

LATE BLOOM

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In late August 1998 I heard from several growers who had beds in the Cranmoor and Warrens areas that were producing flowers again. I heard estimates as high as 10% of the uprights were flowering late. That sounded pretty significant to me so I made some time to investigate.

I visited three different growers in Central Wisconsin and looked carefully at their beds. I was able to find an occasional flower here and there on all the cultivars we examined, but it certainly wasn't 10% in bloom, perhaps 0.01% in bloom.

For the most part the uprights that I saw in flower weren't "umbrella bloom". The terminal bud had produced additional growth of leaves and stems so the flowers weren't terminal on the uprights. In some cases pinhead and larger fruit were developing. It was still green and very small and was almost certainly sorted out by size in the harvest and cleaning process. Some of these new uprights were beginning to show development of a new terminal bud.

Late bloom doesn't occur too frequently in Wisconsin. It is fairly common in New Jersey where it frequently appears as "umbrella bloom". In this article I will speculate on what caused the late bloom, what effect it will have on the 1999 crop and whether it will happen again.

Bud development in cranberry begins about the same time as fruit set. Bud development can be subdivided into several steps. The first is bud induction. How bud induction occurs and the signal that leads to induction is not well understood. Factors that are thought to play a role include daylength, light quality (red vs. far red), temperature, carbon resources and plant hormones. Once the signal is given the result is the genetic material produces code for new proteins that alter the way cells grow and divide.

Once bud induction has occurred then we can physically see the development of the buds. Usually we can't really see the buds clearly until mid to late July. Buds continue to develop throughout the summer and into the fall. The rate of growth is dependent on the vigor of the vines and the weather they experience. Moderate weather and ample sunshine lead to the fastest growth rates. Bud development slows, but does not stop during the winter (Fig. 1).

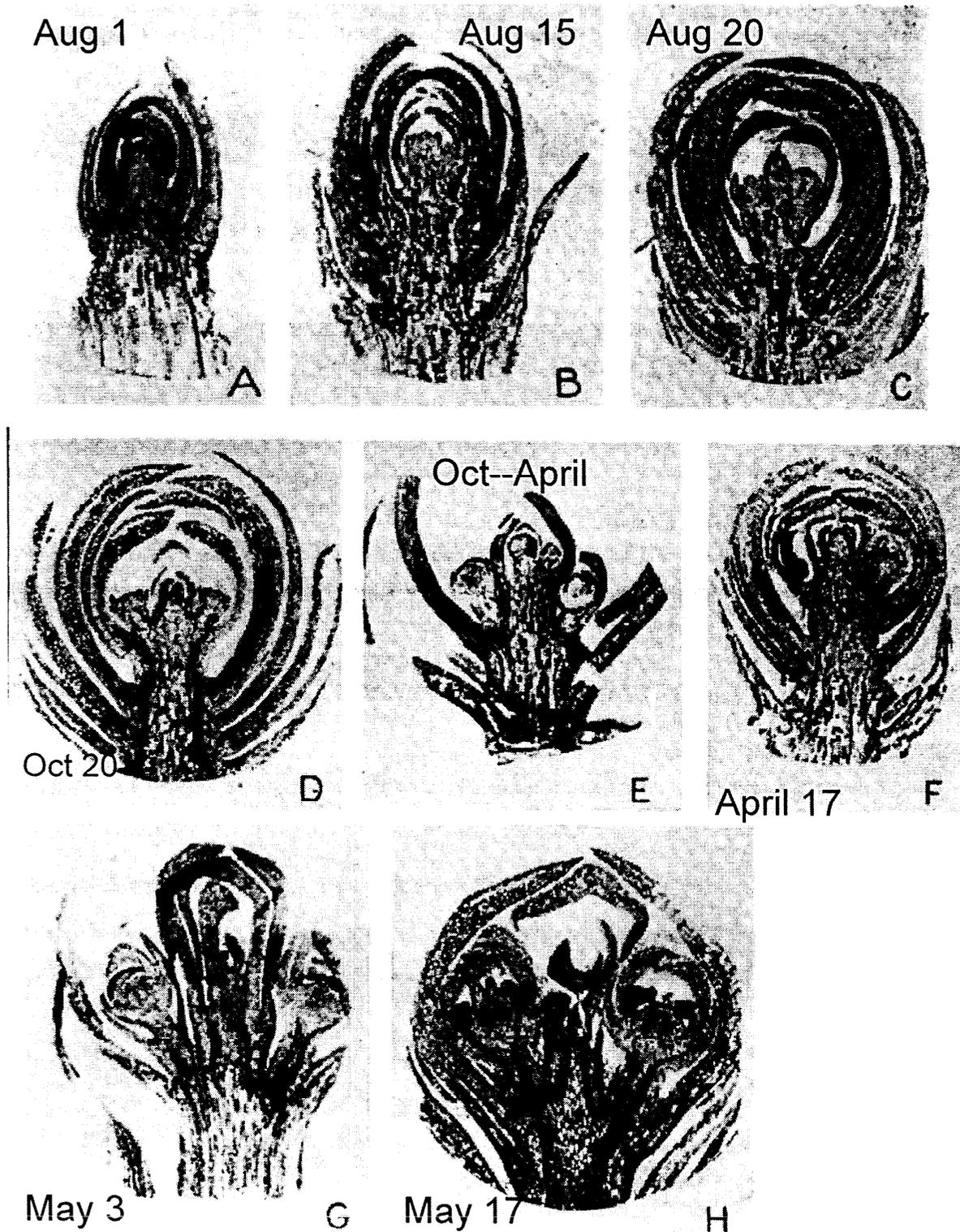
At some point in this process a second "decision" occurs. Buds either become reproductive or remain vegetative. This is a differentiation process. The signal to change from a vegetative to a flower bud is not well understood.

