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Characteristics of smallholder dairy farms by association rules mining based on apriori algorithm

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Characteristics of smallholder dairy farms by association rules mining based on apriori algorithm

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Abstract:

Characteristics of smallholder dairy farmers across regions are highly similar. However, introduction of improved farm management practices and extension support can be effective if specific constraints are identified for each farm typology. So far, approaches used to formulate farm types and characterise farming systems are not tailored to studying hidden patterns from farm datasets. Using the apriori association rules mining algorithm, characteristics of four smallholder dairy farm types are studied. Applying the power of the ArulesViz package, frequent items were visualised. These visuals which display some hidden attributes, solidified understanding on the key determinants for change in the studied farm types. The hidden smallholder farm characteristics were identified in addition to those given by cluster analysis in preliminary studies. Characterising smallholder farm data by using association rules mining is recommended in order to understand such systems in terms of what/how the majority practice rather than basing on cluster averages.

Keywords: Smallholder farms, dairy farming, characterisation, association rules, Apriori, ArulesViz, hidden characteristics