AGRICULTURAL BADGE

THE BOYS' BRIGADE

ZIMBABWE

INDEX :

1st Stage ;

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This 5 year agricultural programme has been designed and planned with the assistance of Dr. Blackie of the University of Zimbabwe.

Man's whole existence depends on the earth and he has a responsibility to use it efficiently and responsibly.
He must never take the right to live on this earth of granted and in order to survive he must learn to plan and work within the resources available to him.

This programme is planned in such a way to assist man in a progressive development of land and animal husbandry to the benefit of the community as well as to himself.

FIRST YEAR

The Soil

The soil is the beginning. It is from the soil that the crops, the animals and we ourselves draw our nourishment, and it is the soil the dead and waste matter from life's processes return.

The small farmer particularly has to husband the soil, since he or she will rarely have land to spare. Even the smallest patch of land will have its use - it may be fallow, it may be in crops, it may be needed for building, but rarely will it be wasted.

The first principle of good farming is soil management; the use of the soil to produce, without depleting its vigour the soil is the farmer's capital. A prudent farmer will use the income from that capital to build up his soil.

A LIVING SYSTEM

A living system is a community of different types of creatures, together with the resources they require for life such as air and water, who depend directly and closely on one another. Soil and plants are such a living system the soil gives plants physical support for their roots and stems as well as providing them with important nutrients for growth. The plant, in its turn, drops its dying parts, which feed the living constituents of the soil. Crops and livestock depend ultimately for their vigour on a healthy soil. So, in the same way that we feed ourselves a balanced diet to maintain our health, we must give the soil what it needs for its nourishment.

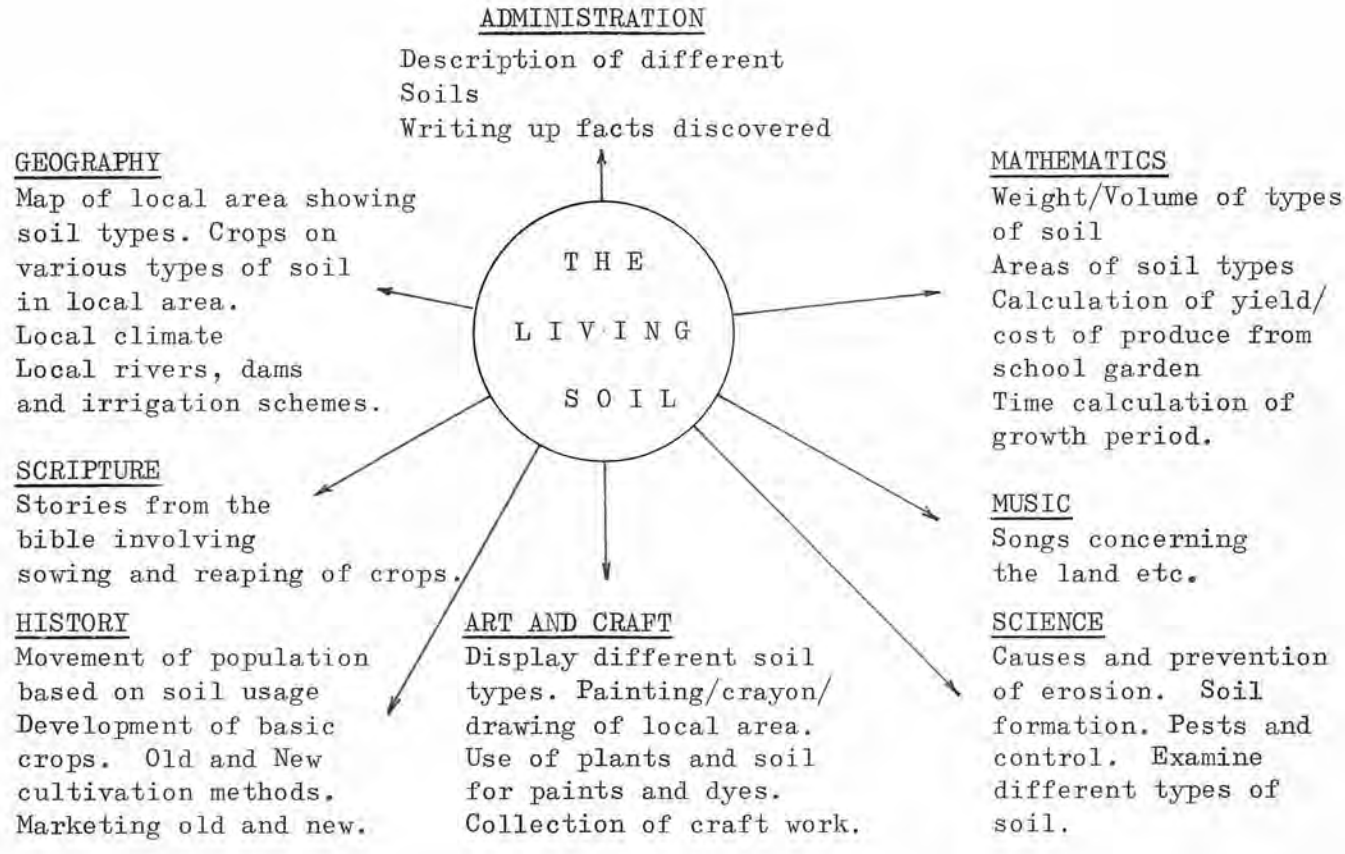
SOIL FORMATION

The bare rock which was the original solid surface of the earth's crust has been broken down steadily through time. Rain, frost, heat and other natural forces cause the massive rocks to crumble into smaller and smaller fragments until eventually they become the tiny particles which are the foundation of our soil today. Soil is made at a rate of about five centimetres depth every 2 000 years. If you lose five millimetres of soil it will take 200 years to make good the loss.

Soil is not just millions of tiny fragments of rock. The rock forms only the skeleton to which adheres a complete living world invisible to our eyes. This Microscopic universe consists of plant and animal waste, insects, bacteria, air and water; in a complex mixture which we are unable to manufacture for ourselves. This composite and precious substance is called humus. Without humus the soil is dead.

SOIL AND THE PLANTS

Soil is a fragile substance which is easily destroyed or damaged by sun, wind or rain. The upper parts of plants protect the soil from the effects of sun and rain while the roots both bind the soil and allow water to percolate deep. Deep rooting plants such as trees penetrate into the underlying rock and start the process of soil formation. The leaves and branches shade the soil and reduce the momentum of falling.

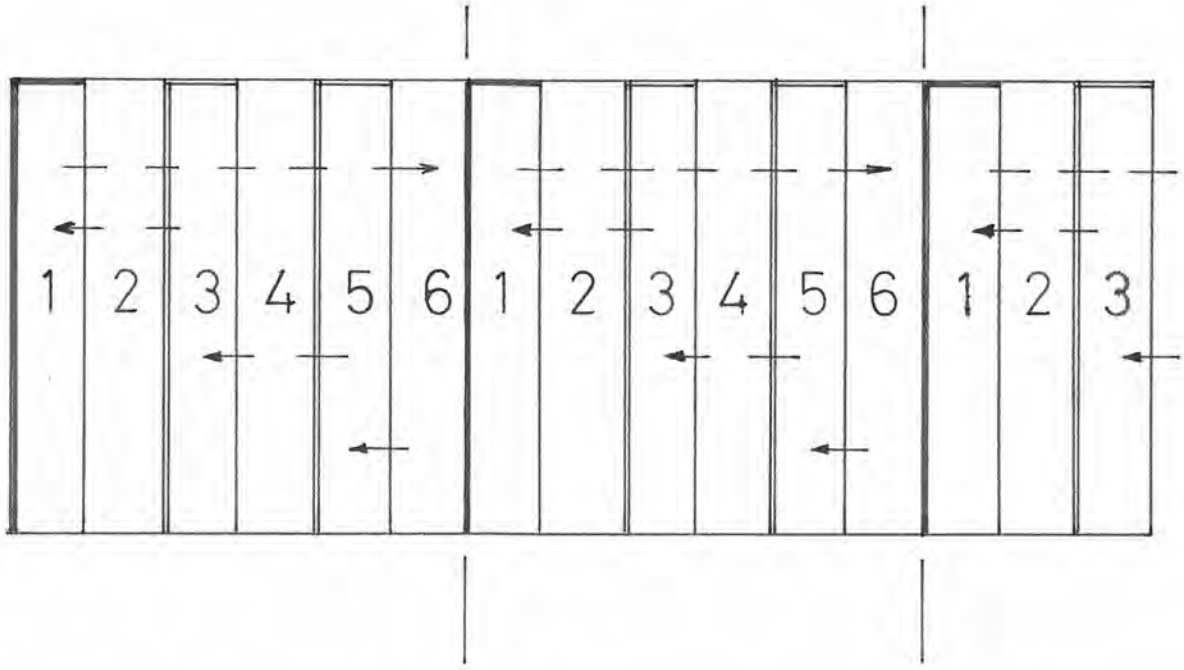


VEGETABLES AND HERBS

The advantage of growing vegetables and herbs is that you can do it on very small areas.

Firstly, whatever type of small farming you adopt, be sure that you are really interested in it. Secondly, you need to be inquisitive and observe constantly the changes taking place in your garden.

