



Gimatex Industries Pvt. Ltd.

4th SEA - AICOSCA Cottonseed, Oil & Meal Conclave – 2023

**WISH THE 4th SEA- AICOSCA COTTONSEED OIL CONCLAVE A COMPLETE
SUCCESS**

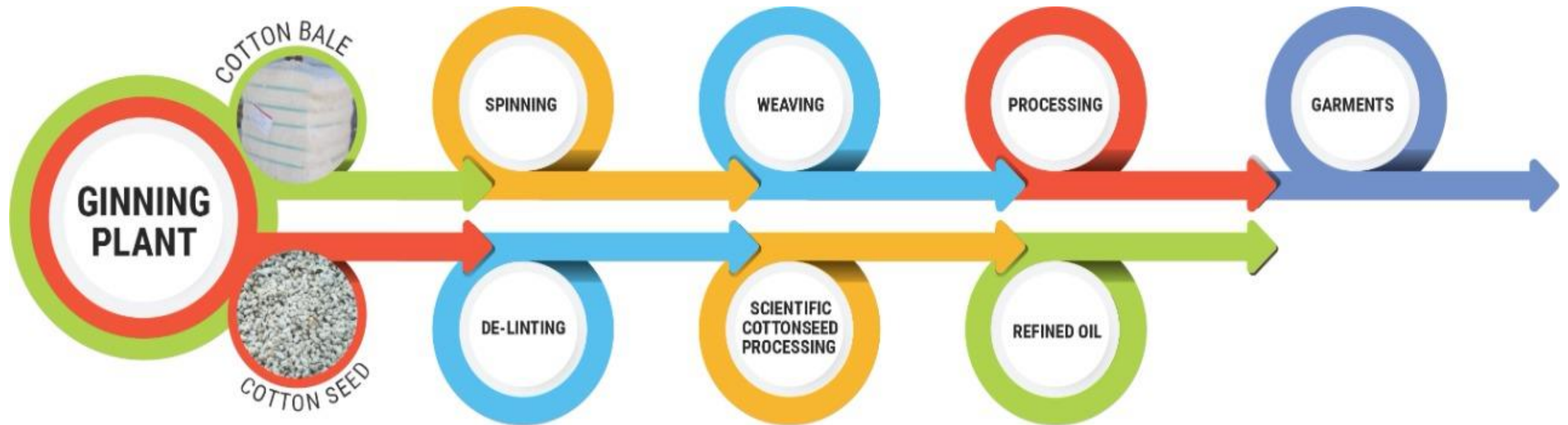
Presentation By - Pravin Fating (Vice president)



Gimatex Industries Pvt. Ltd.



Fully Integrated Chain of Cotton





Gimatex Industries Pvt. Ltd.



GIMATEX IS INTO PRODUCTION OF

- Cotton Linters
- Cotton seed Hulls
- “**Gima Gold**” – Hi-Pro and De-gossypolised Cotton seed Meal **50% & 55% PROTEIN.**
- Gima “**White Gold**” – Cotton Refined Oil
- Gima “**Soya Shine**” – Soya Refined Oil.





PRODUCTION JOURNEY



- Started Plant in 2017.
- Processed more than 2,00,000 tons of white cottonseed (35000 mt per year)
- 180 tons / day of input seed
- The crude protein content of DOC is 50% & 55%,
- The free gossypol content of DOC was reduced to less than 20ppm (Test by liquid chromatography detection method)
- Recovery of this technology is
 - 45 % of Cottonseed Hulls,
 - 32 % of DOC product
- DOC products are sold to all Major Feed breeding Groups in India.
- The product has been appreciated by leading Feed Manufacturer in India.
- Started Exporting DCP to Taiwan, Malaysia.
- The project has achieved good economic benefits.



