

RCF in the Service of Farmers

Rashtriya Chemicals and Fertilisers Ltd., a Government of India Undertaking, registered under the Companies Act 1956 was formed in 1978 after reorganisation of the erstwhile Fertiliser Corporation of India. The company is engaged in production and marketing of inorganic fertilisers and industrial chemicals with its manufacturing units at Trombay and Thal and marketing offices in most of the states. During last two decades the company with sustained expansion, diversification and modernisation programmes, has come a long way and is now recognised as a leader in the fertiliser industry in the country.

Rashtriya Chemicals and Fertilisers Limited, is one of the largest fertiliser producing, Public Sector Companies in India. Credited with "Mini Ratna" status by Government of India, it is committed to produce and market fertilisers of excellent quality using eco-friendly technology and bringing up rural transformation.

A. L. GADKARI

Rashtriya Chemicals and Fertilisers Ltd.
Priyadarshini
Eastern Express Highway
Sion, Mumbai - 400 082

THE FERTILISERS ARE KINGPIN OF THE green revolution and the best hope for meeting the food challenge of the future. With the current grain production which is standing at about 200 million tonnes, India needs to produce an additional 5-6 million tonnes of foodgrains annually in the next decade to meet the requirement of an estimated population of nearly 1120 million in 2010 A. D. In 1994 the Noble Laureate Norman Borlaug stated that India and China would have been required to put 2-3 times more land under cereal crops to meet the food needs of growing population, if they had not increased the input of fertiliser and continued to use the technology of 1960 high yielding varieties. Fertilisers are also the means of saving land through increase in land productivity. The dramatic increase in fertiliser consumption and increase in agricultural productivity is an index of critical role of fertiliser. However, in recent years, long-term sustainability of agriculture of agricultural productivity and environmental safety of technology based on continuous use of inorganic fertiliser is being questioned.

Some of the concerns relate to indiscriminate and imbalanced use of fertilisers and alarm created by the developed countries, which have suffered from ecological problems of industries and also from indiscriminate, improper and excessive use of fertilisers.

It is obvious that fertilisers increase yields and sustain soil health, which farmers also know very well. But the question is that are they applying the right quantities of right kind of fertilisers at the right place at right time to ensure maximum profits?

COMPANY PROFILE

RCF'S UNIT AT TROMBAY (MUMBAI) IS A sprawling complex having 20 operating plants, out of which two are producing 7.22 lakh tonnes of complex fertilisers Suphala 15:15:15 and Suphala 20:20:0 per annum. It is the first of its kind in the country, producing granulated compound fertilisers containing NPK, the most essential nutrient required by crops.

Commissioned in 1985, RCF's Super Fertiliser Plant at Thal (Alibag-Dist. Raigad) heralded a new era of industrial progress in Maharashtra. This unit, built with state-of-the-art technology is the largest plant in Asia, with a capacity to produce 17.07 lakh mtpa of urea. RCF also has to its credit, successful implementation of new expansion projects and marketing of various fertilisers and industrial chemicals within and outside the country.

Agronomical effectiveness of these products was assessed by the India Council of Agricultural Research, New Delhi, Agricultural Departments of States and Agricultural Universities for

suitability to various agro-climatic regions in the country.

Ujjwala Urea - RCF's Ujjwala urea is a inorganic fertiliser produced in a white round prill form, containing 46% nitrogen. It is 100% water soluble and can be used in any type of soils or crops. It can be applied through sowing as well as by spraying.

Suphala 15:15:15 - Suphala 15:15:15 is a complex, granular natural coloured fertiliser, produced by RCF at its Trombay plant. It contains major plant nutrients, 15% each of nitrogen, phosphorus and potash. 1000 metric tonnes of Suphala 15:15:15 is produced per day at the Trombay plant. Suphala 15:15:15 is widely used in the cultivation of sugarcane, cotton, rice, fruit crops, potato, tea, coffee, etc.

Suphala 20:20:0 - RCF's Suphala 20:20:0 is a complex, prilled grey colour fertiliser, produced at its plant at Trombay. This chemical fertiliser contains 20% nitrogen and 20% phosphorus. 1200 metric tonnes of Suphala 20:20:0 is produced per day. It is widely used in the cultivation of cereals, cash crops, oilseeds, pulses as well as vegetables, fruit crops, potato, etc.

