BASEMENT BOTANICALS

JOHN SULLIVAN

John Sullivan has been growing orchids for 30 years. He is a director of the Pleurothallid Alliance, and has held office in three orchid societies in the New York area. He appeared in the AOS video, Growing Orchids Under Lights. An accredited AOS judge, John works as a mathematics teacher and lives with his wife Jane in New Jersey.

BUILDING AN AREA FOR GROWING miniature orchids under lights was not difficult. I constructed a room 14 feet square using a corner of my basement. The two new walls separated the basement "greenhouse" from the rest of the cellar, and a door provided access. I grew my orchids for many years under fluorescent lights, which are very effective for the culture of a wide variety of orchids, including paphiopedilum, phalaenopsis, most pleurothallids, and many miniatures. Over a period of several years, I shifted from fluorescent to high-intensity discharge (HID) lighting. Success is possible either way.

FLUORESCENT LIGHTS: My plants grew best under fluorescents when I used Vita-Lite Power Twist tubes by Duro Test. These tubes are sometimes hard to find, and I substituted occasionally with other less expensive tubes, but the orchids suffered. I believe that of all available fluorescent tubes, the Vita-Lites most closely approximate the spectrum of sunlight. It is important to keep in mind that technology brings improvement. Growers should not be afraid to try new types of tubes, particularly on one part of the collection. All lights were on a 14 hours per day cycle.

I built the benches, or growing areas, in groups of four. A wall is two benches long by two benches high. I recommend using pressure-treated wood wherever possible. Studs (2 x 3 in. or 2 x 4 in.) were used to frame out and support the structure of each bench. Benches were made of / in. plywood edged with furring strips; when lined with several layers of polyethylene cloth, the shallow basin formed could hold water. Plants are held above the basin on plastic light diffusers—the type used for recessed lighting. Each growing area is lined with more polyethylene cloth to hold humidity around the plants. The liner allows me freedom to mist the orchids heavily with a hand pump sprayer. The entire "greenhouse" is lined with plastic to keep moisture from escaping to the rest of the house. I installed two electric lines from the breaker box to the greenhouse to supply electricity for the lights, fans, and humidifier. These are controlled by industrial-type online timers.

HID LIGHTS: My desire to grow some plants which required higher light levels, together with a need to reconfigure the growing area, led me to HID lighting. These lights are available in two main categories: Metal Halide (MH) and High Pressure Sodium (HPS). Both are extremely bright; I recommend the use of UV protective sunglasses when working under them. The MH bulbs have a color value closely approximating that of sunlight, while the HPS have an orange-yellow hue which is said to enhance flowering. Each is available in several different wattages, and may be mounted either fixed or on moving devices which allow them to illuminate a larger area. These movers are obtainable as either tracks (moving the fixture back and forth) or as a circle (moving two fixtures around a stationary center).

Benches under HID lights may be constructed much the same way as those under fluorescents, using pressure-treated lumber. Benches may not be stacked unless the ceiling is very high because the fixture to plant distance may be two to four feet or more. Bench space may be as wide as the light capacity of the bulb allows. I decided to use a circle with two fixtures to create a bright central area with a less illuminated region outside this radius for plants which require less light.

HUMIDITY: Since the entire space is enclosed in plastic, humidity created is, to a large extent, humidity retained. During the time when I was using fluorescent lights, I used an evaporative pad humidifier, available as a console model from most department stores. By running this humidifier whenever the lights were on, I was able to maintain the relative humidity between 80% and 85%, since only a small room was being climate controlled. The relative humidity tends to rise when the lights go off and the temperature drops, so it is not necessary to run the humidifier 24 hours a day. Now that I am using HID lights, which heat and dry the air more, I have changed to a cool-fog humidifier.

