Celery and Carrot Insect Pests
Michigan State University
Cooperative Extension Service
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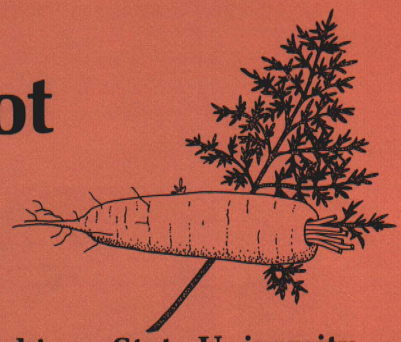

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By Donald Cress and Arthur Wells
Department of Entomology

(1) The aster leafhopper (also called six-spotted leafhopper) (⅛-inch long, light-smokey-green in color with six black spots on the front of its head) is a very serious pest of muck grown vegetables, including celery and carrots. They do not overwinter in Michigan — **except** in very sheltered situations or possibly in greenhouses. Overwintering populations migrate north from the south central states on storm fronts; usually arriving in Michigan beginning in mid-May and continuing throughout the summer. Upon arriving in Michigan, their numbers increase through natural reproduction. There are 3 to 5 generations per year in Michigan; with a generation time of around 20 days. **(2)** The disease, aster yellows, is spread by these leafhoppers. The plants are most vulnerable to the disease when they are in the seedling stage and until they are about ¾ grown. Aster yellows disease and its spread can be controlled only by controlling the leafhopper.

(3) Green peach aphids (1/16-inch long, light-green color) are a serious pest of celery and carrots. They overwinter as eggs on peach, plum and possibly chokecherry and other small stone fruit trees. In the early spring, the eggs hatch into nymphs which all develop into females. Around the first week in June, the winged forms begin to migrate to their over 250 host plants, including celery and carrots (and lettuce). The succeeding generations are all females and have the capacity to give birth to 80-100 young. Damage is caused by sucking plant sap from the undersides of the leaves. **(4)** This feeding stunts the plants and malforms the leaves which reduces quality and may, in the case of celery, render the plants unmarketable. There may be 12 to 15 generations per year. Only the final generation has males. They mate with the females, which in turn lay the overwintering eggs.

(5) Carrot weevil (5/16-inch long, medium snout, black speckles on brownish, dome-shaped back, faintly visible white band around mid-region of hind leg) has become a very serious pest of celery in Michigan. They overwinter as adults in ditch banks, hedge rows and similar protected situations near field margins. They may also overwinter in nearby greenhouses. Adults have the ability to fly, but rarely do so. The adults begin spring emergence in mid- to late-April, depending on temperature. This closely coincides with beginning of celery transplanting. The adult beetles attack the young celery plants along the field margins, causing slight feeding damage to the leaves and petioles. **(6)** They lay eggs **in** the petioles. **(7L)** Larvae hatch in about a week and move down to the crown where they continue to feed for 6 to 8 weeks while they develop through 5 instars. The mature larvae leave the crown to **(7R)** pupate in the surrounding soil. The second generation adults begin to emerge in mid-July and migrate further into the field and lay eggs in the leaf petioles for the second generation larvae. As in the case of the first generation larvae, these larvae complete their development in the plant crowns and pupate in the surrounding soil. The adults emerge from the pupae in mid- to late-September and leave the field to overwinter. The young transplants can get infested with eggs and larvae while in the greenhouse and transplant beds. If such infested plants are subsequently moved into the field, the infestation quickly becomes widespread and devastating. **(8)** The damage consists of stunted and/or killed plants in the field. The larvae may also be a contaminant and/or make excessive trimming necessary in order to market the crop. There appears to be two generations per year in Michigan. **(9)** Carrots and parsley are also attacked, but to date, not in Michigan.

(10) Variegated cutworms overwinter as larvae and pupae in the soil. The larvae are variable in color but they have a buff-brownish stripe down the sides. Also, there is a series of yellow or orangish spots along the back. The adults emerge in mid- to late-May and begin laying eggs in celery fields, usually in low and/or grassy areas. The eggs hatch in early June and the larvae begin to feed in the celery foliage. Because of their small size and lush foliage, the larvae and damage are not usually evident until early July. **(11)** Damage consists of feeding injury to the leaf petiole, usually near the "heart" of the plant. This represents a loss in quality and often makes the stalk unmarketable. Equally important, the larvae are a contaminant in fresh market celery. Second and third generation moth activity peaks in late July and throughout September, respectively. Fields should be checked very carefully for the young larvae beginning about the first of June.

