

Cultivation of Chicory witloof (Belgian endive)

Introduction

Chicory witloof (Belgian endive) is a biennial herbaceous plant belonging to the family Asteraceae. During the first year of growth the plant develops a deep taproot and produces a rosette of leaves on a short stem. Following a period of cold exposure, the plant develops a floral meristem.

The production of witloof comprises three phases, the growing of the roots in the field, the storage of the roots and the forcing of the heads in watertight trays generally 1m².

Growing the roots

In the Netherlands the seed is sown in May or early in June. A normal seed population is approx. 300-350,000 seeds/ha. The roots are lifted from late September to the end of November when the roots have reached a suitable stage of maturity. An average production of 150-200,000 roots/ha is possible. The leaves are severed about 3-5 cm's above the growing point (root crown) and the roots are trimmed to 16 cm's. After harvesting, the roots are stored in approx. 35 x 2 cu.m wooden crates (pallax) /ha and placed in cold store.



Cold store

During this cold storage, the roots become vernalized and flower induction is initiated: the vegetative bud differentiates to a floral meristem. The duration of storage is dependent on the cultivar and maturity status of the root. Generally, it is desirable to produce a range of cultivars that are suitable for early, intermediate and late forcing.

For a short period of storage the roots are stored at about 0 °C. For a longer period (> 2 months) of storage the roots are stored at about -1 to -2 °C.

Forcing chicory witloof

The standard forcing method is the hydroponic forcing method. The trimmed roots are placed side by side in the forcing trays (cases), approx. 400 roots/m². The forcing cases are stacked on top of each other and kept in a dark forcing room. A level of 2-4 cm nutrient solution is maintained in each tray before it overflows into the lower tray. The forcing cycle is approx. 21 days. Water temperature is maintained at 16-20 °C, air temperature approx 2 °C less. The actual forcing temperatures used are dependent on maturity, cultivar and duration in storage. Heat is necessary to initiate pith formation. The pith (core, stem, axis) will elongate in the center of the head and a firm and tight head (chicon) will be formed.



After three weeks the heads (chicons) are ready for cutting. They can be broken from the roots and their bases trimmed with a knife. A root only produces one chicory head in its life time.

