X-1. Genetic improvement of resistance to chronic diseases in swine(Abstracts of the International Symposium on Recent Advances in Animal Science(IS-RAAS),Joint meeting of 2^<nd> IS-AS and 3^<rd> IS-IFS)

Plenary Sessions

X-1. Genetic improvement of resistance to chronic diseases in swine

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Chronic infectious diseases in swine, such as atrophic rhinitis, AR, and mycoplasmal pneumonia of swine, MPS, have caused serious economic loss to swine producers. Various environmental coutermeasures as improvement of general sanitary conditions including use of SPF condition and adequate vaccines and antibiotics prescriptions are effective to protect animals from the diseases but the economic loss is still large. If these countermeasures were inadequately practiced, undesirable side effects will occur. The possibility for genetic improvement of resistance against AR and MPS was investigated using data from 716 Duroc pigs. The data contained five basic immune responses; antibody (IgG and IgM) productivity, phagocytotic activity, delayed type hypersensitivity and activity of alternative complement path way, of candidates for parents to produce the next generation, mean morbid changes caused by AR and MPS in two full-brothers of each candidate and other economical traits of each individual. Genetic and phenotypic parameters of the traits were estimated by restricted maximum likelihood method. Three selection indices were made based on the parameters to delete the morbid changes from the population. The first index was based only on the full-brother's morbid changes. The second index was based on five immunities of candidate, and the third index was based on three immunities and two morbid changes. Selection intensities were assumed as unity in the indices. It was theoretically predicted that from 3 to 5 generations of selections based on the indices bring us populations in which we can find no morbid changes caused by AR and MPS.