

Growing & Curing Tobacco

Starting and Growing Tobacco from Seeds.

"Starting seeds"

Tobacco is a relatively easy plant to grow and can be grown as far north as Canada and Alaska with the proper planning and preparation.

Tobacco seeds are extremely small (Fig. 1) not much larger than a pin prick and care should be taken when sowing seed as to not sow too thickly. Tobacco seeds require warm temperatures for germination of about 75-80 degrees. Seed should be started indoors 4-6 weeks before your last frost date. Start by sprinkling the tobacco seed onto the surface of a sterile seed starting mix and lightly water in. Do not cover the seed with any soil as they need light for germination and covering can slow down germination time or if covered too deeply the seed won't germinate at all, watering in lightly is all that is needed.

Seed will begin to germinate in about 7-10 days with some tobacco varieties taking a few days longer to begin germination (Fig. 2). If your seed don't germinate right away be patient, it can take up to 2 weeks for some tobacco varieties to germinate.

The soil should be kept damp but not too soggy and should never be allowed to dry completely out. Care should be taken when watering freshly emerging tobacco seedlings because the force of the water can uproot the tiny seedlings causing them to die.

"Transplanting into trays/flats"

The next step is to transplant the tobacco seedlings into a larger container such as a pot or transplant cell tray as seen in Fig. 3. so that they can develop a good root system.

Under normal conditions the tobacco seedlings will be large enough and ready for moving into pots or cells after 3 weeks from the beginning of germination. I normally prefer to wait until the plants largest leaf is close to the size of a dime before transplanting into cells because it is easier handling for me but seedlings can be moved anytime after they reach a size you are comfortable working with.

Transplanting into containers is easily accomplished by making a small hole into the soil and inserting the roots of the tobacco seedling and backfilling the hole with a little soil mix. Once you have them potted in, water in with a plant starter fertilize solution such as miracle grow or seaweed/fish fertilize emulsions.

Fig 1 Fig 2 Fig 3

Tobacco seeds Seedlings beginning to germinate. Potted seedlings.

The initial fertilizing you gave at the potting stage should be sufficient food

for the plants until they reach transplanting stage, (Fig. 4) which normal takes approximately 3-4 weeks. If your plants begin to yellow or look stunted another dose of fertilize may be needed but do so sparingly, over fertilization while in pots or trays may burn the plant's roots and may also lead to overgrown spindly plants.

Tobacco plants are considered 'transplantable plants' meaning they, like tomato plants, can be planted bare root with out the need for any soil attached to the roots. If you have large containers or seedling flats you can sow the seed very thinly and leave the seedlings there until they reach the size for transplanting outdoors and pull the plants and transplant directly into your garden.

This is a much easier way to to do it but also has it's drawbacks. Once planted, bare root the plants will go through a sort of 'transplant shock' where some or most of the largest leaves may yellow and wilt and the plant may appear it is going to die, but it will not, the main stem and bud of the plant will continue to strive and in a week or so will begin to grow and flourish. By growing your seedlings in containers or celled trays there is no transplant shock and plants begin to grow immediately.

If you are growing your tobacco seedlings in a greenhouse or indoors they should be "hardened off" before you transplant into your field or garden, but is not always necessary as long as your plants are not spindly and weak and weather conditions are favorable. This period allows the plant to adjust to outdoor weather conditions. A week of hardening off should be ample time but 2 weeks is even better.

General note if planting more than one tobacco variety

Tobacco is considered a self pollinating plant meaning it has the ability to fertilize it's own flowers without the aid of insects. But different tobacco varieties planted close to one another can and will become crossed by insects such as moths, etc. that commonly visit the plants flowers. Tobacco can also become cross pollinated by wind although at a much lesser degree than by insects. To keep tobacco varieties pure, isolation of one mile is needed between different varieties to insure continued variety purity is maintained or other preventive cross pollination methods should be used if isolation distance is a problem.

"Transplanting into garden"

Tobacco is a heavy feeder and if grown continuously in the same spot will deplete the nutrients in the soil. So to counteract this it is wise to employ a 2 year rotation in your growing space by planting 2 years in a specific location and waiting a year or more before you plant your tobacco back into that location again. Tobacco also requires good amounts of nitrogen and potash both of which can be achieved with a good compost but we recommend a good garden fertilizer if you do not have or use compost.

