



Physical Characteristics

Hippophae rhamnoides is a deciduous Shrub growing to 6 m (19ft) by 2.5 m (8ft) at a medium rate.

It is hardy to zone 3 and is not frost tender. It is in flower in April, and the seeds ripen from Sep to October. The flowers are dioecious (individual flowers are either male or female, but only one sex is to be found on any one plant so both male and female plants must be grown if seed is required) and are pollinated by Wind. The plant is not self-fertile.

It can fix Nitrogen.

The plant prefers light (sandy), medium (loamy) and heavy (clay) soils and can grow in nutritionally poor soil. The plant prefers acid, neutral and basic (alkaline) soils..It cannot grow in the shade. It requires dry moist or wet soil and can tolerate drought. The plant can tolerate maritime exposure.

Habitats

Woodland Garden Sunny Edge; Bog Garden;

Edible Uses

Edible Parts: Fruit; Oil.

Fruit - raw or cooked. Very rich in vitamin C (120mg per 100g)[74] and vitamin A[183], they are too acid when raw for most peoples tastes[11, 158], though most children seem to relish them[K]. Used for making fruit juice, it is high in vitamins and has an attractive aroma[141]. It is being increasingly used in making fruit juices, especially when mixed with other fruits, because of its reputed health benefits[214]. The fruits of some species and cultivars (not specified) contain up to 9.2% oil[214]. The fruit is very freely borne along the stems[K] and is about 6 - 8mm in diameter[200]. The fruit becomes less acid after a frost or if cooked[74]. The fruit is ripe from late September and usually hangs on the plants all winter if not eaten by the birds. It is best used before any frosts since the taste and quality of frosted berries quickly deteriorates[214].

Medicinal Uses

Plants For A Future can not take any responsibility for any adverse effects from the use of plants. Always seek advice from a professional before using a plant medicinally.

Astringent; Cancer; Cardiac; Poultice; Tonic; Vermifuge.

The twigs and leaves contain 4 - 5% tannin[240]. They are astringent and vermifuge[7, 100]. The tender branches and leaves contain bio-active substances which are used to produce an oil that is quite distinct from the oil produced from the fruit. Yields of around 3% of oil are obtained[240]. This oil is used as an ointment for treating burns[214]. A high-quality medicinal oil is made from the fruit and used in the treatment of cardiac disorders, it is also said to be particularly effective when applied to the skin to heal burns, eczema and radiation injury, and is taken internally in the treatment of stomach and intestinal diseases[214]. The fruit is astringent and used as a tonic[9, 254]. The freshly-pressed juice is used in the treatment of colds, febrile conditions, exhaustion etc[9]. The fruit is a very rich source of vitamins and minerals, especially in vitamins A, C and E, flavanoids and other bio-active compounds. It is also a fairly good source of essential fatty acids, which is fairly unusual for a fruit. It is being investigated as a food that is capable of reducing the incidence of cancer and also as a means of halting or reversing the growth of cancers[214]. The juice is also a component of many vitamin-rich medicaments and cosmetic preparations such as face-creams and toothpastes[9]. A decoction of the fruit has been used as a wash to treat skin irritation and eruptions[254].

Other Uses

Charcoal; Cosmetic; Dye; Fuel; Oil; Pioneer; Soil stabilization; Wood.

Very tolerant of maritime exposure[29, 49, 75, 182], it can be used as a shelter hedge. It dislikes much trimming[75]. A very thorny plant, it quickly makes an impenetrable barrier. Sea buckthorn has an extensive root system and suckers vigorously and so has been used in soil conservation schemes, especially on sandy soils. The fibrous and suckering root system acts to bind the sand[186, 244]. Because the plant grows quickly, even in very exposed conditions, and also adds nitrogen to the soil, it can be used as a pioneer species to help the re-establishment of woodland in difficult areas. Because the plant is very light-demanding it will eventually be out-competed by the woodland trees and so will not out-stay its welcome[K]. The seeds contain 12 - 13% of a slow-drying oil[240]. The vitamin-rich fruit juice is used cosmetically in face-masks etc[9]. A yellow dye is obtained from the fruit[74]. A yellow dye is obtained from the stems, root and foliage[4]. A blackish-brown dye is obtained from the young leaves and shoots[74]. Wood - tough, hard, very durable, fine-grained. Used for fine carpentry, turning etc[46, 61, 74]. The wood is also used for fuel and charcoal[146].

