



East Africa Dairy Development

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ASSESSMENT OF THE CAUSE OF MILK DECLINE IN SELECTED EADD SUPPORTED HUBS IN KENYA

(METKEI, CHEPKORIO, KABİYET, TANYKINA, KIPKELION AND SOT)

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Key points

- The objective of the study was to determine the reasons for the sharp decline in milk intake at some EADD supported Kenya DFBA in early 2012. A total of 150 farmers were surveyed in 6 sites (25 per site).
- Overall, 66% of the farmers registered a decrease in milk production between January-June 2012 compared to same period in 2011. This decline was due to fewer cows in production and near lactation as cited by 69% of the farmers.
- Overall, 67% of the farmers reported a decrease in amount of milk sold to the DFBA. Sot and Chepkorio had the lowest proportion of farmers (60% each) while Kipkelion had the highest (76%) reporting a decrease in milk intake. This decrease was due to overall low milk production (reason cited by 90% of the farmers). About 29% of the farmers also attributed the decrease in milk sale to DFBA to the low milk prices, thus diverted their milk to other buyers. Eight per cent also mentioned access to better services like cheaper or free transport, reliable milk collection and prompt payment from other buyers.
- About 71% of the farmers interviewed use the check-off system. This system allows them to supply milk to the DFBA knowing that they can access the services and/or inputs available without worrying how they shall pay for these services. About 78% of those who reported using it affirmed this system motivates them to supply their milk to the DFBA.
- On average, a price increase of Ksh 11 per litre of milk would ensure farmers' loyalty to the DFBA.

Introduction

From Jan to May 2012, value of milk intake at EADD supported DFBA has decreased by 21 %¹ compared to last year. Overall, milk intake for all DFBA from January to May was valued at US\$6.6M. There are 2 hypotheses at play: 1) the drought had the usual negative impact on milk production; the decline in milk intake is due to decline in milk production in similar proportion, and 2) the traditional market was quick to adjust the prices offered to farmers upward and farmers diverted some of their milk to this market.

¹ Value of milk intake was US\$6,611,318 from Jan to May 2012, compared to US\$20,088,618 in 2011 (Jan to Dec). This calculation does not take into account seasonal variations.

Objective of the study

The objective of the study was to determine the reasons for the sharp decline in milk intake at some EADD supported Kenya DFBA's. The specific objectives were: 1) To assess reasons for decline in milk intake at DFBA level, 2) To document strategies followed by the DFBA's to try and counter the decline in milk intake, 3) To draw lessons in relation to the hub approach and value proposition to farmers. This first report focuses on the 2 first points.

Sampling and Methodology

A total of 6 sites were surveyed on the criterion of extent of decline in milk intake: 2 sites with highest decline, 2 with medium and 2 with the lowest decline. Chepkorio and Sot represent sites with the lowest decline while Kipkelion and Kabiyet represented the sites reporting highest decline. Metkei and Tanykina were in the middle (Appendix).

A household questionnaire was conducted to 25 randomly selected households per site from a list of farmers actively supplying milk to the DFBA². Additional information was collected in focus group discussions held with key informants (CP manager, extension manager, board representative) to elucidate strategies intended to counter the current decline in milk intake and lessons learnt. The household questionnaire and checklist for interviews can be found in annex.

Results

1. Trends in milk production between 2011 and 2012

1.1 Farm level milk production between January and May 2012 in target sites

Four sites (Chepkorio, Kabiyet, Kipkelion and Metkei) registered a decrease in average daily production from January-April and then a slight increase in the month of May and June this year (Figure 1). Unlike the other sites, Metkei registered a strong increase in May and June. In Tanykina, increase was noted from the month of June while Sot farmers reported a continuous decline up to the month of June. The average number of cows range from 3 in Sot to 5 per household in Chepkorio and Kabiyet.

