

GROWING AND COLLECTING  
WILD AND CULTIVATED  
GREENFOODS AND SEEDS

DAVE COLES

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# INTRODUCTION

Apart from several out of print books on wildfoods, one of which has recently been reproduced as per the original imprint and is now available again, little has been written on the subject of wildfoods in book form. It was therefore felt that a more recent up-to-date guide would be useful. During the research, one trail led to another and it was decided to incorporate other related subject material such as pulses and unconventional types of greenfood, to give a much broader picture of what is available that can be fed to stock alongside normal fare.

This guide is not intended as a botanical reference and it is strongly recommended that one of the botanical guides mentioned in the bibliography be purchased to ensure the correct identification of all species. Learn about the plants mentioned in the main text and their habitat, and although a host of other species could supply small amounts of usable seed, keep to familiar species. No rare plants are covered and it is a crime under the Wildlife and Countryside Act to disturb or up-root many species. As indeed it is to collect a plant or part thereof on private property without the landowners consent. Ask permission and explain your reasons and DO NOT over collect, ensuring that some remain for the wild birds. Ensure any collecting is done well away from possible contaminated sites.

The range of this book could have been extended to include vegetables but is too bulky a subject for inclusion here and has been covered many times. There are many types that are useful as bird food and if the reader has a plot of land and does not fancy growing wildfoods, there is plenty of scope to warrant investment in a good vegetable book.

Like my other publications, it is the intention to keep data as current as possible via my website, but equally by post, for those without access to a computer. Please send 50 pence stamp.

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## METHODS OF COLLECTING AND DRYING

There is very little in the way of expertise needed for the collecting, drying and for that matter growing foodstuffs mentioned in this booklet that will not be gained by employing a little common sense and through trial and error. The amount of time needed if it is to be undertaken on a serious scale is perhaps the most important point to remember but developing a system and fine tuning it over time is equally important to maximise effort. Find types that your stock prefers and then concentrate on these, locating the most productive sites and the best times to collect.

Drying most seeds, if collected when ripe, is simply a matter of leaving in the sun to evaporate any dew that remains. Fruit on the other hand, if not being frozen or stored, will need to be dried in a desiccator. These can be purchased from larger health food shops or by mail order. Fruit will have to be small, such as elder and hawthorn, or be sliced. The water content will dictate amount of time needed to dry but between twelve and twenty-four hours should be ample for most types. Store in an air-tight container and check periodically that mould has not developed.

Experimentation will be needed, especially with wild fruits as water content is liable to vary depending on how good the summer rains have been. Again, experience will be gained as time passes and the time required will become second nature. If dried fruit is not eaten readily try re-hydrating it in water, but ensure only enough is offered that will be eaten in a relatively short space of time, as the moistened fruit is likely to spoil quite quickly.

## FLOWERING PLANTS

### BURDOCK

Burdocks are biennial herbs usually associated with rough ground. Three species, the Greater *Actine lappa*, Lesser *A. minima* and the introduced Woolly Burdock *A. tomentosa* are found in Britain and are known to most because of their mode of seed dispersal. Mature flower-heads form numerous spiny burs that attach themselves to clothing at every given opportunity.

All burdocks have large tough leaves and purple flowers. Once these flowers have ripened and turned brown, they can be snipped off with secateurs and kept in a dry container. Burdock seed pods can be given intact to species able to tackle them or cut open to reveal the seeds. Arboreal feeders can have them crushed with the heel to release the seed. Always use gloves when handling these plants as they are very prickly indeed.

### BUTTERCUPS

Members of this family need little introduction and are common in many types of grassland, pasture and in gardens. Three species, the Creeping *Ranunculus repens*, Bulbous *R. bulbosus* and Meadow Buttercup *R. acris* all produce their characteristic yellow flowers between April and July, although a few do flower outside these months, especially the Meadow Buttercup which may go on until October if ideal

conditions prevail. This last species can, at times, cover some pasture sufficiently thickly to give the impression of an almost yellow field from a distance.

The plants themselves are poisonous but the rather lumpy, globe-shaped seed-heads, which develop after flowering produce an abundance of seed that is taken by some finches and rodents. Seeds start off golden and gradually turn brown as they ripen. Seed-heads can be picked and left to dry thoroughly. Can be fed whole, or crushed between finger and thumb to separate the seeds.

## CHARLOCK

The bright yellow flowers of Charlock *Sinapis arvensis* was once a common sight amongst early sown wheat and proved to be a troublesome weed. Selective weed-killers now ensure its control on farmland but it is still abundant on roadsides, wasteland and field margins as well as set-aside. It is a very persistent plant, dormant seed being viable for at least ten years, possibly much longer.

Its yellow flowers are produced between May and July on plants which can reach 45 cm in good growing conditions. Each flower produces a cylindrical seed capsule, which may contain up to six round, dark-brown seeds. The pod becomes brown when ripe and can be picked by hand but care should be taken when handling at this stage as the pods are likely to split and the seeds lost!

Charlock can also be grown as a greenfood - seeds sown in ordinary garden soil should germinate within two weeks and yield vegetation of a useable size several weeks later.

## CHICKWEED

Chickweed *Stellaria media* needs little introduction to anyone who has kept stock for any length of time as it is eaten by a wide variety of species - greenery, seeds and flowers all being taken with great relish. It is a member of the stitchwort family, which are frequenters of roadsides and other grassy places. But unlike its rather delicate relatives, Chickweed is a much more robust plant that can reach over 30 cm high in good growing conditions. It is found on waste ground and in cultivated areas, mainly vegetable plots where it can become quite a nuisance. It is shallow rooted and easy to weed out, although it will have probably set seed by then, thus perpetuating the problem. If a suitable site is found, by not removing all the plants at once will ensure that some seed will be left to set and germinate, thus allowing for a continuous supply to be maintained, even throughout most of the winter in sheltered areas.

It is easy to identify but if any doubts persist the main characteristic in identification is a single line of fine hairs that run the length of the stem. Many tiny, white flowers develop and if seeds are wanted these can be cut off once flowers wilt. Seeds are white when unripe but soon turn brown. Each seed capsule may contain as many as ten seeds but between five and eight is normal. The seeds will soon germinate if sown in ordinary garden soil.

When feeding chickweed, it is advisable to feed a little at a time. Chickweed soon wilts rendering it useless as a food but turning frequently will give access to fresh bits again. Picked chickweed will stay fresh for several days in an airtight container placed in the fridge.

Easy to cultivate, Chickweed seeds are not commercially available, so the best way is to transplant some mature plants. Fill a large plant pot or rectangular planter

with soil and although it does frequently grow in fairly stony ground, for transplanting purposes, large stones should be removed. Gently lift some plants, using a lolly stick or spoon, ensuring their roots remain intact and plant in the container. Water well and new shoots should appear within 7-10 days. Once sufficient new shoots are noticeable, trim all old foliage and feed or compost to allow the plants energy to be put into the new growth. Carefully managed an almost continuous supply should be able to be maintained.

## COLTSFOOT

The early flowers of Coltsfoot *Tusilago vulgare* can usually first seen on fine sunny days in late February but colonies are in full bloom between March and April. The bright yellow, dandelion-like flowers are borne on long stems and appear before the leaves, which develop once the flower spike has died back. These are huge and can reach 20 cm in diameter. Apart from flowering at the harshest time of the year, it also inhabits fairly impoverished ground where little else grows - dry banks, recently disturbed ground and other areas of poor quality soil are all likely to produce this plant which is common throughout the UK. They are colonisers of such ground and appear in huge numbers before reducing as other plants start to get a hold.

The flower-heads produce a parachute-dispersed seed similar to dandelions and thistles and can carry for miles. They can be present as late as the end of May if the early part of the season has been held up by spells of cold weather. To help maintain a colony, a small area should be dug over resulting in the severed roots developing into new plants. Coltsfoot is able to grow from root-cuttings as well as from seed. If transplanting, sections of root can be put into ordinary, unimproved garden soil, that is not too rich. Manuring areas in which it grows will simply kill, or at least, drastically reduce its numbers. A mound of stony soil will give an increased growing area if space is at a premium.

It is early plants such as Coltsfoot, which reflect the vagaries of the climate more so than late flowering species. The bulk of 2001 flowers appeared towards the middle of April following intermittent spells of cold weather from January onwards whereas in the milder winter of the previous year, flowers appeared a month earlier and were nowhere near as profuse.

## COMFREY

Two species of comfrey are plentiful in the UK, the Common *Symphytum officinale* and Tuberous *S. tuberosum* while a third, Soft Comfrey *S. orientale* is less abundant. All are perennials.

The two commoner species can be separated by a number of means. The Common Comfrey occurs mainly in southern regions, is found almost exclusively in damp places, has variable coloured flowers that can be white, cream, pink or purple and is a tall plant which can reach a height of 120 cm. Tuberous Comfrey, on the other hand, has a more northerly distribution, can be found in drier areas, has yellow flowers and attains a maximum height of only 50 cm. Both flower between May and July with odd plants hanging on a little later.

Seeds of comfrey will be taken and can be collected when they ripen black from late June onwards. Unless a productive patch is found, seed collection is unlikely to produce a vast amount as each flower, depending on species, only produces

between one and three seeds. It is the new growth which will be taken with relish by many species, either cut-up or whole. Using the newer, smaller leaves is best but some species will still take the larger courser ones.

If growing for feeding, it must be remembered that this is a very persistent plant and one that will regenerate from the smallest of root fragments. Having said that, it works in your favour if wanting to develop it as a crop. One stock plant can provide enough root cuttings to establish a sizeable plot - allow a 2-3 cm piece of root for each new plant, although much smaller pieces will also serve the purpose if there is not enough root. Root cuttings will take in ordinary garden soil. Sow seed in potting compost and plant out when 5 cm high.

## CORN SPURRY

A weed of cultivated crops, Corn Spurrey *Spergula arvensis* is also to be found on waste ground.

The five petalled, white flowers are borne on straggly plants that can reach 40 cm in good growing conditions but only some 7.5 cm in poorer soils. Usually the fringes of crop fields produce the best plants, which flower between June and August. Seeds ripen from July onwards and are best collected by cutting the main stem and shaking them into a container.

## DANDELION

A perennial herb of grassland, gardens and waste ground, Dandelion *Taraxacum officinale* is a very useful plant and most parts can be utilised. Growing in nutrient poor soils, they tend to form small, rather squat rosettes but where present in richer soils, leaves are more up-right and can reach over 30 cms long.

The yellow flowers contain an abundance of pollen and should be picked and offered to any nectar-feeding species, especially lorikeets, which will chew the flower-heads to obtain both pollen and nectar. Finches and small rodents eat the seeds while tortoises, rabbits, guinea pigs will avidly consume the leaves. Some of the larger pheasants will also tackle the roots besides eating the leaves.

Species which eat greens but which are reluctant to touch whole Dandelion leaves can be tried on them chopped up. Being one of the most nutritious of greens it is well worth persevering with, even mixing small amounts with normal fare. Leaves can be bitter which may put some species off eating them but by placing a flowerpot over growing plants for several days prior to picking, their bitterness can be much reduced.

When collecting seed, ensure none of the milky latex found in the stem contaminates the seed. This is best done by gently removing the clock with your fingers. Placed in ventilated containers, the collected seed should be allowed to dry further before attempting to separate from the pappus. If this is required, rub the seed between the hands and gently blow to disperse the pappus. These parachutes can be saved and used as nesting material the following year if keeping species that use down to line their nests.

Flower-heads can be found at most times of the year but peak between April and June, petering out slowly until October when the last of the viable flowers can be picked. Dandelions can be grown and if attempting to do so, one of the varieties intended for gardens should be sown, rather than wild seed. Sow seed *in situ* in well-

drained soil and in full sun. Thin out seedlings to 15–18 cm apart to obtain maximum leaf growth.

## DOCKS

The large leaves belonging to the Broad-leaved *Rumex obtusifolius*, Curled *R. crispus*, Clustered *R. conglomeratus* and Red-veined Dock *R. sanguineus* are familiar to almost everyone, especially gardeners. They are abundant on both waste and cultivated land and are often associated with nettles.

The young leaves can be used as greenfood and, although slightly bitter, are useful if livestock can be encouraged to take them. The most beneficial part of docks is without doubt the seeds. Flowers produced in late spring on tall upright spikes develop into a mass of seeds during the summer months. When ripe they turn brown and the easiest way to collect them is to clasp the flower stalk at the base, between thumb and fore finger, and gently pull upwards. The seeds should collect in the palm of the hand and can then be placed in a container. In good seasons, each stem could well provide a couple of hands-full of seed, and even in poor years, a good patch of docks should still yield an abundant supply.

