

## THE INFLUENCE OF PATRON TYPE AND LIGHT INTENSITY ON COFFEE (*Coffea canephora* Pierre ex A. Froehner) PRODUCTION IN AGROFORESTRY AT MENOREH HILLS KULON PROGO

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### ABSTRACT

Coffee plant is a crop plantation which is currently one of the leading commodity. The demand for coffee that continues to increase needs to be balanced with adequate land while maintaining the function of forest ecosystems and environment. Therefore, an agroforestry system needs to be applied as a combination plant system that is efficient and easily accepted by the community. The practice of coffee-based agroforestry has long been developed in various regions in Indonesia, including the Menoreh Hills, Kulon Progo Regency, Yogyakarta Special Region. This study was conducted by examining the predictable variables that may have an effect on coffee productivity. The importance of this research is as an information and consideration for the government and local communities in making coffee-based agroforestry management decisions.

The method used in this research is descriptive quantitative using primary and secondary data. The data is analyzed by using the calculation of coffee fruit productions on three different patron types, diversity based on the important value index at each growth level, Shannon and Simpson Diversity Index at each plot location, measurements of environmental factors, measurements of tree individuals and dimensions, also the visualization of vertical-horizontal structures using SExl-FS. Data were analyzed using ANOVA, followed by Duncan Multiple Range Test if it showed a significant effect at the level of  $\alpha=0.05$ , to determine the effect of patron type on coffee fruit production.

The Menoreh coffee agroforestry system consists of three types of patron, namely coffee agroforestry with sengan (*Falcataria moluccana* (Miq) Barneby & J.W. Grimes) patron type, coffee agroforestry with cengkeh (*Syzygium aromaticum* (L.) Merr. & L.M. Perry) patron type, and coffee agroforestry with various patron type. The type of patron significantly affected the number of coffee cherries per tree and the wet weight of coffee cherries per hectare. The coffee agroforestry system with the sengan patron type produces the highest coffee fruit production compared to other patron types. In addition to the patron types, coffee productivity is also supported by microclimate conditions including relative light intensity, air temperature, and air humidity.

Keywords: coffee, agroforestry, patron type, light intensity, coffee fruit production

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## **PENGARUH JENIS PENAUNG DAN INTENSITAS CAHAYA TERHADAP PRODUKSI BUAH KOPI (*Coffea canephora* Pierre ex A. Froehner) PADA AGROFORESTRI DI PERBUKITAN MENOREH KULON PROGO**

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### **INTISARI**

Tanaman kopi merupakan tanaman sektor perkebunan yang menjadi komoditas unggulan saat ini. Permintaan akan kopi yang terus meningkat perlu diimbangi dengan kecukupan lahan dengan tetap menjaga fungsi ekosistem hutan dan lingkungan. Oleh sebab itu, diterapkan sistem pertanaman agroforestri sebagai sistem kombinasi tanaman yang efisien dan mudah diterima masyarakat. Praktik pertanaman agroforestri berbasis kopi telah sejak lama dikembangkan di berbagai wilayah di Indonesia, termasuk di Perbukitan Menoreh, Kabupaten Kulon Progo, Daerah Istimewa Yogyakarta. Penelitian dilakukan dengan menguji variabel terduga yang memungkinkan pengaruhnya terhadap produktivitas kopi. Penelitian ini penting dilakukan sebagai informasi dan bahan pertimbangan pemerintah maupun masyarakat setempat dalam pengambilan keputusan pengelolaan agroforestri berbasis kopi.

Metode yang digunakan dalam penelitian ini adalah deskriptif kuantitatif dengan menggunakan data primer dan sekunder. Data dianalisis menggunakan perhitungan produksi buah kopi berdasarkan tiga jenis penaung yang berbeda, perhitungan keanekaragaman berupa Indeks Nilai Penting (INP) pada tiap tingkat pertumbuhan, perhitungan Indeks Diversitas Shannon dan Indeks Diversitas Simpson pada setiap lokasi petak ukur, pengukuran faktor lingkungan, pengukuran individual dan dimensi pohon, serta visualisasi struktur vertikal-horizotal menggunakan SExI-FS. Data dianalisis menggunakan ANOVA, dilanjutkan uji lanjut *Duncan Multiple Range Test* apabila berpengaruh nyata pada taraf  $\alpha=0,05$ , untuk mengetahui pengaruh jenis penaung terhadap produksi buah kopi.

Sistem agroforestri kopi Menoreh terdiri atas tiga jenis penaung yaitu agroforestri kopi dengan penaung sengon (*Falcataria moluccana* (Miq) Barneby & J.W. Grimes), agroforestri kopi dengan penaung cengkeh (*Syzygium aromaticum* (L.) Merr. & L.M. Perry), dan agroforestri kopi dengan penaung campuran. Jenis penaung berpengaruh nyata terhadap jumlah buah kopi per pohon dan berat basah buah kopi per hektar. Sistem pertanaman agroforestri kopi dengan jenis penaung sengon menghasilkan produksi buah kopi tertinggi dibandingkan penaung lainnya. Selain jenis penaung, produktivitas kopi juga didukung oleh keadaan iklim mikro meliputi intensitas cahaya relatif, suhu udara, dan kelembaban udara.

Kata kunci: kopi, agroforestri, jenis penaung, intensitas cahaya, produksi buah kopi

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