Studi Pendapatan Petani Jagung Melalui Pemodelan dan Simulasi Sistem Dinamis Distribusi Jagung Pasca Panen di Wilayah Kabupaten Grobogan, Jawa Tengah

Wiwit Nugroho[1], Kuncoro Harto Widodo.[2], Atris Suyantohadi[2]

ABSTRAK

Pasca panen jagung kabupaten Grobogan memiliki aliran distribusi yang panjang mulai dari petani hingga konsumen akhir. Jagung pasca panen di Kabupaten Grobogan memiliki harga yang fluktuatif karna jagung bersifat musiman dan *perishable* (mudah rusak), oleh sebab itu di perlukan penanganan pasca panen yang baik agar kualitas jagung tidak turun yang berimplikasi kepada rendahnya harga jual jagung, khususnya kandungan kadar air pada jagung karena kadar air menjadi faktor terbesar dalam penentuan harga jual jagung. Kegiatan jagung ini dapat digambarkan melalui pemodelan dan simulasi sistem. Peningkatan kualitas jagung dapat dilakukan dengan menerapkan kadar air jagung di level petani yang mengacu pada SNI 01-3920-1995, sehingga berpengaruh pada nilai jagung petani yang meningkat, dan diharapkan dapat meningkatkan pendapatan petani.

Penelitian ini diawali dengan mengidentifikasi sistem dasar dan pelaku jaringan distribusi jagung pasca panen, kemudian membuat *Causal Loop Diagram* untuk menentukan variabel-variabel pendukung sistem. Selanjutnya yaitu memodelkan sistem distribusi jagung dengan menggunakan perangkat lunak sistem dinamis (STELLA 9.1.3) beserta verifikasi dan validasinya. Tahap terakhir adalah mensimulasikan pemodelan sistem berdasarkan kondisi eksisting dan membuat beberapa skenario untuk melihat model dengan kondisi berbeda dari kondisi eksisting.

Hasil dari penelitian ini menunjukkan bahwa perbedaan kandungan kadar air dalam jagung mempengaruhi harga jual jagung tersebut . Skenario 1 yaitu menurunkan kadar air jagung dari kondisi awal 20% menjadi 14% sesuai dengan mutu SNI, terjadi kenaikan nilai jual jagung sebanyak 7% dan menurunnya nilai pendapatan petani sebanyak 0,5%. Skenario 2 menaikkan kadar air menjadi 25%, harga jual jagung mengalami penurunan 11% dari kondisi nyata,dan nilai pendapatan petani turun 17% dari kondisi eksisting.

Kata kunci : distribusi, kadar air, sistem dinamis, pemodelan, pendapatan petani

[1]Mahasiswa Teknologi Industri Pertanian FTP UGM
[2]Staf Pengajar Teknologi Industri Pertanian FTP UGM

Study of Corn Farmer Income Through Models And Simulation of Dynamic System of Post-Harvest Corn Distribution in Grobogan Regency, Central Java

Wiwit Nugroho[1], Kuncoro Harto Widodo[2], Atris Suyantohadi[2]

ABSTRACT

Post-harvest corn in Grobogan regency has long distribution flow from farmer to consumer. Post-harvest corn in Grobogan regency also has a fluctuated price due to their seasonal and perishable characteristics; therefore it's necessary to create a good post-harvest system in order to maintain the quality of corn which implicated to a lower selling-price, especially for corn water content, because it becomes the most important factors in corn sell pricing. This corn activity could be described through models and simulation system. The increase of corn quality could be conducted with applying the corn water content based on SNI 01-3920-1995 in farmer level, so therefore affecting on the increase of corn value in farmer, so the farmer income could be increased.

This research began with identifying base-system and corn distribution player's chain, then creating *Causal Loop Diagram* to determine the variable's system. Corn distribution system was modeled using dynamic system's software (STELLA 9.13) along with the verification and the validation. The last step was stimulating system model based on existing condition and creating several scenarios to look models for the different condition from the existing ones.

The result of this research showed that the differences between corn water content affecting the selling-price. The first scenario was decreasing the water content to 14% from 20% as initial condition based on SNI, and it showed the increase of corn sell-pricing up to 7% and the decrease of farmer income up to 0.5%. The second scenario was increasing the corn water content to 25% and it gave the decrease of corn sell-pricing up to 11% from real condition, and also gave the decrease of farmer income up to 17% from existing condition.

Keywords: Distribution, water content, dynamic system, models, farmer income

[1]Undergraduate Students in Department of Agroindustrial Technology, Faculty of Agricultural Technology UGM
[2]Lecture in Department of Agroindustrial Technology, Faculty of Agricultural Technology UGM.