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ELEPHANT GRASS PILOT PLANTATION: CHARCOAL SOURCE FOR INDUSTRIAL USES

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Reports on elephant grass - Biomass Integrated Project were presented at previous IUAPPA events in Brighton (1999), Seoul (2000), Capri (2002) and São Paulo (2002). They informed results of several subprojects with this high productivity grass: utilization of specific bacteria for air nitrogen assimilation; mechanical juicing of the green grass; flash pyrolisis of dried bagasse to obtain charcoal and bio-oil; gasification; direct combustion of dried bagasse; productivity control for several e-grass genus and economical pre-feasibility studies. Field experiments gave promising results, but with limited value because of the very small scale used. Productivity tests never went over 2 ha of continuous area and the BNF – biological nitrogen fixation, with excellent results, were carried at an almost laboratory level. A large mining firm, with plant facilities producing 13 million tons of iron pellets became interested in e-grass as potential supplier of charcoal to be used in their plant, as substitute of coal fines, in the pelletization process. Initial tests with e-grass charcoal showed positive results with substitution rate of 1:1. The annual consumption amounts to 200.000 tones of coal fines. It should then be researched the economical feasilibity of extensive plantations, and the technical and economical results of a dry carbonization process, suited to large-scale production of charcoal. Last November/2003 a contract was signed by Samarco, the mining and pelletizing complex, with 5 cooperating entities to carry on a whole project, comprising a 50 ha plantation, next to their facilities at Ponta do Ubu – ES, Brazil, covering a range of important variables. The following points will be studied:

- 8 genotypes of e-grass
- normal fertilization versus BNF
- one and two harvests per year
- influence of irrigation
- harvesting in different periods of the year
- harvesting the green mass versus harvesting it dry
- ways to decrease the water content of the green grass (75%) to less than 50%, to enter the carbonization process
- results of the carbonization process

The Samarco project is scheduled to be run for 18 months. The present situation, April/2004, reports that all the 8 genotypes of e-grass were planted, and are growing successfully. The carbonization process (DPC) is scheduled to be tested next May, for charcoal and pre-charcoal (roasted product).