Cranberries, like most temperate fruit crops usually require a period of chilling before buds will open and grow again. However, if favorable conditions have led to rapid bud development and maturity or if the vines are stressed flowers can appear in the fall. It is not uncommon for ornamental crabapples to be completely defoliated from apple scab. Some years when this occurs there is a second light flush of flowers in the early fall. This is a stress response in apple.

What effect will this late bloom have on next year's crop? Given the small amount of late bloom that I saw I don't think it will have any effect. In most cases I think the new terminal, if one is produced, will be vegetative. However, given the spotty nature of this late bloom it still shouldn't be significant next year.

Is there anything that can be done to avoid this from happening in the future? Short of regulating the weather I don't think so. This isn't a very "researchable" topic either because it is impossible to predict when it will occur (unless you can predict these temperate *el Nino* summers). In my opinion, this is one of those odd occurrences that happen occasionally, but not something to worry about.

Figure 1. Cranberry bud development in Massachusetts in 1926 From LaCroix.



May 27



June 9

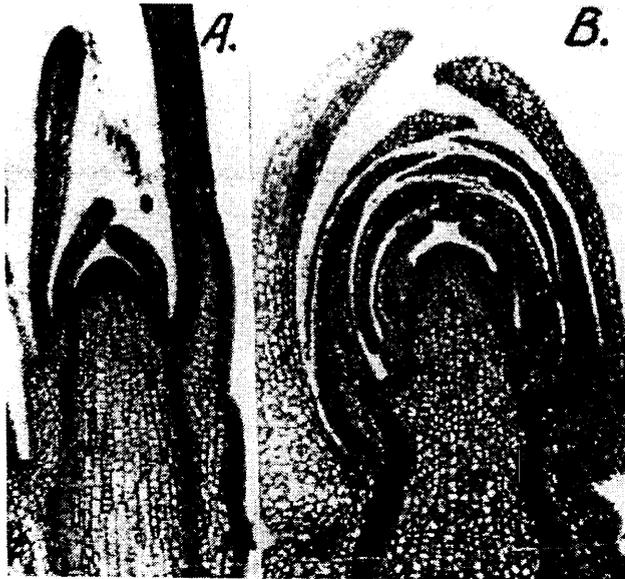


Figure 2. Bud development in Cranberries in Wisconsin. Goff 1901.

June 19

July 21

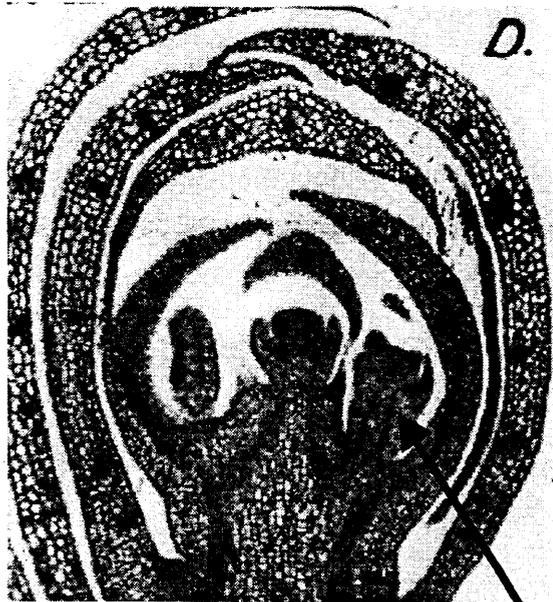
July 29



Blossom primordium

August 17

September 8



Immature flower