

on varietal characteristics. By following these guidelines, member states are provided a common basis for testing varieties and establishing variety descriptions in a standardized form that facilitates international cooperation in examination between their authorities.

3.2.5. Yield Assessment Tests

Quantitative characteristics, particularly yield, require large-scale field testing over several years and in many locations. Only lines considered for commercialization should be included. The design of yield tests must account for the many subtle cultural factors that affect yield, such as relative foliage vigor of plants in the next row, planting date, physiological condition and size of plant parts used as seed in vegetatively propagated crops, response to fertility, water management, and conditions, and time from planting to maturity. Experimental design and data collection and processing require careful statistical treatment (7). A convenient formula (8) to determine the number of replications needed to determine differences in yield at the 95% confidentiality level is as follows:

$$\text{LSD} = 2^{1.5} \times CV \times N^{-0.5}$$

where LSD = least significant difference, CV = variation coefficient (usually about 10%), and N = number of replications.

3.2.6. Agronomic Performance Under Virus Pressure

Ultimately, the transgenic line must perform well under the virus inoculation pressure of the production area for which it is intended. The level of resistance and of agronomic performance required to replace the parental cultivar will be determined by many factors, including the degree to which the disease can be controlled in the parental cultivar, the cost of that control, and environmental and food safety risks associated with applying the control.

3.2.7. Gene Identity, Localization, Integrity, and Stability

Prior to commercialization of virus resistant transgenic plants, it is necessary to know as much as possible about the gene that has been incorporated into the plant. Some of this information is required by regulatory agencies, and specific regulatory requirements vary from country to country. Additional information will serve to expand our information about the properties of newly generated transgenic plants. This information is of special interest to breeders and researchers assessing the risks associated with introducing transgenic plants into agriculture. Complete knowledge of the molecular composition of transgenic plants generated will also facilitate their identification for property rights.