

INTISARI

Pemenuhan kebutuhan air tanaman sangat berpengaruh terhadap pertumbuhan tanaman. Untuk dapat memenuhi kebutuhan air suatu tanaman diperlukan perhitungan kebutuhan air yang detail untuk setiap fase tumbung-kembangnya serta mengetahui ketersediaan air pada lahan. Lahan pertanian Nawungan berpotensi mengalami kekeringan agronomis yang disebabkan rendahnya curah hujan wilayah, solum tanah tipis, dan lereng curam. Kegiatan pertanian di lahan kering sangat bergantung pada curah hujan. Teknologi pemanenan air dengan pembuatan embung dilakukan untuk mengatasi kekeringan agronomis. Embung di lahan pertanian menyediakan sumber air pada musim kemarau, mengantisipasi banjir pada musim hujan, dan mengurangi kecepatan aliran permukaan. Penelitian dilakukan di 10 lahan bawang merah periode tanam Februari-April yang terletak pada kelas lereng landai dan agak curam. Pendekatan hidrologi dilakukan untuk mengetahui kebutuhan air bawang merah. Pendekatan fisik dilakukan di kedalaman 0-20 dan 20-40 cm untuk mengetahui sifat fisika tanah dengan pengukuran tekstur, BV, BJ, porositas, kadar air (pF_0 , pF_2 , $pF_{2,54}$, dan $pF_{4,2}$), permeabilitas. Kebutuhan air pertanian merupakan jumlah air yang dibutuhkan untuk evapotranspirasi, kehilangan air, dan kebutuhan tanaman yang dipengaruhi hujan serta sifat tanah. Kebutuhan air lahan dibagi menjadi kebutuhan air konsumtif (CWR), kebutuhan air untuk petak lahan (FWR), dan kebutuhan air untuk seluruh pertanian (PWR). Setiap fase pertumbuhan tanaman memiliki kebutuhan air berbeda, yang diketahui dari koefisien tanaman (K_c). Tanah di lokasi penelitian didominasi PDC dan fraksi lempung sehingga laju permeabilitas tergolong lambat-agak cepat. Lahan di elevasi rendah memiliki tekstur lebih halus dan porositas lebih besar, karena terjadi pembentukan tanah baru akibat penimbunan lereng di atasnya, sehingga tanah memiliki rongga yang cukup banyak. Kebutuhan air di lahan bawang merah belum terpenuhi pada April II. Pemberian irigasi dilakukan dengan penyiraman air hujan yang tertampung di embung. Kebutuhan air untuk tanaman bawang merah pada bulan Februari-April berkisar 577,02-19587,69 lt sangat dipengaruhi oleh luas lahan bawang merah. Keberadaan embung telah mencukupi kebutuhan air untuk masa tanam bawang merah Februari-April.

Kata kunci: kebutuhan air tanaman, bawang merah, kekeringan agronomis, embung

ABSTRACT

Fulfilling plant water requirements strongly influences plant growth. To be able to meet the water requirements of a plant, it is necessary to calculate detailed water requirements for each phase of its growth and development as well as knowing the availability of water on the land. Nawungan agricultural land has the potential to experience agronomic drought caused by low regional rainfall, thin soil solum and steep slopes. Agricultural activities in dry land were very dependent on rainfall. Water harvesting technology by building reservoirs is used to overcome agronomic drought. Reservoirs on agricultural land provide a source of water in the dry season, anticipate flooding in the rainy season, and reduce the speed of surface flow. The research was carried out in 10 shallot fields during the February-April planting period which were located on gentle and slightly steep slopes. A hydrological approach was taken to determine the water requirements of shallots. A physical approach was carried out at depths of 0-20 and 20-40 cm to determine the physical properties of the soil by measuring texture, BV, BJ, porosity, water content (pF0, pF 2, pF 2.54, and pF 4.2), permeability. Agricultural water requirements are the amount of water needed for evapotranspiration, water loss, and plant requirements which are influenced by rain and soil properties. Land water requirements were divided into crop water requirements (CWR), farm requirements for plots of land (FWR), and permanent water requirements for the entire farm (PWR). Each plant growth phase has different water requirements, which are known from the plant coefficient (K_c). The soil at the research location were dominated by PDC and clay fractions so that the permeability rate is considered slow-rather fast. Land at low elevations has a finer texture and greater porosity, because new soil is formed due to the filling of slopes above it, so that the soil has quite a lot of voids. Water requirements in shallot fields had not been met in April II. Irrigation is provided by sprinkling rainwater collected in the reservoir. Water requirements for shallot plants in February-April range from 577.02 to 19,587.69 lt, which is greatly influenced by the area of shallot land. The presence of the reservoir has met the water requirements for the shallot planting period from February to April.

Key words: plant water requirements, shallots, agronomic drought, reservoir