

WELCOME TO THE
PRESENTATION ON ENERGY
CONSERVATION AND
MANAGEMENT AT

milma

KANNUR DAIRY, KERALA

General Information

- Started in 1978 by Govt. of Kerala, Dept. of Dairy Development (KLD&MM Board)
- Capacity 10000 LPD
- Handed over to KCMMF Ltd in 1984
- Expanded to 40,000 LPD in 1992
- Expanded to 70,000 LPD in 1998
- Expanded to 100,000 LPD in 2001



ഉയർജ സംരക്ഷണ പ്രവർത്തനത്തിനുള്ള സർക്കാരിന്റെ പ്രശസ്തി പത്രം പ്രൊഫ. ടോങ് ജിയാൻഡോങ്ങിൽനിന്ന് മിൽമ കണ്ണൂർ ഡയറി മാനേജർ കെ.എം.വിജയകുമാരൻ ഏറ്റുവാങ്ങുന്നു

ഉയർജ സംരക്ഷണ പ്രശസ്തിപത്രം മിൽമ കണ്ണൂർ ഡയറിക്ക്

കണ്ണൂർ: ഉയർജ സംരക്ഷണ പ്രവർത്തനത്തിനുള്ള സംസ്ഥാന സർക്കാരിന്റെ 2006-07ലെ പ്രശസ്തിപത്രം മിൽമയുടെ കണ്ണൂർ ഡയറിക്ക് ലഭിച്ചു.

എന്നർജി മാനേജ്മെന്റ് സെൻറർ (ഇ.എം.സി.) ആണ് മിൽമയുടെ ഉയർജ സംരക്ഷണത്തിനുള്ള പ്രവർത്തനം നടത്തുന്നവരെ കണ്ടെത്തുന്നതും അംഗീകരിക്കുന്നതും.

2002 മുതൽ ഡയറി നടത്തിവരുന്ന പ്രവർത്തനങ്ങളുടെ ഫലമായാണ് ഈ നേട്ടം കൈവരിക്കാനായത്. സോളാർ വാട്ടർ ഹീറ്റിങ് (10,000 ലിറ്റർ), ഓട്ടോമാറ്റിക് പമ്പർഫാക്ടർ കൺട്രോൾ സംവിധാനം, ഉയർജജക്ഷമത കൃഷിയ മോട്ടോറുകൾ, പാൽ പാക്കി

ങ് യന്ത്രസാമഗ്രികൾ, ഐസ് പ്ലാന്റിൽ പാഴായിപ്പോകുന്ന താപ പുനർ വിനിയോഗ സംവിധാനം എന്നിവ നടപ്പിലാക്കിയതിലൂടെ വൈദ്യുതി, വെള്ളം, ഡീസൽ, ഫർണസ് കാമ്പിൽ ഇവയുടെ ഉപയോഗത്തിൽ ഗണ്യമായ കുറവ് വരുത്തിയതിനാണ് പുരസ്കാരം.

കണ്ണൂർ ഡയറിക്ക് വേണ്ടി തിരുവനന്തപുരത്ത് ഉയർജ സംരക്ഷണ ദിനത്തിൽ ഇൻറർനാഷണൽ നെറ്റ്വർക്ക്- എസ്.എച്ച്.പി. ഡയറക്ടർ ജനറൽ പ്രൊഫ. ടോങ് ജിയാൻഡോങ്ങിൽനിന്ന് പ്രശസ്തിപത്രം ഡയറി മാനേജർ കെ.എം.വിജയകുമാരൻ ഏറ്റുവാങ്ങി.

സാമൂഹിക സമ്മാനം തൊ

കണ്ണൂർ: സാമൂഹിക ഹൈൽ ഓയിൽ താക്കളായ സാസിന്റെ സ്വർഭൂതിയിൽ വികുളള സമ്മാനം 4.30ന് പയ്യാമ്പക്കിൽ വിതരണം നോർത്ത് മല ഓഫ് കൊമേഴ്സ ഹെഷ്ചന്ത്ര ബാല ചെയ്യും. സമ്മാനം നുകുകെടുപ്പ് വളയത്ത് ഹാളിൽ പ്ര.പി.ഹബീബ് തെച്ചും. ധന്യ കൂലേ പവൻ സ്വർണ്ണതയി. രണ്ടാംസമ്മാനം ഹല്ല കാഞ്ഞിരം വൻ).

