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# Strawberry Cultivar Performance in Missouri, 1997-1999

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**Abstract**

Sixteen June bearing cultivars and four New Jersey strawberry breeding program selections were evaluated for yield, disease incidence and plant density in south central Missouri during the 1997-1999 seasons. The production system used a 20 cm high raised bed and matted rows at 60 cm in row plant spacing with rows 1.5 m apart. The planting was cropped for three years and renovated following harvest after the second and third bearing seasons. The highest yielding cultivars were 'Annapolis', 'Cavendish', 'Chambly', 'Governor Simcoe', 'Honeoye', 'Marmolada', 'Primetime', 'Seneca', and 'Settler'. Berry weight for these cultivars was 10 g or more as a weighted mean with 'Cavendish' and 'Marmolada' the largest. All of these cultivars had plant densities of 90 crowns per $m^2$ or more in 1997 indicating that they had vigorous runner production the planting year. Leaf spot (*Mycosphaerella fragariae*) ratings showed 'Marmolada' as being susceptible. Uneven fruit ripening was noticed on 'Cavendish'.

## Introduction

Evaluation of strawberry cultivars is an ongoing research project at the State Fruit Experiment Station of Southwest Missouri State University. Missouri growers are interested in the performance of newer germplasm in comparison to standard cultivars. Adapted cultivars must withstand the mid-continental climate of Missouri which is rated 5 and 6 in the USDA Plant Hardiness Zones. Our trial location in the southern part of the state typically has wet spring weather, high summer temperatures, and fluctuating winter temperatures with no snow cover. Leaf disease and winter crown injury can occur in this environment. Matted-row production is the system best adapted to zone 5 and lower, and for those cultivars that are prolific runner producers (2,7). It is the system of choice for Missouri growers. Soil fumigation is not commonly used unless the ground was previously planted to strawberries. Past reports from the station summarized the performance of strawberry cultivars, some of which were included in this trial (5,6). Sixteen June bearing cultivars and four New Jersey Agricultural Experiment Station (NJAES) strawberry breeding program selections were evaluated in this trial.

## Materials and Methods

The trial was conducted at the State Fruit Experiment Station of Southwest Missouri State University, Mountain Grove, MO. The soil was a Viraton series (Oxyaquic Fragiudalf) at the planting location. This is characterized as a silt loam topsoil and a cherty, silty clay loam subsoil. There is a cherty fragipan at 60 to 90 cm depth which limits rooting. Permeability is moderate above the fragipan and very low in the pan. Water holding capacity of the soil is low because of the pan. Soil reaction is slightly acidic with pH 6.7. Organic matter content is 2.5%.

Tall fescue *(Festuca elatior)* grass was the permanent ground cover in the years prior to planting establishment. The site was plowed and disced in May 1995. The site was cover cropped with buckwheat (*Fagopyrum sagittatum*) during the summer and with cereal rye (*Secale cereale*) as a winter cover in October 1995. The cereal rye was incorporated in April 1996. The site was not fumigated which is the typical practice in Missouri when ground has not been previously planted to strawberries.

Soil tests showed the need for phosphorus (52 kg/ha) and potassium (50 kg/ha). This along with nitrogen (175 kg/ha) was applied and rotovated into the soil. Raised

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beds were formed on a 1.5 meter spacing center to center. Bed width was 75 cm and 20 cm high in the center. Sixteen June bearing cultivars were obtained from Brittingham Plant Farms (Salisbury, MD), Nourse Farms, Inc. (Deerfield, MA), and Strawberry Tyme Farms Inc. (Simcoe, Ontario, Canada). The selections 8607-2, 8608-1, 8614-2 and 8826-11 were obtained from NJAES strawberry breeding program (courtesy of Dr. Joseph Fiola). The cultivars included releases from New York ('Honeoye', 'Seneca'); USDA, Maryland ('Delmarvel', 'Earliglow', 'Mohawk', 'Northeaster', 'Primetime', 'Sunrise'); Nova Scotia, Canada ('Annapolis', 'Cavendish'); Ontario, Canada ('Governor Simcoe', 'Settler', 'Startyme'); Quebec, Canada ('Chambly'); and Italy ('Marmolada', 'Miranda'). Dormant crowns were planted on 1 May 1996 at 60 cm in-row spacing. Plants were allowed to runner to form a 60 cm wide matted row for fruiting. Blossoms were removed the first growing season. DCPA preemergent herbicide was applied soon after planting and supplemented with hand weeding during the growing season. Napropamide preemergent herbicide was used in the early autumn. Benomyl and Captan were used for foliar disease and fruit rot control. Straw mulch was applied over rows in early December and raked to the aisles in early April. Drip irrigation was used to supplement rainfall during the growing season and overhead irrigation was used for spring frost control. In 1997 and 1998, matted rows were renovated after harvest by narrowing them to 30 cm with a rotovator. Nitrogen (150 kg/ha) was broadcast after renovation. The experiment was a randomized complete block with five replications. Each replicate consisted of seven original plants in 4.5 m of row.

