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EVALUATING VEGETABLE TRANSPLANTS

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Transplant quality and size influence plant establishment, initial growth and eventually yield. Assuming that transplant order have been made several months in advance or are already growing in the farmer's greenhouse or high tunnel, there are several important plant characteristics that will help determine if the transplants will establish quickly and grow rapidly or fail in the field.

Leaves: Are the leaves healthy, green and free of lesions? Can you detect any insect(s) on the leaves? Lesions on leaves would indicate a possible disease problem and chlorotic or discolored leaves may indicate a possible nutrient deficiency. Age of the plant is important since leaf development and hence number of true leaves on the plant is associated with the age of the plant. Plants with very few leaves or unhealthy leaves seldom develop normally when planted in the field.

Stems: Is the stem too long and thin (spindly)? Will it maintain the plant upright? Are there any lesions on the stem or is it girdled near the roots? If the stem exhibits any of these problems, chances are that the transplant will not develop normally or in a timely fashion in the field.

Roots: Roots should be white, as large as the vegetative portion of the plant and actively growing if the plant is expected to establish rather quickly in the field. If plants are producing adventitious roots (roots growing on the stem above the original primary root), suspect injury from insects, disease, chemicals or mechanical damage. Roots that have been injured or stressed will take much longer to re-establish in the field and thus delay crop growth and harvest date.

Plant age: All vegetable transplants have an ideal age/size that enable them to continue active growth in the field after transplanting and be somewhat resistant to environmental stress. For example, the ideal age for tomato transplants is 6 to 8 weeks of age; younger plants than 6 weeks are not as resistant to desiccation from wind, low temperatures (below 45°F) and soil moisture deficits. On the other hand, older plants (greater than 10 weeks) have a relatively large vegetative mass that has initiated flowers and may be heading into the reproductive phase of growth; hence the plants will produce fruit, but only a fraction of their full potential.

Cell Tray Size: Since the 1990's, the array of cell sizes available to the transplant grower is incredible ranging from 36 to 458 in the same exact tray dimensions. Cell size is determined by crop, period of growth under controlled conditions (greenhouse), space available for transplant production, number of plants required per acre, and length of time between receipt of the transplants from the producer to actual field transplanting (storage). Some crops do much better in large cell-trays such as 72 while others will continue active growth in 200 cell-trays or trays with more cells (338). Ideal growing conditions or the ability to control the environment in the transplant producing greenhouse will enable the producer to use smaller cell sizes and still produce healthy, stocky, actively growing transplants. However, if growing conditions are not ideal (low light, cold night temperatures, phosphorus deficiency) transplants will be spindly, stunted, or stressed especially in the small cell-size trays. If plants are shipped in trays to the grower, larger cell-size (1.5 inch or larger) trays will maintain the plants longer prior to field planting compared to the small cell-size (less than 1 inch) tray. Furthermore, watering with an adequate fertilizer solution will maintain growth and help establishment in the field.

Originally printed in Virginia Vegetable, Small Fruit and Specialty Crops – March-April 2004.