പത്രസമ്മേളനം ഹെർബൽസ് ഉടരേന്ദ്രൻ, ഡോ. കരൻ, വികാസ് നരിക എന്നിവർ പ

റിസർവ് നിപ്പോർട്ട് മലയാളം പുറത്ത്

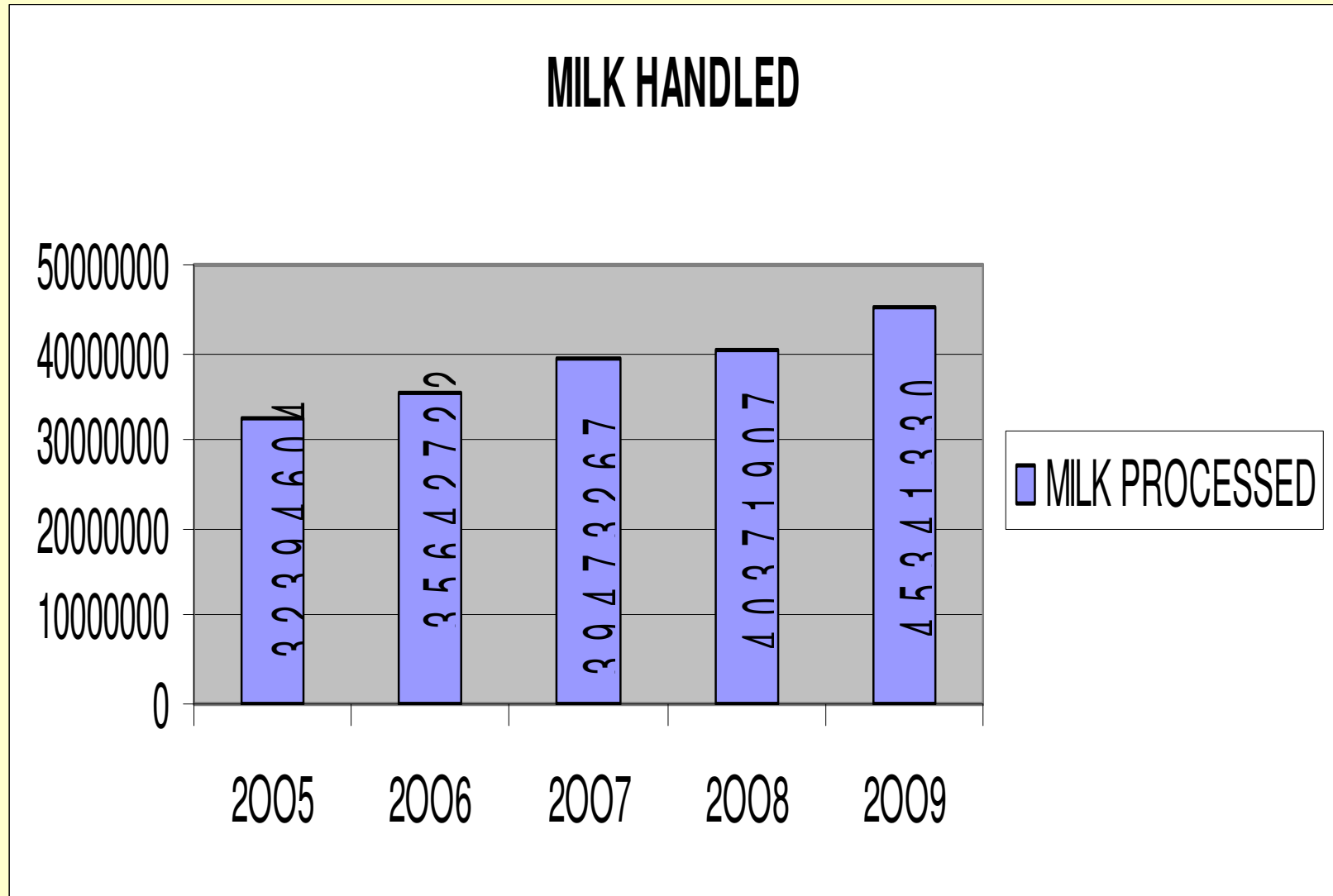
കൊച്ചി: റിസർവ് വാർഷിക പ്രവർത്തന മലയാളം പര ചെയ്യും. റിസർവ് നെൽ മാനേജർ ഉലിം ഗംഗാധരൻ പ്രഹിച്ച്. റീജണൽ പ്രരാമസ്വാമി പതിപ്പ് ബാങ്കിന്റെ പ്ര

