OPTIMALIZATION STUDY OF PLANT PATTERN IN MENTURUS IRRIGATION AREA BY USING LINEAR PROGRAMMING

Student’s Name : Ayu Coniferiana
NRP : 3106 100 076
Major of Department : Teknik Sipil FTSP-ITS
Supervisor : Prof.Dr.Ir. Nadjadji A, M.Sc
Ir. Sudiwaluyo MS

ABSTRACT

Menturus Irrigation area is located at Mojokerto, with 3274 Ha area wide is being handle by the dam. This area is being supplied by Brantas river that accommodated by Menturus Rubber Dam. It has limited amount of water on dry season that might cause trouble to the water distribution of the rice field. Therefore, water distribution has to be managed in order to fulfill their necessities and the demands of farmers. One of the common problems in this area is that farmers demand to get water as efficiently as possible.

Due to the limitation of water supply, an optimization study is done by using Quantity Methods for Windows 2 program. Constraint variables used to operate in linear programming are dependable flow and water necessities. The output of this calculation is the planting field area that can be managed according to species of plants, planting seasons, and the profit of crop that can be obtained.

From a lot of planting pattern alternatives, the highest profit come from paddy–paddy-paddy/crops and sugar cane planting pattern with an early planting period on November 3 with production profit up to 38,739,498,443.52 rupiahs and plant intensity 300%.

Keyword: Menturus, Plant Pattern, Linear Programming