The planting was harvested two times per week. Marketable and cull yields per 4.5 m plot were recorded in 1997, 1998 and 1999. Total yield is reported on a linear m of row basis (Table 1). Marketable yield is reported as a percent of total yield (Table 1). First and peak (highest yield) harvest dates were recorded each year (Table 2). Berry weight was determined from a random 25-fruit sample taken at every picking from marketable fruit. A weighted mean was calculated using the formula: summation of picking 1 through N [ (sample weight on day N ÷ 25 berry sample) × (yield on day N ÷ total yield) ] and reported (Table 3). Plant density was estimated by counting the number of plant crowns in a 0.1 $m^2$ square frame placed over the matted row (midpoint in replication) and reported as crowns per 1.0 $m^2$ of row (Table 4). Disease ratings were conducted in October 1996, and after harvest and before renovation in July 1997 and June 1998. Strawberry leaf spot *(Mycosphaerella fragariae)* was assessed using the scale of 0 = no infection, 1 = trace to 10% infection, 2 = 11 to 20% infection, ... 10 = 91 to 100% infection and reported (Table 4). Data were analyzed by ANOVA and means separated by Duncan's multiple range test, 5% level.

## Results and Discussion

Total yield was highest in 1997 (Table 1). The yearly mean for all cultivars and selections was 3.3 kg per linear m row (27.1 MT/ha). This is a very high yield for matted row production in Missouri based on previous strawberry trials (5,6). Strawberry cultivar trials in other states have shown yields below and on par with Missouri (3,11). Because yields are usually determined from small research plots, a conservative estimate of what commercial strawberry growers might obtain is about one-half to two-thirds of cultivar trial yields (2,10). Blossoming started on 28 April and three light frosts occurred on 1, 10 and 16 May. Sprinkler irrigation was used for frost control on 10 and 16 May. The lowest canopy temperature recorded on 1 May was -1° C. This temperature is within the range that strawberry blossoms supercool before injury occurs. Little or no damage was noted at -1° C for opened blossoms (1) with -3.1° C considered the critical temperature for opened strawberry blossoms (8).

Total yield in 1998 declined about one-third from the first year (Table 1). The

**Table 1. Total and marketable yield of strawberry cultivars and selections, Southwest Missouri State University, 1997- 1999.**

