THE HINDU

Naper Bajra grass can generate substantial power for Tamil Nadu

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At a time when Tamil Nadu has been reeling under a severe power crisis for over three months, and the problem may have eased with the arrival of wind power over the past week, the existing demand-supply can possibly be addressed through alternate sources. One such solution lies in tapping the right renewable green resource like the humble Napier Bajra grass also called as NB CO-4 hybrid or Emperor grass.

Good biomass

"Released by Tamil Nadu Agriculture University (TNAU) during 2008, CO4 exhibits phenomenal biomass yield," says Dr. G. Kumaravelu, senior Scientific Adviser for Biomass and Bioenergy programme of an international Chennai based business conglomerate called Archean group and former full time member, State Planning Commission. This grass can be grown in most soil types, except in heavy clay, highly alkaline and water logged areas. The slips for growing this grass are being produced by the Agricultural/Veterinary University and interested farmers.

Tonnage

"To verify its utility for power production, 5 to 6 months old, mature grass crop was harvested and weighed. The yellow mature stem, with more fibre and lignin content yielded around 200 dry metric tonnes per hectare." An appropriate practice package has been arrived at, within a year, by our trials using biofertilizers, nutrients, biochar and chemical fertilizers with drip irrigation to ensure sustained high yield. About 2,000 acres of grass cultivation can supply raw material to run one 10 MW biomass electric power mill, continuously, all through the year without break," says Dr. Kumaravelu.

Area to be covered

Archean — a multinational company — is going to grow this grass along with another fast growing tree, Melia dubia, as intercrop in several hundred acres in different parts of Tamil Nadu. "I had demonstrated last year, that about 100 metric tonnes per hectare of biomass could be harvested from one year drip irrigated melia dubia plantations. That again is a comparable world record for tree species.This woody biomass also releases energy of over 4000 Kcal / Kg.

"Together, both these highest biomass yielders could be used to generate substantial power for our State," he explains. The State Government, accepting the innovation in principle, announced in the Assembly, that they would help in setting up a 10 MW power project using this grass. "With Government's logistic support, we plan to complete planting of 2,000 acres within 12 months time, and erect 10 MW power mill in 18 months time," he says. In a 15 hectare area in Virudunagar district, borewells run on

solar pumps will be commissioned for fertigation, and crops will be raised under the packages developed by Dr. Kumaravelu.

Demonstration plots
High yielding clones of Melia dubia will be planted as a shade crop for the grass and expected to function both as source of planting material and a demonstration plot. “The clones of Melia dubia evolved by me have been found to be admirably suitable for match splits and plywood veneer. The current demand is around 20 lakh tonnes per year and this could only be met by replicating our model all over the State. Therefore, by cultivation of these two, one lakh rupees per acre per year can be ensured for the farmers,” says Dr. Kumaravelu. Therefore, apart from electricity production from stem, the team plans to establish a dairy unit utilizing the leaf as fodder for cows.

Twin benefit
The cow dung and urine will be recycled to the plantation. Fodder for the free mulch animal scheme announced by the Government can be benefited from this fodder. This grass is nutritious and relished by cattle and has enhanced milk yield from 1 to 2 litres per day. The waste biomass and leaves can be used to generate methane gas, similar to gobargas. The high sugar content of this grass makes it an excellent raw material for the production of 2nd Generation cellulosic biofuels like Ethanol and Butanol.

Farmers income
Dr. Kumaravelu argues that “if such 10 MW green power mills are established in each of the 300 suitable Panchayat blocks by the Government, it could generate 3000 MW of electricity continuously. Farmers can earn a minimum of Rs.75,000 per acre a year. Willing farmers cultivating the raw material can also be made as shareholders with the power mills to which they supply on the same lines as sugar mills. If facilitated by the Government this is sure to create a cascading effect on rural development,” he says.

Contact Dr. Kumaravelu at email: drgkumaravel@gmail.com, Mobile: 9600073059.