

BSRI Developed Sugarcane Power Crusher (Model:- 1)

The performance of crushers are given bellow:

Table-1: Performance report of BSRI developed sugarcane power crusher at BSRI

	Crushing Date	Net wet of Sugarcane (kg)	Time Required to crush (hr)	Wet of extracted juice (kg)	Crushing Capacity/ Feeding Capacity (kg/hr)	Juice extraction rate (%) of cane weight	Fuel consumption (L/hr)
01	12.12.18	416	1.15	235	333	56.69	0.670
02	13.12.18	502	1.25	279	355	55.57	0.847
03	17.12.18	415	1.15	238	332	57.34	0.750
04	23.12.18	450	1.20	269	338	59.77	0.782
05	24.12.18	444	1.15	240	355	54.04	0.725



Pic.-1: Sugarcane Power crusher



Pic.-2: Sugarcane Crushing capacity test at Bandarban



Pic.-3: Sugarcane Crushing capacity test at BSRI

Table-2: Performance report of BSRI developed sugarcane power crusher at hillside area.

Sl. No	Crushing Date	Net wet of Sugarcane (kg)	Time Required to crush (hr)	Wet of extracted juice (kg)	Crushing Capacity/ Feeding Capacity (kg/hr)	Juice extraction rate (%) of cane weight	Fuel consumption (L/hr)
01	05.01.19	400	1.05	252	370	63.0	0.60
02	06..01.19	530	1.30	329	353	62.07	0.855
03	07.01.19	415	1.10	263.5	356	63.5	0.730

Juice extraction capacity of BSRI developed power crusher was 55%-68% of cane weight where 30-40% juice of cane weight was extracted by conventional crusher. Sugarcane crushing capacity was about 350-400 kg/hr by BSRI power crusher besides 250-300 kg/hr capacity of conventional crusher. For improving feeding chevron groove was introduced to the cutting roller. And Knurling operation was done on other rollers for improving crushing capacity as well as feeding also. The bagasse quality was more suitable as fuel than conventional one. Several parts of the crusher can be easily dismantled hence it can be carried easily to long distance and any remote area of Bangladesh. Fuel consumption is less so carbon emission will minimize. Unclean sugarcane made jamming inside rollers which reduce capacity and serious jamming causes trouble.

Research highlight/findings (Bullet point – max 10 nos.):

- i) Juice Extraction capacity was 55%-68%
- ii) Sugarcane crushing rate was 350-400 kg/hr
- iii) Length of bagasse is larger than conventional crusher, was suitable for burning.
- iv) Fuel consumption rate of engine (10hr) was comparatively less than conventional crusher engine (16hr).
- v) Weight and size was comparatively small and it made easy movement.
- vi) Operation was more reliable
- vii) Machine durability was longer