



Master Gardeners of Ontario Information Sheet

How to Grow Cannabis

Please check [Health Canada Guidelines](#) and [Information bulletin: safety and security considerations when growing cannabis](#) before getting started. **It is the responsibility of the grower to follow all relevant municipal, provincial and federal government laws and requirements and to ensure that plants and products are secure and not accessible to children.** If you decide you want to grow your own cannabis, there are a few considerations to think about before you go and buy your materials.

First, you should think about whether you want to grow indoors or outdoors. Then determine how much space is available in your chosen grow area. Once you have the grow space chosen, you must choose a [cultivar/strain of cannabis](#) that will fit in your grow area without being cramped. Indoors, a strain that remains under 100 cm is often desired. There are thousands of cultivars to pick from. There are many websites like [potguide.com](#) that describe and review strains. Take an online [Tour of the Aurora Medical Cannabis production facility](#) (CBC News, Jun 2016) or the [Tweed, Ontario Cannabis Plant](#) (The New York Times May 2014) to see large scale production methods. YouTube offers many videos for beginners growing at home too.

If growing indoors, it will cost some money to get set up. Growing outside is much cheaper but much slower and there are many environmental constraints as well as more of a risk of theft.

Here are some materials that you will need:

Indoors

- Grow tent or mylar foil for walls
- HPS (high pressure sodium) or LED (light emitting diode) grow light, 400w 1200w
- attachment for lights
- timer switch for lights
- air circulation fans
- air extractor fan (can attach carbon filter for smell control)
- growing medium: soil, soilless, aquaponics, ebb/ flow, deep water culture, other...
- vegetative and bloom nutrients (these are critical)
- heat mat (non-critical),
- watering can (non-critical)
- dehumidifier or humidifier (if needed)
- relative humidity (RH) and temperature meter (digital is best) (non-critical but helpful)
- pruners
- pH testing kit
- mixing tank/ bucket for nutrients

Outdoors (all below are noncritical)

- tomato cage, wood or metal stakes
- pruners
- watering can

- nutrients/fertilizer
- metal mesh/ chicken wire (pest protection)
- burlap or shade cloth (if too much sun)
- crushed egg shells (around base, for slug control)
- cut human hair (from barber shop for squirrel control, in soil around base of plant)

Growing Stages

Cannabis is a [dioecious](#) plant. Only unpollinated female plants produce the buds which are harvested as the source of the active ingredient. You can purchase feminized seeds online but if you want to collect your own seeds for next year's crop, you will need one male and one female plant. Keep these in a separate area to avoid pollination of the main crop. Once pollinated, the female plant will produce seeds, half of which will be female and half male. The gender of seedlings becomes evident at about 6 weeks old at which point male seedlings can be discarded.

Germination Stage

Once you have the needed materials and your grow space is ready to go, you can germinate your seeds. There are many proven methods of germination out there, one that has worked for me without fail is the following. Soak a paper towel and place on dinner plate. Place seeds on wet paper towel and place another same sized or smaller plate on top to block all light and leave in warm spot for 3-7 days. Check daily and make sure paper towel is still moist. Once the seeds have their first root you can place them in your chosen grow medium and let them grow to seedlings. Feeding at half strength until the rooted seed has grown 2-4 true leaves, then gradually increasing the nutrient solution to regular strength. During the germination to seedling stage, keep nitrogen levels twice phosphorus levels, and equal to potassium levels. e.g. NPK of 2-1-2.

Seedling Stage

Seedling stage is generally once the plant has 2 true leaves. From seed to seedling should take 2-3 weeks on average but can be shorter or longer based on seed vigor and growing conditions. Seedling stage is when the light is on an 18-24 hour cycle of light where the day is long and the night is short, mimicking the summer days for vegetative growth. Feed as needed based on the growth medium that you chose.

Vegetative Stage

The Veg stage can last as long as you want indoors, even years if that is your goal. Outdoors is obviously governed by the local seasons, so planting time is critical for outdoor growing vs indoor growing where you can govern the "season" length yourself. The general rule for indoor growth is to grow in the Veg state until the plant is at a third or half the height of the grow tent or artificial lights. Once at that height, you can switch the light timer to shorter days as to mimic the short winter days with long nights. During the vegetative stage, plants will need more nutrients. e.g. 4-2-3 early veg; 10-5-7 mid veg to 7-7-7 just before flowering

Bloom Stage

The Bloom stage is completely dependent on the strain of cannabis that you chose to grow. It can be as short as 5-6 weeks or as long as 12-15 weeks for indoor growing and outdoors can be up to 24 weeks. During the bloom period, the nutrient mix should be changed to reflect the plants increased need for phosphorus, e.g. 5-10-7 budding; 6-15-10 flowering; 4-10-7 late flowering. Depending on the cannabis strain, the nutrient needs vary.