| Cultivar or selection | Total yield (kg/linear m row)[Z] | | | | Marketable yield (%)[Y] | | | |
|---|---|---|---|---|---|---|---|---|
| | 1997 | 1998 | 1999 | 3 year means | 1997 | 1998 | 1999 | 3 year means |
| Annapolis | 3.0 ef[X] | 2.9 b-d | 1.7 cd | 2.53 | 85 bc | 78 b-d | 88 a-f | 84 |
| Cavendish | 4.9 bc | 3.0 bc | 1.7 cd | 3.20 | 81 de | 60 f | 83 c-g | 75 |
| Chambly | 5.8 a | 3.9 a | 2.7 a | 4.13 | 87 a-c | 84 a-c | 86 a-f | 86 |
| Delmarvel | 2.7 e-g | 2.1 fg | 1.7 cd | 2.17 | 89 a-c | 85 ab | 91 ab | 88 |
| Earliglow | 2.7 e-g | 2.2 e-g | 1.8 cd | 2.23 | 91 a | 84 a-c | 86 a-f | 87 |
| Governor Simcoe | 4.3 c | 2.7 b-e | 1.8 cd | 2.93 | 86 a-c | 84 ab | 81 e-g | 84 |
| Honeoye | 4.7 bc | 3.0 bc | 2.5 ab | 3.40 | 90 a | 88 a | 92 a | 90 |
| Marmolada | 5.1 bc | 2.8 b-d | 0.7 f | 2.87 | 78 ef | 61 f | 85 b-g | 75 |
| Miranda | 1.6 i | 1.5 hi | 1.0 ef | 1.37 | 81 de | 71 de | 86 a-f | 79 |
| Mohawk | 1.7 i | 1.1 i | 1.0 ef | 1.27 | 79 ef | 78 b-d | 84 c-g | 80 |
| NJUS 8607-2 | 1.9 hi | 2.2 e-g | 1.3 de | 1.80 | 72 g | 82 a-c | 85 b-g | 80 |
| NJUS 8608-1 | 3.3 de | 1.4 hi | 0.9 ef | 1.87 | 88 a-c | 69 e | 83 d-g | 80 |
| NJUS 8614-2 | 3.2 de | 1.7 gh | 1.3 de | 2.07 | 87 a-c | 79 a-d | 86 a-f | 84 |
| NJUS 8826-11 | 2.4 f-h | 2.5 c-f | 1.6 cd | 2.17 | 86 bc | 80 a-c | 87 a-f | 84 |
| Northeaster | 2.3 gh | 2.4 d-f | 1.5 c-e | 2.07 | 89 a-c | 85 ab | 90 a-c | 88 |
| Primetime | 3.2 de | 3.2 b | 2.0 bc | 2.80 | 87 a-c | 82 a-c | 84 c-g | 84 |
| Seneca | 3.7 d | 2.7 b-e | 1.8 cd | 2.73 | 86 a-c | 86 ab | 81 fg | 84 |
| Settler | 4.7 bc | 2.5 c-f | 1.4 de | 2.87 | 85 cd | 78 b-d | 89 a-d | 84 |
| Startyme | 2.3 gh | 1.4 hi | 1.0 ef | 1.57 | 76 f | 75 c-e | 79 g | 77 |
| Sunrise | 3.3 de | 2.2 e-g | 1.4 de | 2.30 | 90 ab | 80 a-d | 88 a-e | 86 |
| **Means** | 3.3 | 2.4 | 1.5 | 2.42 | 85 | 78 | 86 | 83 |

[Z]To convert to MT/ha multiply by 8.2; to convert to T/A multiply by 7.3.
[Y]Marketable yield was based on the formula [(total yield wt - cull fruit weight) ÷ (total yield weight)] × 100.
[X]Means separation in columns by Duncan's multiple range test, 5% level.

yearly mean for all cultivars and selections was 2.4 kg per linear m row (19.7 MT/ha). Blossoming started on 15 April and no frosts occurred that spring.

Total yield in 1999 declined to about one-half from the first year (Table 1). The yearly mean for all cultivars and selections was 1.5 kg per linear m row (12.3 MT/ha). Blossoming started on 6 April and one frost occurred on 18 April with a low temperature of -2° C at the canopy. A heavyweight floating row cover (51 g per $m^2$) was used for frost protection.

Missouri growers will crop a matted-row strawberry planting for several years if weed control is sufficient. Highest yield occurs in the first bearing year with a decline in the second year. Yield usually declines sharply in the third year due to a combination of factors such as plant crown and weed competition, and foliar disease. This makes a matted row system unprofitable to maintain after two bearing years (2). Noticeable crown injury was absent during the years 1996 through 1999; winter low temperature never went below -20 °C. Straw mulch was used each dormant season to reduce the freezing and thawing action of soil which kept plant crowns from being exposed to low winter temperature (10).

Yields above 2 to 2.5 kg per linear m row were considered to have potential for commercial production. All cultivars and selections except for 'Miranda', 'Mohawk', and NJUS 8607-2 reached this yield in 1997 (Table 1). All reached this yield in 1998 except for 'Miranda', 'Mohawk', 'Startyme', NJUS 8608-1, and NJUS 8614-2 (Table 1). Only 'Chambly', 'Honeoye', and 'Primetime' reached this yield in 1999 (Table 1). The highest yielding cultivars overall were 'Annapolis',

'Cavendish', 'Chambly', 'Governor Simcoe', 'Marmolada', 'Primetime', 'Seneca', and 'Settler' (Table 1). These compared favorably with the standard midseason cultivar 'Honeoye' which had high yields in our trial as well as other cultivar trials (3,11). Cull yields were low for most of the cultivars and selections. This resulted in relatively high yearly, marketable yields of 85%, 78% and 86% for the years 1997, 1998 and 1999, respectively. Commercial growers would probably have lower marketable yields because later and smaller fruit are usually not harvested as they were with this trial.

Yearly total and marketable yields of this trial exceeded those of a previous trial of June-bearing cultivars where 'Earliglow' and 'Honeoye' were included (5). However, spring frost reduced first year yield in that trial as overhead irrigation for frost control was not available.

