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Grolux Fluorescent Tubes

Promote plant growth. Help keep fish healthy

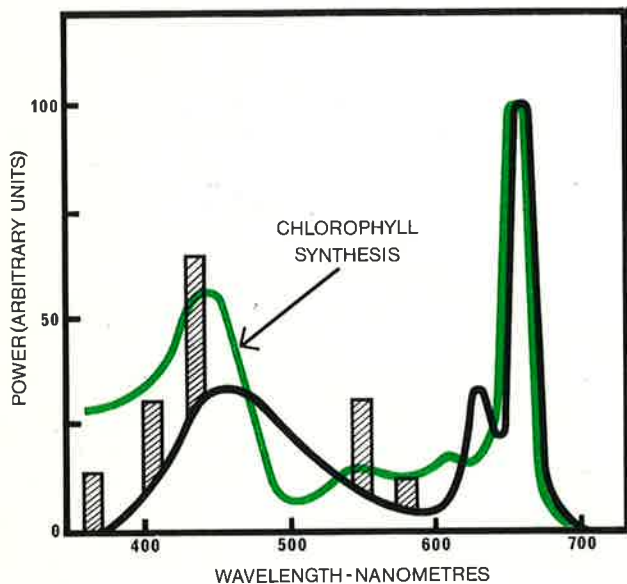


THORN LIGHTING

Introduction

Plants and seeds need light to grow and flower. It is easy to grow flowers in a sunny garden, but for healthy growth indoors light as well as careful preparation of the soil and control of humidity and temperature is needed. Red and blue light are especially important in plant growth, furnishing energy for making carbohydrates by photosynthesis and governing the ability to produce colour in many fruits, vegetables and ornamental plants.

Lamps that produce mainly red and blue light therefore, should promote plant growth:—this is what GROLUX tubes are designed to do. Comparison of the energy emission of GROLUX with Warm White tubes shows this to be so (see graph below).



This graph shows how closely the GROLUX energy emission curve follows the chlorophyll synthesis curve of the majority of plants. GROLUX is the lamp expressly designed for this purpose.

Light is not the only factor in plant growth and good results cannot be expected unless the correct condition of moisture, ventilation, temperature and soil are provided. Plants need darkness, too, some requiring long dark periods to accumulate the flowering hormone, Florigen. This is known as photoperiodism and plants are classified as "short night" or "long night" according to their needs.

Phototropism is the response of plants to directional light, an example of which is the sunflower which always turns towards the sun, but strangely enough, red light produces no phototropic effect.

Photosynthesis, the process by which plants convert water and carbon dioxide into carbohydrates by means of chlorophyll is well-known and research indicates that red and blue light produce the greatest effects.

Indoor Gardening

GROLUX allows plants to be grown anywhere in the house, not only near the windows. Plants can be raised from seed under completely controlled conditions.

The indoor gardener can transfer many of his plants to other rooms in the house, and bring them back after a time for a 'refresher course' in the "light garden".

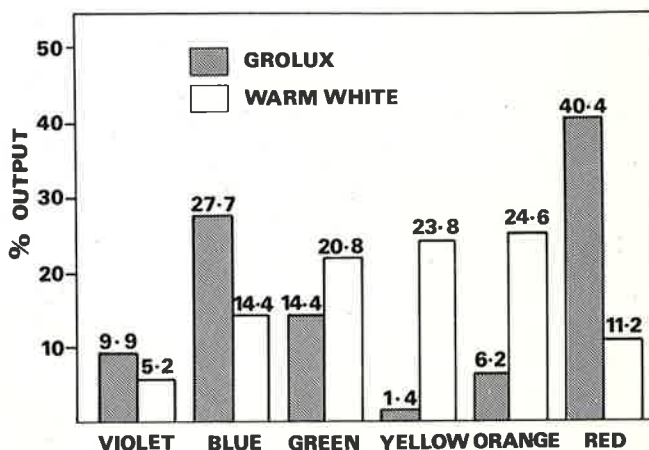
How Grolux helps

1. Accelerates seed germination, cropping and flowering.
2. Increases photosynthesis, building stronger plants with greater resistance to disease.
3. Controls flowering and growth.
4. Develops colour in fruit (e.g. tomatoes).
5. Increases life of cut flowers and pot plants.