Each three-sided seed has three petals attached, which need not be removed, but extra care should be exercised to ensure the mass is dry, otherwise it will tend to become mouldy quite quickly. A most effective method to dry the seed is to spread a single layer of seed on a tray - in hot weather turn every hour or so, if possible, aiming to get a uniform dryness. At least one good day of drying should be adequate.

Persuading species to eat dock seed will be well worth persevering with, as it is the one wild seed that is able to be collected in abundance.

## DOG'S MERCURY

A lover of shade, Dog's Mercury *Mercurialis perennis* is found flowering in woodland and beneath hedges from February through to April. It is a poisonous plant that is perhaps best avoided although several finches are known to eat its seeds. These set from April onwards and are best collected by snipping the seed spikes, leaving the rest intact. It is an early seed, but even so, there are others such as Coltsfoot and Groundsel available at around the same time, which, out of preference, would be more suitable and easier to collect in quantity.

## FAT HEN

A common weed, Fat Hen *Chenopodium album* will grow in poor soil but comes into its own on cultivated land especially where the soil has added nutrients. It is abundant amongst both root and leaf vegetables and will quickly colonise manure and compost heaps and can also be found growing alongside roads and on rubbish tips. If left alone a single plant can reach 1.5 m in height and may produce an astounding one hundred thousand seeds.

The whole plant can be up-rooted and fed, leaves picked or the caper-sized seed capsules, which are borne in clusters, can be picked and dried. Once dry, crush and place in a fine sieve - a gentle tap should separate most of the seed but a further gentle crushing may be needed to get to the dregs. Alternatively, crush pods gently



and place all in enclosure where they will to be picked through. Species with larger beaks should be able to tackle them whole.

Fat Hen is very similar to Good King Henry *Chenopodium bonus-henricus*, but differentiated from it by having broad, not triangular leaves at the base. These are narrow on the upper part of the plant and carry the flower spike, which appears between June and October.

## FUMITORIES

Fumatories of the genus *Fumaria* are flowers of arable, bare and disturbed ground and are frequently to be found growing around the edges of crop fields. The Common Fumitory *F. officinale* is most abundant in eastern areas of the UK where up to twenty, 1 cm long, pinkish-purple flowers are borne on each stem. It grows as a mass of tangled stems which use other plants, frequently grass, as support. In bloom between May and September, the flowers develop into globe-shaped nutlets containing a solitary 5 mm seed. These are a favoured food of Turtle Doves *Streptopelia turtur* in the wild.

Ramping Fumitory *F. capreolata* is more abundant in western areas and is a more robust plant reaching a metre in height with blackish-pink tipped, white flowers.

Once seed has been set and started to turn brown, stems can be cut and stored to dry.

## GARLIC MUSTARD

Easily distinguished from other members of the cabbage family, Garlic Mustard *Alliaria petiolata* is the only one to give off the pungent smell of garlic. Known also as Jack-by-the-hedge, which describes its liking for growing against some form of protection, it is most often found growing up against walls, hedges and banks. It also grows in shady woodland.

Loose pyramids of white flowers are produced atop each plant from April through to June. These develop into cylindrical pods about 2.5 cm long that are filled with horn-shaped fruits which interlock and becoming almost black when ripe. When picking, do not disturb the plant more than needed before checking for the presence of caterpillars for this is the main food plant for Orange-tip Butterfly larvae.

## GOATSBEAR

Goatsbeard *Tragopogon pratensis* is also known by the alternative name of Jack-go-to-bed-at-noon. This describes its almost unique habit of opening its flowers very early in the day and closing them by midday. Related to the Dandelion, it is a much taller plant reaching 70 cm high, has grass-like leaves and a stem that culminates with a single yellow flower. These are borne from late May through to July and develop into a "clock" producing a small number of comparatively large seeds. They have the typical parachute attachment found in many similar species. Collect as they ripen by either snipping off the head or by grasping the clock and giving a gentle pull.

## GOLD-OF-PLEASURE

The seeds of Gold of Pleasure *Camelina sativa*, a relative of the cabbage, turns up in seed mixtures for cage birds and can be purchased as a separate item. It is not native to Britain but is believed to have been introduced when flax was first widely grown. It can still be found at its most abundant in the vicinity of this crop and, to a much lesser extent, Lucerne *Medicago sativa*. Like most arable weeds, as time passes it is liable to become much more widespread and abundant than its present sporadic distribution.

Plants can reach as much as 40 cm in height and have narrow, arrow-shaped leaves that clasp the stem. The small, yellow flowers appear from May to July and develop into oblong seed capsules. The searching out and collecting of this species is unlikely to yield much seed, so perhaps the purchase and subsequent planting of seed is the best course of action to ensure hours of activity for birds once seeds begin to ripen.

## GOOD KING HENRY

Separated from Fat Hen by having more triangular leaves and the flower spike leafless except at the base, Good King Henry *Chenopodium bonus-henricus* is the only member of its family - the goosefoots - in the UK that is perennial, all others being annuals. It reaches a height of 1.5 m, flowering earlier than Fat Hen, from May to August.

It can be found on nitrogen rich soils such as farmland and roadsides but also grows on waste ground. Feeding and seed collection are identical to those of Fat Hen.

## GROUND ELDER

Ground Elder *Aegopodium podagraria* is not a native species but believed to have been introduced by the Romans from whence on, until the development of other vegetables, it was boiled and eaten like spinach. The young leaves were eaten and it is these that prove favourable to certain species of animals. Chickens particularly like the new growth, as do Eared Pheasants and it would be well worth offering to all species which consume greens.

It is a troublesome and persistent weed of gardens and waste ground, especially near buildings and is perhaps one not to be considered for home growing unless an area well away from where it is likely to become a nuisance can be found. If considering Ground Elder, growing in washing-up bowls with small drainage holes in the base to prevent water-logging will be adequate. Ensure that these are then put on bricks and placed on concrete to help prevent its establishment. Any roots that appear can then be dealt with before they establish in soil. Best to collect if growing in vicinity, ensuring that no root is picked. Broken roots will easily grow and once established, prove very difficult to eradicate.

Home propagation can start with root cuttings from which plants will rapidly establish. To do this, simply dig up a plant and cut the root into lengths of 2 cm and place in soil about 5 cm deep. In no time at all a crop will appear which, if left, will produce white flowers. If they set seed and you are not overly keen to have this plant all over the place, you have only yourself to blame!

## GROUNDSEL

Related to the ragworts, Common Groundsel *Senecio vulgaris* is a very useful food source, simply because there are usually some plants to be found in flower at most times of the year, even in the depths of winter. Annuals of bare and disturbed ground groundsel can at times occur in great profusion. Along with Chickweed it can be found growing on allotments and in vegetable gardens amongst produce and if left alone, will continue to grow once vegetables are lifted to provide valuable fresh greenfood throughout the winter. Be careful not to use sprays to control maladies likely to beset crops as Groundsel will also be treated and remain poisonous for some time. What may biodegrade enough to be safe for humans after a short period of time may not necessarily be so for most small birds. Rust *Puccinia allii* which shows itself on leaves and stems as elongated pustules of orange spores, particularly on broad beans, will also trouble Groundsel making it useless as a greenfood. Pulling up infected plants as soon as they appear may curtail its spread but be sure to remove them well away from the area to avoid the spread of spores.

The small yellow flower-heads rarely open and are reminiscent of a miniature shaving brush. When seed sets, the pappus form small clocks and the slightest breeze carry them far and wide. It is a quick growing species and one that establishes itself readily.

Once established on a bare piece of ground, allowing some to set seed will ensure a continued supply of this valuable greenfood. Whole plants can be pulled up and placed in with stock, turning occasionally to expose fresh areas. Plants can be transplanted in garden soil quite easily.

Several other species of groundsel are to be found, mostly in grassy and wooded areas. These can also be fed but are nowhere near as abundant and apt to flower only during periods when there is an abundance of other species around. Some leaves exude a liquid, which make them slightly sticky and are disliked.

## HONEYSUCKLE

The Honeysuckle *Lonicera periclymenum* is the most abundant of the three species found in the UK, the others being either rare or introduced from the continent and not yet widespread.

This elegant, deciduous climber can attain heights of up to 7 m as a scrambling climber, making its way up supports in woodland, scrub and hedges throughout the UK. The leaves begin to appear in late winter followed by the orange-buff, often red-tinged flowers several months later. These radiate from the centre to form a rather loose head. Flowers are heavily scented and attractive to many insects, especially moths.

Towards the end of summer clusters of red berries are produced atop stalks and look not unlike rather lumpy blackberries.

All parts of the plant are likely to be eaten. Turacos in particular will eat berries, flowers and foliage and it is impossible to grow honeysuckle of any description in an aviary containing these birds.

Berries will need to be picked and dealt with almost immediately, either by feeding or freezing, as they will start to deteriorate very quickly.

## HOP

The Hop *Humulus lupulus* is a clockwise twining climber to be found in hedges and thickets in many parts of the UK. Plants are either male or female. The papery-scaled cones produced by the female in late summer emit a quite distinctive musty, rather sickly smell as they mature.

They can be snipped off and placed in a container to dry. The heads can be left intact and fed whole to species that can tackle them or rubbed between the hands to extract the seeds.

## IVY

Ivy *Hedera helix* is regarded in many circles as poisonous but the berries provide a valuable food source in late winter. Although Ivy will grow happily along the ground it is predominantly a climbing plant, attaching itself to walls, trees and most other upright structures by fine rootlets which grow from developing stems. Plants can reach a great height, with 30 m and more being recorded.

From late July onwards, little buds form at the tips of twigs and over the next couple of months, develop slowly until they open into greenish-yellow flowers. The nectar is much appreciated by all manner of insects which in turn help pollinate the unpleasant smelling flowers. The first signs of fruit are hard, dark green orbs and these gradually swell and darken, turning black towards January and February.

In the wild these berries are taken by many residents and visitors alike and even by spring migrants such as Blackcap. The berries are bitter tasting and small mammals are not overly partial to them, only eating them if other food is in short supply.

Ivy berries can be collected by snipping off the bunches and feed by either stripping the berries from the stalks or by hanging the bunches so they are secure, allowing the birds to pluck the berries for themselves.

There is no real need to mass collect berries. Wild birds, especially Wood-pigeons, will eat them but once a supply is found, enough to last a week can be collected. Stored cool, they will be perfectly palatable throughout this period, possibly for much longer. If stored frozen, it is best to remove stalks before being defrosted and fed.

## KNAPWEEDS

The knob-like flower-heads of these plants have given rise to their popular name of Hardhead. Two species give collectable seed-heads; Black *Centaurea nigra* and the Greater Knapweed *C. scabiosa*.

Both these knapweeds grow on waste ground and in grassland throughout Britain. Black Knapweed is a common plant that reaches a maximum height of 60 cm. It has tough upright stems which branch towards the top supporting between two and five small side stems, each culminating in a globular flower-head containing numerous reddish-purple florets. Greater Knapweed is easily distinguished from Black Knapweed as the former is a considerably larger plant with crimson flowers.

Flowering between June and September, the seeds ripen from August onwards and can be picked when ripe and stored whole or crushed to extract the seeds.

## MEADOWSWEET

In favourable conditions Meadowsweet *Filipendula ulmaria* is a tall upright plant, reaching 120 cm in favourable conditions. It is a common plant throughout most of the British Isles growing in meadows, damp woodland and in marshes. Meadowsweet is a great favourite with many wild birds.

The numerous creamy-white flowers form dense clusters on each stem which develop into the characteristically twisted, spiral fruits. Whilst green to begin with, they become brown when ripe. The whole fruiting stem can be cut then rubbed between the hands over a bowl to remove the seeds, taking care not to be over zealous as seeds can be thrown some distance by splitting seed capsules. An alternative method is to place them in a large, lidded container and shake vigorously which should separate most of the seeds from the seed capsules. Rubbing the pods between the fingers should release any that still remain attached.

## MUGWORT

Often forming clumps of a number of stems, Mugwort *Artemisia vulgaris* is an upright plant reaching 120 cm in ideal growing conditions. It is a plant of roadsides, waste-ground and hedgerows and is capable of producing a mass of seed. The orange-yellow flowers show from July through to September with seeds ripening from late August onwards. Collect by shaking the bush or snipping off the side shoots, which hold the seed-heads, and place in a container.