Microla - RCF's new product "Microla" is a 100% water soluble fertiliser, in liquid form, containing six vital micronutrients that enhance the quality of the crop. Microla contains zinc, iron, copper, boron, molybdenum and manganese. It increases

the chlorophyll content of the plant, stops fruit and flower drop and increases yield. It is useful in cultivation of fruit trees, vegetable crops, cotton, grapes, cereals, pulses, oilseeds etc. It can be applied through foliar spray or drip irrigation.

Biola - RCF's biofertiliser Biola contain phosphate solubilising bacteria which makes unavailable phosphorous available to the crops. It also helps to multiply the bacteria in the soil which helps to maintain the texture and structure of the soil resulting into healthy and disease-free crop growth. Application of Biola helps to increase yield in crops by 10 to 20%. It is useful for almost all crops like cereals, oilseeds, vegetables, fruit crops, sugarcane, flowering plants, etc.

Sujala (19:19:19) – RCF's Sujala 19:19:19 is a 100% water soluble fertiliser produced by RCF, which contains major plant nutrients N, P and K and it is extremely useful for different crops cultivated in green houses. Application of Sujala in green houses enhances yield. Sujala can be applied by both foliar as well as through drip irrigation system. Sujala is free from chlorine and sodium and hence it does not harm the foliage of the crop. It also maintains the pH of the soil since it is acidic in nature.

The information regarding fertiliser products and other agri-inputs manufactured/imported/sold and volume of sales is given in **Tables 1, 2, 3, 4 and 5**.

During 2004-05, all time high export is recorded for the company i.e.12900 mt. For the first time we have executed the export of imported and traded products in addition to our indigenous products. The product-wise break up is given in **Table 5**.

THRUST AREA OF THE PROMOTIONAL ACTIVITIES

SINCE INCEPTION, RCF IS IMPLEMENTING various fertilisers promotional and farmers education programmes in all the marketing states. The need of the hour is to educate the farmers for balanced use of fertilisers with proper combination of micronutrient and organic manure in an integrated plant nutrient approach, considering the situation of the soil, water and overall

Table 1 - Major products and products sale

Year	Products produced (mt)		Products sale (mt)			
	NPK	NPK	DAP	NPK	NPK	MOP
	Suphala 15:15:15	Suphala 20:20:0		Suphala 15:15:15	Suphala 20:20:0	
2002-03	303755	248590	26	314477	254025	110514
2003-04	292502	234750	57	323417	256414	95245
2004-05	350010	223000	0	374492	243115	119102
2005-06 (Till 30-9-05)	174238	83300	0	198101	102388	106980

Table 2 - All-India year-wise/product-wise sales informations

Year	Urea	Suphala 15:15:15	Suphala 20:20:0	(In mt)	
				Total of products	All product
1995-96	1641334	317956	251060	2210350	2210350
1996-97	1548924	287870	218182	2054976	2054976
1997-98	1588434	401221	294119	2308696	2308696
1998-99	1777290	363787	232225	2685820	2685820
1999-00	1742749	341792	286738	2628774	2628774
2000-01	1625514	325592	245189	2281850	2281850
2001-02	1473199	349246	263560	2155859	2155859
2002-03	1565655	314502	254165	2181581	2181581
2003-04	1731285	323277	256414	2382026	2382026
2004-05	1784631	374471	243117	2402219	2402219
Minimum	1473199	287870	218182	2054976	2054976
Maximum	1784631	401221	294119	2685820	2685820

Table 3 - Other agricultural inputs manufactured (1999-2000 to 2004-05)

Year	Biola (000 kgs.)	Microla (000 litres.)	Nimola (000 kgs.)	Sujala foliar (000kgs.)	Sujala drip (000kgs)
1999-00	102.800	30.510	42.690	0.000	0.000
2000-01	53.740	16.410	16.020	0.000	0.000
2001-02	67.268	36.740	9.148	0.000	0.000
2002-03	61.869	25.511	9.155	12.258	0.000
2003-04	74.208	22.989	0.125	59.541	0.000
2004-05	48.868	30.383	4.617	168.629	129.710

