

SHAKTIMAN Mobile Shredder



Current level of Mechanisation in Cotton

- Seed Bed preparation – Mechanised, Ploughs, Rotavators, Tillers
- Sowing – Manual, labour intensive
- Irrigation: Mechanised



- Spraying: Mechanised
Tractor operated or self propelled



- Cotton Picking – Manual, Labour intensive



➤ Removal of Plants

Plucking out & burning

OR

Frequent use of tractor & Rotavators to cut the sticks in small pieces



Current practice of Cotton sticks removal

Pulling out cotton plant with manual labour



Current practice of Cotton sticks removal:

Sticks are & collected at some distances by manual labour and are put on fire.



The main drawbacks are :

- Hazardous
- Damaging soils
- Costly operation because of high labour wages
- Wastage of sticks which can be used as Bio -fuel

कपास की काठी को निकाल कर जलाने से होता नुकसान

मिट्टी की रचना को हानी :

- कपास की काठी को जलाने से धरती में छीपे केंचुआ, बेकटेरीया जैसे सूक्ष्मजीव मर जाते हैं और धरती की संरचना को नुकसान पहुंचता है



- जलाने की प्रक्रिया से जमीन भी सख्त हो जाती है

Loss of nutrients per hectare

Row to Row distance :5ft

Plant to Plant distance: 1.5ft

Weight of a plant: 500gm

Sr. No.	Elements	in Plant	weight/plant	Weight /hacter
	Macro Nutrients	%	gm	kg
1	Nitrogen(N)	1.17	5.85	84
2	Phosphorus(P)	0.54	2.70	39
3	Potassium(K)	0.39	1.95	28
4	Sulfur(S)	1.35	6.75	97
	Micro Nutrients	ppm	gm	Gm
5	Copper(Cu)	1.10	0.001	8
6	Iron(Fe)	18.37	0.009	132
7	Manganese(Mn)	12.07	0.006	87
8	Zinc(Zn)	9.48	0.005	68

SHAKTIMAN

Presents



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Size: 1.73 MB
Dimension: 4962 x 3508

Spreading cotton stalk in field to add 3 ton green manure/acre





25/01/2014

Key Benefits of Mobile Shredder/Cotton Chopper

- ✓ Fastest, easiest and efficient way of removal of sticks
- ✓ Improve soil fertility
- ✓ Retain soil moisture for longer period
- ✓ Keep soil spongy & loose
- ✓ Increase aeration
- ✓ Enhance microbial activity
- ✓ Increase production
- ✓ Environment friendly
- ✓ Safe for operations
- ✓ High productivity – One acre/hour
- ✓ Machine can be used for hiring purposes and adds to farm income



Food Testing Laboratory



Junagadh Agricultural University, Junagadh (India)

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Issued to Tirth Agro Tech.

Date : 6-05-14

Bhunava.Gondal

Report No. : E/14/May-1

Ref. No. :

Received date : 22-4-14

Sample Description : Cotton Stalk

Sample ID : 140422001

Sample Condition : Satisfactory

Sample Qty. : ---

Sampling by : customer

TEST RESULTS

Sr No	Parameter	Result	Unit	Method
1	N	1.17	%	Kjeldahl method
2	P	0.54	%	Phospho molybdate
3	K	0.39	%	Flame photometer
4	S	1.35	%	Turbidity
5	Cu	1.10	Ppm	ICP MS
6	Fe	18.37	Ppm	ICP MS
7	Mn	12.07	Ppm	ICP MS
8	Zn	9.48	ppm	ICP MS

जुनागढ कृषी युनिवर्सिटी के रीपोर्ट के अनुसार कपास की काठी में निम्नानुसार पोषक तत्व समाहित होते है

पोषक तत्व	कपास की काठी में मौजूद तत्व (प्रति एकर)	पोषक तत्व की उपयोगिता
नाईट्रोजन	(34 कि.ग्रा./एकर)	फसल की वृद्धि में सहायक है एवं फसल नीचे के पत्तों को पीला होने से बचाता है
फॉस्फरस	(16 कि.ग्रा./एकर)	फसल की जड़ को बढ़ाने में सहाय करता है
पोटेशियम	(11 कि.ग्रा./एकर)	पुराने पत्तों की धार और नोक को पीला होने से रोकता है
सल्फर	(39 कि.ग्रा./एकर)	पत्तों की जालीयों को पीले रंग की होने से रोकता है
कोपर	(03 ग्राम/एकर)	होने से फसल के पत्तों की नोक को सुखने नहीं देता
आयर्न	(53 ग्राम/एकर)	फसल के उपरी पत्तों को गीरने से बचाता है और पत्तों की नस हरी रखता है
मैंगनीज	(35 ग्राम/एकर)	फसल के नये पत्तों को फिका पड़ने से बचाता है
जिंक	(27 ग्राम/एकर)	फसल के नए पत्तों का आकार बड़ा करने में मदद करता है

Benefits of Shredder – Green Manure



Crop Height – Traditional Way



Crop Height – Shredder Way

LOCATION-DEVCHADI,
GONDAL.RAJKOT



KRISHI VIGYAN KENDRA
JUNAGADH AGRICULTURAL UNIVERSITY
TARGHADIA (RAJKOT-3)



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No.JAU/KVK/Tech-4/Certi./1115-A /2012
Date : 04/05/2012.

