

INTISARI

Penelitian ini bertujuan untuk 1) mengidentifikasi, mengkaji, dan menentukan kontribusi kalium (K) dalam menekan kejadian layu pentil, dan 2) menentukan kontribusi K pada aktivitas fisiologis dan kuantitas hasil kakao. Penelitian disusun menggunakan rancangan multilokasi dengan tiga blok sebagai ulangan. Faktor pertama adalah ketersediaan K, terdiri dari dua aras yaitu K tinggi (0,91 ppm) dan rendah (0,29 ppm). Faktor kedua adalah klon kakao, yaitu RCC 70, RCC 71, dan KKM 22. Variabel yang diukur meliputi karakter tanah dan iklim mikro, karakter biokimia pentil sehat dan layu, aktivitas fisiologi, gugur bunga, layu pentil, komponen hasil, dan hasil kakao. Data yang diperoleh selanjutnya dianalisis varians (ANOVA) dengan tingkat kepercayaan 95% dan dilanjutkan dengan uji HSD Tukey's jika terdapat beda nyata antar perlakuan. Hasil penelitian memberikan informasi bahwa tidak terdapat perbedaan kadar sukrosa yang signifikan antara pentil sehat dan pentil layu. Perbedaan yang sangat signifikan antara pentil sehat dan pentil layu justru ditemukan pada variabel kadar air pentil dan kadar gula reduksi. Pentil layu memiliki cadangan asimilat potensial dalam jumlah cukup, namun tidak dapat dirombak menjadi cadangan energi sehingga pentil tidak tumbuh tetapi justru layu. Ketersediaan kalium tinggi secara nyata menekan rasio layu pentil melalui penurunan laju transpirasi dan peningkatan kadar air nisbi jaringan. Ketersediaan kalium tinggi secara nyata juga mempengaruhi peningkatan kadar kalium daun, lebar bukaan stomata, kadar air nisbi, kadar CO₂ daun, kadar H₂O daun, laju fotosintesis, kadar sukrosa pentil serta menekan laju transpirasi. Perbaikan proses fisiologis ini diikuti oleh peningkatan berat segar biji, berat kering biji, dan ukuran per biji sehingga *beant count*-nya rendah. Semua kondisi tersebut berlaku secara umum pada RCC 70, RCC 71, dan KKM 22.

Kata kunci : kakao, kalium, fisiologi, layu pentil.

ABSTRACT

This objectives of research were 1) to identify, assess, and determine the contribution of potassium (K) in suppressing the incidence of cherelle wilt, and 2) to determine the contribution of K to physiological activities, yield components, and yield of cocoa. The research was arranged in a multilocation design, with three blocks as replications. The first factor was the availability of K, consisting of two levels, namely high (K 0.91 ppm) and low (K 0.29 ppm). The second factor was the cocoa clones, namely RCC 70, RCC 71, and KKM 22. The observations were done on several variables of soil and microclimate characters, biochemical characters of healthy and wilting cherelle, physiological activities, fallen flower, cherelle wilt, yield components, and yield of cocoa. Data were analyzed with Analysis of Variance (ANOVA) with 95% confidence levels, and continued with Tukey's HSD test if there were differences among treatments. The results showed that there were no significant differences of sucrose contents between healthy and wilting cherelles. The most significant differences between healthy and wilted cherelles were found on water content and reducing sugar of cherelles. The wilted cherelles have sufficient potential assimilate reserves, but can not be converted into energy so that the cherelles unable to grow (wither). The high availability of potassium was significantly reduces the wilting ratio of cherelles through decreased transpiration rate and increased tissue relative water content. High potassium availability also significantly increased the levels of leaf K, width of stomatal opening, relative water content, leaf CO₂, leaf H₂O, photosynthetic rate, sucrose level of cherelles, and suppressed transpiration rate. The improvement of physiological activities were followed by increased of fresh weight of seed, dry weight of seed, and size per seed, so that beans count were lower on high level of K when compared to low level of K. All of these conditions apply generally to RCC 70, RCC 71, and KKM 22.

Keywords : cocoa, potassium, physiology, cherelle wilt.