

Ploidy

Hybridizers strive to produce plants that grow and flower faster, with larger flowers of perfect form. Increasing the number of naturally-occurring chromosomes, termed polyploidy (3 or more times the haploid count), can have a significant impact on floral and other characteristics. A polyploid can occur either naturally or via chemical induction during the meiosis stage of cellular division.

Although we do not count chromosomes at the judging table (for obvious reasons), we can see evidence of doubling chromosome counts the plants we assess.

Most often this is a good thing, but from time to time we can see some hideous outcomes from the doubling, tripling and even quadrupling the number of chromosomes that an orchid plant contains. Triploids, frequently quite beautiful, are typically sterile though there are instances when a fully mature plant has begun to produce seed.

- A) Name one genus wherein ploidy has been exploited to produce highly-awardable offspring.
- B) List as many positive characteristics of polyploidy in plant growth habit and orchid flowering you can think of that would increase the awardability of these plants.
- C) Do you believe that polyploidy plants should be judged the same as haploid plants?
- D) Some plants are naturally occurring polyploids. If you believe that haploid plants should be judged on a different point scale than polyploids, how would you handle this issue?
- E) It would make sense that we as judges would need to have knowledge of the natural occurring chromosome count for quite a few genera and species. How would we handle this issue?
- F) List drawbacks of suspected polyploidy you have seen in person or in research materials. What are some negative qualities you have noted?
- G) Some judges claim that the extra tissue on some phragmipedium flowers is due to increased chromosome counts. How would you judge these flowers? Be specific with your reasoning.
- H) We sometimes see extra tissue on the reverse side of enormous white Phalaenopsis flowers. Some judges claim that this extra tissue is necessary for these large flowers to be presented correctly and feel the flower would not be able to stand up to its own weight without the extra tissue. What would you do with white Phalaenopsis at the judging table that had extra tissue on the reverse of the flowers?
- I) What if we were considering an orchid plant for a cultural award and the leaves had hard raised ridges through them? How would you handle this at the judging table? Would you penalize the orchid plant for the extra tissue on its leaves?