To Whomsoever It May Concern

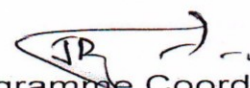
We purchased a SHAKTIMAN mobile shredder on 20.03.2011 from **Tirth Agro Technology Pvt. Ltd., Rajkot**. We have run it about 850 hours in nearby villages of Rajkot.

Current Practices to remove cotton sticks from the field is manually, which need 4 to 5 persons per day in 1 acre of land, costing Rs.1000 approx. Then crop residues burnt in the field, which is highly dangerous, damage microbial properties of the soil & decrease soil fertility and ultimately yield is adversely affected.

However, Mobile Shredder can chop 1 acre of cotton or castor crop in 1 hour, which cost approx. Rs.285. Chopped residues is being collected in a trailer to be used as bio-fuel (white coal) or cattle feed or it is being spread in the farm itself for green manuring.

We recommend use of shredder to all cotton & castor growers as it improves soil fertility, saves time & labour, choice of use of crop residues, it is safe & environment freindly and at the same time it is highly economical too.




Programme Coordinator
Krishi Vigyan Kendra
JAU, Targhadia, (Rajkot)

Multiple Uses of SHAKTIMAN Shredder

❖ Fodder Harvester for Dairy Farms:-

- 25 to 30 acres of silage for 50 cattles
- Daily 3 Ton Green fodder required to feed 40 Cattles
- One Mobile shredder for each dairy farm.



Static use for fodder crops



Coconut Leaves Shredding

Palmoil Leaves Shredding



Palmoil Leaves Shredding



Tea Gardens





Feeding Hopper

Technical Specifications



Number of Rows	1
Length (mm)	2700
Height with exhaust (mm)	2800
Width (mm)	2000
Weight (Kg)	660
Tyres	Metal Wheel 16X6.5
3 Pint hitch	Cat-II
PTO RPM	540/1000
Required Power (HP)	45
Exhaust Direction	45 ⁰ Adjustable
Chopping Knives	6
Cutting Knives	2
Chopping Length (mm)	5
Capacity	3 Ton/Hour

Expenses by use of Shredder for 1 acre of cotton

Assumptions

1	Working Hours/Day	8
2	Season in Year (Day)	60
3	Deisel Cost	60
4	Driver Salary /Month	8000

Expenses/acre by labour

Particulars	Unit	Amount (Rs.)
Wedges/day	Rs.	300
Manpower required to uplift & collect one acre/day	Nos.	4
Total Expenses for one acre	Rs.	1200

Total Savings/Acre **Rs.** **830**

Expences/Acre by Mobile shredder for Cotton

Particulars	Unit	Amount (Rs.)
Initial Cost of Shredder	Rs.	165000
Season in a Year	Days	60
Prime Mover		45 HP Tractor
Area covered in 1 hour	Acre	1 acre
Deisel consumption/ hr	Litre	4
Average use/ day	Hours	8
Diesel consumption/day	Litre	32
Diesel consumption in a season	Litre	1920
Expenses on Deisel in a season	Rs.	115200
Driver Salary for two months	Rs.	16000
Annual Maintenance	Rs.	10000
Depreciations @10% annual	Rs.	16500
Interest @12% annual	Rs.	19800
Total Annual Expence	Rs.	177500
Area covered in a season	Acre	480
Expences/Acre	Rs.	370

Custom Hiring

Economics of Mobile Shredder for Cotton

Assumptions

Working Hours/Day	8
Season in Year (Day)	60
Deisel Cost	60
Driver Salary /Month	8000

Earnings:-	
Average output (acre/hour)	1
Rent/Hour	1000
Average output (acre/day)	8
Earning/day(Rs.)	8000
Earning per year	480000
Capital cost:-	
Initial Price (Rs.)	165000
Annual interest @12%	19800
Maintenance	10000
Depreciation @10%	16500
Capital cost/Annum	46300
Running expenses:-	
Fuel consumption (liter/hour)	4
Fuel expenses/hour (Rs.)	240
Fuel expenses/ day	1920
Annual fuel expenses	115200
Driver Salary for 2 months(i.e. annum)	16000
Running expenses/Annum	131200
Total Expenses per year	177500
Net Income	302500



First Pass of Rotavator

27/01/2014



A tractor with a rotavator attachment is shown from behind, moving away from the viewer across a field. The tractor is white with a large orange rotavator at the back. Two people are seated on the tractor. The field is dark brown soil with some green weeds and dry grass. In the background, there are trees and a clear blue sky.

2 Times Rotavator

27/01/2014

A white tractor with a large orange rotavator attachment is shown from a rear perspective, moving through a field of dark brown soil. The rotavator is actively turning over the soil, which is covered with some dry grass and small green plants. In the background, three people are standing and watching the operation. The scene is set in a rural area with trees and a clear sky. A blue-bordered text box in the top right corner contains the text "3 times Rotavator".

3 times Rotavator

27/01/2014

SMS + Rotavator

27/01/2014



Thank You