

**Shahrokh Khanizadeh, Johanne Cousineau and Audrey Levasseur**

*Agriculture and Agri-Food Canada, Horticultural Research and Development Centre, 430 Gouin Blvd.,  
St-Jean-sur-Richelieu, QC, Canada, J3B 3E6, khanizadehs@agr.gc.ca, cousineaujo@videotron.ca, levasseura@agr.gc.ca*

---

Detailed descriptions of plant, leaf, flower and fruit characteristics of strawberry varieties are not only important for plant breeders but can also be used as a tool to identify varieties. This information is required by the Plant Breeder's Rights Office (PBRO) when an application is submitted for examination of a candidate variety vs. the reference variety.

In the last several years, efforts were put together to set up a complete agronomical and morphological description of strawberry varieties (UPOV, 1995; Faedi *et al.*, 1988; <http://www.ars-grin.gov/cgi-bin/npgs/html/desclist.pl?78>). Dale (1996) reported a key and vegetative descriptions of 32 common strawberry varieties grown in North America. Khanizadeh and Ghavami (2004) developed a user-friendly software that allows the user to create their own instant database and image inventory by importing existing data and images for over 1000 genotypes ([www.unibase.ca](http://www.unibase.ca)).

In the last 10 years, several selections were released from the National Strawberry Breeding program of Agriculture and Agri-Food Canada (AAFC), and in all cases a selection of one or more reference varieties was mandatory when describing a new variety. During the course of the selection and cultivar evaluation, information was also collected on other selections that were thought to have a potential in the breeding program. This document includes a list of over 100 strawberry cultivars that were evaluated during 1997-2003. The objective was to document the field performance of these cultivars by evaluating their capacity to withstand cold temperatures and disease resistance as well as describing other important characteristics, some of which directly or indirectly affect fruit quality, productivity or shown to have a relation with pre- and postharvest fruit diseases (Olcoot-Reid and Moore, 1995), such as vigor, firmness, flesh color, sugar, acidity and texture. These data, along with that collected from advanced selections, or a source of information used to select parentages in order to develop new lines. This information is also available in an electronic format via UniBase (<http://www.unibase.ca>).

The data presented in this section is the overall average of observations taken during the past 7 years. Plants were established at the AAFC Sub-Station located in L'Acadie, Qc, where the data were collected from 10 typical plants during the second growing season (1st harvest season). The information contained in this chapter was collected according to the guidelines and procedures recommended by the Canadian 'Plant Breeders Rights Office' (<http://www.inspection.gc.ca/english/plaveg/pbrpov/guidee.shtml>).

The rating system used in this report is a scale ranging from either 1 to 9 or 3 to 7. Sometimes the symbol “ - ” or a dash can be found between two numbers and this indicates that the observation is within a certain range but intermediate values that grade gradually from one extreme to another can also be used even though they are not in the legend. For example, where it states for characteristic are described as 3 to 7 and it represents small (3), medium (5), large (7); other values such as 1, 2, 4, 6, 8 or 9 may also be used (Agriculture and Agri-food Canada, 1993). Contrary to the above, the comma “ , ” indicates the possibility of a certain description but not any other values range. For example, cultivars rated 4, 5, 7 for fruit shape, represent only three distinct shapes (e.g. conic, bi-conic and wedged) and nothing between the values.

Plant characteristics such as habit, density and vigor were observed on 1-year-old plants a few days after the beginning of fruit ripening (Table 1). A diagram (chapter 11) was used to classify the varieties based on their growing habit. Vigor was rated according to the quantity and quality of the foliage (before the appearance of foliar disease) on an individual plant basis, whereas density was rated by the number of plants per square meter. Stolon characteristics, including number, thickness, pubescence and anthocyanin coloration, were recorded in the fall on 1-year-old plants (Table 1). Cultivars were tested shortly after the last harvest for their field susceptibility to leaf spot and leaf scorch. To evaluate the degree of susceptibility, a visual assessment of both diseases based on the density of spots per foliage and the number of plants infected per plot was used as well as a few reference varieties. For example: 'Kent' scored 9 (highly susceptible) for leaf spot, which means it had spots on the 10 typical plants and there were several spots per plant. It is important to note that the reaction to leaf diseases might not be the same in other regions due to the interaction between the cultivars, the growing condition and regional climate.

Leaf characteristics, including the color of upper side, blistering, number of leaflets and characteristics of the terminal leaflet such as length/width ratio (see diagram, chapter 11), shape of base (see diagram, chapter 11) and shape of teeth (see diagram, chapter 11), as well as petiole characteristics, including pubescence and pose of hairs, were evaluated during the second growing season (Table 2). Shortly after harvest, 10 mature leaves were selected randomly from 10 typical plants. These characteristics were measured in the first and second growing years and looked to be very consistent from year to year.

Flower, inflorescence and fruiting truss characteristics, including position of the inflorescence relative to the foliage, flower size, diameter of inner calyx relative to outer (see diagram, chapter 11), diameter of the calyx relative to corolla, petal spacing (see