

## Sampling Whiteflies on Poinsettia Cuttings

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Monitoring whiteflies on a poinsettia crop should begin as soon as the cuttings arrive. We have carefully examined many shipments of hundreds of rooted cuttings from several propagators to devise accurate sampling plans for whiteflies on rooted cuttings. The following suggestions for inspecting rooted cuttings are based on our results to date. A similar procedure may be followed for unrooted or callused cuttings, although this remains to be validated.

The most common whitefly lifestages present on rooted cuttings were eggs, first/second instars, and a few pupae (Figure 1). Adults were very rare. Unrooted cuttings may have a larger proportion of younger lifestages than rooted cuttings because rooting requires 3 to 4 weeks, during which the whiteflies may be developing. Ninety percent of all whiteflies were on the bottom three leaves of a cutting (Figure 2). To detect whiteflies, then, **only the bottom three leaves of a cutting need to be examined.** Eggs can be very difficult to see, even with a handlens. We therefore have aimed our sampling plan to detect the (somewhat) more visible nymphs. Partly because eggs can easily be missed during inspection, weekly leaf inspection must follow cutting inspection for the duration of the crop. However, you may be able to reduce your whitefly level by removing these bottom three leaves as soon as they are no longer needed by the plant.

If possible, cutting inspection should take place away from the production area in case adult whiteflies are present. A 10x handlens can confirm the presence of nymphs. The cuttings can be inspected at the time of arrival or potting. A strip of cuttings can be inspected as a single unit.

**Cuttings should be inspected in batches of 500 to 2,000, and must be taken randomly from each batch.** Whiteflies are often more abundant in some shipments than in others, so **each shipment of cuttings should be inspected separately.** Furthermore, whiteflies are sometimes more abundant on some cultivars than on others, so **inspect each cultivar separately.**

How many cuttings should be inspected? This partly depends on the whitefly level that you want to be able to detect, and your budget. **Table 1 shows the number of cuttings that must be inspected to detect whiteflies at three different levels.** Note that the three whitefly levels in Table 1 relate to approximately 10, 25, or 35% of the cuttings being infested with nymphs. Our estimate of the time required for a trained scout to inspect three leaves of a cutting and record the results is ~15 seconds.

**By recording the number of whiteflies in each lifestage, decisions can be made as to whether an insecticide(s) is needed and when it should be applied** (based on when susceptible lifestages are present).

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**Table 1. Number of cuttings to inspect, per batch of 500 to 2,000 cuttings, to estimate three infestation levels of whitefly nymphs.**

Precision Level	No. cuttings to inspect to estimate:		
	0.1 nymph/plt	0.6 nymph/plt	1.2 nymph/plt
25% (most precise)	175	100	80
35%	120	70	50
40% (least precise)	65	40	30

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Note: 0.1, 0.6, and 1.2 nymphs per cutting relates to ~10, 25, and 35% infested cuttings, respectively.

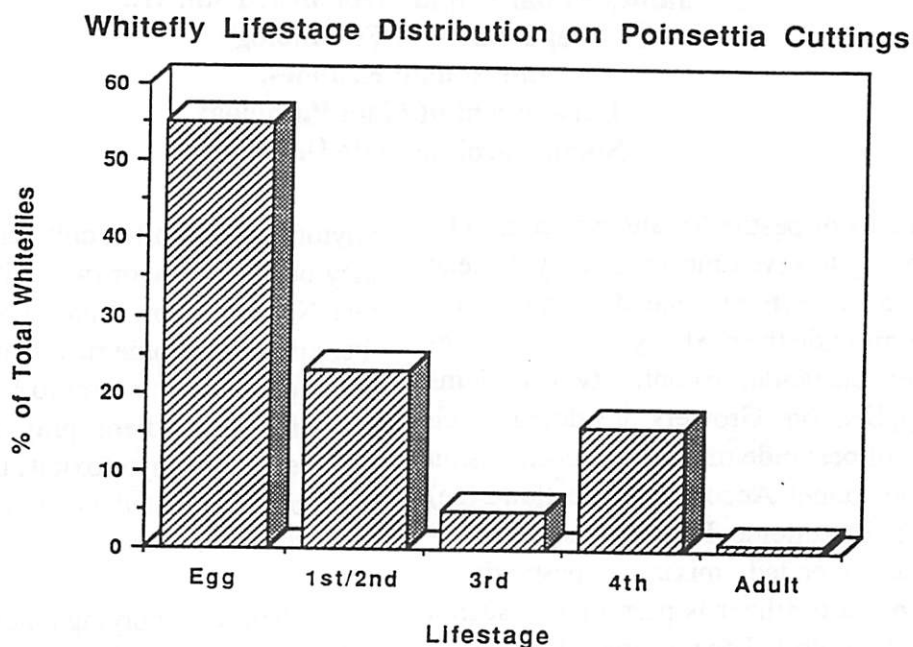


Figure 1. Relative amount of various whitefly lifestages on rooted poinsettia cuttings.

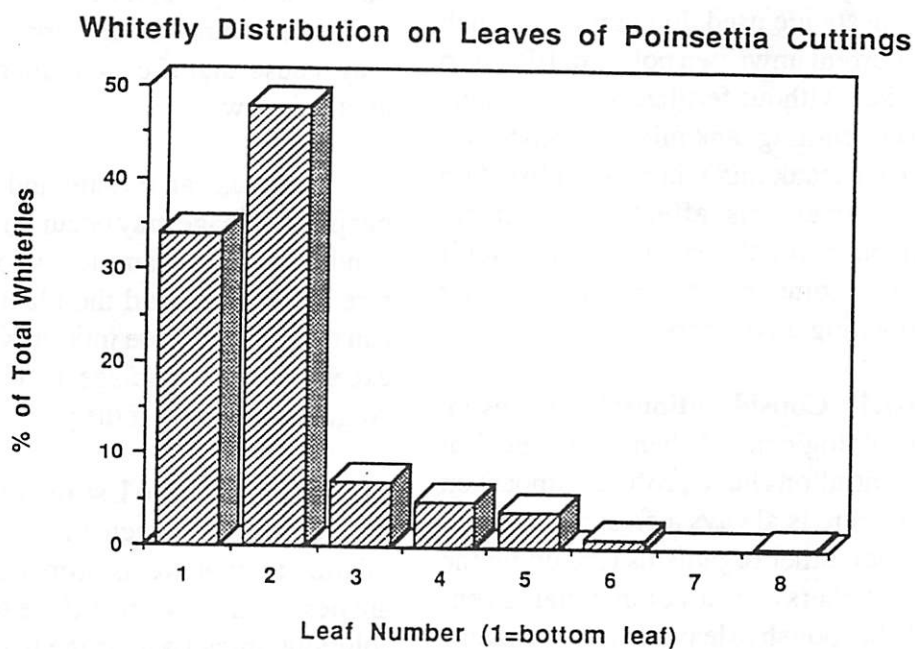


Figure 2. Relative number of whiteflies on each leaf of rooted poinsettia cuttings.