

R&D centre: IIT B-Monash Academy

Precision agriculture thru Drones

Farm advisory thru Webinars

Kakinada plant: 350 acres green belt

Farm mechanization – JV with Yanmar

**Coromandel: Promoting Sustainable Agriculture**  
By Sameer Goel, Managing Director, Coromandel International Ltd

Nov 2019

murugappa

Coromandel FUTURE POSITIVE

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## About Coromandel

Coromandel's Manufacturing Presence

**India's largest** private sector **Phosphatic Fertiliser company** - 3 plants

**5<sup>th</sup> largest Ag Chem Indian company** - 7 plants

**India's largest Single Super Phosphate (SSP) company** - 8 plants

**Pioneers & market leaders in Specialty Nutrients**

**No. 1 Organic Manure player in India**

**Largest Rural Retail Chain across India** - 800 centers

Part of USD 5.4 bil Murugappa Group

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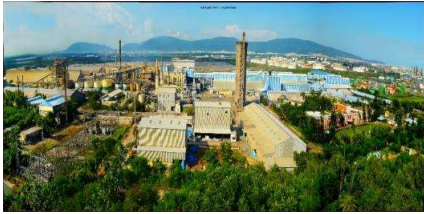
Coromandel

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# Coromandel Plant Nutrients



## NPKs & SSP



Vizag plant

- Started as a **JV between IMC, Chevron, EID Parry** in 1961
- Largest NPK & SSP fertiliser marketer** in India
- Manufacturing **13 grades – 39% unique** (with secondary & MNs)



## Speciality Nutrients



Crop Solutions



- 1<sup>st</sup> Bentonite Sulphur/ Sulphozinc** plant in India
- Largest manufacturers of WSFs (Foliar & Fertigation) - JV with WSF major **SQM**

## Organic Manure



Biomining of Municipal waste

- Pioneers** in Organic Fertilisers: Markets ~1.5 lakh tons pa
- Soil amendment** – City Compost, pressmud
- Soil enrichment**- Molasses, Oil cake

# Coromandel Crop Protection & Bio Pesticide



## Significant Manufacturing presence



Bio pesticide plant (neem based)

- Technical exports to 80 countries; Bio exports to US, Canada & Europe
- Largest neem based **Azadirachtin** manufacturers globally



## Able supported by R&D Team



R&D Centre

- 2 modern R&D facility** – New products, delivery mechanisms, microbial research
- Technology partnerships** with Japanese & Chinese players

## Wide range of products



Injection based application

- Wide product portfolio ~**60 brands**
- Rich pipeline with **greener chemistries**
- Injection based application** for forestry

## Coromandel Retail

**Farming Solutions**

Products	Services
Ag Nutrients	Farm Mechanization
Crop Chem	Agri Insurance
Seeds	Credit
Vet Feed	Soil/ Petiole Testing
Farm Implements	Extension Activities

+

Convergence of  
**Products & Services:**  
**One Stop Shop**  
for Agriculture needs

**Customer Reach**

**3 million** farmers annually

- Farmer outreach – thru Scientist connect, Agronomists
- ‘Retailer of the Year’ award by CMO Asia

**India's largest Agriculture Retail Chain with 800 stores**

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Coromandel adding value to the farmers

- 1** Holistic **agri-inputs provider** with play across agri value chain
- 2** **Farmer education** on variety of agri-inputs and new improved farmer tech
- 3** **Agri-services-** Farm equipments

**Drone Project**

Drone pilot on Paddy & Cotton
Soil pH

	Yield improvement acre (Rs)	Additional income/ acre (Rs)	Avg Net Returns
Paddy	18%	5848	34%
Cotton	23%	8547	55%

Stress Map-Paddy

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## Technology driven Farming Interventions



Uberizations of Farm : Custom Hiring Centers



Webinar with agri scientists



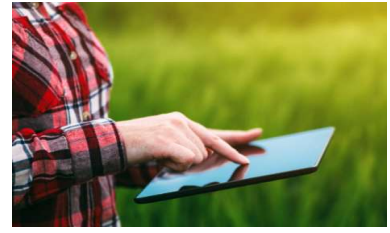
Soil tests kits to the farms



E kiosks for last mile delivery



Drone based crop diagnostics services



Gromor Nutrient Manager- ~0.3 million RoI based recommendations annually

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## Doing it Responsibly: Birds' Paradise

- Bio-Diversity at Coromandel's Kakinada Plant home to ~100 bird species
- Home to 4000+ birds:
  - Breeding species: 13
  - Long distance migratory species: 24
- Recognized by **UNDP** 'Turning a Factory into a Bird Sanctuary'
- Extensive coverage by **Discovery**



