

DETERMINATION RICE CROPPING CALENDAR AND RICE PESTS DISTRIBUTION IN VINH LONG PROVINCE USING REMOTE SENSING

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Summary

Remote sensing data with the ability to provide information on multi-spectral and multi-temporal channels that has been widely used in the field of agriculture, natural resources and environmental. The MODIS (MOD09Q1) 8-day data was used to determine rice crop on rice growing region in Vinh Long province in 2017. The NDVI time series data was updated continuously from May 2017 to March 2018 to determine the start sowing seed and the harvest days of rice season, and to monitor the rice growth stages by unsupervised classification (K-Mean clustering) and GIS technique. The research results identified two main rice crop seasons including autumn - winter and winter – spring. In autumn - winter season has total area of sowing rice seed at 50,019 ha to be divided into 3 periods as follows (1) from 25 May to 6 June, 2017 with 4,374.25 hectares; (2) from 26 June to 4 July, 2017 with 15,742.2 ha; (3) from 20 July to July 28, 2017 with 16,971.2 hectares; (4) from 29 August to 6 Sep, 2017 with 9,442.25 ha; (5) from 16 Oct to 24 Oct, 2017 with 3,489 ha. In winter-spring season has total area of sowing rice seed at 55,923.7 ha to be divided into 3 periods as follows (1) from 10 Oct to 15 Nov, 2017 at 10,765.7 ha; (2) from 20 Nov to 30 Nov, 2017 at 42,476.6 ha; (3) from 10 Dec to 30 Dec, 2017 at 2,681.38 ha. Sowing rice seed area was compared between MODIS image interpretation and statistic local data with low variation in the autumn – winter crop about 3% (1,628.96 ha) and the winter-spring crop of 1.5% (862.75 ha) that showed high reliability. Moreover, rice growth stages were also updated continuously and provide information on pests warning in those two seasons. The research has provided basic data for rice crop season management and rice cultivation periods in local agricultural area in Vinh Long province.

Keywords: *MODIS imagery, NDVI time series data, pest warning, rice crop seasons, rice growth stages.*