## NETTLES

Two species of nettles are to be found growing in the UK. The Small or Annual *Urtica urens* is the rarer of the two and reaches only about 30 cm in height. It is the other species, the Stinging Nettle *U. dioica*, which is the one familiar to most people. It is a weed of waste and undisturbed ground throughout the country and is persistent enough to form extensive tracts. It is a much-loathed plant, a hatred stemming mostly from contact with bare knees and hands. Over the years nettles have served man well and although their use has declined drastically, the value to wildlife is well known. So much so, that a guide to insects found on nettles (Davis) has been published. The nettles natural defences to all but the most resolute of birds protect these insects.

Their main value to birds comes in the autumn when the seeds ripen. Protected by a stout pair of gloves, and with sleeves rolled down, bend nettles over a bucket and snip off the seeds that form mostly at the tips. When allowed to dry, any leaves accidentally collected with the seed will soon lose most of their potency.

Some species will eat the young leaves, but they are very few and far between, although it is well worth trying as supplies are usually readily available and abundant.

## PLANTAINS

Six species of plantain, all belonging to the genus *Plantago* are found growing wild in Britain, with three being common weeds in and around gardens. The most widespread plantain is the Great Plantain *P. major*, which is probably one of the most resilient of all weed species, but one that is able to take best advantage if growing

conditions become ideal. It is probably the only plant that is able to grow in compacted, dried mud, and will get a hold in gravel paths and between paving slabs. In such instances the rather squat rosette of leaves is likely to be no more than 7 cm across with rather insignificant flower spikes of 1-2 cm. However, this plant shows considerable variation in both size and shape and in ideal conditions of fertile soil with few competing species, individuals can produce leaves that can reach 60 cm. Flower spikes can reach between 15 and 18 cm in length though in exceptional circumstances have been recorded as attaining 60 cm.

The Ribwort or Ribbed Plantain *P. lanceolata* is the most common species found in the UK and is easily identified by its long, lengthways ribbed leaves. It is frequently present in lawns with long stems supporting rarely more than 3 cm of flower-head. The Hairy Plantain *P. media* is found on chalky soils and is often encountered growing alongside the previous species.

Seeds begin to develop from June, starting green before turning brown. At this stage, stalks can be cut at the base. The seed-heads of Ribwort can be cut off the stalks and stored, while those of the Great Plantain can be cut and stored, leaving the seed-head intact. Because of the large amount of seed present, they can be offered, hung up, as one would do with millet sprays. The seed can also be removed from the stem by gripping the top with one hand and drawing the thumb and forefinger down the stem.

As with docks, plantains can be collected in abundance and there is no reason why, with a little effort, enough can not be collected to provide an adequate supply for many months.

## POLYGONUMS

Two species of the genus *Polygonum* are useful as bird food for they are both common and widespread species of waste ground. Knotgrass *P. avicularia* and Redshank *P. persicaria* are readily identifiable plants because of their lanceolate leaves and multi-branched stems. The flowers and subsequent seed quantity of Knotgrass are smaller than Redshank which, besides having a larger quantity of seed, is identifiable by a black splotch on each leaf. Both species have their tiny flowers situated between leaf stalk and stem.

Redshank can form large patches on suitable ground and become the dominant plant. Knotgrass, although it can be as prevalent, is not as vigorous or overpowering and is generally a much smaller plant overall.

Polygonums seed comparatively late in the year, ripening around October. Stems can be cut and stored or seed-heads rubbed between the fingers to separate seeds.

There are around another six or seven species of *Polygonum* found in the UK but none produce seed in sufficient quantity to be worth collectioning.

## POPPIES

There are several members of the genus *Papaver* which grow wild in the UK. All boast red flowers and are very similar when flowering. The most reliable method of separating the species is once the flower petals have fallen and the seed capsules begin to form. Those of the Pale *P. argemone* are long and narrow with thick ridges and a few bristles; the Long-headed *P. dubium* has long and narrow capsules, whilst those of the Field Poppy *P. rhoeas* are much more squat.

The Field Poppy is the poppy most likely to be encountered, although it is much less abundant than it used to be due to selective weed-killers and a more thorough cleaning regime of seed corn. However, it still grows profusely in some areas and is likely to be one of the first colonisers on recently disturbed ground.

A well-established plant can produce as many as 300 flowers during the course of a good summer. Most of which will develop into seed capsules which start green, and on ripening turn brown. A good indicator of ripeness is when the seeds inside the pod begin to rattle and pour out of a ring of pores around the top of the capsule.

Capsules can be collected and left whole or crushed to extract the seeds. Alternatively, they can be hung up and used as a seed dispenser, allowing their seed to drop sporadically.

## RAGWORTS

Two species of ragwort are abundant, the Oxford *Senecio squalidus* and Common *S. jacobaea*. They are upright plants topped with bright yellow flowers. The Oxford Ragwort reaches a height of 30 cm and is in bloom from May through to December. The much taller growing Common Ragwort can reach 120 cm, flowering between June and October. The latter species is a very common plant especially in neglected pasture while the former, being smaller, is more commonly found on walls, railway embankments and other habitats with poor soils.

One plant can produce as many as 8000 seeds in a season, which probably accounts for the ragworts extreme abundance in suitable habitats. When seeds are ripe, plants can be pulled up and the seed-heads cut or pulled off. They are an extremely dangerous plant to some species of hooved stock if eaten, both fresh and dry, and extra care must be exercised to ensure any plant removed is placed in an area away from stock

Always wash hands after handling these species.

## SHEPHERD'S PURSE

Shepherd's Purse *Capsella bursa-pastoris* is a pernicious weed that is extremely successful and can now be found in many parts of the world, reaching as far north as Greenland. The plant is very variable in character. It can be either a low or medium-sized annual or perennial that can also be either hairy or hairless. The leaves mainly form a basal rosette and are either toothed or untoothed. The most characteristic feature of the plant, from which it gets its name, is the seed capsule. This is much less variable than the rest of the plant and is shaped like an old fashioned purse and is perhaps best described as a heart-shaped triangle. Each seed capsule has two cells holding around ten pale brown seeds when ripe.

The tiny white, four petalled flowers are borne at most times of the year and, because they are self-pollinating, the seeding heads are also much in evidence during the winter months when most other wild greenfood is scarce.

Snip off seeding heads and feed direct – though can be stored for several days in the fridge. Plants can be pulled up if ripe seed-heads are present, this act may result in some splitting open resulting in spillage of some seed that will in turn ensure a continuation of the plants.

## SORREL

Two species are to be found in the UK, Sheep's *Rumex acetosella* and Common Sorrel *R. acetosa*. Placed in the same genus as the docks they are not as robust-looking, at most producing long spindley plants but often are quite prostrate or straggly if there is excessive competition from other plants.

The leaves are much smaller and are shaped like elongated arrowheads. Both have basal lobes to each leaf; those of Sheep's Sorrel pointing outwards or slightly forward while those of the Common, point backwards. Also, if growing in ideal conditions, the species can be separated by size; at 40 cm Common Sorrel can be three times the size of its relative.

They flower between May and August, with the first seeds maturing in July. Once ripe, seeds can be removed from the plant by running a finger and thumb up the spike and placing them in a container. Alternatively, stems can be cut and utilised like millet sprays, although handling easily dislodges seed when dry.

New leaves can also be fed as a greenfood but as plants mature, older leaves take on a bitter taste and are not as palatable to smaller species but some of the larger pheasants will still take them.

## SOWTHISTLES

The yellow, dandelion-like flower-heads of sowthistles are produced on upright plants. The Prickly *Sonchus asper* and Smooth *S. oleraceus* are the two commonest species encountered and are easily separated, not only by leaf structure as their names suggest but also by shape - long and narrow in the former, much broader in the latter.

In every other aspect they are like dandelions. Young leaves can be offered and seed production and collection is identical.

Both flower between late May and August and are found on waste and cultivated ground and are often found growing by walls and other structures that provide some form of shade.

## TANSY

An upright plant with creeping rootstock, Tansy *Tanacetum vulgare* is placed in the daisy family. It is a plant of waste ground, roadsides and banks and is common throughout much of the British Isles. It is a tall plant, reaching a height of over 100 cm in good growing conditions, but is frequently much smaller. The umbel flower-heads produce yellow flowers, which lack the white rays of other similar species, and appear between June and October. Seed is ready for collection as it ripens from July onwards.

## TEASEL

One of the most expensive seeds to purchase as a bird food, Teasel *Dipsacus fullonum* can be easily collected and grown.

It is a plant of rough ground, growing in pasture, open copses and to some extent is a lover of moist areas, being particularly abundant near streams and rivers where, if the site remains undisturbed, can form large tracts. It is also to be found near newly constructed roads where it may have been part of a seed mixture sown when work was completed. It is particularly plentiful alongside motorways.



In suitable areas, plants can grow as high as 2 m but on average is around 1.5 m tall. This upright plant is much branched with each culminating in a bulbous flower-head. These produce a multitude of tiny pink or white flowers in July and August. These set seed a month later and darken as they ripen.

The heads can be cut and stored. If feeding to birds, the seeds should be shaken out as many species of finch have bills not adapted to extracting them. Goldfinches are the exception and they can be offered them whole. Alternatively, crush the heads using slight force and this will allow some species to forage amongst the crushed mass. They can also be cut with a sharp knife. When handling plants, use gloves as most of it is covered in spines that are rather sharp!

Growing these plants is simple. However, the first season will not reap any rewards as they are biennial, only throwing up a basal rosette of leaves in their first year, not looking unlike those of primroses only much coarser. Sow in ordinary garden soil, either in pots or open ground. Pot on or thin out to 25 cm apart.

Once plants flower in their second year, leave some to shed seed - but make sure that some additional seed is sown in the spring of the second year to flower the following year! This will ensure that there is a succession of seed from the second year onwards and although unlikely to be enough to eliminate the need to purchase further supplies, the home grown supply will keep birds occupied extracting the seeds for a considerable time.

## THISTLES

Thistles of the genera *Cirsium* and *Silybum* are mostly plants of bare and waste ground with several, particularly the Creeping *C. arvense* and Meadow Thistles *C. dissectum* being numerous in grassy places. Flowering between late May and September, an abundance of seed is produced from the middle of August onwards. So much so that in the multi-headed Creeping Thistle, great tufts of thistle-down carry seeds in the gentle breezes of late summer.

Most thistles are spiny and the best time to collect seed is when the down appears. The seed can either be picked from the plant by holding the down and pulling gently, or the seed-heads can be snipped off at the base where they join the stem and placed in a dry container. Seeds can be separated from the pappus by rubbing between gloved hands or by placing in a container with a soft object, such as a plastic pan scourer, and shaking the sealed container vigorously. The pappus can then be blown away or gently collected to be used the following breeding season as nesting material. If whole heads are harvested, they can be either cut length-ways or crushed to reveal the seeds. Goldfinches are specialist feeders of thistle seeds but the tiny seeds are relished by a number of species once they are able to get at them.

## WATERCRESS

Rather unusual for a plant that is now grown commercially for human consumption, the wild form of Watercress *Nasturtium officinale* is still identical to its cultivated counterpart. Watercress grows wild in streams, ditches and on mud. Care must be taken not to pick where growing in close proximity to stock for these plants may harbour the eggs of liver fluke, a parasite which affects sheep and can be passed on to humans. To be on the safe side, the purchase of supplies may be the best option if there is any concern about the source of wild plants.

All parts of the plant can be offered but because of its sharp taste, some reluctance may be shown initially. However, perseverance is well worthwhile as this is an excellent source of iron and vitamin C. The white flowers produce elongated, flattened pods which ripen brown.

Although naturally found growing in water, it can also be cultivated in damp areas of the garden. Cuttings should be taken in March by placing healthy shoots from a bunch of purchased Watercress into a jar of water. After about a week these should have sprouted shoots. Ground should be well prepared with the addition of plenty of farmyard manure. Dig a trench about 30 cm deep, line the base with plastic and half fill with the manure, then add about 10 cm of soil so that the area of the prepared site is below that surrounding it. Plant cuttings and keep well watered, flooding the whole area periodically to ensure the ground is kept in a moist state. This is a plant for the long term and it is unlikely to do well if too much is picked in the first year before it has had time to fully establish itself.