PESTS AND DISEASE CONTROL: Because my "greenhouse" is actually in my home, I am reluctant to use chemicals on a regular basis, and do so only when I must. The most important aspect of pest control is care of new plants. When I acquire a new plant, I like to repot it, if feasible, removing potential pests from the growing area. If not, I give the newcomer a drenching following close inspection in whatever solution seems appropriate. One learns quickly where the likely sources are for scale, mealybugs, snails and other pests. Plants suspected of harboring a virus are isolated and watched for further symptoms. If these appear, the plant is discarded.

TEMPERATURE CONTROL: Maintaining the proper temperature is relatively easy in the winter,

more difficult in the summer. The HID fixtures give off a lot of heat. In addition, I have directed the vent from the clothes dryer from the adjacent laundry room into my greenhouse. Together, these two heat sources raise the daytime temperature to the mid 60s even on the coldest winter days. The two windows are open at night to drop the night temperature to about 50 - 52 degrees F. Air circulation is provided by several oscillating fans. In the summer, the warmer-growing plants are put outside. The pleurothallids, cool-growing dendrobiums, and other high-altitude denizens remain indoors all year. Summer day temperatures usually do not exceed the high 70s, but lowering night temperatures is difficult. Increasing air movement (more fans) helps as well as wetting down the floor. Watering twice a day or more, instead of the usual single morning drench, helps reduce the summer stress level for the plants. With the use of HID lights I have found it necessary to use an air conditioner to lower night temperatures, as well as to hold down daytime highs during the hottest weather.

SPECIES AND GENERA: I grow many pleurothallids. My collection has contained about 110 different *Masdevallia* species as well as 20 - 30 hybrids. Some *Masdevallia* species grow and flower vigorously, i.e., *Masdevallia strobelli, M. herradurae, M. floribunda, M. tovarensis,* and *M. veitchiana*. Others are more difficult, such as *M. rosea* and *M. heteroptera*. Many *Masdevallia* hybrids are new and their long-range performance is unproven. Some with which I have had success for at least two years are *Masdevallia* Claret Chalice, *M.* Angel Frost, *M.* Marguerite, *M.* Prince Charming, *M.* Florida and *M.* Angel Tang. Probably the most floriferous and easy hybrid among *Masdevallia* is *M.* Copper Angel. Look for hybrids which have some of the easier to grow species in their background when selecting a new plant for your collection.

Other pleurothallids which do well for me under lights are *Pleurothallis, Stelis, Lepanthes, Lepanthopsis, Dracula, Dryadella, Trisetella, Restrepia, Platystele, Barbosella,* and *Scaphosepalum*, as well as others.

Many other miniatures do well under lights. The genus *Dendrobium* offers many choices. *Dendrobium cuthbertsonii, D. sulfureum, D. dichaeoides, D. toressae, D. lichenastrum, D. pentapterum,* and *D. bellatulum* are in my collection. Beyond these are great possibilities. A few other genera I grow are *Schoenorchis, Thrixspermum, Sarcochilus, Sophronitis, Aerangis, Bulbophyllum, Cadetia,* and *Neocogniauxia.*

In a family as large in number as the orchids, choices are nearly endless. If you like a particular plant, and it is not beyond your means to buy one, try it—even if you are not sure it will grow for you. Growing orchids is a learning experience for all of us. I have been repeatedly amazed at the successfully grown plants which appear at orchid society meetings—plants grown in a wide variety of conditions. Remember...the plants don't read the books.✾

- Courtesy of the Greater New York Orchid Society

Having Trouble Organizing Speakers For Your Society?

Several California orchid societies recently joined forces to create a Speakers Consortium to identify, attract, and schedule speakers, and to permit sharing the cost of airfare and travel among consortium member societies where that speaker will lecture. Their web site, http://www.cosscons.org brings societies and speakers together via a searchable database with information on societies (program chairs, presidents, meeting location, date and time, etc.) and speakers (biography, areas of expertise, titles of talks, etc.). A society membership in the consortium is $10 per year.

For details, contact the Webmaster, Domingo Cabrera, e-mail: dscabrera@attbi.com or phone: (626) 966-1197.