

6. *ZINEB* (zinc ethylene bizdithiocarbamate)
Sold as: Parzate
Dithane Z 78
7. (tetrachloroquinone)
Sold as: Spergon
8. (closely related mercury compounds)
Sold as: Ceresan
Semesan

MODERATOR STEAVENSON: Do we have any questions for the four previous speaker?

FLOYD FITTS: Mr. McGuire, isn't Carbowax 400 a solid at room temperature?

JOHN MCGUIRE: No, the higher numbers are solid, this one is a liquid at room temperature.

MODERATOR STEAVENSON: Our next speaker is Walter Peffer, one of our old and faithful members, who I believe attended the first meeting of the Society.

GROWING RHODODENDRONS WITH THE AID OF MERCURY VAPOR LIGHTS

WALTER PEFFER

Level Green Nursery, Trafford, Pa.

Eastern Shore Nursery of Va., Inc. Keller, Va.

During the past five years I have experimented with various methods and systems for growing Rhododendrons in the greenhouse with the aid of artificial light.

In October 1965 I purchased a newly developed 100 watt Westinghouse Viscount Mercury Vapor Light, no. 890D569G33, for experimental purposes. The Mercury Vapor Light, according to the electromagnetic spectrum consists of 20% ultra violet rays from bactericidal of 2,500 angstrom units through the erythema and black light to 3,800 angstroms. These rays do not produce energy. The remaining 80% of light which is energized are the visible rays of 3,800 to 5,800 angstroms. From this information it can be concluded that the mercury light contains more natural sunlight than any other artificial device. Infrared rays are present in small quantities.

Mercury Vapor Lights of higher intensity are also available, for example, Westinghouse no. 890D569G43 175 watt and no. 890D569G53 250 watt.

The plastic shield which is included with the lamp was discarded and an aluminum cone shaped shield was fabricated. This shield was placed in proximity to the rafters of the greenhouse in order to give a uniform distribution of light.

A 1/4" rope was fastened to the fixture, drawn through a pulley which was anchored in the apex of the greenhouse, and then taken down a rafter to a holding device at the side of the

house. By raising and lowering the rope, the lamp can be set at different positions. Light meter readings were taken at various settings to determine the most effective concentration of light at bench level heights.

Directly under the light, 4½' from the plants to the base of the light 35 foot-candles of light were observed. From this point horizontal readings were taken in one foot intervals to a distance of eight feet (half the width of the greenhouse) where 15 foot-candles were observed.

Approximately 1000 Rhododendrons were grown with the aid of the Mercury lamp. Varieties grown were; Roseum Elegans, Catabiense Grandiflora, Everestianum, Album Novum Nova Zembla, and America. The reds were slower to respond than the other varieties.

In the first week of September 1965 and in 1966 some Rhododendrons cuttings were propagated in the usual manner and others placed under the Mercury lamps. The plants in the latter group not only rooted faster but also had heavier root structure.

Rooted Rhododendrons were transplanted in the greenhouse the first week of December and the lights were in operation from 8 P.M. to 5 A.M.; the lights are controlled by a poultry house timer.

Three weeks after transplanting activity was noted in the leaf buds, especially in the twelve foot circle directly under the light. One week later the remaining plants in the sixteen foot diameter began to grow. Two weeks later there was noted plant growth at the ends of the benches where 8 foot-candles of power were recorded.

In summarization the advantages of the Mercury Vapor light are:

1. Simple and safe installation. The hazard of possible shock through use of wires required in fluorescent and incandescent lights is eliminated.

2. Single lights can be mounted to cover 16' width and 24' centers between lights for the length of the greenhouse.

3. Economical; 100 watts can produce the same results as 1200 watts used in combination of fluorescent and incandescent lighting.

4. Plants seem to have more bud breaks, better color, and normal elongation.

5. Airborne bacteria is destroyed by the low light wave.

In order to arrive at a true evaluation experiments are now in progress using various types of lights, including the Mercury light.

I have in my possession an Electromagnetic Spectrum chart which shows complete graphs and colors of all types of lights and will be happy to discuss any technical details with any one interested at the close of this afternoon's session.