"Loopers" are often a serious problem in celery (and lettuce). Celery loopers and cabbage loopers are very similar in appearance in the larval stages. The **(12L)** celery looper adults are active early, late-April to early-May, and continue throughout the season. **(12R)** Cabbage looper adults migrate into Michigan in mid-July. Eggs are deposited on the plants mainly in late evening or at night. The eggs hatch in about a week and the **(13)** larvae (light green with a white stripe along each side and center of back) begin to feed on the leaves and other plant tissues. This feeding damage reduces quality and the larvae can be a source of contamination at harvest. The larvae grow rapidly and become increasingly difficult to control with age. The larvae get their name "looper" from their appearance when they move. The celery looper may have 4 to 5 generations per year in Michigan, while the cabbage looper may have 2 to 3 generations per year.

For chemical control recommendations, homeowners should consult Extension Bulletin E-760(b), "Home Vegetable Garden Insect and Disease Control." Single copies are Free to Michigan residents from your County Cooperative Extension Office of you may write to the Michigan State University Bulletin office, P.O. Box 231, East Lansing, MI 48824.

Numbers in parentheses refer to pictures on p. 2.

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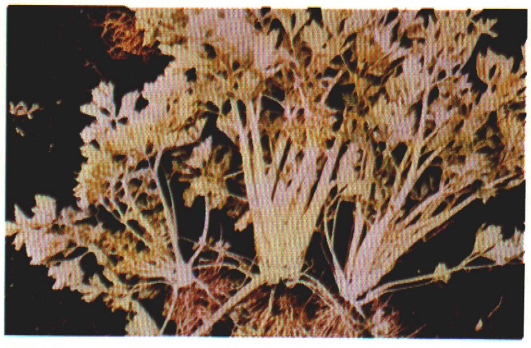
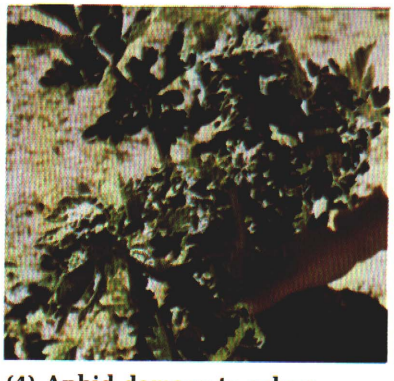
(1) Aster leafhopper, adult (left) front view; (right) top view



(2) Aster yellows disease in (left) celery and (right) carrots (note heavy rooting in diseased carrot on right)

(3) Green peach aphids on celery (arrow)



(4) Aphid damage to celery (note malformed leaves)

(5) Carrot weevil, adults

(6) Carrot weevil egg in celery leaf petiole

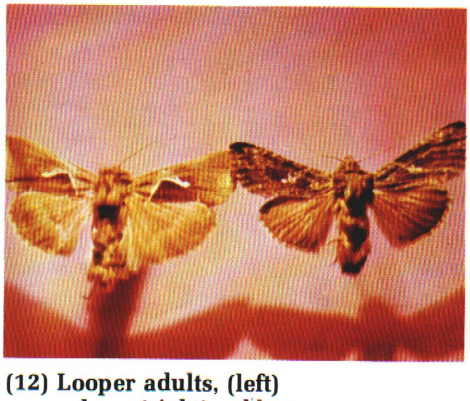
(7) Carrot weevil, (left) larva; (right) pupa

(8) Carrot weevil damage to celery

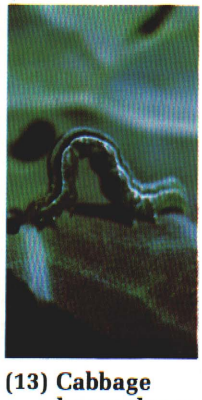
(9) Carrot weevil damage to carrots, top 3 damaged

(10) Variegated cutworm, larva (note yellowish spots on back)

(11) Variegated cutworm damage to celery "heart"



(12) Looper adults, (left) celery; (right) cabbage



(13) Cabbage looper larva