



Jake McLagan, Bill Boyge and Rod Fletcher stand in front of some six month old Q250[®] that Bill is trialling.

Understanding maturity

The process of maturity happens during the growing season as internodes along the stalk fill with sugar. However, full maturity of cane (ripening of the upper internodes) happens only when appropriate climatic conditions are reached.

The factors that most easily enhance ripening include both temperature and moisture levels and generally limit stalk elongation. Since sunlight and temperature are typically related, both the intensity and duration of sunlight are part of the ripening process.

Typically, times of the year that promote ripening are stress-induced by either cool or dry and sunny conditions. Conditions that see CCS drop are overcast, wet days and higher temperatures promoting vegetative growth and suckering.

For this reason, graphs of maturity curves often start lower and then increase over time during the harvest season. Depending on weather factors at the conclusion of the harvest season, the curve may fall toward the end of the season or it may simply flatten out following the peak when cane fully matures.

Managing adverse weather conditions can be extremely difficult. However, in irrigated areas, at least the moisture portion of the ripening process can be altered.

Typically, drying off the crop prior to harvest provides the stress to allow for rapid maturation of the upper internodes. The soil depth, soil texture, soil water holding capacity, amount of solar radiation, age of the cane and other factors all affect the length of the drying off period prior to full maturation.

Fully mature cane has levels of brix and sucrose content that vary considerably from region to region, depending upon the varieties grown, climatic conditions, available nutrient levels and other growth/maturation factors.

These same factors also alter the maturity pattern throughout the harvest season resulting in differing patterns throughout the industry.

Flowering is also part of the cane stalk maturation process. Flowering is initiated when day-length gradually decreases to less than 12.5 hours. In Australia, initiation generally occurs in mid-February.

For flowering to occur, the plant must have reached some level of maturity and the appropriate climatic conditions experienced.

High temperatures in mid-February can stop flowering. As a general rule, flowering is greater in the northern region. Some varieties flower profusely while other varieties rarely flower.

The northern breeding program will penalise varieties that flower heavily as flowering limits further growth of stalks which can reduce tonnages in northern regions with warmer winters.

Sucrose levels in the stalk often will increase slightly due to the cessation of stalk growth.