

Waste Management In Spinning Mills

- a) Cotton Dust To Cattle Feed,
- b) Cotton Dust To Natural Fertilizer, Bio Gas And Fuel Of Earth Oven And
- c) Cotton Dust To Natural Fertilizer To Organic Cotton / Vegetables

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Abstract : Like as, During process raw cotton in spinning mills comes out around 10%-20% dust which is not usable in spinning mills. More over it is very much trouble for manage and stocking in mills premises In this Connection,

Axioms Defined Mohammad Makbul Hossain (Rana) During His Service Life From 1996 To Till Date He Using This Raw Cotton Waste & Dust As “1) Cotton Dust To Cattle Feed, 2) Cotton Dust To Natural Fertilizer, Bio Gas And Fuel Of Earth Oven And 3) Cotton Dust To Natural Fertilizer To Organic Cotton / Vegetables”, In His Waste Management In Spinning Mills Research Is A New Invention And It Is An Extra Ordinary And In-Depth Development In Textile Dust Management As Well As Use It In Agricultural Field. His Profound Achievements In Special And Release The Pain Of Keeping Dust And It Manage Easily Also Comes Money From Hazardous Item. In This Process The Cattle Eat This Dust/Waste And Mills Are Start To Clear Firstly Free Then Sale And Now It Grow A Good Marketing And Trading Environment And Huge Peoples Are Engaged Which Is Carry Economical Benefit In Society By Waste Management In Spinning Mills “1) Cotton Dust To Cattle Feed, 2) Cotton Dust To Natural Fertilizer, Bio Gas And Fuel Of Earth Oven And 3) Cotton Dust To Natural Fertilizer To Organic Cotton / Vegetables”

Date of Submission:15-03-2018

Date of acceptance: 31-03-2018

I. INTRODUCTION

Hazard Summary:

- * Cotton Dust can affect you when breathed in.
- * Cotton Dust can irritate the eyes on contact.
- * Breathing Cotton Dust can irritate the nose, throat and lungs.
- * Repeated exposure can cause serious, permanent lung damage (byssinosis) with chest tightness, difficulty breathing, coughing and wheezing.

Identification

Cotton Dust is a colorless, odorless solid. It is generated from the processing of cotton fibers during ginning and spinning process.

Rana's waste management theory in spinning mills via 3 way as above, Provided extraordinarily deep theorems that laid the foundation for the complete classification of waste manage, one of the greatest achievements of twentieth century in Textile sector like other waste control and manage hazard in each mills . In a major breakthrough, proved that if this waste/dust use as feed of cattle, Bio Gas, fuel of Earth Oven and natural fertilizer then waste will convert money and more essential item for firm and home use from hazard item. Later extended this research and development to use as feed, fuel and natural fertilizer to establish a common solves in textile (Spinning). At this point manage of waste/dust projected came within incredible conclusion that all using are belongs to certain standard of returning money from hazards substances.



II. HEADINGS

Name of theory:

1) Cotton Dust To Cattle Feed



Raw cotton is natural product which produces in naturally and all are not usable in spinning operation. Depend upon the process machinery some portion are not used in machine like unusable or un spin able fiber which we called cotton waste or dust that are broken , immature, un uniformed, bolls damage fibers are goes to waste or dust with broken seeds, broken leaves etc.

During process raw cotton in spinning mills we got Seed, broken leave and cotton dust which we use as cattle feed in last 15 years from 2003 to till date in Gazipur district, Sreepur Thana .Village Dhanua. Firstly I have started in my own village Dhanua in my home cow then it starts my neighbouring area then villagers then all over Thana and district some part.

Now days many traders are trading it they buy from mills and stock it in their own business warehouse and home

Before my concentration about alternative use this waste/dust as cattle field the spinner always used to rotten and mixed to the earth never it became any value from this dust. But now a day after my treatment as cattle feed it became huge demandable product for cattle firms to use their cattle feed in home and firms with other like straw grass etc.

Using technique:

1. This dust can use as direct in front to the cows
2. This dust can mixed with broken seeds and leaves
3. This dust can use with water, some time wet are not interested by cows it depends upon habit of the cows.
4. This dust can use with straw day by day up to cattle change their habit

Health benefit:

1. That cotton dust is cellulosic parts comes from cotton bolls as seed portion. So it is high carbohydrate.
2. That cotton seed broken parts contain oil. So it is high protein.



a) Gossypium herbaceum oil (cottonseed oil) is now culinary uses and for other health benefits.