Tools are one of the most important investments that you make since you are always using them and they should therefore be of good quality and cared for properly.

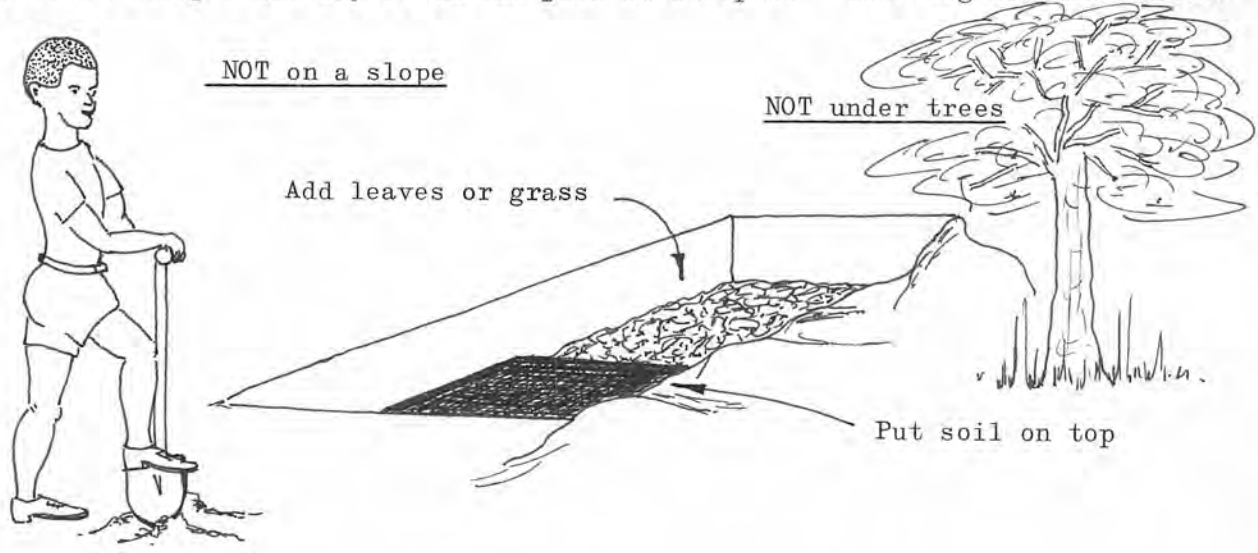


DIGGING

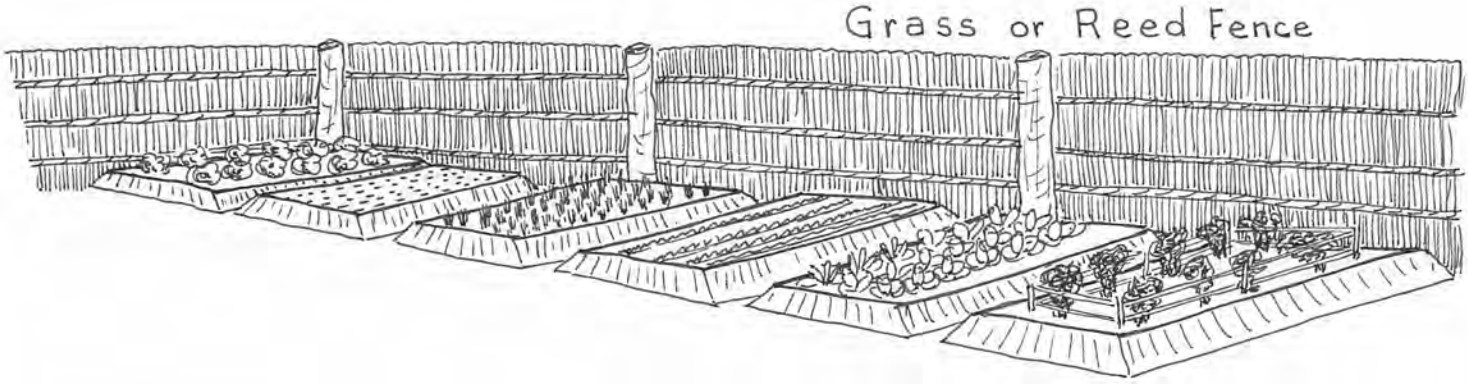
The rotary hoe has its place but it is not a substitute for either the plough or the spade. It is important to turn the soil between crops and some of the worst weeds, such as couch grass, thrive on rotary hoeing.

With a new plot of land clear off any rubbish and excess plant growth from the surface of the soil. Dig the soil and allow the first crop of weeds to germinate. This may take anything up to six weeks and then form and hoe out. Mulch the ground and fertilise and plant your seeds or seedlings.

To dig the first time by hand, divide the area into three equal portions and then divide each again into about sixty centimetres wide strips. Skim off the turf from the first strip 1 and lay it on the path at strip 6. Then dig out the trench.



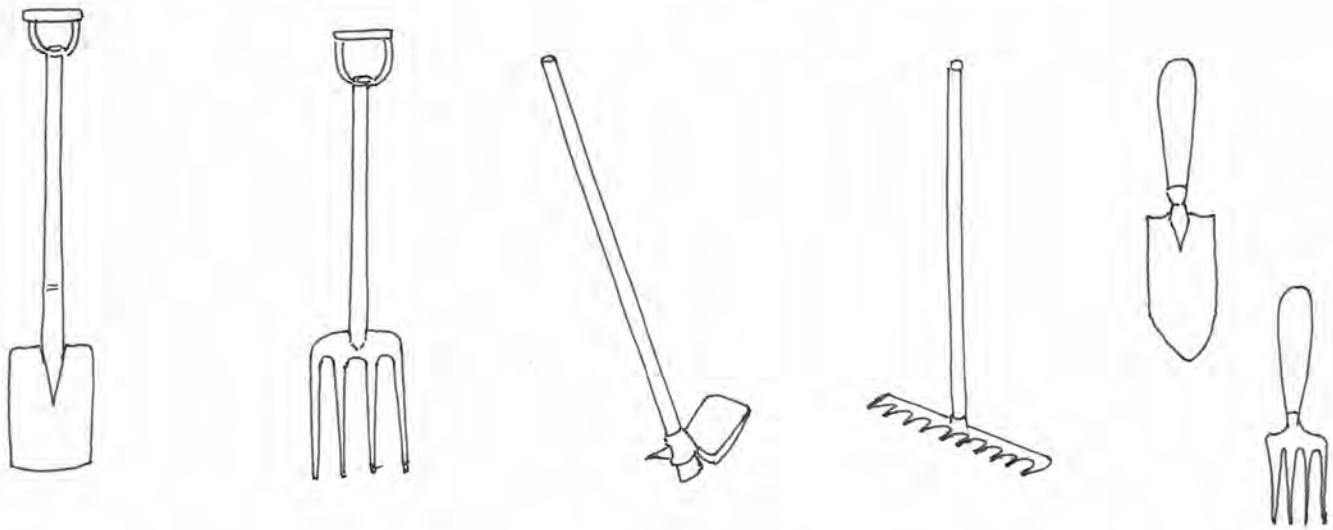
Protect your Garden



Keep Out

Chickens
Cows , Small Children
Dogs & Drying Winds

Use the Right Tools



Spade	Fork	Badza	Rake	Trowel & Fork
For getting to right depth.	For turning over soil and aerating	For cultivating and chopping	For smoothing soil for seed beds	For planting and weeding

Then dig out the trench to between fifteen and twentyfive centimetres deep and lay the soil alongside the turf. Start your second trench at strip 3, keeping the width and depth the same and place it in the first trench at strip 1. The grass and weeds should go into the trench first and then be chopped up with a spade or badza, followed by the rest of the soil. In the same way dig a trench at strip 5 and fill the trench at strip 3. The final turf and soil at strip 6 is then placed in the trench at strip 5. Repeat this procedure for the second and third areas and then spread compost or manure thickly on the surface and turn the soil lightly with a fork.

In hot areas the surface may need further protection in the form of a mulch of grass or straw laid on top to keep the soil cool. If grass is not available you can place a layer of small stones.

A helpful idea is to line the strips north to south so as to obtain maximum available sunshine. If a windbreak is necessary then use Napier fodder or pampas grass as they require less attention or maintenance than a hedge.

CROP ROTATION

Crop rotation should be carefully planned as it is the basis of any cropping system. Continuous growing of a single crop allows pests and diseases to build up to an extent where they can only be controlled by chemical means. In simple agricultural systems land is actually abandoned or left fallow for varying lengths of time in order to allow the fertility of the soil to recover. Today, by paying regard to the law of return and by keeping a weather eye for sign of trouble, we can largely eliminate the fallow.

Planning the garden is therefore important if you are to maintain the fertility of the soil while still achieving a satisfactory level of production.

FIRST YEAR Green crops - cabbage, silver beet, broccoli, brussels sprouts, etc.

SECOND YEAR Cleaning crops - parsnips, carrots, turnips, potatoes, etc.

THIRD YEAR Soil building and other crops - peas, beans, leeks, onions, lettuce,etc.

