

Who is more competitive in the dairy chain in India - formal vs. informal

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Introduction

It is estimated that around 8 percent of the milk produced in Orissa is marketed through formal channels while the remaining 92 percent is handled by the unorganised sector in local markets or for self consumption.

The per capita availability of milk and milk products is very low at 70 grams per day. Estimates on per capita monthly expenditure on milk and milk products show expenditure of Rs. 24.70. Most of the milk produced by the farm households is either consumed at home or sold to neighbours or to the milk man who in turn sells it in the local markets in nearby towns and cities to the consumers directly in their houses or to hotels and restaurants who in turn use it to make some refreshment drinks like tea, coffee or indigenous milk products like curd, cottage cheese, sweets, etc. In the informal sector, the consumer has direct and daily contact with the farmer, milkman and they purchase the raw milk immediately after milking either from the farm or delivered by the milkman in traditional small vessels made of aluminium on their bicycles. Cow milk is the preferred milk for drinking while buffalo milk is mainly for sale which fetches a better price due to its higher fat content. In the formal sector, fluid milk is commonly sold after pasteurization and homogenisation and standardization to 3 percent fats and 8.5 percent solid non fats or 4 percent fat and 9 percent solid non fats in plastic pouches under refrigerated conditions as toned milk or cow milk respectively.

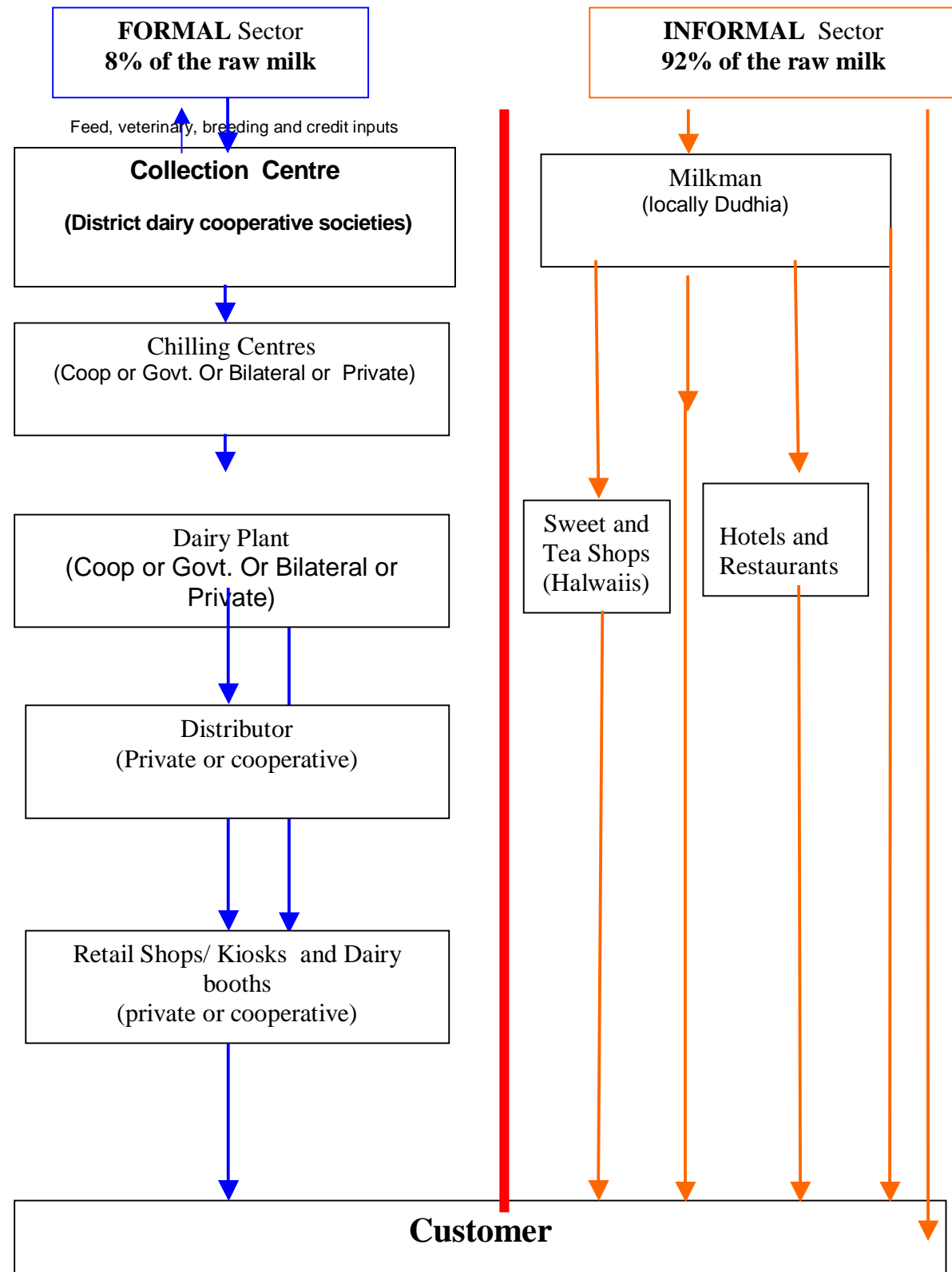
Due to lack of proper mechanism to check quality of milk, milk sold in the unorganised markets is mostly adulterated with water and sold at cheaper prices than the organised markets products in plastic sachets. Since consumers are highly price sensitive and with inadequate quality control mechanism in the state, they prefer to purchase the cheaper adulterated milk which is easily available.