General Information

Present production Capacity

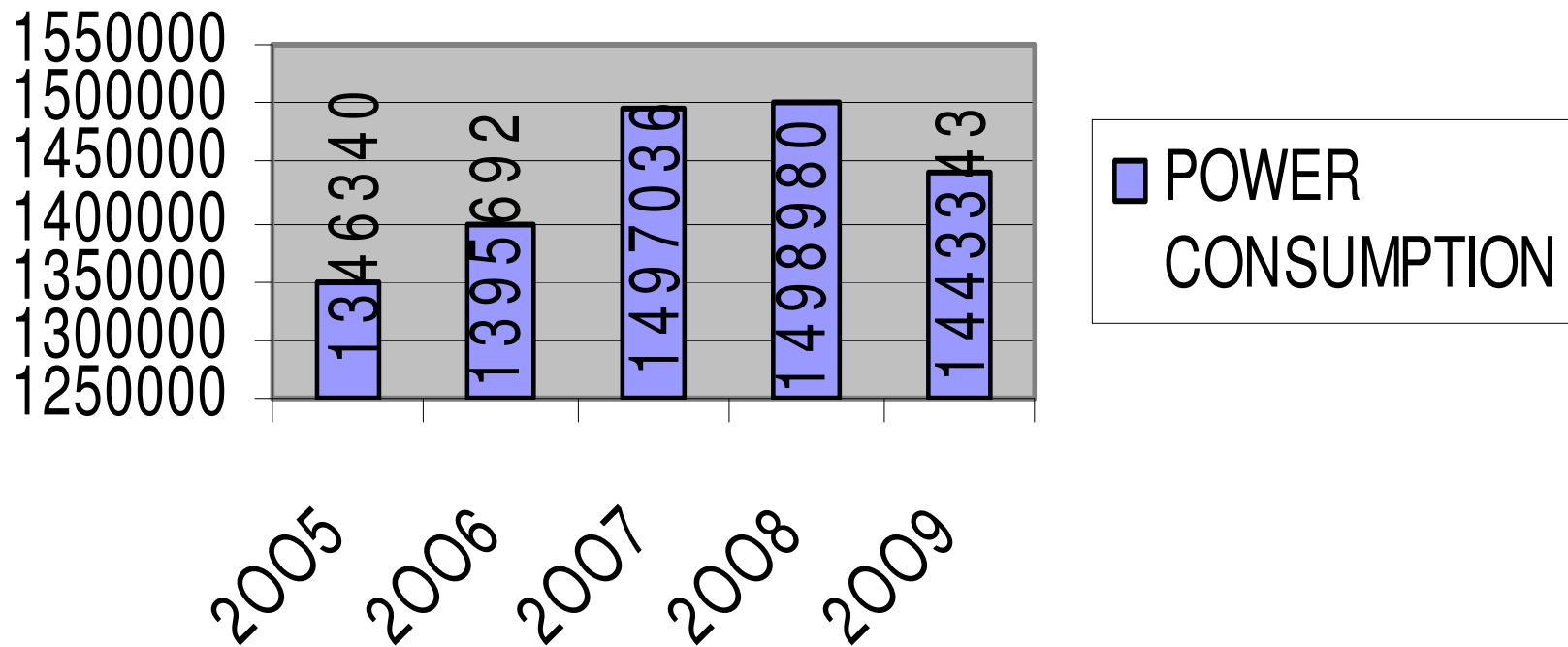
- Liquid Milk (Sachet) : 1,15,000 LPD
- Curd (Sachet) : 12,000 kg/Day
- Bottled Ghee : 30 MT/Month
- Butter Milk : 10,000 Pouches/Day

Details of milk handled



Consumption scenario

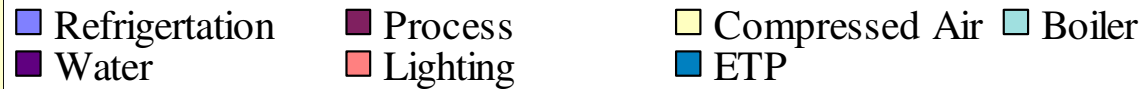
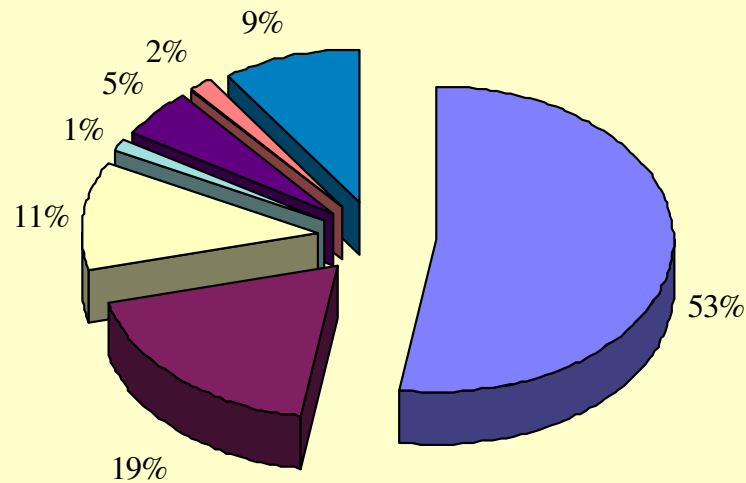
POWER CONSUMPTION