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**Indian Agriculture:  
Promoting Balanced  
Nutrition**

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## Indian Agriculture: Achieving Self Sufficiency

**1**

**Driven by Green Revolution**

- High Yielding Variety
- Seed Replacement Rate
- Crop Chemicals usage
- Improved irrigation coverage
- Mechanization

**2**

**& improved nutrient usage**

Year	Value
1951	0,1
1961	0,3
1971	2,3
1981	5,5
1991	12,5
2001	17,4
2011	27,8
2018	26,6

**3**

**...Achieved Self sufficiency in Cereals**

Crop	India Ranking	% Share
Pulses	1 <sup>st</sup>	23%
Oilseeds	1 <sup>st</sup>	11%
Cotton	1 <sup>st</sup>	29%
F & V	2 <sup>nd</sup>	11%
Sugarcane	2 <sup>nd</sup>	20%
Cereals	3 <sup>rd</sup>	11%

- 3<sup>rd</sup> largest Agriculture producer globally
- 7<sup>th</sup> largest Agri exporter

Since Green Revolution, **food production has multiplied 3.7 times** while **population increased by 2.5 times**

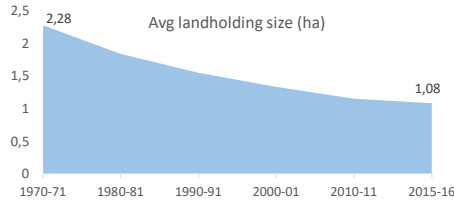
Source: FAI

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## However, Productivity Gaps...

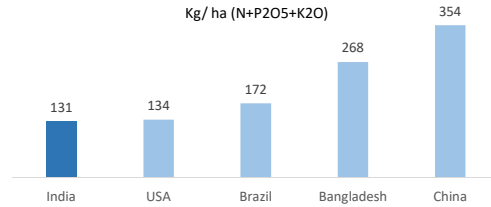


### Falling per capita land holding



Source: Ministry of Agri

### Low Nutrient Usage



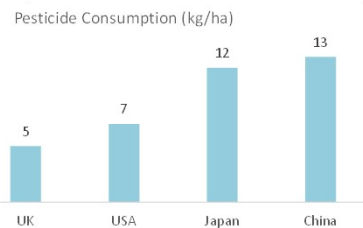
Source: FAI

### Low Mechanization

Country	Level of farm Mechanization
India	40%
Brazil	75%
USA	95%
West Eur	95%
Russia	80%
China	48%

Source: World Bank, FAO

### Low Crop Protection consumption



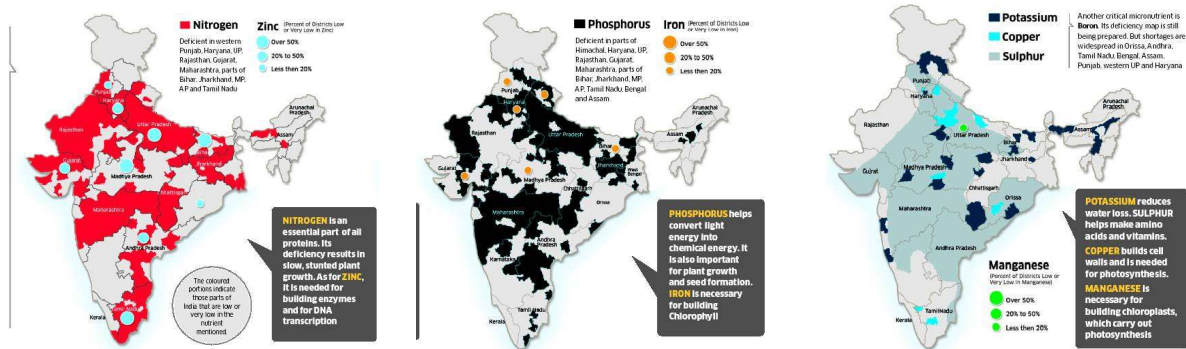
Source: FICCI



## & imbalanced nutrient application impacted soil health



### Nutrient Deficient India Soils



Source: IISS Bhopal

- More than 50% of the districts deficient in essential plant nutrients
- Relatively untapped Secondary & Micro Nutrients segment
- Organic products for soil rejuvenation



### Opportunity for Balanced Nutrition

# Policy reforms to drive Balanced Nutrition



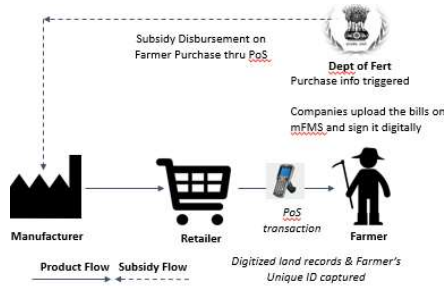
## Soil Health Cards...

