

SAMPLING AND EARLY SEASON TREATMENT THRESHOLDS FOR EUROPEAN RED MITE WINTER EGGS ON APPLE TREES

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European red mite (ERM), *Panonychus ulmi*, can be a serious and difficult to control pest in apple orchards. Many growers apply pre-bloom or post-bloom miticides on an annual basis. In years with heavy mite pressure multiple applications may be applied to obtain season long control. Not only are these applications expensive but also they are often made with limited knowledge of pest mite populations. This is especially so early in the season before summer thresholds, based on the average number of mites per leaf, are available. The following method for assessing ERM winter eggs and thresholds for early season treatment was first established by researchers in Nova Scotia. This method has been modified for Wisconsin based on a number of years of informal testing and offers guidelines for making early season mite management decisions.

Sample unit

The sample unit is defined to be the equivalent of approximately 1¹/₄" of wood around a spur or bud from at least two-year-old wood of <³/₄" in diameter. This unit will be referred to as a spur.

Sample size

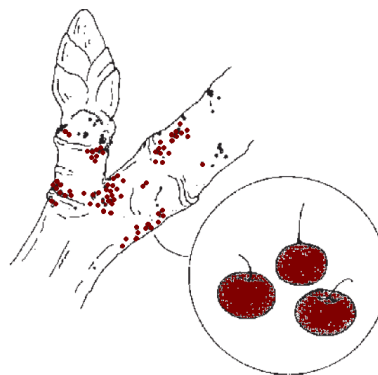
One sample consists of 1-2 spurs from each of 20 - 30 trees.

Assessment of winter egg abundance

A scoring of the abundance of winter eggs on 1¹/₄" of spur wood is based on a 5-point scale from 0-4, as in the table below. Spurs can be examined on the trees or removed and brought in doors during the mid to late dormant period. Tally the scores for each spur in a sample and then calculate an average score by dividing the total tally by the number of spurs examined.

A five-point scale for scoring European red mite winter egg abundance on spurs of apple trees.

SCORE	NUMBER OF EGGS
0	0
1	1-10
2	11-50
3	51-100
4	>100



Overwintering European red mite eggs on dormant apple spur.

Thresholds

Low numbers of dormant count eggs can result in significant later season populations. Use the following thresholds as a guide for early season control.

Score 0 – No treatment necessary, monitor summer populations.

Score 0.1 or less – Treat with Superior Oil (70 sec.) from ¼ inch green through tight-cluster, monitor summer populations.

Score 0.1 to 1.0 – These are relatively low over-wintering populations and pre-bloom applications of Superior Oil (70 sec.) may give season long control. In place of oil, delay miticide applications until the early post-bloom period. For this timing Agrimek, Savey, Apollo, Acramite, Zeal and Pyramite can all be used.

Score 1.0 to 2.0 – Consider a pre-bloom miticide application like Apollo or Savey.

Score 2.0 and higher – Over wintering mite populations this high may require multiple miticide applications starting with a pre-bloom application followed by summer miticide applications should populations exceed summer thresholds

This sampling method appears to be a significant improvement and refinement over methods tried elsewhere in North America. The sample unit is well defined and the results are comparable from one orchard to another as long as the persons sampling have some training and experience. Therefore, growers should be able to learn and practice this method and thereby be able to make better control decisions and achieve maximum benefit from consultant and extension staff consultations.

This information is adapted from a research summary entitled, "DEVELOPMENT AND EVALUATION OF A SAMPLING METHOD AND EARLY SEASON TREATMENT THRESHOLDS FOR EUROPEAN RED MITE, Panonychus ulmi, WINTER EGGS ON APPLE TREES," Dick Rogers - Tree Fruit Entomologist/Apiculturist, Kentville Agricultural Centre, Plant Industry Branch, Nova Scotia Department of Agriculture and Marketing.