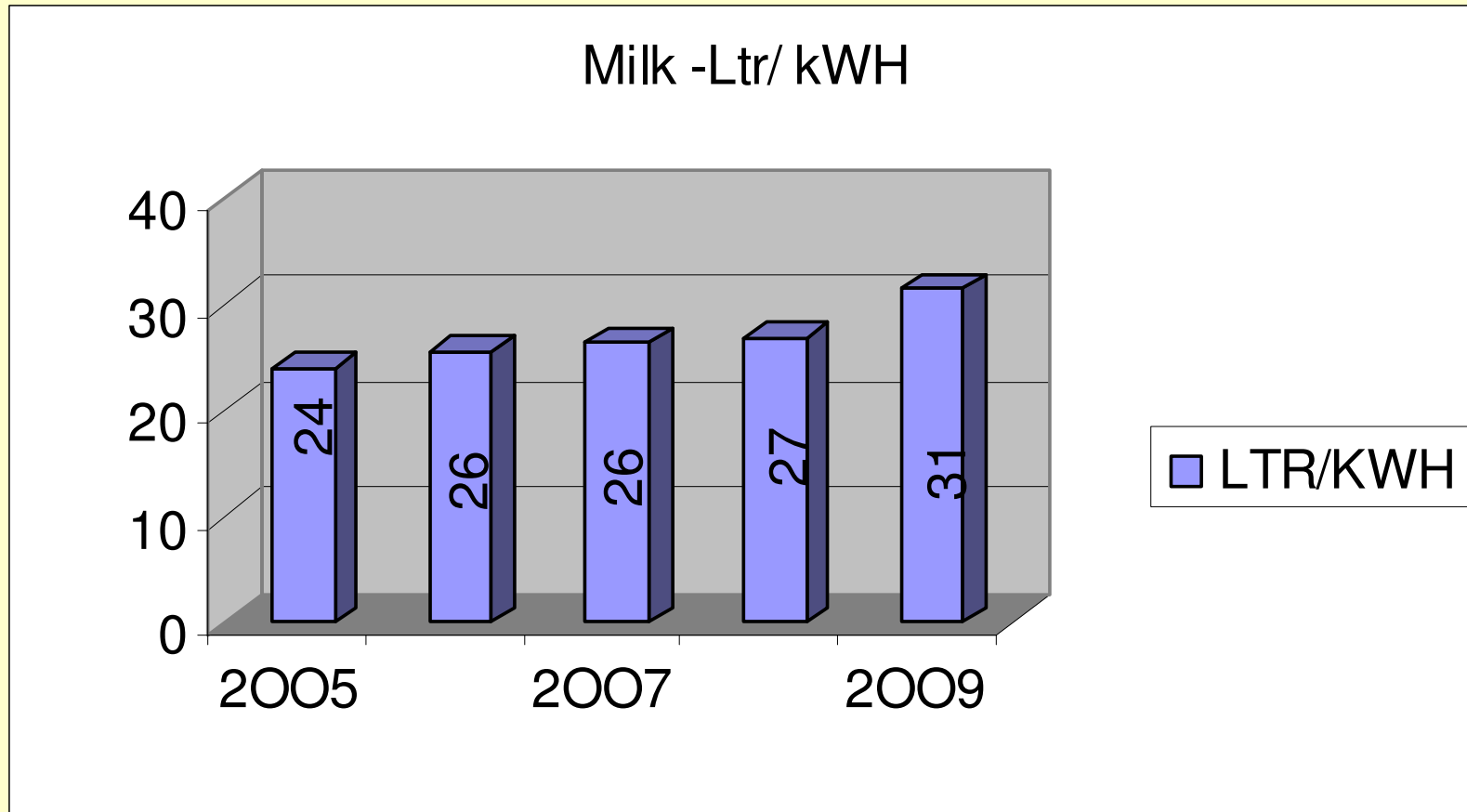
RESULTS OF ENERGY CONSERVATION WORKS

YEAR	MILK PROCESSED	POWER CONSUMPTION
2005	32394604	1346340
2006	35642722	1395692
2007	39473267	1497036
2008	40371907	1498980
2009	45341330	1443343
increase 2005-2009	28.5	6.7

