



## Plants to look out for in September



### An autumn bounty

With temperatures and daylengths both now reducing, we can look forward to witnessing the myriad ways that plants disperse their seeds. Every year is different – just 2 years ago our local beech trees produced an abundance of their hard, bristly fruits, such that every step taken in the woods was accompanied by a resounding ‘crunch’. Yet last year I struggled to find any. You hear of ‘good years’ and ‘bad years’ for certain fruits and seeds, and it is always exciting to see which plants will produce prolifically each year. Environmental factors such as the timing of frosts, the availability of water, the average temperature each month etc will all impact upon how well a plant does with its reproductive output.



**Fresh green hazelnuts in early September – *Corylus avellana***

Fruit and seed production is a costly affair in terms of the energy and resources required of the plant. There is an ‘adaptive advantage’ for species that can co-ordinate their output and deliver ‘bumper years’. In relation to our woodland trees such as beech and oak, these events are known as ‘mast years’. This phenomenon is thought to benefit these species, because if more food is produced than its predators (‘frugivores’) can consume, then at least some will survive and go on to grow into new plants. It is most probably achieved as a result of certain genes present in the individuals of these species detecting specific environmental cues and then triggering (or not) fruit and seed production.



**Sloes – fruits of the Blackthorn, *Prunus spinosa***

Once a plant has gone to the effort of producing a crop of seeds, it also needs to ensure their dispersal. Seed dispersal is important, as it reduces competition for resources such as light, space, water and minerals. Within the plant kingdom there are many different examples of dispersal mechanisms – detailed on the following pages. I provide several examples of species that display each method of dispersal, to help you with your plant hunting.

Rosehips and hawthorn berries are already conspicuous in our hedgerows this year, and I have a feeling that it will be a much better year for sloes than last year. So take some time to see what is developing, and to think about what measures each species takes to ensure the dispersal of its fruits.

## Modes of seed dispersal, with examples to look out for in September

### 1. Animal dispersal

#### a. Take-aways

Fruits and nuts are designed to be eaten on the spot or be taken away and stashed for later. Notice that fruits and berries, which are generally eaten by birds, tend to be brightly coloured (usually red) whereas the nuts and seeds favoured by mammals are often brown. This is because birds see particularly well in the red part of the spectrum, and visual conspicuousness may be less important to mammals, who respond more heavily to scent as a lure for food. These groups of animals play a critical role in seed dispersal and plants have co-evolved with their dispersal agents, playing to their different strengths.

Examples include: **Acorns** (*Quercus* spp.), **Blackberry** (*Rubus 'fruticosus'*), **Guelder rose** (*Viburnum opulus*), **Hawthorn** (*Crataegus monogyna*), **Hazelnuts** (*Corylus avellana*), **Sweet Chestnut** (*Castanea sativa*) and **Horse Chestnut** (*Aesculus hippocastanum*).

#### b. Hitchhikers

Fruits are produced with tiny hooks or spurs on their surface, so that they readily attach to animal fur and get carried away.

Examples include: **Burdock** (*Arctium* spp.), **Wood avens** (*Geum urbanum*) and **Cleavers** (*Galium aparine*).



Bright red berries of the Guelder Rose, *Viburnum opulus*



Clingy burs of burdock, *Arctium* spp.

### 2. Wind dispersal

#### a. Parachutes

Small, light seeds are attached to a downy, feathery device, which enables the seed to float away from the parent plant on the breeze. These parachutes vary in form, and the plant part from which they are created differs between species – but they all have the same effect. The perfectly shaped parachute of the thistles and their relatives is called a 'pappus', and it develops from the calyx at the base of the floret. In the clematis, however, the style attached to each developing seed continues to grow after pollination, forming a long, feathery tail.

Examples include: **Dandelion** (*Taraxacum* spp.), **Old Man's beard** (*Clematis vitalba*), **Thistles** (*Carduus* and *Cirsium* spp.), and **Willowherbs** (*Epilobium* spp.).



Feathery fronds of Old Man's beard, *Clematis vitalba*

#### b. Wings

Several of our deciduous trees produce winged fruits, so rather than falling directly downwards off the tree, they follow a sideward trajectory. The position of the wing in relation to the seed varies, depending on the species.

Examples include: **Ash** (*Fraxinus excelsior*), **Birch** (*Betula* spp.), **Hornbeam** (*Carpinus betulis*), **Lime** (*Tilia* spp.), and **Maples and sycamore** (*Acer* spp.).



Winged fruits (keys) of the sycamore, *Acer pseudoplatanus*

### 3. Self dispersal

#### a. Explosive dispersal

Seeds are vigorously expelled from the plants when the fruit is ripe, due to clever construction of the fruit wall. The presence of specialised tissues within the wall of the fruit means that they gradually become 'spring loaded' as they develop. Tension builds until eventually reaching a critical point, when the fruits burst open and hurl out their seeds. On a quiet sunny day it is possible to hear the exploding seed cases of some species – especially Gorse.

Examples include: *Common Gorse (Ulex europaeus)*, *Geraniums (Geranium spp.)*, the invasive weed *Himalayan Balsam (Impatiens glandulifera)*, *Pansies and Violets (Viola spp.)* and *Vetch (Vicia spp.)*.



Intact (right) and exploded (left) fruit capsules of the Cut-leaved Crane's-bill, *Geranium dissectum*



Fruit capsule of the Common Poppy, *Papaver rhoeas*, with small openings visible at the top

#### b. Pepper pots

Small seeds are enclosed within a fruit capsule, and as they ripen and dry they become loose within this structure. The seeds escape from these 'pepper pots' through openings, which vary with each species. Such capsules are usually found on the end of long springy stems, which are bent downwards when an animal brushes or they are caught by a strong gust of wind. They then spring back vigorously, releasing a shower of seeds in the process.

Examples include: *Foxglove (Digitalis purpurea)* and *Poppy (Papaver spp.)*.

### 4. Water dispersal

For plants that live on or near water, it is naturally common to see seed dispersal via the water in their habitat. When initially released, these seeds will float on the surface of the water, due to pockets of air held within them. Eventually these seeds will either come to land on a bank or sink to the bottom, and once they have come to rest, they will begin to germinate and set down roots.

Examples include: *Alder (Alnus glutinosus)* and the *Yellow Flag Iris (Iris pseudacorus)*



Opened fruits of Yellow Flag Iris (*Iris pseudacorus*) revealing ripe seeds.

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