To work out a rotation for your area, consider what crops you want to or can grow and what their characteristics are. Quantity is also important to ensure you cater for your needs. Plant vegetables in long enough rows to rely on succession planting for a continuous supply from the garden otherwise they will all come at once and then you have nothing.

PLANTING

	SPRING PLANTING		SUMMER PLANTING		AUTUMN PLANTING
	Very hardy	Hardy	Warm weather	Hot weather	
1st YEAR	Broccoli Cabbage Spinach	Chard Raddish	Squash	Peppers Cucumber Melons	Silver beet
2nd YEAR	Potato Turnip	Carrot Parsnip	Sweetcorn Tomato Beetroot	Sweet potato	Spinach Turnip
3rd YEAR	Lettuce Onions	Mustard	Beans Soya beans		Lettuce Mustard

SPACING

Vegetable	Distance between rows	Distance between plants
Carrots, Leeks, Onions, Turnips	30 cm	15 - 20 cm
Beetroot	30 cm	45 - 75 cm
Parsnips	35 - 45 cm	20 cm
Beans dwarf	45 - 75 cm	15 - 20 cm
Cabbage	45 - 75 cm	30 - 60 cm
Broccoli, Cauliflower	45 - 75 cm	45 - 75 cm
Peas dwarf	60 cm	5 - 7 cm
Beans broad	60 cm	15 - 20 cm
Brussels sprouts	60 - 90 cm	30 - 60 cm
Artichoke	90 cm	30 cm
Tomato	90 cm	35 - 45 cm
Peas tall	120 cm	5 - 7 cm
Lettuce, Marrows, Melons	120 cm	60 cm
Beans runner	200 cm	15 - 20 cm

The point is to learn to think of harvest at planting time. If you can do this, you will have a conveniently organised garden which provides a regular supply of food throughout the year.

Seeds and Seed-beds

It is often convenient to have a small area set aside for a seedbed where plants can be raised and later planted out into their permanent position. The soil of the seedbed should be well prepared but fertility is not so important as it is better to transplant seedlings from a poorer to a richer soil.

The cabbage, broccoli, cauliflowers, brussels sprouts, leeks and lettuce are sown in seedbeds by sprinking thinly along drills (a small groove in the soil). Drills should be twenty to thirty centimetres apart to allow for hoeing. The drill is then lightly covered with soil.

Broadcast seeds are simply scattered over the surface and this technique is often used for tiny seeds such as lettuce. A useful way of broadcasting is to mix the seeds with a little water in a watering can, stir vigorously and water over the surface and cover with a dusting of light sandy soil.

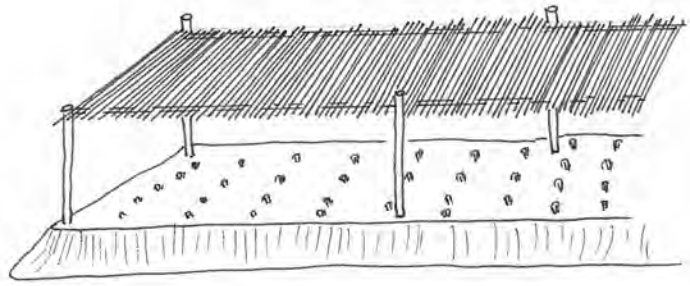
Seedboxes are often used as a substitute for the seedbed as they have the advantage of being portable and can be moved during inclement weather out to the planting site. Make sure they get sufficient sun to prevent them becoming spindly. Melons, marrows and cucumber seeds are generally planted in small hills with four seeds in each hill.

Transplanting

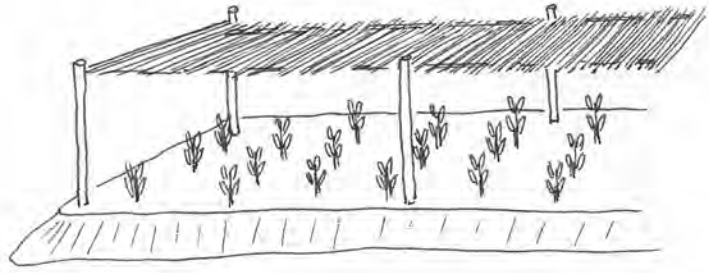
Transplanting is a traumatic experience for the young plant and some guidelines are helpful.

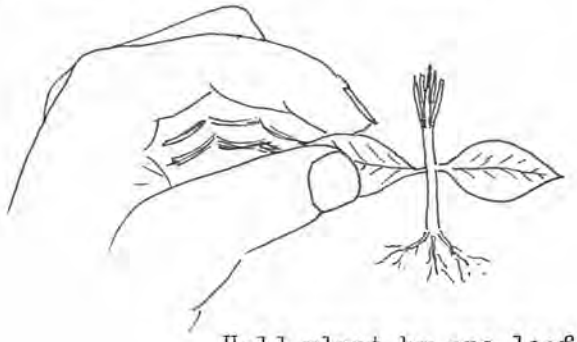
Rake smoothly

Grass cover to protect seeds



Protect young plants





Hold plant by one leaf

Good strong plants. Don't waste time planting out weak or sickly plants as they will rarely come to anything.

Good sized plants - Transplanting should take place during that part of the plants life between first becoming established - putting out its catyledons - and becoming permanently anchored in a spot.

Choose a cool day. The danger in transplanting is in the damage done to the root system of the plant as it continues to transpire (lose water through its leaves) but cannot take up sufficient water until the root system is re-established. Transplant on a cool, calm day or in the evening.

Provide plenty of water. When the plants have been firmed well in their new position give them a good watering.

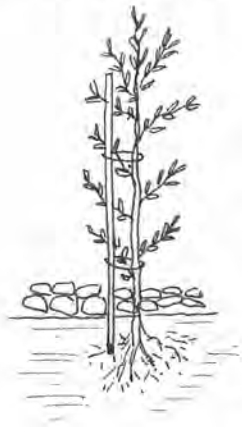
Work quickly. The time between lifting the seedlings and putting them into their new sight should be as short as possible. Once a seedling loses water it may collapse and so damage the internal water transport vessels that it can never recover.

Be gentle. The kinder you are in lifting and handling your seedlings the more likely they are to establish in their new environment.

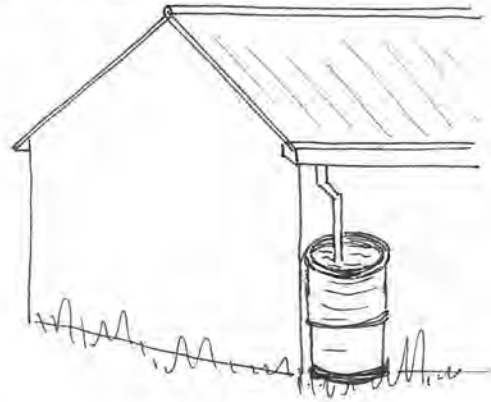
Generous application of water. Small quantities of water do little good as you need to moisten the root area thoroughly to encourage deep rooting. Over watering however will leach out fertility from the soil so an irrigation routine is necessary.

A good soaking once a week is better than a little every day.

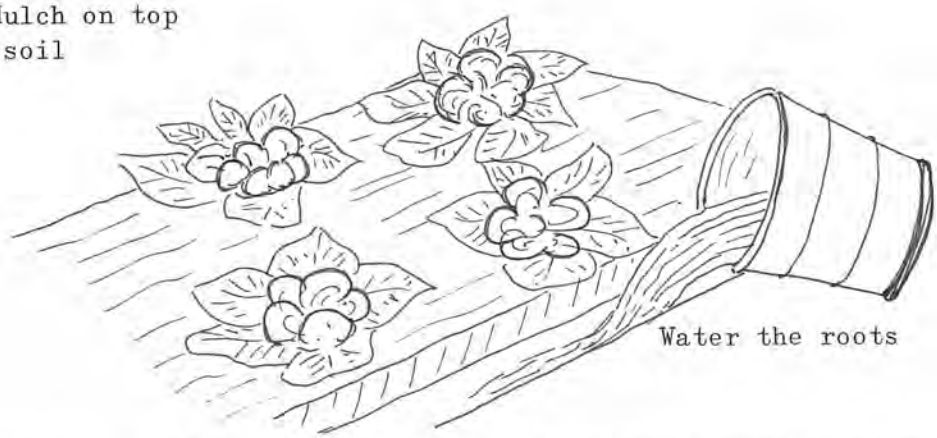
Mulch on top of soil



Stones on top of soil



Collect water



Water the roots

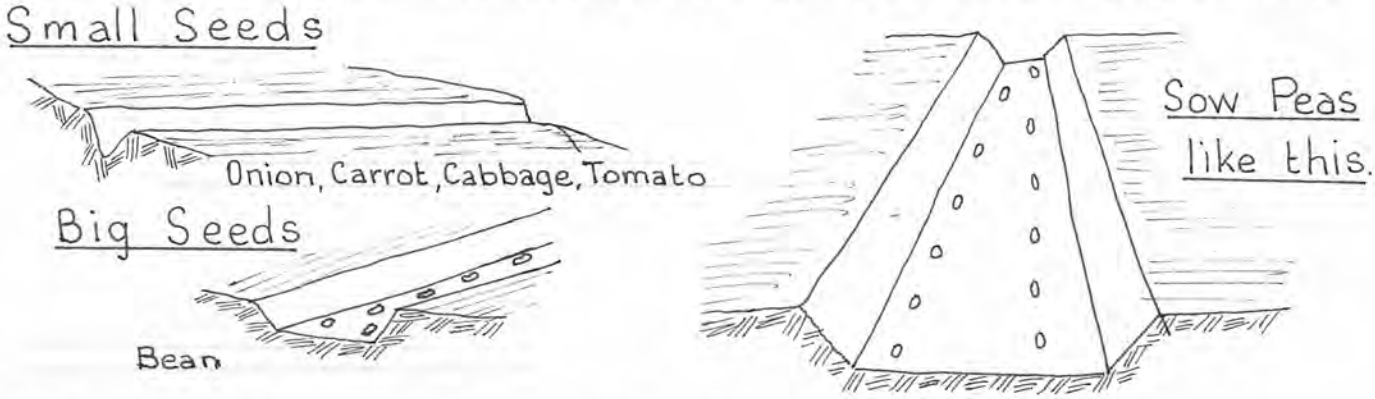
A useful test to see if soil requires water is to dig a handful of soil from the top five centimetres and compress into a ball with your hand and if it crumbles when released the soil is not moist enough.

