FORM – A : RESULT OF ONGOING EXPERIMENT

01.	*Experiment number and title (As per CJA)	:	19.4.3.44 and Evaluation of different bamboo species for biochar production
02.	Budget Head		352/12029
03.	Collaborative department, if any		NA
04.	Location and Agro-climatic sub region	:	Bamboo Resource Centre, College of forestry, NAU, Navsari – 396450 and AES-III (Heavy Raifall Zone), South Gujarat
05.	Background Information	:	Perennial grasses with large woody stem or culm belonging to subfamily Bambusoidae under family Poaceae is taxonomically known as bamboo mainly growing in temperate and tropical parts of the world. Bamboos have multiple utilizations (including building materials, medicinal ingredients, nutritious vegetables and animal feed stocks) depending on bamboo species, bamboo types, plant parts and growing regions of a country. Apart from these bamboo can be leading plant material in bio-energy sectors. Bamboo based biochar prepared from the biomass of the different bamboo species. Biochar (BC) is a carbon rich product, synthesized through carbonization of biomass in an oxygen limited environment (Lehmann and Joseph, 2009), it has been recognized as a multifunctional material for energy and environmental applications. Biochar from bamboo biomass as feedstock has lot of advantages, it is a fast-growing material with high strength-weight ratio, it also has enormous potential for alleviating many environmental problems to which the world is facing today (Chen et al., 2017, Li et al., 2014). Biochar acts as a good porous carrier to support and host the distributed fine clay particles on the surface and within the pore matrix. Based on natural, environment friendly product and utility present experiment have been taken entitled "Evaluation of different bamboo species for biochar production" with following objectives.
06.	Objectives		1. To evaluate different bamboo species for biochar production 2. To analyze quality of biochar from different bamboo species.
07.	Investigators	:	**PI:** Dr. Jayesh Pathak, Assistant Professor (Agroforestry) **Co-PIs:** 1. Dr. D. P. Patel, Assistant Professor (NRM) and I/c. HOD 2. Dr. Kirti Bardhan, Assistant Professor (Crop Physiology) **Associates:** Dr. A. A. Mehta, Assistant Professor (FPU)
08.	Year of commencement	:	2022-23
09.	Season	:	NA

<table>
<tr><td>10.</td><td>Crop and variety</td><td>:</td><td>Different Bamboo Species
<table>
<tr><th>Treatments</th><th>Bamboo Species</th><th>Treatments</th><th>Bamboo Species</th></tr>
<tr><td>T_1</td><td>Bambusa bambos</td><td>T_9</td><td>Dendrocalamus hamiltonii</td></tr>
<tr><td>T_2</td><td>Bambusa vulgaris var. vulgaris</td><td>T_{10}</td><td>Dendrocalamus stocksii</td></tr>
<tr><td>T_3</td><td>Bambusa vulgaris var. vitata</td><td>T_{11}</td><td>Dendrocalamus sikkimensis</td></tr>
<tr><td>T_4</td><td>Bambusa balcooa</td><td>T_{12}</td><td>Dendrocalamus brandisii</td></tr>
<tr><td>T_5</td><td>Bambusa nutans</td><td>T_{13}</td><td>Dendrocalamus longispathus</td></tr>
<tr><td>T_6</td><td>Bambusa tulda</td><td>T_{14}</td><td>Gigantochloa atroviolacea</td></tr>
<tr><td>T_7</td><td>Bambusa polymorpha</td><td>T_{15}</td><td>Guadua angustifolia</td></tr>
<tr><td>T_8</td><td>Dendrocalamus strictus</td><td>T_{16}</td><td>Thyrsostachys oliveri</td></tr>
</table></td></tr>
<tr><td>11.</td><td colspan="2">Experimental details</td><td>:</td><td colspan="3"></td></tr>
<tr><td></td><td>(a)</td><td>Treatments</td><td>:</td><td colspan="3">16</td></tr>
<tr><td></td><td>(b)</td><td>Design</td><td>:</td><td colspan="3">Randomized Block Design (RBD)</td></tr>
<tr><td></td><td>(c)</td><td>Replications</td><td>:</td><td colspan="3">3</td></tr>
<tr><td></td><td>(d)</td><td>Plot size</td><td>:</td><td>Gross</td><td>-</td><td>____ m x ____ m</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Net</td><td>-</td><td>____ m x ____ m</td></tr>
<tr><td>12.</td><td colspan="2">Cultural details</td><td></td><td colspan="3"></td></tr>
<tr><td></td><td colspan="2">(a) Previous crops and fertilizers</td><td>:</td><td colspan="3">NA</td></tr>
<tr><td></td><td colspan="2">(b) Sowing date</td><td>:</td><td colspan="3">NA</td></tr>
<tr><td></td><td colspan="2">(c) Seed rate</td><td></td><td colspan="3">NA</td></tr>
<tr><td></td><td colspan="2">(d) Spacing</td><td></td><td colspan="3">NA</td></tr>
<tr><td></td><td colspan="2">(e) manures and fertilizers</td><td></td><td colspan="3">NA</td></tr>
<tr><td></td><td colspan="2">(f) No. of irrigation with date</td><td></td><td colspan="3">NA</td></tr>
<tr><td></td><td colspan="2">(g) Cultural operations with date</td><td></td><td colspan="3">NA</td></tr>
<tr><td></td><td colspan="2">(h) Plant protection measures</td><td></td><td colspan="3">NA</td></tr>
<tr><td></td><td colspan="2">(i) Harvesting date</td><td></td><td colspan="3">NA</td></tr>
<tr><td>13.</td><td colspan="2">Soil analysis</td><td></td><td colspan="3">NA</td></tr>
<tr><td>14.</td><td colspan="2">Input analysis</td><td></td><td colspan="3">NA</td></tr>
<tr><td>15.</td><td colspan="2">Results
(Table/s with statistical analysis and Interpretation)</td><td>:</td><td colspan="3">For understanding of machineries required for charcoal, biochar and vinegar we have visited Department of Renewable Energy, SVNIT, Surat. Procurement will be initiated.</td></tr>
<tr><td>16.</td><td colspan="2">Remarks (for abnormal experimental results only)</td><td>:</td><td colspan="3">NA</td></tr>
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17.	Reasons for abnormal conditions affecting experimental results and low yield if any be given in brief. e.g. uneven plant stand, pest and disease incidence, weather conditions, etc.	:	NA
18.	Any other information	:	NA