Table 4 - Summary of export of fertilisers

No.	Year	Product	Quantity in mts	Value in US \$	Country of export
1	2001-02	NPK (15:15:15)	40	7960	Sharjah
2	2002-03	NPK (15:15:15)	20	4100	Baharain
3	2003-04	NPK (15:15:15)	140	26400	Sharjah
4	2004-05	NPK (15:15:15)	40	7828	Baharain
	2004-05	NPK (15:15:15)	40	7828	Muscat
	2004-05	NPK (15:15:15)	60	11400	Sharjah
Total	2004-05		140	27056	
	2005-06	NPK (15:15:15)	400	88400	Muscat, Sharjah, Baharain
No.	Year	Product	Quantity in mts	Value in US \$	Country of export
1	2004-05	MOP	5902	1006340	Bangladesh
2	2004-05	Ammonium Sulph.	6759	939501	Bangladesh
3	2005-06	NPK 20:20:0	2390	21316410	Nepal (payment in Rs.)

Table 5 - Product-wise break up of export				
	MOP	Ammonium sulphate	Suphala 15:15:15	Total
Quantity in mts	5895	6759	240	12894
Amount in US \$ in lakhs	10.22	9.39	0.49	20.08
Net profit in Rs. lakhs	48.16	16.00	1.92	66.08
Imported quantity of Muriate of Potash				
Year	Imported quantity		Sale	
2002-03	99650.930		110513.889	
2003-04	100616.503		95244.630	
2004-05	131587.049		119101.900	
2005-06	230246.349		133203.980	
Export of Suphala complex fertilisers				
Year	Suphala:15:15:15		Suphala 20:20:0	
2004-05	140.000		0	
2005-06	200.000		2390.000	

environment. The improved package of practices, adoption of advanced scientific technique in crop cultivation play vital role in crop production. Taking into consideration the facts, RCF has concentrated on the following major promotional activities to increase fertiliser consumption and socio-economic condition of farmers.

Major Promotional Activities

Soil Testing Services

To conduct free soil testing services, RCF has established six soil testing static laboratories and five mobile soil testing laboratories which are in operation in primary marketing states. With the help of these laboratories, RCF is analysing 50,000 soil samples every year for balanced use of fertilisers to sustain crop productivity and maintain soil health. These laboratories are situated in Maharashtra, Karnataka and Andhra Pradesh. Since 1969, 17,73,997 soil samples have been analyzed from these laboratories and recommendations have been given for balanced use of fertilisers.

Farmers Training Programme

To educate the farming community on improved method of cultivation and to help them in getting bumper harvests and returns, RCF has established two Farmers' Training Institutes : one is at Nagpur and second is at Thal, Alibag, Dist. Raigad involving experienced agricultural experts, specialists, scientists

in all activities for transferring right technology from lab to land. Every year RCF is providing training to 1200 farmers. RCF is organising 40 training programmes of three to four days in these institutes. So far 12,285 farmers have participated in the training programmes.

With the help of Dr. D.G. Hapse, Sugarcane specialist, Dyansheel Foundation, Pune, ninety five training programmes during the year 2002-03 were organised in sugar factory areas for the progressive farmers. Dr Hapse has delivered lectures in detailed on improved package of practices on sugarcane crop (Table 6).



Mobile soil testing van



Farmers training programme

Table 6 - Farmers' training programme through agricultural universities
FTI (Nagpur) & FTC (Thal)

Sl. No.	Training institute/ centre	Year	No. of training programmes	No. of farmers trained	Remarks
1. Agril. universities					
a)	M.P.K.V. Rahuri (Farm labourers men / women training pro.)	1985-86	2	97	RCF has organised first farm labourers/ farm women & farm labourers family training programme in the state Maharashtra.
b)	K.K.V. Dapoli (Farm women training programme)	1985-86	1	72	
c)	M.K.V. Parbhani (Farm labourers training programme)	1985-86	1	38	
d)	Dr. P.K.V. Akola (Farm family training pro.)	1985-86	1	26 (13 family)	
2.	Farmers' Training Institute Nagpur	1989-2005	236	7725	
3.	Farmers' Training Centre Thal	1998-2005	121	4560	
	Total		357	12285	

Crop Demonstration

Besides above major promotional activities, RCF is organising crop demonstrations on major crop in two plot system where fertiliser consumption is low and block demonstration with participation of 5 to 20 farmers.

