LEGAL POSITION FOR DUTY FREE TOBACCO

Under the present concessions by Customs & Excise you may freely grow on your own premises, tobacco for your personal consumption only, up to 200 plants per person, and for curing, send not more than 25 lbs of dried tobacco annually to an approved association (Tobacco Curing Cooperative) of which you are a registered member.
TOBACCO WITHOUT TEARS

by
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A simple guide to growing and making your own duty-free tobacco.

FOREWORD

For many years, here and abroad, I have produced my own tobacco and have been in contact with an exceptionally large number of others doing the same. From this I have learnt not only what to do, but what not to do. In this booklet my aim is to pass on to you exactly the information you need for success, and no more. If there are several ways of doing something I have told you only the one I think is best. It assumes some elementary gardening knowledge or such as can be obtained by reference to a book on the subject, but otherwise I have tried to be as simple as possible and if technical words must be used, to explain them.

Anyone with access to a small garden or allotment can produce their own smokes and there are two strong arguments in favour of doing so. The first is health. Home-grown is free from the dust and grit of machine-cultivated and machine-manufactured tobacco, it contains no adulterants and virus disease, rampant in commercial plantations, is negligible. Since 1948, out of many thousands of home-growers, most of pensionable age, not one case of lung cancer has been reported to me and the mortality rate seems lower than the normal statistics. Moreover, those of us accustomed to smoking only home-grown can testify to its ease on the throat and the absence of smokers' cough.

The second is economy. Those who mix half and half with bought, reduce cost to 2/6d an ounce and the hundred percenter will get his tobacco for anything under 6d an ounce. Indeed, if you grow from seed or get a local nursery to raise a box or two of plants for you, do your own work, air cure your leaf, process it at home and make it into cigars or what we describe as “flaked” tobacco, the expenditure for a year’s smoking would be little more than a few shillings.
INTRODUCTION

Read this first

At the start I would like to iron out a few misconceptions and clear up some common problems. On home tobacco more has been written with enthusiasm than with knowledge or experience.

CURING

The adage “easy to grow, difficult to cure” may be true of bad tobacco. But with proper cultivation (not so easy) of a good variety the curing presents no difficulty—providing that you are clear as to the purpose of the processes involved. There are three operations, 1 Drying, 2 Maturing, 3 Manufacturing. The term curing is properly applied to the first of these two stages and more particularly the second.
1. Drying. (More correctly termed “Raw Curing”. ) The first stage of this is not drying at all but “colouring”. This is the dispersion of the green pigment in the leaf until it takes its appropriate yellow or brown tone, according to the variety, the sunshine during growth, the soil, the temperature during the process and other factors. Hurried loss of moisture during this process will result in fixing the tone and taste of the chlorophyll. The subsequent dehydration of the leaf must also take place in such a manner that the full value of the constituents, the texture and the aroma are retained.
2. Maturing. (More commonly termed “Fermentation”. ) Too often, alas, this essential operation is entirely omitted! Raw cured leaf is put into the pipe and smoked by enthusiasts to the detriment of their health, the pollution of the air around them and the ill-repute of “home-grown”. Maturing by stacking or bonding as carried out with commercial tobacco may not be practicable but a satisfactory system of fermentation is carried out by the approved curing centres and considerable improvement in the product can also be achieved by such heat processing at home as is described later in the booklet.
3. Manufacturing. This is solely concerned with turning the leaf into the desired form for use—cigar, pipe tobacco or cigarettes. Although this may include pressing into cakes, the use of sauces with molasses or rum and suchlike, neither the pressing nor the saucing, nor keeping small quantities of tobacco for a length of time can in any way be described as “curing” or fermenting. Such processing may improve the product but must not, under any circumstances, take the place of the procedure under clause 2 above.

NICOTINE

One of the worst fallacies ever circulated about tobacco is the suggestion of the need to de-nicotinize the leaf by soaking or some other procedure. Surely we want the nicotine—that is what distinguishes tobacco from other forms of vegetation. Home-grown has if anything, less than the normal proportion of it.
this stage, especially in any quantity or as an adulterant, is the last thing that we must use. It will remove the very elements we want for good aroma and proper ferment. If your leaf cannot be smoked without “soaking” it isn’t really fit to be smoked at all.

**HUMIDITY**

Ease in producing tobacco and the colour and quality of the product depends more than anything else on an appreciation of the right moisture content for the various operations. Many troubles are due to incorrect humidity.

Hygroscopicity is a big word, but with a simple meaning, namely, the ability of a substance to absorb and evaporate moisture according to the surrounding atmosphere. Rather like the old “sea-weed” barometer, a good tobacco leaf, provided that the cellular structure is not damaged by rot or hardened by incorrect soil food, has this quality in a pronounced degree. The content of the cells, in relation to temperature and ventilation, is an important factor in the improvement or deterioration of tobacco at all stages from picking to smoking. You should therefore acquire a sense of moisture content in the leaf and of the relative humidity of the “climate”, i.e., the air in varying aspects of weather or the atmosphere of the building where the tobacco is placed. This may be achieved by the use of a wet and dry bulb Thermometer (Hygrometer) and chart for reading same (see appendix). Such may be obtained for a few shillings from a Chemist (preferably, for high temperature curing procedure, with a reading up to 200°F). You will also find it convenient if your tobacco at all stages can be carried from one atmosphere to another or is handled in a chamber where the humidity can be regulated (a greenhouse does well).

**ROUGH GUIDE ON MOISTURE CONTENT IN NORMAL DRIED TOBACCO**

- **Under 5%** Basic organic water content.
- **5—10%** Very dry (breaking if handled). Correct only at end of flue-curing or heat assisted drying, until re-humified in damp air or steam.
- **10—15%** Very dry (breaking if squeezed). Legitimate for dry storage, but too dry to improve by ageing, except in large compressed bulk.
- **15—20%** Dry (just not to break if squeezed). Correct for storage and packing if protected from further evaporation by grease-proof or plastic wrapping. Too dry and hot for smoking.
- **20—25%** Normal for storage, packing and smoking. Resilient to handle, pliable and silky in texture. The standard content allowed by Excise for commercial tobacco.
- **25—30%** Slightly damp to feel. Safe in ventilated places if not enclosed in plastic, polythene or cellophane wrapping. Too damp for storage. Correct during fermentation or for cigar-smoking, pressing or manufacture, or hanging.
with adequate ventilation. Match-eater in pouch.

