

STUDY OF FRUIT CORE TISSUE DETERIORATION IN
PINEAPPLE (ANANAS COMOSUS CV MAURITIUS)
UNDER COLD STORAGE

by

KAHAWATTA PALLIYAGURUGE AMARADASA NAKAYAKKARA ✓

Thesis

submitted in partial fulfilment of the requirements

for the degree of

MASTER OF PHILOSOPHY

in the

POSTGRADUATE INSTITUTE OF AGRICULTURE

of the

UNIVERSITY OF PERADENIYA

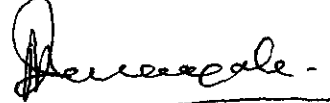
SRI LANKA

Approved :


Supervisor


(Prof. H.M.W. Herath)

Examiner


(Prof. Y.D.A. Senanayake)

Examiner


(Mr. H. Samaratinga)

March 1991.

557537 ✓

C 634.774

N15



557537

AGRICULTURE LIBRARY
UNIVERSITY OF PERADENIYA

ABSTRACT

Since 1983, the exportation of fresh pineapples to the Middle Eastern Countries has considerably decreased. Consignment of these fruits showed a physiological disorder resulting in core breakdown and Internal Browning (IB) under cold storage conditions. The initial symptoms of this deterioration were the formation of watery tissue in the core and its adjacent areas. These symptoms are undetectable externally since the fruits appeared normal.

Field experiments followed by cold storage investigations using fruits of various stages of physiological maturity were carried out to study this phenomenon. The field treatments consisted of three concentrations of Calcium Carbide (CaC_2), Alpha Naphthaline Acetic Acid (α - ANA) and Ethrel (Ethephon) which were superimposed on limed and unlimed plots arranged in a split-plot design. Immediately after harvest fruits, were stacked in corrugated paper cartons and stored in a cold room (10°C and 80 - 85% R.H.) in simulated sea freight reefer container conditions for periods upto four weeks.

The results indicated that the response to concentrations of each flowering hormone was essentially the same. The hormones and lime applications failed to prevent this deteriorations.

It was found that the fruits stored for 1, 2, 3 and 4 weeks at 10°C significantly increased the symptoms of deterioration without any exposure at ambient temperature. The fruits affected by core deterioration had significantly increased Internal Browning (IB), Titratable Acidity (TA) and significantly decreased Total Soluble Solids (TSS), pulp pH and K ions content of the core tissue than the unstored fruits.