Growing Vegetables

Asparagus. A really good value vegetable that comes into production at the end of winter. Asparagus is a permanent crop that remains productive for many years and therefore it is worthwhile developing a well manured weed free bed dug to a depth of sixty centimetres. To grow from seed sow thinly in a seed bed in drills 2,5 centimetres deep and 30 centimetres apart. Keep the seedlings well watered, weeded and fertilised. When the tops brown off in autumn cut them off. Asparagus is planted out into its permanent site in late winter setting the crowns fifteen centimetres deep and fortyfive centimetres apart in rows which should be sixty centimetres apart. The roots should be spread out evenly at the bottom of the trench and covered with eight centimetres of rich soil and compost. As the plants grow the trench is gradually filled in with a soil and compost mixture. A handful of bore dust scattered on the soil will help rooting.

The plants should not be cut for food until two years after planting. In the third year cutting may take place for six weeks and in subsequent years for six to eight weeks. Each winter cut down the brown tops and add a generous layer of compost.

Beans, broad. Sow in succession from March to June at about fortnightly intervals

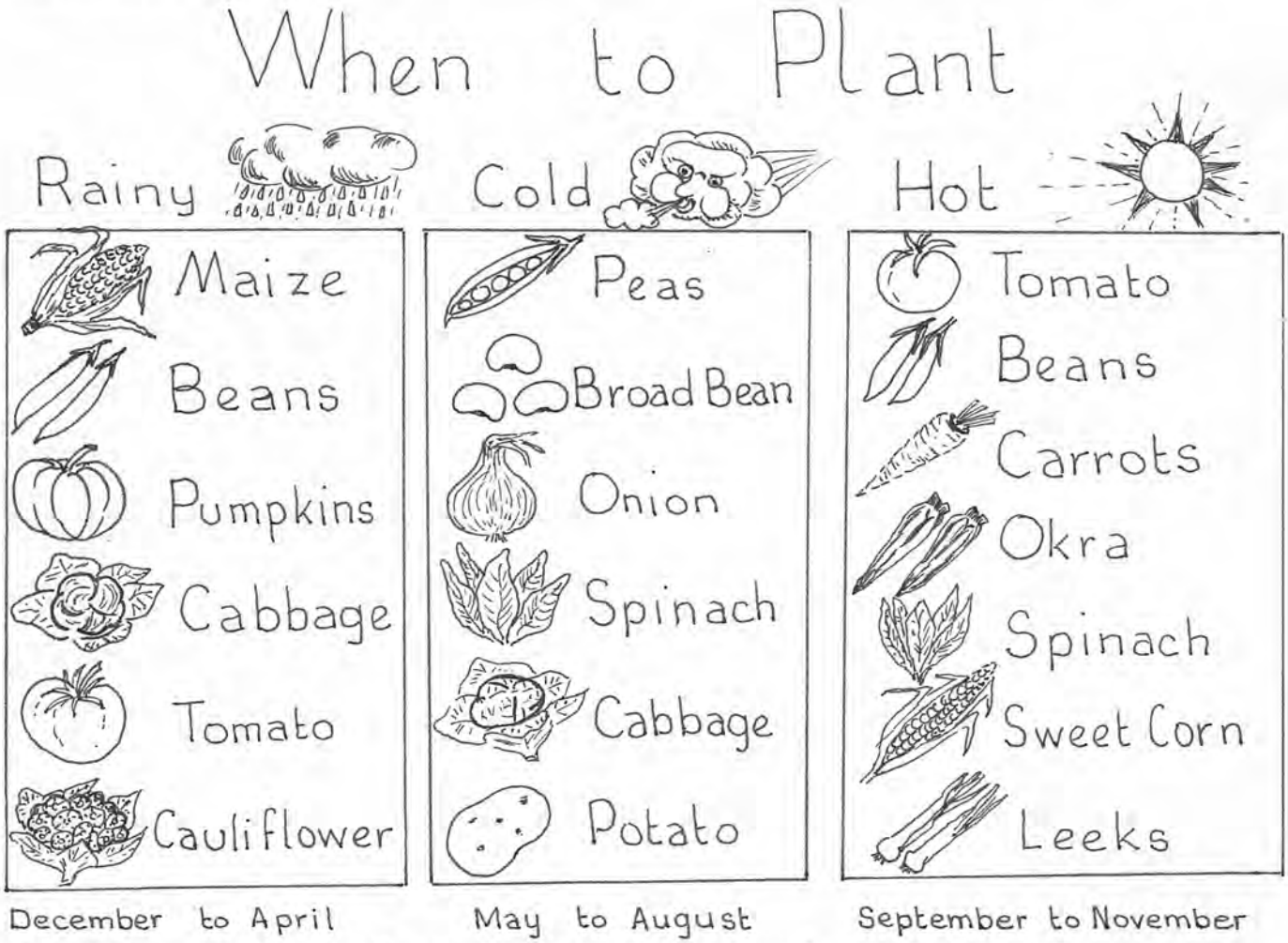


Beans, dwarf. A quick maturing crop. Keep harvesting carefully and they will yield for about a month.

Beans, runner. These are perennials so it is worthwhile setting up a permanent site for them. They can be grown up a trellis or similar structure and each winter the site should be well covered in compost.

Beetroot. Sow thinly in rows and thin out to a spacing of one plant every ten centimetres when the plants are eight centimetres high. The thinnings make a tasty addition to salads. Sow after the danger of frost is past.

Cabbage family. This group includes broccoli, brussels sprouts, cabbage, cauliflower and kale.



All members of this family are heavy feeders and need a good rich soil.

Cauliflower especially need plenty of feeding if they are to develop adequate heads but together with brussels sprouts do not do well in hot climates. Plant in seedbeds in drills one centimetre deep and twenty centimetres apart and plant out when ten to fifteen centimetres high. By careful planning of varieties you can harvest at least one member of the cabbage family at any time of the year.

Carrots. Sow thinly in rows thirty centimetres in early spring. Start harvesting as soon as the roots are large enough to eat.

Egg Plant. A tropical plant which should be spaced at forty-five centimetres each way. Give it plenty of water and limit each plant to about eight fruits.

Lettuce. Think to about twenty centimetres apart. This plant does not do well in hot weather and tastes bitter if it does not get an adequate water supply.

Marrow family. Into this category falls cucumbers, marrows, melons, pumpkins, squash and watermelons. They all require warm weather, plenty of fertility and grow well on the odd small heap of compost or manure.

Onions. Sow seeds thinly in drills in spring and thin to about ten centimetres spacing. Do not water once the bulbs stop growing or once the leaves turn brown at the tip. Lift the bulbs using a fork and lay in rows to dry, each row of bulbs being covered by the tops of the next row. When dry store in an airy place on racks of wire netting.

Peas, dwarf. These grow quick and do not require staking. Sow in drills in spring twentyfive millimetres deep and sixty centimetres apart. The sugar peas - a Chinese vegetable - can be eaten pod and all.

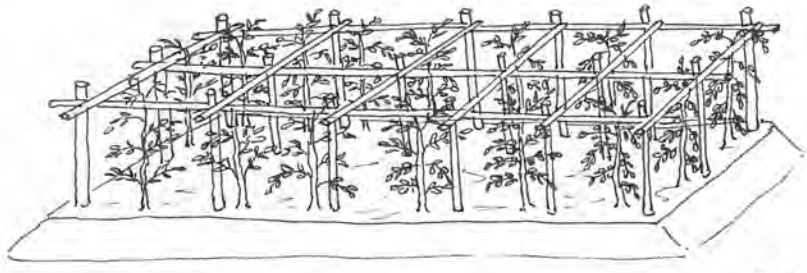
Potatoes. Open up V- shaped drills about ten centimetres deep and sixty centimetres apart and put in about two centimetres of well-rotted manure or compost. Plant the potatoes thirty to forty centimetres apart, fill in the drills and once the shoots are about ten centimetres above the soil surface build up the earth to protect the young tubers from sunlight.

