Supplement to Chapter 4

ASSESSING REGROWTH
AFTER DEFOLIATION

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No standardized criteria have been accepted universally for visually estimating cotton regrowth following the application of harvest aids. Because subjective ratings assessing the amount of regrowth vary among individuals – researchers, industry, and Extension specialists – it is almost impossible to compare product performance from trial to trial. The set of drawings that follow[1] constitute one approach to standardizing visual regrowth ratings, regardless of whether the test is from California or South Carolina, to allow easy visualization and estimation of the amount of regrowth in a field.

Quantified measurements, such as those reported by the Cotton Defoliation Work Group (Anonymous, 1999), are labor-intensive and time-consuming. Thus, a uniform method of visual estimation is desirable.

Properly used, the illustrations will encourage standardized ratings and allow statistical comparison of the regrowth from different harvest-aid treatments. Such ratings can be made by almost anyone; they do not require technical knowledge and can be done quickly and efficiently with practice, without specialized equipment. Practice and experience should minimize any differences in rating from one individual to another. Ratings are visual and do not involve collecting, drying, weighing, or measuring leaves.

Most plants in a field will have different amounts of regrowth, so it is important to determine how many plants or row-feet are necessary to form a fair evaluation zone. Once this is established, an overall rating number can be determined for the plot or field. Cotton regrowth in the same field will

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[1] Original artwork by Octavio Tierranegra, Agricultural Communications, Texas Cooperative Extension, and Charles R. Stichler.

vary widely – from none, to plants that may be dead, to plants with lush, new growth. A composite based on the average number of leaves on plants in the rated zone should be used to establish the best fit with the drawings. The illustrations allow each evaluator a standardized reference for making regrowth ratings in the field.

The artist's drawings are from actual plants and represent six distinct stages of regrowth. The range is from 0 to 5, with 0 being no terminal or basal regrowth and 5 being a full canopy of new leaves. Decimals may be used to indicate intermediate levels of regrowth, if desired, or the scale can be expanded to spread data points for statistical evaluation. Because the ratings are numerical, they can be averaged if replication is used.

The following abbreviations are used in the illustrations:
T - top of plant (upper 6 inches of growth)
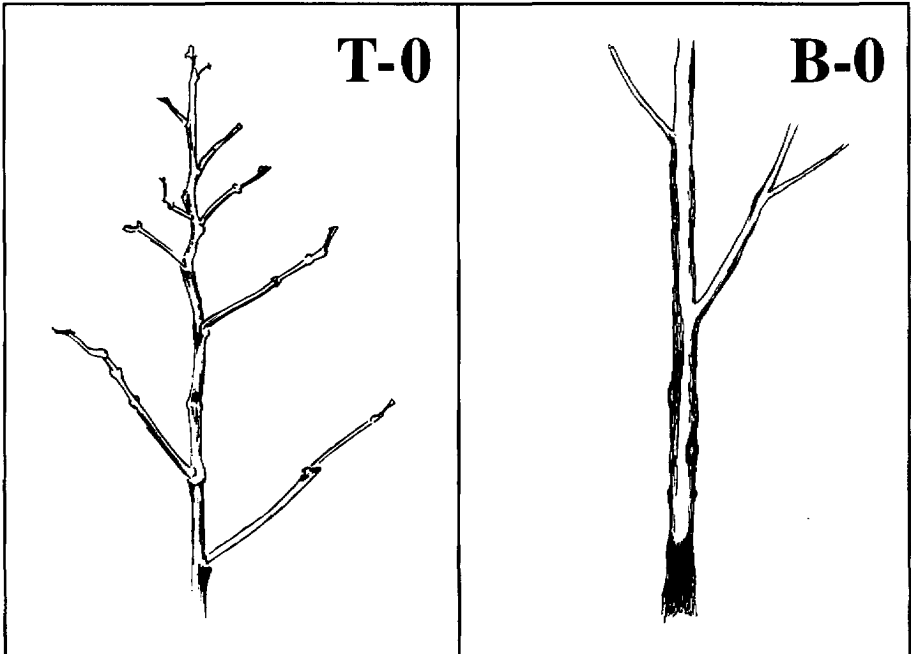B - lower half of plant (area below 6 inches of top growth)

