



An Efficient and Examinable Illegal Fallow Fields Detecting Method with Spatio-Temporal Information Integration

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To control the rice production and farm usage in Taiwan, Agriculture and Food Agency (AFA) has published a series of policies to subsidize farmers to plant different crops or to practice fallow science 1983. Because of no efficient and examinable mechanism to verify the fallow fields surveyed by township office, illegal fallow fields were still repeated each year.

In this research, we used remote sensing images, GIS data of Fields, and application records of fallow fields to establish an illegal fallow fields detecting method in Yulin County in central Taiwan. This method included: 1. collected multi-temporal images from FS-2 or SPOT series with 4 time periods; 2. combined the application records and GIS data of fields to verify the location of fallow fields; 3. conducted ground truth survey and classified images with ISODATA and Maximum Likelihood Classification (MLC); 4. defined the land cover type of fallow fields by zonal statistic; 5. verified accuracy with ground truth; 6. developed potential illegal fallow fields survey method and benefit estimation.

We use 190 fallow fields with 127 legal and 63 illegal as ground truth and accuracies of illegal fallow field interpretation in producer and user are 71.43% and 38.46%. If township office surveyed 117 classified illegal fallow fields, 45 of 63 illegal fallow fields will be detected. By using our method, township office can save 38.42% of the manpower to detect illegal fallow fields and receive an examinable 71.43% producer accuracy.