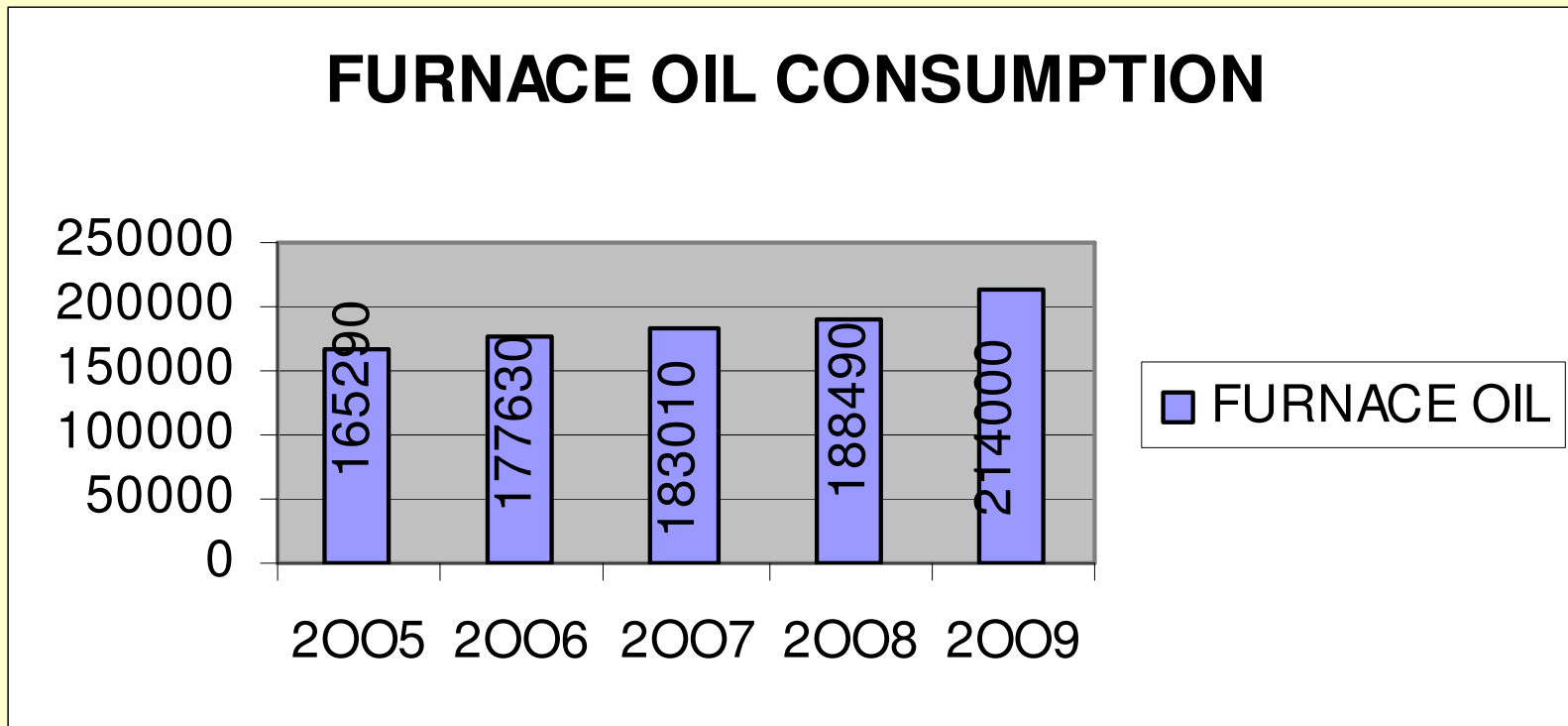
Breakdown of Electricity Consumption



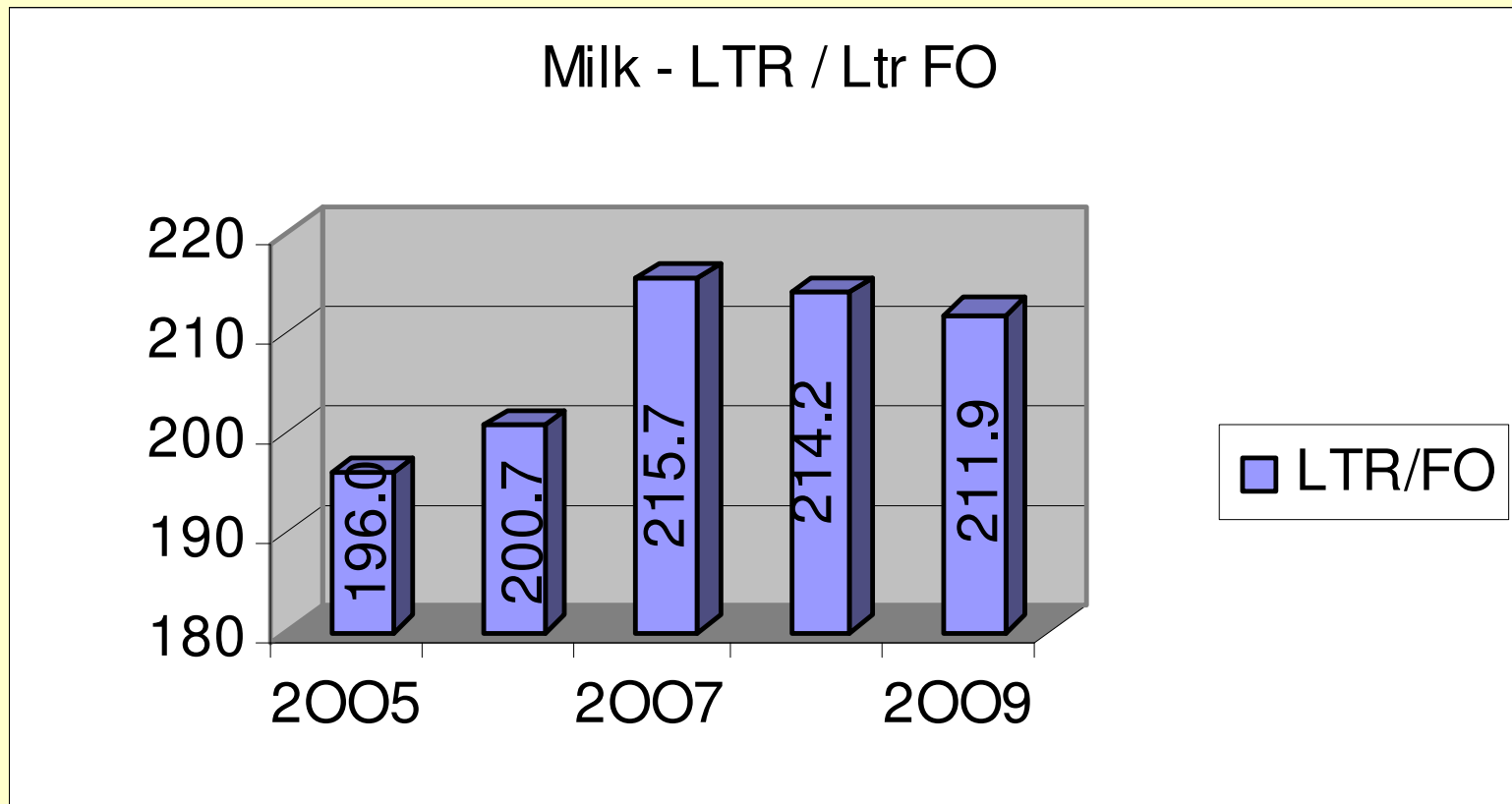
Power Consumption



Furnace Oil Consumption



FURNACE OIL CONSUMPTION



Kannur Dairy

» Energy conservation measures implemented

1. Two Nos. of pneumatic milk filling machines replaced with Nichrome make mechanical machines

Kannur Dairy



3. Reduced steam Pressure settings at delivery end from 3.5kg/q.cm to 3 kg/sq.cm.
4. Provided metal Halide 70 Watts shatter proof lamp fittings in RMRD & Ghee melting, replacing 6 Nos of 36 Watts fluorescent tube fittings.

Energy Conservation activities completed during 2005 -06

1. Replaced 2 No pneumatically operated milk filling machines with mechanical type machines and thus reduced using of compressed air consumption @50m³/hr at 6 bar.
2. Installed low power consuming lighting systems (CFL and slim tubes) in plant. Also avoided using of artificial lighting where ever possible by utilizing natural light.
3. Replaced 7.5 HP Jet pump for pumping water from open well with 5 HP submersible pump without scarifying discharge

Energy Conservation activities completed during 2006 -07

1) Installed De-superheating system for recovery of heat from hot refrigerant in Refrigeration section.

Saving obtained /year = Rs.3,12,417/-

2) Replaced old 5HP milk feed pump with 3hp pump having same flow rate in milk Pasteurizer.

Saving obtained /year = Rs.18,468/-

3) Replaced 15 HP pump in Tray washing Machine with 2 pumps of 7.5 HP & 2 HP without compromising on jetting pressure, efficiency and production.

