

# **Bangalore Milk Union**



**Welcomes You All**

**Presentation On**

**Total Energy Management**

# **Bangalore Milk Union**

## **Energy Policy**

**“Utilisation of Energy effectively & judiciously aiming to conserve the energy continuously by adopting eco-friendly methods & thereby increasing the productivity of the Union”**

# **Bangalore Milk Union**

## **Energy Goal**

**“To Provide Fresh - Quality Milk & Milk Products at competitive prices to the consumers & thereby uplifting the financial position of the rural milk producers”**

# **Bamul at Glance 2001**

**Milk Processing Capacity SIX  
Lakh Liters per Day**

**Quantity of Milk Processed 1770.52 Lakh Ltrs**

**Furnace Oil Consumption 16,47,216 Ltrs**

**Electricity Consumption 74,79,117 KWHs**

**Water Consumption 3,999.75 Lakh Ltrs**

# **Bamul at Glance 2001**

**Total Expenditure Rs. 7,65,97,510**

**Furnace Oil**                      **Rs. 1,89,42,984**

**Electricity**                      **Rs. 3,36,56,026**

**Water**                              **Rs. 2,39,98,500**

# **SWOT Analysis of Bamul**

## **STRENGTHS**

**Automated Computerized Plant**

**Maximum Capacity Utilization**

**Support & Encouragement by Management**

**Electricity Express Feeder Line**

**Efficient Boilers**

**Automatic Correction Power Factor Unit**

**Installation of Energy Meters**

# **SWOT Analysis of Bamul**

## **WEAKNESS**

**Non availability of Own Water Source**

**Batch type of Powder Plant**

**Excess Man Power**

**Lack of Awareness**

# **SWOT Analysis of Bamul**

## **OPPURTUNITIES**

**Monitoring the Processing & Packing**

**Revision of Electricity Contract Demand**

**Utilization of Methane Gas**

**Utilization of Treated Water**

**Rain Water Harvesting**

**Management of Steam & Cold Store**

**Leakages**

# **SWOT Analysis of Bamul**

## **THRETS**

**Liberalization of Milk Industry**

**Irregular Power Shut Downs**

# **Monitoring the Processing & Packing**

**Reducing the operating hours of the boiler  
& air compressor**

**Maintaining Cream FAT at 40%**

**Avoiding dry runs of packing machines**

**Replacement of Crate washer Motor**

**Efficient utilization of Crate Washers**

**Pasteurization Temperature of Milk**

**Regular Calibration of Instruments**

**Automated CIP System**

**Drop Testing of Milk Pouches regularly**

**Utilization of condensate Water**

# Revision of Electricity Contract Demand

**Anekal**

**160 KVA**

**120 KVA**

**Vijayapura**

**300 KVA**

**200 KVA**

**Disconnection of power for unused Bore-wells**

# **Utilisation of Methane Gas**

**Utilisation of Methane Gas for Lighting & for generation of power**

## **Utilization of Treated Water**

**Used for Gardening & Floor Wash**

**Used for Toilet Flush lines**

**Rain Water Harvesting**

# **Management of Steam & Cold Store Leakages**

**Minimising the Entry & Exits to the Cold Store**

**Identified & rectified the Steam Leakages**

# Anticipated Savings

**TOTAL**                      **Rs. 1,05,00,000**

**Processing & Packing**                      **Rs. 75,00,000**

**Electricity Contract Demand**                      **Rs. 2,00,000**

**Treated Water**                      **Rs. 25,00,000**

**Steam & Cold Store Leakages**                      **Rs. 3,00,000**

# Action Plan

Formation of TEM Team

SWOT Analysis

Responsibilities

Time Frame Schedule

Awareness among the employees

Periodical Review

Reporting to the Board

Consultancy from External Agency

# Comparison

2001

2002

Milk	1770.52 LLt	1890.37 LLt
Curds	76.46 LLt	94.44 LLt
Butter	1386.73 MT	792.38 MT
Ghee	756 MT	887.53 MT
Peda	103.15 MT	118.02 MT