Over 30% Feels clammy. Dangerous to bulk, too wet for storage, impossible to smoke.

Tobacco may lack hygroscopicity due to thin or brittle-texture, resulting from malnutrition during growth or subsequent removal of chemical content by washing or soaking or rot caused by mould, over sweating or over humid drying conditions. Tobacco left hanging for weeks in a dank atmosphere such as an unventilated shed in Autumn and Winter is liable to darken and decay in texture and deteriorate in quality even if no mould is apparent. Such tobacco is also irresponsive to fermentation.

A high nitrogen content due to unbalanced feeding by unsuitable fertilizers or animal manures may also produce leaf which although large and lush, lack hygroscopicity and is brittle in texture, difficult to handle and rank to smoke.

Another point to notice is the relation of moisture in the veins of the blades, particularly in the spine or midrib. A blade may be dry, even brittle, and yet the midrib be spongy with moisture, which will form a breeding place for moulds and the extension of rot if the leaf is bunched or bulked in such a state.

Softening Brittle Leaf. To dry tobacco when it is too damp is obvious enough—but to soften brittle leaf is not so easy. The best way, of course, is to move it to a more humid atmosphere and let it absorb moisture naturally (the bathroom or washhouse for instance), or wait for damp weather and put it outside or in an open shed for a day or two. Alternatively the humidity of a room may be increased by hanging wet sacks, spraying with hot boiled water (the finer the spray the better) or damping down the walls and floor. Or the tobacco can be gently enveloped in a wet blanket and left for 24 hours to soften itself. Yet another way is to spray the tobacco itself with boiled water, preferably still hot. The leaf should then be piled and covered over with blankets and turned over two or three times until evenly permeated. Steam is not so easy—it takes more than a boiling kettle to humidify a large space. Small quantities of leaf can, however, be steamed soft over a pan of boiling water or on a bit of corrugated iron sprayed with hot water over a stove.

MILDEW

The constant fear of many home growers is mildew. But it is a needless bogey which can be dispelled by a correct routine and an appreciation of the nature of moulds.

PREVENTION. Harvest your leaf in good weather, properly space it on the drying stick, and once the chlorophyll has dispersed get it dried as quickly as possible, with the assistance of dry heat if convenient, until the blade is brittle. Subsequently allow it to soften just enough to be able to bulk it without fracture. This procedure with suitable storage conditions should remove any likelihood of mould developing.
Mould is fungus—you can think of it as minute mushrooms; many different kinds, but all propagated by the diffusion of minute spores, like dust, which drift in the air and are carried on water vapour, mist and rain. They are therefore also present in unsterilized water, particularly tank and rain water. They are present on, in and near the soil, on damp grass, decaying matter, etc. Fungi differ from normal plant life in being able to thrive without light or air, as they have no chlorophyll and do not depend on it for growth as do plants. One function of moulds in nature is to assist growth of other plants by a process of activity on roots—helping them to assimilate chemicals (as vitamins and glands do with us). But the chief purpose of moulds is to stimulate decay of dead matter—i.e., scavenging. All vegetable matter is thus ultimately reduced to humus, or plant food for the next generation. A good example of this is the fungus known as dry-rot, or those in the compost heap. To be active, fungus needs dank moist condition within a certain range of temperature (between zero and blood-heat) which vary somewhat with different kinds of moulds. Below zero and to some extent above blood-heat, and also in absence of moisture, the spores do not die, but remain dormant, to come to life again when temperatures and humidity are favourable.

The presence of mildew is more quickly detected by the nose than the eye. If your tobacco smells musty, beware—if it smells sweet, you are all right. Do not mistake for mould the white chemical or crystalline stains which sometimes form along the mid-rib. Such deposits are quite harmless and in fact an indication of good potash content. They can be distinguished by examining with a magnifying glass.

The most common source of mould-infection of tobacco is during growth—spores settling on gummy leaves or deposited by rain and vapour. In warm, muggy weather and in parts of Great Britain liable to mist, the danger is greater. Light, sunshine and particularly ventilation are the enemies of moulds. Therefore harvest the leaf mid-day before dew settles, preferably after a spell of sunshine and when the weather and surface of the leaf is dry. It is also risky to leave your tobacco still in the garden when autumn mists are prevalent. It will continue to grow, no doubt, well into the winter in places sheltered from frost, but such leaf is generally of bad colour and very liable to mould.

Other causes for infection, or more commonly for the grip-hold of infection already there are as follows:

1. Leaving your tobacco hanging in unventilated dank roof-space or shed, mouldy buildings or near infected timbers or firewood.
2. Bulking it while the mid-ribs are not yet dry (hence advantage of splitting them to speed drying).
3. Bulking it with a humidity content of over 25%, i.e., with the leaf still dampish (for storage it should be just flexible; no more).
4. Storing it before or after shredding without any air or
ventilation, such as in a closed air-tight container, in polythene or in cakes or blocks—tobacco should not be made into blocks until required for shredding. Compactness and reasonable pressure do not matter provided the mid-rib is retained (to allow the tobacco to “breathe”). Leaf should also be bulked as it curls naturally—not flattened on top of one another so that no air can get in.

(5) Tobacco is liable to quick development of mildew during the warming up or cooling down from fermentation temperatures, i.e., about 70-90° F.

(6) At no time should unsterilized water come in contact with leaf—never “soak out nicotine” (just nonsense!) or steep the leaf. If it is necessary to soften it down by mist-spraying always use water recently boiled—by preference still hot and steamy. Do not lay out leaf to soften on mould infested lawns or dirty out-house floors.

CURE. FORMALIN (commonly known as Formaldehyde) is the surest antiseptic. There is nothing in it that can harm the tobacco and the smell, although highly irritating to the nose and eyes, passes off, especially with subsequent heat. Buy it at the chemist or nurseryman. He will advise you as to strength; about 1 in 10 is the normal dilution in water first boiled.