Saving obtained /year = Rs.47,849/-

4) Replaced old 3HP Cream pump with new 1hp pump (Netzch-German Make) of same flow rate. Thus could able to reduce power consumption by 2 HP.

Saving obtained /year = Rs.6,209/-

DE SUPER HEATER



2007/11/29

ENERGY CONSERVATION
ACTIVITIES COMPLETED
DURING 2007-08

1) RAIN WATER HARVESTING

Installed rainwater harvesting system and there by able to collect about 10kl water per day during rainy days. Could able to reduce operation of 3 hp x 2 no bore well pumps for 4hrs/day for about 45 days.

Calculation of saving:

a) Energy saving /year $(1.73 \times 400V \times 2.8A \times 0.93 \times 2 \text{ no} \times 4\text{Hrs} \times 45 \text{ days} / 1000 = 510 \text{ Units}$

Amount saved/year (Assuming electricity charges @ Rs.5.20 /unit) = $510 \times 5.20 = \text{Rs:}2,652/-$

b) Cost of water saved/day = $10 \text{ kl} \times \text{Rs.}25/\text{kl} = \text{Rs.}250/-$
Saving /year (Rs.250/- x 45 days) = $11,250/-$

Total saving/ year (a+b) = Rs.13,902/-

RAIN WATER HARVESTING SYSTEM



ENERGY CONSERVATION WORK 08-09 UTILIZING OF NATURAL LIGHT

Our processing plant was having corrugated oval shaped asbestos roofing. For implementing HACCP, we had replaced the roofing. Instead of going for conventional RCC roofing, we have provided roofing with combination of galvalume sheets and transparent sheets in MS reinforcement, ensuring maximum utilization of natural light. Thus we could eliminate using of 27 numbers of 36 watts tube lights during day time.

