

## Spasial Temporal Fase Tumbuh dan Varietas Padi Menggunakan Citra Radar Sentinel-1A di Kecamatan Ciasem, Kabupaten Subang = "Spatial Temporal Growth Phase and Rice Varieties Using Sentinel-1A Radar Imagery in Ciasem District, Subang Regency"

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### Abstrak

Tanaman Padi merupakan salah satu tanaman pertanian utama di dunia. Mayoritas sekitar 98% penduduk Indonesia juga mengkonsumsi beras sebagai makanan pokoknya. Sehingga perlu dilakukan pemantauan pertumbuhan tanaman padi secara efektif untuk mengontrol ketahanan pangan nasional. Tujuan dalam penelitian ini adalah untuk menganalisis karakteristik dan pola spasial fase tumbuh serta varietas padi secara spasial temporal di Kecamatan Ciasem, Kabupaten Subang. Data citra radar Sentinel-1A digunakan berdasarkan nilai *backscatter* polarisasi VH pada periode tanam 2018-2019. Hasil penelitian menunjukkan bahwa karakteristik fase tumbuh padi menghasilkan tren nilai *backscatter* yang meningkat pada fase vegetatif hingga fase pematangan. Pada periode tanam I nilai rata-rata *backscatter* lebih tinggi dibandingkan dengan periode tanam II karena terjadi anomali pengairan dan kekeringan berkepanjangan. Karakteristik varietas PB 42 memiliki variasi nilai rata-rata *backscatter* yang paling tinggi dan beragam dibandingkan varietas lain. Sementara itu, pola spasial fase tumbuh padi periode tanam I dimulai dari arah utara dan periode tanam II dimulai dari arah selatan. Pola spasial varietas padi periode tanam I dan II termasuk kedalam kategori *random* ( $z_{NNA} = 0,68$ ) dengan dominasi varietas Inpari 42, Ciherang, dan Mekongga. Sedangkan varietas Inpari 33 dan PB 42 hanya tersebar di beberapa bagian wilayah Kecamatan Ciasem.

Rice plants are one of the main agricultural crops in the world. The majority of about 98% of Indonesia's population also consume rice as their staple food. Therefore, it is necessary to observe the growth of rice plants effectively to control national food tenacity. The purpose of this study is to analyze the spatial characteristics and patterns of growth phases and rice varieties in a spatially temporal in Ciasem District, Subang Regency. Sentinel-1A radar image data is used based on the VH polarization backscatter value in the 2018-2019 planting period. The results showed that the characteristics of the rice growing phase resulted in an increasing backscatter value trend in the vegetative phase to the maturation phase. In 1st period of planting the backscatter average value was higher than in the 2nd period due to irrigation anomalies and prolonged drought. The characteristics of PB 42's variety have the highest and most average variation in the mean backscatter compared to other varieties. Meanwhile, the spatial pattern of the rice growth phase for 1st period of planting started from the north and 2nd period started from the south. The spatial patterns of rice varieties in the first and second planting periods were categorized as random ( $z_{NNA} = 0.68$ ) with the dominance of Inpari 42, Ciherang, and Mekongga varieties. Meanwhile, the Inpari 33 and PB 42 varieties were only scattered in several parts of the Ciasem District.