² Active farmers include 1) farmers who supplied milk to the DFBA in the year 2011 and 2012 and , 2) farmers who supplied milk to the DFBA in 2011 but had stopped supplying in the course of 2012

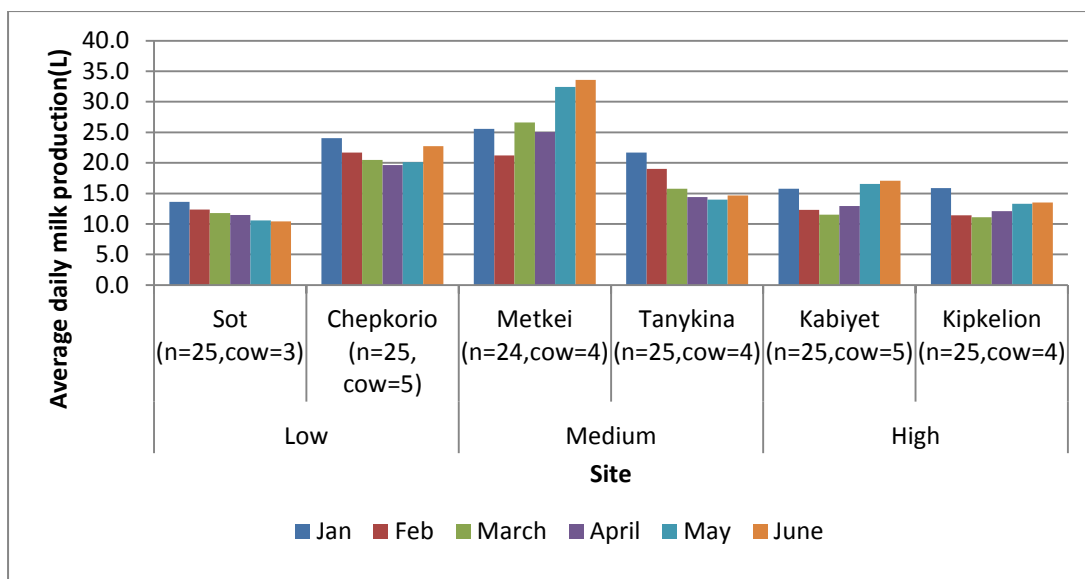


Figure 1: Average daily household milk production and cow owned in the six sites, by extent of decline in milk intake at DFBA (low, medium and high).

Comparing milk intake at the DFBA and production performance at the household level, generally there was a corresponding decline in milk production at the household level especially in the month of February and March (Figure 2). The exceptional performance in Metkei around March can be attributed to one farm which reported a sharp increase around this time.