## WILLOWHERBS

Members of the genus *Epilobium* are medium to tall plants which usually bear pink flowers. The Rosebay *E. angustifolium* and Great Willowherb *E. hirsutum* are the two largest and the ones most useful for seed collection. Between them, they grow in a variety of habitats – *hirsutum* prefers damper areas such as edges of rivers, streams and ditches while *angustifolium* is usually one of the first plants to colonise disturbed ground.

When established, both species form extensive colonies, almost to the exclusion of other plants. This aggressive dominance is effected by two means, firstly by woody roots which radiate horizontally, throwing up new plants as they grow and secondly, by the profusion of seed produced towards the end of summer and dispersed on the wind.

The fruit is long and thin and when brown and ripe, splits lengthways to the base to release the plumed seeds. Seed capsules can be collected as they begin to turn brown from July onwards and left to ripen. When split, any seeds still attached to the pod can be eased off by holding it in one hand and running the thumb and forefinger down each segment. Alternatively, when completely dry, rubbing between hands should separate not only the seeds from the pods but also remove their plumes.

The foliage of willowherbs is also taken by some species and it is worth trying on species that eat leaves if a good supply is available locally.

## TREES AND SHRUBS

### ALDER

Along with the various species of willow and poplar, Alder *Alnus glutinosus* is one of the characteristic trees of damp areas. Although still a common tree, the once vast Alder swamp woodlands of lowland Britain have all but vanished, apart from some fragmented examples in areas such as the Norfolk Broads.

Trees grow to around 20 metres on average but may reach 40 metres in suitable, permanently wet sites but many only reach the size of a large bush in areas prone to frequent droughts.

Alder is the only deciduous tree that produces cone-like structures found wild in Britain. It is these cones that prove so attractive to Siskins in winter. So much so, that as the weather begins to take its grip in winter, an observer is unlikely to have to spend much time in the vicinity of a group of these trees before being rewarded with good views of this delightful little finch.

Both male and female catkins are borne on the same tree having been formed the previous year. The dormant male catkins are tightly compact structures about 2.5 cm long while the club-shaped female catkins are about a third of the size. The following spring, male catkins swell to almost 6 cm and open slightly to produce pollen. Wind dispersed pollen finds its way to female catkins, which start to turn green as they swell. Ripening around October, seed is dispersed by both wind (short distances) and by water (larger areas).

Besides Siskins, Alders provide food for many waterfowl and several other finches, notably Redpolls.

Collecting Alder seeds and catkins can provide variety to the diet of captive birds. Before collecting, give the branch a slight shake to release some pollen to aid fertilisation of female catkins. Many species like to peck at the pollen-producing male catkins in the spring and it is worth offering them to finches and parrots. Snip off catkins with secateurs or scissors and, if not feeding immediately, dry thoroughly before storing.

The seeds can be collected on a dry day from September onwards and stored in a container for use over winter. A few placed on a bird table should help encourage Siskins to visit.

Rubbing ripe cones between the palm of the hands will separate seeds for those livestock species unable to do so for themselves. Chaffinches are sometimes seen feeding beneath Alder trees.

Harvesting all accessible catkins and cones will have no detrimental effect, as there is still likely to be an equally numerous supply on branches that are well out of reach, and at a height where wild birds can feed.

## ASH

Ash *Fraxinus excelsior* is one of our commonest deciduous trees and is found growing in mixed woodlands and hedgerows. It has a particular liking for limestone and damp places.

Most trees will crop heavily every second year if conditions are ideal, though sporadically at other times. Following flowering, the fruits of Ash, popularly known as keys, hang in clusters. Green at first, they gradually turn brown as they ripen and are easily identifiable as they look not unlike tadpoles with their thickened head and flat, pointed tail. Bunches of keys will last well into winter so can either be left *in situ* or cut and stored in a dry place. If eaten readily, feed by hanging up, if not, separate individual keys and place with normal food. Because of their unusual shape, it may take time for birds to become accustomed to them so it may be worth slicing several open to reveal the seeds.

## BEECH

The Oak symbolises a typical British tree but Beech woodland, especially in autumn as the leaves turn many shades of bronze and gold, is one of the finer sights to behold in the British countryside. Beech *Fagus sylvaticus* produces nuts, commonly

known as mast. Flowers produced in the spring are usually concealed amidst the developing leaves. Once fertilised, female flowers begin to develop cupules which contain a pair of three-sided nuts. As they ripen, the woody husks split open to expose the edible nuts.

Every four or five years or so, trees produce a bumper crop, known as mast years, and provide an abundance of nuts. Gathering these on site can be a laborious task so it is advisable, if time is at a premium, to collect the nuts and husks beneath the trees and separate them later if need be. If kept dry, they should stay edible for many months. Splitting open some occasionally will check they have not dried or become mouldy.

## BIRCH

Three species of birch are found in Britain but only the Silver *Betula pendula* and Downy *B. pubescens* are at all common. Both are similar, but *pendula* which has weeping branches is characterised by its whiter bark, which, with age, develops black knobbly areas at the base of the trunk. The species also tend to be separated by growing conditions, with *pubescens* preferring wetter and cooler conditions.

Both male and female catkins form on the same tree. Males start to develop the previous autumn and mature in April or May while those of the female appear as the leaves begin to break in early spring. They expand after fertilisation into long, cylindrical structures in late summer. They are fairly fragile and soon disintegrate if touched but will stay intact on the tree until winter. Collect on a dry day, leaving on open trays for several hours to be extra sure they are dry. Seedheads can be stored whole or crushed between the palms to separate the seeds, which are small and winged, those of *pubescens* being the largest.

## BLACKBERRY

The Blackberry or Bramble *Rubus fruticosus* needs little introduction and is probably the first wild fruit which most of us get to know from an early age. Brambles grow in a wide range of habitats and in many soil types. Open areas usually provide the ideal habitat and the white, sometimes pinkish tinged, flowers of spring begin to produce their edible fruits from August to early October. Starting green, they turn red before ripening black. At this stage they are taken by a whole host of creatures. Don't put off picking them or you could miss out as they are one of the most sought after fruits once ripened.

Exercise care when picking and although gloves are impractical, jeans and a thick, long-sleeved shirt will help - there are always some which invite a deal of stretching. Whatever precautions are taken, scratches are inevitable!

Picking blackberries usually produces quite a quantity, which can be frozen. Freezing in shallow trays avoids a sticky mess. When frozen, break up any lumps and place in freezer bags. They will then "free-flow" and need only an hour or so to defrost. Fresh Blackberries will keep for a short while in the fridge, but will need picking over daily to remove any that have started to decompose. Fruits remaining will need to be washed before being feed to stock.

## CATKINS

Catkins consist of many extremely small flowers and are usually lacking in petals and sepals, the mechanisms needed by insect-pollinated flowers. Most catkins are wind-pollinated with trees producing both male and female flowers separately on the same tree, although there are exceptions. Hazel produces them on different trees whilst catkins of Sweet Chestnut have both sexes and are insect pollinated. Those of willow can be both male and female and contain some nectar.

Catkins formed the previous year usually mature very early in the year, in some instances before leaves are present. Female catkins are generally small and it is the male which produces the long pollen producing spikes.

Oak, Birch, Alder, Hazel, Hornbeam, Willow, Poplar, Walnut and Sweet Chestnut are amongst native species producing catkins which can be stripped at source and fed. Willow branches can be cut in the spring when laden with catkins and can be hung inside an enclosure to be eaten.

Many species of animals will chew or nibble catkins, and those particularly partial to nectar can be tried. Catkin pollen is particularly high in nutrients. If catkins are stored, ensure they are thoroughly dry. Collect around mid-day when the weather is dry to ensure most overnight dew has evaporated and allow the catkins to dry for a further couple of days. Freshly gathered catkins have a large water content and will spoil quickly if not dried thoroughly. They should, however, be used relatively soon after harvesting.

## CONES

Cones are produced only by species of conifer. The similar looking fruits produced by broad-leaved trees, most notably Alder, are not true cones because of their structure. Crossbills and some larger-beaked finches will rip into them but some species find the seed protecting scales are more difficult to crack. Squirrels and parrots will tackle practically any cone with relish and not only will they eat the seeds, it will provide endless amusement.

Cones, the hard protective covering for the seeds, are produced in profusion by many species although Larch and Scots Pine are the only native species to do so. In favourable years they can be collected in vast quantities. Seeds are released by the opening and closing of the scales and it may well pay to inspect a couple of cones before harvesting. Cones should be collected on a dry day and allowed to dry further by spreading them out on a sheet, under cover for several days. Stored, they will keep for many months, sometimes years.

Apart from native species, a whole host of other firs and conifers are planted in many situations and can provide an abundance of cones that can be collected.

## DOGWOOD

Wild Dogwood *Cornus sanguinea* is a deciduous shrub found on chalk and limestone soils. It occurs mainly in southern areas of England where it frequently grows in association with wild Privet and Wayfaring trees and, at times, can form rather lush thickets.

Its berries are fully ripe when black, just as the leaves start to take on their autumn shades of red in September. The clusters of berries form on stalks which can be snipped off and hung up. It is an easy plant to identify in winter as the stems turn

red in colour at around the same time as the leaves start to take on their autumnal shades.

## ELM

Devastated by Dutch Elm Disease *Ceratocystis ulmi*, a fungus spread by the Elm Bark Beetle *Scolytus scolytus*, mature specimens of English Elm *Ulmus procera* are sadly no longer as common a sight as they once were. Unfortunately, the disease is not restricted to just one species of elm but effects all species. However, because of the sporadic distribution of the others, of which the Wych *U. glabra* and Smooth-leaved *U. carpinifolia* are the most numerous, it has not had such a devastating effect on their populations.

The flowers of all elm species appear from late February to March, before the leaves open, and soon develop into small seeds. These are surrounded by a flat membrane which are produced in clusters on one-year-old twigs. The seeds ripen fairly early in the year, during May or June, but this can be sporadic in English Elms. Collect on a dry day and store in airtight containers or feed fresh. Because of their early maturing they are ideal as a rearing food for the species which will eat them at this important time of the year.

## HAWTHORN

Hawthorn *Crataegus monogyna* produces a mass of white flowers in May and at this time is one of the most prominent features of the British countryside, hence its alternative name of May. It is used extensively as hedging and as such is a valuable food and shelter source for wildlife. The thick, thorny bushes provide secure cover, especially in hedgerows which can also serve as a corridor, allowing safe movement for species between areas. "Stand alone" trees can reach 14 m but become more open in nature. In spring the abundant supply of nectar attracts insects and the creatures which feed on them.

The berries produced by the May flowers start off green in colour but begin to turn red by the end of August. Because of their abundance, the result of a frost-free period when in blossom, not a harbinger of a hard winter, the berries may last well into the following spring if the winter proves mild.

Despite being eaten by a wide array of creatures, if an abundant source can be found locally, this can be plundered as and when necessary, leaving berries on the tree to keep fresh. Haws can also be frozen or dried in a desiccator or by other means provided it is able to provide consistent heat until the fruit is dried thoroughly.

## HAZEL

Hazel *Corylus avellana* is a small, deciduous tree, growing to a height of around 4 m and is famed for its nuts. Male catkins produced the previous autumn develop and shed their pollen in spring pollinating female catkins produced on other Hazel trees. The species is self-sterile.

Nuts begin life pale green and turn caramel brown as they ripen in the autumn. Up to four nuts are produced on each stalk.

Hazel nuts are a favoured food of dormice but are also eaten by squirrels, mice and jays. Pigeons and pheasants will eat the developing nuts whole.

The nuts should be picked when they start to turn brown and then left outside until completely dry, turning the mass every couple of days, or more frequently if the weather is hot. They will store well if kept in a dry, frost-free environment. Some sources suggest having alternate layers of peat as an extra precaution but whether this actually extends their life remains to be confirmed?

## HOLLY

Holly *Ilex aquifolium* produces its characteristic berries during winter. The white, fragrant flowers open from May for about three months before forming small green fruits that ripen red in late November. Male and female flowers are produced on different bushes so the separate sexes need to be in close proximity for the female to produce the familiar red berries. In mild winters the berries are liable to remain on the bush well into the winter as more palatable fruits are taken. However, as the weather becomes more severe, berries are consumed rapidly by a number of bird species, especially winter migrants.

Berries can be collected using gloves to avoid the spines and either frozen or dried in a desiccator.