Crash Programme/Joint Venture

These programmes are being carried out during the commencement of season on major crops in fertiliser potential areas. It covers film shows, distribution of literature, pasting of posters and stickers, farmers meeting, painting of product slogan on wall of enroute houses of covered villages. The duration of such programme is being 7 to 15 days with the help of field staff and agril. deptt. Services of soil testing van have been sought. The wide publicity through news paper and broadcasting media is being given to this programme. This activity is being organised with the cooperation of govt. agency or by way of participating in their programmes.

Printing of Farmers' Bulletin

RCF is publishing monthly magazine of 16 pages of *Trombay Sheti Patrika* since

last 36 years and as on date 16 pages issue circulating to 1,10,000 farmers, dealers, sugar factory members, govt. officials etc., and which includes articles on different crops, animal care, dairy, poultry like subsidiary occupations from experts in the particular field. Every month we are receiving 70-80 letters from farmers and we are sending replies on different type of queries.

Other Promotional Activities

Krishi mela/crop seminar, fert./soil testing



Training on integrated pests management

days (*krishi jagran*), farmers/agril. extension staff meeting, dealers' training programme are the other agriculture extension and fertiliser promotional activities under regular fertiliser promotional and farmers educational programme. RCF is implementing these programmes where demonstrations are organised with the help of agriculture experts.

Dealers'/farmers' visit to agril. universities/research station and our factories at Trombay and Thal, agril. exhibition at block/district, fair/yatra and rural sports at key village/block level jointly with educational institute/sports organisation for encouraging younger generation are also included in our regular fertiliser promotional programme.

Film shows to educate farming community for improved package of practices, printing and distribution of literature are also part and parcel of our farmers' education programme.

Promotional activities undertaken by the company are given in **Table 7**.

Tribal District Adoption Project

Under this programme, RCF has selected two districts i.e. Gadchiroli in Maharashtra and Sarguja in Madhya Pradesh which had lower nutrient consumption and had better potential for development is formed for providing necessary extension services for educating the farmers. Total 20 villages

Table 7 - Consolidated progress report of fertiliser promotional activities carried out during April 1978 to March 2005

Sl.no	Activities	1978-1998	1998-1999	1999-2000	2000 -2001	2001- 2002	2002 -2003	2003-2004	2004-2005	Total
1	Crop demonstration	19,281	457	471	378	360	537	83	165	21,732
2	Block demonstration	1428	100	67	58	56	41	23	42	1815
3	Fert./soil testing day	12,399	471	532	387	344	317	112	205	14,767
4	Krishi mela/ crop seminar	1135	89	49	62	59	75	81	98	1678
5	Farmers training (1day)	952	57	40	45	20	39	-	-	1153
6	Dealers training (1day)	1171	76	59	41	46	47	51	64	1555
7	Film shows	12,262	892	676	636	599	473	196	374	16,108
8	Distribution of crop litr. (lakh)	115.775	15.15	9.27	9.84	9.00	8.78	8.00	6.17	181.985
9	Distribution of farmers bulletin (lakh)	107.88	12.8	11.35	11.81	13.21	13.905	13.20	13.20	197.355
10	Joint programme with agril. university	149	33	14	31	37	58	55	88	465
11	Field visits	3,14,346	3981	0	0	0	0	21	34	3,18,382
12	Exhibitions	1596	292	178	163	97	105	106	161	2698
13	Farmers' meetings	34,156	897	878	740	571	905	300	471	38,918
14	Crop competition/rural sports	0	81	32	59	36	52	77	78	415
15	Farmers training(FTI), Nagpur	123	10	13	19	19	18	20	21	243
16	Farmers training (FTC), Thal	0	16	16	16	15	17	21	21	122
17	Veterinary camp	0	0	0	0	26	20	-	-	46
18	Medical camp	0	0	0	0	22	14	-	-	36

covered from each district under this programme. Activities like demonstration, soil testing, training and visit etc., have been undertaken.

Rural Development Programme

50th Anniversary of India's independence celebration programme

In the context of Golden Jubilee years of

India's Independence programme, RCF has initiated various rural upliftment schemes in three states, viz., Maharashtra, Andhra Pradesh and Karnataka. These schemes are taken up in adivasi, backward and rural areas for their educational, social, agricultural, health and economical development. The first phase commenced on 14/8/97 and ended on 14/8/98 whereas

second phase was from 15/8/98 to 31/3/99. RCF had earmarked an amount of Rs. 50.00 lakhs as a special fund towards this development work (**Table 8**).