Formalin may be dabbed on infected parts or mist-sprayed (as a fine garden spray, flit-spray or scent spray). It is not pleasant to do this if tincture is still hot, but leaf can be wrapped up after, in cloth or polythene and put in a warm place for better permeation. The best way of applying formalin is by vapour. For this you need a closed box, cabinet or chamber. Under the hung leaf or hanks, boil off the formalin after the addition of a few crystals of potash of permanganate, which activates it.

Another antiseptic is salicylic acid (this is the base of aspirin, not easily soluble, although more soluble forms are now on the market). The recommendation of Acetic Acid as appears in some books may be a printer’s or author’s error. It seems unsuitable for moulds can grow on vinegar.

For tobacco shortly to be smoked, or when the use of formalin spray or other antiseptics are inconvenient, it may suffice to open up the mouldly leaves and expose them to the sun and air or to dry them to a brittle state in a really hot room. But active mould so treated is liable to reoccur.

STRIPPING

Contrary to general practice and for reasons explained in the text I do not advise the removal of the spine or mid-rib, except perhaps the heavy part of the butt just before the tobacco is blocked or cut. Mid-rib is now generally left in commercial tobacco and the theory that it contains anything injurious or distasteful is entirely fallacious.
CULTIVATION

Soil Preparation in Autumn. Most garden soils in Great Britain are suitable for tobacco growing, although some counties produce better results than others. Experience proves it well worth while to get your plot deeply rough dug before the winter frosts. This makes a good tilth in the spring ready for the plants, and allows the air and water to penetrate to the depth that is wanted. During the drought in 1959 my plants grew magnificently in the autumn dug soil almost entirely without watering. In other places they ran to seed and made only small leaves.

Autumn is the best time to manure the ground. Dung of any kind can then be used as it will break down during the winter; so also can cheap 'Muriate' of Potash as the harmful salts will leach out with the rains. Such dressings are too strong to use in the spring, but are necessary if the ground is starved or if the tobacco is being grown continually on the same site. Either in the autumn or spring, garden compost, wood ash, peat litter, basic slag or bonfire refuse may be applied and some super-phosphate is advisable.

Fertilizing. Nitrogenous food and stimulant should be limited but otherwise it is a mistake to think tobacco will thrive in poor soil. Humus is essential (or peat as a moisture-retaining compound) and generous quantities of accessible potash. This may be applied as sulphate of potash up to planting time or as nitrate of potash (commercial salt-petre) during growing time. This latter is a most valuable fertilizer for tobacco, being soluble and easily assimilated. Apply weak solution frequently from April (in boxes) to August (while growing) at say, handful per 2 gallon water-can or a total of handful per plant over the whole season. A teaspoon of Epsom salts, copper sulphate and/or potash permanganate may be added in June applications. The feeding of tobacco is very much the same as that required for tomatoes, and if you purchase fertilizers or manures suitable for these you will not go far wrong with your tobacco. Fertilizers or manures which contain a high proportion of ammonia or chlorides are not suitable for tobacco as they spoil the taste or burning qualities, although experience has shown that it is possible to produce good results in the salt water air of coastal regions.

Starting Your Tobacco. The English summer is too short to allow the full life-cycle of a sub-tropical plant from germination to maturity and we have to cheat it by about two months. Half-hardy annuals are therefore not too easy a proposition. Suitable compost, sterilization, glass, soil, and air heat, and steady moisture are required with the additional hazards, for tobacco, of the minuteness
of the seed and its disposition to virus and 'damping off'. The whole procedure is given in the CURING CO-OPERATIVE Bulletin No. 3 on 'Cultivation'. If you are an experienced gardener, or used to raising your own tomatoes you may, no doubt, make a success of starting from seed sown in early March.

Otherwise a little extra money is well spent to secure an early start and the full benefit of the summer sun. Buy seed by all means, of the varieties you fancy and then get in touch with a local nursery or a friendly gardener with a heated greenhouse and arrange with him to grow two or three boxes of plants for you. About 5/- or 10/- per box of fifty would be a reasonable price and they will be at hand to plant out just when you want them.

Alternatively plants may be purchased to come by post or rail. This of course is more expensive and you must take the chance of delay or damage in transit and their arrival at an inconvenient time or during unsuitable planting weather. Nor may it be possible for you to obtain on any particular date exactly the varieties you want. Like the customer in Ireland who wrote me for 'a dozen pipe plants to arrive in showery weather (1)', it is best to notify your supplier of your broad requirements and trust him to do his best for you within the limits of his nursery arrangements.

Plants. It may make a great difference to the weight of your crop if the tobacco is put out as early as possible. The soil must be warm (over 50°F) and the danger of air frost past. This may be in a warm spring or as early as the middle of May, but in an average season the last week in June. There is little advantage in planting out earlier or in cold soil as the plants will stand still to recover from the shock. But it is possible to steal a march by raising your plants earlier in pots or spaced in deep boxes in the greenhouse. When they are a foot or so in height by the end of May, then transfer with soil round the roots.

An advantage of raising your own plants (or at a local Nursery) is that you can choose your own planting time. In dry wind or hot sun keep roots sheltered and shaded while planting out and protect the little plants with pots, brown paper caps, straw, polythene cloches or some such device to retain moisture until the roots are established and active.

If the ground is at all dry drench the holes before the plants are put in, i.e., 'bottom watering'. This draws the tap roots down and may make a great difference in growth during a dry spell. The top soil should only be slightly damped to help surface roots to settle. Subsequently do not water unless absolutely necessary and then drench deeply. Surface watering makes the tap roots lazy, hardens the soil and seals it against penetration of air and moisture.

A further point in planting is to ensure that the fine surface roots have a rich easy tilth. In rough ground it pays to fill the hole all round the plant with a good compost to a diameter of 1 foot. The hole may first be dusted with fertilizers or powdered Naphthalene
(which keeps away pests) but neither should be allowed to come into contact with the roots of the little plants.

Distance is governed by two factors, the requirements of the plant itself (about 18" diameter) and access for pruning without damaging the leaves. It does not matter if the leaves inter-space Tobacco seems to like such jungle conditions. You can either plant in groups of up to 6 at about 1 1/2" spacing, or in treble rows of 18" to 24" spacing, then a gap of 3-4' to form a pathway. Finally remember that slugs and snails are your earliest and worst enemies. Get there first and put down bait at planting time. I also find that to scatter raw soot liberally on the surface is one of the best ways of keeping away insects and butterflies which have a strong sense of smell. Old soot is a good fertilizer.