- Nutrition Info (per cup 218g) ...
 - Help Induce Healthy Hair Growth. ...
 - Help Reduce Inflammation. ...
 - Help Prevent Diseases Of The Cardiovascular System. ...
 - May Help Normalize Blood Pressure. ...
 - May Help Promote Good Skin Health.
3. That cotton leafy broken is green dry parts and it contains VITAMIN C and K and the minerals iron and calcium.
 4. Dark green leafy vegetables are an excellent source of fiber, folate, and carotenoids.
 5. In addition, dark green leafy vegetables act as antioxidants in the body.

So when we start to feed the cotton waste/dust as feed to experimentally then we observe the cattle are dramatically changed its health and weight. Other then straw or grass feeding cattle.

Social Benefits:

1. Environmental safe from dust cotton
2. Earn extra money from dust cotton
3. Trading benefits some peoples are engaged for this trading business
4. Space free in mills and no need extra warehouse for stocking up to rotten
5. Dust converting as cattle food.

2) Cotton Dust To Natural Fertilizer, Bio Gas And Fuel Of Earth Oven



In this lesson learned that natural fertilizer is an organic substance added to soil that contains vital plant nutrients, such as nitrogen, phosphorus, and potassium. Examples of natural fertilizer are manure waste and yard compost.



Nitrogen does a great job of promoting the green leafy growth of foliage, and provides the necessary ingredients to produce lush green lawns. Lawn fertilizers will frequently have a high first number for this purpose that is comes from leafy portion of cotton dust/waste.

Composting Biology

Composting creates the ideal conditions for the natural decay or rotting processes of cotton dust that occur in nature. Composting requires the following:

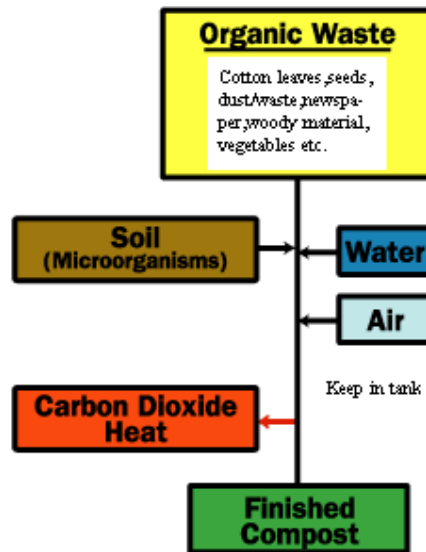
- **Organic waste** – Cotton dust, Cotton seeds, cotton leaves, newspaper, grass, vegetables, woody materials.
- **Soil** - source of microorganisms
- **Water** -
- **Air** - source of oxygen

The compost process

During composting, microorganisms from the soil eat the organic (carbon containing) dust/waste and break it down into its simplest parts. This produces a fiber-rich, carbon-containing **humus** with inorganic nutrients like nitrogen, phosphorus and potassium. The microorganisms break the material down through **aerobic respiration**, and require oxygen that they get from the air you introduce when you turn the material in the compost bin. The microorganisms also require water to live and multiply. Through the respiration process, the microorganisms give off carbon dioxide and heat -- temperatures within compost piles can rise as high around 100 to 150 degrees Fahrenheit (38 to 46 C). If the compost pile or bin is actively managed by turning and watering it regularly, the process of decomposing into finished compost can happen in as little as three to four weeks (otherwise, it may take months).

The compost conditions must be balanced for efficient decomposition. There must be:

- **Plenty of air** - mixture should be turned daily or every other day
- **Adequate water** - mixture should be moist, but not soaking wet
- **Proper mix of carbon to nitrogen** - ratio should be about 30:1
- **Small particle size** - big pieces should be broken up, as smaller particles break down more rapidly
- **Adequate amount of soil** - should provide enough microorganisms for the process
- **Cow-dung-top layer**



By M.H.Rana

Social Benefits:

1. Environmental safe from dust cotton
2. Earn extra money safe by using it as paddy field
3. Trading benefits some peoples are engaged for this trading business
4. Space free in mills and no need extra warehouse for stocking up to rotten



5. Dust converting as money

Agricultural Benefits:

1. Rotten cotton dust use in paddy fields as natural fertilizer which help for growing organic agri products
2. It is easily mixed in earth during wet season,

Home use benefits as fuel:

1. Cotton dust can use in bio Gas plant with Cow-dung for rotten and it make gas which can use as burning in cook.
2. Cotton dust can make compacting for use in burning in EARTH OVEN

***Cotton Dust/waste can use in bio gas plant with earth, cow dung, kitchen waste, water and urea from cow urine.

*** Cotton dust/waste can use in earth oven as fuel by compacting it with some rice husk and wooden husk. After compacting it burn in oven long time as fuel of earth oven in village. So many villagers get more benefit from it and it can stock in their own use round the year.