Tomatoes. These are tropical plants. Plant in rows a metre apart with fortyfive centimetres spacing in the rows. They are heavy feeders and require a well manured soil. The plants should be staked and most of the side shoots removed. Tomatoes need warmth, shelter from the wind and plenty of water.

Support Plants

G R O W T O M A T O E S

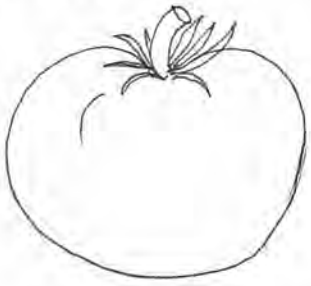
Sow seed August to November and March if no frost



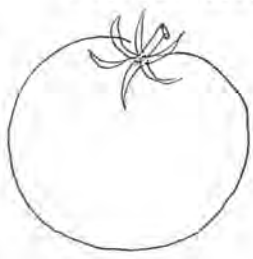
Take out side shoots.

Provide trellis of sticks

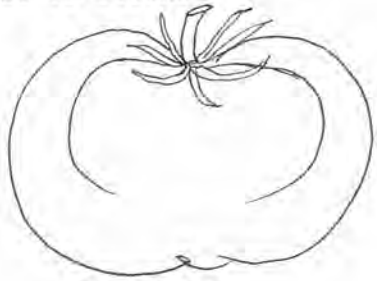
Grow Marigolds to keep pests away



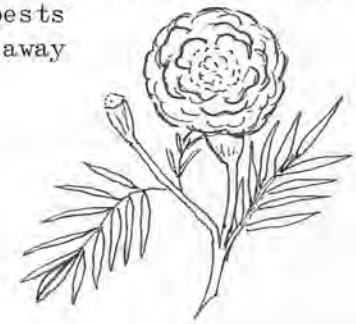
MARVEL



MONEYMAKER



OX HEART



Growing Herbs

Most herbs are easy to grow and have a whole range of uses - culinary, cosmetic and medicinal. There is a wide variety and we will only deal with the common ones :

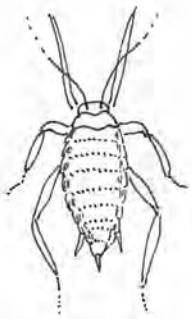
Rosemary : A good cooking herb with important healing properties. They can be established from seed but the most satisfactory is to use cuttings. Side growths can be taken off in winter and planted in pots. Rosemary is slow to grow but is a good hardy plant.

Mint : Divide off pieces of underground root in spring. It spreads rapidly and growing in barrels helps to keep it in check. Keep the area well mulched and weed free.

Parsley : This is a popular herb which left alone will self seed. It likes a shady moist environment and is slow to germinate.

Pest and Disease Control

Rely as far as possible on growing healthy plants. Visit the garden regularly and if observant you will spot the disease early enough to remove and control. Similarly outbreaks of insect pests can be destroyed before reaching epidemic proportions.



APHIS or GREENFLY

on

Cabbage
Rape

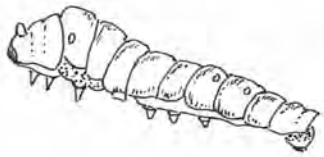
Use soapy water

CUTWORM

on

Young stems

Use Carbaryl

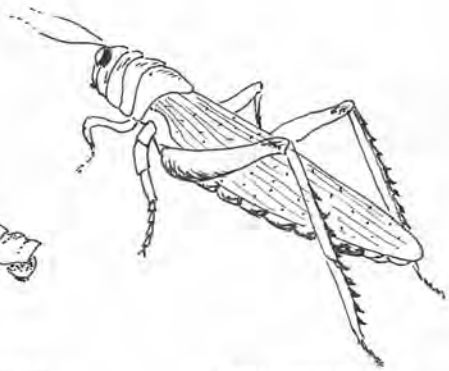


CATERPILLAR

on

Cabbage, Turnips
Rape

Pick off carefully



GRASSHOPPER

on

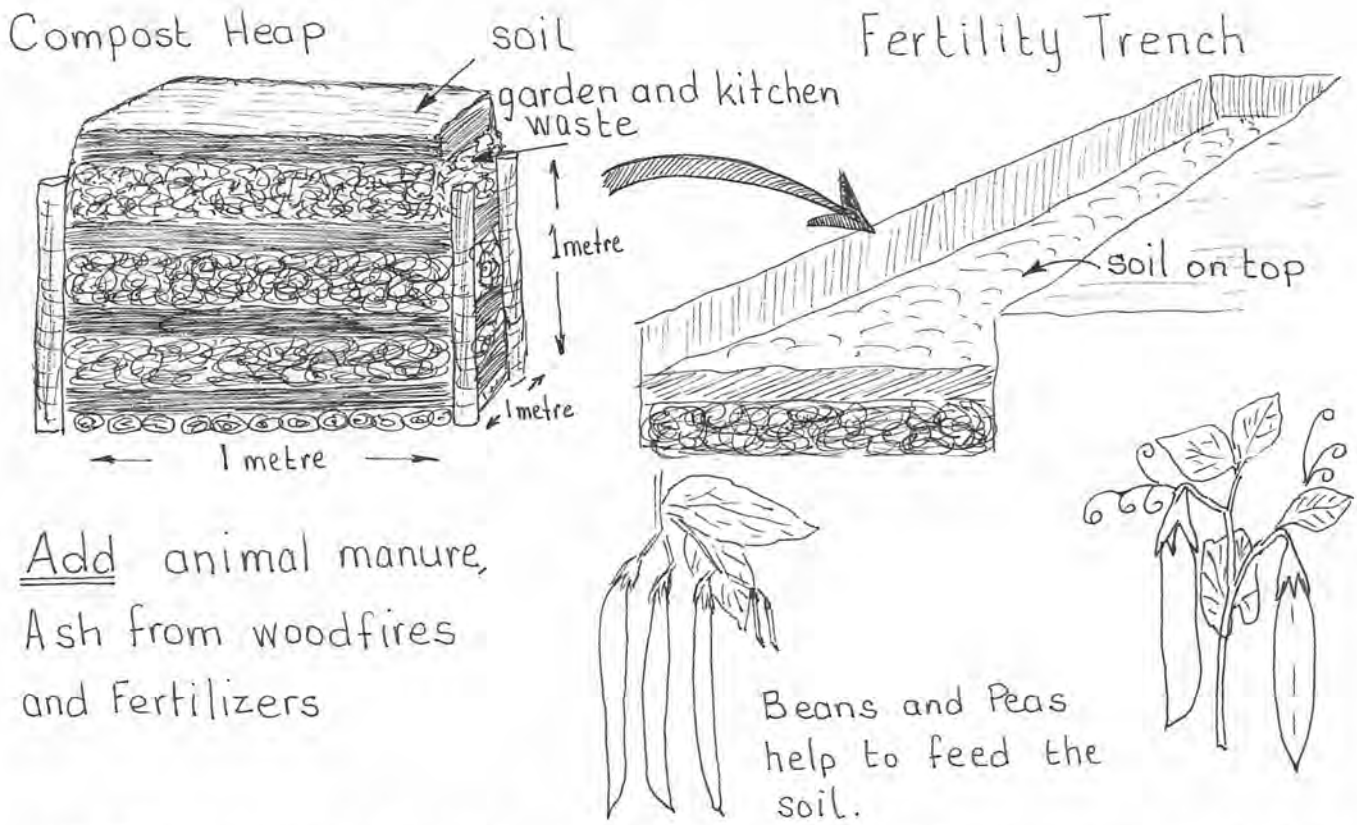
All vegetables

Collect and destroy

Composting

There is an air of mystique about the art of composting. A skilful composter can reduce to an absolute minimum the garbage from the homestead.

Feed the Soil



Virtually anything of organic origin can be composted - cardboard boxes, old clothes kitchen wastes but avoid newsprint as some of the inks used have undesirable substances. Artificial substances such as nylon and plastics do not compost. Materials of a woody nature such as hedge clippings do not break down easily and are best burnt and the ashes added to the compost.

Many types of equipment are marketed as compost makers but there is nothing better than the old fashioned bin method. A bin is a metre square and just under one and a half metres high. Dig four wooden posts into the ground in a square formation and nail 100 mm x 25 mm planks with a 25 mm gap between them around three sides. There is no need for a solid or concrete floor. As the bin fills it is necessary to place planks in position at the open end to prevent spilling. These must be movable and can be held in position by flat iron bent into a 'U' shape to take the thickness of timber and then fastened to the corner posts on the open end. Any number of bins can be constructed to suit your requirements and should be located in a sheltered position.

Fill the bin with waste material as it becomes available and chop it up as small as possible to aid decomposition. Keep the heap level so that it heats up uniformly. After every fifteen centimetres of new material have been added to the bin a layer of 'starter' material which contains bacteria and other organisms needed to break down vegetable wastes, should be spread over the top. A good starter is animal manure otherwise this can be purchased as a commercial product. Once the bin is full the top of the heap is sealed off with a generous layer of soil and left to compost for three or four months.

