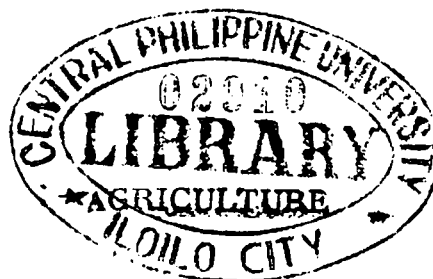


UTILIZATION OF SUGARCANE BAGASSE MULCH IN  
TOMATO (LYCOPERSICON LYCOPERSICUM  
(L.) KARSTEN) PRODUCTION

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SUBMITTED TO THE FACULTY OF THE GRADUATE SCHOOL,  
UNIVERSITY OF THE PHILIPPINES AT LOS BAÑOS IN  
PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF

MASTER OF SCIENCE  
(Horticulture)

October, 1978

## ABSTRACT

Famoso, Erlinda Bico, October, 1978. University of the Philippines, Los Baños, College, Laguna. Utilization of Sugarcane Bagasse Mulch in Tomato (*Lycopersicon lycopersicum* (L.) Karsten) Production. Major Professor: Dr. Ofelia K. Bautista.

Three sets of studies (greenhouse tests, laboratory and field experiments) were conducted to gain information on how to maximize the utilization of sugarcane bagasse-mulch in tomato production using the cultivar Marikit.

The initial greenhouse study showed that the 4-month old bagasse had an unfavorable effect on plant growth especially when applied 15 cm thick, as evidenced by the burning effect on the lower leaves, yellowing and stunting growth and lower yield. The 2-month old rice straw did not show any unfavorable effect. Four months after, the same bagasse-mulch favored the growth and increased the yield of the second crop.

The seedbox study indicated that yellowing and stunting were due to substances given off by the 1-5 month old sugarcane bagasse. The petri dish test proved that these toxic substances were water soluble and were present at higher concentration on the 1-5 month old bagasse. Its low concentration on the 6-8 month old bagasse stimulated the growth of tomato seedlings.

The final test in the field showed that mulching with 8-month old tended to increase plant heights over the unmulched plants. Increasing thickness of bagasse mulch delayed the flowering; induced greater chlorophyll synthesis and increased the number of flowers per plant, dry matter and yield of transplanted 'Marikit' tomato when combined with nitrogen fertilization. The unmulched plants had the least while rice straw had intermediate amounts. At 7.5-10 cm thick bagasse-mulch increased the soil organic matter after 4 months which resulted to lower bulk density. The high moisture conserved on these treatments reduced the daily maximum temperature and favored the growth of decomposing microorganism ultimately contributing further to the organic matter content of the soil.

Substantial amount of nitrogen fertilizer however, is needed to get maximum benefits. The thicker the mulch the more nitrogen. Therefore, 90, 150 and 210 kg nitrogen are needed for tomatoes when 5, 7.5 and 10 cm bagasse mulch are used respectively. These treatment combinations gave the highest net income and return per peso invested.