Space the tobacco plants 2-3 feet apart in the row and space rows 3 1/2 - 4 feet apart when it is practical. Water the plants thoroughly once transplanted and if no rain or dry weather is forecast, water each evening for a few days till plants become established.

The roots of tobacco grow quickly and the root structure is quite large with thousands of small hair like feeder roots that grow close to the soil surface. Care should be taken when cultivating as not to till or hoe too deep and damage the roots.

Keep the tobacco clean and free of all weeds and a few good hoeings by pulling up soil around the base of the plant will help in strengthening the plant. The structure of a tobacco plant's leaves enables the plant to make use of light rains and heavy dews by collecting and funneling the water down to the base of the plant as can be seen in Fig. 5 by the wet soil.

After 3-4 weeks from planting heavy deep tilling should be stopped (Fig 6) and only light scrapings to control weeds should be done.

Fig 4 Fig 5 Fig 6

Plants ready for transplanting in the field. Tobacco plant after about 2 weeks from planting in the field. Nice healthy Burley tobacco plant.

Diseases and Insects

There are many insects and diseases that can attack tobacco. Here in Tennessee, two of the prominent insect pest are the hornworm and aphid. More information on insects and diseases can be found on our tobacco links page.

http://www.newhopeseed.com/tobacco/seed_culture.htm

Growing Tobacco in the Home Garden 1

E. B. Whitty 2

Many homeowners wish to grow a few plants of tobacco in their yard or garden for ornamental purposes or for personal use. Tobacco plants are usually no more difficult to grow than many other garden plants, but it is difficult to cure, age, and process tobacco without specialized facilities. As a result of federal legislation in late 2005, restrictions of commercial tobacco production to quota holders are no longer in effect.

Tobacco is a member of the Solanaceae or nightshade family. This family includes tomato, pepper, eggplant, Irish potato, and a number of other plants. Tobacco belongs to the genus *Nicotiana*, and almost all commercial tobacco is of the *tabacum* species. The *Nicotiana rustica* species was commonly used by American Indians and may still be used for ceremonial purposes in some areas. There may be small amounts of *N. rustica* planted commercially in Asia. There are a number of other species of *Nicotiana* that serve as ornamental plants.

Soil Selection

Tobacco should be grown in a sunny location on well-drained soils. Poorly drained soils could result in poor growth and even death of the plants. Tobacco can be grown on poorly-drained soils if the rows or hills are bedded and ditches or furrows are used to remove excess water. Drought stress could limit growth on excessively drained soils unless irrigation is provided. Lack of sun will result in spindly plants, poor growth and thin leaves. Some types of tobacco such as that used for cigar wrappers are grown under some shade to promote desirable leaf characteristics.

Avoid planting tobacco on soil infested with nematodes and diseases. Do not plant tobacco on the same soil more than once every four to five years. Instead, rotate the tobacco with plants that are not susceptible to common soil-borne pests of tobacco. Grasses would be excellent rotations for tobacco, while tomato, pepper, and similar plants would not be suitable. In addition to soil-borne pests, several virus diseases and insects that attack tomato and pepper also attack tobacco, so try to keep these plants in different areas of the garden.

Soil pH should be about 5.8 for best growth of tobacco. If lime is needed to raise the pH, use dolomite in order to get the magnesium nutrient which is important for plant growth. Poor growth and some growth disorders may occur if the soil pH is about 6.5 or more.

Producing Transplants

It may be difficult to find tobacco seed of the commercial varieties since they are sold only in tobacco-producing areas. However, seed will retain viability over several years if kept under cool and dry conditions. Commercial varieties of tobacco were developed for certain characteristics that may be of little or no importance to home gardeners. There are a number of seed companies that specialize in providing tobacco seed for growing plants in the home garden. A search of the Internet should provide information on such vendors.