With indoor growing, it is critical to always check and control the pH. If the pH of your medium is too high (alkaline) or too low (acidic), it can restrict the uptake of nutrients through the roots of your plants and cause nutrient lockout or other plant health issues. While in the Veg and Bloom stages, it is important to flush out

excess salt buildup from the nutrients that are fed to the plant. It is recommended that you flush the plant with clean water (no nutrients) at least once during the bloom stage if not 3-4 times over the bloom period as it will make the end product healthier and more pleasurable to smoke. The most critical time to flush the plant is the final 1-2 weeks of the bloom stage. Give a heavy flush of all plants 1-4 times in the final week to clear the nutrients out of the growing medium. You will know if the flush is working when the fan leaves start to turn yellow and die off. This is what you want to see just before you harvest, not green leaves as that will mean there are still growing nutrients and chlorophyll in the leaves which will taste bad and likely make you cough very hard if dried and smoked.

Harvest Stage

Once the plants are properly flushed and the [trichomes](#) are turning from clear/milky to brown/amber (you can buy a 10x jeweler's loupe to see this), you can start the harvest. There are many theories about when in the day to harvest- midday vs. dawn vs. dusk -but whenever you chose, it is easiest to remove all large fan leaves while the plant is still intact and upright. Once all fan leaves are removed, you can either leave the smaller trichome leaves around the cannabis blooms and trim them off once dry, or continue to trim all leaves off and then cut and hang the cannabis blooms.

There are many drying methods available but the most important part of drying is the relative humidity (RH) of the drying area and having moving air in the room, but not on the cannabis blooms themselves. You want to ideally have a 1-2 week drying time. When you attempt to snap a stem and it cracks and snaps off, that is perfect. If it just bends and stretches the plant needs more drying time. Once all dry, you can put your cannabis into your preferred storage option and begin curing.

Curing Stage

The curing stage is the final stage and is not critical to the cannabis but it increases its potency and if properly done, can allow you to store cannabis for years without mold or degradation in quality. Proper curing actually improves both the quality and potency of many strains.

Like most aspects of cannabis, there are many ways to cure your harvested material. Here are two proven methods:

- Place fresh harvested cannabis in a jar and open it 1-3 times daily for about a week, then once every 2-3 days for a week and then only once a week for 1-2 weeks. Then the harvested cannabis should be at a good RH (relative humidity) level to keep in a dark cool place for as long as you like.
- Place fresh harvested cannabis loosely in however many needed brown paper lunch bags and loosely close, leave for a week, open and shake to stir air around in bag(s), close and repeat for 2-3 weeks and then place into a suitable long-term storage container.

Additional Information

- [About Cannabis](#)
- [Cannabis-Know the Risks](#)
- [Legislation and Regulation of Cannabis](#)
- [Marijuana Laws.ca](#)
- [Cannabis Legislation: Ontario.ca](#)
- [The user guide to legal pot in all Canada's provinces, territories](#) (Financial Post)

Cannabis Growing Tips and Common Mistakes

There are many mistakes people can make with cannabis growing, no matter if you are a novice or experienced.

The two most common mistakes made are lack of air circulation in the growing area and too tight plant spacing from greed to have more plants. These mistakes almost always result in a failed crop due to either a pest infestation or mold. If either happen to you, the crop should be abandoned and destroyed. Equally important, you will need to meticulously clean your grow space with disinfectant, to destroy all traces of pests or mold. Remember, you are growing a substance that you intend to ingest, so you must be scrupulous in your growing hygiene.

Another common mistake is having a dirty grow space. During the growing period, some cannabis leaves will naturally die off and this is completely normal. Gather up and dispose of dead leaves daily, as this can be a spot where mold or pests grow and spread to your healthy plants. Just be sure to have a clean grow space and your plants will be that much more happy and healthy.

Soil pH is a commonly overlooked aspect for novice indoor growers and can quickly cause problems with plant health. The ideal pH is anywhere from 5.5-6.5 with a pH of 7 being neutral. In outdoor growing, pH is not normally an issue as the soil has a buffer and generally is fine as is for most cannabis plants.

Heat can be a problem for cannabis at times. If growing indoors and using a HPS (High Pressure Sodium) bulb, light temperature can climb to 35 degrees or higher and this will stress a cannabis plant or even just burn it. The ideal growing temperature is anywhere from 20-28 C degrees. Past 30 degrees, the plant begins to shut down and no growth really occurs, as the plant is just trying to stay alive vs. grow.

Always keep in mind when growing indoors the hanging height of your light in relation to final plant size. It is common to forget the light height and select a strain that grows too tall and your plants will end up growing into the light array and possibly burning or even causing a fire. So when choosing a strain to grow, measure the distance from the bottom of the light to the floor of the grow space and not the entire room height.

If growing outdoors, there are some good old gardening tricks to help with pest control:

1. You can bury bunches of human hair (you can pick it up from your barber or hairdresser for free) and bury it in the soil around your plants and it will help prevent squirrels from digging up the roots. Squirrels like to graze on young, fleshy cannabis roots.
2. You can save the egg shells from breakfast for a few weeks and crush them up and sprinkle them on top of the soil around the base of your plants to deter slugs from coming up and eating your leaves and getting gross slug slime all over your cannabis.
3. If you have a fisherman friend, you can ask them if they know somewhere to get live worms. Get some and mix them into the earth a week before you intend to plant your seedlings.

John Karl Schilder is the principal garden designer and owner of www.DesignMyGarden.ca. He is a Horticultural graduate of the University of Guelph. [Master Gardeners of Ontario](#) is indebted to John for his expertise in preparing the growing information for this factsheet.