

CHAPTER V

CONCLUSION

A series of 2 years experiments were conducted in 2 different soils (Sandy clay loam soil, and Loamy sand soil) to determine water and fertilizer management on yield and ratooning ability (RA) of sugarcane. It was found that 2 soil textures had similar results in both years. Drip irrigation practices had better growth performances and also produced higher yield and yield components than the rainfed conditions. The drip irrigation practice had a higher average yield than rainfed conditions by 34–58% in plant cane (PC) and 32–37% in 1st ratoon cane (FRC).

In the comparison of fertilizer applications (soil fertilizer application and fertigation), the results showed that fertigation had better growth and yield production than the soil fertilizer application. The number of millable cane (NMC) was 16.4 % and the yield was 22.4% higher under fertigation than under the soil fertilizer application. Additionally, under the same rate of fertilizer and water supply, drip fertigation which produced a higher yield also had higher Irrigation water use efficiency and fertilizer nutrient use efficiency than soil fertilizer application by 15% and 23% respectively.

For RA evaluation, the results showed that both year practices (PC and FRC) influenced the RA of FRC sugarcane. For the previous crop effects (PC residual), the rainfed residual which produced high underground structures (root and stubble) had the highest initial ratoon germination, RA based on NMC, and RA based on yield. For the current crop practice (Current year practice in FRC), drip fertigation practice had higher RA based on NMC, and yield than rainfed conditions.

The NMC and yield of the FRC did not depend on initial RAs. RA was only an indicator of the adaptability and high vigor of ratoon seedlings but the NMC and yield of FRC were much more associated with the current crop management. Regardless of all residual practices, the current crop fertigation practice produced a higher yield than the rainfed condition practices. Even though drip fertigation was the most effective way to produce growth and yield, but with low RA, it reduced the vigor and adaptability in the next ratoon cane if grown under non suitable condition, including,

under rainfed condition. Therefore, drip irrigated sugarcane must be grown under the same practices for all ratoons to maintain growth, yield and RA.