



IHSEDU AGROCHEM PVT. LTD.
— Leadership through Innovation —



JAYANT AGRO-ORGANICS LTD.
— Leadership through Innovation —

Castor meal usage Fuel, Fertilizer and Way Forward at Global Castor Conference 2024 organized by SEA

Mr. Sandeep S. Udeshi
Director

Ihstedu Agrochem Pvt. Ltd.
(Jayant Agro-Organics Ltd.)

23rd Feb 2024



Overview of Castor De-Oiled Cake

Castor - Demand-Supply for 2022 (Jan – Dec.)
(Revised Estimate)

(Qty. in Tonnes)

Production		Disappearance				
		Month	Export of Castor Oil (DGFT)	Export of Derivatives (Est.) *	Local Consumption Est.	Total Disappearance (Export + Local)
Opening Stock of Castor Seeds as on 1 st Jan.,2022	200,000	Jan.'22	49,543	12,500	4,000	66,043
Estimated Crops of Castor Seeds (2022) *	1,550,000	Feb.'22	44,628	12,500	4,000	61,128
Total Available for Crushing	1,750,000	Mar.'22	48,605	12,500	4,000	65,105
		Apr.'22	63,104	12,500	4,000	79,604
		May'22	80,791	12,500	4,000	97,291
		June'22	57,011	12,500	4,000	73,511
		July'22	40,082	12,500	4,000	56,582
		Aug.'22	39,702	12,500	4,000	56,202
		Sept.'22	34,042	12,500	4,000	50,542
		Oct.'22 (P)	35,544	12,500	4,000	52,044
		Nov.'22 (P)	42,172	12,500	4,000	58,672
		Dec.'22 (Est)	30,000	12,500	4,000	46,500
Total Oil Available for the year (47% recovery)	822,500 Say 820,000	Total (Est.)	565,224 Say 565,000	150,000	48,000 Say 50,000	765,224 Say 765,000
	Closing Balance of Castor Oil as on 31 st Dec.,2022 (Est.)					57,000
	Closing Balance in term of Castor seed as on 31 st Dec.,2022 (Est.)					121,276 Say 120,000

Closing Balance in term of Castor seed as on 31st Dec.,2023 (Est.)

250,000

Date : 13th Feb.,2024



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		Closing Balance in term of Castor seed as on 31 st Dec.,2022 (Est.)				

1,750,000

820,000

Balance

930,000

Closing Balance in term of Castor seed as on 31st Dec.,2023 (Est.)

