European beech

Fagus sylvatica L.* | *F: Hêtre, fayard* | *I: Faggio comune* | *R: Fau* | *E: Beech

General

Beech is the second most common tree species in Switzerland, accounting for 19 % of all stems[1]. It occurs in almost all parts of the country but is absent from the dry, continental Alpine valleys of the Lower Engadine, the Val Müstair and the main valley of Valais east of Martigny[1]. Under natural conditions it dominates on moist soils in the colline and montane zones. It grows up to about 1400 m a.s.l. and in Ticino even forms the treeline locally[1].

Flowering

Beech flowers are unisexual. The male flowers are borne in dense, pendulous inflorescences, so-called “catkins” (Fig. 1). The flowers appear at the same time as the leaves; flowering lasts from mid-April to May.

Fruits

Beech fruits – beechnuts – are three-sided nuts. Usually two, more rarely three, nuts sit in a woody cup covered with soft spines, the so-called cupule (Fig. 2). The fruits ripen over the course of the summer. From mid-September the cupules open and release the beechnuts; between October and November the fruits and cupules fall to the ground.

Masting behaviour

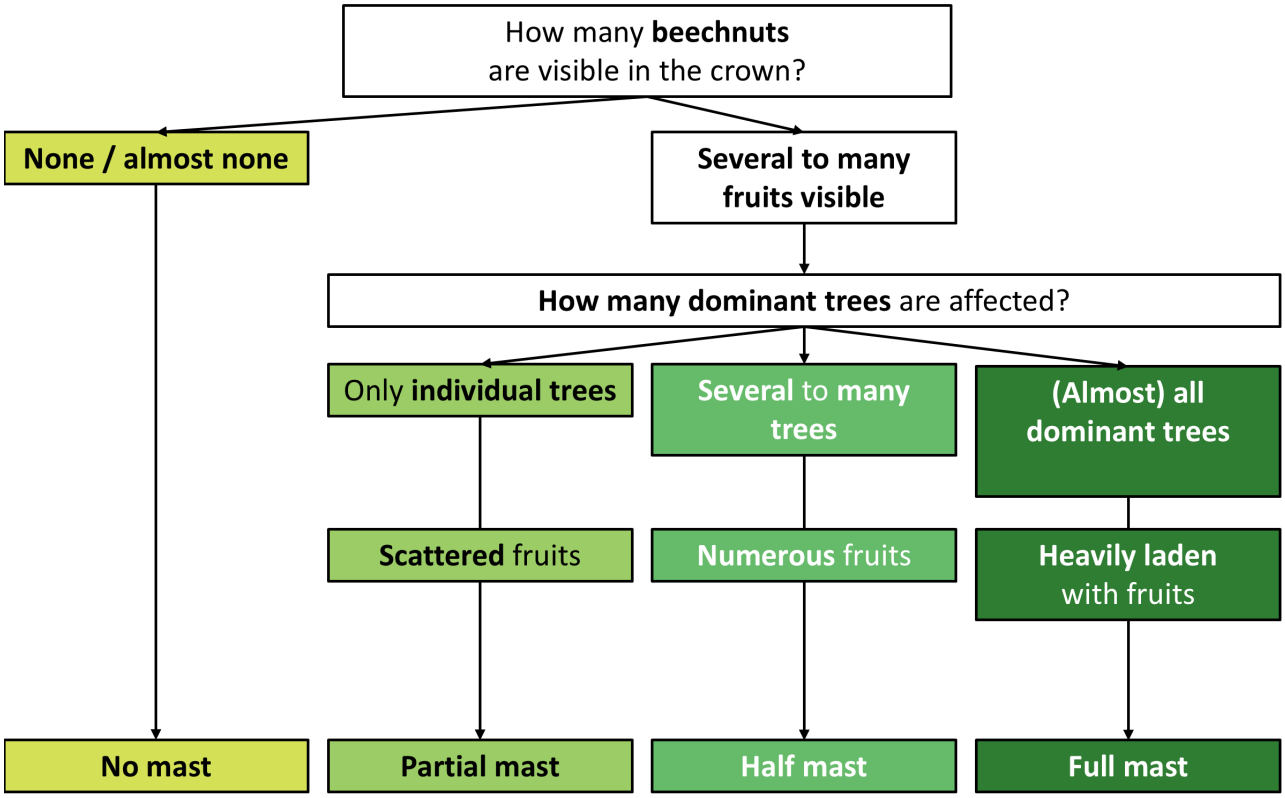
Beech shows pronounced masting behaviour and – depending on weather, elevation and latitude – produces particularly large fruit crops about every 2 to 8 years[2],[3]. Mast years are strongly influenced by the weather in the two preceding years and by conditions during flowering in spring[3].

Mast assessment

Timing: August to mid-September.

Over the summer, the cupules enclosing the seeds turn increasingly brown and thus become easier to distinguish from the foliage. With binoculars, the intensity of beech mast can also be assessed from a greater distance.

Assessing the fruit load: Seed masting is a stand-level phenomenon. Wherever possible, several dominant, reproductively mature trees in a stand are assessed. The mast class describes the stand as a whole, not individual trees with particularly heavy or light fruiting. If the fruit load is uneven, choose the class that best characterises the stand as a whole. The intensity of beech mast can be estimated using the following key:



References

[1] Brändli UB (1996) Die häufigsten Waldbäume der Schweiz. Ber. Eidg. Forsch.anst. Wald Schnee Landsch. 342

[2] Burri A, Burkart A, Moritzi M, Moser B, Wasem U, Wohlgemuth T (2016) Samenproduktion bei Waldbäumen: eine neue Webseite. Zürcher Wald 1/16: 23-27

[3] Drobyshev I, Niklasson M, Mazerolle M J, Bergeron Y (2014) Reconstruction of a 253-year long mast record of European beech reveals its association with large scale temperature variability and no long-term trend in mast frequencies. Agricultural and Forest Meteorology 192: 9-17