The diagram on the next page shows a simplified version of the main milk marketing channels in the formal and informal sectors.

Dairy infrastructure in the state

The total number of cooperative dairy plants in the state is 10, 3 in the most potential districts, 7 in the potential districts and none in the low potential districts. The total number of chilling plants in the state is 29, 12 in the most potential districts, 11 in the potential districts and 6 in the low potential districts. The milk handling capacity of the organised cooperative sector was 3.056 lakh litres per day in 2002 of which the share of the most potential districts were 55.2 percent (1.688 lakh litres per day) followed by the potential districts at 37.6 percent and the low potential districts at only 7.6 percent of the total handling capacity.

Farmers(household and urban commercial)



Margins in the Dairy Chain: Farmer to Consumer

The margins from 1 kg of milk brought from the farmer by different channels is analysed in this section. The product profile considered in this section is the most common milk products handled by the organised and unorganised sectors. Since about 80 percent milk is mostly marketed in the form of fluid milk in both organised and unorganised sector, hence two product profiles from the organised sector namely toned milk and cow milk and three channels from the unorganised sector to market fluid milk is analysed namely, the commercial farmer (IN6-CO) selling in the local market to milk man, the milk man purchasing milk from farmers in rural areas and selling in cities and the farmer in peri-urban areas (IN-9BO) selling milk directly to consumers. Most of the milk in the urban and urban areas is marketed by the unorganised sector.

The Dairy Channels

Co-op 3%: Milk union buying milk at 4.2 percent fat and selling at 3 percent fat. .

Co-op 4 %: Milk union buying milk at 4.2 percent fat and selling at 3 percent fat.

Farmer 4.2%: Commercial farmers IN-6CO producing milk at 4.2 percent fat and selling at 4.2 percent fat.

Milkman 2.5%: Local person, collecting milk at 4.2 percent fat and selling at 2,5 percent fat.

Direct sale 3.9%: Dairy farms, like IN-6BO, producing milk at 6 percent fat and selling directly to the consumer with 3.9 percent fat.

The 'milk union' represents the formal cooperative sector while the others represent informal channels.