Fertiliser Cards		Soil Test Results	
State	AP	Parameter	Unit
Card No.	123456789	N	ppm
Cardholder Name	Mr. X	P	ppm
Cardholder Address	Village, Panchayat, District	K	ppm
Cardholder Phone	9876543210	Ca	ppm
Cardholder Email	xyz@abc.com	Mg	ppm
Cardholder Aadhaar	12345678901234567890	S	ppm
Cardholder Bank Account	123456789012345678901234567890	B	ppm
Cardholder MOP	123456789012345678901234567890	Cu	ppm
Cardholder State	Andhra Pradesh	Zn	ppm
Cardholder District	West Godavari	Mn	ppm
Cardholder Panchayat	Chilukoti	Fe	ppm
Cardholder Village	Chilukoti	Mo	ppm
Cardholder Pin Code	522201	Co	ppm
Cardholder Date of Issue	12/12/2015	Ni	ppm
Cardholder Date of Validity	12/12/2017	Ba	ppm
Cardholder Date of Renewal	12/12/2019	Al	ppm
Cardholder Date of Expiry	12/12/2021	Si	ppm
Cardholder Date of Cancellation	12/12/2023	B	ppm
Cardholder Date of Deactivation	12/12/2025	Cl	ppm
Cardholder Date of Reactivation	12/12/2027	Sr	ppm
Cardholder Date of Termination	12/12/2029	Zn	ppm
Cardholder Date of Suspension	12/12/2031	Mn	ppm
Cardholder Date of Resumption	12/12/2033	Fe	ppm
Cardholder Date of Revocation	12/12/2035	Mo	ppm
Cardholder Date of Withdrawal	12/12/2037	Co	ppm
Cardholder Date of Reinstatement	12/12/2039	Ni	ppm
Cardholder Date of Rejection	12/12/2041	Ba	ppm
Cardholder Date of Appeal	12/12/2043	Al	ppm
Cardholder Date of Dismissal	12/12/2045	Si	ppm
Cardholder Date of Reconsideration	12/12/2047	B	ppm
Cardholder Date of Final Decision	12/12/2049	Cl	ppm
Cardholder Date of Review	12/12/2051	Sr	ppm
Cardholder Date of Appeal	12/12/2053	Zn	ppm
Cardholder Date of Dismissal	12/12/2055	Mn	ppm
Cardholder Date of Reconsideration	12/12/2057	Fe	ppm
Cardholder Date of Final Decision	12/12/2059	Mo	ppm
Cardholder Date of Review	12/12/2061	Co	ppm
Cardholder Date of Appeal	12/12/2063	Ni	ppm
Cardholder Date of Dismissal	12/12/2065	Ba	ppm
Cardholder Date of Reconsideration	12/12/2067	Al	ppm
Cardholder Date of Final Decision	12/12/2069	Si	ppm
Cardholder Date of Review	12/12/2071	B	ppm
Cardholder Date of Appeal	12/12/2073	Cl	ppm
Cardholder Date of Dismissal	12/12/2075	Sr	ppm
Cardholder Date of Reconsideration	12/12/2077	Zn	ppm
Cardholder Date of Final Decision	12/12/2079	Mn	ppm
Cardholder Date of Review	12/12/2081	Fe	ppm
Cardholder Date of Appeal	12/12/2083	Mo	ppm
Cardholder Date of Dismissal	12/12/2085	Co	ppm
Cardholder Date of Reconsideration	12/12/2087	Ni	ppm
Cardholder Date of Final Decision	12/12/2089	Ba	ppm
Cardholder Date of Review	12/12/2091	Al	ppm
Cardholder Date of Appeal	12/12/2093	Si	ppm
Cardholder Date of Dismissal	12/12/2095	B	ppm
Cardholder Date of Reconsideration	12/12/2097	Cl	ppm
Cardholder Date of Final Decision	12/12/2099	Sr	ppm

- Scheme started in 2015 by Govt of India
- Soil health cards issued every two years - 140 mil farmers covered



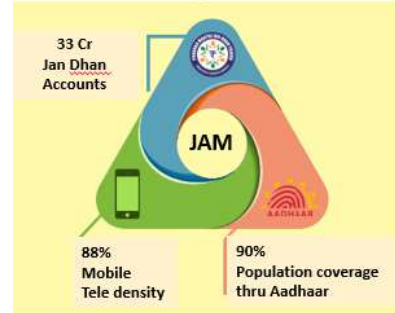
## ...Getting integrated with Direct Benefit Transfer scheme