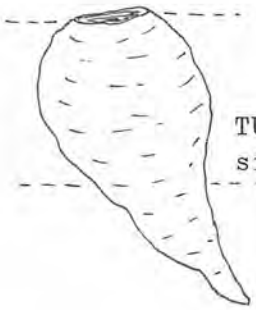
Do not be tempted to construct a larger bin than one metre square but rather build a series of bins which will prove to have many advantages.

How to Cook them

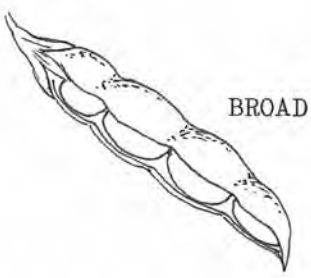
LEEKS : Cut off green leaves and roots. Slice down middle and soak. Boil in salted water for 20 minutes.

CAULIFLOWER : Break into small flowerets. Boil for 20 minutes in salted water.

BEETROOT : Take off leaves. Boil until a fork will slide easily into the centre. Take skin off. Cut into slices and eat cold.



TURNIP : Peel off skin with a knife. Cut into pieces about the size of an egg. Boil in salted water for 20 minutes. Mash with fork.



BROAD BEANS : Shell and boil in salted water for 20 minutes.

GOAT PRODUCTION

Fencing and Housing

Good fencing and housing are essential to successful goat production. The goat is by nature an escape artist and weak fences are simply an invitation to disaster. The secret to fencing with wire is to be able to pull the fence gith and support it against the pushing and leaning of the enclosed animals. There is unfortunately no alternative to digging fence post holes and sitting the posts firmly in their positions.
Goats are thin-skinned animals and do not do well if left to stand out in the cold and rain. While well-maintained shelter belts can do much to protect the animals from the worst of the weather, some form of housing is essential.

Feeding

The goat uses less food for maintenance than a cow, produces more milk for the same quantity of food, but uses more of the food for digestion and metabolism. To obtain high milk yields from dairy cows, a highly digestible ration must be provided whereas such a ration fed to a goat would be relatively inefficient. By the time the goat had satisfied its appetite it would have ingested far more nutrients than it could possibly turn into milk. A ration for a goat should be relatively high in fibre as she uses the meat from the rumen breakdown of fibrous materials to keep herself warm. The sheep with its thick woolly coat and the cow with its larger body mass are less susceptible to cold than the thin-skinned goat and rely less on rumen heat for warmth. A milking goat will be able to obtain almost all her nutrient requirements from appropriately chosen grazing. The grazing should contain a good variety of plant species, including woody plants. Goats will devour, with pleasure, thistles, brambles, gorse and other so-called weeks which are ignored by cattle and sheep.
A goat ration should be based on a minimum food intake of 2,5 kilograms of dry matter per fifty kilograms of body weight. A high yielding dairy goat will eat up to four kilograms per fifty kilograms body weight.

Feeding Adult Goats

Feeding stock is a skill rather than a mechanical chore and the ration needs to be modified carefully to allow for the changes which the animal faces. For instance, a goat that has been fed a strict maintenance ration up to kidding, will not have the stomach capacity to ingest suddenly a more generous production ration. The crucial times in the female goat's life are the breeding and kidding seasons.
In the breeding season the goats should be "flushed" or given access to good ample grazing so as to have the animals in a satisfactory nutritional state. If they are run-down or stressed, infertility is likely to result.
Through the winter, milk yields will drop and the animals should be grazed on febre-rich material with good energy content to help them build up their reserves for the coming lactation and keep themselves warm during the colder winter months.

Feeding Young Stock

A young goat kid will gain about 225 grams per day in the first six months of life. All kids should be left on their mother for the first six weeks after birth to obtain the colostrus. If you switch to bottle feeding then two and a half litres of warm milk a day is sufficient and the kids should be taking this amount at a fortnight old. Young goats start to graze very early and should be weaned on to clean but not too sappy pasture. The kid cannot digest fibrous and bulky food adequately until it is about nine months old so young fresh grazing should be provided.

Breeds and Breeding

Goats may be kept for milk, meat or mohair and different breeds have been evolved which are particularly suited to one or more of these purposes. The Angora goat is the mohair producer. Saanen goats for milk and Anglo-Hubian goats for meat. When purchasing or selecting breeding stock it is preferable to look for animals with good meat or milk characteristics rather than worrying about the breed types.

Goats are seasonal breeders (except in the tropics) and come into season as the daylengths shorten towards autumn. The signs of heat are bleating, irritability, wagging of the tail and secretion from the vagina.

Normal practice with milking goats is to keep the billy in a paddock separate from the main herd and to bring goats in to him as they come in season. Running the billy with the herd will usually taint the milk.

Mastitis - This is a rather vague term often used for generalised infections of the udder. The problem can vary from acute to chronic - in the acute form, the udder is hot, hard and tender and the milk is very clotty and sometimes bloody. In the chronic form, the animal shows little distress but the milk will have occasional clots which can be felt obstructing the teat as you milk.

Footroot - This can be a major problem with goats and check the feet of animals fortnightly to avoid the disease becoming established. The disease is caused by the entry of a rotting organism between the hard outer horn of the hoof and the soft inner structures.

Parasites - The two main parasites of goats are lice and worms. Lice can be treated quite easily by washing the animal with a mixture of 125 grams of derris and 15 grams of soap powder in ten litres of warm water. The animal should not be rinsed off and the powder left to dry in the coat. There are a variety of worms that will infect goats. Severe infestations are generally the result of poor management and care should be taken to provide all animals with a balanced diet together with a system of rotational grazing.

SHEEP PRODUCTION

Breeds and Breeding

As to the selection of a suitable breed, there is no substitute for local experience. Sheep breeds have evolved to produce in climates as diverse as the arid centre of Australia and the alpine meadows of New Zealand. The breed you select must perform well under your conditions of soil and grassland and under your management system. For the small farm it will often be better to buy in breeding stock rather than rear your own.
If possible, the ewes should have acess to a variety of feeds during pregnancy and should be moved fairly frequently to keep them fit. Shelter is important as, whil the sheep's wool is good insulation against cold, it is poor protection against driving rain.

Lambing

The sheep should be moved to a well-sheltered and well-drained paddock convenient to the house. Ideally you need a shed or barn - even a garage - into which ewes can be brought for shelter if necessary. This can be divided into pens using bales, wooden hurdles or whatever suitable material you have around.
Sheep are, however, prone to one particular problem at lambing time and that is lamb stealing. A ewe who has not yet lambed will develop a passion for another ewe's new born lamb and will try to take it over. To avoid this problem, get ewes and new born lambs out of the lambing field as soon as possible and any persistent"stealers" will have to be shut up out of the way until they lamb.

Rearing Lambs

The ewe and its lamb are given good grazing and the lamb is left to grow naturally. Castrate and tail all lambs when they are about a fortnight old. Although tailing is an unpleasant experience for the lambs, you will be doing them no favour by leaving the tails on - tailed sheep is almost impossible to keep clean and an ideal target for fly strike.

Summer Tasks

Shearing is something that is quite easily learnt and, provided you are not intent on breaking any records, it need not be an unduly onerous task for the small flock owner. Like so many farming tasks, shearing is best learned by observation and practice.

The dung and urine from the sheep will stick to the wool around its rear end and make an ideal hatching-site for maggots. Check the sheep monthly and clean up any animals that are starting to become dirty. It is simply a matter of keeping the wool neatly trimmed around the sheep's rear end and legs. At the same time you should check the animals face and feet. While you have the animals in, a foot check will enable you to catch and treat any cases of footrot.

Sheep need to be dipped for external parasites each summer. The thick, woolly coat of the sheep makes it much more liable to infestation by external parasites, particularly lice and ticks. Each sheep should be immersed in the dip over its back and the head pushed under. Unless the sheep gets a proper soaking, you are wasting your time.

Diseases and Other Problems

Worms are often a particular problem and the careful use of rotational grazing will help overcome this. Sheep grazed on well sheltered and carefully managed pastures which include a good variety of plant species will remain healthy and productive for years.

THE BACKYARD BUTCHER SHOP

Select your backyard butcher shop in the most convenient place close to the house and in a dry spot. Make sure there is sufficient room for expansion and include in your plans the kitchen garden and compost making area close by.

Start with the animals you already know and can afford to buy such as goats, sheep and chickens.

Measure your area carefully and make sure you have all the materials on hand before you start building. You may need to grow a few trees first to supply the timber you require.

Pitch roof and grass is your cheapest type of roof and the addition of tar paper is useful. The introduction of corrugated iron is expensive but permanent and should be considered at a later stage when the scheme is earning enough money.

Goats running free are the enemy of progressive farming. Penned up they are most useful animals for meat, fur, milk and compost.

For 5 goats you need a pen of about 1,8m x 1,5m and part of the area should be covered to provide shelter and dry bedding. Cover the thatch with chicken wire otherwise the goats will eat it. Provide a feeding rack at the end which is easily accessible.

Select females which produce twins. If you can choose multi-coloured furs they are worth more on the market. Introduce a good boer-goat which provides good meat after the age of 9 months. Gestation period is about 150 days and weaning should take place about 9 weeks. Select your breeding stock carefully and castrate the male kids you do not require and fatten them for the pot. They provide a good tasty and tender meat.