Farmer Milk Prices

Milk prices paid by the co-operatives are lower by 17 percent than the prices paid by the local milkman. Hence farmers prefer to sell milk to the milkman who generally operates near the urban and peri-urban regions. Whereas the farmers are forced to sell the milk to the cooperatives in the remote rural regions due to lack of access to such urban markets even at a lower price.

Consumer Milk Prices

The consumer milk prices for the products depends on the fat content and the channel of operation. The milk sold in plastic sachets in the form of cow milk with 4 percent fat commands the highest prices of 0.32 USD followed by the toned milk at 3 percent fat. Thus the products of the cooperative sector are at a premium price than the products of the unorganised sector. Most of the milk marketed in Orissa (92 percent) is handled by the unorganised sector because of this reason. It can also be seen that even though the milk man sells milk with lesser fat content, he fetches a better price than the farmer who sells milk to the milkman due to place and time utilities created by him.

Margins (Consumer Prices - Input Value of Raw milk)

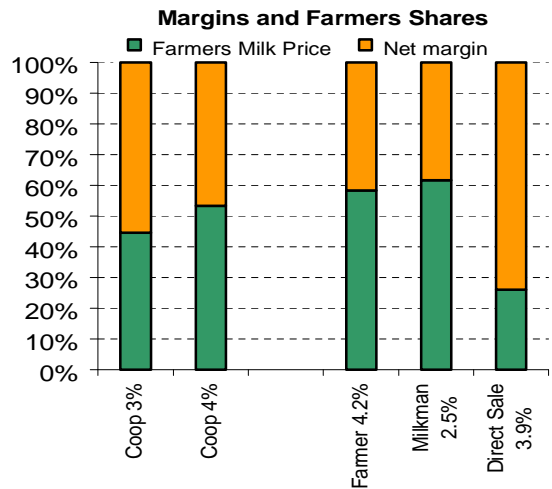
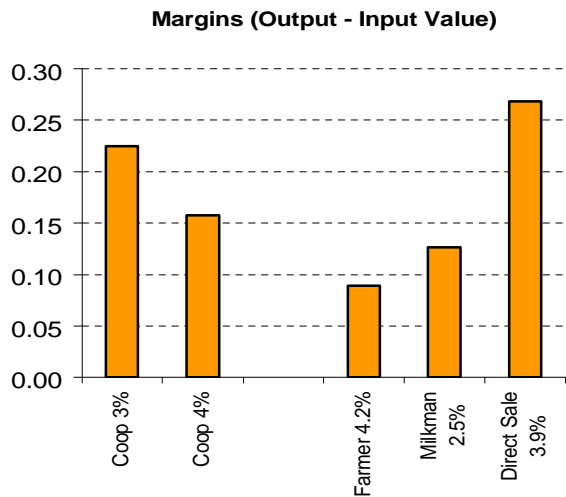
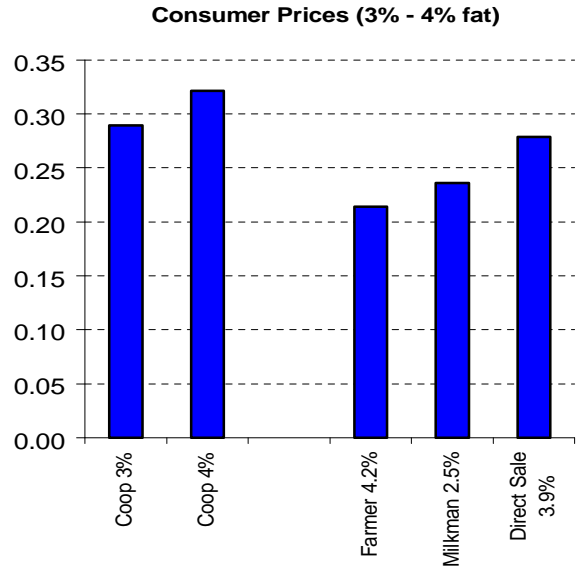
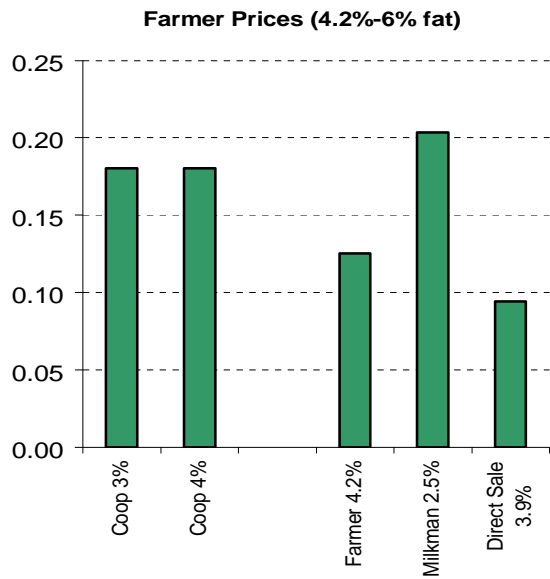
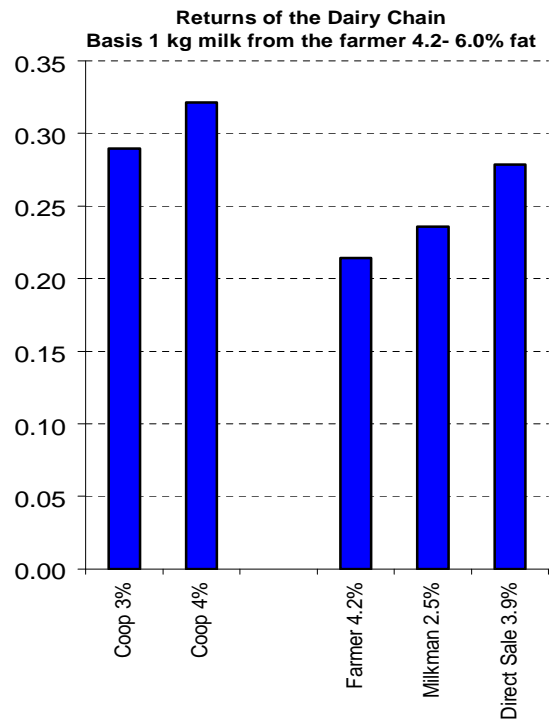
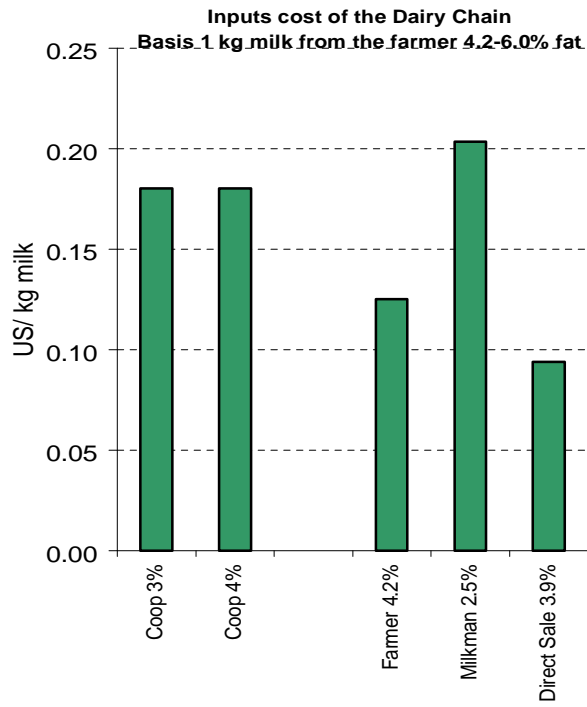
The net margins for value addition vary between 0.09 to 0.27 USD/kg milk bought from the farmer. The highest margin is received in case of direct sales by the buffalo based farmer in the urban regions. The lowest margin is in the case of the farmer selling his milk to the milkman at 0.09 USD per kg of raw milk sold. However the farmers' share in terms of value of raw milk is the highest in the case of farmers selling the milk to the milkman in terms of milk prices paid by different channels.

