent does not mean "resistance" to all strains. A "resistant" flock of *Swaledale* sheep is being developed by experimentally infecting all animals and breeding from the survivors. There have been extensive outbreaks of natural scrapie in the "susceptible" flocks of *Cheviot* and *Herdwick* sheep.

Investigations of these outbreaks might be able to show whether or not sheep selected for "resistance" could be used to limit the spread of infection in flocks with a serious scrapie problem.

RESISTANCE OF CALVES TO GASTROINTESTINAL PARASITES

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Control of enzootic diseases is possible by hygienic measures and by increasing resistance of the animals. The resistance of calves to gastrointestinal nematodes is discussed as an example where the reaction of animals to a certain dose of infective larvae can be measured by serological as well as parasitological parameters. This resistance varies considerably in calves of the same age and feeding condition, and part of it is genetically determined. The question what this resistance means for the growth performance of the calf under various conditions of infection remains to be answered.

IMMUNOGENETICS STUDIES ON CATTLE TWINS

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Some components which are essential factors in the immune mechanism were quantified (titre tested) in the sera from cattle twins. It was found that in monozygous twins the kinetics of antibody formation against red cell antigens was under close genetic control. This phenomenon indicates that not only the amount but also the start, the rise and the persistence of antibody formation is genetically controlled. These results were obtained in twins which had never before been confronted with these antigens and where the dosage and route of injection was carefully controlled. When the contact with the antigen as in the case of the ubiquitously occurring J-substance could not be controlled genetic variation in the anti-I antibody titres was not demonstrable. The titre tests revealed considerable genetic variation also in the relative activity of complement (C₁ trough C₃) and konglutinin in the twin sera.

GENETIC ANALYSIS OF HEALTH DISTURBANCES IN PIGS

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Since the beginning of 1973 every pig from the Swedish Pig progeny testing stations pass a special post-mortem examination where any disease in the thoracic cavity or in the snout is registered. The diseases which are thereby recorded are different kinds of pneumonia, pleurisy and atrophic rhinitis (AR).

Data from this post-mortem examination during 1973-1975 were merged with the ordinary progeny testing records. This merging could not be done for those animals or groups which for