

Caterpillar Food Consumption

Question: How much leaf can a caterpillar eat in a given time?

Materials:

- Caterpillars (can collect from a variety of plants)
- Leaves of caterpillar's host plant (be sure to collect the vegetation that you find your caterpillars on)
- Small container with covers for rearing
- Graph paper (1/4 inch or 1/5 inch squares)
- Transparent tape

Methods:

- Trace outline of a fresh food leaf on graph paper
- Place the leaf in a container, add a caterpillar and cover. Record starting time. Observe caterpillar as time allows, but do not disturb it.
- Calculate the leaf area by counting the squares within the outline on the graph paper and multiple by the area of one square. Round off to the nearest square, more than half a square = one, less than half a square = zero
- After 24 or 48 hours (depending on sizes of caterpillar and leaf) carefully remove all remaining leaf fragments and record the time.
- Match fragments to the graphed outline, holding them in place with transparent tape.
- Calculate the leaf area consumed by counting the uncovered squares or by counting the squares covered the leaf's remains. Use the method that seems easiest.
- Be sure to replicate, each container represents a replication. You may also want to setup containers without caterpillars to represent control treatments. This will allow you to determine the leaf area consumed by the caterpillars vs. leaf shrinkage due to evaporation.
- This test can also be done by weighing the leaf and its remains if a suitable analytical balance is available.