# Specific Energy

	2001	2002	Savings
Electricity	0.042	0.037	0.005
Furnace Oil	0.0094	0.0075	0.0019
Water	2.28	1.73	0.55

# Consumption

2001

2002

Savings

Electricity	74,79,117	70,00,169	4,78,948
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(KWH)

Furnace Oil	16,47,216	14,14,638	2,32,578
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(Ltrs)

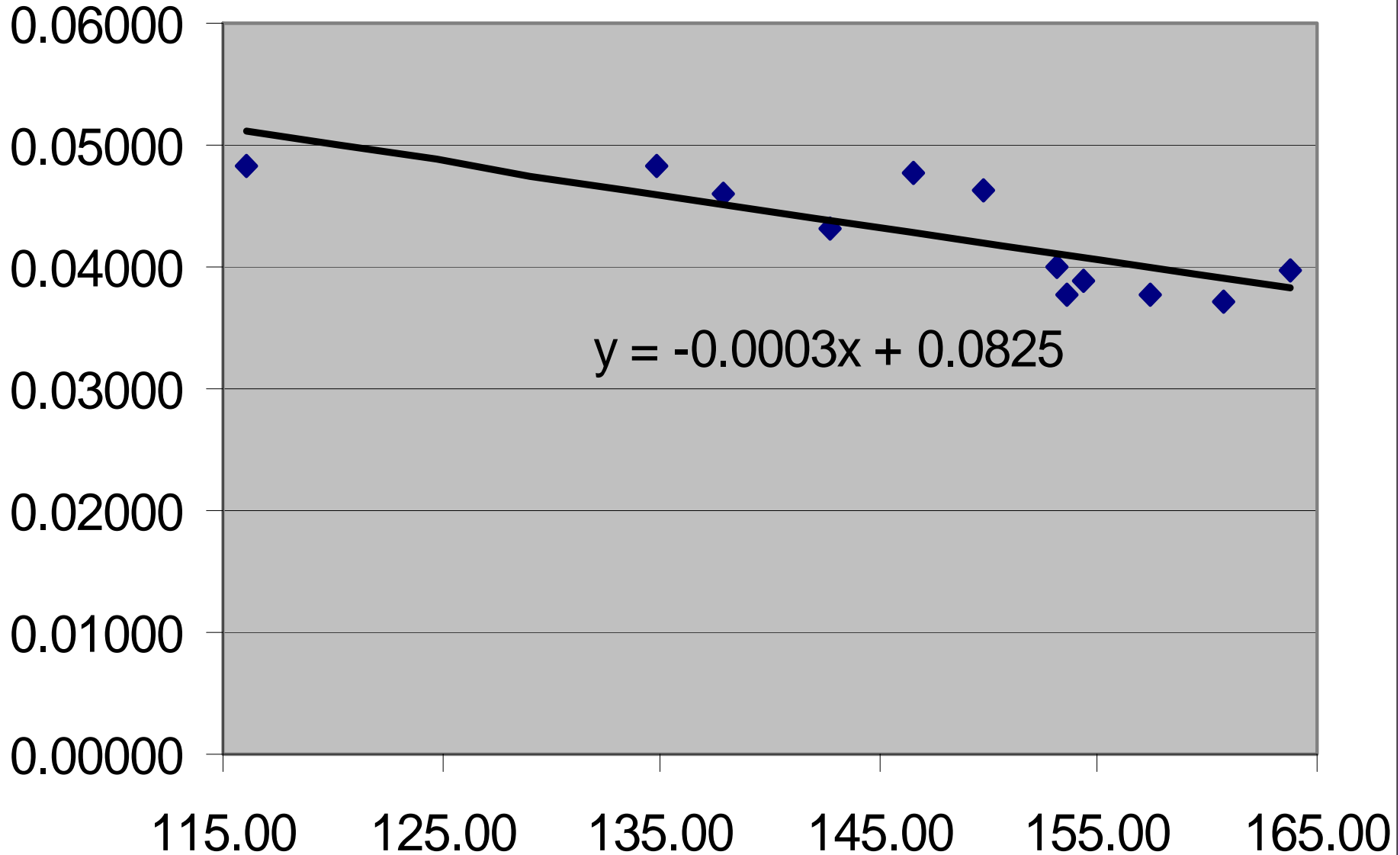
Water	3999.75	3244.03	755.72
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(LLtrs)