Strawberry blossoming can occur in southern Missouri anytime through the month of April (5,6) depending on year. The blossoming period is usually compressed, lasting about seven to ten days with only several days separating early from mid-season cultivars (data not shown). The first harvest date is usually mid through late May (Table 2). Five to seven days usually separate early from mid-season cultivars. Peak harvest is one to two weeks later (Table 2). Considerable variation blurred the distinction between early and midseason cultivars in our trial. Consequently, cultivars were not placed in seasonal categories. Nursery listings and breeder descriptions of these cultivars place 'Annapolis', 'Earliglow', 'Mohawk', 'Northeaster' and 'Sunrise' in early season; 'Cavendish', 'Delmarvel', 'Honeoye' and 'Settler' are in early midseason; 'Chambly', 'Governor Simcoe', 'Marmolada', 'Miranda', 'Primetime', and 'Seneca' are in midseason; and 'Startyme' is in late season.

A weighted mean accentuates berry size because the largest berries and highest yields occur together in early harvests. It

**Table 2. First and peak harvest dates of strawberry cultivars and selections, Southwest Missouri State University, 1997-1999.**

| Cultivar or selection | First harvest date | | | Peak harvest date[z] | | |
|---|---|---|---|---|---|---|
| | 1997 | 1998 | 1999 | 1997 | 1998 | 1999 |
| Annapolis | 5/27 | 5/18 | 5/13 | 6/9 | 6/1 | 5/24 |
| Cavendish | 6/2 | 5/22 | 5/17 | 6/16 | 6/1 | 6/4 |
| Chambly | 5/27 | 5/20 | 5/13 | 6/16 | 5/26 | 5/24 |
| Delmarvel | 5/27 | 5/22 | 5/13 | 6/2 | 5/26 | 5/17 |
| Earliglow | 5/27 | 5/18 | 5/13 | 6/2 | 6/1 | 5/24 |
| Governor Simcoe | 6/2 | 5/26 | 5/21 | 6/16 | 6/1 | 6/4 |
| Honeoye | 5/27 | 5/20 | 5/17 | 6/9 | 5/26 | 6/1 |
| Marmolada | 6/2 | 5/26 | 5/19 | 6/16 | 5/26 | 6/1 |
| Miranda | 6/2 | 5/20 | 5/19 | 6/16 | 5/26 | 5/26 |
| Mohawk | 6/2 | 5/22 | 5/19 | 6/16 | 6/1 | 6/4 |
| NJUS 8607-2 | 6/2 | 5/20 | 5/17 | 6/2 | 5/26 | 6/1 |
| NJUS-8608-1 | 6/2 | 5/22 | 5/13 | 6/9 | 5/26 | 6/1 |
| NJUS-8614-2 | 6/2 | 5/22 | 5/19 | 6/11 | 5/26 | 6/1 |
| NJUS-8826-11 | 5/27 | 5/20 | 5/13 | 6/2 | 5/26 | 5/24 |
| Northeaster | 5/27 | 5/18 | 5/13 | 6/9 | 5/26 | 6/1 |
| Primetime | 5/27 | 5/22 | 5/13 | 6/9 | 6/1 | 6/1 |
| Seneca | 6/2 | 5/26 | 5/19 | 6/9 | 5/26 | 6/1 |
| Settler | 6/2 | 5/26 | 5/21 | 6/16 | 5/26 | 6/1 |
| Startyme | 6/2 | 5/22 | 5/19 | 6/16 | 6/1 | 6/4 |
| Sunrise | 5/27 | 5/22 | 5/19 | 6/9 | 5/26 | 6/1 |

[z]Date of highest yield

probably is representative of what a commercial grower might obtain, since later and smaller fruit are usually not harvested. A berry size of 10 g and above is considered good for commercial production in Missouri. Most of the cultivars and selections met or exceeded this weight in 1997 and 1998 but were short of it in 1999 (Table 3). Yearly mean berry weights were 11.5, 11.0 and 9.5 g for the years 1997, 1998 and 1999, respectively. 'Cavendish' and 'Marmolada' had the largest berries at 15 g or above for both years. 'Cavendish' showed uneven fruit ripening. This has been reported for this cultivar and as a possible consequence of ripening in hot weather (4). 'Chambly', 'Delmarvel', 'Honeoye', 'Miranda', 'Northeaster', 'Primetime', 'Seneca', and 'Settler' had berry size above 10 g the first two years. A drop in berry size of 10 to 20% occurred for most cultivars in 1999. Several cultivars, 'Chambly', 'Governor Simcoe', 'Miranda', 'Northeaster', and 'Seneca' maintained or increased berry size in 1999, but this may have been in compensation for lower yields in that year. However, previous work does not show a relationship between fruit size and yield. Fruit weight was found to be negatively correlated to increasing crown number per plant and plant number per row (13) and this varied by cultivar (12). Crown and plant numbers would be expected to be higher in the second and third bearing years, although these numbers were not determined in our trial.