Under Direct Benefit Transfer in Fertiliser, **SHCs being integrated to farmer purchases: Pilot study**

To promote soil test based nutrient management - **enhancing nutrient use efficiency**

## DBT 3.0: Leveraging JAM Trinity for Direct Transfers

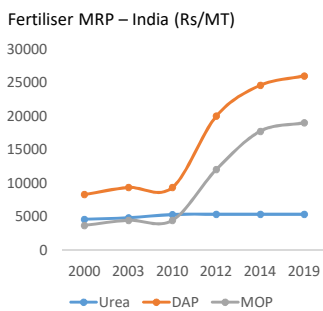


- Rural India high on 'JAM' coverage—**Jan Dhan** (Bank account coverage), **Aadhaar** (Biometric system), **Mobile** (88% coverage)
- Direct Subsidy Transfers to the Beneficiaries based on **Soil Health**

# Balancing Nutrient consumption

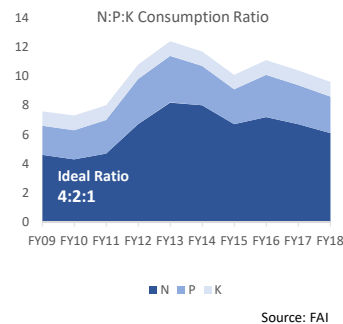


## Fertiliser Price variability



In 2010, Urea kept out of the NBS scope –  
Led to sharp increase in P&K prices

## Led to Imbalanced Nutrient Usage



Led to imbalanced nutrient practices

- **N:P:K ideal ratio → 4: 2: 1**
- **N:P:K ratio FY11 → 4.7: 2.3: 1**
- **N:P:K ratio FY18 → 6.1:2.5: 1**

## Steps to moderate 'N' consumption

- **Neem coating Urea** – For enabling slow release & preventing diversion
- **Bag size reduction:** From 50 kg to 45kg
- **DBT 3.0: Contemplating Urea under NBS (Nutrient based subsidy)** – reducing price distortion



## Use of Technology & Smart Fertiliser



### Agri-tech as enabler for "smarter" farming



**Data generation (Sense)**

In-field sensing  
Remote sensing  
Proprietary data  
Public data



**Algorithms (Infer)**

Monitoring  
Analysis  
Predictions



**Smart equipment (Act)**

Drones and Robotics  
Implement. Variable rate  
applicators.



### Alternate delivery mechanisms for nutrient application

**Nutrient Uptake Efficiency**

	Soil Application	Drip + Soil Application	Drip + Fertigation
N	30-50%	65%	<b>95%</b>
P2O5	20%	30%	<b>45%</b>
K2O	60%	60%	<b>80%</b>

Source: Fertiliser Marketing News

**Fertigation**

- Increase in Water Use Efficiency: 50 – 90%
- Productivity Increase: 40-50%

**Slow & Control Release fertiliser**

- 20-30% reduced application
- Reduced toxicity & Labour savings

Indian Agriculture is fast evolving  
.....2020 & Beyond

Agriculture





# Emerging trends in Agri sector in India



## Themes

## Implications



Rising pressure on natural resources

Micro-irrigation to gain prominence; delivery models for agri-inputs will change



Changing dietary patterns

Growth in F&V, Pulses will increase demand for agri inputs and for cold chain solutions



Evolution of farm holdings

Agri cos. can partner with output marketers, contract farmers to secure input credit



Farm labour shortages

Shared service models for farm equipment will gain prominence



Financial sector involvement

Rising financial liquidity could enable greater spend on specialty agri inputs

## Themes

## Implications



Rise of digital farmers

Digital presents a great opportunity to drive **personalization and farmer connect**



Farm Technology advancements

Completely **new platforms** to deliver agri inputs and agri services to farmers



Evolution of logistics

Better distribution and storage efficiencies will increase earnings & purchasing power of farmers



Government interventions

Growth in farmer incomes and purchasing power ...but incentivization of land division



Subsistence Farming

...to Smart Farming



1<sup>st</sup> Green Revolution was driven by **Farm Inputs....**



2<sup>nd</sup> Green Revolution to be driven by **Technology Inputs**

- Superior products
- Delivery Mechanisms
- Data Analytics



**Coromandel...bringing smiles to millions of farmers  
by promoting sustainable agriculture**



Coromandel 

Play video

**Thank You**



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