Integrated rural development programme

Since inception, RCF has been giving in addition to marketing of fertilisers,

Table 8 - 50th Anniversary of India's independence programme
Special rural upliftment schemes implemented for SC/ST community during the period for 14th August, 1997 to 31st March, 1999

Sr.No.	Schemes	(Rs.in lakhs)							
		Phase- I, 14/8/97 to 14/8/98				Phase-II, 15/8/98 to 31/3/99			
		Target	Achiv.	Budget	Exp.	Target	Achiv.	Budget	Exp.
1.	Community approach for ecological balance	30,000	26105	2.20	1.662	20,000	10850	1.30	0.58
2.	To spread preaching of great personalities	50,000	49200	2.75	2.31				
3.	Farm women/labourers training programmes	16	17	3.20	2.75	9	8	1.80	1.61
4.	Adoption of small/ marginal/SC/ST farmers	34	31	3.40	2.50	16	13	1.60	1.075
5.	Operation of farmers service centres by SC/ST youth	26	13	2.60	1.247	24	9	2.40	0.73
6.	Save grain campaign	320	492	1.60	1.55	180	228	0.90	0.90
7.	Medical camps for rural women/children	34	35	3.40	3.48	16	16	1.60	1.62
8.	Veterinary camps for livestock	34	34	1.70	1.682	16	16	0.80	0.85
9.	Setting up of a gymnasium for rural youth	16	14	4.00	2.50	9	6	2.25	1.45
10.	Setting of science lab/library at rural schools	7	6	3.50	2.992	3	3	1.50	1.49
11.	Special sports coaching camps for rural boys & girls	5	4	1.50	1.23	5	5	1.50	1.50
Total (in Rs.)				29.85	23.863	Total		15.65	11.805



Veterinary camp

emphasis on implementation of socio-economic development programmes directed towards the welfare of farming community and weaker sections of rural India. The agriculture prosperity is invariably related with the over all economic and social development in rural areas and is aimed at improving the quality of rural life. Keeping this in view, RCF oriented its approach towards the rural masses by formulating an integrated rural development programme along with agriculture and social development activities.

(a) To bring about general increase in agricultural production by adopting new agricultural techniques and inputs and thereby raise the income of farming community.

(b) To realise all-round development of various aspects of rural life.

These programmes are spread over a period of two years i.e. 1st and 2nd phase and the budget provision is to the tune of Rs. 1.25 lakhs and Rs. 1.15 lakhs respectively (phasewise). Every year under this programme RCF is adopting 12 to 15 villages.

With these objectives, the programmes like basic community need development, agricultural development, subsidiary occupation, public health and village sanitation, youth and women

skill development, adult education, social and cultural development programmes are covered under this project. (Table 9).

Devdasis' rehabilitation programme

Under RCF's rural development programme, Devdasis' rehabilitation centres are established by RCF at Jath in Sangli and Gadhinglaj in Kolhapur districts with a view to train the devdasis to enable them to earn and survive with a respectable life in the society. They have manufactured and marketed woollen garments and silk yarn. RCF purchased the sweaters for an amount of Rs. 13 lakhs from these centres.

Farm men and women labourers training programme

This programme has been started in collaboration with agricultural universities from 1985 with the following objectives–

- ◆ To increase the skill and efficiency of farm labourers.
- ◆ To improve techniques in farm operation which directly help in increasing the food production.
- ◆ To give recognition to farm labourers and skilled persons to earn more remuneration.

Considering the above objectives, RCF has established well equipped farmers training institutes in the state of Maharashtra, i.e., at Nagpur in 1989 and at Thal (dist. Raigad) in 1998.

Nearly 800 to 900 farmers are trained annually small/marginal/SC/ST categories. Each programme covers 30 farmers. So far 150 such training programmes were organized and 4675 men and women labourers were trained at the above said institutions.

