ABSTRACT

Poultry farming in Indonesia has good prospects for development because it has a fast production process. Poultry meat production in Central Java Province shows significant variation in production levels between districts/cities. This variation can cause disparities that could potentially hinder the achievement of national production targets. This clustering was conducted to identify which districts/cities need government attention to increase poultry meat production in a comprehensive and sustainable manner. This study uses data on poultry meat production in Central Java Province in 2022. The data is processed using the Fuzzy C-Means (FCM) method accompanied by data visualization based on the clustering results and Graphical User Interfaces (GUI) made with R Studio software. FCM is a data clustering technique in which the presence of each data point in a group (cluster) is determined by its membership degree. Determination of the optimal number of clusters is done by calculating cluster validation indices such as Davies-Bouldin Index (DBI), Dunn Index (DI), and Xie-Beni Index (XBI). The results showed that the number of optimal clusters obtained was 3 clusters with cluster 1 having 8 members, cluster 2 having 2 members, and cluster 3 having 25 members. Cluster 1 is the cluster with the highest average poultry meat production, followed by clusters 3 and 2. Based on the results of data visualization, cluster 1 has a spread pattern in the northern and southern parts of Central Java, cluster 2, which only has two members, is spread in the central and northern parts of Central Java, and cluster 3 has a spread pattern that dominates in every part of Central Java.

Keywords: Poultry Meat Production, Central Java, Fuzzy C-Means, DBI, DI, XBI, Data Visualization, GUI R