When the plants have begun to grow strongly (about 1' high) they should be moulded up, either individually, in clumps of three or in rows like potatoes. This helps extra roots to form, gives more anchorage against wind and provides water troughs during rains. The bottom leaves are no use and may be pulled off when they begin to fade. Plants in clumps or close together are less likely to be blown over, but in windy positions short staking is helpful, done now before the roots and leaves grow. Later the tops of plants may be tied together, in threes like a tripod for instance, and even a piece of wire netting on the windward side will act as a wind break. Avoid tall stakes and wire which may tear the leaves badly.

**Pruning.** Contradictory advice is sometimes given on this subject which is of great importance in securing the best growth and the heaviest crop. Experience will teach better than rules as methods may vary according to the habit of the plant and the weather conditions. One rule is universal (except for Rustica), the plants **must not flower.** Nip off the tops when the first flower opens. Otherwise the scheme is to prune to produce about 1 dozen large leaves per plant. This needs the continual removal of side-shoots and suckers—5 minutes or so twice a week. However, I like to leave one or two strong side-shoots to get a second crop in a long season. If your plant starts badly by running into bud within a month of planting you can often get a second plant and large leaves from a side-shoot, by nipping out the flower head at once and permitting some side growth. This saved many crops in the hot dry year of 1959. Prune such side-shoots in the same way as the main stem—it does not matter what shape the plant is providing it produces the 12 large leaves you want. In my opinion you can disregard all that has been written about the effect of 'topping' on the ripening and quality of the leaves; pruning quite low is usual on tobacco plantations.

**Diseases and Pests.** Most forms of spotting and discolouring are of little significance and do not affect the smoking. The chief troubles you may get are virus and 'Wild fire'. The former generally shows
itself in stunted misformed and discoloured foliage. If this is nipped out in the early stages the plant often produces healthy later growth. Otherwise it is best to remove the whole plant right away. Contagion is by touching, so wash your hands before handling other plants. 'Wild fire' is spread by wind and rain and if you notice a quick development of these red spots over an area, all infected leaves should be removed at once (but you can dry them for smoking). Less common troubles are root diseases, Black Rot or Wilt. These are not curable but neither are they contagious. As arsenical and soapy sprays are impracticable for tobacco I am a firm believer in soil dusting of raw soot or naphthalene to discourage soil and air pests. D.D.T. may be used. Aphis plague may attack tobacco and infect virus, but do not breed on it.

Harvesting. Forget all the tests commonly advised and look only for this—the change in the appearance of the leaf when full grown. Sometimes it tends to yellow or change colour in patches or it may curl at the tip or sides. Nothing is gained by leaving the leaf any longer. On the other hand do not be in a hurry to start harvest. In a hot year the main lower leaves of early plants may be ready at the end of July. Generally the second half of August is the time. During late summer pluck off the leaves as they are ready. Continue until the first warning of frost (generally mid-October) when take in all that is left. Too much is sometimes made of the exact moment of ‘ripeness’: a more important point is to harvest on the right day. The surface of the leaves should be dry and free from dew or rain. If you can manage it, do your picking mid-day after a spell of dry sunny weather when the gum content is highest and the water content low. If possible lay the leaves by the plant for an hour or two in the sun to get flaccid before collecting them to take indoors for hanging.

If you have plenty of room, I advise cutting down all that is left of the plant early in October, first nipping out all small leaf and remaining side-shoots. Hang these, bottom up, either with a meat hook or nailed on batten in a dry airy shed and allow leaf to dry on the stalk. When blades are brown, strip off leaf and tie in bunches at the tips, with the butts of mid-ribs hanging loose to complete drying out.

Hanging the Main Crop. Do not use twine, string or wire. The proper way is to cut a slit 3-6” along the mid-rib with a knife point, starting about 3” below the butt. Hang 50-100 such leaves face to face, back to back, on a 3-4’ cane. There should be a finger thickness spacing between each pair of leaves so that the air can get between them. These canes or ‘sticks’ can be moved from a dry to a humid place and vice versa as required. Start drying at a reasonable humidity (figure for average relative humidity about that for temper-
nature, i.e., 70% at 70° F or a difference of 5° between wet and dry bulbs) until chlorophyll dispersed and blades turning yellow or brown. A rough and ready method, good enough in the ordinary way, is to feel the tip of the leaf. If soft and flexible, humidity is adequate, but if it is brittle and easily breaks the air is too dry. When only a little green is left, generally along the veins move the leaves to a warm dry place, until mid-rib is bone hard. I like to get my tobacco, once it has coloured, dried out in a hot dry atmosphere as quickly as possible. This keeps it clean and mould-free. The leaf is then known as ‘raw-cured’ and is ready for fermentation. It can be moved outside or to a moist atmosphere to soften up enough to tie into hanks of about 1 lb. each.

The early autumn climate is generally satisfactory for air-curing, protected from weather under veranda, eaves or lean-to. But a shed or room will do if reasonably ventilated. A living room or attic is generally too dry for the start. The best place is a light greenhouse, which you can damp down or dry out as required. Many varieties, especially Turkish hybrids, dry a better colour with sunlight. You will also find large sheets of polythene very useful, for instance either to hang over a stick of green tobacco to keep humidity in at the start if the atmosphere is too dry, or to protect from rain or dew if drying tobacco out of doors.

Most of the leaf in bought tobacco, particularly that of a light colour in pipe mixtures, or exclusively used for the popular brands of cigarettes known as ‘Virginian’ is both coloured and dried in kilns at considerable speed and very high temperatures (“Flue-curing”). Between this modern method and the old fashioned way of air-curing as described above, there is a wide variety of procedures in various countries, or to produce special types of tobacco, such as sun-drying, smoke curing, etc. That is one reason why the home-grower cannot reproduce industrial brands. Some adaptations of commercial methods are described in the Curing Co-operative Bulletin No. 4 (Raw-Curing) and anyone interested in experimenting along these lines is advised to study it.

A difficulty you may find at this stage of the proceedings and later, is to keep the leaf pliable enough to handle easily, and yet at the same time sweet and wholesome. Study the section entitled “Humidity” in the Introduction to this book.

