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TC/34/8
ORIGINAL: English
DATE: February 27, 1998

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

TECHNICAL COMMITTEE

Thirty-Fourth Session
Geneva, March 30 to April 1, 1998

SEED-PROPAGATED PELARGONIUM PELTATUM: UNIFORMITY

Document presented by experts from the Netherlands

SEED-PROPAGATED PELARGONIUM PELTATUM: UNIFORMITY

The Technical Committee is asked to give advice in an actual test case.

Report by the Testing Authority

One F1 hybrid of *Pelargonium peltatum* (single-cross variety) does not reach the uniformity standard for hybrid varieties according to TG/1/2.

Four groups of plants, raised from the same seed sample, were found in 1995 and 1997 to be clearly distinct in two characteristics (upper petal: conspicuousness of markings, and upper petal: color of middle of upper side). The number of plants in each group is shown in the table below.

	Number of Plants	
Difference in upper petals	1995	1997
1. light pink with clear blotch	19	18
2. light pink with unclear blotch	29	26
3. light pink without blotch	10	14
4. white without blotch	2	2

The maximum number of off-types allowed is four out of 60 plants. The testing authority therefore decided that the variety was not uniform.

There is no other white variety of this species on the market that is propagated by seed. The only two other seed-propagated reference varieties had violet flowers. They both had markings on their upper petals that were uniform in their conspicuousness.

According to the breeder, it would not be possible to make the variety more uniform, because after five or six generations of inbreeding the plants were no longer fertile. Some members of the TWO were therefore of the opinion that the variety was sufficiently uniform.

Because the number of applications for seed-propagated ornamentals is increasing, it is important to reach a decision on the uniformity standard to be used in this case.

Some Additional Facts and Interpretation

- Seed propagated *P.peltatum* F1 hybrids were introduced quite recently in this crop, which is traditionally propagated by cuttings.

- Consequently a few applications for breeders' rights have been made (for violet varieties and one white-flowering–actually pale-pink flowering–variety).

- The varieties are the result of the cross-pollination of two inbred (five to six-generation) populations (not clones).

- As no other white-flowering seed-propagated varieties are known in the trade, two violet varieties were used as a reference.

- The trial results from the German Plant Varieties Office reveal two types of heterogeneity:

  1. The expression of the ground color ranging from light pink to white
  2. The expression of the blotch at the end of the two stripes on the claw ranging from clear to absent.

- The violet-flowering varieties show hardly any or no difference in ground color, whereas the expression of the blotch varies slightly but within acceptable limits (from the breeders' rights point of view).

- The number of off-types allowed in a sample of 60 plants is four for pure F1 hybrids in *Pelargonium*.

Questions raised

- On what basis was the number of four off-types set for all F1 hybrids within the genus *Pelargonium* ? Is the number of off-types in the genus *Pelargonium* fixed irrespective of the method of breeding within the F1 concept? What is the position regarding F1 hybrids of other species?

- As no comparison with other white varieties was possible, violet varieties were used for reference. The violet ground color does not show much variation, or in any case less than in the pale-pink-flowering test case. Could one imagine the two pure-white-flowering plants being considered off-types? As far as the expression of the blotch is concerned, it is quite clear that it is less variable in the violet varieties than in the white variety under test. One could wonder whether the same genetic system was not responsible for the variation in the above expression in both varieties, and at the same time whether the nearly-white ground color of the candidate variety did not have something to do with the observed difference in expression.

- The breeder states that the inbred seed populations resulting in the F1 of the white test variety were more homogeneous than with the violet references. Any attempt to get rid

of the blotch failed. The truth of the statement could be tested by taking two sub-populations out of the F1 test population: light pink with a blotch and light pink without a blotch. Cross pollination should be made within each of the two groups (not between them of course). When the result, the segregation, is the same from both sub-populations, it is clear that the final stage of breeding has been achieved, whereas in the opposite case further selection for uniformity is possible. A similar trial was conducted in the Netherlands on a seed-propagated *Pentas* variety.

Apart from all these considerations, one should contemplate accepting the candidate variety, as no other comparable variety is known in this color group. Therefore the "state of the art" for the uniformity requirement could be set at the result reached at this stage. It has been a general practice in the history of DUS testing to accept the level of uniformity reached at a certain stage of breeding development, even where the course of time varieties have improved in that respect. The development is new and therefore needs some support.

Summary

- Is the number of off-types fixed in this case, or is some tolerance possible depending on the breeding formula?

- When some tolerance is allowed, is it logical to handle the application as for a cross-pollinated variety?

- Is it logical to examine whether or not further segregation of the blotch characteristic should be possible (irrespective of the costs involved)?

- Is it justifiable and logical, in the absence of any white reference variety, for violet varieties to be used instead?

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