Feeding consists of grasses, mealie stocks, weeds, corn and cob meal. Water is important and regular monthly dosing is required.

Sheep are easy to handle and have few problems if fed and watered regularly. Again dosing is important if they are to be kept in their pen.

If possible select mothers that produce twins and use the best ram available. The Dorper and Wiltiper provide very good meat.

Feed consists of grass, vegetables, mealie meal, weeds, lucerne and ground nuts or ground sunflower seed. In fact any left overs from the vegetable garden can be placed in the feed rack.

Contrary to some theories the penned up animal is easier to keep from the point of view of keeping records, checking sickness, rapid growth, no long distances to cover for food or water, saving denudation of grazing and the provision of good manure for compost making.

In introducing poultry you will be wise to start off with day-old chicks purchased from a wellknown breeder. The area provided for this section can take up to 200 but half that number is sufficient to give you time to assess the market potential. A brooder made of grass and poles of 0,9m diameter by 0,3m height of wall and 1,0m height of roof lined inside with chicken wire to keep out rats is adequate. You must keep dry bedding in the brooder for at least the first 5 days. Do not feed at night but be sure to have food and water ready as soon as you let them out. On the side of the run facing the early morning sun put a window of clear plastic to let in the sun but keep out the wind. Keep the chickens in the brooder at night for the first three weeks.

Water must always be available. For the first three weeks use a balanced ration chick-mash which is a mixture of 50 kg. chicken concentrate and 100 kg. of maize meal. After that you can introduce chick-pellets to the food.

Before moving the chickens from the brooder run they should be vaccinated against fowl-pox and you can also separate the hens from the cocks. Change the feed to growers concentrate 50 kg. and maize meal 100 kg. mixed.

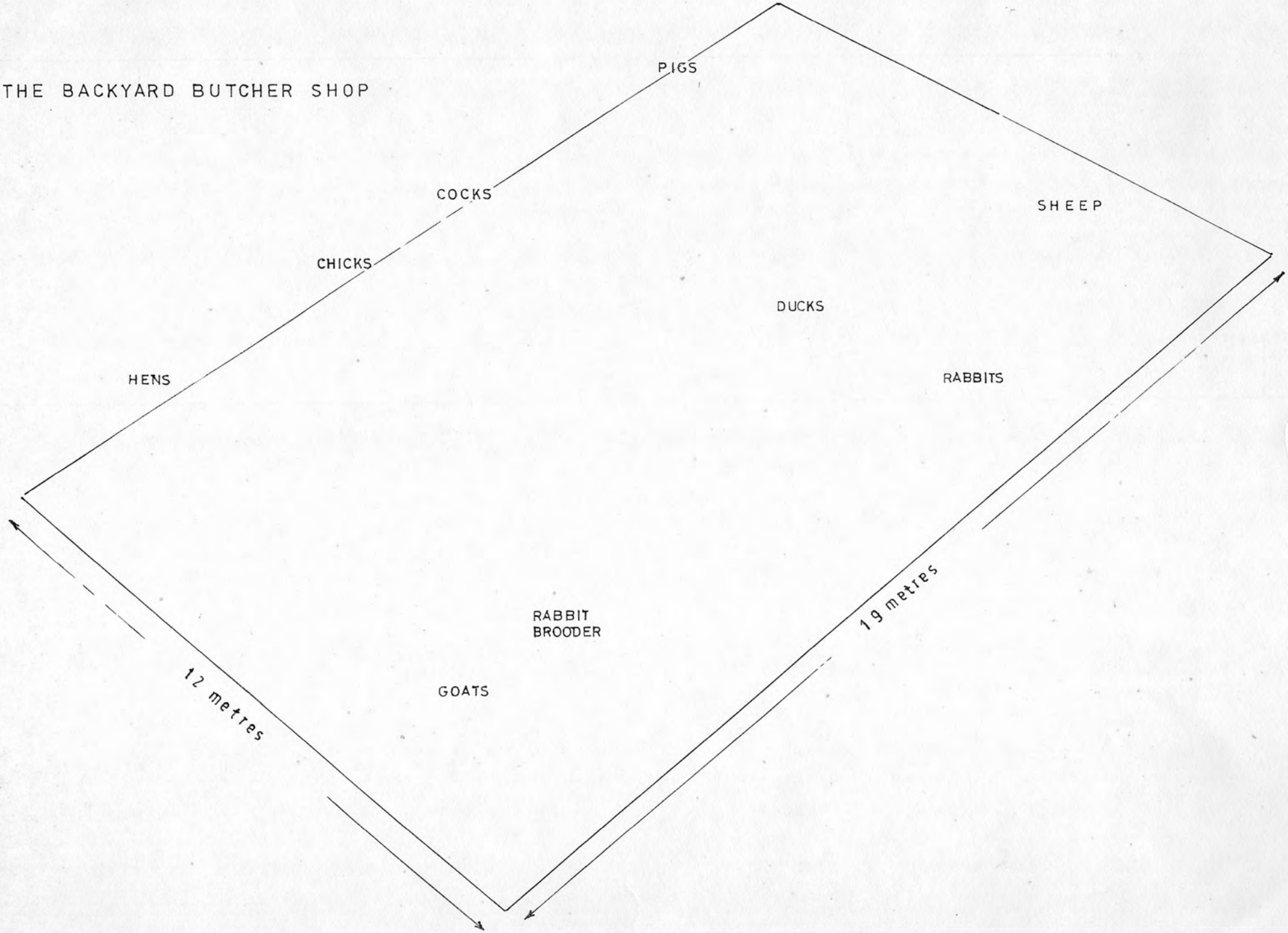
Those that are set aside for meat (the roosters) should be fed a grower mash to fatten them.

Determine the number of layers you require and feed them on layers mash or concentrate and maize meal together with any greens available. They also require limestone.

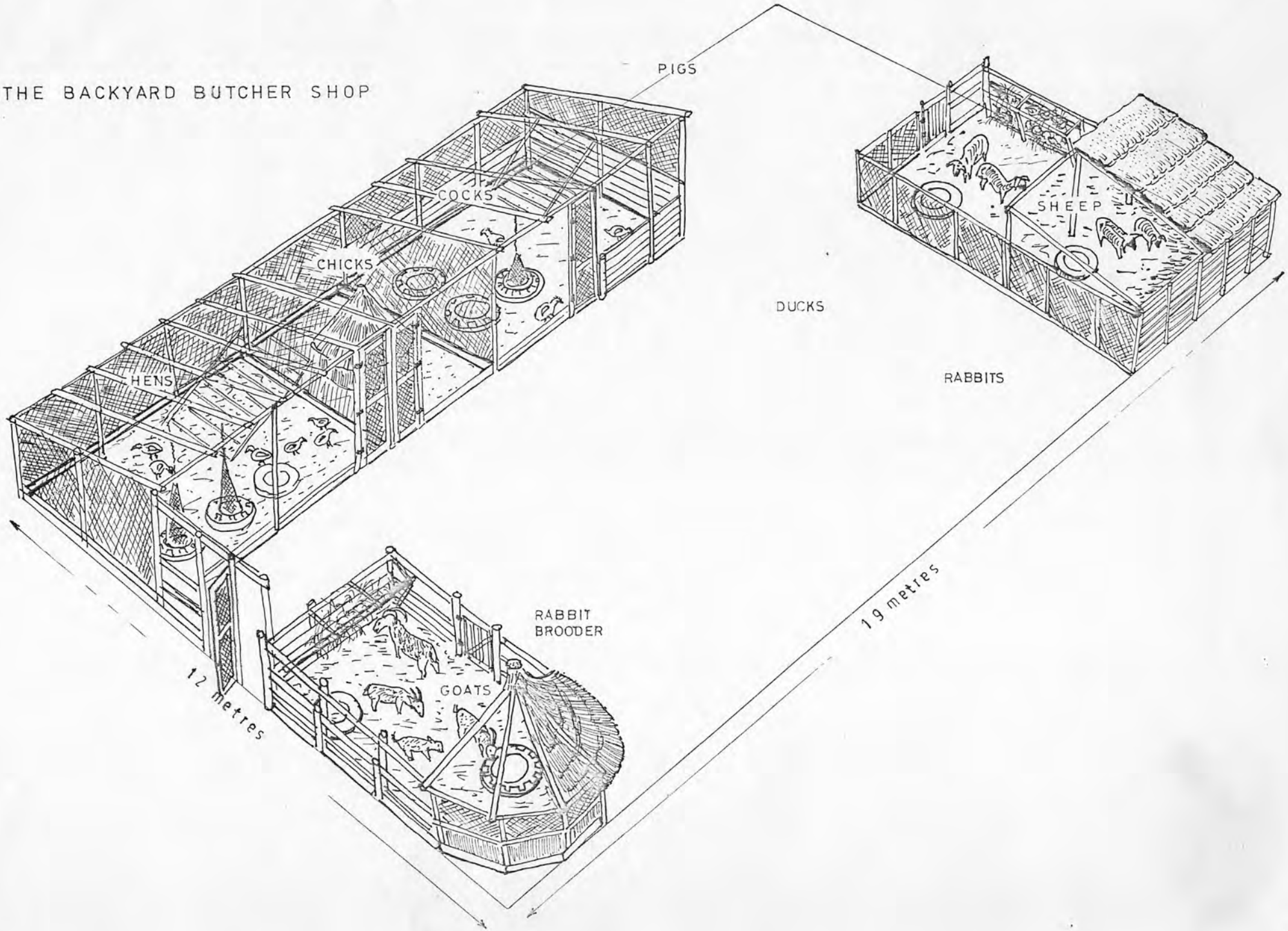
Do not overcrowd. About three birds to every square metre is very satisfactory.