Plant density estimates showed that most cultivars established a full matted row within the first growing season (Table 4). The 1997 mean for all cultivars and selections was 108 crowns per $m^2$. This is similar to what was reported for established matted rows of 'Allstar' and 'Redchief' of 122 and 106 crowns per $m^2$, respectively

**Table 3. Berry weight of strawberry cultivars and selections, Southwest Missouri State University, 1997-1999.**

| Cultivar or selection | Berry weight (g)[Z] | | | |
|---|---|---|---|---|
| | 1997 | 1998 | 1999 | 3 year means |
| Annapolis | 9.9 f[Y] | 11.8 c-e | 8.5 d-f | 10.1 |
| Cavendish | 17.0 a | 16.5 a | 9.8 b-f | 14.4 |
| Chambly | 11.7 c-e | 10.1 fg | 9.9 b-f | 10.6 |
| Delmarvel | 11.8 b-d | 10.5 f | 8.3 d-f | 10.2 |
| Earliglow | 8.6 g | 9.0 gh | 7.4 ef | 8.3 |
| Governor Simcoe | 10.9 d-f | 9.1 gh | 12.3 a-c | 10.8 |
| Honeoye | 11.6 c-e | 10.2 fg | 8.3 d-f | 10.0 |
| Marmolada | 17.1 a | 15.0 b | 10.7 b-d | 14.3 |
| Miranda | 12.3 bc | 11.0 d-f | 12.5 ab | 11.9 |
| Mohawk | 10.5 ef | 9.2 gh | 7.7 d-f | 9.1 |
| NJUS 8607-2 | 11.8 b-d | 10.0fg | 7.6 d-f | 9.8 |
| NJUS 8608-1 | 10.4 ef | 10.8 ef | 9.6 b-f | 10.3 |
| NJUS 8614-2 | 9.9 f | 9.8 fg | 8.1 d-f | 9.3 |
| NJUS 8826-11 | 9.7 fg | 12.3 c | 8.9 d-f | 10.3 |
| Northeaster | 10.0 f | 12.1 cd | 10.5 b-e | 10.9 |
| Primetime | 13.0 b | 11.8 c-e | 9.3 c-f | 11.4 |
| Seneca | 11.9 b-d | 10.0 fg | 14.4 a | 12.1 |
| Settler | 12.3 bc | 12.5 c | 10.1 b-f | 11.6 |
| Startyme | 9.8 f | 9.8 fg | 8.3 d-f | 9.3 |
| Sunrise | 9.8 f | 8.4 h | 7.1 f | 8.4 |
| Means | 11.5 | 11.0 | 9.5 | 10.7 |

[Z]Weighted mean = summation of picking 1 through N [ (sample weight on day N ÷ 25 berry sample) × (yield on day N ÷ total yield) ].
[Y]Means separation in columns by Duncan's multiple range test, 5% level.

**Table 4. Plant density and leaf spot rating of strawberry cultivars and selections, southwest Missouri State University, 1996-1998.**

