Predicting Common Moving Pattern of Livestock Vehicles by Using GPS and GIS: A case study of Jeju Island, South Korea

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Abstract

On farm evaluation for the control of airborne diseases like FMD and flu virus has been done in past but control of disease in process of transportation of livestock and manures is still needed. The objective of this study was to predict a common pattern of livestock vehicles movement. The analysis were done on GPS data, collected from drivers of livestock vehicles in Jeju Island, South Korea in year 2012 and 2013. The GPS data include the coordinates of moving vehicles according to time and dates, livestock farms and manure keeping sites. 2012 year data was added to ArcGIS and different tools were used for predicting common vehicle moving pattern. The common pattern of year 2012 were determined and considered as predicted common pattern for year 2013. To compare with actual pattern of year 2013 the same analysis was done to find the difference in 2012 and 2013 pattern. When the manure keeping sites and livestock farms were same in both years, as a result common pattern of 2012 and 2013 were similar but difference were found in patterns when the manure keeping sites and livestock farms were changed. In future for more accurate results and to predict the accurate pattern of vehicles movement, more dependent and independent variables will be required to make a suitable model for prediction.

Keywords

Airborne disease, FMD, GIS, GPS, Livestock, Pattern, Vehicles

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