Since tobacco seed are very small (300,000 or more per ounce), they should be sown in a greenhouse or in a protected area. The soil should be free of weed seed and disease organisms. A flower pot would be a satisfactory container if only a few transplants will be needed. Sprinkle the seed on the soil surface, then firm the soil surface to insure good seed to soil contact. Pelleted seed may be available, which would allow easier and more uniform placement of seed. Irrigate with a very fine spray, or add water to a saucer under the flower pot. Add water as often as necessary to keep the soil surface moist, but avoid excessive water.

Small amounts of fertilizer will be needed to produce the transplants. A tobacco fertilizer should contain little or no chlorine and most of the nitrogen should be in the nitrate form. Fertilizer manufactured for use on tomato, pepper, and potato should be satisfactory for tobacco.

Seed should be sown about 50-60 days prior to the desired date of transplanting. Transplanting should be after there is no further danger of freezing temperatures. Normally the best transplant is about 6-8 inches in length.

Transplanting

Transplanting tobacco is very similar to transplanting other garden plants. Bury or remove trash from the soil surface and provide for drainage by bedding the soil. If rows are used, space the plants about 24 inches apart. Rows should be 42-48 inches apart. Water the plants immediately after transplanting and as needed during the season.

Fertilization

Fertilizers for tobacco could be the same fertilizers used for tomato, pepper, or potato. As in plant production, the fertilizer should contain little or no chlorine and most of the nitrogen should be in the nitrate form. In general, it

would be best to apply the fertilizer in several applications. Some could be applied to the soil before transplanting, but do not place it where it will be in high concentration around the roots of the transplants. The total amount of fertilizer to apply will depend on the grade of the fertilizer, the natural or residual fertility of the soil, losses of soluble nutrients by leaching, and perhaps other factors. The best approach to fertilizing garden tobacco would be to apply fertilizer as needed to keep the plants growing well with a good green color. However, do not over fertilize or the plants may be too big and rank. If adequately fertilized up to the time of flowering, there should be no need to add any more fertilizer after the flowers begin to form.

Pest Control

Several pests can be problems for tobacco. Avoid nematode and other soil pest problems by proper soil selection and rotation. Weeds can be controlled by hoeing or pulling. The most common insect problems expected would be budworms, aphids and hornworms. Diseases that damage tobacco may include those that attack other plants or they may be specific pathogens for tobacco. Identify the pest problem and consult the appropriate pest control guide for information.

Topping and Suckering

While some tobacco plants are grown around the home for ornamental purposes, which includes the flowers, plants that are grown for cured tobacco should normally be topped as soon as the flower forms. Topping, or removal of the terminal bud, allows the upper leaves to get larger and thicker than they would in an uptopped condition. The top can be removed by breaking it out or cutting it off, preferably before any flowers open.

Soon after the top is removed, and before if topping is delayed, axillary buds or suckers develop at each leaf. The best way for the home gardener to prevent the suckers from reducing yield and quality is to remove them by hand. Suckers should be removed when they exceed about an inch in length. It may be necessary to remove suckers several times.

Harvesting and Curing

Due to the needs for proper harvesting and curing tobacco, there is very little home or garden production of tobacco for personal use. Another deterrent to home production of tobacco is the need to age the cured tobacco for one to three years or longer. The following suggestions are not based on any experience or research information, but are only the opinion of the writer. However, some producers of home-grown leaf have developed harvesting and curing techniques that are satisfactory for them and often they share their experiences with others.

Tobacco may be cured with heat added or it may be air cured. There does not appear to be any practical means for the gardener to use heat to cure the tobacco because of the facilities that are required. Again, some producers of home-grown tobacco have built curing facilities and may offer them for sale. Tobacco could be cured without heat if a building with good air circulation is available. Temperatures for air curing may range from 60-65°F up to 90-95°F, and the relative humidity of the air should be about 65-70 percent. Proper curing should take a few weeks in order to have good quality. Tobacco that cures too fast will be green and not have good aroma and flavor, while mold or rot may develop if curing is slow. A building that can be opened and closed as needed to control the relative humidity and

drying rate is desirable. Curing procedures need to be developed for individual situations.