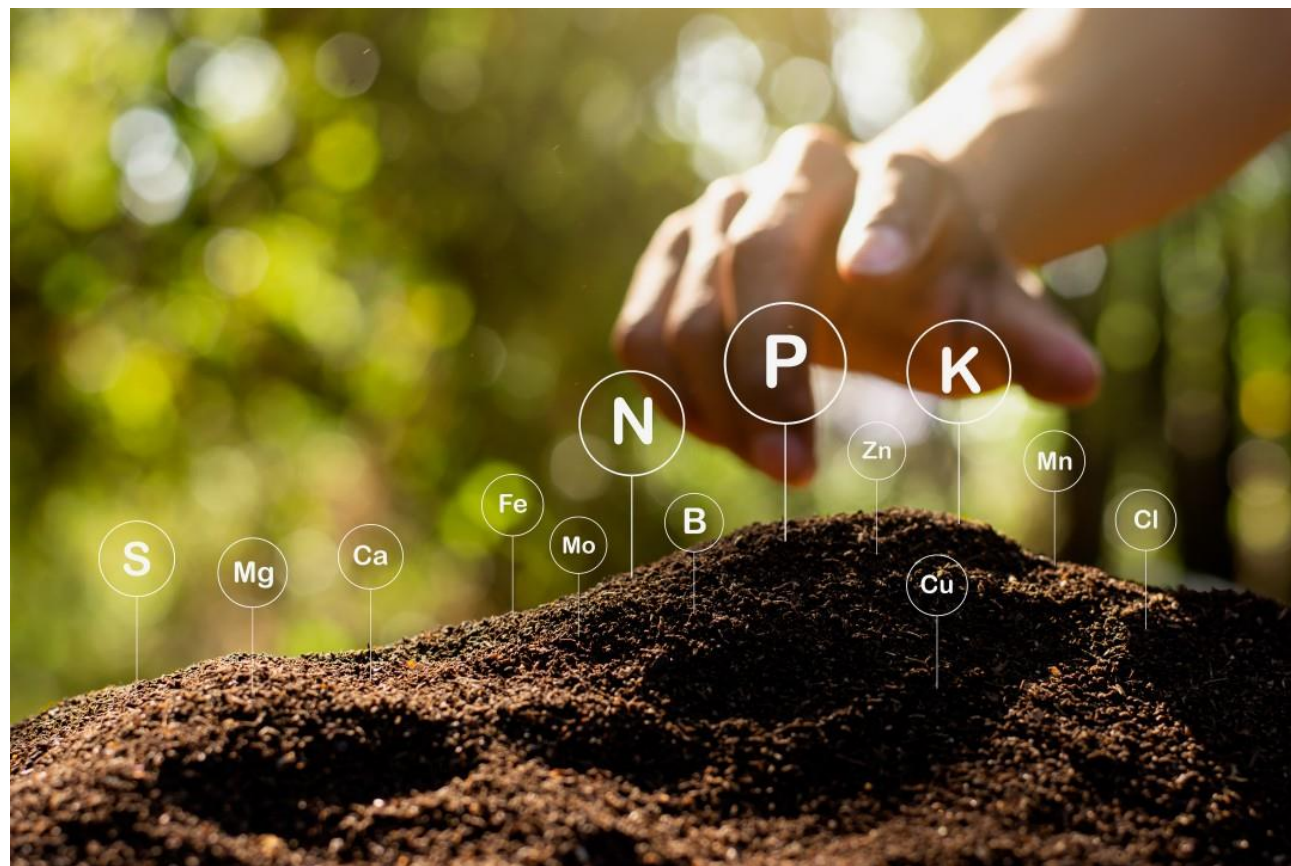
250,000

Date : 13th Feb.,2024



DOC as a fertilizer

- Castor Meal or Castor De-Oiled Cake is an excellent Organic Fertilizer with vital elements ratio of N:P:K of 5:2:1.
- This is a slow release fertilizer staying available to the plant for a longer time as compared to other common fertilizers.
- It is a great supplement to the other fertilizers. Helps in water retention in the soil and provide good aeration.
- It is also an excellent nematicide.
- Helps greatly in soil rejuvenation.



Recognized as an organic fertilizer by the govt of India!

Image source: www.freepik.com



DOC as a fertilizer - parameters

Parameter	Content	Functions
Nitrogen	5.00%	Essential for vigorous growth of plant and development of living tissues, plant proteins and chlorophyll formation.
Phosphorus	2.00%	Stimulates formation and development of roots, flowering, hastens fruit maturity and seed formation. Counteracts adverse effects of heavy application of nitrogen or phosphates.
Potash	1.00%	Aids in protein production, induces increased vigour and resistance to plant diseases. Helps the formation of sugar and starch. Improves quality of fruits and vegetables.
Zinc	0.03%	Helps in formation of growth hormones and to regulate flowering.
Manganese	0.025%	Activates enzymes which are essential for healthy growth. Promotes carbon assimilation, nitrogen metabolism and photosynthetic activity
Copper	0.003%	Plays an important role in carbon assimilation since it is concentrated in the chlorophyll of the leaf.
Oil	0.70%	De-oiled cake having a minute proportion of oil helps to improve the aeration in black soils having water logging conditions.
Organic Matter	> 85%	