## JUNIPER

Juniper *Juniperus communis* has a fragmented distribution in Britain being found in Scotland and the south of England on different soil types. On pollination, female flowers develop into largish berries which can take two or three seasons to mature. Starting green they slowly turn a glossy blue-black and when ripe the outer skin is coated with a greyish bloom. Can be picked when almost ripe and left to ripen. Can be frozen or dried. This is the largish wrinkled fruit found in some proprietary softfoods and it can also be purchased as a separate item from either Livefood Direct (Tel. 01909 568953) or Rob Harvey Specialist Foods (Tel. 0140 23986).

If species eat Juniper berries, the purchase of a quantity of these dried fruits is worthwhile, as in the UK it is unlikely that large quantities of fresh berries could be collected from a single location.

## LARCH

The Larch *Larix decidua* can reach 45 m in height and is unique among European conifers in that it loses its leaves in winter. During the following spring, as new leaves form, separate male and female flowers develop. The inconspicuous male flowers form at the tips of the twigs while the females form a series of reddish-purple scales which, when seen, appear similar to a miniature rose. Pollen produced by the male is wafted by the wind and the developing cones mature in the autumn. Green at first, they turn brown in autumn as they ripen and dry. Seeds are then shed but it may take several years before all seeds are released.

Cones can be collected from October onwards and stored in a dry and dark place for later use. Because of their size, the largest cones may grow to reach a maximum size of only some 4 cm in length. If keeping species that will eat them, try Scots Pine cones because the cone is larger and more plentiful. However, the relatively small cones of Larch may have appeal to some smaller finches and parrots.

## OAKS

Three species of oak are common in the British Isles, The deciduous Common *Quercus robur* and Sessile *Q. petraea* and the evergreen, Holm Oak *Q. ilex*. All produce the typical acorn, which grows in, and may well still be attached to when shed, a hard, cup-like structure. The Holm Oak is abundant only in parts of southwest England, East Anglia and eastern Scotland, and is easily differentiated from the other oaks in winter as it still has its leaves. Although leaves are variable in shape, many look like those of Holly, hence the scientific name *ilex*.

If not afflicted with Knopper Gall, oaks are likely to produce large crops. Crops vary each year but in a bumper year, can number as many as 50,000 on a single, mature Common Oak. To most people acorns are the most easily recognised tree fruits and it is these that are consumed by the higher forms of life.

Collecting can be done once trees start to drop their fruit. There is no need to pick from the tree as the acorns will become plentiful and can be collected from the ground. Stored in a dry place, a crop should last well into the winter and early spring. They can also be left in a dark place to sprout, which will provide an additional, valuable source of nutrition in the form of the developing shoots.

Oaks support and provide nutrition for a greater variety of species, particularly insects, than any other species of tree in the UK.

## ROSES

The Dog Rose *Rosa canina* is a common plant of hedgerows and scrub throughout England and Wales, becoming rarer further north and is quite scarce in Scotland. It is replaced in woodland and hedgerows by the misnamed Field Rose *R. arvensis*, which is also rare in Scotland. These two common species produce the characteristic red fruits, known as hips, in the autumn once flowering has finished, although some flowers may still be present as the first fruits begin to ripen.

The species are easily separated by habitat preference, flower colour (pink in *canina*, white in *arvensis*), fruits (more rounded *arvensis*) and spines (more hooked in *canina*).

Other species to look for are Downy *R. tomentosa*, Spot-leaved *R. villosa* and the Burnet *R. pimpinellifolia*. The Burnet inhabits coastal regions and has black, rounded fruits while the other two grow in woodland and in hedges and produce red fruits.

Fruits can be collected from September onwards by snipping off the individual fruits using scissors or secateurs and of course gloves! Some fruit remains well into winter but as time passes, they begin to dry out. If not fed immediately, can be frozen or dried.

## ROWAN

The Rowan or Mountain Ash *Sorbus aucuparia* is a native species found in woodland, scrub and mountainous regions, especially in the north and west. However, it is a popular tree for planting in parklands and because of this, it is now to be encountered in many areas of the country. Cultivated varieties are grown which produce different coloured berries.



Flowering in May and June, the tiny, creamy-white, inflorescences develop into green berries which ripen red from late August onwards. Various thrush species find these berries irresistible and trees are soon stripped. In a good fruiting year these berries may last long enough to provide food for winter migrants which are particularly partial to these berries.

Berries can be collected by snipping off the bunches and fed immediately by hanging them up which will provide much activity. They can be frozen in shallow trays or dried in a desiccator.

## SALLOW

The three species of willow, Great *Salix caprea*, Common *S. cinerea* and Wrinkled-leaved *S. aurita* are members of the willow family but, unlike most other members of this large group, are not as reliant on moisture. They can be found growing in woodland and in hedges as well as damp places.

The Great Willow or Goat Willow is perhaps the commonest and their familiar catkins are produced in early spring. Male catkins produce a prodigious amount of pollen. Insects, mainly bees, carry this to the female catkins, which are borne on separate trees. As the seeds develop, the catkins begin to take on a woolly appearance and, when fully ripe, split open to release hundreds of seeds. These have fine, white hairs attached which act like parachutes to disperse the seeds.

Female catkins are eaten by parrots and ripped to pieces by other seedeaters such as grosbeaks, while those of the male produce an abundance of nectar and are avidly sought out by nectar-feeders. Collect on a dry day and, if not using immediately, store dry. Female catkins can be dried, either by leaving whole or removing the seeds by rubbing the catkins between hands and gently blowing to remove the fine hairs.

## SCOTS PINE

Scots Pine *Pinus sylvestris* is native in the UK only in Scotland but has been planted elsewhere because it thrives in poor, rather dry sandy soils. These native pine forests of Scotland are havens for wildlife. Species such as Capercaillie, Red Squirrel and Pine Marten are specialists of such habitats. However the commercial plantations further south are relatively sterile places, while those growing in other areas such as heathland, encroach and eventually, unless controlled, end up destroying an equally specialised habitat.

The course needles are eaten by Capercaillie but it is the cones which provide sustenance for many other species. Crossbills have evolved to be able to extract seeds from the closed cone but many other species feed off the scattered seeds.

Flowers are formed in May. Female inflorescences are small red globes, which develop singly at the end of shoots. The male catkins produce a prodigious quantity of pollen. This is wind blown to fertilise the female flowers. Cones begin to appear in the autumn but may take two seasons before they reach their full potential of 7 cm. Cones open naturally on warm sunny days, but are ripped apart by squirrels and crossbills even when closed. Cones can be collected and stored in a dry place.

Although relished by specialist feeders, it is worth trying larger parrot on whole cones, smaller parrots on crushed cones and species such as grosbeaks and

hawfinches on seeds. Even the provision of old cones will provide hours of entertainment for some species.

## SPINDAL

With its coral pink fruits one of the most vivid trees of autumn is the Spindal *Euonymus europaeus*. These consist of four lobes which are fused together. Around October, the berries split to reveal bright orange flesh in which the hard white seed is encased. This display attracts birds, which disperse the undigested seeds after eating them. However, do note that all parts of the plant are poisonous to mammals and should not be offered to them.

Fruits form on short stalks, usually near the tips of the twigs and can be cut with a pair of secateurs, placing in an empty tray to feed.

## SWEET CHESTNUT

The 15 cm long catkins herald the start of another crop of Spanish or Sweet Chestnuts *Castanea sativa*. Catkins are produced in July, one of the last trees to flower and these develop into glossy brown fruits in October. They are covered by a spiny casing that, for the most part, splits open when the fruits fall to the ground. Not a native tree but one that can produce a bumper crop, even in our climate. Unlike the Horse Chestnut *Aesculus hippocastanum*, to which it is not related, the fruits do not have a bitter taste and are taken by many species such as jays and squirrels. The larger parrots in particular are fond of them.

Trees may live to be 500 years old and reach over 30 m in height. Although fruiting is dependent on the weather, enough fruit is likely to be available each year to last well into the winter. Chestnuts are not great keepers in storage but their life span can be extended by ensuring they are thoroughly dry before packing between layers of sand.

## WALNUT

One of the most characteristic nuts available around Christmas time, but sadly they are rarely produced from trees grown in the UK. Though a widely grown tree it is not a reliable cropper in this country. Some trees will produce good crops, others will not and the only reliable way is to plant one of the varieties developed especially for garden planting. Unfortunately, this is beyond the scope of this booklet.

The Walnut *Juglans regia* is a spreading tree of some 30 m in height. Flowers are greenish-yellow which take the form of catkins in males and short erect spikes in females and appear during April or the early part of May. The nuts appear in late summer. If you are lucky enough to find a productive tree, the nuts should be removed from their casing as soon as possible after falling, otherwise they become black and are difficult to remove. After drying them thoroughly, give the nuts a brush off and layer between peat to extend their storage time. Check periodically to ensure they have not started to deteriorate.

## WHITEBEAM

Found mainly on chalk soils in the southern half of the UK, Whitebeam *Sorbus aria* can grow to 20 m in height. It is an easily identifiable tree with its dark green upper leaf and silvery grey undersides, which are very much in evidence when there is a breeze blowing. Young leaves also take on a unique appearance in as much as when they first burst from the bud, they grow erect.

The blossom appears in clusters during May or June and loose bunches of fruit ripen by October. These look not unlike those of the Hawthorn and are red. Up to 1.5 cm across they contain two seeds.

Berries can be collected as they ripen and either fed straight away by hanging bunches from a support or dried in a desiccator.

## YEW

The toxicity of Yew *Taxus baccata* seems to depend on the time of year and possible location but the one part of the plant that is consistently poisonous is the seed. However, the fleshy red aril covering the seed is sweet and eaten by a host of creatures. Badgers in particular are fond of them and birds are the main dispersant of seeds. When eaten, only the aril is digested, and, although the seed passes through, it is perhaps best avoided where exotics are concerned.

### Further Reading

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Brooks, A. & Halstead, A. 1980. Garden Pests and Diseases. Royal Horticultural Society  
Davis, B.N.K. 1983. Insects on Nettles. Cambridge University Press  
Fitter, R., Fitter, A. & Blamey, M. 1980 The Wild Flowers of Britain and Northern Europe. Collins  
Mitchell, A. 1984. A Field Guide to the Trees of Britain and Northern Europe. Collins

## GRASSES

About a hundred native and introduced species of grass are to be found growing wild in Britain and provide an abundant and easily obtainable wild food for those species that will take them. They can be picked as soon as the flower spikes begin to show and will be relished even at this stage for their pollen and flowers by some species, particularly parrots and some rodents. Small grazers will also relish them at this stage but it is when the seed develops that they are particularly useful as an abundance of seed is set by most grasses.

Detailed below are some of the common grasses most likely to be encountered, although in reality, all species can be offered and, if locally common, regularly fed.

### TALL FESCUE *Festuca arundinacea*

The tallest of the genus found in Britain, reaching a height of almost 200 cm in good conditions. It forms thick tufts and is able to grow on most soil types, occurring

on banks and a variety of other sites. Because of its form, and besides being a useful food plant, it can prove beneficial if planted in enclosures - three tufts planted in a triangle some 30 cm apart will provide ample cover for ground nesting species such as quail and the smaller partridges.

#### MEADOW FESCUE *Festuca pratensis*

Almost identical to the previous species, differing only in having larger spikelets and hairless auricles, it is found in meadows and grassland. Again a useful species for ground cover. Seeds are borne on small side stems which arch downwards as the seeds ripen. All species of fescue are best picked on the stalk because of the trouble involved in removing seeds. They are utilised in a similar manner to millet sprays.

#### COCKSFOOT *Dactylis glomerata*

A common and familiar species of grassland, waste-ground, meadow, pasture and roadsides throughout Britain. It can, at times, reach 140 cm high. The seeds are borne on a series of spikelets which form a rough triangular shape. Can be picked on the stalk, which ripen from August onwards, with the main flowering period being from June through to September.

#### ANNUAL MEADOW GRASS *Poa annua*

Perhaps one of the commonest grasses worldwide, it grows in a wide range of soil types from sand to clay and can tolerate both dry and damp conditions. Found in all temperate climates, and mountainous regions of the tropics, it is a useful food plant for both grazers and seed-eating species. Although predominantly an annual, in mild winters it may continue to grow for a second season, even producing seed although much reduced in number during winter months. Grows to a height of 40 cm with seeds being found at almost any time of the year. This is the annoying species which persists in paths and other inaccessible places, even in shade.

#### ROUGH MEADOW GRASS *Poa trivialis*

A native perennial, common throughout Britain but primarily in meadows, pastures and waste-ground. Growing to a height of 100 cm in good conditions it can be as small as 20 cm. Late May to July finds it in flower.

