

MATERIALS AND METHOD

Research site in the O'o Village, District of South Kulawi, Donggala, which is the area around the Lore Lindu National Park, Central Sulawesi Province, with a height of 476.149 m above sea level, and coordinates 1.5524° north latitude and 120.0206° east longitude. The study done in December 2006 to June 2008.

Materials used for conducting the study are as follows: cacao tree has been planted and about 6 years old. This research is divided into several stages. Each stage of the experiment are described as follows:

1. Determination and manufacture of research plots

Approximately one ha cacao plantation area is divided into six research plots. Three plots as control (non-roofing plot), and three plots with a closing roof (roofing plot). Each plot measuring 35 m x 40 m. To measure the parameters of each plot was chosen six cocoa tree.

2. Instalation of roofing

Installation of roofing conducted in early March 2007 with how to install bamboo panels are plastic PE coated size 60 cm x 300 cm below the tree canopy.

3. Measurement of number of leaves per branch

Each tree in select 4 pieces of branches located in the North, South, West and East. Branches that have been selected and marked measurements were taken every two weeks.

4. Measurement of Leaf Mass Area (LMA)

Each tree was taken 4 of mature leaves. Determination of a mature cacao leaves by using a leaves color index. From these observations of mature cacao leaves lie in order to 4 or 5 leaves on each branch. Leaves that have been taken directly inserted in plastic clip to avoid evaporation. Leaf measurements made in the laboratory by measuring the total area with millimeter paper, then the leaves are dried in an oven that gets dry weight.

5. Measurement of stem diameter

Tree diameter measured at chest height of an adult by plastic ruler (scale 0-100 cm). Observations were observed at the beginning and the end of installation.

6. Trough fall measurement

Measurement of through fall on the plots roofing performed using 25 cm diameter plastic funnel. This funnel placed above and below the roof. To the above, a funnel placed at a height of 150 cm, whereas under the roof, the mouthpiece is placed at a height of 50 cm or adapted to a high roof. All mouthpieces are