Calculation of saving:

Energy saving/day = 9.72 Units (36 w/1000 x 27No x10hrs)

**Saving/year = 9.72 Units x 350days x
Rs.5.20/Unit = Rs.17,690/-**

TRANSPARENT ROOFING



TRANSPARENT ROOFING



3) AIR COMPRESSOR MODIFICATION

We were operating a screw compressor of 30hp to pump water from 2 bore wells and for feeding to plant machineries. Compressed air at 5kg.cm^2 pressure is required for water pumping where as plant requirement is at 4kg.cm^2 . The compressor was located about 75 meter away from the bore well and so we used to run the compressor at a set pressure of 8kg.cm^2 giving allowance for line drops. This compressor was in operation for 16 hrs/day on load. It was drawing a full load current of 28Amps.

We have done the following improvements.

- i) Introduced two number dedicated compressor pumps of 3hp rating, near to the bore wells for water pumping.
- ii) Provided timers for cyclic operation of bore well pumps in intervals of 30 minutes, ensuring the previous delivery rate of 1,250 lph

iii) Reduced the working pressure of screw compressor to 6kg.cm². As a result, the compressor operation has come down to 11 hrs/day on load. Also full load current became 25.5Amps.

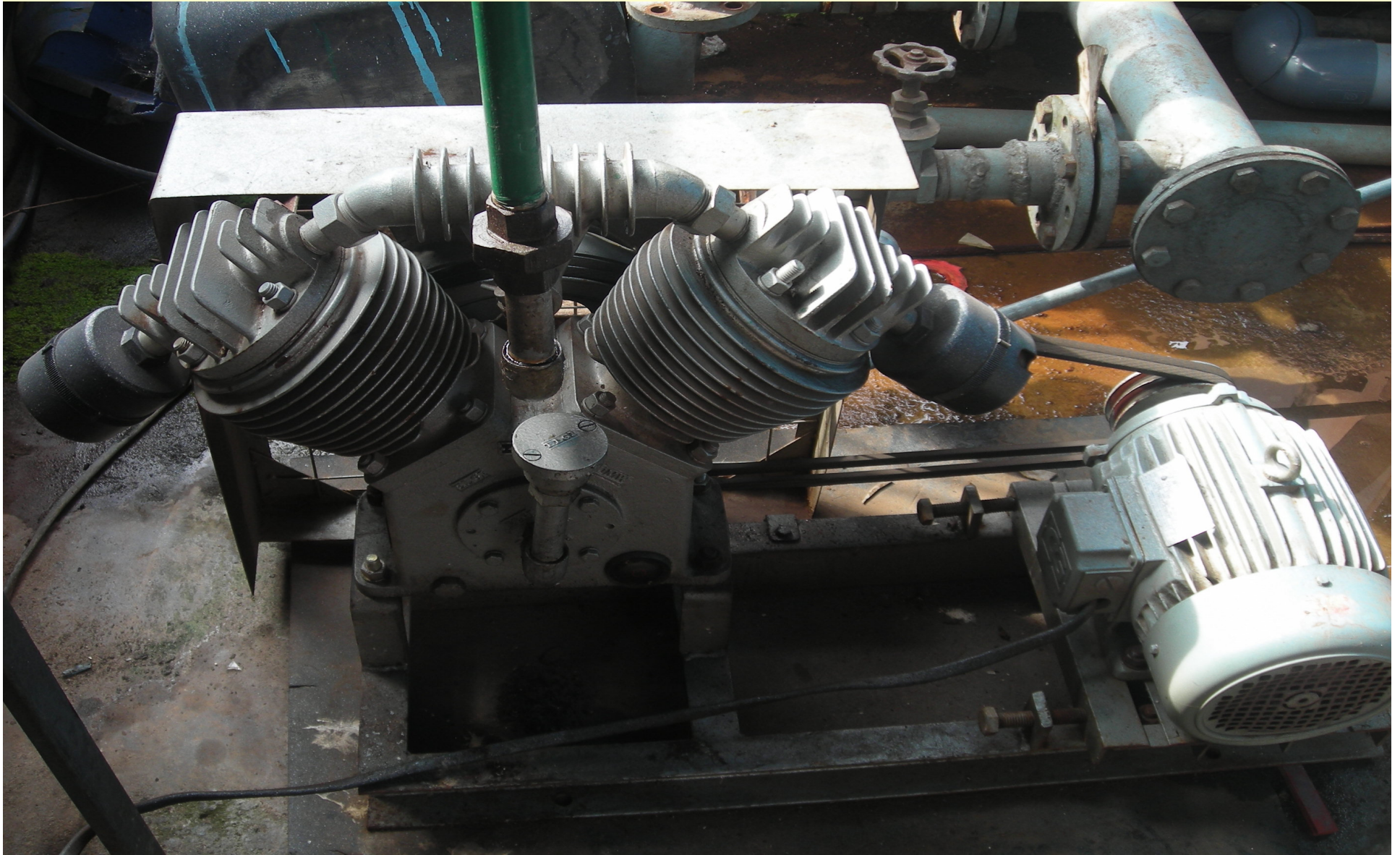
Calculation of saving:

