has not led to significantly reduced water content of soil around the trees on the plot roofing. If water availability is lower and higher temperatures would work together to reduce the number of leaves and the total area of leaf area (Ogaya & Penuelas, 2003; Ogaya et al., 2003) However, different species will have a response to the different morphology and physiology in the face of changing conditions climate (Ogaya & Penuelas, 2006) such as lower leaf area showed significant reduction of carbon capture and accumulation of biomass, but this decrease is very different in different species, depending sesinsitivity to drought (Ogaya & Penuelas, 2006). In previous studies, on drought stress research 15% decline in the availability of ground water result in very little decrease in the rate of photosynthesis of *Quercus* species of Ilex and *Phillyrea latifolia* (Ogaya and Peñuelas, 2003) and a sharp decrease of biomass, especially on *Quercus ilex* (Ogaya et al. 2003) .

Alternatively, the drought for the past 13 months has no effect on cocoa crop growth changes in general because it is too short observation time. Research Welker et al. (2005) found no change in leaf N concentration after two years in the tundra region. But in research Richardson et al. (2005) in the bush in the area sub atrik can know real change of the chemical content of leaves after nine years of observation.

CONCLUSION

The drought stress with TDE system does not influence to the leaf number per branch, leaf mass per area ratio, and stem diameter of coco tree eventhough that TDE systems effectively reduce infiltration of rainwater into the ground, however, soil water content decreased by 30% had no effect on cocoa crop growth aged 6 years. The growth of cocoa plants before and during drought stress showed the leaves number per branch increased from 17.18 to 38.88 leaves; LMA values are relatively constantly is 8.7 mg/cm^2 and cocoa stem diameter increased from 29.72 cm to 33.67 cm.

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