

Arundo donax -Closed loop Carbon Neutral System-Low in-put no-till sustainable farming system

- C3 Photosynthetic pathway
- Does not produce a viable seed.
- Tissue culture- Patented New Micropropagation Techniques
- High Yielding Crop - harvests per year in warmer climates
- 25 to 35 tons per acre – continuous re-growth from rhizomes after each harvest
- Good energy balance
- High Energy Content – 8,000/8,400 Btu per lb
- Perennial- no annual tillage or Planting
- Rapid Growth crowds out weeds – significant soil carbon sequestration
- Low Fertilizer requirement-extensive perennial root system.
- No pesticides
- No net CO2 emissions – Zero net carbon emissions to atmosphere
- Can be grown on marginal lands
- Prevents habitat for wildlife
- A 10MW power operation will avoid approximately 2,500,000 tons of CO2.

Miscanthus giganteus -Closed loop Carbon-Neutral System-Low in-put no-till sustainable farming system

- High yielding biomass crop Sterile hybrid – no viable seed produced – non pest plant
- Perennial – no annual tillage or replanting
- Tissue culture – Patented New Micropropagation Techniques
- Relatively high yields – 8 to 16 dry tons per acre
- Low moisture content (15 to 20%)
- Good energy balance and output / input ratio compared with other biomass options
- Rapid growth crowds out weeds eliminating need for herbicides
- High energy content – 7500 btu/pound
- Low fertilizer requirements thus diminishing any seepage issue
- 1 acre = Energy of nine tons plus of hard coal
- No net CO2 emission
- Sequesters Carbon at a rate 2 to 3 tons per acre per year
- Can be grown on marginal lands
- Prevents soil erosion
- Provides habitat for wildlife

Energy Cane -also known as Sugar Cane - Some venues are carbon neutral others are not

- There is no one single plant / crop of “Energy Cane” various hybrids are being developed and are in use over the world
- 37 current Hybridized versions of wild sugar can utilized
- C4 Photosynthetic plant
- Can be tissue cultured\*\*\*\*
- 58 tons of usable material per year per acre
- Can currently be planted only in tropical and subtropical areas
- Some varieties have rapid breakdown of cell structure making storage difficult
- Several field pests and strong need to insecticides
- Some bacteriological and fungal pests in filed production
- Btu output – 7310 Btu per pound Bagasse and Sugar juice
- 0-25% net CO2
- Rapid growth
- High moisture content
- Depending on variety 6-15 years of crop duration with 1 harvest / yr
- Provides habitat for some wildlife

**\*\*\*\* Significant potential problems with utilizing new hybrids developed by others. Can utilize older strains more readily and develop from ther**