

# Growth and yield response of chinese cabbage essay sample



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## A. BACKGROUND OF THE STUDY

In previous years, the numbers of family that live in subdivisions have been increasing. Where, these subdivisions provide small lot area for planting. The families living in this kind of houses may have decided to plant indoors or stop planting. These families that have resulted to plant indoors may have had difficulties in their plants. One of these difficulties may be the source of light.

Besides water and mineral nutrients, plants need sunlight in order to make chlorophyll. Aunice Reed defined sunlight as the most essential need of every plant. It enables plants to make food. Plants need sunlight in order to survive and grow strong and healthy. Not only do plants supply the earth with the oxygen we need to live, but they also serve as food for the entire world, and that includes the animals, too.

Plant flowering is greatly affected by photoperiodism. According to Muller (1974), photoperiodism is the influence of light exposure of different duration of plant growth and development. Some plants that are exposed to short dark period grow longer but have few flowers. On the other hand, the plants exposed to short light period grow shorter but have more flowers.

Intensity also affects the growth of plants. The brighter the light, the greater the energy the plant receives. To determine how much light a plant will require, consider where and how it grows best in its environment.

Richard Hoyt had mentioned in his article that there are main type of plant grow lights namely metal halide, high pressure sodium, LED (Light Emitting

Diode) and fluorescent lights. Plants can grow under incandescent light but they're inefficient, expensive to operate and are not usually included in lists of grow lights. Metal halide and high pressure sodium lamps are also called HID lights (High Intensity Discharge). UV light can also assist in directing the architectural growth of plant. These different lights give off light at different intensities and parts of the light spectrum, both of which are important to the gardeners considering indoor growing.

According to Shelley Barkley (March 2010.), tubes should be arranged to provide approximately 175 to 225 watts of light per square meter of growing space. Lights are usually placed 30 to 45 cm above the tops of the plants. However since distance from a light source directly affects light intensity, this will vary according to individual plant requirements. If a large area is to be illuminated, it is better to use one long tube rather than two short tubes placed end to end; this avoids a dark spot in the centre, because intensity decreases near the ends of the tubes. Lights should be kept clean for maximum brightness, and discarded as they wear out (after about one year).

Chinese cabbage or commonly known as pechay, is a biennial growing to 0.9 m (3ft). The Chinese cabbage is perfect for spring or fall planting and very ornamental in neat garden beds or rows, the 6 to 8 inch compact, vase-shaped heads are mild, sweet and crunchy. This easy to grow vegetable makes wonderful quick stir fries, or braise it for a succulent side dish. Chinese cabbage is mild and sweet tasting and chock full of vitamins and anti-oxidants. (Renee Shepherd)

In this study, the researchers is using LED lights, UV lights, and Fluorescent lights instead of metal halide, high pressure sodium and incandescent lights to grow Chinese cabbages. And since most of the families nowadays have been living in subdivisions, the researchers thought of the possibility that instead of constructing an extension for their planting space, they can plant indoors using either or the best of these different lights.

## B. STATEMENT OF THE PROBLEM

Generally, the study aims to determine the growth and yield response of a Chinese cabbage using different kinds of lights namely: LED light, UV light and fluorescent light bulb.

Specifically, it also aims to answer the following question; 1. Is there any significant difference among the use of LED light, UV light and fluorescent light (bulb) in terms of:

- Height of plant
- Color of leaves
- Number of leaves

## C. HYPOTHESIS

There is no significant difference among the use of LED light, UV light and fluorescent bulb in terms of:

- Height of plant

- Color of leaves
- Number of leaves

#### D. SIGNIFICANCE OF THE STUDY

The result of this study may benefit the following:

Indoor Planters. This study raises the knowledge of the indoor planters by giving ideas on how to use their minimum area available for planting and which light is best on lighting or growing the plants.

Students. This study helps students gain knowledge for their future researches involving Chinese cabbage production and other fruit and vegetable crops. This may also help them support some of the previous experiments on other plants.

Vegetarians. This study can also benefit the vegetarians in growing indoor vegetable plants by providing them with techniques and knowledge about indoor planting.

#### E. SCOPE AND LIMITATIONS

This study on the growth response of Chinese cabbage using LED light, UV light and fluorescent bulb, as a source of light, is conducted to determine which of these lights are more efficient on the production of Chinese cabbage.

This study is conducted in the houses of the researchers, Blk 22 Lot 20 Phase 1 Golden City Subd. Anabu II-F Imus Cavite, Blk 26 Lot 14, Bucharest Street

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Summerwind Village IV City of Dasmarinas Cavite, Blk 118 Lot 6 Phase 4 Mary Cris Complex General Trias Cavite, from March 2011 to January 2012. Three (3) wooden blocks are used. Two of these boxes are placed with LED light, two with UV light and two with fluorescent light (bulb). In addition to this, a plot is used for the seedlings which are exposed to plain sunlight. Each block has a measurement of four (4) feet long, four (4) feet wide and a height of two (2) feet. Thus, a total of fifty-four (54) Chinese cabbage seedlings are planted on these blocks, that is, nine (9) seedlings for every block and the additional plot. Proper plant spacing is required.

For each kind of light, there are two different set of conditions in terms of the length of time that the seedlings are exposed - eight (8) hours and twelve (12) hours, respectively.

The growth of each plant is monitored and measured weekly. A meter stick is used to measure the height of the plants. The color and number of leaves are also recorded.