Harvesting could be accomplished by either removing leaves from the stalk in the field and curing them or by cutting the stalk off at ground level and hanging the entire stalk in the curing facility for the leaves to cure. The leaves would then be removed from the stalk after they have cured. If the leaves are removed in the field, there should be four or five harvests at intervals of 1-2 weeks, starting with the lower leaves. The first harvest would be at or soon after topping and when the leaves show a slight yellowing. If the entire stalk is cut for curing, it should be about 3-4 weeks after topping. The lower leaves would be partially deteriorated at this time. Provide adequate space between stalks to allow for satisfactory drying of the leaves.

Aging

All commercial tobacco is aged for a year or more before it is used. Unaged tobacco is harsh and does not have good flavor. For the home gardener, aging will probably be as difficult or even more so than proper curing. Aging may require as long as 5-6 years and does not occur unless temperature and moisture conditions are favorable. If the tobacco is too dry, there is no aging and if it is too moist, there will be decay of the leaves. Unfortunately the proper temperature and moisture content vary widely. The home producer would need the knowledge and skill to properly age the tobacco or be willing to experiment with the tobacco. The same would be true for adding flavoring agents during or after aging and before the tobacco is used.

Footnotes

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http://www.newhopeseed.com/tobacco/tobacco_links.htm

How To Grow Tobacco

Tobacco can easily be grown inside your garden. If you would like to try growing tobacco for your own personal use, follow the simple steps below:

1. Choose a soil

Tobacco grows well on well-drained soil and where it's sunny. Poor choice of soil would lead to the withering and dying of the plant. It is also important to choose a spot where there is no insect or pest infestation.

2. Get quality seeds

Tobacco seeds and transplants can be obtained primarily from places where tobacco

is widely grown. If you're not near such place, you might need to order tobacco seeds over the mail or the internet. Get good commercial varieties for best value.

3. Plant the seeds

Transplant tobacco seeds like you would any other plant in your garden. Remove all debris from the soil and bury the seeds on the surface of the soil. Bed the soil for drainage. Plant the seeds in rows about 24 inches apart.

4. Fertilize

Tobacco needs fertilizers to go rapidly and robustly. There are special fertilizers for this plant. But in their absence, you can use the ones for tomato or pepper. Do not over-fertilize as the results will be less than desirable. However, if you want organic tobacco, you can skip this step. Don't use pesticides in them either.

5. Remove tops and suckers

The tobacco's terminal bud or tops should be removed so that the upper leaves will get thicker and larger. Remove the buds before they open. Remove the suckers or axillary buds on the leaves if they grow to an inch or more.

6. Harvest and Cure

When the tobacco plant has leaves old and big enough to make some smoke, it's time to harvest. Curing may take some time to achieve the best taste.

Tips

You can receive a lot of enjoyment from growing your own tobacco plants, they are beneficial for the tobacco that is produced, and they are easy to grow. If you are contemplating growing your own tobacco, you will find that these plants offer not only the advantage of being able to smoke the tobacco that is grown from the plants, but there are many varieties that also produce beautiful blooms and lush foliage that is wonderful when it is used for landscape design.

Here are a few tips that can be beneficial in growing not only great looking, but also productive tobacco plants.

- ◆For the initial 8 to 10 days, it is best to grow the plants indoors, and keeping them covered
- ◆It is best to start growing the plants approximately 5 weeks before the last frost
- ◆Plants should be planted in soil that is fertilized and thoroughly cultivated
- ◆Charcoal grill ashes and wood ashes are great sources for potash and nitrogen
- ◆Use insecticides that penetrate the surface area for pests
- ◆Tobacco plants thrive with plenty of watering

If you would like to grow tobacco plants specifically for ornamental purposes, consider the Jasmine and the Rose varieties, as these are well known for producing beautiful flowers that are pleasing to the eye.

There are many different types of seeds that are available for smoking the tobacco grown, such as Havana (*Nicotiana tabacum*) and Yellow Twist Bud (*Nicotiana tabacum*).

<http://www.growtobacco.net/>

Cultivation of tobacco

From Wikipedia, the free encyclopedia

Tobacco is usually cultivated annually. It is grown from cold frames or hotbeds and then transplanted to the field until it matures. Tobacco is grown in warm climates with rich, well-drained soil.