DOC as a fuel

- Castor DOC has been used as a fuel since more than 30 years.
- It acts as a good renewable and green alternative to coal (fossil fuels).
- Energy value is comparable to fossil fuels like coal and lignite.
- Clean burning with very low residual ash
- Negligible Sulphur and heavy metals
- Lower moisture



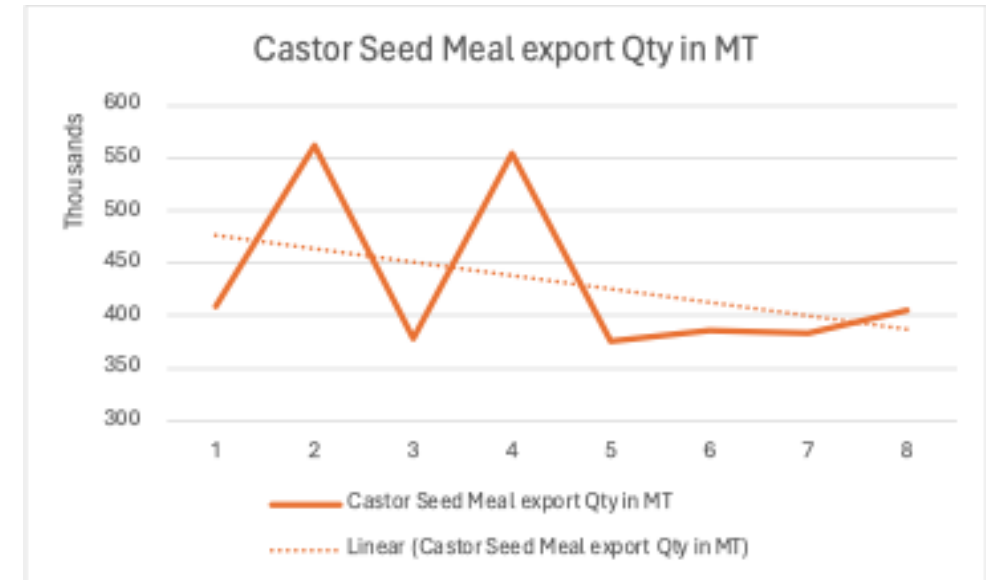
Parameters	Typical Values
Ash	3%
Calorific Value	4400 Kcal/kg
Bulk Density	600 kg per m ³

Image source: www.freepik.com



Historic Figures

CY	Castor Oil Dissapearance	Proportional Castor Meal Production	Castor Seed Meal export Qty in MT	Export %
2016	6,50,000	7,32,979	4,08,715	56%
2017	6,80,000	7,66,809	5,61,314	73%
2018	7,10,000	8,00,638	3,78,436	47%
2019	7,45,000	8,40,106	5,54,396	66%
2020	8,57,000	9,66,404	3,75,631	39%
2021	8,90,000	10,03,617	3,85,832	38%
2022	7,60,000	8,57,021	3,82,887	45%
2023	8,40,000	9,47,234	4,04,767	43%



- Exports % of Castor Meal trending down gradually over the years
- Affected mainly after being classified as a hazardous cargo
- Indicating more use of DOC as a fuel

DOC dynamics

Pricing

DOC is used as a fertilizer typically when prices are lower.