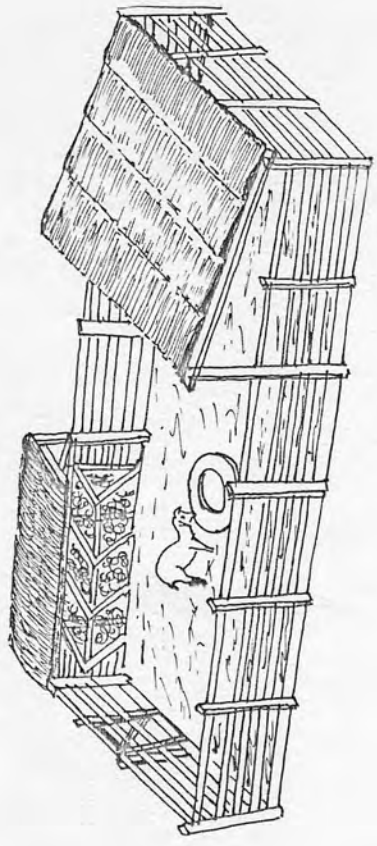
When building the nesting boxes it is ideal to have doors on the outside to make it easy to pick up the eggs without disturbing the birds.

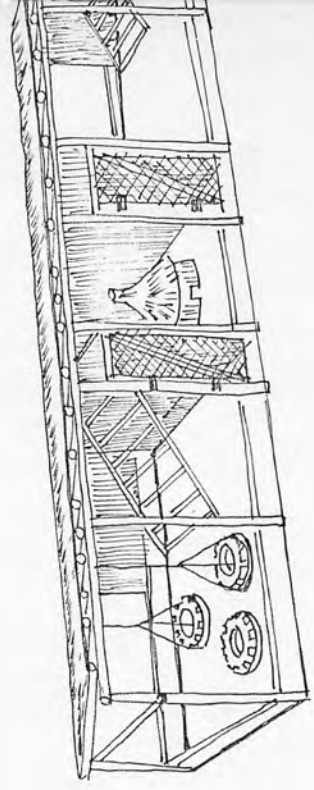
THE BACKYARD BUTCHER SHOP

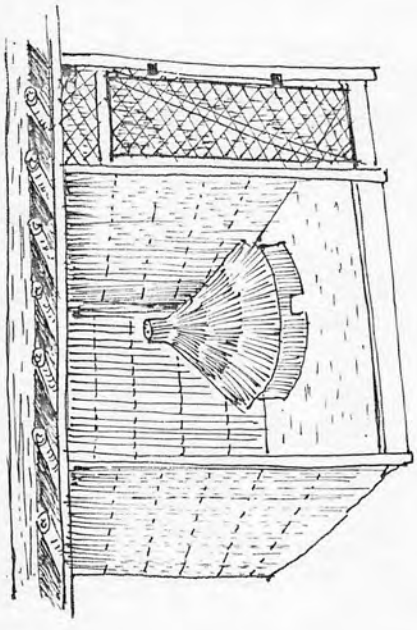


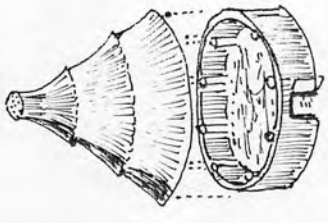
THE BACKYARD BUTCHER SHOP

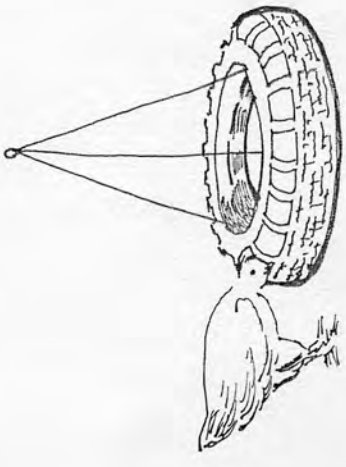




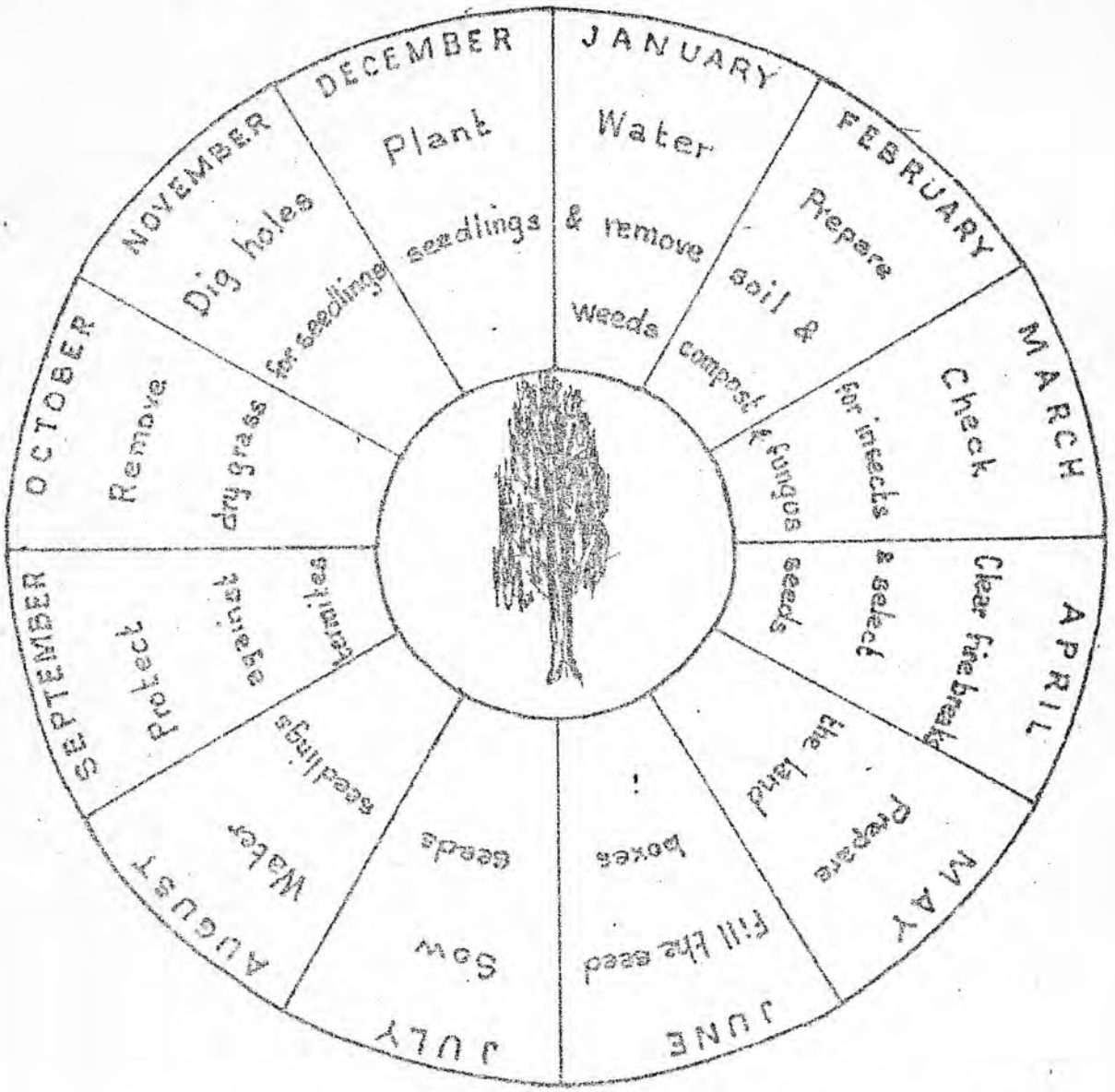








TREE PLANTING PROGRAMME

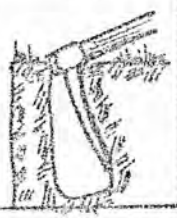


A. *Eucalyptus grandis*. Good soil, rainfall above 700 mm. Best for poles.

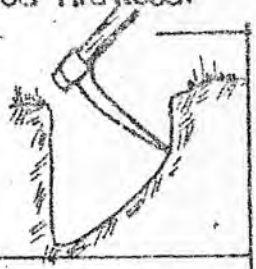
B. *Eucalyptus tereticornis*. Average soil, rainfall above 600 mm. Poles & firewood.

C. *Eucalyptus camaldulensis*. Poor soil, rainfall above 500 mm. Good firewood.

1. Drive the hoe in deep.



2. Scoop out the soil at an angle.



3. Place tree against vertical wall & spread roots.

4. Place compost & soil gently around lower roots

5. Replace rest of soil and make firm

6. Make firm again with the foot or shoe