

PERBANDINGAN UJI AKURASI *FUZZY TIME SERIES*
MODEL CHENG DAN MODEL LEE DALAM *FORECASTING*
JUMLAH PRODUKSI KELAPA SAWIT DI PROVINSI
SUMATERA UTARA

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ABSTRAK

Kelapa sawit merupakan salah satu tanaman hasil perkebunan yang mampu bertahan pada saat terjadinya krisis ekonomi dan menjadi komoditas unggulan perkebunan yang memberikan sumbangan devisa yang cukup besar di negara Indonesia. Produksi kelapa sawit di provinsi Sumatera Utara mengalami kenaikan selama 5 tahun terakhir dengan luas lahan yang sudah digunakan sebesar 490,16 ribu ha. Penentuan jumlah produksi kelapa sawit di provinsi Sumatera Utara yaitu dengan peramalan *fuzzy time series* dengan menggunakan konsep himpunan *fuzzy* sebagai dasar perhitungannya. *Fuzzy time series* terdapat berbagai model diantaranya yaitu Cheng dan Lee, untuk mengetahui model dengan tingkat kesalahan (*error*) yang lebih kecil dihitung menggunakan MAE, MSE, MPE dan MAPE. Hasil peramalan dengan *fuzzy time series Cheng* sebesar 7270,418 ribu ton sedangkan hasil peramalan dengan *fuzzy time series Lee* sebesar 7275,425 ribu ton. Hasil analisis tingkat akurasi nilai MAE untuk model Cheng 1293,873 dan model Lee 1463,606, nilai MSE untuk model Cheng 5.885.351,768 dan model Lee 6.304.592,844, nilai MPE untuk model Cheng -0,016% dan model Lee -0,225%, dan nilai MAPE untuk model Cheng 0,345% sedangkan model Lee 0,423%. Maka disimpulkan bahwa metode *fuzzy time series Cheng* dinyatakan lebih baik untuk peramalan jumlah produksi kelapa sawit di provinsi Sumatera Utara karena menghasilkan nilai *error* yang lebih kecil.

Kata kunci: Kelapa Sawit, Peramalan, *Fuzzy time series*, Cheng, Lee

***COMPARISON OF THE FUZZY TIME SERIES ACCURACY
TEST OF THE CHENG MODEL AND THE LEE MODEL IN
FORECASTING THE AMOUNT OF PALM OIL PRODUCTION
IN NORTH SUMATRA PROVINCE***

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ABSTRACT

Oil palm is one of the plantation crops that was able to survive during the economic crisis and became a leading commodity for plantations that contributed a significant amount of foreign exchange to Indonesia. Oil palm production in the province of North Sumatra has increased over the last 5 years with an area of land that has been used of 490.16 thousand ha. Determination of the amount of oil palm production in the province of North Sumatra is by forecasting fuzzy time series using the concept of fuzzy sets as a basis for calculations. Fuzzy time series there are various models including Cheng and Lee, to find out the model with a smaller error rate is calculated using MAE, MSE, MPE and MAPE. Forecasting results with Cheng's fuzzy time series are 7270.418 thousand tons while forecasting results with Lee's fuzzy time series are 7275.425 thousand tons. The results of the analysis of the accuracy of the MAE value for the Cheng model 1293.873 and the Lee model 1463.606, the MSE value for the Cheng model 5,885,351.768 and the Lee model 6,304,592.844, the MPE value for the Cheng model -0.016% and the Lee model -0.225%, and the MAPE value for the Cheng model is 0.345% while the Lee model is 0.423%. So it was concluded that Cheng's fuzzy time series method is stated to be better for forecasting the amount of palm oil production in North Sumatra province because it produces a smaller error value.

Keywords: Oil Palm, Forecasting, Fuzzy time series, Cheng, Lee