Monitoring and assessing farm animal welfare have been the cornerstones of the past European Community’s Action Plan on Animal Welfare stating the clear objective of introducing welfare indicators. As a result, the Welfare Quality® protocol offers validated measures for several species of production animals. Like in any other on-farm assessment time-consumption and costs are high. The vast quantity of information from routinely collected data in modern dairy production together with additional system information hold a great potential as indicators, but only few studies report expert opinion on the use of register data for welfare assessment purposes. Hence the objective of this project became to investigate expert opinion on feasible and cost effective indicators of animal welfare. These indicators were divided into two groups: the easy feasible register based indicators from the Danish Cattle Database and into the slightly more expensive resource-based indicators, ultimately seeking out the most predictive combinations of indicators for animal welfare. A panel consisting of 15 experts on dairy cattle production and welfare were invited to an on-line survey on rating 28 presumed welfare related indicators from register data and 20 additional resource-based measures. The experts were asked to rank the importance of the measures in relations to a welfare assessment. Further, experts were asked to assign contributing weights to single measures within a combination of several measures in order to describe one of ten criteria derived from the Welfare Quality® protocol. Results showed good agreement between experts amongst the evaluation of the given measures. Although a number of the experts’ uttered concern about performing welfare assessments and evaluation restricted to the use of this type of indicators, we believe they hold a great potential for a risk based identification of potential problem herds.