#### NARROW-LEAVED MEADOW GRASS *Poa angustifolia*

Smaller than the previous species, it is found on chalk, lime and sandy soils at higher elevations. It flowers from April to June growing to a height of only 60 cm in ideal conditions. Found throughout the UK but is mainly a southern species.

#### SMOOTH MEADOW GRASS *Poa pratensis*

A common grass throughout Britain on waste and arable land. It is used for hay production and because of its tough nature, also in lawn seed mixtures which are likely to experience heavy use. Flowering from May to early July it can reach 90 cm in good conditions but frequently much less.

#### TIMOTHY GRASS *Phleum pratense*

The seed-heads of this tall grass make it one of the easiest to recognise. The tightly packed heads are cylindrical and can reach over 5 cm long. It forms loose tufts on waste-ground, in pastures and along roadsides. Flowering from June to August it reaches 140 cm in ideal conditions but frequently much less. Seed-heads can be cut from the stem and stored or, by holding the tip and running thumb and finger down towards the base, seeds can be separated.

#### PERENNIAL RYE GRASS *Lolium perenne*

New meadows intended for grazing are sown with either a pure sowing of this grass or in combination with clover. It thrives on damp, rich soils everywhere. It grows to a height of 90 cm in good soil but only reaches 10 cm where conditions are less favourable. Flower spikes appear from May to August with the tufts of flowers set alternately up the stem, edge on in what appears to be slight divots. Once the flowers are removed the stem has a wavy appearance. When ripe, pick and either remove the seeds by running thumb and finger down the stem, or hang like millet sprays.

#### YORKSHIRE FOG *Holcus lanatus*

One of the most distinctive of native grasses being found in a wide range of habitats and soil types, occurring in rough grassland, meadows, pastures and open woodland. The delicate flowers are produced from June onwards and are a delicate pinkish-green, darkening to purple before turning greyish-white in the autumn. It is at this stage that it gives the appearance of fog over meadows but "fog" is probably derived from the Old Norse "fogg" meaning long, limp grass. The feathery heads can be collected once they turn greyish-white. The fine stems can also be hung up like millet sprays. The spent seed-heads can also be offered as nesting material for birds and rodents.

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Many suppliers of flower seeds also offer a limited number of grasses. Some are ornamental but even so, planted in a corner of the garden or inside an aviary, they will produce a limited supply of seed and are worth investigating further. However, keep away from pampas grass as an aviary plant. Collect the flowering heads as food or nesting material by all means but the leaves shed slivers that coil very tightly. Not only have I had a captive bird die because of having one of these coils tightly around its neck, I have also rescued a wild Blackbird which fortunately survived.

The following native species can be had from the numerous suppliers of wild flowers:- Quaking Grass *Briza media*, Fine-leaved Sheep's Fescue *Festuca tenuifolia*, Tall Fescue *F. arundinacea*, Hart's Fescue *F. longifolia*, Giant Fescue *F. gigantea*, Meadow Barley *Hordeum secalium*, Small Cat's-tail *Phluem bertolonii*,

Wood Brome *Bromus samosus*, Wood False-brome *Brachypodium sylvaticum*, Wood Mellick *Melica uniflora*, Yellow Oat Grass *Trisetum flavescens*, Crested Dog's-tail *Cynosurus cristatus*, Lyme Grass *Elymus arenarius*, Meadow Foxtail *Alopecurus pratensis*, Sweet Vernal Grass *Anthoxanthus odoratum*, Tufted Hair Grass *Deschampsia caespitosa*, Wood Millet *Milium effusum*, Yorkshire Fog *Holcus lanatus*

### Further Reading

Phillips, R. 1980. Grasses, Ferns, Lichens and Mosses of Great Britain and Ireland. Pan Books.

## DRY SEEDS

A bewildering array of dried seeds is on offer for use as food for every conceivable type of animal kept by the hobbyist. Most need consistently hot weather to germinate and grow to the stage of producing seed, but it is amazing the variety that will prove productive if given a fair crack of the whip, even in our climate. It is, however, unlikely that many of us could produce anywhere near enough to cater for all our needs but a limited supply of fresh seed will still be of benefit to stock, providing both fresh seed and hours of enjoyable activity.

Below are details for what are probably the most reliable plants for producing a crop, although for the less adventurous simply scattering a handful or two of mixed birdseed on an area of bare ground, or on the corner of the lawn will usually produce something. A handful can also be scattered inside an enclosure. It is surprising what germinates and it is doubtful whether many people would be able to identify every single type of plant that set seed without splitting them open to investigate their contents.

### AMARANTH *Amaranthus sp.*

Occasionally, where a seed mixture has been spilt or sown, plants appear with greenish, fluffy seed-heads. These rarely attain any height except on bare ground because of competition from other plants but still manage to produce a small amount of tiny black seeds. These are Green Amaranth *Amaranthus hybridus*, a relative of the garden Love-lies-Bleeding *A. caudatus*. Both these are related to the South and Central American species *A. creuntus*, *A. hypochondriacus* and *A. gangeticus* from which numerous varieties have been developed. The interest in these stem from the fact that they were once a very important food plant in their native region, both for seed production and for their leaves. They also provide some of the pigmentation used in religious ceremonies. Their usage waned in the Americas but seed was taken to Europe and Asia and is now grown commercially in both India and China.

There are some spectacular cultivars with varying degrees of hardiness available to British gardeners but most Amaranths will provide an abundance of seed if a sufficiently long growing season can be given. Most need about 130 days to mature but the variety 'Planitude' requires only around 95 days. Size and colour of flower-head are their most impressive features with most varieties growing between 1.5 m and 3 m in height with flower-heads of red, purple, gold and green. Individual

plants of *A. cruentus* 'Golden Giant' can produce 500 g of seed. Seed colour can also vary between forms and be white, black, brown or pale yellow.

Ideally, start seed off under glass, providing a little heat so as to give seedlings an early start. Plant seeds in modules about 5 mm deep, making sure they are not allowed to dry out until firmly established. Plant outdoors in May or June, depending on how advanced growth is and keep well watered until established. Seeds can be harvested by cutting the heads as soon as the first seeds become loose; a gentle tap should show when they are ripe. They can be stored dry and placed in enclosures when needed, although if seed-heads are offered, it may take a little time for species to become familiar with them. Seed can be kept for the following year, not only for new seeding plants but also for sowing solely as a greenfood. Seeds have a very high protein content and the leaves are very nutritious.

Experimenting with Amaranths is well worth the effort, especially as it also has the dual purpose of being a novelty garden plant as well as a source of food for stock. A catalogue and seeds are available from Chris Baur, Ripple Farm, Crundale, Kent CT4 7EB. S.A.E. for details.

### CANARY SEED *Phalaris canariensis*

Canary seed comes from grasses which will produce their 2-4 cm seed-heads on long stalks. These tufts comprise a number of loosely packed sheaths, each containing a single seed. It is fairly easy to cultivate if conditions are favourable and the ground well prepared in advance.

Prepare ground as you would for similar-sized flower and vegetable seeds by forking in manure and raking over the plot, breaking up any large lumps of soil and removing stones and other debris. Sow seed in 1 cm deep drills at a spacing of around 2.5 cm. Drills can be 25 cm apart if you intend to give your crop the "gardener" treatment and look after it by hoeing between the rows, otherwise 15 cm will suffice. Tending the crop, removing competing weeds, will usually produce robust plants that yield a superior seed in greater quantities.

Whilst it is a relatively hardy plant, seeds sown in late March or early April will need some protection from frost, especially with the winters generally milder, spring now seems to be producing spells of lower temperatures. A fleece placed over the ground should prove adequate, removing during the day if possible to allow the sun to get at the developing seedlings. Water as necessary and feed periodically with a liquid tomato feed until the seed-heads begin to develop. By July, seed-heads should show signs of changing from silvery-green to the colour of corn. From August onwards, when fully ripe, test by picking a seed-head and rubbing between the palms of your hands. The exposed seed should be entirely brown with no streaks or blotches. It is now time to pick the crop and this can be done by either snipping off the heads or cutting the stalk at the base. The method depends on how you are planning to feed it. Seeds can be rubbed from the head as described previously but why deprive stock the pleasure. If they are able to eat the seed they should show no difficulty in extracting it. Ensure it is fully dry before storage.

Because it is a relatively hardy plant, another crop can be planted in September. By the time the ground has cooled down, the green shoots should have put on enough growth to withstand the winter leading to an earlier crop the following year than if planted in the spring. However, the size of the crop is dependent on sunshine at ripening time. If conditions are wet, the crop may fall below expectations.

If you do not have time and space or want to bother or fuss, you might just as well scatter a small handful of seed and see what happens!

#### LINSEED *Linum usitatissimum*

Because of attractive financial subsidies, linseed is now popular as a crop with farmers and great swathes of blue can be seen in the countryside each summer. Linseed is tolerant of most soil types and if planted late April, should provide seed from early August if the weather has been good. It is not the easiest plant to harvest because of its tangled mass of stems and is perhaps best cut and placed in enclosures or grown *in situ*, allowing stock to eat the seeds as they drop. A tangled patch in one corner of an aviary makes useful nesting cover for ground birds and they are likely to spend considerable amounts of time amongst the cover it provides.

#### MILLET *Panicum effusum*

Of the various types of millet available, those such as White and Panicum which produce a more densely packed head of seed should be given preference over forms which produce red seed as they have a more open structure and produce less seed in a temperate climate. If possible, obtain seed for growing from strains grown in the Northern Hemisphere. At least one supplier of bird food sells millet grown in the UK and this will be the source which is most likely to produce the best chance of success.

Millet is a difficult seed to bring to maturity in a temperate climate but, given a long hot summer, reasonable success should be achieved, especially in the southern half of England. To increase the prospect of success, sow seed early in the year and give a little heat, if possible, in a greenhouse to promote growth. Plant a couple of large shiny seeds in each segment of a modular tray, removing the weaker of the two plants as they grow. By May they should be large enough to plant out. Ground preparation should be as for Canary seed. The sprays of seed should ripen from September onwards after turning brown. Cut the stalk and leave the heads to dry thoroughly by hanging up, either in a shed or garage. Some seed may drop but it should be minimal and be caught by placing a tray beneath the hanging sprays.

#### SAFFLOWER *Carthamus tinctorius*

Although the seed looks not unlike that of sunflower, this plant is a relative of the thistles. Its cultivation is, however, very similar to that of sunflowers and the details given for them should be followed.

It is a medium-sized plant with a large yellow-orange, thistle-like head and is very spiny! As flowers die, the seed-head develops and turns brown. When ripe they split to reveal the white seeds. They can be collected before this stage and fed intact or split open. Enough will never be produced to cover the amount used by the average keeper but it will provide hours of activity while seeds are extracted.

They can then be placed in a container for storage.

#### SUNFLOWER *Helianthus annuus*



The vast majority of sunflower seeds present in feed mixtures, although appearing of good quality, are likely not to be because the bulk of superior seeds are used in the food industry for, amongst of things, the manufacture of margarine, cooking oils and as health food products.

The selection of the best available quality seed for feeding is advisable and it is equally so for growing. If planting animal-feed quality sunflower, pick seeds which are plump. If desired seeds can also be purchased from most garden centres and the relatively recent addition of dwarf varieties can give an extra dimension in as much as most gardens will only be able to accommodate a small number of the normal 3-4 metre high giants. Dwarfs which grow little more than a metre tall can be planted as an annual in borders making them a useful addition to garden planting. Varieties such as 'Sunspot' produce flower-heads 30 cm across on plants little more than 60 cm tall but perhaps the one worth trying as a border plant is a new variety called 'Holiday' which grows as an almost spherical bush some 130 cm high and bears numerous 15 cm flower-heads. Chiltern Seeds, Bortree Stile, Ulverston, Cumbria LA12 7PB offer almost twenty varieties so, if planning to grow sunflowers, there is likely to be a type suitable for most planting situations.

Young plants are extremely sensitive to frost so early sowing should be done in a greenhouse or an indoors windowsill. Sow each seed individually in good quality multi-purpose compost in modular trays that typically hold around 60 plants. The bottom of each segment is pliable allowing for easy extraction without disturbing the root system through too much handling. If this number of plants is not required, try putting other types of seed in the remainder of the modules for experimentation. They can also be planted in pots.