Product Details

Cotton Linters

[linters Inserts-01.jpg](#)

Cottonseed Hull

[hulls Inserts-02.jpg](#)

Cotton Seed Meal

[doc Inserts1-04.jpg](#)

Amino Acid Lab Test Report

[Anacon Lab Test Report.pdf](#)

Cotton Refined Oil

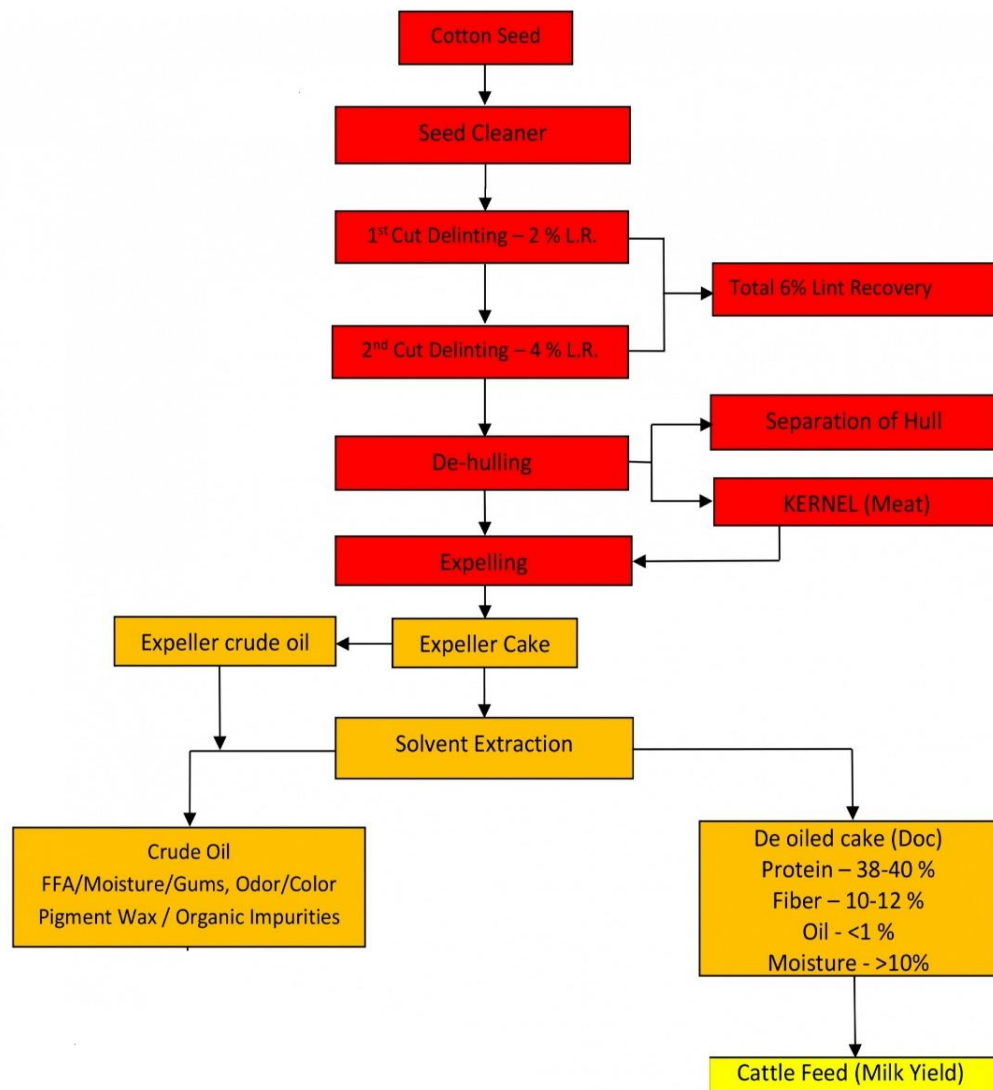
[oil Insert 3.jpg](#)