- a) Power consumption /day of crew compressor before modification= $1.73 \times 400\text{volts} \times 28 \text{ amps} \times 0.91\text{pf} \times 16 \text{ hrs}/1000 = 282.11 \text{ kWh}$
- b) Power consumption/day after modification= $1.73 \times 400 \text{ volts} \times 25.5 \text{ amps} \times 0.91\text{pf} \times 11 \text{ hrs}/1000 = 176.64 \text{ kWh}$
- c) Power consumption of both the bore well pumps/day = $1.73 \times 400\text{volts} \times 2.8\text{amps} \times 0.93\text{pf} \times 12 \text{ hrs} \times 2 \text{ No}/1000 = 43.25 \text{ kWh}$

Unit Saving/day = a - (b+c)= 62.22 kWh

Saving year = (62.22 kWh x Rs.5.20 x 350 days) = Rs.1,13,240/-

COMPRESSOR PUMP FOR BOREWELL



PRODUCTION-CONSUMPTION COMPARISON

	2005-06	2006-07	2007-08
a) Milk Processed (kL)	37,706.11	40,697.43	44,968.71
% Difference		+ 8%	+ 10%
b) Electricity consumption (Lakh Units)	13.51	14.29	15.28
% Difference		+ 6%	+ 7%
c) Furnace Oil Consumption(kL)	169.27	175.71	184.85
% Difference		+ 4%	+ 5%



MALABAR REGIONAL CO-OP. MILK
PRODUCERS' UNION LTD.

Energy Policy

We, "Milma" shall strive for continuous energy economizing
through

- Monitoring closely & control consumption of various forms of energy through an effective EMS.
- Improved capacity utilization, bench marking
- Up gradation of process, technology & equipments
- Maximise the use of cheaper & easily available form of energy.
- Maximise the recovery of waste energy.
- Creating awareness among the employees of all levels.

27 July 2004

Managing Director

Energy Management Committee

Kannur Dairy is having an energy management committee constituting the following members. Monthly meeting is conducted on first Tuesday of every month.

Committee.

- 1.Vijayakumaran K.M (Dairy Manager)
- 2.Jayachandran (Asst. Manager Q.C)
3. James.K.C (Asst. Manager, Prod.)
- 4.Raguthaman. P (Engineer-Mechanical)
- 5.Remesh V Menon (Technical Supdt)
- 6.Devanandan (Technician)
- 7.Raveendran.C (Technician, MRAC)

Problems identified

Compressed Air

- Pressure settings is high in Air compressors
- Air Leak
- Inefficient Compressors

Countermeasures

- Reduced Pressure settings from 10 kg/cm² to 8 kg/cm²
- Leakage test conducted and arrested all the leakage points.
- Placed order for Screw Air compressors for changing the inefficient reciprocating Compressors

Problems identified

- Hot water Over flow from Hot water set of Pasteurizer

Countermeasures

- The Over flow water from the Hot water set used in CIP hot water tank.

Results

- The steam consumption in the CIP system has reduced.
- Saving in furnace oil consumption – 6000 lts/ year
- Cost of Furnace oil saving Rs. 72,000 per year.

HTST PLANT

- Regeneration efficiency of Plant is 90 %
- Pasteurisation temperature kept at 78 Deg C

Changes incorporated

- Pasteurisation temp is reduced to 76 Deg C
- It is practically found that further reduction in temp adversely reflects in keeping quality of milk.

Works in Hand

- Shell and tube heat exchanger for installation in Ammonia compressor discharge line is under fabrication. The Hot water @ 35 lpm at 60 deg C is intended to use in Tray washer to minimize steam consumption.
- Splash steam from boiler blow down as well as steam traps from main header is recognized as a heat source to preheat furnace oil. This will reduce the heating of FO by using Electric heaters. The design and fabrication is on the anvil.

Minor, but Worthy points

- Replaced Bibcocks with 15 mm JAISON Taps in Canteen and wash basins to reduce water consumption.
- Provided 11W CFL in place of fluorescent/incandescent lamps in all stair cases and passages.
- In process hall all 20 mm wash points were changed to 15 mm to reduce water as well as steam consumption.

This is only a beginning

THANK YOU