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HOW TO MAKE UP YOUR TOBACCO

Storing. Leaf need not be made up at once. Bulked at a low moisture content (leaves just flexible) it will continue to improve. A wooden box or a drawer in a cool dry room is best, lined with greaseproof paper, or it may be kept in one of the paper sacks supplied by the Curing Co-operative. Pack firmly and tightly to prevent drying out, but not altogether airtight, or it will get musty. Unless there are signs of mildew on the mid-ribs they should not be removed; the slight springiness in the ribbed and bundled leaf provides just that amount of ventilation that is required to keep it in good conditions. For this reason do not use polythene and keep the container clear of walls and raised from the floor. Take out a 1 lb. Hank or so at a time as required, preferably about 14 days before use, as a few days rest after manufacture seems to mellow the tobacco. Now proceed as follows:

1. Casing. Leaf should be pliable enough to squeeze without fracture. If too dry, lay out in a damp place for a while or wrap for a few hours in a towel or old cloth moistened with boiled water. The leaf absorbs the moisture better if the water is still hot and steamy. First the leaf must be “cased” or sauced. The purpose of casing is twofold:—(A) To prevent moisture drying out of the tobacco in the tin or in the pouch. Glycols have this hygroscopic quality. (B) To condition the tobacco by applying extra carbohydrates which in sunnier climates are built up during growth in higher proportions than here. (C) To give body to the finished tobacco. Thus “casing” or saucing must be considered as a necessity for home-grown tobacco and without it the product tends to be dry, chaffy, over quick in burning, and hot to the tongue. Less saucing is needed for cigarettes and little, if any, for cigars or cheroots.

RECIPE FOR CASING

(a) One or more of the following:—Cane or Demarara sugar, or glucose (for light tobacco). Treacle or honey (for medium tobacco). Black treacle or molasses (for dark tobacco).

(b) One or other of the following:—Glycerine, Glycol (anti-freeze). Di-ethylene glycol.

Use approximately equal quantities of (a) and (b) mixed and diluted with boiled or boiling water to consistency convenient for use. Stock in covered jar and apply with a brush on alternate layers of leaf when loading pressure or spray on bulk.

Quantity. One teaspoonful half strength “casing” should serve for approximately 1 ounce tobacco.

The following may be added if desired:—Salt petre (only if tobacco burns badly owing to incorrect cultivation and potash shortage in soil). Spanish liquorice (for dark ‘Cavendish’ type pipe tobacco). Sweet wine, fruit juices or syrups, cider, rum or spirits (these for flavour). A little acetic acid or dissolved aspirin of the more soluble type (these are supposed to restrain mould). A light painting of olive or salad oil on the finished block, which gives body, and also lubricates the knives and cutting face during shredding.

2. Manufacture. First consider the form in which your smoke is required. (a) Flaked for pipe. (b) Shredded for pipe or cigarette. (c) Cigar or cheroot.

(a) FLAKED FOR PIPE. Here is a simple method of producing quite presentable tobacco without any apparatus at all, and therefore convenient if the quality or quantity of your leaf does not justify further expenditure. The result is rather like ‘Prince Albert’ or some African tobaccos.

First lay out the tobacco (any broken bits will do) on a tray in the sun or a hot place and get it completely dry and brittle. Now rub it up in the palm of the hand in small even pieces. Keep breaking it down until it will pass through a ¼” or ⅛” sieve (or small cinder sieve). Then take a fine sieve (or two kitchen wire sieves held drum-wise) and sift out all the dust. Turn it out again onto the tray; pick out any wood, stick or rubbish and spray it literally with the sauce described above. Put into a cloth or piece of polythene and turn it tight and leave it for 24 hours for the moisture to penetrate. (Alternatively you can put it in a closed tin and steam it for a while in a warm oven 200° F.) Finally lay it out on the tray again and allow to dry off to smoking condition.

(b) SHREDDED FOR PIPE OR CIGARETTE. At the time of writing the only shredder which will satisfactorily cut loose leaf is expensive and in short supply. For the ordinary machine such as the Tilty Standard you need a press to make a really firm block, adding the casing as you lay the leaf. There is no need to remove the mid-rib, except the tough thick bit at the top which can be nipped out or sliced off. If you have slit your mid-rib for drying as advised by us it will not be very thick. The rib actually helps to make the block firmer and does not leave wood in the tobacco provided that it is laid for the shredder knife to cut squarely and transversely. But some people do prefer to strip mid-rib for cigarettes. To produce cigarette tobacco is only a question of fine shredding (50 or more cuts to the inch) although thin-textured light-coloured leaf may be preferred. A hard light block can be sliced with a guillotine or sharp knife, which may serve for small quantities of tobacco—but for fine cigarette shred or if you are a heavy pipe smoker a specially designed shredder is a real necessity. Excise regulations forbid Curing organizations to shred tobacco but machines may be purchased for home use such as are described later in this book. Your
press must be designed to produce a block of the correct section for the trough of your shredder—generally just over one inch square.

In making a block three points should be remembered. First the tobacco should be moist enough to cut easily—dry tobacco will crumble to powder—but not so wet that it sponges or exudes moisture. Secondly adequate pressure is required, such as a metal letter press, a strong vice or a car jack, or a ton or so of dead weight. Such things as trouser or tie presses are useless. Finally do not leave blocks of unshredded tobacco lying about a long while, or store in this way. They will either get mouldy or brittle dry, in both cases without easy remedy. Bought block tobacco, or twist, or the sailors 'perioue' will keep moist and sweet only because they are produced by such excessive compression that moisture cannot get in or out. In the appendix of this book instructions are given on how to make and use a simple tobacco press.

(c) CIGAR OR CHEROOT. This is one of the easiest and 'smartest' ways of making up your tobacco, and needs no apparatus. First open up a cheap cigar and see how it is made. Contrary to common opinion it is not rolled leaf (which could not draw) but just a little parcel of small loose bits, first bound in a leaf with the ends turned in and then faced with a wrapper or 'bandage'. This latter is fixed at one end with a touch of gum tragacanth (paste or a bit of gummed paper will do). You will want a board, a sharp knife for shaping your wrapper and a soft brush to smooth it. All the tobacco should be moist and flexible. Choose your most pliable largest and thinnest leaves for binders and wrappers. Roll round the wrapper (shaped in a long wide strip) with the palm of the hand diagonally. When you have made a dozen or so, lay in a warm place to dry off (or bake for an hour in a cool oven 150-200° F) and store in a cedarwood or scented box to smell nice. A cigar mould serves only to get a good shape before or during drying off.