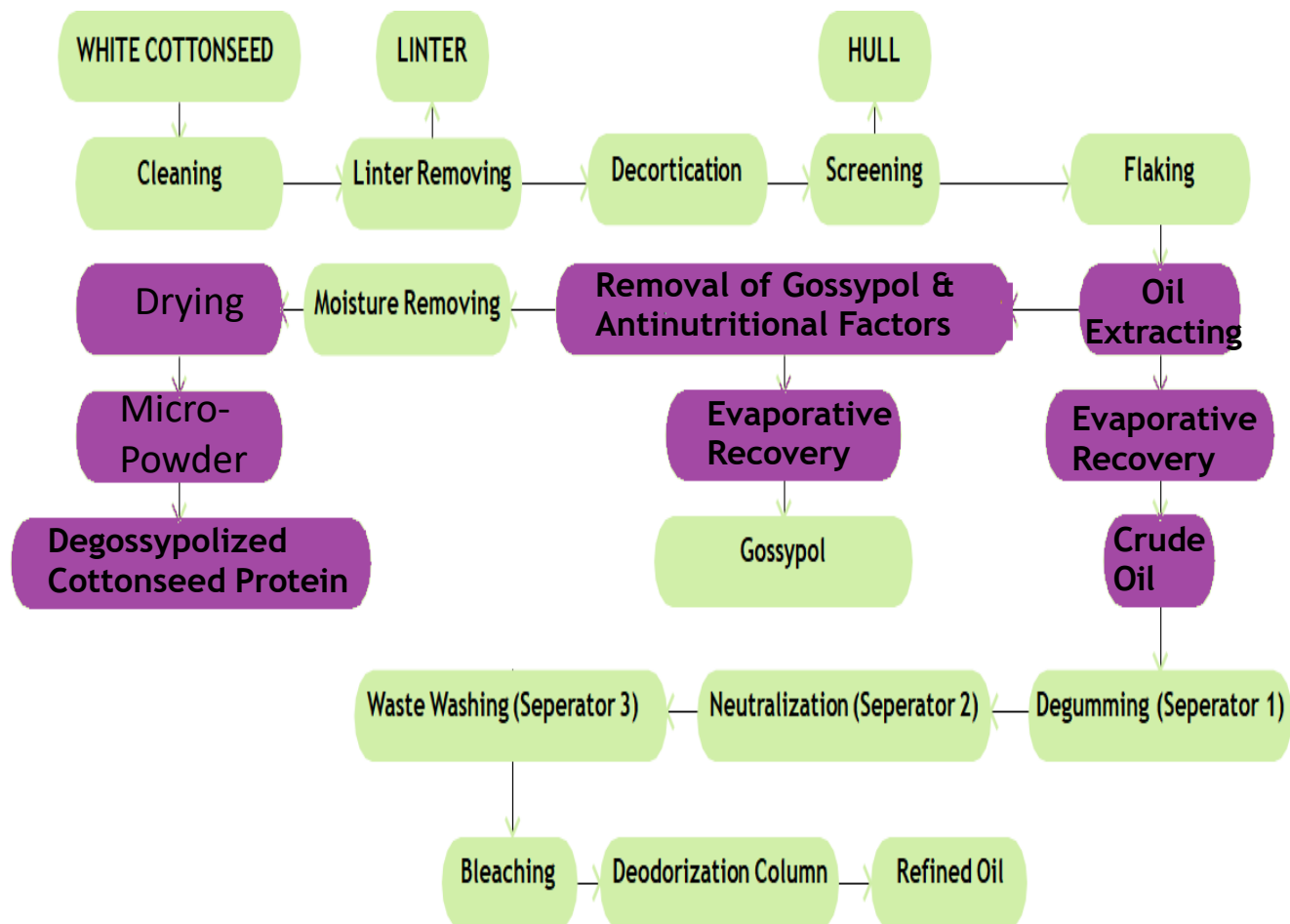
1. Why Degossypolization Process is Adopted in Cottonseed Processing?



Scientific Cotton-Seed-Processing



Degossypolised Scientific Cotton-Seed Processing





Comparison of Process and its Results



Scientific Cotton-Seed-Processing

1. Pressing and High Temp process
2. Amino Acids are seriously destroyed and Crude protein is just around 70%
3. Single Extraction Process (Only Oil Extraction)
4. Gossypol Level in DOC is very high around **6000 ppm**
5. DOC Protein achieved is 37 to 40 %
6. Restriction in inclusion for Poultry and Aqua Feed
7. Commercial price is Rs 31 / kg
8. Digestibility of Amino Acid is Low (below 70%)

Degossypolised Scientific Cotton-Seed Processing

1. No Machine Pressing and low temp Process (Below 80°C)
2. Amino Acids are retained due to low temp and Crude Protein is around 90% above.
3. Double Extraction process (Oil Extraction and Gossypol Extraction)
4. Gossypol Level is very low and achieved below **20 ppm**.
5. DOC Protein achieved is 50 to 55%
6. We can include upto 15% in Poultry and Aqua Feed.
7. Commercial price is Rs. 43.5 / kg
8. Digestibility of Amino Acid is High (Above 83%)



Gimatex Industries Pvt. Ltd.

