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Calcium Deficiency Symptoms in Burley Tobacco

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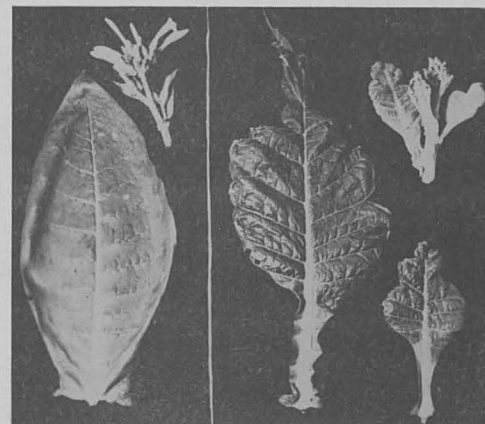
CALCIUM DEFICIENCY SYMPTOMS IN BURLEY TOBACCO

Calcium is an element required by all higher plants in relatively large quantities. It appears to be closely related to the formation of buds and flowers.

Calcium is usually available in sufficient quantities in Kentucky soils to produce a normal crop of tobacco. However, when certain varieties of burley tobacco commence to bloom and produce suckers, the tips of the calyx lobes of the flowers may turn brown and die and the edges of the small leaves of the suckers may be necrotic, resulting in irregularly shaped sucker leaves. In severe cases the apical bud may be killed. These calcium deficiency symptoms are most often observed during periods of stress such as protracted dry periods. This condition has been found to be heritable and is apparently caused by the improper utilization by the plant rather than the lack of calcium in the soil.

It is evident that the condition is inherited and not due to the lack of calcium in the soil since varieties respond differently to the same environment. Since this is a genetic character it cannot be corrected by adding calcium to the soil.

Calcium deficiency symptoms have been observed more often in varieties that are resistant to tobacco mosaic. However, some varieties of tobacco, e.g., Ky 10



Left: A leaf and flower portion of a normal tobacco plant (Ky 16). Right: Two leaves and bud of a tobacco plant showing genetic calcium deficiency symptoms. Note the typical calcium deficiency symptoms of the bud and the cutout margins of the leaves.

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and Ky 12, that carry resistance to tobacco mosaic do not show calcium deficiency symptoms. Calcium deficiency symptoms are rarely observed in a variety like Ky 16 which is susceptible to tobacco mosaic.

When a symptomless variety such as Ky 10 is crossed with a variety such as Burley 21, which shows the deficiency symptoms, the resulting hybrid progeny does not show the calcium deficiency symptoms. Since the symptoms are not present in the hybrid, this shows that genetic calcium deficiency is controlled by recessive genes.

This genetic calcium deficiency does not seem to affect appreciably the yield and quality of the tobacco, but the symptoms are often confused with chemical injury or a virus disease.

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