Explanations of variables; year and sources of data:

Value of raw material input: Farm gate price of whole milk. (Details: see Annex 9).

Margin: Represents transport, processing and retail costs.

Source of data: Personal Communications (Interviews, November 2003).



Processing costs of major milk products in the study area

An attempt was made to analyse the cost of value addition or processing the milk that was purchased by the organised and unorganised sector for the most common milk products in the study area for the different channels. Finally the net margin per litre of raw milk purchased from the farmer was estimated after deducting the processing costs. The processing costs included in case of the organised sector various costs such as costs of other input raw materials, procurement costs, transportation costs, chilling costs, processing costs, distribution costs, administrative costs and retailer's margin per litre of raw milk used. This data was provided by the milk union operating the dairy plant under different heads of costs which was then partitioned to the major milk products manufactured by the milk union.

For the unorganised sector, the most popular milk product marketed is the fluid milk, which is however, quite often adulterated with water. Though such data is not available readily, a preliminary estimate is made on the basis of observation and feedback from the experts in the area. Thus the processing costs for the unorganised sector for various level of fat content is the priceless water which is added and the transportation costs from the farmer to the consumer which is mainly done in bicycles involving only opportunity costs for human labour.

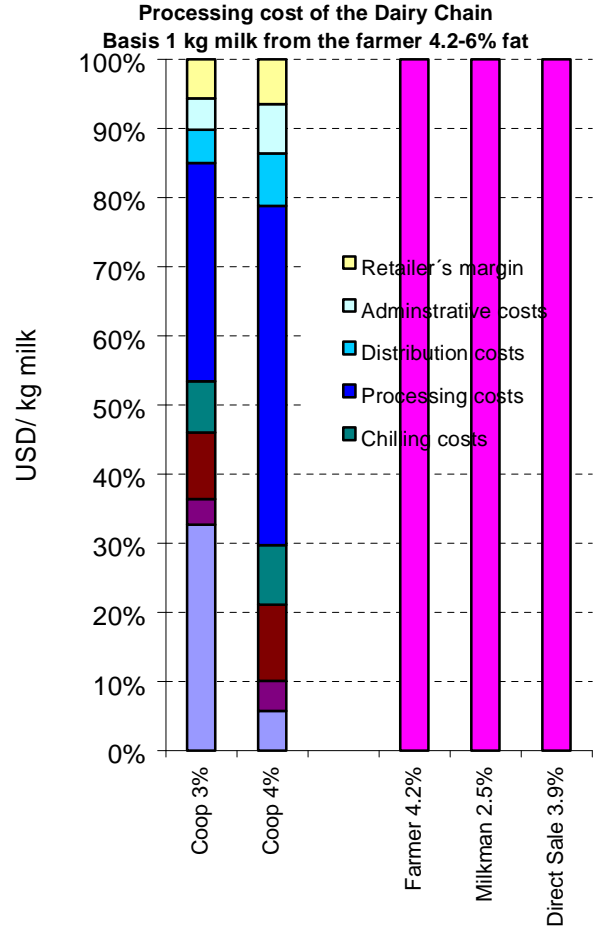
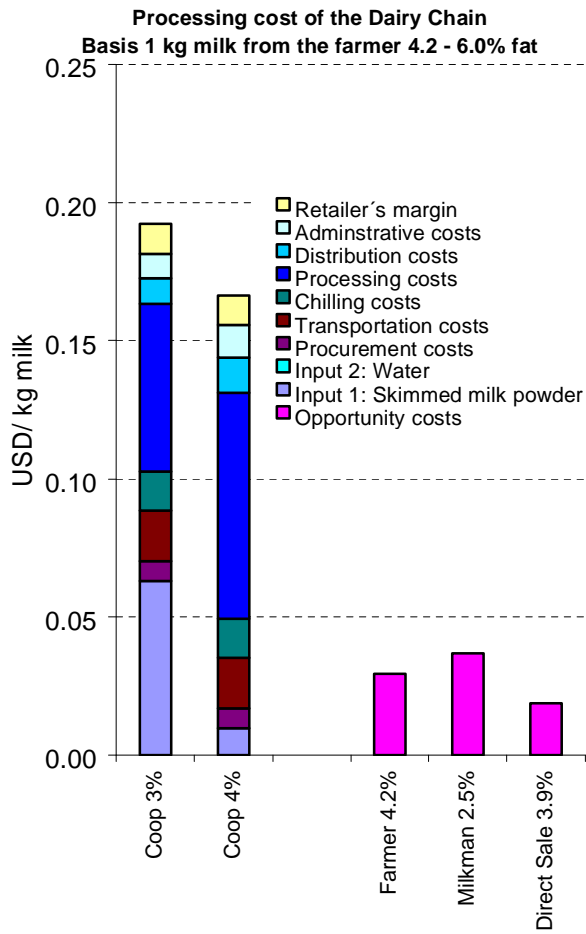
Processing costs of the Dairy chain