When seeds have germinated and are 5 cm tall, remove each seedling to a 5 cm pot for growing on. Before planting out, it is advisable to ensure they have been hardened off in a cold frame or by placing outside during the day. When plants are about 15 cm tall they can be planted out if acclimatised properly. The maturing plants are susceptible to wind damage, so staking is recommended. Planting in groups or against walls or fences will make this easier. Dwarf varieties will not need staking. All varieties will require feeding periodically with a fertiliser if soil has not been enriched beforehand. Liquid tomato plant feed is ideal at the recommended dilutions for tomatoes.

Flowers are produced during the summer and as the petals begin to drop, so the developing seed-head starts to droop. At this stage, and preferably on a dry day cut off the head and leave it in the sun or under glass to dry and ripen. Keep seeds upwards and when fully ripe the seed-heads start to contract, pushing the seeds outwards. At this point they can be easily removed by rubbing with the thumb. Pick over, removing any that are blemished or give a quick rinse in warm water to remove debris, being careful not to make them too wet as this is likely to cause trouble when stored. Spread on a sheet to dry.

Seed-heads can be fed whole, hung up on wire or just placed with the seed facing upwards. Try giving when ripe but with seeds still retaining some moisture - some birds, and almost any granivorous mammal will relish them. Some species may take time to adjust to the strange presentation of a familiar seed! Watching seven Eclectus Parrots at one end of an aviary, each trying to pluck up the courage to inspect some recently introduced seed-heads at the other end, is quite amusing and it was several days before they started to tuck into them.

QUINOA *Chenopodium quinoa* (see Game Crops)

## **GREENFOODS**

Besides species of wild plant described in the main section, some of which are used as a greenfood, a whole range of other plants are utilised for various other purposes and can be used equally to supply fresh greenfood. Because most of this seed comes from mass-produced crops it is relatively cheap and, sown thickly, can provide an almost constant supply of fresh leaves once a working regime has been perfected.

The two main types to consider are green manures and game and shooting crops, both of which will be dealt with separately in this section. The methods of growing, however, are the same for both and can be achieved in two ways:-

1. The conventional way of sowing into the ground can be done for both green manure and game and shooting crops with the former also planted in borders where hoeing or light digging is possible. Larger areas can be sown, way above normal requirements and when wildfoods become available from spring onwards, what remains can be turned in to enrich the soil. If intending to use green manure to enrich soil, consult literature covering the subject, as certain forms require different digging in requirements. Some can be dug in when quite large, others not so, though generally all can be when small. Seedlings can be pulled up or developing shoots cut and fed as required.
2. Sown in seed trays, the young plants can be either trimmed and the foliage fed or, with a wire mesh cover placed over it, put in an enclosure to be picked over. If removed when some greenery is still showing, there is likely to be regrowth for later use. This method is only suitable for production of young growth, as available growing medium is unable to support a high density of large plants. Seeding compost should be used for this method, as nutrients are likely to be taken up quickly by the young growth. The root mat can be composted or given to species which eat roots such as some species of pheasants and types of chickens.

## **GREEN MANURES**

The word manure conjures up smelly, rotting animal matter used to enhance the fertility of soil for the benefit of other plants. Green manure provides much the same value to the soil but without the smell and takes the form of growing specific plants on bare soil, between main crops, and then turning them into the soil, usually while quite small. These in turn provide nutrients for subsequent crops and are used now, mainly to aid the production of organic crops.

Many of the favoured types produce acceptable greenery which will be relished by many species but as is common when offering new food items as a trial, acceptance may be slow initially and perseverance could be needed.

The growing times listed are for outside planting, either in ground or seed trays. If growing indoors in trays, times may be extended.

### ALFALFA *Medicago sativa*

A perennial belonging to the pea family that should be planted between April and November. It dislikes waterlogged soils and is not overly fond of acid soils either. It is deep rooted and when established can tolerate quite dry conditions. As such, it is a good plant to perpetuate from year to year so as to provide fresh greenery in hot summers when there is liable to be a paucity of other forms available. Alfalfa grows to around 150 cm, is winter hardy and the foliage has excellent nutritional qualities.

### WHITE MUSTARD *Sinapis alba*

Perhaps the quickest growing green manure, which requires a reasonably fertile soil. Planted between March and September, can take as little as eight weeks to mature but becomes woody and tough at the onset of flowering. A member of the cabbage family, it is strong flavoured. Grows to a height of around 90 cm. Annual.

### FENUGREEK *Trigonella foenumgraecum*

Planted between March and August, Fenugreek is an annual that does best on well-drained soils. It produces a mass of foliage throughout the summer, which is eaten by some species but may be an acquired taste because of its strong flavour. Can be quick growing in the right conditions. See also section on sprouting seeds.

### PHALACIA *Phacelia tanacetifolia*

Forms a bushy plant, topped with blue flowers that can reach 90 cm in height. It is hardy and can be sown as late as September. The later sowing can take 5-6 months to mature but seeds sown in March onwards can take as little as two months. Perhaps one of the more expensive green manure seeds but mature plants set seed readily and collecting your own for the following year should not be a problem if some plants are allowed to mature.

### GRAZING RYE *Sicale cereale*

This cereal is winter hardy and usually planted from August through to November. It is an ideal plant for species that will take it and really is a must for the winter months. It is an annual whose season is autumn to spring and is tolerant of most soils. Can be broadcast or planted in rows and will reach a maximum height of 60 cm.

Besides using as a conventional feed stuff, it is ideal for feeding to locusts which in turn are being used as a livefood. Traditionally, given a handful of grass, Grazing Rye is of more benefit, as it is an actively growing plant during the winter months as opposed to the dormant state of grass.

### CLOWERS *Trifolium sp.*

Several clovers are ideal greenfood and species that eat greenery usually take to clover with relish. Alsike *T. hybridum*, Crimson *T. incarnuta* and Red Clover *T.*

*pratense* are available. All can be broadcast sown from April through to August and will produce a good crop within two months. Clover, if left long term, needs to be cut down to promote new growth. These low growers are ideal for the seed tray method if used for nibblers, the constant grazing will encourage new shoots if they are not allowed to become damaged beyond regrowth.

### Further Reading

Pears, P. 1990. Guide to Green Manures. Henry Doubleday Research Association

### Seed Suppliers

A selection can be obtained from larger garden centres, major mail order seed companies and from many suppliers of organic products listed in publications such as *Amateur Gardening* and *The Garden*. Below are listed two main suppliers.

Henry Doubleday Research Association, Ryton-on-Dunsmore, Coventry, CV8 3LG  
Suffolk Herbs, Monks Farm, Goggeshall Road, Kelvedon, Essex, CO5 9PG

## GAME AND SHOOTING CROPS

Practically all Estates which provide facilities for the rearing and release of game birds for shooting will have an area purposely set aside and planted with crops that are beneficial in the feeding and holding of gamebirds throughout the shooting season. The benefit of such crops to the hobbyist is that they are able to provide an abundance of greenfood and in a different variety to other sections covered in this book.

The downside is that because they are normally sold for planting a large area availability is, quite frequently, governed by a minimum weight, usually a kilo. However, where types overlap with suppliers offering the same in small packets, such as garden centres and mail order seed catalogues, the cost of a kilo is little more than that of 3 or 4 small packets!

Recommendations are made for planting in the year of purchase. However, although seed viability might diminish over time, adequate germination should still be had over much longer periods if seeds are kept in dark and dry conditions. This makes purchasing in bulk cost effective over time.

### QUINOA *Chenopodium quinoa*

A domestic food crop from South America closely related to Good King Henry and Fat Hen. It is being used increasingly as a cover and feed crop and its requirements are becoming better known. Varieties are now being bred that are suitable for growing in the UK. 'Sandoval' is one such form.

For the hobbyist, the growing of Quinoa as greenfood is perhaps best undertaken by the container method using good growing compost. If planted in soil it is quite likely to be swamped by weeds unless given a head start in containers then

transplanted after weeds have been knocked back. Herbicides should not be used, and not just because it is being used as a foodstuff, for it will also be affected because of its relatedness to other *Chenopodium* for which many modern herbicides have been developed.

Seed should be sown at a depth of 2.5 cm in a medium that ideally needs to be around pH 6.0 - 6.5. Below this, lime will need to be added to ensure optimum growth. Sown early May in a good medium, the 2 m high plants will produce the most spectacular flowers of pink, purple, green, cream, gold and ochre in September. Seeds are ripe when they come away from the head readily. Harvest by cutting the plants and rubbing the seed-heads between the hands.

### BUCKWHEAT *Fagopyrum esculentum*

After the threat of frost has past Buckwheat needs to be planted in the open for maximum growth. The first frosts of autumn will also knock it over, making it a plant that does best in southern England. It can, however, be planted in poor soils.

Growth is rapid with plants maturing at around twelve weeks after attaining a height of about a metre. Seeds progressively ripen over several weeks making it not that useful as a small scale harvestable bird food, but it is one that is still of benefit if pot-grown or planted in an enclosure.

### CANARY GRASS *Phalaris arundinacea*

Not to be mistaken with Canary Seed *P. canariensis*, which is an annual, Canary Grass is perennial and takes at least two years to become established. First year growth is limited to 40 - 60 cm but from the second spring it will grow apace, attaining a height which can be in excess of 2 m in good growing conditions.

Sow in soil about 1 cm deep in late March or early April outdoors; two or three weeks earlier if grown undercover. Because a crop is likely to become very dense, it is perhaps best sown in pots and the seedlings planted out in blocks with all round spacing between plants of 20 - 30 cm.

Although not producing seed in its first year, Canary Grass is a reliable producer from the second year onwards. However, it is a monstrous plant to have growing of in a small area and is perhaps best grown inside an enclosure where several plants can also provide cover for ground dwelling species. Seed-heads can be cut and stored from August onwards when ripe and can be fed whole rather than trying to separate the seed.

Native to Britain *Phalaris arundinacea* will grow in rough conditions, while the recently introduced *P. tuberosa* from Australia and New Zealand is less tolerant of both climate and growing conditions.

*N.B.* Canary Grass leaf may cause Phalaris Staggers in sheep, cattle and possibly related exotic species.

### KALE *Brassica oleracea*

Although technically a vegetable which is beyond the scope of this booklet, kale bred for fodder and game cover differ and exhibit the characteristics bred into it for a specific use. If growing just a few plants in the corner of a vegetable plot, with the dual purpose of providing fresh greenery for both human and animal consumption

it is perhaps best to stick to one of the many varieties available from vegetable seed suppliers. However, if the sole intention is to grow as animal food, again a variety bred for human consumption can be used if only a small amount is needed, otherwise, one of the game crop varieties is better suited. There are many available with perhaps 'Thousand head' worth considering over others.

Buying a game and crop variety means you obtain much more for your money enabling it to become a cheap and reliable source of greenfood. Broadcast in trays or small areas of ground it can be used as a "cut and come" greenfood, snipping of leaves as and when required. Doing this ensures young leaves are available for most of the year and may be offered to and taken by species that find the taste of mature leaves too strong for their liking.

Kale can be grown in most soils. Obtain winter hardy varieties and plant from May onwards. Sowing a new crop every 10-14 days will provide an almost continuous supply of fresh leaves, especially if container grown as these can be placed in a frost-free environment during winter months which will aid germination and growth.

#### TEXEL GREENS *Brassica carinata*

The use of this cabbage relative as a greenfood is likely to be prohibitively high at around £25 per kilo but cost can be split if interested parties could be found. Originating from the highlands of Ethiopia, Texel Greens are quick growing and winter hardy. Planting details are identical to kale to which it is closely related. Small packets of seed are now available from outlets retailing conventional vegetables.

#### FODDER RADISH *Raphomussativus campestris*

At around £3 per kilo, fodder radish is perhaps the cheapest and most productive of the game and shooting crops to use as a greenfood. Broadcast in pans or small plot of ground, it is capable of growing 12-18 cm in a matter of weeks, regrettably becoming tough and woody from 6-8 weeks after planting. It is said to be fairly resilient to Brassica sickness, which can decimate related species. Cut leaves when 8-10 cm and sow a new batch every week or so.

#### Further Reading

Game Conservancy. 1994. Game and Shooting Crops. Game Conservancy Ltd

#### Seeds Suppliers

Agrigame UK Ltd., The Moat, Boyce Farm, Stanford Bishop, Worcestershire, WR6  
5UB

Gamekeepa Feeds Ltd., Southerly Park, Binton, Warwickshire CV37 9TU

Haygate and Sons Ltd., Bugbrooke Mills, Northampton, NN7 3QH.