Cultivation details

Succeeds in most soils[200], including poor ones[186], so long as they are not too dry[182, 200]. Grows well by water and in fairly wet soils[182]. Established plants are very drought resistant[186]. Requires a sunny position[3], seedlings failing to grow in a shady position and mature shrubs quickly dying if overshadowed by taller plants[186]. Does well in very sandy soils[1, 186]. Very tolerant of maritime exposure[75]. Plants are fairly slow growing[75].

Although usually found near the coast in the wild, they thrive when grown inland[11] and are hardy to about -25°C[184]. A very ornamental plant[1, 11], it is occasionally cultivated, especially in N. Europe, for its edible fruit, there are some named varieties[183]. 'Leikora' is a free-fruited form, developed for its ornamental value. Members of this genus are attracting considerable interest from breeding institutes for their nutrient-rich fruits that can promote the general health of the body (see edible and medicinal uses below)[214]. This species has a symbiotic relationship with certain soil bacteria, these bacteria form nodules on the roots and fix atmospheric nitrogen. Some of this nitrogen is utilized by the growing plant but some can also be used by other plants growing nearby[113, 186, 200]. Plants produce abundant suckers, especially when grown on sandy soils[186]. Dioecious. Male and female plants must be grown if seed is required. The sexes of plants cannot be distinguished before flowering, but on flowering plants the buds of male plants in winter are conical and conspicuous whilst female buds are smaller and rounded[11]. Plants in this genus are notably resistant to honey fungus[200].

Propagation

Seed - sow spring in a sunny position in a cold frame[78]. Germination is usually quick and good although 3 months cold stratification may improve the germination rate. Alternatively the seed can be sown in a cold frame as soon as it is ripe in the autumn. Prick out the seedlings into individual pots when they are large enough to handle and grow on in a greenhouse for their first winter. Plant out in late spring into their permanent positions. Male seedlings, in spring, have very prominent axillary buds whilst females are clear and smooth at this time[78]. Cuttings of half-ripe wood, June/July in a frame[200]. Difficult[113]. This is the easiest method of vegetative propagation[214]. Cuttings of mature wood in autumn[200]. Difficult[113]. The cuttings should be taken at the end of autumn or very early in the spring before the buds burst. Store them in sand and peat until April, cut into 7 - 9cm lengths and plant them in a plastic tent with bottom heat[214]. Rooting should take place within 2 months and they can be put in their permanent positions in the autumn[214]. Division of suckers in the winter. They can be planted out direct into their permanent positions and usually establish well and quickly[K]. Layering in autumn[200].

Links / References

[K] Ken Fern Notes from observations, tasting etc at Plants For A Future and on field trips.

[1]F. Chittendon. RHS Dictionary of Plants plus Supplement. 1956

Comprehensive listing of species and how to grow them. Somewhat outdated, it has been replaced in 1992 by a new dictionary (see [200]).

[3]Simmons. A. E. Growing Unusual Fruit.

A very readable book with information on about 100 species that can be grown in Britain (some in greenhouses) and details on how to grow and use them.

[4]Grieve. A Modern Herbal.

Not so modern (1930's?) but lots of information, mainly temperate plants.

[7]Chiej. R. Encyclopaedia of Medicinal Plants.

Covers plants growing in Europe. Also gives other interesting information on the plants. Good photographs.

[9]Launert. E. Edible and Medicinal Plants.

Covers plants in Europe. a drawing of each plant, quite a bit of interesting information.

[11]Bean. W. Trees and Shrubs Hardy in Great Britain. Vol 1 - 4 and Supplement.

A classic with a wealth of information on the plants, but poor on pictures.