| Cultivar or selection | Plant density (crowns / m² row) 1997[Y] | Leaf spot rating[Z] 1996 | 1997 | 1998 | 3 year means |
|---|---|---|---|---|---|
| Annapolis | 139 a[X] | 1.00 d | 1.00 f | 2.00 e | 1.33 |
| Cavendish | 109 b-d | 1.00 d | 1.00 f | 2.00 e | 1.33 |
| Chambly | 110 b-d | 1.00 d | 1.00 f | 2.00 e | 1.33 |
| Delmarvel | 98 d | 1.00 d | 1.00 f | 2.00 e | 1.33 |
| Earliglow | 107 b-d | 1.00 d | 1.25 ef | 2.00 e | 1.42 |
| Governor Simcoe | 129 ab | 1.25 cd | 1.25 ef | 3.00 c | 1.83 |
| Honeoye | 122 a-c | 1.75 cd | 2.25 b-d | 3.00 c | 2.33 |
| Marmolada | 106 b-d | 2.00 c | 2.75 bc | 6.00 a | 3.58 |
| Miranda | 92 de | 5.50 a | 5.50 a | 3.50 b | 4.83 |
| Mohawk | 71 e | 1.25 cd | 1.50 d-f | 2.25 de | 1.67 |
| NJUS 8607-2 | 99 cd | 1.25 cd | 1.25 ef | 2.00 e | 1.50 |
| NJUS 8608-1 | 93 d | 1.75 cd | 1.75 d-f | 3.00 c | 2.17 |
| NJUS 8614-2 | 124 ab | 1.50 cd | 1.75 d-f | 2.00 e | 1.75 |
| NJUS 8826-11 | 124 ab | 1.25 cd | 1.25 ef | 2.00 e | 1.50 |
| Northeaster | 105 b-d | 1.50 cd | 3.00 b | 2.25 de | 2.25 |
| Primetime | 105 b-d | 1.00 d | 2.25 b-d | 3.00 c | 2.08 |
| Seneca | 90 de | 1.50 cd | 2.25 b-d | 2.50 d | 2.08 |
| Settler | 97 d | 1.50 cd | 2.00 c-e | 3.25 bc | 2.25 |
| Startyme | 96 d | 4.50 b | 5.75 a | 3.25 bc | 4.50 |
| Sunrise | 137 a | 1.00 d | 1.00 f | 2.00 e | 1.33 |
| Means | 108 | 1.68 | 2.04 | 2.65 | 2.12 |

[Z]Leaf spot *(Mycosphaerella fragariae)* visual assessment done on 10/15/96, 7/15/97 and 6/22/98 using a rating of 0 = no infection, 1 = trace to 10%, 2 = 11 to 20% ... 10 =91 to 100%.
[Y]Rating done on 5/14/97.
[X]Means separation in columns by Duncan's multiple range test, 5% level.

(9). Strawberry leaf spot (*Mycosphaerella fragariae*) was generally not a large problem in the establishment year. 'Marmolada', 'Miranda' and 'Startyme' showed higher ratings which carried over to the second and third years (Table 4).

Yields of the NJUS selections were generally lower than the better cultivars (Table 1). Breeder descriptions list 8607-2, 8608-1, 8826-11 as early season selections and 8614-2 as a midseason selection. As with the cultivars, considerable variation prevented us from placing them in seasonal categories (Table 2). Berry size was large the first two bearing years, close to 10 g or higher in weight (Table 3). Plant density estimates were adequate for matted row production (Table 4). Strawberry leaf spot was generally rated at 20% or less (Table 4).

Based on total yield and berry weight we recommended 'Annapolis', 'Chambly', 'Delmarvel', 'Governor Simcoe', 'Honeoye', 'Primetime', 'Settler' and 'Seneca' to our Missouri growers. 'Cavendish' and 'Marmolada' were not recommended based on uneven fruit ripening and leaf spot ratings, respectively.

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## Call for Papers
## U. P. HEDRICK AWARDS

A cash award of $300 with mounted certificate will be awarded to the winning student paper. Papers should be submitted to Dr. Robert Crassweller, Horticulture Department, Penn State University, University Park, PA 16083 by May 30, 2003. See the journal for editorial style; paper length about 1000 words or 3 to 4 pages total. Pages can relate to any research aspect with fruit cultivars or rootstocks as influenced by environmental or cultural techniques. Breeding or the history or performance of new or old cultivars can be reviewed. Research and review papers will be judged separately.

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## Call for Wilder Medal Nominations

The Wilder Medal Committee of the American Pomological Society (APS) invites nominations for the 2003 Wilder Silver Medal Award. The Wilder Medal was established in 1873 in honor of Marshall P. Wilder, the founder and first President of the Society.

The Wilder Medal is conferred on individuals or organizations which have rendered outstanding service to horticulture in the area of pomology. Special consideration is given to work relating to the origination and introduction of meritorious fruit cultivars. Individuals associated with either commercial concerns or professional organizations will be considered if their introductions are truly superior and have been widely planted.

Significant contributions to the science and practice of pomology other than through fruit breeding will also be considered. Such contributions may relate to any important area of fruit production such as rootstock development and evaluation, anatomical and morphological studies, or noteworthy publications in any of the above subjects.

To obtain nomination guidelines, contact committee chairperson, Desmond R. Layne, Dept. of Horticulture, Box 340375, Clemson University, Clemson, SC 29634-0375; phone: 864-656-4961; fax: 864-656-4960; e-mail: dlayne@clemson.edu. Nominations must be submitted by **1 May 2003.**