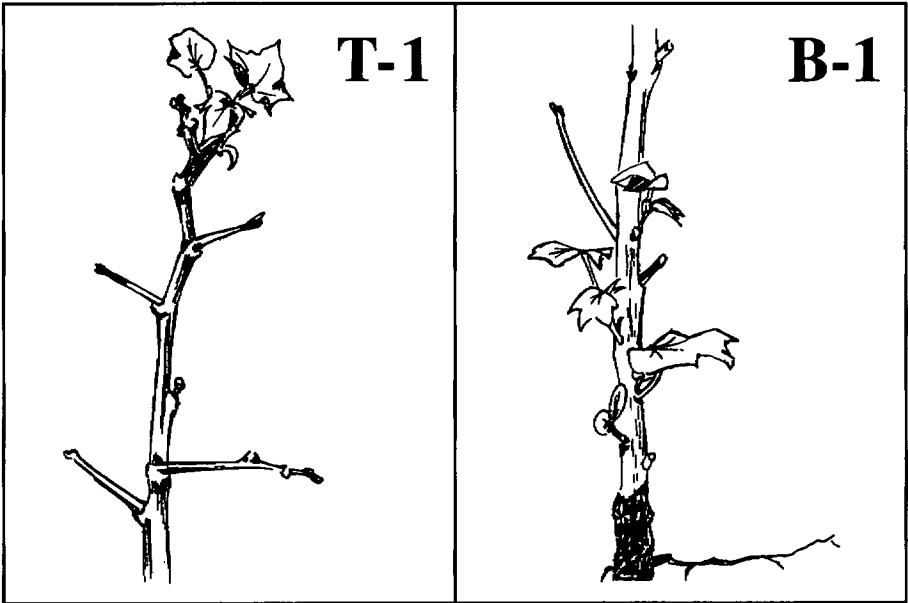Figure 1. Stages T-0 and B-0: No terminal or basal regrowth.

Figure 2. Stages T-1 and B-1: New leaves less than or equal to ¼ inch in length in terminals; no basal regrowth.

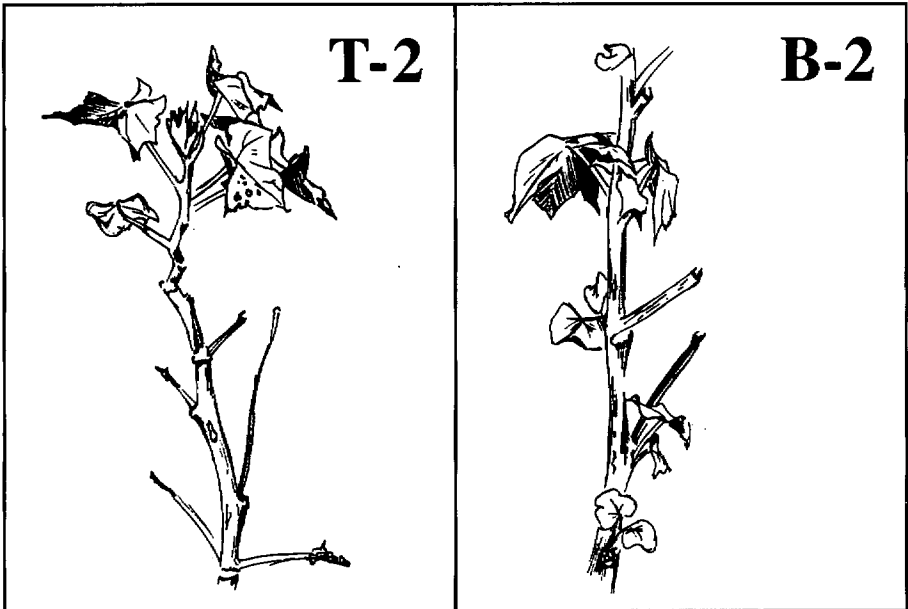Figure 3. Stages T-2 and B-2: Leaves in terminal unfurling and typically less than ½ inch in size; new leaves (less than ¼ inch) forming at basal buds.
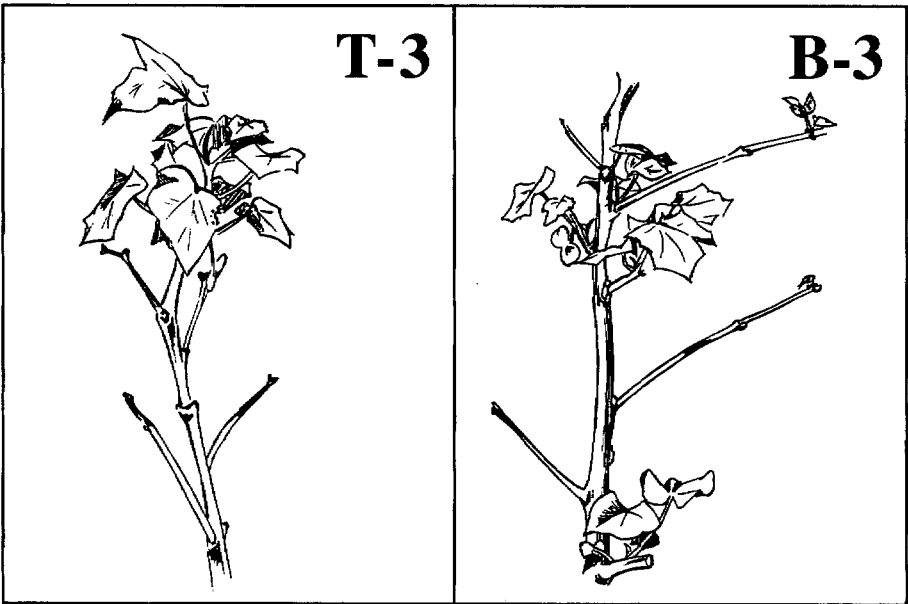
Figure 4. Stages T-3 and B-3: Terminal leaves ½ to 1 inch in diameter and expanding rapidly; leaves and stems forming at basal nodes.
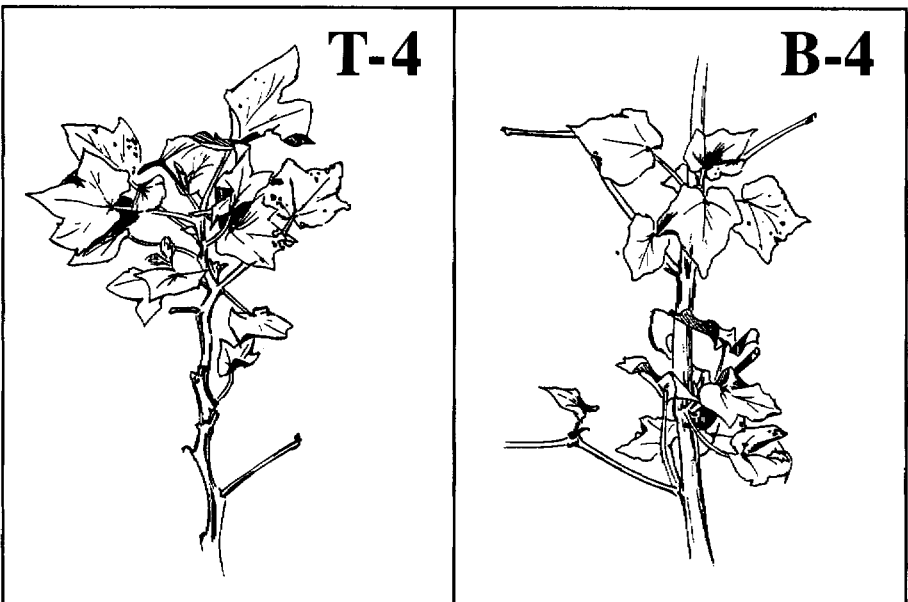