Note:

A great deal of useful information on growing plants under fluorescent lighting is contained in the following book:

Fluorescent Light Gardening by Elaine C. Cherry
Published by D. Van Nostrand Company Ltd.



The comparison of the energy output in various colours of a GROLUX tube and a standard Warm White lamp shows how much richer GROLUX is in the important red and blue areas of the spectrum.

Grolux in the Aquarium

Plants and fish in the aquarium maintain a natural balance; the plants feeding on the waste products of the fish, giving off oxygen and absorbing carbon dioxide by photosynthesis, thus aerating the water and allowing the fish to breathe. Unless light is provided this cannot occur, and the fish suffocate. Too many plants or decaying organic matter can have the same effect.

Light should come from above as in nature. This also has the advantage of bringing out the glistening colours of the fish. For this purpose, the rich red and blue light in GROLUX tubes is specially effective.

It is recommended that two watts of GROLUX per gallon of water should be used, and that the lights should be switched on for ten to twelve hours per day. Observation over a period will determine the most satisfactory levels and period of artificial lighting for various types of plant and species of fish.

GROLUX fluorescent lamps are superseding filament lamps because:

1. They are cheaper to run and give off less heat.
2. They produce greater growth in the plants.
3. They have five times the life of a filament lamp.

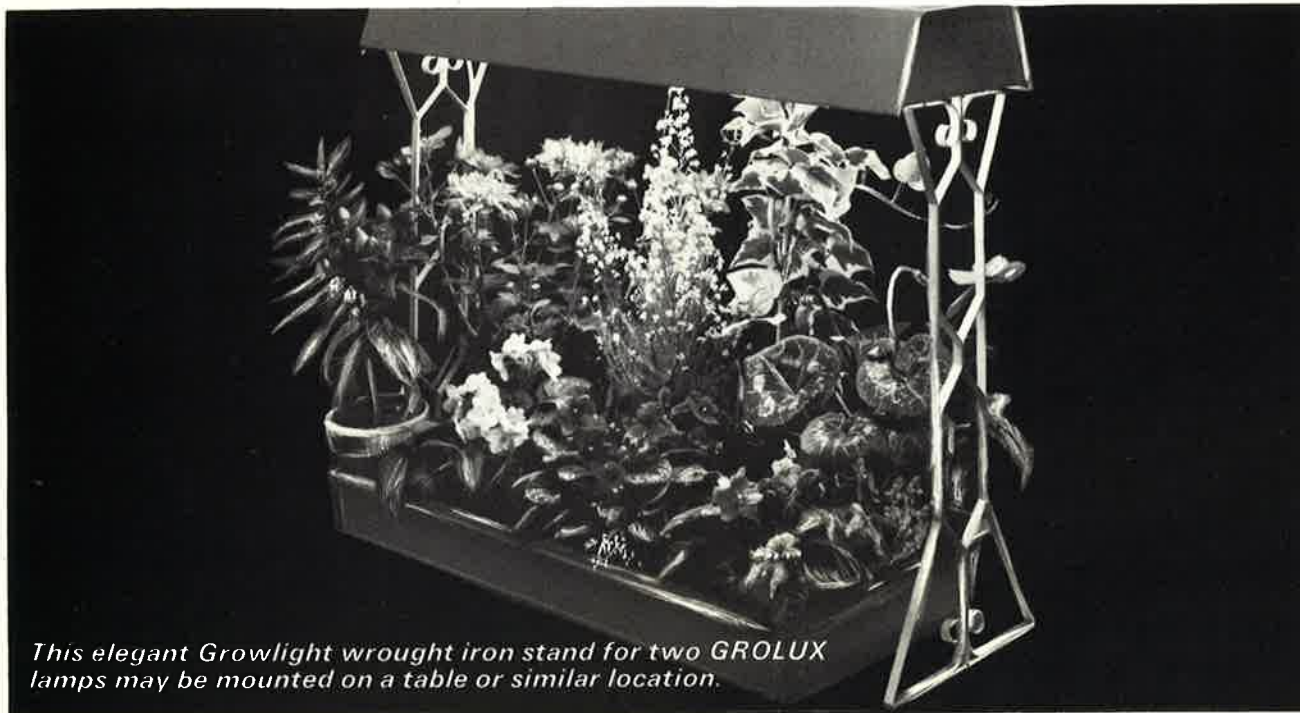
Grolux adds charm to your home

Many people like indoor plants, but they are loath to block out the daylight by a jungle on the window-sill.