DOC PRODUCT COMPARISON



Sr. No	Parameter	RESULTS			
		Normal Cotton DOC (37% protein)	SOYA DOC (46% protein)	GIMA GOLD Cotton DOC (50% Protein)	GIMA GOLD Cotton DOC (55% Protein)
1	Protein (%)	37	46%	50 min	55 max
2	Moisture (%)	10	9 Max	8 max	5 max
3	Oil (%)	7	1.5 Max	1.5 Max	1.2 Max
4	Crude Fibre (%)	12	6 Max	6 Max	4 Max
5	Gossypol (%) by Liquid Chromatography	6000 ppm	0	40 ppm max	20 ppm max
6	Sand & Silica (%)	2	1.0 Max	1.0 Max	0.5 Max
7	Lysine (%)	1.22	2.69	2.35	2.42
8	Methionine +Cystine (%)	0.5	0.98	1.49	1.6
9	Arginine (%)	2.8	2.82	5.87	5.87
10	Total Amino Acid (%)	32	40.94	49.26	50.1
11	Ratio of Amino Acid in Crude Protein (%)	65	91.6	93	95.6

GIMA GOLD with its methionine content being 50% higher than soybean meal and its total methionine+cystine content being also 150% as soybean meal.



Gimatex Industries Pvt. Ltd.

Gossypol and its Effect in Feed Industry



Gossypol is a Toxic yellow, polyphenolic compound produced by glands in the cotton . It is in free state in the whole cotton seed but forms Bound Gossypol when cooked at higher temperatures as a result of it combining with free amino acids (Lysine) thereby reducing the nutritive value of Protein and availability of essential Amino Acid.

Gossypol – Free State & Bound State (Bound Gossypol also becomes free once it consumed while digestion by non ruminants)

- Gossypol causes several Patho-physiological effects such as growth reduction, decrease in haemoglobin and reproductive performance. It causes Anorexia & weight Loss.

Signs of gossypol toxicity and its Effect in Feed Industries.

Laboured breathing and anorexia.

Acute toxicity has been shown in the heart, lung, liver, and blood cells, resulting in increased erythrocyte fragility.

Generalised oedema and congestion of lungs and liver, fluid-filled thoracic and peritoneal cavities, and degeneration of heart fibres.

Reproductive toxicity is seen particularly in males, where gossypol affects sperm motility, inhibits spermatogenesis and depresses sperm counts, disrupt oestrus cycles, pregnancy and early embryo development, particularly in the monogastric species



Gimatex Industries Pvt. Ltd.



GIMA GOLD – Hi-Protein (50% and 55%)



Cattle Feed

- Very high rumen Bypass protein digestibility >50% after 48 hrs.
- Feed mixed with SBM gives lower feed cost and much better feed quality parameters
- Increased milk yield and milk fat due to high protein & energy content
- Gossypol free meal adds to further growth & life of Cattles
- Ideal replacement for Cotton seed cake which has high Oil and low protein



Aqua Feed

- Very high protein > 52% & very low fibre content < 5% results in high growth feed mix
- Granular powdered form becomes much more palatable when mixed with other materials
- Palatability of Cotton Seed meal is appreciable compared to other plant ingredients and is very rich in Arginine
- Good Amino Acid profile with high Lysine, Methionine & Cystine ensures additional supplementation is significantly reduced
- Less Gossypol results in reduction of addition of Iron Salts which disturbs Immune balance & supports growth of harmful microbes.



