

## RINGKASAN

Kentang merupakan salah satu komoditas pangan penting di Indonesia yang memiliki nilai ekonomis tinggi. Produksi kentang di Indonesia masih rendah, salah satu penyebab yang membuat produktivitas kentang rendah yaitu fluktuasi unsur-unsur cuaca seperti curah hujan yang tinggi sehingga dapat menyebabkan banyaknya serangan hama dan umbi kentang membusuk sebelum panen. Budidaya kentang konvensional umumnya menggunakan guludan vertikal yang berdampak tingginya erosi. Penerapan kentang dengan metode guludan horizontal terbukti dapat mengatasi degradasi lahan dan laju erosi, namun metode ini berpotensi mengurangi jumlah produksi kentang menurun. Hal tersebut dikarenakan guludan horizontal lebih banyak menyimpan air, sehingga diperlukannya penelitian terkait kesetimbangan air pada guludan horizontal dengan variasi teknik drainase. Penelitian ini bertujuan untuk: (1) mengetahui tingkat kesetimbangan air pada lahan kentang guludan horizontal dengan variasi teknik drainase dan (2) mengetahui tingkat produktivitas kentang pada lahan guludan horizontal dengan variasi teknik drainase.

Penelitian dilaksanakan pada bulan April-November 2018 di lahan pertanian Dusun Rejadadi Desa Serang Kecamatan Karangreja Kabupaten Purbalingga, Laboratorium Teknik Pengolahan dan Pengendalian Biolinkungan (TPPBL) Fakultas Pertanian Universitas Jenderal Soedirman. Variabel yang diamati yaitu komponen iklim, *run off*, kadar air volumetrik tanah, kerapatan tanah, konduktivitas hidrolis tanah, pertumbuhan tanaman, dan hasil panen kentang..

Hasil penelitian menunjukkan bahwa keseimbangan air tanaman kentang selama satu musim dengan masukan curah hujan sebesar 612,04 mm memiliki nilai *delta storage* positif pada semua perlakuan, dengan nilai masing-masing perlakuan R0 164,74 mm, R1 8,52 mm, R1.5 52,80 mm, dan R2 120,06 mm. Nilai produktivitas kentang terhadap perlakuan R1, R1,5 dan R2 berdasarkan uji lanjut LSD 5% tidak berbeda nyata dengan nilai rata-rata produksi 10022,22 Kg/Ha, 10044,44 Kg/Ha dan 8200 Kg/Ha.

## **SUMMARY**

*Potato is one of the important food commodities which has high economic value in Indonesia. Indonesia has produced potato slightly. Why it can be? One of the reasons is the fluctuation of weather's substances such as heavy rainfall. It can cause some pest's attacks and can rot the tuber of potato before we can harvest it. Mostly, conventional potato's cultivation uses vertical ridges that can cause high erosion. While the application of using horizontal ridges is proved that it can resolve the degradation of the land and the erosion's rate. However, this method is potentially to diminish the amount of potato's production. It happens because the horizontal ridges save the water more than the vertical ridges do. Therefore, it needs to held a research about the water balance in the horizontal ridges by drainage technique as a variation. The research is aimed : 1) to know the level of water balance in the land with horizontal ridges using drainage technique and 2) to know the level of potato's productivity in the land with horizontal ridges using drainage technique.*

*The research was hold from April to November 2018 at agricultural land in Rejadadi, Serang, Karangreja, Purbalingga and Teknik Pengolahan dan Pengendalian Biolingkungan Laboratory (TPPBL) Faculty of Agriculture, Jenderal Soedirman University. The variables observed are climate component, volumetric water content of the soil, soil density, soil hydraulic conductivity, plant growth, and potato yield.*

*The result showed that the water balance of potato during a season which was given with rainfall in amount of 612,04 mm had a positive delta storage for all of the treatments. The values of each treatment are R0 164,74 mm, R1 8,52 mm, R1.5 52,80 mm, dan R2 120,06 mm. The values of the potato's productivity toward the treatments R1, R1,5 and R2 based on the Post Hoc Test LSD 5% were not really different with the average of the production values. Those values were 10022,22 Kg/Ha, 10044,44 Kg/Ha, and 8200 Kg/Ha.*