The processing costs of the dairy chain varies with the type of product and the channel involved in it. In this case study involving five channels of dairy milk processing and five different products of fluid milk, the processing costs were found to vary from 0.02 USD to 0.20 USD per kg of raw milk processed by different channels. The highest share of processing costs was accounted for by the organised cooperative sector at 0.20 USD per kg of raw milk purchased in case of toned milk with 3 percent fat. Next to processing costs was the cost of transportation at 0.02 USD per kg of raw milk processed. In case of standardized cow milk produced by the milk union, the cost share of other raw material i.e. skimmed milk powder was comparatively lower at 0.01 USD per kg of raw milk processed but the cost of processing was higher at 0.08 USD per kg of raw milk processed.

In case of the unorganised sector, the processing costs was the lowest (0.02 USD) in the direct sale channel by the farmer in the urban area, selling buffalo milk at 4% fat. Since processing involved only milk handling and transportation costs, hence opportunity costs of human labour have been considered in case of unorganised sector.

Net margins in the dairy chain

Net margins here, refers to the net returns to the marketing channel involved after deducting all costs, i.e. raw materials, processing costs. Interestingly the net margins was the highest in the case of the urban farmers (IN-6BO) selling milk directly to consumers getting 0.26 USD per kg of raw milk processed, while the lowest margin was in the case of the cooperatives getting only 0.03 USD per litre of raw milk processed to toned milk with 3 percent fat. Interestingly the farmers who sells unadulterated milk to the milkman is getting only 0.06 USD / kg milk while the milkman who sells adulterated milk is getting 0.09 USD / kg milk for the same milk by just adulterating the milk with water (an increase of 50 percent over the farmers' margin). The cooperatives even with higher consumer prices, gets the least margin of 0.03 USD/ kg milk for toned milk and even a loss of 0.01 USD/ kg milk for cow milk.



Informal channel – Milkman

Milk procurement, collection and transportation



Formal channel – Dairy cooperative

Milk procurement, Milk collection, Milk transportation, Milk chilling, Milk processing, Milk distribution