Figure 5. Stages T-4 and B-4: Terminal leaves 1 to 2 inches in diameter; stems with leaves attached at basal buds.
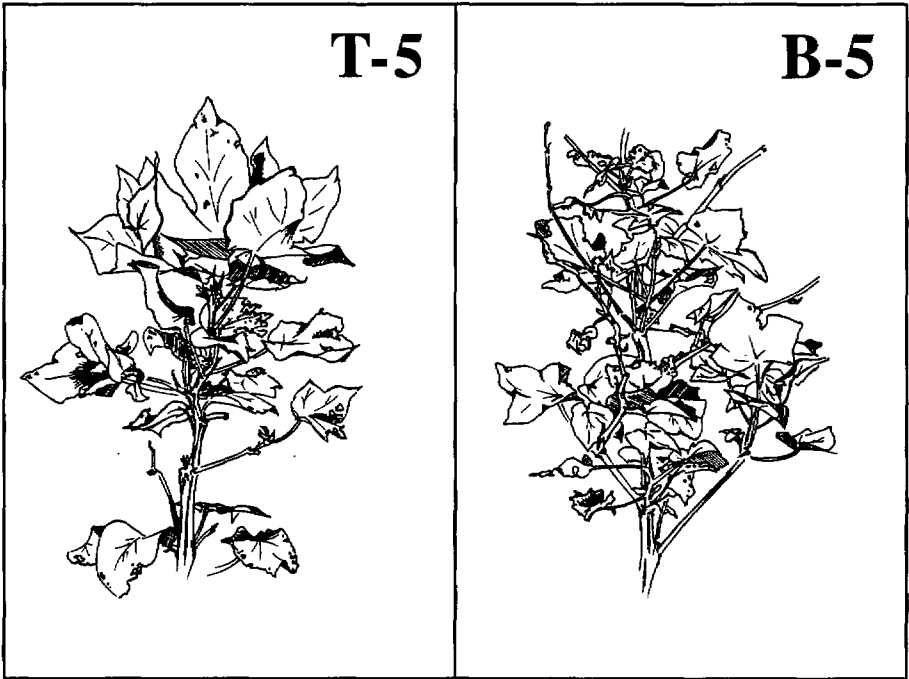
Figure 6. Stages T-5 and B-5: Full canopy of leaves, some more than 3 inches in diameter.

LITERATURE CITED

Anonymous. (1999). Uniform harvest aid performance and fiber quality evaluation. *MAFES Information Bulletin* (No. 358, September). Mississippi State: Office of Agricultural Communications; Division of Agriculture, Forestry, & Veterinary Medicine; Mississippi State University.