



# Colorado State Flower Growers Association

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## THE IDENTITY AND VECTOR OF THE CARNATION STREAK VIRUS

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Until recently there has been considerable doubt concerning the identity of the carnation streak virus and its vector. Brierley and Smith (Florists' Review, 1947) have reported that transmission of streak by the green peach aphid cannot be confirmed. Some indication has been obtained by Thomas (Carnation Craft, Dec., 1949) that streak may be caused by the aster yellows virus.

Since 1949, 15 streak-infected Scarlet King carnations have been grafted to healthy asters produced from seed, and 15 yellows - infected asters, have been grafted to streak-free Scarlet King carnations. An equal number of carnations and asters were maintained as checks. Yellows occurred on all the asters grafted to streak-infected carnations and streak resulted when the healthy carnations were grafted to yellows-infected asters. On the basis of this and previous evidence, it seems evident that streak of carnations can be caused by the aster yellows virus.

In 1949, an inspection of outdoor carnation beds in the Denver area revealed a predominance of the aster leafhopper. Consequently, the role of this insect as a vector of streak was investigated.

Aster leafhoppers were taken from barley plant cultures in the laboratory and were allowed to feed on yellows-infected asters for 16 days. They were then removed, and 5 were placed on each of 4 Scarlet King carnations determined to be free from streak by ultraviolet fluorescence diagnosis.

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Other carnation plants of the same variety were observed as a check.

After 45 days 3 of the test plants showed streak symptoms, while the other and the checks remained apparently free from infection. The 4 plants and a check plant were grafted to healthy asters. Within 30 days, yellows symptoms had appeared on those aster plants grafted to the carnations showing streak symptoms. No yellows symptoms were evident on the other aster plants. This indicated that the aster leafhopper may serve as a vector of the streak (aster yellows) virus.

In view of this evidence it is advisable to avoid the growing of carnations in outdoor beds. Many wild hosts of the aster yellows virus and the aster leafhopper exist in the Denver area, and they may serve as reservoirs of this disease. Leaf hoppers do not normally invade greenhouses unless the sidewalls are removed.