Contents

- 1 Sowing
- 2 Transplanting
- 3 Harvest
- 4 See also
- 5 References
- 5.1 Notes
- 5.2 Bibliography
- 6 External links

Sowing

Tobacco plants growing in a field in Intercourse, Pennsylvania Tobacco seeds are scattered onto the surface of the soil, as their germination is activated by light. In colonial Virginia, seedbeds were fertilized with wood ash or animal manure (frequently powdered horse manure). Seedbeds were then covered with branches to protect the young plants from frost damage, and the plants were left alone until around April.

In the 19th century, young plants came under increasing attack from certain types of flea beetles, *Epitrix cucumeris* or *Epitrix pubescens*, which caused destruction of half the tobacco crops in United States in 1876. In the years afterward, many experiments were attempted and discussed to control the flea beetle. By 1880 it was discovered that replacing the branches with a frame covered by thin fabric would effectively protect plants from the beetle. This practice spread until it became ubiquitous in the 1890s.

Today, in the United States, unlike other countries, tobacco is often fertilized with the mineral apatite in order to partially starve the plant for nitrogen, which changes the taste. This (together with the use of licorice and other additives) accounts for the different flavor of American cigarettes from those available in other countries. There is, however, some suggestion that this may have adverse health effects attributable to the content of apatite[citation needed].

Transplanting

After the plants have reached a certain height, they are transplanted into fields. This was originally done by making a relatively large hole in the tilled earth with a tobacco peg, then placing the small plant in the hole. Various mechanical tobacco planters were invented throughout the late 19th and early 20th century to automate this process, making a hole, fertilizing it, and guiding a plant into the hole with one motion.

Harvest

Basma leaves drying in the sun at Pomak village of Xanthi, Greece Tobacco can be

harvested in several ways. In the oldest method, the entire plant is harvested at once by cutting off the stalk at the ground with a sickle. In the nineteenth century, bright tobacco began to be harvested by pulling individual leaves off the stalk as they ripened. The leaves ripen from the ground upwards, so a field of tobacco may go through several so-called "pullings," more commonly known as topping (topping always refers to the removal of the tobacco flower before the leaves are systematically removed and, eventually, entirely harvested. The stalks are left as compost to postpone over-farming and thus soil lacking essential nutrients for a strong crop the following year. "Cropping," "Topping," "Pulling", and "Priming" are terms for removing mature leaves from tobacco crops. Leaves are cropped as they ripen, from the bottom to the top of the stalk. The first crop of leaves located near the base of the tobacco stalk are called "sand lugs" in more rural southern tobacco states. They are called "sand lugs" because these leaves are close to the ground and get splashed with sand and clay when heavy rains hit the soil. Sand lugs weigh the most, and are most difficult to work with. Their weight is due to their large size and the added weight of caked-on soil; slaves would "lug" each stack to the stringer, a typically female slave who bundled each stack of leaves. Eventually workers carried the tobacco and placed it on sleds or trailers. As the industrial revolution approached America, the harvesting wagons used to transport leaves were equipped with man powered stringers, an apparatus which used twine to attach leaves onto a poll. In modern times large fields are harvested by a single piece of farm equipment, although topping the flower and in some cases the plucking of immature leaves is still done by hand.

Some farmers still use "tobacco harvesters." They are not very efficient yet highly cost effective for harvesting premium and rare strains of tobacco. The harvester trailers for in-demand crops are now pulled by gasoline fueled tractors. The croppers pull the leaves off in handfulls and pass these to the "stringer", which bundles the leaves to a four-sided pole with twine. These poles are hung until the harvester is full. The poles are then placed in a much larger wagon to be pulled by modern farm tractors to their destination. For rare tobaccos they are often cured on the farm. Traditionally, the slaves who cropped and pulled had a particularly tough time with the first pull of the large, dirty, base leaves. The leaves slapped their faces and dark tobacco sap which dries into a pitch black tar covered their bodies, and then soil stuck to the tar. There was one perk however: nicotine in tobacco acts as a powerful insecticide. Slaves could enjoy a bug free day of forced labor when harvesting tobacco. The croppers were men, and the stringers, who were seated on the higher elevated seats, were women and children. The harvesters had places for one team of ten workers: eight people cropping and stringing, plus a packer who moved the heavy strung poles of wet green tobacco from the stringers and packed them onto the pallet section of the harvester, plus a horseman. Interestingly, the outer seats were suspended from the harvester - slung out over to fit into the aisles of tobacco. As these seats were suspended it was important to balance the weight of the two outside teams (similar to a playground see-saw). Having too heavy or light a person in an unbalanced combination often resulted in the harvester tipping over especially when turning around at the end of a lane. Water tanks were a common feature on the harvester due to heat, and danger of dehydration.

