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#### **4. Floral initiation – second part**

*The process of floral differentiation begins at the end of the dormant period, in early spring. It requires moderate temperatures and good bud nutrition.*

*The process accelerates during florescence in late September; the androecium is formed, followed by the gynoecium, and finally the ovules. Therefore in late November, a month and a half after bud break, the cluster and the number of flowers per cluster is already determined. A bud that undergoes floral induction will be a fruit bud; the amount of fruit that it will bear will depend upon the conditions of the previous spring, when the bud was formed, as well as those of the current spring, when it underwent the differentiation of the stems and flowers.*

*In mid-November, when shoot growth is fully underway, the future bunches (inflorescence) become visible and separate, and the flowering period begins. This is when the calyptras (the covering made of petals) falls and the flowers are revealed. At this time the pollen released by the stamen should fall on the pistil (female organ that contains the ovaries), a phenomenon called pollination. The pollen's sperm nuclei then descend through the pistil to reach the ovary, where it finds the ovules to be fertilized. This is called fertilization. Any of the four ovules contained in the ovary may be fertilized during this process, so the grape berries may have 1, 2, 3 or 4 seeds.*

*The number of seeds formed in each berry will be a determining factor in the size of the berry; grapes with more seeds have more growth hormone and consequently grow larger.*

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*Temperature is the principal factor that determines good fertilization or fruit set, and therefore, for a certain number of flowers to become berries with a good number of seeds, it is essential that temperatures remain above 59°F. Any phenomenon that provokes stress in the plant during this period, such as cold rain, competition, toxicity, etc., will cause an abnormal fruit set, the consequence of which is coulure or millerandage. A bunch with millerandage, or poor fruit set, has berries of differing sizes, some very small and others very large; it will be a very loose bunch with few berries.*

*At the end of this flowering-fruit set period, we will have a specific number of bunches as well as the number of berries per bunch, and we will obtain the first estimation of the amount of fruit at next harvest.*