# Savings (in Rupees)

	2001	2002	Savings
Electricity	3,36,56,026	3,15,00,760	21,55,265
Furnace Oil	1,89,42,984	1,62,68,337	26,74,647
Water	2,39,98,500	1,94,64,180	45,34,320
<b>TOTAL</b>			<b>93,64,232</b>

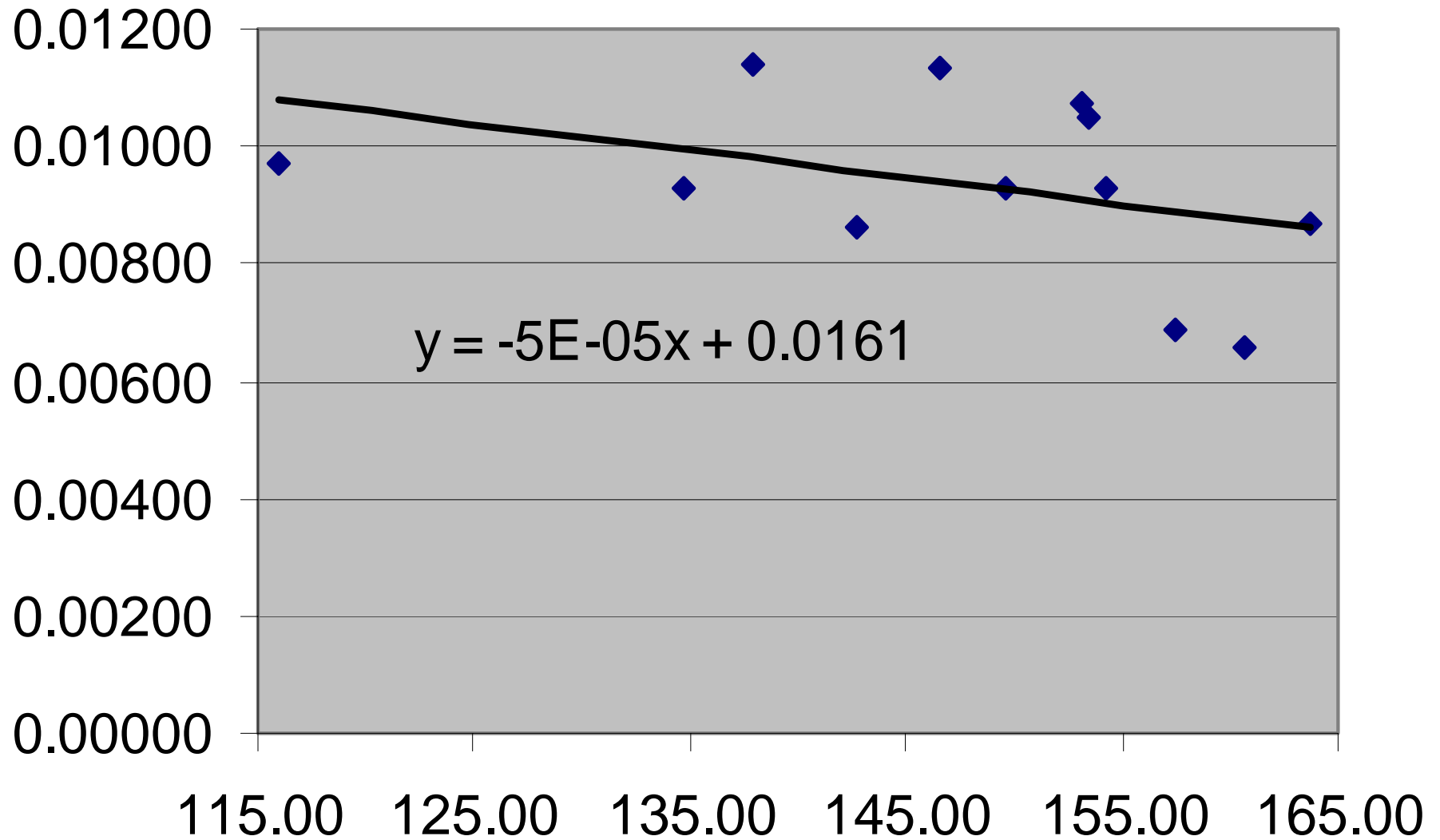
# Electricity



# Electricity Consumption & Savings

Month	Milk Processed in Lakh Liters (Year 2002)	Actual specific electricity consumption (2002 data), kWh/LLtr	Equivalent specific electricity consumption (from 2001 trend line), kWh/LLtr	Energy savings, kWh/LLtr
January	137.76	0.04303	0.04117	-0.26
February	134.41	0.03650	0.04218	0.76
March	146.36	0.03614	0.03859	0.36
April	141.50	0.03592	0.04005	0.58
May	157.19	0.03553	0.03534	-0.03
June	162.68	0.03529	0.03370	-0.26
July	176.25	0.03557	0.02963	-1.05
August	150.60	0.03965	0.03732	-0.35
September	146.11	0.03799	0.03867	0.10
October	175.96	0.03701	0.02971	-1.28
November	172.30	0.03797	0.03081	-1.23
December	189.26	0.03500	0.02572	-1.76
<b>Total electrical energy savings for the year</b>				<b>-4.41</b>

