**A Paddy Growth Stages Classification using MODIS Synthetic Data With Fast Minimum Covariance Determinant and Feasible Solution Algorithm**

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Abstract:

Remote sensing technology has been playing an important role in agriculture application, especially for monitoring, prediction, and classification of paddy growth stages, which associated with National food security program in Indonesia. This paper presents a paddy growth stages classification using MODIS synthetic data derived from ground-based measurement of spectral during farmland survey in Subang District of West Java. The classification methods used in this paper are Fast Minimum Covariance Determinant (FMCD) and Feasible Solution Algorithm (FSA). FMCD method is used to find out an appropriate number of observation samples from original total samples, which has covariance matrix with minimum determinant using C-step iteration. Eventhough FSA also has the same role, however, instead of C-step, this method uses I-step interation in algorithm. The result shows that classification using FMCD method is better than FSA method in term of accuracy, and can be applied into MODIS data to obtain harvest distribution map.

Keywords: growth stage, classification, modis