

Going Nuts

Nuts, whole hazelnuts - Potentially Ireland's most productive and sustainable source of protein!

By Paul McCormick and Jacinta French

The Hazel tree and its cultivated relative, the Cobnut, is possibly the most neglected of our food producing plants in Ireland. Hazel is most often viewed as a 'wildlife tree', a hedging plant or a source of small poles for the vegetable garden. Whilst it is all of these things, Hazel is much more - it provides an annual supply of protein-rich food.

Ireland was colonised by Hazel soon after the ice retreated and Hazel dominates the pollen records for long periods. In earlier times it was used on a large scale as a source of food and shelter materials. The Hazel was greatly appreciated and revered in ancient Ireland. Its importance is reflected in early mythology, Hazel being regarded as 'the tree of knowledge'. It was also one of the three magical fruiting trees, along with the apple and the oak, which together were considered to satisfy all of mankind's needs.

Hazels and Cobnuts

The Hazel is a multi-stemmed shrub growing up to 10m in height. There are two main species of Hazel. The species native to Ireland is *Corylus avellana*. It also grows throughout Europe into western Asia and North Africa. *Corylus maxima* is native to the Balkans and Asia Minor. Over time, named varieties of both species, commonly called cobnuts or filberts, have been developed in France, Italy, England, Turkey, and the USA (See side panel for a list of varieties). Worldwide, some 800,000 tonnes of commercial hazelnuts are harvested per annum, the bulk of them in Turkey.

Advantages Over Field Crops

In combination with other tree crops (fruit and nuts), Hazel has the potential to play a vital role in a more sustainable approach to food production. The cultivation of most annual grain and legume

crops requires the soil being left bare for a considerable period each year, allowing valuable nutrients to leach out and exposing important soil fauna to the extremes of weather.

Also, grain crops are very demanding of nutrients, and modern yields are only achievable with massive doses of artificial fertilizers. In order to allow the soil time to recover, and to prevent the build up of grain specific diseases and pests, crop rotations of three or four years in duration must be practiced. By contrast, growing trees for food builds soil, increases biodiversity, and also absorbs atmospheric carbon year after year.



Nutritional Benefits

A great incentive for planting Hazel is the nutritional value of the nut crop. Hazelnuts/Cobnuts are 65-70 percent fat (mostly unsaturated), 15-20 percent protein, and 15 percent carbohydrate. Other important nutrients include Vitamin B1, B2 and E, as well as calcium, phosphorus, potassium and selenium. It has been suggested that hazelnuts could be a suitable raw material to replace soybeans.

American researchers have discovered small amounts of taxanes in the foliage and bark of hazel which are the raw material for the relatively new anti-

cancer drug, Taxol, currently derived from the Pacific Yew tree.

Growing Conditions

Hazels/Cobnuts are very easy to grow, and are tolerant of a wide range of soils and conditions. Better crops however will be obtained on good land. The ideal site for a Cob tree is a sunny, sheltered spot, but partial shade is tolerated and may be necessary in an exposed site. In fact, Cobs grow well and fruit reasonably well on the north side of a windbreak. Alkaline soils are preferred but clays and acid loams are tolerated. Hazels do not thrive on unimproved acid peatland.

Spacing and Management

Plants are usually spaced about 5 meters apart but can be planted closer together in a hedgerow. Pruning has traditionally been intensive. A bowl-shaped bush is formed on a single stem, followed by cutting back side-shoots in February and breaking long side-shoots by hand in August. Some growers advocate letting trees grow in a more natural form on multiple stems thus requiring less labour input. Yields between the two methods are comparable. The main limiting factor to crops seems to be soil conditions, so mulching with compost, grass cuttings, etc. will pay dividends.

Propagation

Propagation of native hazelnut by seed is easy. Simply collect the nuts when ripe, usually from mid-September onwards (if possible from a tree bearing regular crops of good nuts). The nuts should be stored over winter in damp sand or in compost, in a cool



place or in a fridge. The store should be protected from rodents and checked regularly. The nuts should be planted in a seedbed in March.

Cobnut varieties do not come true from seed, so their propagation requires a specific technique called 'stooling'. Sturdy plants are cut down in winter to 10-15cm and the regrowth is earthed up over the growing season. The resulting rooted shoots are removed from the tree in winter and planted out for a further year. Propagation of varieties can also be done by 'layering' of shoots, which involves wounding and tying down a shoot into the ground and earthing it up to allow roots to form around the wound.

