

Practitioner leaflet for Cup plant a multipurpose perennial plant



Novel pathways of biomass production: assessing the potential of *Sida hermaphrodita* and valuable timber trees:
<https://www.sidatim.eu/en/>

Anil Graves, Laura Cumplido-Marin, Michael Nahm, Christopher Mohart, Reent Martens, Gianni Faccioto, Marek Bury, Pierluigi Paris, Paul Burgess



Establishment

As with other permanent crops, good soil preparation and maintenance of the freshly planted field is crucial for successful crop establishment. Cup plant seeds can be obtained from traders and the germination rates from good seeds is high. Soil preparation involves ploughing, preparation of seedbed or planting bed, mechanical or chemical weeding in spring, then planting or drill sowing from mid-May onwards. Recommended planting densities are about 4 plants per m².



The plant establishes very well from seedlings as well as seeds. Seedlings can be obtained from different suppliers, or they can be grown from seeds. In both cases, however, a significant increase in financial and labour costs is to be expected, compared with sowing seeds. Fertilizing can increase the growth of Cup plant, and in particular, promotes rapid closure of the stand during the initial years. The supply of nutrients should be adjusted to the appropriate level using soil analyses to identify requirements.



Management

Once Cup plant has been properly established there is comparably little work to be done. Before the re-growth of the plants in early spring, fertilizer can be applied to cover the crop's nutrient needs, if this is considered to be necessary. On average, fertilization comprises of 120-45-60 kg of N-P-K per hectare. There is no need to use pesticides since no relevant pests or diseases have been recorded for Cup plant. No other specific maintenance operations are needed.

Harvest

From the second year onwards, the annual harvest of Cup plant can be undertaken in summer, when the dry matter content is optimum for biomethane production. Harvesting can be conducted with standard and readily available harvesting machines such as forage harvesters.



Yield

Cup plant produces high biomass yields, on average 16 tonnes of dry matter per hectare. Average biomethane yields have been calculated to be in the region of 252 dm³ kg⁻¹ ODM and 3,600 m³ ha⁻¹. The potential to generate such amounts of energy from a low input crop make Cup plant a very attractive bioenergy crop.

Environmental services

A number of positive environmental impacts have been observed to result from the cultivation of Cup plant, amongst them increased biodiversity, protection and improvement of soil, water and general environmental health, land reclamation and phytostabilization, natural shelter and habitat, increasing soil carbon content, biological control, provision of food through flowering and pollination, and aesthetic value.

About SidaTim

This research is being undertaken under the SidaTim project. The SidaTim project is a research project that aims to assess the performance of two biomass species, Virginia mallow (*Sida hermaphrodita* (L) Rusby) and Cup plant (*Silphium perfoliatum* L.) in the UK, Germany, Poland, and Italy. It is a collaborative project being funded under the EU's Joint Programming Initiative on Agriculture, Food Security and Climate Change (FACCE-JPI) (<https://www.faccejpi.com/>) and is being undertaken by six European research institutes and universities: Albert Ludwigs University of Freiburg (UF), Germany; 3N Kompetenzzentrum (3N), Germany; Consiglio per la Ricerca in Agricoltura e l'Analisi dell'Economia Agraria (CREA), Italy; Consiglio Nazionale delle Ricerche (CNR), Italy; West Pomeranian University of Technology in Szczecin (WPUTS), Poland, and Cranfield University (CU), United Kingdom.



⁽¹⁾ Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria (I)



⁽²⁾ West Pomeranian University of Technology in Szczecin (PL)



⁽³⁾ Consiglio Nazionale delle Ricerche (I)



⁽⁴⁾ Cranfield University (UK)



⁽⁵⁾ 3N Centre of Experts - Lower Saxony Network for Renewable Resources (D)



⁽⁶⁾ Albert-Ludwigs-University Freiburg (D)



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For further information on SidaTim, please contact:

Dr Anil Graves*: a.graves@cranfield.ac.uk

*Tel: 01234 754249

Dr Paul Burgess: p.burgess@cranfield.ac.uk

Laura Cumplido-Marin: Laura.Cumplido-marin@cranfield.ac.uk

