The thesis deals with the analysis of bonus-malus systems used in motor insurance to adjust the amount of the premium depending on the number of claims reported by the driver. It focuses on the mathematical description of a phenomenon called bonus hunger, where a driver prefers not to claim a claim in order not to be placed in a bonus class with a higher premium for the following period. The thesis describes the procedure for choosing the optimal retention using Lemaire's algorithm on the chosen model. In the practical part, the algorithm is implemented in software and values are calculated for a system based on the conditions of one Czech insurance company.