Oilseeds, pulses and sericulture (1988-91)

RCF – BARC joint seed multiplication programme – High yielding and shrot duration varieties of oilseeds, pulses evolved by BARC and mulberry were

Table 9 - Expenditure under integrated rural development programme

Sr.no.	Year	No. of states	No. of villages	Budget Rs. lakhs	Expenditure Rs. lakhs
1.	1997-98	6	15	13.75	6.77
2.	1998-99	8	16	13.05	6.75
3.	1999-2000	8	13	12.95	10.65
4.	2000-01	9	17	12.95	3.96
5.	2001-02	7	14	19.40	9.37
6.	2002-03	3	6	10.5	4.11
7.	2003-04	2	4	7.00	4.07
8.	2004-05	1	1	1.75	0.72
9.	2005-06	2	2	3.5	1.68 up to Dec. 05
Total				94.85	48.08



multiplied on the farms of voluntary organisations at Shastabad, Gaudgaon and progressive farmers from our adopted village Wambori in Jalgaon district. The produce of good quality of seeds were distributed among the surrounding villages as a seed for propagation in next season and covered about 800 to 900 hectares of area under these new varieties.

Sericulture development programme (1990-92)

Sericulture is employment oriented programme at farm as well as at the places of processing. Considering the need of rural areas, RCF implemented the ambitious programme of sericulture development with the cooperation of K.S.R.D.D.K., Motegaon dist. Washim in the state of Maharashtra. In this connection, RCF organised demonstrations on 240 acres of land and more than 400 small and marginal farmers of the RCF's adopted village Karda. During the programme, 100 farm women were imparted training in silk reeling.

Model rural development programme (1983-1989)

This programme was initiated in 1983 in the state of Maharashtra particularly in drought prone and tribal areas. The objective was to transform modern techniques in agriculture for increasing crop production and to develop socio-

welfare activities. So far 11 villages have been developed.

The major achievements are as follows:

- (a) 25 to 30% increase in fertiliser use.
- (b) 50 to 60% increase in crop yield.
- (c) 20 to 25% increase in social forestry and fruit plantation area.
- (d) Biogas plants were installed in collaboration with Zilla Parishad.
- (e) Constructed community centres – one centre in each village is being utilised for educational facilities and social functions.
- (f) Two project villages viz. Mukhed (Nasik) and Tawalai (Dhule) were evaluated by Mahatma Phule Krishi Vidyapeeth, Rahuri and the report was excellent.

RCF has adopted number of villages under the various rural development programmes in the states of Maharashtra, Andhra Pradesh, Karnataka, Tamil Nadu, Gujarat, Madhya Pradesh, Rajasthan, Punjab, Haryana and Uttar Pradesh.

No. of villages

(a) Model rural development programmes (emphasis on agriculture)	- 1982-88	-	11
(b) 20 point programme (Emphasis on rainfed agri. & social forestry)	- 1986-88	-	84

(c) Integrated rural development programme for allround development.	- 1989-99	-	45
(d) New integrated rural development	- 2000-05	-	35

Highlights of other Social Activities

Construction of Suphala Setu and Ujjwala Setu two foot over bridge at Pandharpur – Pandharpur is a holy place in Solapur district of Maharashtra where lakhs of devotees visit every year from farming community, majority of them are ST/SC, BPL of Maharashtra, Karnataka and Andhra Pradesh. Hence as a social obligation and considering the demand of devotees, RCF has constructed a foot over bridge at Pandharpur. It is proposed to construct second bridge as Ujjwala Setu during year 2003-04 and total expenditure will be Rs 23.00 lakhs.

Rain Water Harvesting

Since day-by-day and year-by-year the monsoon is on decline and uneven, and the farmers are facing the acute water shortage, the farmers especially who are having small and marginal land holding who have been cultivating different rainfed crops are suffering a lot. And hence, its high time to think about implementing the rain water in the best possible way. Rashtriya Chemicals and Fertilisers has already started educating the farmers about rain water harvesting through its training centres. The concept of *Vanrai Bandhara* and well recharging are not only being disseminated to the farming community but also the empty bags which are required to construct the *Vanrai Bandharas* are being supplied by RCF.

All the four Agricultural Universities as well as the Agricultural Department of the Maharashtra state have been supplied with the empty bags for constructing the *Vanrai Bandharas*. The Superintendent Agricultural Officers of the state Agriculture Department have already constructed the *Vanrai Bandharas* in their respective jurisdiction.