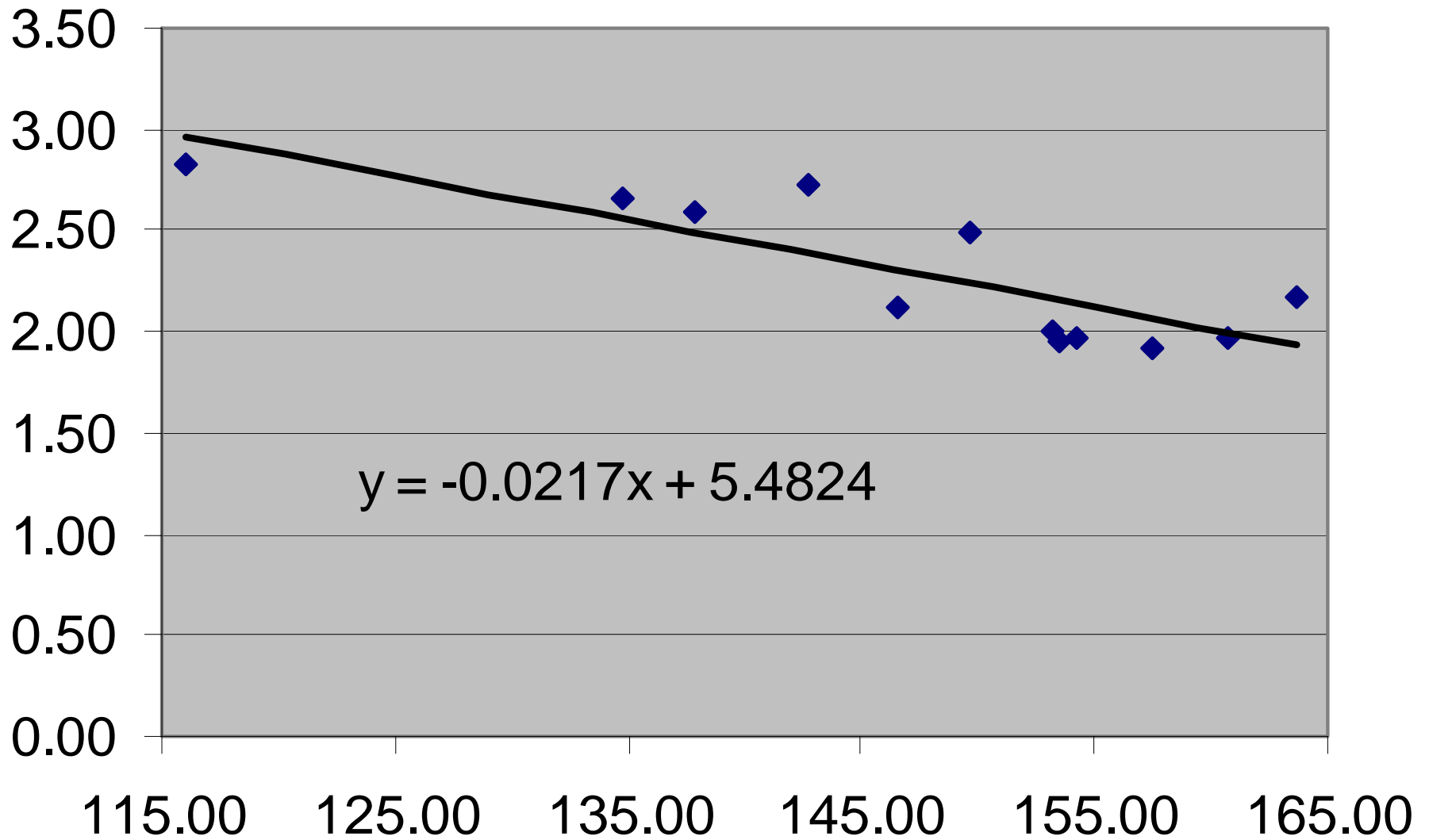
# Furnace Oil



# Furnace Oil Consumption & Savings

Month	Milk Processed in Lakh Liters (Year 2002)	Actual specific furnace oil consumption (2002 data), lit/LLtr	Equivalent specific furnace oil consumption (from 2001 trend line), lit/LLtr	Energy savings, Llit
January	137.76	0.01109	0.00921	-0.259095
February	134.41	0.00704	0.00938	0.314389
March	146.36	0.00598	0.00878	0.410674
April	141.50	0.00548	0.00903	0.501788
May	157.19	0.00503	0.00824	0.504844
June	162.68	0.00707	0.00797	0.145459
July	176.25	0.00844	0.00729	-0.202388
August	150.60	0.00848	0.00857	0.013992
September	146.11	0.00629	0.00879	0.365402
October	175.96	0.00858	0.00730	-0.225272
November	172.30	0.00779	0.00749	-0.053032
December	189.26	0.00816	0.00664	-0.289109
<b>Total furnace oil savings for the year</b>				<b>1.227651</b>