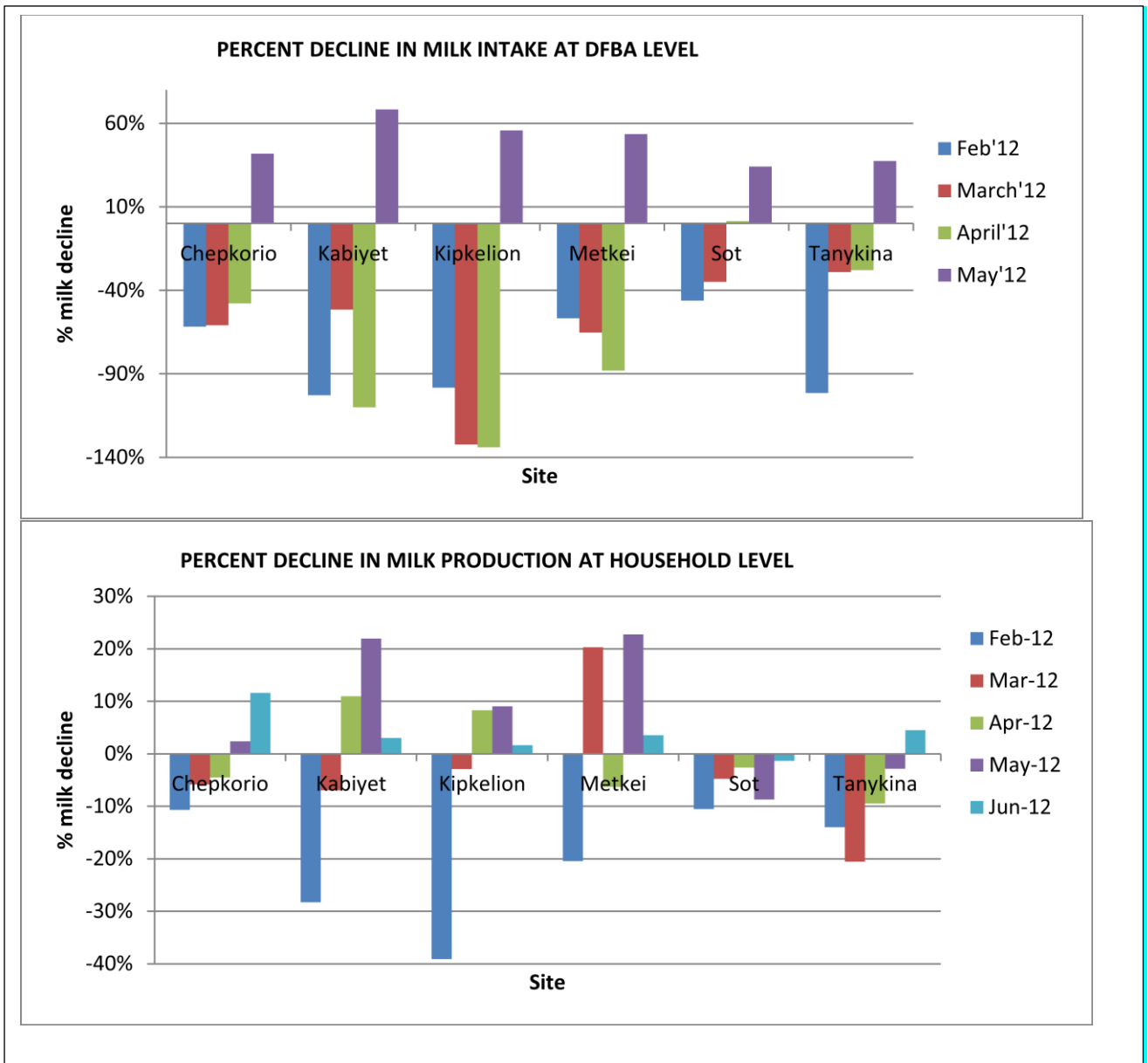


Figure 2: Comparing DFBA monthly percentage milk decline to that of the households.

1.2 Factors associated with the change in milk production between January-June 2011 and 2012

Comparing the trend in milk production between January-June 2011 and January-June 2012, the majority of farmers affirmed a decrease in milk production this year. About 66% (99/150) of respondents registered a decrease in production this year, 29% (44/150) an increase and 5% (7/150) a constant milk production (Table 1).

Table 1: Count of farmers indicating the trend in milk production in corresponding months of January-June 2011 and 2012

Level of decline in milk intake	DFBA	N	Increased	Constant	Decreased
Low	Sot	25	7	2	16
	Chepkorio	25	13	1	11
Medium	Metkei	25	6	1	18
	Tanykina	25	5	1	19
High	Kabiyet	25	8	0	17
	Kipkelion	25	5	2	18
Total		150	44	7	99

Data source: Milk decline household survey, September 2012

1.2 Factors explaining the trend in milk production

The decrease in milk production was due to fewer cows in production (reason cited by 68 farmers out of 99 or 69%) and as well as near lactation peak (69% of farmers) (Table 2). The decrease was also attributed to unavailability of feed during that time period (59% of farmers).

Table 2: Reasons for decrease in milk production between January –June 2011 and same period 2012 (count of farmers)³.

Reason decrease in milk production	Sot (n=16)	Chepkorio (n=11)	Metkei (n=18)	Tanykina (n=19)	Kabiyet (n=17)	Kipkelion (n=18)	Total (n=99)
Fewer cows in production	9	8	13	16	12	10	68
Fewer cows near lactation peak	14	7	10	10	11	16	68
Less feed available	13	6	12	8	11	8	58
Low quality feed provided	8	1	5	3	11	5	33
Lower quality management	6	1	2	5	8	5	27
Exits (death/sale)	2	0	4	3	3	3	15
High cost of feeds & drugs	1	0	3	1	3	1	9
Ill-health	3	0	0	1	0	1	5
Infertility	0	0	0	1	1	1	3

Data source: Milk decline household survey, September 2012

³ The total count of farmers per site is greater than n because of multiple responses on reasons for decrease in milk production

Speaking to key informants (CP manager, extension manager and members from the DFBA), the low production was the main reason for decline in milk delivered to the DFBA/CP (Table 3). This was attributed to the dry period in January-March followed by heavy rains between April and June. Though the rains improved the situation on forage availability, the quality of this forage was poor. Apart from impacting on feed availability, the cold season also saw most of the available energy diverted towards thermoregulation compromising on milk production. Farmers also expressed dissatisfaction with prices offered at the CP. Table 3 shows desired price increment per litre of milk to ensure loyalty. On average, a price increase of Ksh 11 per litre of milk would ensure farmers' loyalty to the DBFAs. Only one farmer in Sot reported contentment with the price offered at the CP.