Pollination

Pollination is by wind and flowering occurs from January to March. Hazels are monoecious, meaning that they carry both male and female flowers. The female flowers are tiny red tassels on the tips of the buds, the male flowers are the familiar 'lamb tails' of early spring. However, flowering times seldom coincide on individual plants so they are regarded as self-sterile. Therefore, two or more different varieties of Cobnut are required for fruiting. Poor weather during flowering may affect the crop but a short period of dry weather seems to allow adequate pollination. Nearby native Hazel, within 40m, will ensure pollination of most Cobnut trees.

Pests and Diseases

Hazels and Cobs are hardy trees that are rarely seriously troubled by disease. The main pest in certain parts of the country is the introduced Grey Squirrel, which takes the nuts before they are ripe. The best control is to trap and dispose of them. It is illegal to release squirrels into the countryside. However, they are a very sustainable and, reportedly, tasty source of protein.

Productivity

Yields are variable from year to year. Individual trees can produce 3-6kg of nuts and sometimes up to 10kg. Mature orchards in Kent, the principle cobnut producing region in England yield 400-800 kg per acre (1-2 tonnes per hectare) using older, less fruitful varieties. With carefully selected varieties higher yields are potentially possible.

Harvesting and Storage

Delay harvesting until the nuts are fully ripe, i.e. when the husks are yellowing and the nuts fall freely from the husk. Laying a tarpaulin under the tree and shaking the branches makes collection easier. Empty nuts can be identified by placing all the nuts in a bucket of water, the empty nuts float to the surface, nuts that sink or lay below the surface are good. Dry the nuts thoroughly on trays in a dry room for 4-6 weeks. Hazelnuts will store in a cool, dry place for 1-2 years if protected from rodents.

Future Potential

In Ireland Hazel and Cobnuts could be grown on a large scale and mechanically harvested. They have the potential to become a major staple food crop. Nuts can be used as a protein substitute, (they have a higher protein content than hens' eggs weight for weight), for producing oil and flour, and in numerous sweet and not so sweet recipes.

Large scale Hazel tree planting would require a change of mindset unlikely to occur under present agricultural and forestry regimes. Individually, however, we can plant Hazel and Cobnut trees to provide ourselves with a sustainable source of excellent nutrition, and simultaneously contribute to the health of the Earth.

Jacinta and Paul now run their own fruit and nut nursery (see Woodkearne Nursery under Green Listings)



Cobnut Varieties

Butler: A vigorous tree producing good crops of large nuts and plenty of male flowers.

Corabel: Another vigorous tree giving regular yields of large nuts in mid-late season.

Cosford: Old variety with medium size nuts of very good flavour, cropping well.

EMOA 1: New variety that has not cropped yet on our farm, nuts are reportedly very large, and the variety very productive.

Ennis: A variety from the USA, giving good crops of very large nuts.

Gunslebert: Smaller tree producing regular crops of medium-sized, well flavoured nuts.

Halls Giant: Large nuts, plentiful male flowers and fairly vigorous tree, heaviest cropper in some UK trials.

Kentish Cob: Traditional English variety, fair yields of medium-sized, tasty nuts.

Longue de'Espagne: Similar to Kentish Cob with slightly longer shaped nuts, produces when very young.

Pearsons Prolific: Heavy, regular cropper of medium-sized nuts of good flavour, a vigorous tree.

Tonda di Giffoni: Italian variety, large nuts, high yielding and good pollinator.

Webbs Prize Cob: English variety, with plentiful clusters of large nuts, high yielding.

All these varieties are being grown at Woodkearne nurseries:

Editors note.

Cobnuts or filberts were very popular in England in the seventeenth and eighteenth centuries and were cultivated on a large scale in some southern counties. Although cobnuts were also commonly grown in the North of England and to a much lesser extent in Scotland, there is no record of them being cultivated on a commercial scale in Ireland. While most European cobnuts are now grown in Italy and Spain, other producers include Poland, Slovenia, France and Denmark.

Weight for weight, cobnuts have a food value 50 percent higher than wheat and the calorific value of cobnuts produced on a given area compares quite well to that of wheat once crop rotations and added artificial fertilizers are factored in. Cobnuts will produce 26-52 GJ/Ha/yr (Gigajoule per hectare per year) whilst land used for wheat will average about 53 GJ/Ha/yr in Ireland (160 GJ/Ha divided by three to allow for crop rotation). Much more energy is required to produce wheat.

Although the ground used for wheat can also be used to produce different crops in the other two years of the cycle, these have a much lower food energy value. In terms of energy inputs and their ability to survive changing climatic conditions brought about by global warming, the cobnuts win hands down. Land used for cobnut production will also provide a ready supply of useful hazel poles, low density grazing for livestock, and plentiful employment for the local community.

A limited range of cobnut varieties (2 and 3 year old barerooted trees) are also available mail order from the Sustainability Institute.