3. Flavouring. Some growers like to flavour their tobacco with a perfume to give a characteristic aroma when smoked or in the pouch. It adds little to the quality of the product and cannot correct or disguise bad smells due to inadequate fermentation, inherent rankness, or mildew. Natural air-cured tobacco has little scent and may even smell rather musty if stored in an airtight or closed container. Commercial brands are therefore nearly always perfumed, and by this they are distinguished. Hence formulas are trade secrets and what flavours we home-growers can obtain from the wholesalers are often disappointing. My personal recommendation is the ordinary rum flavouring sold by grocers. Flavourings generally are highly concentrated and should be used very sparingly in one of
Manufacture of tobacco, following curing, fermentation and adequate storage, consists of Blending, Shredding and Flavouring. Flavouring can best be done by using the concentrated essences in a perfume spray. The essence should be sprayed over layer by layer and the tobacco loosely packed and stored in an airtight tin, or other container. If no spray is at hand, soak a piece of blotting paper with the essence and put this bloter between the shredded tobacco. Even when this operation is finished the blended and flavoured tobacco is better if kept for a period of time.

We are specialists in tobacco Flavours and Essences. The following are examples we can thoroughly recommend. It is not possible to state precisely what the various number's represent in the terms of well-known brands, but if our clients will express their particular tastes we will do our best to supply what is desired.

**MAINLY FOR CIGARETTES:**
- No. 223 Virginia, very light
- No. 224 Virginia, light odour, American type flavour
- No. 225 Virginia, American type flavour

**FOR LIGHT PIPE TOBACCO:**
- No. 226 Medium, slightly sweet
- No. 227 Medium, sweet
- No. 228 Medium, very sweet

**FOR ALL TYPES OF DARK PIPE TOBACCO:**
- No. 239 Fairly sweet, heavy
- No. 230 Sweet, but light
- No. 231 Light sweet odour
- No. 232 Heavy sweet odour
- No. 233 Heavy, ideal for roll, plug and shag
- No. 285 Latakia type
- No. 222 Tonka flavouring
- No. 236 Vanilla flavouring

Minimum quantity supplied 1-oz.
This quantity is sufficient for about 25-lbs.
the following methods.

i. Dilute with five to ten times volume of boiled water. Shake well. Dab on shredded tobacco or spray on lightly with a fine perfume spray. Then turn over and repeat until the whole bulk has been treated. Some flavours do not mix well with water. In such cases alcohol in some form or another may be substituted (surgical spirit may be used but not Methylated spirit).

ii. Apply in a more concentrated form to strips of blotting paper or small pads of cotton wool. Insert these in the tobacco for a while, altogether in a closed tin or polythene bag for one or two days for aroma to permeate.

iii. Add a few drops of the essence to the sauce or casing mixture. It is wise to flavour only a few ounces at a time in advance of use, as unless in a closed container, the aroma will slowly evaporate at normal temperatures and very quickly in heat. For this reason method three above is not suitable for any tobacco that is subsequently panned or heated. Flavouring should be the last process before smoking. Properly and sparingly applied, the final aroma is much more subtle and may be different in character from the smell of the concentrate essence in the bottle. Even when finished, blended and flavoured tobacco improves if kept in a closed container or polythene bag for a week or so, provided of course that it is dried out to smoking condition. If at all damp, unventilated tobacco will get musty.

WARNING. The above instructions are intended for tobacco already fermented at the CURING CO-OPERATIVE. Unfortunately many home-growers still shred up and smoke 'raw' or half cured leaf which gives off obnoxious smells normally removed during fermentation and make it even worse by the heavy addition of pungent flavourings. To smoke unfermented tobacco is detrimental to health and eyesight as well as anti-social, and pernicious to the cause of home-grown tobacco. If you cannot or will not send your leaf for professional processing, some alternative heat treatment should be given at home, as described in the following pages.

SHREDDING WITHOUT PRESSING. It is possible to compress your tobacco by methods such as the following (1) PELLET METHOD. Remove mid-ribs starting from the tip of a leaf (or two leaves) laid flat, roll it tightly, turning in the sides as you proceed, into the size and shape of a 1½'' cylinder or cork. Load these pellets into trough of shredder. A number may be prepared beforehand. (2) PLAINTING METHOD. Taking three pairs of cased leaves plait them together, twining in others into a long rope. Plait these again together until you have a twist of approx-
Requirements for Fermentation

TOBACCO OF SPECIAL APPEARANCE OR AROMA. If you load your press in alternate layers of light and dark coloured tobacco, applying sauce to dark leaf only, you will get a nice colour blend. Blending of varieties may be done in the same way, such as the inclusion of up to 20% Rustica, Turkish or those of contrasting flavour. It is also possible to purchase imported Latakia, Perique and other blending tobaccos, and to mix these in small proportions with home-grown. To obtain a 'bird's eye' effect, you take two or three leaves together, lay them flat and roll them tightly with the palm of your hand into a tight 'spill' with the midrib running down the length. Load your press with these. Some smokers like a 'nutty' or 'roasted' taste achieved by baking it in the oven for a quarter of an hour or so at a high temperature in a closed tin (don't burn or char it!) or by a quick 'panning' on a tray (copper is best) at a little distance over an open flame. For this the tobacco must be very moist to start with or it will dry out and any of the volatile flavouring referred to in paragraph 3 above must be added afterwards. Finished tobacco improves by being left in a covered container in a warmish temperature for a week or two to recover and may then be remoistened or laid out to dry, as the case may be, until of the proper humidity of 20% for easy combustion.