Table 3: Desired price increment (Kshs/liter) that would ensure farmer loyalty to DBFAs

Level of decline in milk intake	DFBA	N	mean	min	max
Low	Sot	25	8.2	0.0	25.0
	Chepkorio	25	10.7	3.5	37.5
Medium	Metkei	25	9.5	1.5	21.5
	Tanykina	25	14.1	4.0	34.0
High	Kabiyet	25	12.4	3.0	33.0
	Kipkelion*
Total		125	11.0	0.0	37.5

*Information on current milk prices at the CP were not available

These findings were supplemented by findings by the EADD-Kenya production team during their field extension trainings early in the year (Box 1).

Box 1: Causes of low milk production at the farm level as reported by EADD –Kenya production team

Causes of low milk production in January-June 2012 at the farm level as compared to same period the previous year (EADD –Kenya production team)

- Unfavourable weather conditions/ No pasture/fodder- due to Prolonged drought/heavy rains
- Farmers diverted to other business enterprises e.g. Maize farming, Sugar cane, Passion Fruits
- Higher prices in informal markets-affected milk intake in the CP
- Poor management of improved dairy breeds
- Erratic milk prices-low prices de-motivated farmers
- Off-take of producing cows that were secured through credits
- High cost of living affected the cost of inputs-concentrates thus farmers were unable to properly feeding their animals.
- Dairy policy- that allow free milk hawking all over
- Poor infrastructure-poor road networks
- Price cold war between processors competing for the same farmers and giving them better prices at the farm gate.
- Slow adoption of modern technologies by farmers so as to improve the production at the farm level.
- Processors introduced the quota in milk supplies

Looking at the 29% reporting an increase in production, most of these farmers were from Chepkorio (52%). This increment was attributed to better management and more cows near the lactation peak (Table 4).

Table 4: Reasons for increased production between January –June 2011 & 2012

Reason for increased milk production	Sot (n=7)	Chepkorio (n=13)	Metkei (n=6)	Tanykina (n=5)	Kabiyet (n=8)	Kipkelion (n=5)	Total (n=44)
More cows near lactation peak	6	10	2	3	6	5	32
Better management	5	10	1	4	6	4	30
Better feed provided	6	7	2	4	6	3	28
More feed available	6	7	2	3	5	4	27
More cows in production	2	6	3	3	5	4	23
Good breed of cows	1	1	0	1	0	1	4

Data source: Milk decline household survey, September 2012

2. Trends in milk sales to DFBA between 2011 and 2012

2.1 Share of milk sold, by market outlet, and consumed in the household

The DFBA had the highest share of milk followed by household consumption (Figure 3). Unlike the other sites, households in Metkei hardly sold any milk to traders (Figure 3). This could partly be attributed to the prices offered to farmers ('We have the best price per litre in the area'-CP manager).

