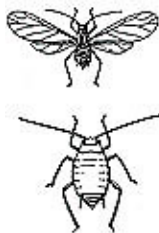


Spinach XXIX-1

Aphids

Whitney S. Cranshaw



(a) Par 1000A, Bull. 19711
Green Peach Aphid

Identification (and life cycle/seasonal history)

Adult aphids, or plant lice as they are sometimes called, are usually green, but can be brown, yellow, pink, or black, depending upon the species. They tend not to get any larger than $\frac{1}{16}$ to $\frac{1}{8}$ of an inch in total body length. In general, a female (males are often unknown or absent in several species) gives birth to another female. This is called parthenogenesis. Ovoviviparous is the term used when the egg stage is kept within the female and the young insects emerge alive. Internally, each immature aphid is already reproducing another female inside her, so when you kill one aphid, you could be killing three or four generations at once! Within one to two weeks, a single aphid may produce 50 to 100 offspring. All of these aphids are wingless, even when they finally reach maturity. Winged aphids, or alates, begin to appear in the population when overcrowded conditions occur. These alates can fly to other plants and are called the spring migrants.

Towards the end of the growing season, the aphids use the light and temperature changes as a cue to produce an all winged generation that contains both males and females known as the fall migrants. The females of this generation then give birth to a new batch of females that are wingless and they must mate with the winged males from the generation before them. These are true females, and after mating they usually lay one to four eggs in a sheltered place on or near the plant. These eggs overwinter and become the first generation of females, known as stem mothers, next season. This cycle is highly standardized and should not be assumed for every aphid encountered.

Plant Response and Damage

In general aphids are a problem on spinach because of contamination of leaves. Aphids tend to be more numerous in late-summer.

Management Approaches

Biological Control

There are many beneficial predators and parasitoids that can help manage aphid populations. While the lady bird beetle is one of the most commonly used predators, it is

generalistic and opportunistic. This means that it will eat any small, soft bodied insect that it encounters and so it does not specialize in feeding only upon aphids. Predators that do specialize are generally more efficient at hunting and feeding upon the specified prey. Also, the immature lady bird beetles consume more aphids than an adult beetle will, but when ordering the beetle as a control agent, adults are usually the only option. Green lacewing (larvae are known as "aphid lions") and certain syrphid fly larvae are much better predators than the lady bird beetle is. There are specific wasps that parasitize aphids. To parasitize an animal, the wasp injects a single egg into the host, in this case the aphid. The aphid dies while the young wasp matures inside it, feeding upon the aphid's organs. When the wasp is ready to emerge as an adult, it chews or cuts a circular hole out the back of the aphids bloated and browned body.

Chemical control

Control should occur one week before harvest when used to avoid contaminated foliage.

Product List for Aphids:

Insecticide	Product per acre	Preharvest Interval, remarks
Cygon 400, Dimethoate 400	0.5 Pt	(14 days). Four day reentry interval. Systemic insecticide.
Dimethoate 267	0.67 Pt	Organophosphate insecticide (dimethoate). Do not store below 45 degrees.
Thiodan 50W	1.5 lb	(21 days) One application per season maximum. 48 hour reentry interval requirement proposed. Chlorinated hydrocarbon insecticide (endosulfan).
Thiodan 3E, Endocide 3E	1-1.3 qt	
Admire 2F	16-24 fl oz	21 Days. Chloronicotinyl insecticide. Soil treatment with systemic activity. Soil treatment may be applied pre-planting, at-planting, or as post-seeding drench. Some plant-back interval restrictions.
Provado 1.6F	3.75 fl oz	7 days. Chloronicotinyl insecticide. Maximum 18.75 fl oz, at minimum 5

		day interval, may be applied per crop. Some plabnt-back intercal restrictions.
Assail 70WP	0.035 – 0.054 lbs a.i. (0.8 – 1.2 ounces)/A in 5 gal/A by air or 20 gal/A by ground	Begin applications when treatment thresholds have been reached.

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Categories: Aphids, Insects, Spinach

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