

## MULTI FEED BANANA FIBRE EXTRACTION EQUIPMENT

### Utility

Banana fibre is extracted from banana pseudostem by removing the non-fibrous tissues and other plant parts from the fibrous bundles. The fibre extraction can be done either by hand extraction or by the use of mechanical extraction. Hand extraction is tedious and time consuming process. The output is very low, but the fibre extracted is of very high quality as less force is used using the fibre extraction process.

Mechanical extraction is usually carried out by power-operated raspader. But many of these machines are unsafe and not very suitable, as it is not due to high impact force coming of the fibre to be extracted, leading to lower recovery and also breakage of the fibre.

ICAR CIAE NRCB Multiple feed banana comprises of (i) conveyer feed belt (ii) beating roller assembly (iii) gripper holder assembly and powered by (i) 2 hp motor to operate beater roller (ii) 1 hp motor to operate conveyer belt and with suitable pairs of proximity sensors. The banana sheaths are gripped on holder assembly and conveyed to beater roller assembly. The directions (forward/reverse) of movement of conveyer are controlled using electronic controllers.

The developed equipment has the advantages in terms of making the banana fibre extraction work less tedious, relatively safer, higher output, better quality of fibre output, multiple feeding option and cleaner banana fibre



### Specification and working features

Field capacity	:	The capacity of the equipment is 3.65±0.32 kg/h (dry fibre) compared to 1.4±0.13 kg/h (dry fibre) with existing equipment		
Efficiency	:	More than 95 percent of fibre is extracted		
Total Cost of operation		Rs 150/h		
	Parameters	Over manual	Over single feed equipment	
1	Saving in time of operation(%)	94%	62%	
2	Saving in labour ( %)	81%	42%	
3	Saving in Cost of operation (%)	69%	43%	

**Design:** ICAR-CIAE, Bhopal in collaboration with in collaboration with ICAR NRC Banana, Trichy, Tamil Nadu

**Commercialization Status:** Technology Certified by ICAR for commercialisation

**Proposed stakeholders:** Banana growers, Custom hiring operators and manufacturers

### Head, Technology Transfer Division

ICAR-Central Institute of Agricultural Engineering, Bhopal-462038

Telephone: +91-755-2521133, 2521134

E-mail: [directorciae@gmail.com](mailto:directorciae@gmail.com), [headtttd@gmail.com](mailto:headtttd@gmail.com) Website: <https://ciae.res.in>