LILY LEAF COUNTING TECHNIQUE AND TIME SCHEDULE

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Here are suggested dissecting and counting techniques and schedules for the Easter 1990 forcing schedule. This is a late **Easter, April 15, 1990.**

Leaf counting is a technique used to insure proper timing of a lily crop. Once a lily shoot initiates a flower bud, no more leaves will form. At visible bud, all the leaves have unfolded. Therefore, if one knows how many leaves have yet to unfold ona plant before the visible bud stage, one can calculate how many leaves must unfold each day (or week) in order to reach the visible bud stage by a particular date. By knowing the number of leaves which must unfold each week and by making a count of leaves which actually unfolded the previous week, one can determine is a crop is slow, fast, or on time. Subsequently, the air temperature may be increased, or decreased to hasten or delay plant development for proper crop timing. The following describes how to leaf count a lily crop.

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1. Leaf counting is usually started 3-4 weeks after emergence or when plants are 4-6 inches tall. The first plants are examined to determine if flower initiation has occurred. If the first plants examined are still vegetative, a new set of plants is examined 4-5 days later.

2. A minimum of 3-5 plants for every bulb source and bulb size should be taken to estimate the average leaf number of the crop. Count how many leaves have unfolded and how many leaves have yet to unfold on each plant. Unfolded leaves are normally defined as those leaves which are at an angle equal to or greater than 45° with the plant stem. Leaves yet to unfold are defined as those leaves which have an angle of less than 45° with the plant stem. The actual leaf angle is less important than consistency between countings. A large needle and a magnifying glass will help you remove small scale-like leaves near the shoot apex. The embryo-like flower buds will be present on reproductive plants. An estimate of the future bud count can be made on these plants.

3. Divide the number of leaves already unfolded by the number of days from emergence until the present date. This will tell how many leaves have unfolded each day to date.

4. Determine the visible bud date. The visible bud date is normally 30-35 days prior to the expected flower date (often the week prior to Palm Sunday, April 2-8, 1990). March 1 is 35 days before April 4, 1990. It takes 30 days from visible bud to flower at 70°F (21°C) and 35 days at 65°F (18°C). Not all plants reach visible bud the same day.

5. Divide the number of leaves which have yet to unfold by the number of days from the day of leaf counting until the expected visible bud date. This figure tells you how many leaves must unfold each day to achieve visible bud at the desired time.

6. If the number of leaves to unfold each day is **greater** than the number of leaves unfolded each day from emergence until the day of counting, then the average greenhouse air temperature should be **increased.** In contrast, if the number of leaves to unfold each day is **smaller** than the number of leaves unfolded each day prior to leaf counting, the average air temperature should be **decreased** to slow development.

7. In the greenhouse, mark the last unfolded leaves on several representative plants of each lot and bulb size. Different methods can be used. They include marking each unfolded leaf with a magic marker or hole punch or by placing a wire hoop above all expanded leaves on the shoot but below the yet unexpanded leaves. We recommend the use of a wire hoop.

8. Every 3 to 4 days (twice a week) count and record the average number of leaves unfolded, calculate the daily unfolded rate. Compare the data and determine if the leaf number was higher or lower than that which was necessary for proper timing. Adjust greenhouse temperatures accordingly.

9. The rate of leaf unfolding is a linear function of the average temperature delivered to a lily crop over time. In other words, the increase in the rate of leaf unfolding resulting from a 5°F increase in temperature from 55° to 60°F is the same as that from 70° to 75°F.

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