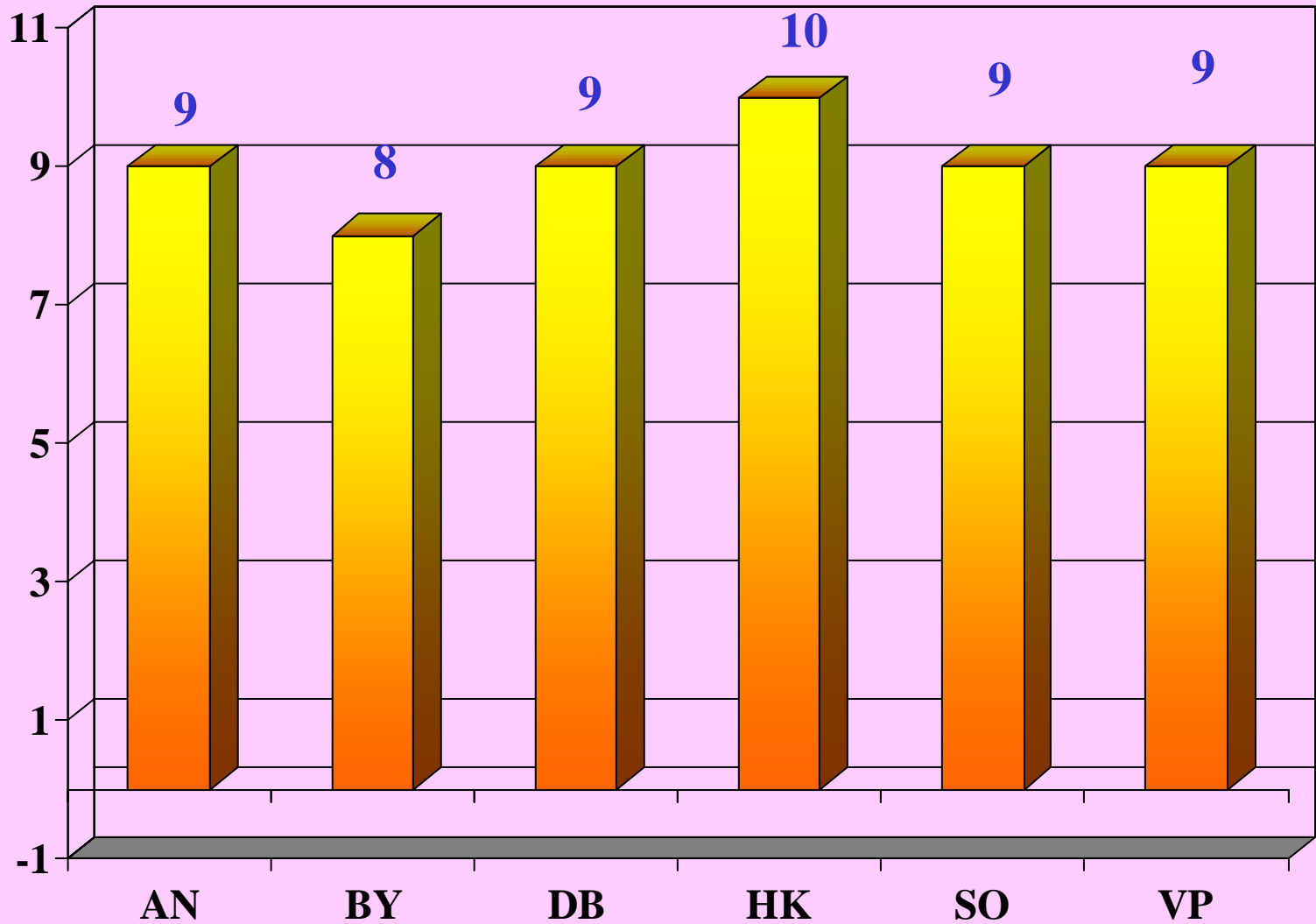
# Water



# Water Consumption & Savings

Month	Milk Processed in Lakh Liters (Year 2002)	Actual specific water consumption (2002 data), lit/LLtr	Equivalent specific water consumption (from 2001 trend line), lit/LLtr	Energy savings, lakh lit
January	137.76	2.21	2.49	39.27
February	134.41	1.82	2.57	100.13
March	146.36	1.73	2.31	84.55
April	141.50	1.86	2.41	77.97
May	157.19	1.75	2.07	49.88
June	162.68	1.76	1.95	31.93
July	176.25	1.68	1.66	-4.12
August	150.60	1.81	2.21	61.34
September	146.11	1.64	2.31	98.63
October	175.96	1.59	1.66	12.69
November	172.30	1.56	1.74	30.83
December	189.26	1.37	1.38	0.20
<b>Total Water savings for the year</b>				<b>583.29</b>