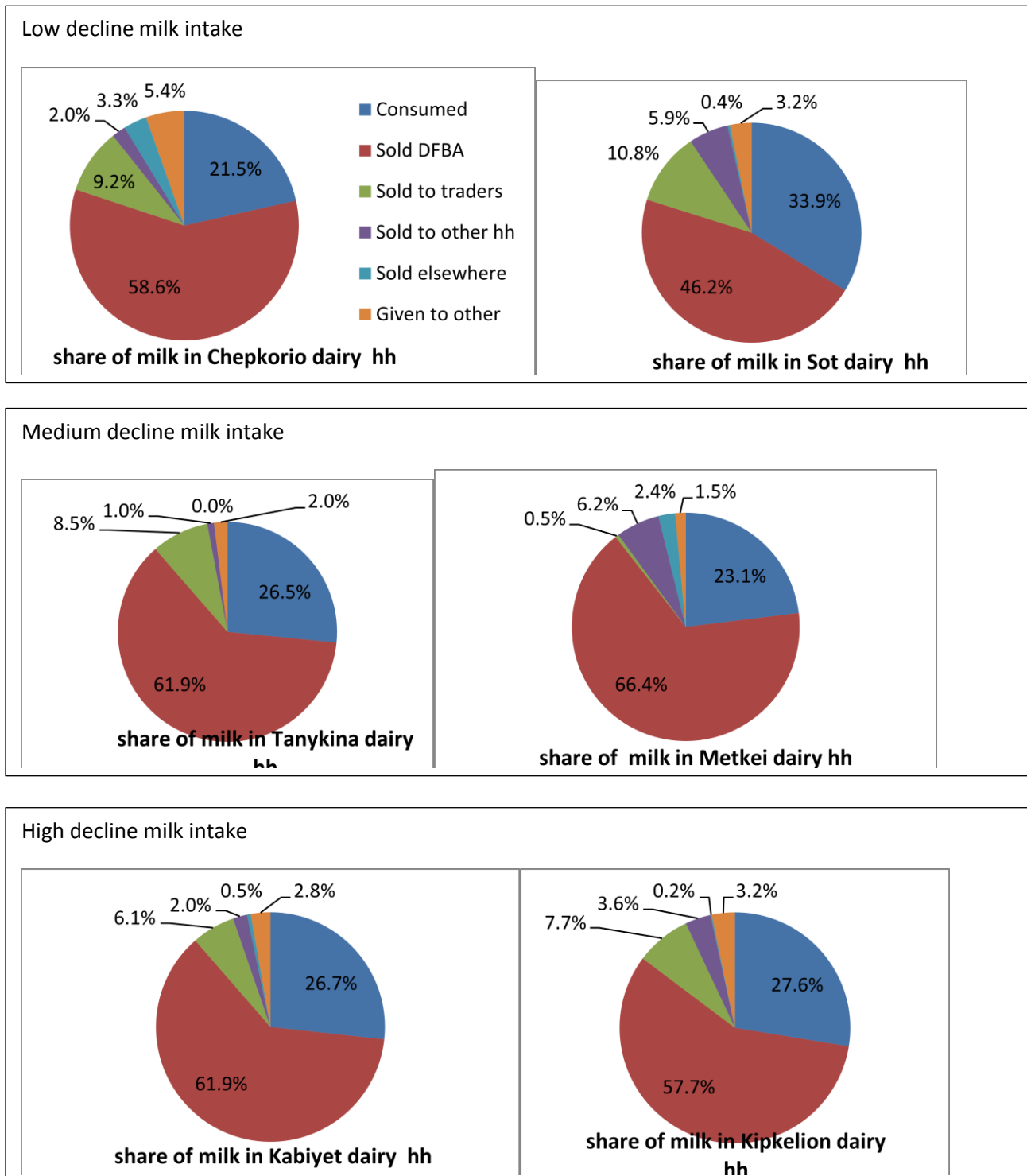


Figure 3: Share of milk sold, by market outlet, and consumed in the household in the six sites.

Although the DFBA had the highest share of milk from the dairy households, most household (67%; 100/150) recorded a decrease in volume of milk sold to the DFBA (Table 5). In Chepkorio where 52% (13/25) of the farmers recorded an increase in milk production; most of them (68%; 9/13) reported a corresponding increase in milk sold to the DFBA.

Table 5: Count of farmers indicating the trend in milk sold to DFBA in corresponding months of January-June 2011 and 2012

Level of decline in milk intake	DFBA	N	Increased	Constant	Decreased
Low	Sot	25	7	3	15
	Chepkorio	25	9	1	15
Medium	Metkei	25	6	3	16
	Tanykina	25	5	2	18
High	Kabiyet	25	8	0	17
	Kipkelion	25	4	2	19
Total		150	39	11	100

Data source: Milk decline household survey, September 2012

2.2 Factors associated with the change in milk volume sold to DFBA

The majority of farmers (90%; 90/100) attributed this reduction to overall low milk production (Table 6). Twenty nine percent of farmers cited lower milk price offered by DFBA as reason for selling less to the DFBA. A few (8%) farmers enjoyed services rendered by other milk outlets (this include cheaper/free transport, efficient check-off system by some processors, prompt payment, reliability in milk collection) hence diverting some of their milk to these outlets.