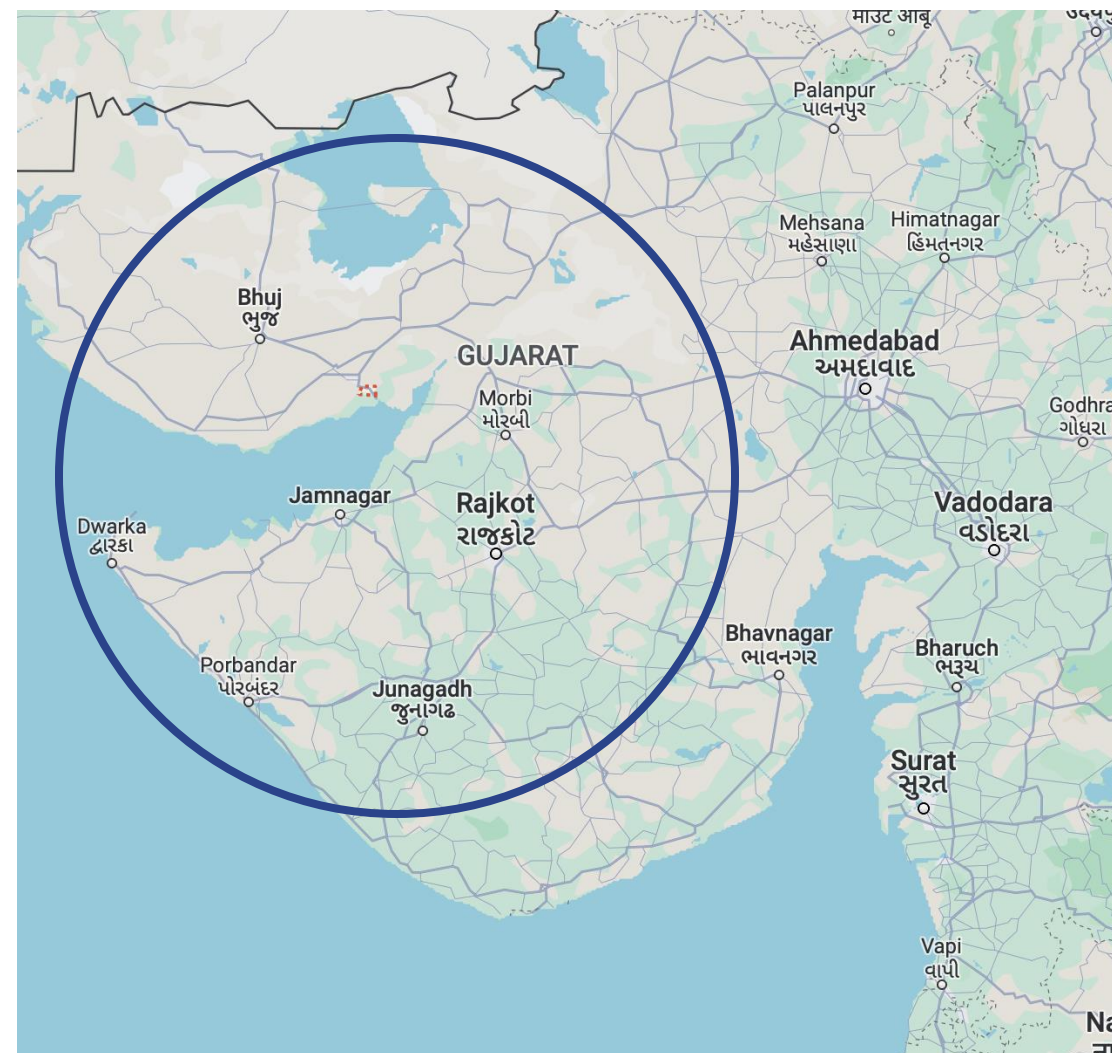
Strong resistance for fertilizer use when price goes above ₹5000-5500

