Table 16. Monitoring for tarnished plant bug in strawberry.

NUMBER OF CLUSTERS EXAMINED	NUMBER OF FLOWER CLUSTERS INFESTED			
	CONTROL NOT REQUIRED	KEEP SAMPLING	CONTROL REQUIRED	
			Low threshold 0.15 nymphs/cluster =2% damage	High threshold* 0.25 nymphs/cluster =4% damage
15	0	0 to 3; check 5 more	3 or more	5 or more
20	0	0 to 4; check 5 more	4 or more	5 or more
25	1 or less	1 to 4; check 5 more	4 or more	6 or more
30	2 or less	2 to 4; check 5 more	4 or more	7 or more
35	3 or less	3 to 5; check 5 more	5 or more	7 or more
40	3 or less	3 to 5; check 5 more	5 or more	8 or more
45	4 or less	4 to 6; check 5 more	6 or more	9 or more
50	5 or less	5 to 6; check 5 more	6 or more	9 or more

**Primarily for processing fruit.*
Source: N. J. Bostanian, Agriculture and Agri-Food Canada, St. Jean-sur-Richelieu, P. Q. Courtesy Pam Fisher, Ontario Ministry of Food and Agriculture.

monitoring tarnished plant bug adults. These traps are used as a indication of when plant bugs begin their activity in the spring and a relative indication of their abundance, not as an indication of when to control this insect. Immature TPB (nymphs) are sampled by shaking flower trusses over a flat white surface. Thirty flower clusters should be sampled evenly from across the field (typically 6 clusters at 5 locations or 5 clusters at 6 locations). If 4 or more flower clusters are infested with nymphs (regardless of how many) a spray is recommended. A follow-up spray application may be made after bloom if TPB are still present in high numbers (check harvest interval before selecting material).

See *Integrated Pest Management for Strawberries in the Northeastern United States* for more detail on tarnished plant bug life cycle and sampling (ordering information at the end of this guide). See pest management schedule for recommended materials and timing. Do not apply insecticides during bloom.

Sequential Sampling: a time-saver. To save time, a sequential sampling plan may used to determine how many clusters should be sampled. By using Table 16 above, you can make a spray/no spray/keep looking decision by first examining a minimum of 15 clusters. If you find 0 TPB nymphs, you can stop and make a "no spray" decision. If you fine more than 0 but less than 3, (or, between 1 and 5 if you are using a high threshold) you must continue sampling. If you find 3 or more TPB nymphs, control is required in order to avoid economic damage to your crop. If the maximum of 50 flower clusters are sampled and no decision is indicated, the grower should sample again in 1 or 2 days. This method allows scouts to spend less time monitoring in fields where populations are very low, or very high. More time is spent sampling fields where TPB populations are close to the threshold.

Strawberry Bud Weevil, "Clipper" (*Anthonomus signatus*): The strawberry bud weevil or "clipper" occurs somewhat less frequently than tarnished plant bug. This insect is a very small beetle (1/8") with a copper-colored body and a black head

Table 17. Revision to monitoring procedure for strawberry bud weevil (clipper).

	Old Method	New Method	New Method
Unit examined	Flower buds	Flower Clusters	Flower buds
Assessment	Clipped buds or Not clipped	Cluster highly damaged* or Cluster with low amounts of damage	Clipped buds or Not clipped
Threshold	2 clipped buds/m	3 highly damaged clusters/m	3 clipped 1½ buds/m or 30 clipped 2½ or 3½ buds/m

**highly damaged=1 clipped primary (1½) bud, or 2 clipped secondary (2½) bud, or 3 clipped tertiary (3½) buds*
Courtesy Pam Fisher, Ontario Ministry of Food and Agriculture