See also
Tobacco

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Notes

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tobacco: Cultivation and Curing - Infoplease.com

Retrieved from "http://en.wikipedia.org/wiki/Cultivation_of_tobacco"

Curing Of Tobacco

From Wikipedia, the free encyclopedia

After tobacco has been harvested, it is necessary to cure it before consumption.

Contents

- 1 History
- 2 Processes
- 3 Methods
 - 3.1 Air
 - 3.2 Fire
 - 3.3 Flue
 - 3.4 Sun
- 4 See also
- 5 References
 - 5.1 Notes
 - 5.2 Bibliography
- 6 External links

History

Myrtleford, Victoria, Australia: historic tobacco kilnUncured tobacco was often eaten, used in enemas, or drunk as extracted juice. However, curing has long been a process necessary to prepare tobacco before consumption.

In recent time traditional curing barns in the U.S. are falling into disuse, as the trend toward using prefabricated metal curing machines within factories allows greater efficiency. These machines are also found on location at tobacco farms in developing countries.

Processes

Historic barn for air-curing of tobacco, West Virginia, USA.Curing and subsequent aging allows for the slow oxidation and degradation of carotenoids in tobacco leaf. This produces certain compounds in the tobacco leaves very similar and give a sweet hay, tea, rose oil, or fruity aromatic flavor that contribute to the "smoothness" of the smoke. Starch is converted to sugar which glycates protein and is oxidized into advanced glycation endproducts (AGEs), a caramelization process that also adds flavor. Inhalation of these AGEs in tobacco smoke contributes to atherosclerosis and cancer.[1]. Levels of AGE's is dependent on the curing method used.

Non-aged or low quality tobacco is often flavored with these naturally occurring

compounds. Tobacco flavoring is a significant source of revenue for the international multi-million dollar flavor and fragrance industry.

The aging process continues for a period of months and often extends into the post-curing harvest process.

After tobacco is cured, it is moved from the curing barn into a storage area for processing. If whole plants were cut, the leaves are removed from the tobacco stalks in a process called stripping. For both cut and pulled tobacco, the leaves are then sorted into different grades. In colonial times, the tobacco was then "prized" into hogsheads for transportation. In bright tobacco regions, prizing was replaced by stacking wrapped "hands" into loose piles to be sold at auction. Today, most cured tobacco is baled before sales are made under pre-sold contracts.

Methods

Cut plants or pulled leaves are immediately transferred to tobacco barns (kiln houses), where they will be cured. Curing methods vary with the type of tobacco grown, and tobacco barn design varies accordingly.

Air

Air-cured tobacco is hung in well-ventilated barns and allowed to dry over a period of four to eight weeks. Air-cured tobacco is low in sugar, which gives the tobacco smoke a light, sweet flavor, and high in nicotine. Cigar and burley tobaccos are air cured.

Fire

Fire-cured tobacco is hung in large barns where fires of hardwoods are kept on continuous or intermittent low smoulder and takes between three days and ten weeks, depending on the process and the tobacco. . Fire curing produces a tobacco low in sugar and high in nicotine. Pipe tobacco, chewing tobacco, and snuff are fire cured.

Flue

Flue-cured tobacco was originally strung onto tobacco sticks, which were hung from tier-poles in curing barns (Aus: kilns, also traditionally called Oasts). These barns have flues which run from externally fed fire boxes, heat-curing the tobacco without exposing it to smoke, slowly raising the temperature over the course of the curing. The process will generally take about a week. This method produces cigarette tobacco that is high in sugar and has medium to high levels of nicotine.

Sun

Sun-cured tobacco dries uncovered in the sun. This method is used in Turkey, Greece and other Mediterranean countries to produce oriental tobacco. Sun-cured tobacco is low in sugar and nicotine and is used in cigarettes.

See also
Tobacco

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Notes

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