Poultry Feed

- Presence of high Lysine >2.3% along with Methionine+Cystine >1.5% reduces the feed mixing cost
- Gossypol removal results in harmless feed mix having no toxicity effect with better survival rate
- High Digestibility results in good body weight gain and growth due to better feed conversion rate
- No Egg yolk discoloration & increase in Egg weight due to toxicity of Gossypol
- Improved Quality, fertility & hatchability of Eggs
- Good amino acid profile results in balanced diet when mixed in right proportion with Soyabean DOC



Gimatex Industries Pvt. Ltd.



Experimental Study BY REPLACING SOYA MEAL WITH GIMA Gold 50%



Sri Ramadhoota Poultry Research Farm, Kothur – HYDERABAD

Part of

Directorate of Poultry Research ,
ICAR, Dr. Rajendra Prasad Road
Krishi Bhavan
New Delhi

Experiment Protocol

Experiment Code	6 Gimatex 2015 S2
Birds	Cob 400 Male bird
Treatments	Five
Replicates	10
Birds/Replicate	21
Shed	Two (PVR)
Phases	Two
Date of Start	28 th April, 2015

GIMA GOLD (Hi-Protein Cottonseed Meal) degossypolized can be included up to 15% in diets of commercial broilers without affecting the performance.

Dr. Rama Rao
(Director of Poultry Research)



44 g
Day -1



1,305 g
Day -28



3,996 g
Day -42

Addition of GIMA GOLD in the feed lot of poultry feed offers excellent prospect for heavy use of degossypolized cottonseed protein resulting in downward trend for feedstuff consumption which is beneficial to improve economic returns.



The Digestibility of DCP (50% CP) in Broilers

Amino Acid	Apparent Metabolic Rate	Arguably Metabolism of Nutrients
Asp	86.23	4.2
Thr	82.55	1.50
Ser	89.73	1.94
Glu	34.71	1.51
Gly	89.78	11.11
Ala	74.36	1.54
Cys	91.29	0.86
Val	80.49	1.84
Met	81.93	0.54
Ile	80.08	1.43
Leu	80.32	2.53
Tyr	84.29	1.30
Phe	86.57	2.45
Lys	89.56	2.20
His	83.78	1.63
Arg	93.60	5.59
Pro	79.64	1.70
Trp	85.84	0.75
Average	81.57	-
Energy (MJ/kg)	8.76	12.47

2. Application Method

Broilers: 0 ~ 14 Age 4 ~ 10%
14 ~ 45 Age $\geq 10\%$

Layers: Finishing Period 4 ~ 10%
Layers Period $\geq 10\%$



Gimatex Industries Pvt. Ltd.