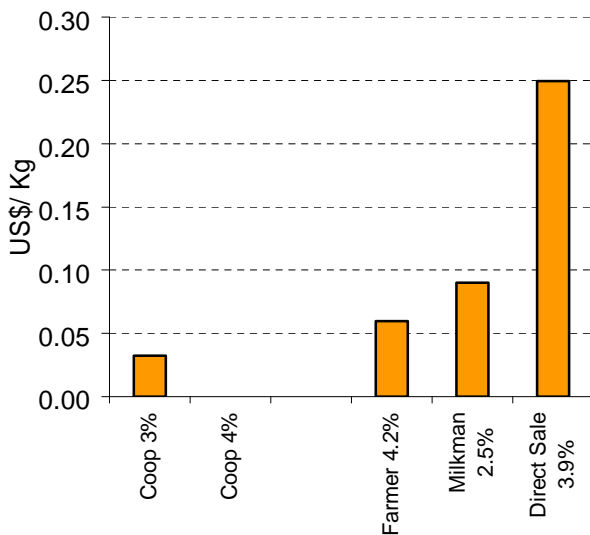


* SMP stands for Skimmed Milk Powder

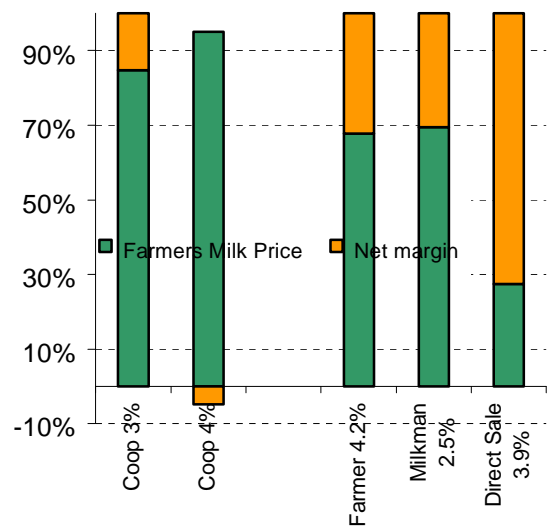
1 kg raw milk (4% fat) + 0.04 kg SMP + 0.363 kg water = 1.4 kg market milk (3% fat)

1 kg raw milk (4% fat) + 0.4 kg water = 1.4 kg market milk (2.5% fat)

Net Margins (Output - Input Value)



Net Margins and Farmers Shares



ANNEXURE ESTIMATION OF NET MARGIN OF MILK PRODUCTS

The data is collected from the financial accounts statements, records and management information system of the organisation / entrepreneur under various headings as below:

Purchase price of milk: It is the price of a litre of raw milk which the dairy channel pays to the producer (farmer) (farm gate price)

Other raw materials cost : It includes cost of other raw material inputs used, e.g.SMP, Butter oil, Vitamins, Water, Others

Procurement cost: It includes salaries to milk procurement staff, overhead Losses

Transportation cost: It includes the contract and other input costs of milk transportation from collection centers to processing plants through various routes, salaries to staff, depreciation on vehicles, tankers used, overhead costs

Chilling cost: It includes material used, overheads, salaries, R & M, depreciation on building and machinery for chilling milk

Processing cost: It includes material used, electricity, diesel, salaries, R & M, depreciation on building and machinery used for processing milk

Distribution cost: It includes other marketing expenses, Container cost, Storage costs, depreciation on building and machinery, salaries to staff, R&M

Administrative exp: It includes all expenses for administration of the organisation, and office expenses

Support to extension programmes: Programmes linked to dairy development and its costs

Taxes and duties: Taxes and duties paid by the organisation in the year connected to the production of the product.

Depending on the product produced and the quantity of raw milk used for its production, the procurement, transportation and chilling costs are apportioned to each of the products produced by the organisation. The processing, distribution and administrative costs are apportioned based on the quantity of final value of product produced.

The net margin or entrepreneur's profit per liter of raw milk used for each of the products is obtained on the basis of the chart shown.

Selling price of milk * quantity of

product produced from 1 litre of raw milk =

- Purchase price of milk =

- Margin for value addition

- Other raw material cost
- Procurement cost
- Transportation cost
- Chilling cost
- Processing cost
- Distribution cost
- Administrative costs
- Support to extension programmes
- Taxes and duties, if any

= Costs for value addition for the company/ entrepreneur

- Retailer's margin

- Opportunity costs (if any)

= Net Margin (Entrepreneurs profit per litre of raw milk used)