Handbook of Tobacco Production

A bound volume of 10 Bulletins, some referred to in this text, is available from TILTY TOBACCO CENTRE (Dunmow, Essex, CM6 2EG) at 50p. Free to all new members of the Curing Cooperative. Separately at 6p ea. plus S.A.E.
FERMENTATION

The equipment and conditions for adequate fermentation are rather beyond the scope and economy of the ordinary home-grower. We strongly advise that he sends at least the best of his leaf to be processed by the TOBACCO CURING CO-OPERATIVE, operating under the special permit of the Customs and Excise along the lines of the high-temperature quick-term fermentation process commonly operated on the continent. By the use of suitable gasses and cultures and particular processes evolved by them for the treatment of home grown tobacco they are able to achieve an excellent result if the quality of the raw leaf is good to start with.

But for small poor grade leaf and for those who must reduce their expenditure to a minimum, we describe later in this book a form of heat treatment which can be carried out, preferably on the shredded or manufactured leaf, which will take the place of fermentation to the extent of producing a very smokeable and quite salubrious product. The subject is amplified in the Curing Co-operative Bulletin No. 7 ("Fermentation and Maturing").

SIMPLE HOME "FERMENTATION" METHOD

ONLY LIMITED FERMENTATION POSSIBLE. No way has yet been found of fermenting, in the proper meaning of the term a few lbs. of tobacco in your own home. Fermentation is due to action by moving micro-organisms. They need bulk, self-induced heat and a lot of time. Wine, for example, may take years to mature. But many of the effects of fermentation, more particularly the chemical changes which take place during maturing, can be achieved by a substitute heat process. This improves the toxic elements of raw tobacco which are bad for the eyes and the health. Obnoxious vapours can be driven off, the acrid taste removed, resulting, given good leaf to start with, in a product healthy and pleasant to smoke, with a slightly "nutty" aroma. This can be indulged in without offence to others in the vicinity.

TEMPERATURE AND HUMIDITY. It is much easier, and probably better, to carry out the process after the tobacco has been sauced and shredded, ½ lb. to 1½ lbs. being the most convenient quantity to handle at one time. The temperature at which the tobacco should be cured is between 150°-200° F for a total period of 20-100 hours. The process need not be continuous, but the tobacco should not be allowed to completely dry out or the chemical action will cease. Nor should it at any stage be wet or soggy or the quality and colour will deteriorate. The problem is to maintain approximately the correct humidity (i.e., 30-40%) namely, to prevent evaporation while at the same time allowing the tobacco to "breathe"
(oxygen must come in, carbon monoxide, etc., must come out). On no account keep the tobacco packed tight in a continuous airtight container or wrapped in polythene or cellophane. Such advice, appearing in other publications, is entirely wrong, and can only result in the excretions being re-absorbed, action restricted and rot induced.

**SUGGESTED METHODS.** Various devices have been tried, such as a double container, like an old fashioned 'porringer' with boiling water in the bottom to keep the surrounding atmosphere moist, or a single container with a gauze or perforated base through which steam may pass. A simple, though crudely effective method advocated in the early days of home tobacco was to stand a tin of shredded tobacco in a saucepan of water, allowed to simmer till dry. Factories use a revolving drum with steam injections. If container cannot be rotated, tobacco should be opened up and turned about at regular intervals of 12 hours or so.

Our suggestion is a tight-lid tin (biscuit or cake tin) of a shape suitable for the position in which it is to be placed. This should be about half filled with shredded tobacco sauced or damped down to a fairly moist condition with a tincture containing a fair proportion of glycerine (this helps to hold moisture). Look round the house for a spot where it can be kept warm continuously—back of kitchen stove—on shelf fixed over oil stove or electric fire—by a radiator or central heating unit—or on hot water tank under lagging—in a brick aperture behind sitting room fire, etc., etc. It should get hot enough to be just too hot for holding (200°F maximum). If too hot, the tobacco will char. A longer period at a lower temperature (say 150°F) is better.

After a few hours, remove the lid and turn the tobacco out. Turn it quickly about with the hands to allow the steamy vapour to escape and put it back as soon as possible before it dries out very much. Repeat this at lengthening intervals for the first two or three days. With experience you can so regulate it that on the last occasion the tobacco is just about dry enough for smoking (20%).

At first the fumes are rather revolting and it is better not to open the tin in a living room. You will also find that the moisture at the bottom rises so that the tobacco at the top becomes wet and at the bottom dry—to prevent this the tin should be turned about occasionally. If the tobacco dries out it will be necessary to damp it down, use a fine spray (scent spray or aerograph) with water as hot as possible. After a while the aroma improves until it is pleasant and attractive, like newly baked bread.
APPENDIX

APPARATUS
N.B. At the time of writing the following appliances are retailed by the TILTY TOBACCO CENTRE, Dunmow, Essex, but before ordering enquiries should be made as to current stocks and prices. TILTY STANDARD SHREDDER. Shreds half a pound of tobacco previously pressed into 14" square block, either fine (for cigarettes), medium (for pipe or cigarettes) or coarse (for pipe). Spindles for these three sizes are obtainable and interchangeable. Cutting is by a two bladed rotary knife as the block is fed by rotation of a handle. A special device allows the machine to be quickly reset for re-operation without the necessity of winding back as with most earlier models of tobacco cutting machines.

CIGAR MOULDS. These accurately made hard wood moulds (second-hand but in good useable condition) were once used in factories for hand-made cigars and cheroots and are occasionally made available for home-growers due to the increasing mechanization of commercial production.

FAN. Often at a sale or market or junk store an electric fan can be picked up for a few shillings. If the voltage is right (220-250 A.C.) it will be most useful to keep the air in circulation and the humidity constant during the drying and curing processes. You will find it a good insurance against mildew!

HOW TO MAKE A TOBACCO PRESS
(Suitable for Tilty "Standard" and other 14" trough machines)
It is just a long box without top or bottom, the interior length that of the run of your shredder and the interior width a little less than the width of the trough (14" maximum for 14" square trough of Tilty STANDARD). The height should be about 2½ times the size of the section of finished block, to allow for compression.

The two sides of the box are joined by distance pieces, firmly glued and screwed, or bolted together. You will also want two ½
thick slats of hardwood to fit inside top and bottom of the box, which, if thumb-screws are being used in the clamps, may require facing with strips of metal screwed on. Alternatively, metal slats can be used, which a blacksmith or garage will cut for you.