*** Cotton Dust/waste can use in paper board making



And

3) Cotton Dust To Natural Fertilizer To Organic Cotton/Vegetables”





Beef manure is consistently higher in nutrient content than dairy manure with 20-25 pounds of nitrogen and phosphorus and 30 pounds of potassium. One of the more popular families of fertilizers used by organic farmers is plant-based fertilizers, primarily plant meals.

III. INDENTATIONS AND EQUATIONS

Theses/theory:

What is "organic cotton?"

Organic cotton is grown using methods and materials that have a low impact on the environment. Organic production systems replenish and maintain soil fertility, reduce the use of toxic and persistent pesticides and fertilizers, and build biologically diverse agriculture. Third-party certification organizations verify that organic producers use only methods and materials allowed in organic production. Organic cotton is grown without the use of toxic and persistent pesticides and synthetic fertilizers. In addition, federal regulations prohibit the use of genetically engineered seed for organic farming. All cotton sold as organic in the United States must meet strict federal regulations covering how the cotton is grown.



PREMIER ARI 2 V01 T.O.24
 20/08/2016 4:30PM
 Test ID : 12114
 Test Type : HV1
 Test Date & Time : 20/02/2016 11:54AM
 Remarks : Seeds From MCU-5
 Identifier : AGLT-Raw Cotton

SYSTEM TEST REPORT

Test No	Sub ID	UHMW (mm)	ML (mm)	UI (%)	Elong (%)	Strength (g/tex)	Min. (g/100ch)	Max. (%)	Std (%)	+b (%)	C.C.	Moist (%)	SFI	Wsp
1	001	31.05	24.33	76.9	7.0	27.5	3.03	0.81	76.2	6.1	31.1	5.04	11.1	125.1
2	002	30.71	24.20	78.8	7.5	26.4	3.02	0.80	76.3	7.9	41.1	4.81	10.1	122.4
3	003	30.84	24.21	79.0	7.6	26.4	2.99	0.80	74.0	7.3	41.1	4.73	10.0	123.3
	Avg	31.00	24.28	78.2	7.4	26.8	3.01	0.80	76.0	7.8	31.2	4.88	10.4	121.8
	Min	30.64	24.20	76.9	7.0	26.4	2.99	0.80	74.0	7.3		4.73	10.0	120.1
	Max	31.05	24.33	79.0	7.6	27.5	3.03	0.81	76.2	8.1		5.04	11.1	123.3

RRH(%) / Temp(C) : 34.33 / 26.27

PREMIER EVCLVICS PVT Ltd



PTML (PLANT-1)										Summary Table									
4/10/04 8:14:29 PM Serial No: 0009001 Operator: FARID AHMED										Location: LOCAL COTTON Identifier: LOCAL COTTON Sample Type: RAW MATERIAL									
										Tanjania Cotton Seeds Produce - RB Wastan									
Rep	Wsp	Rep	SCW	SCW	L(w)	L(w)	SFC(w)	UGL(w)	L(n)	L(n)	SFC(n)	5.0%	Finw	IPC	Mat				
CHT/g	[mm]	CHT/g	[mm]	[mm]	%CV	%CV	%CV	[mm]	[mm]	%CV	%CV	[mm]	WMax	[mm]	Mat				
1	87	808	27	1243	23.07	30.9	3.8	26.55	20.23	37.5	12.0	31.18	182	1.7	1.03				
2	57	809	14	1298	23.94	30.9	3.2	27.68	21.16	36.3	9.8	32.29	197	1.4	1.05				
Mean:	72	808	20	1269	23.51	30.9	3.5	27.11	20.69	36.9	10.9	31.74	184	1.6	1.04				
S.D.:	21	40	11	62	0.61	0.0	0.5	0.80	0.65	0.9	1.9	0.79	19	0.2	0.01				
%CV	29.5	5.0	55.9	4.9	2.4	0.1	13.2	3.0	3.2	2.4	14.0	2.5	10.6	9.9	1.2				