GROLUX makes it possible to grow fine healthy plants in the dark corners at the back of the room, and to

transform those corners into charming miniature gardens. A simple reflector on a wrought iron stand, or lamps hidden behind pelmets or baffles can transform your room, and the unique spectral qualities of the light makes the plants glow and throb with colour.

By means of GROLUX you can live in the garden all the year round, because you can bring the garden into your house.



This elegant Growlight wrought iron stand for two GROLUX lamps may be mounted on a table or similar location.

Helpful hints for better growing results

LIGHT INTENSITIES:

A. For germinating seeds and rooting cuttings:—10-lamp watts should be provided per square foot of growing area, the light source being 6" to 8" above the soil, if the seeds are exposed rather than being lightly covered, a higher germination percentage is obtained. Alternatively, cover the seeds lightly with soil, and then comb or scrape the surface lightly after soaking. This allows for better penetration of light as well as introducing air in the seed areas. A daily light period of 16 hours produces satisfactory results. With newly germinated seedlings and rooted cuttings prior to transplanting, a longer light period of up to 20 hours may be used.

B. For low energy growing plants:—Many household plants fall into this classification. 15-lamp watts per square foot of growing area should be provided. The light source should be 12" to 15" above plant tops. The artificial lighting should be used for daily periods of 10 to 13 hours.

C. For high energy growing plants:—(e.g. dahlias, nasturtiums, roses, african violets, carnations, gloxinias, begonias, geraniums, coleus). 20-lamp watts per square foot of growing area should be provided. The light source should be 12" to 15" above plant tops. Most Annuals, tomatoes, fruit and vegetable crops, fall in this classification. It is also beneficial to add Tungsten filament lamps, in the proportion of 10-20% of the total wattage, to give the important infra-red radiation for normal plant development with high energy crops. Daily light periods of between 12 to 18 hours should be used.

CULTURAL REQUIREMENTS:

A. Ambient temperature: For most plants, the temperature during the light period should be approximately 21-24°C (70-75°F) and during the dark period 15-18°C (60-65°F).

B. Humidity: From 50% to 60% humidity is recommended. Good ventilation is necessary for the best growth environment.

C. Plant Spacing: Space out the plants to encourage disease-free plant growth and to promote strong roots, stems and foliage.

D. Watering: Water plants when the lights are on. As the temperature is rising, there is greater need for water.

E. Transplanting: GROLUX tubes are particularly useful for germinating seeds for outdoor spring planting. When seedlings are to be transplanted outdoors care must be taken to harden them off, by gradually reducing the temperature and frequency of watering until they are acclimatised. During the first few days, young plants need protection from direct sunlight. Air circulation is important when hardening plants especially if they are in protected areas. This will prevent the building up of high temperatures, and thereby reduce the wilting of the young seedlings.

Lamp Data

Operational Details for GROLUX LAMPS:

GROLUX lamps are physically and electrically interchangeable with standard fluorescent tubes of the same wattage and length. They can be used in standard fluorescent circuits and ordinary fluorescent fittings.

A wide range of fittings is available and various specialised types of equipment are manufactured by horticultural and aquarium equipment manufacturers.

Grolux Fluorescent Ratings

Watts	Length		Diameter	
	mm.	in.	mm.	in.
8	300	12	15	$\frac{5}{8}$
13	525	21	15	$\frac{5}{8}$
15	450	18	25	1
20	600	24	38	$1\frac{1}{2}$
30	900	36	25	1
40	1200	48	38	$1\frac{1}{2}$
65/80	1500	60	38	$1\frac{1}{2}$

Important note

The GROLUX fluorescent tubes have been specially developed for stimulating plant growth, but as optimum results will also depend on proper cultural conditions of moisture, air, temperature, correct feeding and soil, the manufacturer makes no claims for quantitative results from the use of this energy source.

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