# SPROUTING SEEDS, GRAINS AND PULSES

The use of soaked seed is fairly widespread but taking it a step further is much less practised. Species that will take seeds, pulses or grains once shoots have developed up to the stage where the first leaves begin to show, will benefit greatly from their improved nutritional content. As with most foods, initial consumption may take a little persuasion and perseverance. Mixing with their normal feed may help.

## Setting up for sprouting

This must be governed by the time one is able to devote to the whole process and the quantity of sprouts needed. It is imperative that a routine is worked out which fits in and can be undertaken alongside other tasks that form part of routine stock management. Using a salad sprouter, with stackable tiers, is perhaps the most efficient method. A layer or two can be assigned to each day and rotated as used. The type of sprout used is again a case of trial and error but with a little practice, a mixture of seeds, pulses and grains can be germinated in one tier or, more ideally, one tier given over to each if requiring all three simultaneously. There are no hard and fast rules - it may take some time to perfect the process so that it fits into a workable routine and provides the quantity and type of sprouts wanted but the benefits will be noticeable.

## Buying

Don't skimp when purchasing; buying quality pulses, grains and seeds for sprouting is of the utmost importance. Seeds are available from many outlets such as health food shops and by mail order, the later frequently supplying them in bulk which, even taking postage into consideration, is still likely to work out much cheaper in the long term. Pulses are available from supermarkets and health food shops with some bird feed merchants supplying mung beans as a separate, as well as mixed pulses. This last source generally advertise them for soaking the seed and may contain split peas and lentils - check with a small handful that a viable amount will sprout. Usually after a couple of days the first signs of a shoot will appear. Split or damaged material will not sprout. It is, however, probably better to buy straights from a supplier and mix your own – split pulses are liable to become a health hazard if left for four or five days while other sprouts mature. Most grains can be purchased from bird feed suppliers.

## Storage of seed

If purchased in sealed packets, leave that way until required. Once open, or if not sealed when purchased, store in cool dry conditions that are not too hot and, if possible, keep in the dark.

## Cleaning

If buying from a reliable source there should be little in the way of bad seed or debris. Pick over, removing any that are discoloured or damaged. Small seeds can be placed in water to float off debris prior to soaking if considered necessary.

## Equipment

There are many methods of sprouting and the system used is liable to depend on both preference and finance but may need to encompass at least two methods, as some seeds are suited to different sprouting procedures. Most will sprout in a jar or sprouter, those requiring a different method are noted under the relevant seed in the Directory.

## TYPES OF SPROUTER

**Salad Sprouter:** These are made specifically for sprouting seeds and pulses and are worth the expense. Usually supplied with two tiers, a lid and a base, additional stackable tiers can be purchased. Each tier has drainage holes, so place under the tap to rinse. The only problem is likely to be the drainage tray which is adequate for a small number of tiers but which may overflow if a large number are used. If so, leave stacked tiers on a draining board for ten minutes before placing on the supplied tray. Available from health food suppliers and larger garden centres.

**Sprouting jars:** These jars come complete with lid in which fine mesh has been incorporated. Stands are also available from suppliers. Can be cumbersome and space consuming.

**Glass jars:** Variety of sizes can be used with muslin attached by means of an elastic band fixed over the mouth of the jar or metal gauze glued into the lid. Cheap, but fiddly.

**Plastic drink bottles:** Cheap and surprisingly effective. Cut a bottle in half and pierce drainage holes in the screw top; an additional screw top without holes can be used instead during the initial soaking process. With the top half inverted and placed in the bottom section you have a sprouter and a water catcher. The open end should ideally be covered with a cloth or the bottom 5 cm of a larger plastic bottle to prevent dust getting in.

**Trays:** The tray method suits some seeds (see Directory) better than sprouting in jars. Virtually any tray will do but plastic rather than metal is preferable. Plastic seed trays are easily acquired but, for a little more outlay, stacking trays used for freezing food can be had from some kitchen suppliers. Those available from Lakeland Limited, Alexandra Buildings, Windermere, Cumbria, LA23 1BQ are ideal and can be stored 15 - 20 high on a flat surface without any loss of stability. Ensure adequate holes are drilled in each tray, except for the bottom one which serves as a drip tray.

**Others:** Numerous other receptacles have been used but all appear to be rather bulky or cumbersome. Most are cheap and if cost is important they could be



considered. However, this is normally relative to what individuals perceive as their priorities. The cost of buying a commercial stacking sprouter with half a dozen tiers will cost little more than a 25 kg bag of seed - an expense people hardly consider if keeping stock. In many cases the cost is likely to be a fraction of the animals themselves.

## Method

Most seeds and pulses will need to be soaked in water for between twelve and twenty-four hours and individual times are noted in the Directory at the end. Ample water should be allowed in the initial soaking process as some, particularly pulses, absorb more than others. Water needs to be changed at least twice and more if possible during the soaking period. To save on time, some place a small amount of bleach or specific preparations in the initial soaking water to help decrease the chance of bacterial growth and do not change the water. It is a personal choice but any means of not adding an additional chemical burden seems preferential to me and I would rather change water regularly than add anything to it.

With salad sprouters, sprouts will need to undergo the soaking process in separate bowls before being transferred to the equipment, most other methods can have the seeds and pulses soaked *in situ*. Once the initial soaking period is completed, rinse thoroughly under a cold, running tap for several minutes, and then at least twice a day until sprouts are used, giving a good final rinse before feeding. The tray method is suitable for small seeds and these can be soaked in the tray and left to drain.

Seeds will sprout between two damp towels in a tray, providing extra attention is paid so that both towels remain damp. Using this means, it is not possible to ensure seeds are rinsed regularly so it is perhaps best avoided for stock feeding.

## Air Circulation

Ensure there is adequate air circulation during sprouting. Failure to do this will encourage the growth of bacteria and mould. Plastic bags are the main culprit, though there is no need to use them under normal circumstances given the variety of other receptacles available. However, if they are used be careful not to seal them too tightly.

## Temperature

Normal room temperature of between 16–18 °C is generally sufficient to encourage growth though the warmer the conditions, the quicker the development. However, do avoid temperatures around 25 °C as this can promote bacterial growth. Some seeds need cooler conditions (soya and chickpea) but keep all away from cold draughts.

## Light or dark

There seems to be little difference whether sprouted in light or dark conditions. If sprouted in the dark, expose to light for at least a day before feeding to encourage partial greening of both stem and leaves.

## When to feed

Much has been said about when best to feed, especially in relation to human consumption but with stock, in particular smaller species, it may be a case of trial and error. Without doubt the best time for most types of animal nutritionally is either just as the first leaves begin to show or as the shoots start to green up - chlorophyll is a very important aspect of nutrition. However, having said that, some types of sprouts become bitter after several days so it is unlikely that these will be eaten once they green. These are listed in the Directory.

Start off by offering sprouts that are just beginning to shoot, gradually increasing the length of sprout until they are being accepted with the first leaves showing. Species that already take greenfood should take to them with very little trouble from the greening stage. Do not expect sprouts to be eaten immediately by species unfamiliar with them, but persevere at each stage for seven to ten days.

Reducing other feeds may help but do not attempt this at critical times of the year such as the breeding season or in extremes of weather, both hot and cold. Mixing sprouts with other fare, rather than keeping separate in the food bowl, may also help but not with food items that may be left in for several days such as seed mixtures.

### Storage of sprouts

Sprouts can be left in sprouting apparatus until needed or stored in airtight containers in a fridge for three or four days. Wash thoroughly before feeding, removing any that are discoloured.

## DIRECTORY OF SEEDS, PULSES AND GRAINS

The length and times given below are only guidelines and may vary depending on sprouting conditions.

All seeds, pulses and grains listed below are those available specifically for sprouting but there is no reason why any of the seeds used as bird food can not be sprouted and offered. Try soaking any straights or mixtures for twelve hours and, changing the water as frequently as possible, sprout as per general instructions for a minimum of three days or until the required length of shoot is attained. British Finch, Foreign Finch and Budgie mixtures will all give good results.

### PULSES

| Type             | Soak (hrs) | Sprout (days) | Length (cm) | Comments   |
|------------------|------------|---------------|-------------|--|
| Aduki beans      | 12         | 4             | 3-4         |  |
| Black-eyed beans | 12         | 3-5           | 3-4         |  |
| Chick peas       | 18         | 2-3           | 2-3         | Sprout in cooler conditions. Turns mouldy quite quickly. |
| Green peas       | 12         | 3             | 2           | Become tough with age.                                   |
| Haricot beans    | 12         | 5             | 3           |  |

|            |    |     |     |   |
|------------|----|-----|-----|---|
| Lentils    | 12 | 3-4 | 3   | Use whole lentils with hulls intact.                          |
| Mung beans | 12 | 3-5 | 3-4 | One of the easiest to grow.                                   |
| Soya beans | 18 | 3-5 | 2-4 | Change soaking water frequently. Sprout in cooler conditions. |

### SEEDS

|                 |    |      |     |   |
|-----------------|----|------|-----|---|
| Alfalfa         | 12 | 5    | 3-4 | High protein content.   |
| Cabbage         | 12 | 4    | 2-3 |   |
| Cress (salad)   | 0  | 7-10 | 3-5 | Not often available now. Sow in tray on damp towel and spray regularly. Cut when leaves show. |
| Fenugreek       | 12 | 3-7  | 2-6 | Strong flavour. Livestock may need time to become accustomed to it.                           |
| Mustard (salad) | 0  | 7-10 | 3-5 | Sow in tray on damp cloth and spray regularly. Cut when leaves show.                          |
| Pumpkin         | 12 | 1-2  | 1   | Feed when "plumped-up".   |
| Radish (Jaba)   | 12 | 3-4  | 2-4 | Hot flavour. Mix with other sprouts.  |
| Rape (salad)    | 0  | 7-10 | 5-7 | Sow in tray on damp cloth and spray regularly. Cut when leaves show.                          |
| Red Clover      | 12 | 4    | 3-4 |   |
| Sesame          | 12 | 2    | 0.5 | Can become bitter after three days.   |
| Sunflower       | 12 | 2    | 1   | Turns bitter if left too long.  |

### GRAINS

|        |    |     |     |  |
|--------|----|-----|-----|--|
| Barley | 12 | 5-6 | 4-5 |  |
| Corn   | 12 | 4-6 | 4-5 |  |
| Oats   | 12 | 4-6 | 3-5 | Whole oats or groats only.   |
| Quinoa | 12 | 3   | 5   | Fastest to sprout. Can become bitter.  |
| Rye    | 12 | 4   | 3   |  |
| Wheat  | 12 | 3-4 | 2   | Fluffy roots can be mistaken for mould. Very nutritious if shoots left until 5 cm. |

### Further Reading

Cairney, E. 1997. The Sprouters Handbook. Argyll Publishing

Sellman, P & Sellman, G. 1986. The Complete Sprouting Handbook. Thorsons

## CEREAL CROPS

Two main types of cereal crops can be utilised as animal food and are easy to grow. Both wheat and oats are easy to obtain through normal or agricultural seed suppliers. These grains are nutritious and form a staple for a fair percentage of the worlds human and animal populations in one form or another.

Both can be planted in open ground or in pots filled with ordinary garden soil. Plant under cover in February, or in open ground towards the end of March or early April. Because both are commercial grains and developed for rapid growth clumps of both will be ready from July onwards. The dry seed we see in feed mixtures bears no resemblance to the succulent and plump moist grains of the developing plant. Both are

relished once animals get used to a new food. Wheat especially is idea for young in the nest.

## **GLOSSARY OF TERMS**

**Annual:** Live for a year or less

**Auricles:** Small hooked outgrowth at the junction of the leaf and stalk

**Biennial:** Live for two years. First year growth usually restricted to a basal rosette of leaves with flowers produced in their second year

**Broadcast:** Scatter loosely as opposed to regimented planting

**Clock:** Fluffy seed-head of certain species (e.g. dandelion)

**Inflorescence:** Flowering part of a plant

**Pappus:** The parachute-like structure that helps disperse the seeds (e.g. dandelion)

**Perennial:** Live for longer than two years and are sometimes woody-stemmed

**Rays:** Circle of petals which radiate from the centre of a flower

**Spikelets:** A small, crowded spike, itself forming part of a larger inflorescence

**Umbel:** An almost flat head of flowers borne on stalks where the lower flowers are on longer ones than those produced on the top stalks.

## **ACKNOWLEDGEMENT**

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## **NOTES**