Organic cotton is generally defined as cotton that is grown organically in subtropical countries such as Turkey, China, USA, INDIA and Mohammad Makhbul Hossain (Rana) start it in Bangladesh from the year 2004, PADMA TEXTILE MILLS LDT-1 (Beximco Group) Tatki, Tarabo, Rupgonj, Narayanganj District in his mills premises and the year 2014 to 2018 in Factory Premises of AFTAB GLOBAL TEXTILES LTD (Aftab Group), Vannara, mouchak, Kaliakor, Gazipur from non-genetically modified plants, and without use of any synthetic agricultural chemicals such as chemical fertilizers or pesticides. Its production is supposed to promote and enhance biodiversity and biological cycles. In Bangladesh cotton plantations must also meet the requirements enforced by the National Organic Program (NOP) from the USDA in order to be considered organic. This institution determines the allowed practices for pest control, growing, natural fertilizing, and handling of organic crops.

Growth Area: Vannara, Mouchak, Kaliakor, Gazipur, Bangladesh

Growth:

- Fiber per bolls: 17.92 grams
- Seeds per bolls: 35.69 grams
- No. of seeds per bolls: 35pcs
- No. of bolls per branch: 13 pcs

In addition to being one of the most widely grown crops in the world, growing conventional cotton is also one of the most chemical-intensive. These chemicals have tremendous impact on the earth's air, water, soil, and the health of people in cotton-growing areas. They are among the most toxic chemicals as classified by the Environmental Protection Agency.

But fertilizer from cotton dust is natural and never uses it any kinds of chemical which is work as fertilizer and it help to grow cotton tree or vegetable as like other chemicals use. But it safe from chemical impact in earth, air, soil and health in cotton and other agricultural product growing areas. It has no any toxic chemical impact also.

*Apparel companies are developing programs that either use 100 percent organically grown cotton, or blend small percentages of organic cotton with conventional cotton in their products. There are a number of companies driving the expanded use of domestic and international organic cotton. For a current list of OTA members with products containing organic fiber.

According to the Organic Industry survey, organic sales in the U.S. totaled a new record of \$49.4 billion in 2017, up 6.4 percent from the previous year and reflecting new sales of nearly \$3.5 billion. The organic food market hit \$45.2 billion in sales, also breaking through to a new record for an increase of 6.4 percent. Sales of organic non-food products rose by 7.4 percent to \$4.2 billion, setting another new benchmark.

IV. FIGURES AND TABLES

Process	ORGANIC	CONVENTIONAL
seed preparation:	Natural, untreated GMO free seeds.	Typically treated with fungicides or insecticides. Possible GMOs.



soil preparation:	Healthy soil through crop rotation. Retains moisture in soil from increased organic matter . natural-fertilizer from cotton dust/waste.	Synthetic fertilizers, loss of soil due to mono- crop culture, intensive irrigation .
weed control:	Healthy soil creates natural balance . Beneficial insects and trap crops used.	Aerial spraying of insecticides and pesticides . Nine of the most commonly used pesticides are known cancer-causing agents.
harvesting:	Natural defoliation from freezing temperatures or through the use of water management.	Defoliation induced with toxic chemicals .
production:	Warp fibers stabilized using double-plying or non-toxic corn starch.	Warp fibers stabilized using toxic waxes .
whitening:	Safe peroxide is used.	Chlorine bleaching creates toxic by-products , which are released into the environment.
finishing:	Soft scour in warm water with soda ash, for a pH of 7.5 to 8.	Hot water, synthetic surfactants, additional chemicals (sometimes formaldehyde).
dyeing:	Low-impact reactive or natural dyes with low metal and sulfur content.	High temperature containing heavy metals and sulfur .
printing:	Low-impact, water-based inks and/or pigments with no heavy metals.	Pigments may be petroleum based and contain heavy metals . Run-off spills into waterways, polluting streams .
fair trade:	Social criteria in place to ensure safe, healthy, non-abusive, nondiscriminatory environment with living wages .	No social screening. Possible child or forced labor used. Facilities may be unsafe and unhealthy .
marketing:	Positive story can be told to differentiate you from your competitors.	None. As awareness of organic advantage expands, increased potential for negative image .
price:	Initial cost more expensive. Long-term advantages: priceless .	Initially cheaper. Long-term impact on environment: devastating .

