

Aster yellows index

The incidence of aster yellows disease depends on three things—the crop being grown, the number of leafhoppers present, and the percent of the leafhopper population carrying the disease. With this information, the grower can determine the aster yellows index for the crop and prevent needless insecticide applications.

The aster yellows index is an unbiased method for determining the allowable number of aster leafhoppers on susceptible crops for any aster leafhopper infectivity level. Insecticides are applied when the index exceeds the treatment threshold for that crop, rather than spraying on a strict calendar basis—such as twice a week. The aster yellows index depends on the number of aster leafhoppers collected in 100 sweeps with a sweep net and the percent of the leafhoppers that carry the disease. Call the UW–Madison Entomology Department (608-262-6510) for information about the infectivity level. Compute the index using the following formula:

$$\% \text{ of infectivity in leafhoppers} \times (\text{number of leafhoppers} \div 100 \text{ sweeps}) = \text{aster yellows index}$$

For example, if the leafhopper infectivity level was determined to be 2.5% and field sweeping showed there were 20 leafhoppers per 100 sweeps, then:

$$2.5\% \text{ (infectivity rate)} \times 20 \text{ (number caught} \div 100 \text{ sweeps)} = 50 \text{ (aster yellows index)}$$

The aster yellows index is computed to be 50.

The treatment threshold for carrots, celery, and lettuce with respect to their aster yellows index is:

Crop	Aster yellows index
Carrots	
Resistant	100
Intermediate	75
Susceptible	50
Celery	35
Lettuce	25

In using the aster yellows index computed above as an example, the index of 50 has equaled or exceeded the treatment levels for susceptible carrots, celery, and lettuce. However, intermediate and resistant carrots do not need treatment at this point and need to be resampled in 2 to 3 days.

See aster yellows tables in the carrot section.

Significant variation in aster yellows resistance/susceptibility has sometimes occurred within a given cultivar between different seed lots from different companies. If there is concern about the occasional seed lot variation in yellows resistance, use the treatment threshold for the next lower category. For example, resistant carrots would be treated as intermediate resistance and intermediate resistance carrots would be treated as susceptible carrots. Susceptible carrots do not need to be treated more conservatively. The movement of cultivars to the next lower category changes a conservative treatment threshold to a very conservative treatment threshold.

Relative effectiveness and persistence of selected herbicides

The herbicide effectiveness ratings in the following table are based on Wisconsin field research or are compiled from similar ratings published by Midwestern weed scientists. Because the performance of herbicides is affected by many variables, actual performance will vary.