# Average Chilling Cost at various Chilling Centers



In Paise per Liter

## Electricity: Amount saved in 12 Months = Rs. 21,55,266/-

Month	Milk Processed LLPM		Electricity			Specific Energy		Savings
	2001	2002	KWh			KWh		
			2001	2002	Savings	2001	2002	
January	137.85	137.76	632974	592766	40208	0.046	0.043	0.003
February	116.03	134.41	559577	490646	68931	0.048	0.037	0.012
March	142.78	146.36	617802	529006	88796	0.043	0.036	0.007
April	134.76	141.50	650642	508246	142396	0.048	0.036	0.012
May	149.68	157.19	693767	558503	135264	0.046	0.036	0.011
June	163.74	162.68	648407	574094	74313	0.040	0.035	0.004
July	157.45	176.25	595238	626938	-31700	0.038	0.036	0.002
August	160.70	150.60	596748	597058	-310	0.037	0.040	-0.003
September	154.26	146.11	597493	555138	42355	0.039	0.038	0.001
October	146.61	175.96	698099	651178	46921	0.048	0.037	0.011
November	153.53	172.30	577878	654128	-76250	0.038	0.038	0.000
December	153.13	189.26	610492	662468	-51976	0.040	0.035	0.005
<b>TOTAL</b>	<b>1770.52</b>	<b>1890.37</b>	<b>7479117</b>	<b>7000169</b>	<b>478948</b>			<b>0.005</b>

## Furnace Oil: Amount saved in 12 Months = Rs. 26,74,647

Month	Milk Processed LLPM		Furnace Oil			Specific Energy Ltrs		Savings
			Ltrs					
	2001	2002	2001	2002	Savings	2001	2002	
January	137.85	137.76	157188	152814	4374	0.0114	0.0111	0.0003
February	116.03	134.41	112823	94631	18192	0.0097	0.0070	0.0027
March	142.78	146.36	122934	87466	35468	0.0086	0.0060	0.0026
April	134.76	141.50	125268	77525	47743	0.0093	0.0055	0.0038
May	149.68	157.19	138564	79048	59516	0.0093	0.0050	0.0042
June	163.74	162.68	141800	115045	26755	0.0087	0.0071	0.0016
July	157.45	176.25	108075	148681	-40606	0.0069	0.0084	-0.0016
August	160.70	150.60	105481	127665	-22184	0.0066	0.0085	-0.0019
September	154.26	146.11	143592	91956	51636	0.0093	0.0063	0.0030
October	146.61	175.96	165932	151013	14919	0.0113	0.0086	0.0027
November	153.53	172.30	160954	134270	26684	0.0105	0.0078	0.0027
December	153.13	189.26	164605	154524	10081	0.0107	0.0082	0.0026
<b>TOTAL</b>	<b>1770.52</b>	<b>1890.37</b>	<b>1647216</b>	<b>1414638</b>	<b>232578</b>			<b>0.0019</b>

## Water: Approximate amount saved in 12 Months = Rs.52,90,040/-

Month	Milk Processed LLPM		Water			Specific Energy		Savings
	2001	2002	LLtrs		Ltrs			
			2001	2002	Savings	2001	2002	
January	137.85	137.76	357.10	304.17	52.93	2.59	2.21	0.38
February	116.03	134.41	327.27	244.73	82.54	2.82	1.82	1.00
March	142.78	146.36	389.51	253.01	136.50	2.73	1.73	1.00
April	134.76	141.50	359.40	263.31	96.09	2.67	1.86	0.81
May	149.68	157.19	373.62	275.72	97.90	2.50	1.75	0.74
June	163.74	162.68	355.22	285.66	69.56	2.17	1.76	0.41
July	157.45	176.25	302.30	296.30	6.00	1.92	1.68	0.24
August	160.70	150.60	315.03	272.15	42.88	1.96	1.81	0.15
September	154.26	146.11	302.64	239.15	63.49	1.96	1.64	0.33
October	146.61	175.96	311.42	280.12	31.30	2.12	1.59	0.53
November	153.53	172.30	300.49	269.58	30.91	1.96	1.56	0.39
December	153.13	189.26	305.75	260.13	45.62	2.00	1.37	0.62
<b>TOTAL</b>	<b>1770.52</b>	<b>1890.37</b>	<b>3999.75</b>	<b>3244.03</b>	<b>755.72</b>			<b>0.55</b>

# Bangalore Milk Union



**Thank You**