

ABSTRAK

Pengelompokan sapi berkualitas merupakan aspek penting dalam mendukung pengambilan keputusan di Dinas Peternakan Kabupaten Bireuen. Penelitian ini bertujuan untuk mengembangkan sistem informasi berbasis *Website* yang mampu mengelompokkan sapi potong berkualitas menggunakan metode *Fuzzy Clustering Means (FCM)* dan *Fuzzy Tahani*. Data karakteristik sapi yang dikumpulkan meliputi 12 variabel, yaitu jenis sapi, umur, jenis kelamin, bobot, kondisi mulut, kepala, leher, punggung, ekor, kaki, gigi, dan mata. Data kemudian diproses dengan metode *Fuzzy C-Means* untuk mengelompokkan sapi ke dalam dua *cluster* karakteristik tertentu. Sementara itu, metode *Fuzzy Tahani* digunakan untuk pengambilan keputusan berbasis *query fuzzy*, yang memungkinkan pencarian data sapi sesuai kriteria yang diinginkan. Hasil penelitian menunjukkan bahwa metode *Fuzzy Clustering Means (FCM)* menghasilkan dua cluster utama, yaitu "Berkualitas" dan "Tidak Berkualitas". Proses iterasi dilakukan hingga iterasi ke-14 dengan nilai error sebesar 0,001. Dari 20 data uji, terdapat 13 sapi berkualitas dan 7 sapi tidak berkualitas. Sapi berkualitas didominasi oleh jenis Aceh, Simental, dan Bali X. Pada metode *Fuzzy Tahani*, hasil *query* menunjukkan sapi jenis Aceh dengan kriteria usia dewasa dan bobot sedang memiliki nilai inferensi tertinggi. Hasil ini menunjukkan bahwa sapi Aceh pada baris 12 memiliki kriteria kualitas yang lebih baik dibandingkan sapi lainnya.

Kata Kunci: *Fuzzy Clustering Means (FCM)*, *Fuzzy Tahani*, Pengelompokan Sapi, Sistem Informasi, Sapi Potong

ABSTRACT

Clustering high-quality cattle is an essential aspect in supporting decision-making at the Livestock Office of Bireuen Regency. This study aims to develop a web-based information system capable of clustering high-quality beef cattle using the Fuzzy Clustering Means (FCM) and Fuzzy Tahani methods. The collected cattle characteristics data include 12 variables: breed type, age, gender, weight, and physical conditions of the mouth, head, neck, back, tail, legs, teeth, and eyes. The data were processed using the Fuzzy C-Means method to classify cattle into two distinct clusters based on specific characteristics. Meanwhile, the Fuzzy Tahani method was employed for decision-making using fuzzy queries, allowing the retrieval of cattle data based on desired criteria. The research results show that the Fuzzy Clustering Means (FCM) method produced two main clusters, namely "High-Quality" and "Low-Quality." The iteration process reached convergence at the 14th iteration with an error value of 0.001. Out of 20 test data, 13 cattle were classified as high-quality, while 7 were classified as low-quality. High-quality cattle were predominantly of the Aceh, Simental, and Bali X breeds. Using the Fuzzy Tahani method, the query results indicated that Aceh cattle with adult age and moderate weight criteria had the highest inference value. This result highlights that Aceh cattle in row 12 exhibit better quality criteria compared to other cattle.

Keywords: *Fuzzy Clustering Means (C-Means), Fuzzy Tahani, Cattle Classification, Information System, Beef Cattle*