

Premature and Early Bloom in Tobacco

By Gary Palmer

Occasionally tobacco producers will report cases of tobacco blooming shortly after transplanting. There are two separate situations that may cause tobacco to bloom prior to the normal time. The first is premature bloom where a tobacco plant will start to bloom at approximately 3 to 6 weeks after transplanting. The plant will develop abnormal leaves that are strappy in appearance and resemble sucker growth more than normal plant growth. The other situation is early bloom, where a plant produces normal leaves but blooms with a lower leaf number than normal and often earlier than expected.



There are many theories why tobacco might be prone to bloom prematurely. One thought is that the plant is old enough to bloom. For example, if it has been in the float system for a long time, it may be time for it to bloom. This is an incorrect assessment of the situation. A county agent in Kentucky demonstrated this principle one year by starting some tobacco seeds in December as a trial run prior to the normal seedbed season. By May he had plants that were yellowed, woody and certainly old. He wondered what would happen if he set these plants alongside some that were of normal age and compared the response. At normal bloom stage he could not tell old plants from normal plants. When tobacco is transplanted, the clock is reset to some extent. However, there can be environmental situations that can influence the plant's normal cycle.

From extensive research by Dr. Kasperbauer (See references), a University of Kentucky researcher in the late 60's and early 70's, we know that light and temperature play an important role in early flowering. When conditions in a plant bed mimic those of fall approaching, plants are programmed to set a floral bud. Cool, overcast weather in April and May certainly meet these conditions and could induce plants to bloom early. In Kasperbauer's work, he determined that larger plants were more likely to be induced. However, float system plants may be fairly uniform in size and could potentially have a higher percentage of plants induced to bloom. Breaking the low light cycle by briefly providing as little as one hour of light during the night could potentially eliminate the cause. However, we tend to forget the connection until the first blooms appear in the field. Providing light all night long is not advised and could be counter productive.

In most cases, percentages of plants blooming early in any one field will be low, certainly within the 10% range. Higher percentages are possible in dark tobacco types. A few cases of 30 to 40% bloom have been reported, and producers have threatened to sue seedsmen for getting off-types mixed in with regular seeds. This is not the case, although plants do look abnormal due to the floral induction and its effects on leaf development.

There have been some questions regarding the role of Terramaster in premature bloom. While there are some indications that Terramaster enhances premature bloom, it only appears to do so where plants are also exposed to the cool, overcast conditions that tend to induce premature bloom.

There are many “home remedy” type solutions to “cure” premature bloom once it has been noticed in the field. However, most will not correct the problem. A common one is to plow deep and close to the plants, known as “turning them on the hill”. While I can see why people think this works, it does not help. Since usually a fixed percentage of the plants are induced to bloom prematurely, no more plants will bloom after “turning plants on the hill”. However, no more would have bloomed anyway. Producers may think that the bloom is a progressive thing that will continue to develop, but, even prior to bloom, all plants that have been induced to bloom can be easily detected by their strange, strappy leaf growth habits.

There are other stories where crops that were showing premature blooms were cut off to one sucker and produced a 3600 lb/a crop. This most likely never happened. A producer who did this on a hail-damaged crop indicated a more normal response of approximately 2100 lb/a, a yield that is much more believable. Prior research has indicated a 600 to 800 lb/a reduction in yield from a sucker crop. A cut-off plant may develop a rosette of suckers but most will produce a single dominant sucker that will make a fairly normal looking plant which will yield some normal leaves. Since most crops will have only a small percentage of plants with premature bloom, the yield for the entire crop can approach normal regardless of the whether plants are cut off or left alone.

Early blooming is different from premature bloom and has different causes. Plants will have normal leaf development, but with fewer leaves than a normal plant. Plants may top out at 14 or fewer leaves and the crop may be extremely irregular in bloom. Cool, wet soils after transplanting influence the availability of phosphorus for plant uptake. The result is shortened internodes or distance between leaves. The first several leaves will be clustered at the bottom and will never make it to the barn. This makes the plant appear much shorter and reduces usable leaf numbers. However, cool, overcast conditions shortly after transplanting may induce blooms earlier than normal, but not as drastically as that of premature bloom.

Topping and suckering will be more difficult in such an irregular crop. Early blooming plants can be topped and treated with a fatty alcohol, Prime+ or Butralin until the rest of the crop catches up. However, in most cases once-over topping and sucker control treatment may make more economic sense, and produce the best return for the efforts made. Plants with lower leaf numbers tend to compensate by producing larger leaves.

REFERENCES

M. J. Kasperbauer. 1973. [Effects of Pretransplant Lighting on Post-transplant Growth and Development of Tobacco.](#) Agronomy Journal, Vol. 65, pp. 447-45