Pressure may be obtained by carpenters gluing clamps, or, with additional packing pieces, in a metal vice or carpenters vice, or under a piano or very heavy piece of furniture, or car wheel. Or a car-jack might be used, or one of the old-type metal letter-presses which can sometimes be picked up at a junk shop. The illustration below shows two alternative types of clamp for at least two are required for an 8" press.

DIMENSIONS recommended for STANDARD SHREDDER. Sides of box, ¾" or 1" hardwood. Interior dimensions, Length 8", Width just under 1¾". Height, 3" (allowing for ¾" or 1½ slats)

LOADING THE PRESS

For easy shredding you must have a firm hard block of the right section to slide freely in the trough of the machine. Press for not less than 10 hours to two days, the screws being tightened occasionally in the meantime. The block must be of correct humidity. If too loosely pressed it may build up and jam in the trough. If too dry the tobacco will powder; if too wet it may bind. Liquid should not exude from the press when the screws are tight.

Slip the bottom slab in the press. Load with the mid-ribs lengthways (except for fine cigarette tobacco it is not necessary to remove them, except the thick stub ends which can be cut off with a sharp knife while the leaf is still tied in a hank). There is no need to smooth or flatten the leaves—just push them in anyhow, provided that the press is evenly loaded from end to end and mid-ribs longways. Apply the sauce or “casing” while loading the press. An 1½” brush is best for this, dabbing it on every other layer of leaf and using it for pushing the leaf into the press.

Keep a jam jar of the casing, with the brush, handy on the bench. Also another vessel with olive oil or glycerine and a ½” brush. This is to paint the side of the finished block, or two sides thinly, which gives body to the tobacco and provides lubrication where it is required when shredding.

The leaf should be pliable enough before casing is added to squeeze without fracture. If it has become too dry it may be wrapped for a few hours in a towel or old cloth moistened with boiled water—the leaf absorbs the moisture better if still hot and steamy. If a large biscuit tin or polythene bag is kept handy, spare leaf may be put in and kept from undue evaporation till next required.

When press is full to top, press down with fingers and place top slab, slide on clamps and screw down. To remove block from press next day or when required, release clamps and knock slats and tobacco through, using a block of hardwood, an old file, or similar instrument.
IMPORTED TOBACCOS
suitable for blending with
HOME GROWN LEAF

LATAKIA   CAVENDISH   TURKISH
PERIQUE   HAVANA      HONEYDEW
FLAKES & PLUGS Heavy and Light

LOOSE CUTS   BROWN & GOLDEN

Your Home Grown Leaf will be much improved in flavour by blending a proportion of these imported tobaccos.

We will be pleased to give our advice.

COMPREHENSIVE PRICE LIST Free

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PETER ROSS & COMPANY
ARUNDEL * SUSSEX
MASTER TOBACCO BLENDERS

Hygrometer Readings (Fahrenheit)

COLOURING
Difference of wet-dry bulbs for 75% humidity (damp)
at 60° (4) at 70° (5) at 80° (6) at 90° (7)

DRYING OFF
Difference of wet-dry bulbs for 40% humidity (dry)
at 60° (11) at 70° (13) at 80° (15) at 90° (18)

CIGARS

1. Place filler between two short leaves
2. Turn up ends & roll roughly to shape
3. Lay the rough cigar on a strip of good leaf - about nine inches long
4. And fold the end as shown - (This "locks" the outer wrapper)
5. Now roll the cigar onto the outer wrapper
6. And seal with a drop of gum - TRAGACANTH
SEEDS AND PLANTS

Orders may be placed with the TILTY TOBACCO CENTRE. For the delivery of seeds in January, February and March, in packets at 15 p each containing four separate and named varieties of customers selection. Alternatively you can ask the Centre to select for you, stating your site, climate and soil conditions and the purposes you want the tobacco for. When ordering you are asked to enclose a stout medium sized addressed envelope.

The author has carried out extensive trials over many years in his Essex garden and the selection of some 30 tobaccos are listed under five headings.

1. **Light leaf.** Burleys and Burley hybrids. For cigarette and pipe, etc.
2. **Long leaf.** Orinocos and Orinoco hybrids. For cigarette and pipe.
3. **Broad leaf.** Various brown and red varieties for pipe and cigar wrapper.
4. **Large leaf.** Thin texture varieties suitable for cigar wrapper and cigarettes.
5. **Aromatic.** Oriental types for blending only.

Plants may also be obtained through the TILTY TOBACCO CENTRE. For delivery in late May and early June, of most of the varieties listed for seed. Early deliveries in April and early May for greenhouse raising, may also be accepted providing sufficient orders for early batchings are received not later than mid-March. Plants are raised in the best compost, hardened off, labelled and well packed and free from virus infection. Fifty successful plants should produce an average of ten pounds finished tobacco.

It is a mistake to use large plants, which do not root easily, are slow in picking up and tend to bolt. Smaller plants (3-4 inches) travel better and if of good quality, give, in the long run, quicker and better results. It is also risky to purchase tobacco plants in the open market. Although they may look sturdy the strain may be poor and result in under-sized plants, thin leathery or incurable leaf, poor crop weight and bad flavour.

**Write for price and variety list**

You may have your tobacco professionally processed by the TOBACCO CURING COOPERATIVE. For information on this and current prices of available literature and accessories for Home Tobacco, write to Tilty Tobacco Centre, Dunmow Essex. GM6 ZEG.
WHAT HAVE I DONE WRONG?


2. Leaves turn yellow before full-grown. If deformed, virus disease? See also section one above.


4. Leaf won't hold moisture. Too much nitrogen food? Texture allowed to rot in sweat heap or hanging in damp air? Hanks tied up damp or with mid-ribs wet?

5. Tobacco turns to dust. Shredded too dry? Texture destroyed by rot? Or by leaving leaves to die on plants before harvesting?

6. Tobacco won't burn. Too damp? Wrongly fertilized with excess of chloride salts or too little potash? Salt in air or salt water near seaside?

7. Tobacco chaffy, hot to tongue, and quick burning. Too thin leaf?—due to unsuitable variety, starved cultivation, or plants not "tipped"? Texture destroyed during curing? Inadequate or unbalanced saucing?

8. Tobacco repugnant to taste and smell. Wrong fertilizing?—ammonia or chloride salts? Over manured? Mildew dried in? Presence of foreign matter such as feathers, soap insecticides? Unfermented?

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