

# Chapter THREE

## VEGETATIVE GROWTH



*Strong, healthy vegetative growth is the key to a heavy harvest.*

## Introduction

The seedling growth stage lasts for about two to three weeks after seeds have germinated. Once a strong root system is estab-



*This seedling is in the early stages of vegetative growth.*



*This 'Euphoria' female has been in the vegetative growth stage for more than two months.*

lished and foliage growth increases rapidly, seedlings enter the vegetative growth stage. When chlorophyll production is full speed ahead, a vegetative plant will produce as much green, leafy foliage as it is genetically possible to manufacture as long as light, CO<sub>2</sub>, nutrients, and water are not limited. Properly maintained, marijuana will grow from one-half to two inches per day. A plant stunted now could take weeks to resume normal growth. A strong, unrestricted root system is essential to supply much needed water and nutrients. Unrestricted vegetative growth is the key to a healthy harvest. A plant's nutrient and water intake changes during vegetative growth. Transpiration is carried on at a more rapid rate, requiring more water. High levels of nitrogen are needed; potassium, phosphorus, calcium, magnesium, sulfur, and trace elements are used at much faster rates. The larger a plant gets and the bigger the root system, the faster the soil will dry out. The key to strong vegetative growth and a heavy harvest is supplying roots and plants with the perfect environment.

Vegetative growth is maintained with 16 or more hours of light. I used to believe a point of diminishing returns was reached after 18 hours of light, but further research shows that vegetative plants grow faster under 24 hours of light. Marijuana will continue vegetative growth a year or longer (theoretically forever), as long as an 18-hour photoperiod is maintained.

Cannabis is photoperiodic-reactive; flowering can be controlled with the light and dark cycle. This allows indoor horticulturists to control vegetative and flowering growth. Once a plant's sex is determined, it can become a mother, clone, or breeding male, and can be harvested or even rejuvenated.

Note: Plants show early male or female "pre-flowers" about the fourth week of vegetative growth. See "Pre-flowering" in Chapter Four and the sections here on pre-flowering male and female.

Cloning, transplanting, pruning, and bending are all initiated when plants are in the vegetative growth stage.

## Clones and Cloning

Marijuana can be reproduced (propagated) sexually or asexually. Seeds are the product of sexual propagation; cuttings or clones are the result of asexual or vegetative propagation. In its simplest form, taking a cutting or clone involves cutting a growing branch tip and rooting it. Technically, cloning is taking one cell of a plant and promoting its growth into a plant. Marijuana growers commonly refer to a clone as meaning a branch of a cannabis plant that has been cut off and rooted.

Cloning reduces the time it takes for a crop to mature. Productive growers have two rooms, a vegetative/cloning room, about a quarter the size of a second room used for flowering. Smaller vegetative plants take up less space than older flowering plants. For example, a 250- or 400-watt metal halide could easily illuminate vegetative plants and clones that would fill a flowering room lit by three 600-watt HP sodiums. If the halide is turned off, fluorescent and compact fluorescent lamps are more economical and work well to root clones.

Combine eight-week flowering/harvest cycles with continuous cloning to form a perpetual harvest. One easy-to-implement scenario is to take two clones every four days, and harvest one ripe female every other day. Every time a plant is harvested, one or two rooted clones are moved from a constantly supplied vegetative room into the flowering room. This regimen gives a grower 30 flowering clones that are on a 91-day schedule. It takes 91 days from the time a clone is cut from the mother plant until the day it is harvested. Using this schedule, a grower would have 30 clones, 10 vegetative plants, and 30 flowering plants growing at all times. See chart next page.



*Swiss retailers sold clones over-the-counter until the law changed in 2001. Now, Swiss growers have gone underground.*



*Clone production room in the basement of a Swiss retail store.*

Growth Stage	Time	Number of plants
Clone	3 weeks	30
Vegetative	2 weeks	10
Flower	8 weeks	30
Total		70



*A sea of clones share all genetic characteristics. They will all grow up to look like their mothers.*



*Two 'Queen Mother' plants will soon bear many, many clones.*

Induce clones to flower when they are four to twelve inches tall to make most efficient use of HID light. Artificial light diminishes to the square of the distance, which means that *foliage four feet away from the bulb receives one fourteenth as much light as if it were one foot away!* Foliage that is shaded or receives less light grows slowly and looks spindly.

Short crops of clones in small containers are much easier to move and maintain than big plants in big containers. Short clones are also easy and efficient to grow in greenhouses and outdoors.

Well-illuminated, strong clones grow fast and have less chance of being affected by pests and diseases. Fast-growing clones develop more quickly than spider mites can reproduce. By the time a spider mite infestation is noticed and sprayed, the plants are a few weeks from harvest. Clones are also easy to submerge in a miticide when small.

Experiments with clones are consistent and easy to control. Genetically identical clones respond the same to different stimuli, such as fertilizer, light, bending, etc. After experimenting on several crops of clones from the same mother, a grower has a very good idea what it takes to make them grow well.

## Mother Plants

Any plant can be cloned, regardless of age or growth stage. Take clones from mother plants that are at least two months old. Plants cloned before they are two months old may develop unevenly and grow slowly. Clones taken from flowering plants root quickly but require a month or longer to revert back to vegetative growth. Such rejuvenated clones occasionally flower prematurely, and buds are more prone to pest and disease attacks.

Any female can become a mother. She can be grown from seed or be a clone of a clone. I interviewed several growers who made