DOC as a fuel supported by COAL prices

Logistics

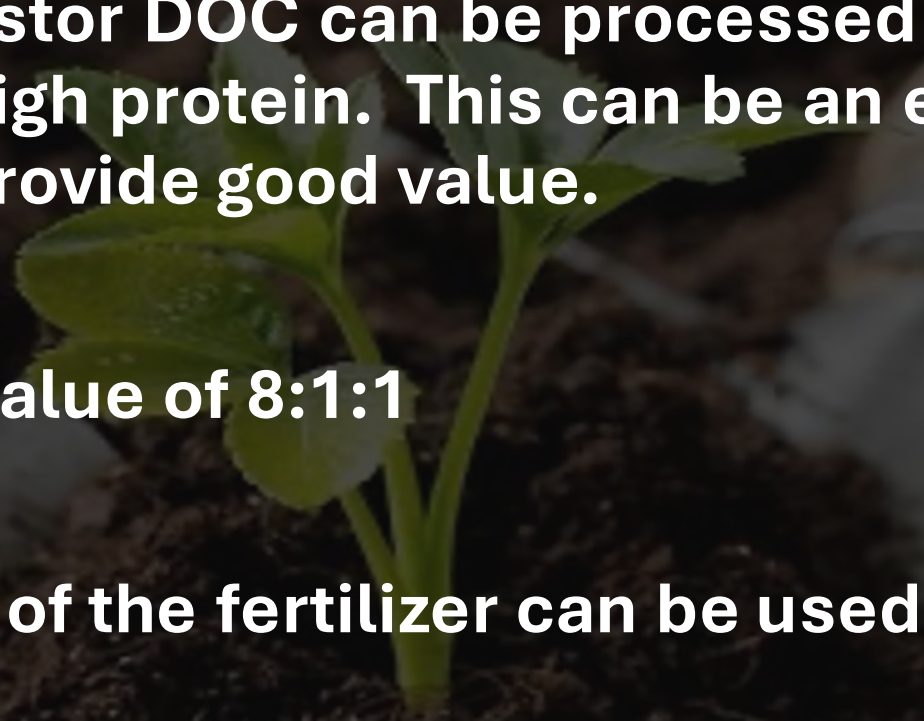
Logistics plays an important role and crushers closer to the Kandla port may prefer to export.

Crushers further away may prefer selling locally for fuel





DOC - High Protein

- Further, the castor DOC can be processed carefully to create a product with high protein. This can be an even better organic fertilizer and provide good value.
 - Typical N:P:K value of 8:1:1
 - Lesser dosage of the fertilizer can be used.
 - Castor meal can also help in fixing nitrogen, phosphorus, potassium by allowing the growth of beneficial bacteria promoting fixation of these elements for the growth of the plant.
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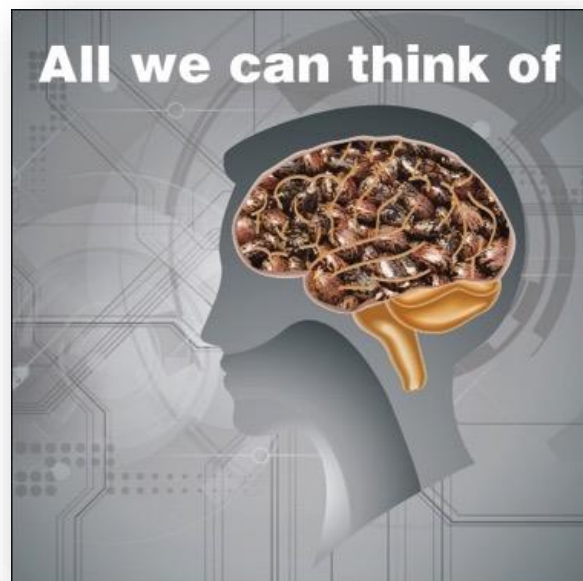


DOC - The Way Forward

- Castor DOC Accounts for more than **50% of the volume** of a crushers raw material, but around just **10% of the value**
- Castor DOC used as a fuel must be encouraged as is it has great potential. It also plays an important role in **reducing dependency** on fossil-based fuels.
- This will also **reduce imports** of coal.
- Industry is working towards studying its hazardous nature and if successful, will be a great boon to be shipped as **non-hazardous cargo**. This could result again in growth of using and exporting DOC as a fertilizer.
- Government already has initiated **“soil health cards”** - Government must continue to encourage usage of this **organic** fertilizer by creating friendly and practical norms.
- DOC as a Fertilizer can be of a great value, but its **potential in India has to be unlocked!**
- Direct consumer usage can be encouraged by creating user friendly packing for **home-gardening projects!**



Thank You



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Phone: +91-22-4027-1300

Fax: +91-22-4027-1399

Email: info@jayantagro.com

Website: www.jayantagro.com