

IMPROVING RICE PRODUCTION ON ACID SULFATE SOILS IN
SOUTHERN PART OF THE MEKONG DELTA BY THE INTENSIVE
SHALLOW DRAINAGE SYSTEM.

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ABSTRACT

Various methods of improving rice production on acid sulfate soils (ASS) in the Mekong Delta (MD) were developed among them the intensive shallow drainage shallow drainage system, or low raised bed, in areas affected by (a) flood water in the rainy season (b) presence of the sulfuric horizon at shallow depth, or (c) salt water intrusion early in the end of the rainy season. A detailed survey was carried out on a hundred farmer's fields from June 1984 in the Southern part of the Mekong Delta (MD) to find out the main factors affecting yields of traditional varieties of rice. The results showed that:

1. The shallow ditches should not be deeper than where the sulfuric horizon was.
2. The optimum dimensions of the raised beds and ditches are:

- a. The width of the raised bed can be calculated from this equation

$$Y_1 = 11.53 - 8.88x_1 + 2.90x_5 - 1.14x_6$$

- b. The ratio between the width of the raised bed and the width of the ditch:

$$Y_2 = 10.66 - 8.001 + 2.54x_5 - 0.91x_6$$

The width of the ditches can be calculated from Y_1/Y_2 .

3. The optimum desirable height of rice plant of a particular variety:

$$Y_3 = 1.62 + 0.20x_1 - 0.19x_5 - 0.28x_6$$

Where: X1 the maximum water depth (m) in the field
X5 the depth to upper boundary of the sulfuric horizon (m)
X6 the depth to upper boundary of the sulfidic material (m)

These equations were applied on a 5ha field of Minh Ha state farm (Minh Hai province). The final yields of Trai May traditional rice variety were increased from 1.5t/ha in the natural conditions to 3.0t/ha in low raised beds.