OUR PRIME CUSTOMERS

In Poultry Industry



In Aqua Culture Industry



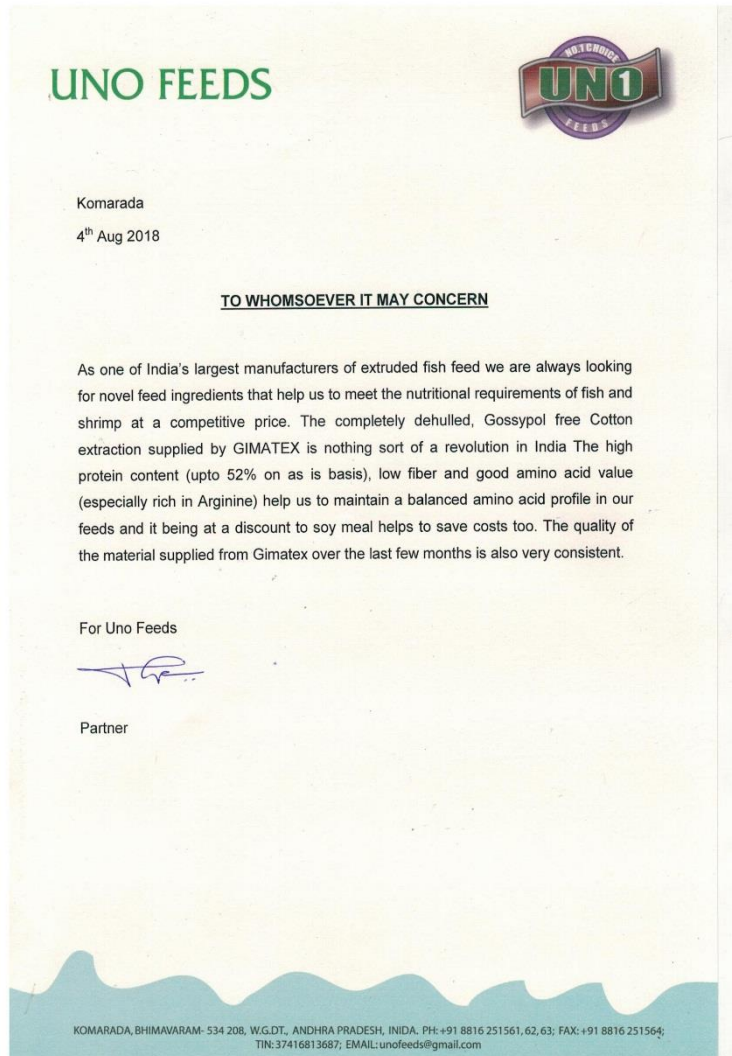
In Cattle Feed Industry



TESTIMONIALS

“Value addition in Cotton Seed was absolutely essential for Sustainability of Cotton Chain and I am happy that someone in the Heart of cotton growing belt has done so and that too producing Gossypol Free High Quality Protein which will provide good growth for animal wellness”.

Shri. Sureshji Kotak
Chairman
Kotak & Co. Ltd.



GIMA GOLD (Hi-Protein Cottonseed Meal) degossypolized can be included upto 15% in diets of commercial broilers without affecting the performance.

Dr. Rama Rao
Director
Sri Ramadhoota Poultry Research Farm
Kothur

Inclusion of GIMA GOLD in our feed has helped improve the yield of milk in terms of Quality as well as Quantity

Mr. Pankaj Sarda
Director
Sarda Dairy & Food Products Ltd



Project Accomplishment 1st DOC Factory, at Nagpur, Maharashtra, India

Real Photos





DOC Factory Layout in India

Real Site Photo



honor V9



Solvent Extraction Workshop of DOC Factory in India





Pre -Treatment Workshop of DOC Factory in India





Packing Workshop of DOC Factory in India





2. Recent Developments in Cottonseed Processing Projects



- 1. Presently able to produce 55% protein
- 2. The cottonseed concentrate protein (CCP) with 60% and 65% protein
- 3. Raffinose Technology from the extracted Sugar & Gossypol.
- 4. Cotton Linter Pulp Technology.



5. Market Price Comparison of Protein Products



50% Degossypolised Cotton Seed protein = 46% of Soybean Meal &
55% Degossypolised Cotton Seed protein = 50% Soybean Meal



Gimatex Industries Pvt. Ltd.



WAY FORWARD FOR ICOSCA & SEA



- Such manufacturing facility to be added to recognize full value chain of cotton and increase production of De-gossypolised Cotton Seed Protein.
- Focused on technology to produce 60+ protein % in Cotton Seed to get best value in Shrimp Feed. Which can be alternate substitute of Fish Meal at some extent and can give economic product to Feed Industry.
- Need to find Viable Application for Cotton Seed Hulls.
- Cotton Refined Oil need to be promoted in Govt Institution and also to be promoted an alternate option of Soyabean Oil.

Thanks



CORPORATE OFFICE

📍 Gimatex Industries Pvt. Ltd.

Ram Mandir Ward, Hinganghat- 442301,
Dist Wardha, (MH)India.

☎ +917798438866, +917798475511

✉ info@gimatex.co.in

🌐 www.gimatex.co.in

PLANT ADDRESS

📍 Gima Cotton Seed Biotechnology

Hinganghat - Wardha Road, Tehsil-Hinganghat,
Dist. - Wardha (MH) INDIA

☎ +91 9370606858, +91 9049864357

✉ fating@gimatex.co.in | r.raut@gimatex.co.in

tradeindia.com
India's largest B2B marketplace

<https://www.tradeindia.com/Seller-3767463-Gimatex-Industries-Pvt-Ltd-/>


indiamart®
<http://www.gimatex.in/>


Alibaba.com
Global trade starts here.™
<http://gimatex.trustpass.alibaba.com>