1) **Organic Production Practices**

A Textile Exchange life cycle analysis comparing organic cotton to conventional cotton production indicated that with organic cotton there is:

- 46% reduced global warming potential
- 70% less acidification potential
- 26% reduced eutrophication (soil erosion) potential
- 62% reduced primary energy demand.

Benefits of Organic Products:

Organic agriculture protects the health of people and the planet by reducing overall exposure to toxic chemicals from synthetic pesticides that can end up in the ground, air, water and food supply, and that are associated with health consequences, from asthma to cancer. Choosing organic products is an easy way to



protect you and your family from harmful toxins and chemicals and keep them healthy! It also helps to protect the farmers and the environment.

Green Bangladesh

About the Production:

“My mission is to harness economic power—the strength of organic Growers, consumers, investors, businesses, and the marketplace—to create a socially just and environmentally sustainable environment. And reduce the waste in textiles industries.”

Green Business Certification may award to businesses that are:

- Bangladeshi Farmers and business persons actively using their business as a tool for positive social change;
- Think a "values-driven" enterprise according to principles of social AND environmental sustainability;
- Environmentally responsible in the way they source, manufacture, and market their products and run their operations and facilities.
- As like Green- America.



V. CONCLUSION

At this point, the classification project came within. It's almost incredible conclusion that All findings are belongs to certain standard of textile waste management. The achievements of Mohammad Makbul Hossain (Rana) is the extraordinary, in-depth and influential. His complements each other's and together forms the backbone of modern textile waste management and make benefits to mills and villagers like the followings:

Health benefit:

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 2. That cotton seed broken parts contain oil. So it is high protein.
- a) Gossypium herbaceum oil (cottonseed oil) is now culinary uses and for other health benefits.
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10. Dust converting as cattle food.

Social Benefits:



11. Dust converting as money

Agricultural Benefits:

12. Rotten cotton dust use in paddy fields as natural fertilizer which help for growing organic agri products
13. It is easily mixed in earth during wet season,

Home use benefits as fuel:

14. Cotton dust can use in bio Gas plant with cow dung for rotten and it makes gas which can use as burning.
15. Cotton dust can make compacting for use in burning in EARTH OVEN


Acknowledgements

I gratefully acknowledge my indebtedness to Late Rias uddin (Teacher, Dhanua sarkary Primary school), Late Abdul Matin (Teacher, Mowna High School) Md. Afzal Hossain and Prof. Zarina Sultana (Asst. Prof. & Principal, Bhawal Badra alam Govt. University College), Dr. Aftab Husain Chowdhury (GM, Padma Textiles Mills Ltd.), Eng. Mr. Shaheen, Eng. Mr. Sohel who have acted as my guideline / supervisor. They inspire me to introduce to the research step to step” in Global context give some extra ordinary invention in the course of my life and also Md. Iftekhairul Islam Chairman and Managing Director (Aftab Group) inspire me to works in his mills premises on Organic cotton from Natural fertilizer from Cotton Dust. In different step of my study they give proper education, training and made me confident that I can carry on further research as “Ferric alarm from waste iron”, “Natural color cotton”, “ak goror langol”, “Trai Rashiq Borgia Sutra and Rana’s Constant (number theory)”, “waste management in spinning mills” in this research work, also Mr. Fazlul Karim patwary (Director IIT, Jahangirnagar University), Dr. Iyub Nabi (Head of Department, Textile, Primeasia University), Md. Ismail Hossain (Assistant District Education Officer, Narasingdi) recommended & guidance have been an outstanding factor for the completion of this work.

I take this opportunity to express my heart full thanks to all of the Authority of IOSR for providing me all sorts of valuable information& publication.

Finally, I extend my indebtedness to my wife Dr. Mariam Akter, friends, office colleague Eng. Hafizur Rahman, Sabina Yasmin and younger brother Mr. Anamul Hoque who help to me in field works, my beloved parent in the form of financial support, encouragement and advice and these support and blessing have made it possible to carry out this and continuing research work to completion.

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Mohammad Makbul Hossain "Waste Management In Spinning Mills "IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT) 12.10 (2018): 01-10.