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3. Floral initiation – first part

Newly-formed buds on a shoot are vegetative in nature and produce shoots that contain only leaves and no bunches. The mechanism of floral initiation consists of the gradual transformation of a vegetative bud into a fruit bud that will produce a shoot with bunches. This mechanism takes place in two stages. The first is a floral induction (the message that the bud “receives” to initiate the process of floral differentiation), followed by a floral differentiation that produces the cellular division and subsequent cell differentiation. This long process of floral initiation requires a number of climatic and nutritional conditions, and therefore not all of the buds undergo this phenomenon, and the process does not occur in the same way every year.

The floral induction of the latent bud that will “break” the following year occurs during blooming, with a possible variation of two weeks (before or after blooming). The bud requires special conditions of temperature, light, and nutrition during this period. The buds that are susceptible to floral induction are located in nodes 1-3 and up to the 15th apical position of the cane. If the bud is in condition, it will induce and the period of floral differentiation will begin.

All of this occurs within a bud that will open the following spring. Therefore, by the end of the summer the buds will already contain miniature bunches that will appear the following season. It is therefore possible to examine a cross-section of a bud under a microscope during the dormant period to determine the average number of bunches per shoot, considering the rachis (main stem) with three or more branches to be future clusters. This provides a very approximate index of bud fertility, which allows us to predict the approximate yield in kilos per hectare of the next harvest.