OPTIMIZATION UTILIZATION OF BENING RESERVOIRS FOR IRRIGATION WITH GOAL PROGRAMMING

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ABSTRACT

Widas reservoirs or commonly known as Bening reservoirs is one of existing reservoirs in East Java, located in Madiun regency. Bening reservoirs water source comes from Widas river and seven other small river is utilized for irrigation purposes, in the area of Irrigation Bening Reservoirs of 8750 Ha. Aside from reservoirs, the regional irrigation also get additional water from the river system downstream reservoirs. Types of plants consists of rice and vegetable, especially soybeans and here is mostly red onions, planting patterns used are rice-vegetable, -rice-vegetable, rice-vegetable.

In the dry season, especially in irrigated areas experiencing water shortages downstream which can lead to reduced production. With the availability of water in reservoirs and river systems to be optimized in order to maximize the benefits of farm acreage based on the optimal. For this analysis use auxiliary program called Quantity Methods for Windows 2, where the water needs of each alternative cropping patterns and signature debit was made the limitation or constraint as input data in the operation of a linear program. While the target of the Government program is used as a constraint to the input in the operation of goal programming. The Output of this program is the maximum extents fields each type of plant and the profit obtained yield farmer.

From the results of operations with linear programming with some alternative cropping patterns, cropping patterns obtained plans that generate the biggest profits in the early planting, November 1, planting patterns of rice-vegetable-vegetable with the benefit of Rp 759,546,192,947,00 with planting intensity 143.38%. While the results of optimization by goal programming based on the target of the Government program for the production of rice in the area of Irrigation Bening Reservoirs of 6,826 Ha can be met and the target profit of Rp. 800,000,000,000,00 can be achieved.

Keywords: Goal Programming, Maximum Benefit, Optimization, Bening Reservoirs
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