



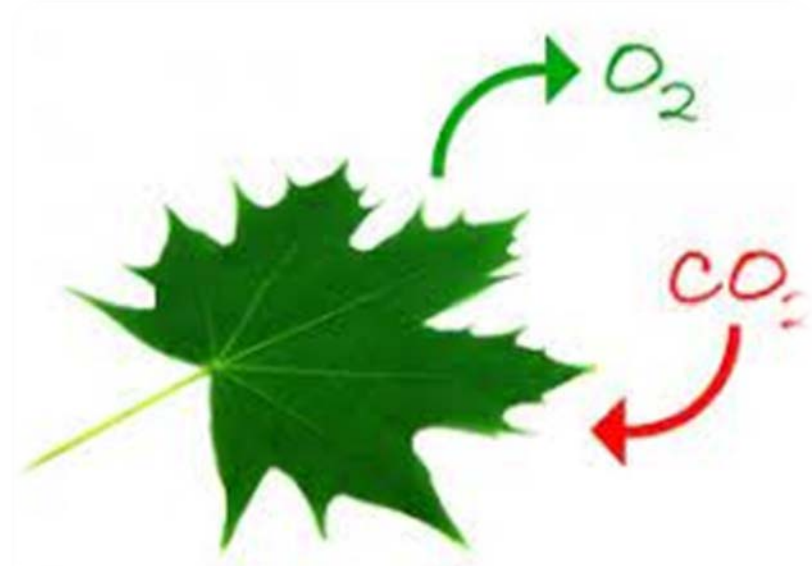
Dutch

Plant Force



Introducing Mammoth Grass the Co₂ cannibal

- Only when plants are growing, they absorb carbon dioxide from the air.
- Because carbon dioxide concentrations in the air are currently rising as a result of man-made emissions, plants can grow larger.
- **Plants absorb much more co₂ than previously thought**





General Information

Mammoth Grass

This new hybrid is a crossing between *Miscanthus giganteus* x *Tripsacum dactyloides*

Mammoth Grass is a large perennial grass, growing 6 meters annually.

Miscanthus (Mammoth Grass) belongs to the main type of C4 crops.

These types of plants are very efficient at capturing carbon dioxide.

The Mammoth Grass even absorbs 4 times more carbon dioxide as a forest of trees in our climate per hectare.

yield 20-30 tons from the 2nd year after planting and has a high cellulose content (45-55%),

the Mammoth Grass is one of the leaders in our climate in the field of reduction of carbon dioxide.

Potentially the "ideal" energy crop because of its annual cropping cycle and high yields.





Benefits of growing

It takes app.10.000 plants to establish a hectare.

It is a perennial cultivation of 20 years.

Plants- and plantingcosts can be divided over a life span of 20 years.

There are no pesticides needed, only the first year weed control should be used,

This makes a huge difference in tillage and planting costs.





It will overtake weeds once established and weed control to establish simply uses turf type herbicides.

Left standing through the winter the plant dries to 15% moisture level and needs no further drying as corn and wood do, to burn.

The plant requires no fertilizer, this is due to the fact that they simply store up the nutrients that they manufacture (much like a bulb does).

The grass can be stacked and stored in the field for ease of storage. It will not rot and is the best bedding material known as well.

Mammoth grass has a harvest window between fall and spring, harvest at your convenience. It is a perennial crop and will produce indefinitely with very little input.





Characteristics of Mammoth Grass

Mammoth Grass is a sterile plant, non invasive, but only grows from root divisions. It grows almost everywhere

It can be grown on marginal land, as it uses its own nutrients that have been manufactured by the plant.

It is a vigorous plant, roughly quadrupling in a years time!
Hardy zones 4-9 (Minus 30 Celsius).

20-30 tons of Mammoth grass harvest = 30-50 tons of CO2 per hectare per year.

Mammoth grass absorbs sound so can be used as a noise barrier

It is a CO2 cannibal, few crops absorb so much CO2 at such a rate.





With good rainfall this grass reaches an yearly average of 25 tons in Holland of dry biomass per hectare. In warmer countries like Spain this will be even more up to a maximum of app. 50 tons



Bio-based and circular. Mammoth Grass used as a building material provides excellent insulation, is much lighter than traditional concrete, requires no reinforcement, is fire resistant and fully circular

This plant likes lots of water to become established, but thereafter is quite drought tolerant. It grows very fast and absorbs particulate matter during growth



1 hectare of Mammoth Grass can produce the equivalent of 1235 hectares of crude oil per year



Mammoth Grass vs Elephant Grass

Max Height:	5-7meters	3-4 meters
Max height after:	2 year	3 year
Fiber Color:	white	greenish
Flowering (seed production):	no	yes
Cold tolerant:	yes	yes
Heat tolerant:	yes	yes
Drought tolerant:	yes after 1st year	yes after 2nd year
Herbicide use weed:	first year	first 2 years
Energy content per dry tonne:	18 Gj (estimation)	18Gj
Ton per ha:	20-30 (estimation)	15-18
Energy content per ha:	390-450 (estimation)	250-320
Plant patent:	yes	no



* All above info is based on Dutch growing conditions, we know warmer climates will increase production (a lot).



Mammoth grass applications

1. Paper, wastepaper is becoming a scarcity, so there is more demand for paper from the biomass industry
2. Fiber boards and other construction materials
The low moisture content at harvest and the low specific weight make grass an excellent raw material for lightweight fiber boards.
3. Mammoth grass as stable bedding
This bedding has a great absorbent capacity, 3x greater than that of straw and double the absorbent capacity of wood shavings. The high absorbency is due to the porous core of the stem. The porous core is able to absorb nitrogen and thereby absorb and neutralize ammonia (smell).
4. Substrate and ground cover
Mammoth grass is an interesting application as a sustainable and biodegradable ground cover
5. Energy
Research has shown that Mammoth Grass has great potential as a biofuel due to its high dry mass production and low moisture percentage at harvest. Mammoth grass can also be co-fired with existing coal boilers.





The Elephant Grass 2.0
introducing:
Mammoth Grass

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