[17]Clapham, Tutin and Warburg. Flora of the British Isles.

A very comprehensive flora, the standard reference book but it has no pictures.

[29]Shepherd. F.W. Hedges and Screens.

A small but informative booklet giving details of all the hedging plants being grown in the R.H.S. gardens at Wisley in Surrey.

[46]Uphof. J. C. Th. Dictionary of Economic Plants.

An excellent and very comprehensive guide but it only gives very short descriptions of the uses without any details of how to utilize the plants. Not for the casual reader.

[49]Arnold-Forster. Shrubs for the Milder Counties.

Trees and shrubs that grow well in Cornwall and other mild areas of Britain. Fairly good, a standard reference book.

[61]Usher. G. A Dictionary of Plants Used by Man.

Forget the sexist title, this is one of the best books on the subject. Lists a very extensive range of useful plants from around the world with very brief details of the uses. Not for the casual reader.

[74]Komarov. V. L. Flora of the USSR.

An immense (25 or more large volumes) and not yet completed translation of the Russian flora. Full of information on plant uses and habitats but heavy going for casual readers.

[75]Rosewarne experimental horticultural station. Shelter Trees and Hedges.

A small booklet packed with information on trees and shrubs for hedging and shelterbelts in exposed maritime areas.

[78]Sheat. W. G. Propagation of Trees, Shrubs and Conifers.

A bit dated but a good book on propagation techniques with specific details for a wide range of plants.

[100]Polunin. O. Flowers of Europe - A Field Guide.

An excellent and well illustrated pocket guide for those with very large pockets. Also gives some details on plant uses.

[113]Dirr. M. A. and Heuser. M. W. The Reference Manual of Woody Plant Propagation.

A very detailed book on propagating trees. Not for the casual reader.

[141]Carruthers. S. P. (Editor) Alternative Enterprises for Agriculture in the UK.

Some suggested alternative commercial crops for Britain. Readable. Produced by a University study group.

[146]Gamble. J. S. A Manual of Indian Timbers.

Written last century, but still a classic, giving a lot of information on the uses and habitats of Indian trees. Not for the casual reader.

[158]Gupta. B. L. Forest Flora of Chakrata, Dehra Dun and Saharanpur.

A good flora for the middle Himalayan forests, sparsely illustrated. Not really for the casual reader.

[182]Thomas. G. S. Ornamental Shrubs, Climbers and Bamboos.

Contains a wide range of plants with a brief description, mainly of their ornamental value but also usually of cultivation details and varieties.

[183]Facciola. S. Cornucopia - A Source Book of Edible Plants.

Excellent. Contains a very wide range of conventional and unconventional food plants (including tropical) and where they can be obtained (mainly N. American nurseries but also research institutes and a lot of other nurseries from around the world.

[184]Phillips. R. & Rix. M. Shrubs.

Excellent photographs and a terse description of 1900 species and cultivars.

[186]Beckett. G. and K. Planting Native Trees and Shrubs.

An excellent guide to native British trees and shrubs with lots of details about the plants.

[200]Huxley. A. The New RHS Dictionary of Gardening. 1992.

Excellent and very comprehensive, though it contains a number of silly mistakes. Readable yet also very detailed.

[214]Matthews. V. The New Plantsman. Volume 1, 1994.

A quarterly magazine, it has articles on *Himalayacalamus hookerianus*, hardy Euphorbias and an excellent article on *Hippophae* spp.

[240]Chopra. R. N., Nayar. S. L. and Chopra. I. C. Glossary of Indian Medicinal Plants (Including the Supplement).

Very terse details of medicinal uses of plants with a wide range of references and details of research into the plants chemistry. Not for the casual reader.

[244]Phillips. R. & Foy. N. Herbs

Deals with all types of herbs including medicinal, culinary, scented and dye plants. Excellent photographs with quite good information on each plant.

[254]Chevallier. A. The Encyclopedia of Medicinal Plants

An excellent guide to over 500 of the more well known medicinal herbs from around the world.

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