

Last updated: 20th September 2002

GIANT REED

Family: *Poaceae*

Genus: *Arundo*

Species: *donax*



Source: <http://www.caribbeangardens.com/>

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General Background

The only European grass large enough to be mistaken for sugar cane. It is quite common in the Mediterranean where it occurs wild in marshy areas or by rivers. It is often planted as a windbreak at the edges of cultivated fields, on the banks of dykes etc, it can also help to maintain soil structure in these situations due to the abundant root system. Stems are stiff, smooth and hollow, usually around 2 inches thick, growing up to a height of 6m. The pointed leaves are greyish-green and usually 1-2 inches wide and up to 12 inches long. Flowers infrequently in late summer with purple-brown flower heads borne in 2ft long, dense, plume like panicles. Spread is by means of rhizomes and stolons. Seeds are produced in October-March, they are spindle shaped and extremely hairy.

Giant Reed is also sometimes referred to as Giant Cane, Wild Cane, Common Reed, Spanish Reed, False Bamboo or Dumb Cane.

Details of Quality Characteristics

The fibre produced by the crop is of high quality and has a long, thin structure making it suitable for a wide variety of uses.

Current Production and Yields

In suitable conditions it has been shown to be a potentially prolific producer of biomass, capable of yielding up to 34t/ha of dry matter annually for a number of years, however it usually takes 3-5 years to reach its full biomass production. It appears to be more economical and environmentally favourable to grow giant reed under moderate irrigation without dramatically reduced yields.

Constraints upon Production

Giant reed can tolerate severe drought conditions and yields of up to 19t/ha of dry matter can still be achieved. It is generally found in warmer and drier regions than other reeds and it is apparent that it prefers low gradients (<2%) to optimise growth potential. Giant reed is native to south-eastern Europe therefore already adapted to EU agro-climatic conditions.

Markets and Market Potential

- Pipe organs
- Basketry
- Fishing rods
- Livestock fodder
- Medicine
- Soil erosion control
- Industrial cellulose
- Pulp, paper
- Electrical energy
- Panels, flooring, beams

There is currently an absence of markets for the products therefore the crop has not yet become domesticated. All paper grades can be achieved using the high quality fibre produced by the crop.

Other Information

Giant reed can either be harvested annually or biannually depending on production expectations and growing conditions. Seed viability is currently unknown but it is clear that the crop requires replanting every 25-120+ years to maintain productivity. Unlike some novel crops mechanical means are available for both planting and harvest of giant reed. There are two main problems present when growing the crop, one is that the interconnecting root mats form debris dams in rivers and increase the risk of flooding. Secondly the crop ignites easily and can cause intense fires if not controlled with care. The requirements for fertilisers on the crop are also low due to the dry leaves returning to the soil enriching it with organic matter.

Few pests have been reported on giant reed, the requirement for pesticides is therefore negligible or even nil in most cases. The crop appeals to many growers due to the low agrochemical inputs required, this is also beneficial to the environment.

Research

At present little is known about the seeds, particularly viability, dormancy, germination and establishment. Upcoming research is hoping to clarify these aspects and will improve management potential and possibly even production potential or quality of the crop.

Useful Websites

<http://www.nps.gov/plants/alien/fact/ardo1.htm> - General information available, including description, location, background, impact and management

<http://www.ceres.ca.gov/tadn> - General information and research details provided

<http://bioproducts-bioenergy.gov/pdfs/bcota/abstracts/8/76.pdf> - New developments, markets and market potential

http://www.yolorcd.ca.gov/weeds/giant_reed.html - General information on background and identification available

BioMat Net

[FAIR-CT96-2028 – Giant reed \(Arundo donax L\) network for improvement of productivity and biomass quality](#)

[Reeds \(Phragmites spp., Arundo spp.\)](#)

[National Activities – Italy – ITABIA Annual report](#)

[BULK CHEMICALS AND BIOFUELS : Paper/Pulp](#)

[FAIR-PL97-3784 - Optimisation of the production chain for high performance "light natural sandwich materials" \(LNS\) as a basis for scaling-up](#)

Contacts

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References

Christou, M., Mardikis, M. and Alexopoulou, E. (2001). Research on the effect of irrigation and nitrogen upon growth and yields of *Arundo donax* L. in Greece. *Biomass and Energy Crops II*. AAB: Warwick pp47