Table 6: Count of farmers giving reasons for decrease in milk sold to DFBA

Reasons for decrease in milk sold to DFBA	Sot (n=15)	Chepkorio (n=15)	Metkei (n=16)	Tanykina (n=18)	Kabiyet (n=17)	Kipkelion (n=19)	Total (n=100)
Lower overall production	15	11	15	18	15	16	90
DFBA offered low price	3	4	2	10	4	6	29
Other buyers offered services*	0	3	0	2	2	1	8

*Free/cheaper transport, reliable milk collection, prompt payment

Data source: Milk decline household survey, September 2012

The focus group discussions also revealed that a number of farmers, especially in Chepkorio, Kabiyet and Kipkelion, had complained of repeated insemination and subsequent loss in production due to low conception (Table 7). Farmers in Tanykina were said to be diversifying livelihood activities to crop farming (sugar cane and passion fruit farming). An incidence was mentioned in Kipkelion where a buyer failed to pay the cooler one month's pay and this demotivated farmers.

Table 7: Factors contributing to decline in milk sold to DFBA as perceived by the FGD participants

Factors leading to a drop in milk sold to DFBA	Sot	Chepkorio	Metkei	Tanykina	Kabiyet	Kipkelion
Low milk production	√	√	√	√	√	√
Price of milk	√			√	√	√
Low conception		√			√	√
Increased cost of production	√				√	
Diversification to crop farming				√		
Buyer absconding payment						√

Data source: Milk decline FGDs, September 2012

All the farmers (39) registering an increase in amount of milk sold to the DFBA attributed this to higher milk production (Table 8). Fifteen out of 39 farmers also reported availability of check-off system for inputs and services as a booster for the increased milk production.

Table 8: Reasons for increase in milk sold to DFBA by count of farmers

Reasons for increase in milk sale to DFBA	Sot (n=7)	Chepkorio (n=9)	Metkei (n=6)	Tanykina (n=5)	Kabiyet (n=8)	Kipkelion (n=4)	Total (n=39)
Higher production	7	9	6	5	8	4	39
DFBA offered inputs/services on check-off	1	6	0	3	2	3	15
DFBA offered good price	0	2	1	2	0	0	5
Others*	1	2					

* Loyalty to CP, payment in lump sum, build trust with CP

Data source: Milk decline household survey, September 2012

2.2 Other milk competitors in the EADD sites

Although cited by FGD participants in all sites as a competitor in the milk market (Table 9), very few households reported channelling their milk to processors (included in category 'sold elsewhere' in Figure 1). As picked from focused group discussions, some farmers who had joined the Kabiyet dairies in the understanding that milk from the cooler was sold to a particular processor where they also held shares, ceased delivering milk to the cooler after it sold milk to other markets.

Table 9: Competitors of the DFBA in the milk market

DFBA	Processors	Traders	Hawker	Others*
Sot	√	√		√
Chepkorio	√		√	√
Metkei	√			√
Tanykina	√	√	√	
Kabiyet	√		√	
Kipkelion	√	√		

*Institutions, others CPs, milk bars

Data source: Milk decline FGDs, September 2012

2.3 Competitors' advantages over DFBA

In assessing the advantage these competitors have over DFBA, the FGDs participants pointed out that their competitors had efficient methods of accessing the farmers (Table 10). Motorbikes are more efficient when it comes to penetration of farms located off the main roads as opposed to the pick-ups or truck used by the coolers which only collect milk along the passable roads. The competitors also offered better prices as mentioned by FGDs in Kipkelion and Sot. According to participants in Metkei the prices offered by the competitors are not sustainable. Traders were also said not to be so keen on quality of milk and therefore some farmers with left over milk from previous evening were said to mix with morning milk and sell it to them.

Table 10: Competitors' advantage over the DFBA

Competitor's Advantage	Sot	Chepkorio	Metkei	Tanykina	Kabiyet	Kipkelion
Efficient milk collection	√	√	√	√	√	
Higher/better prices	√		√			√
Traders not keen on quality	√	√		√		
Spot payment		√				√
Ready market (consumers)				√		

Data source: Milk decline FGDs, September 2012

3. Tagging the milk price

From most farmers' point of view in all the sites, except Sot, milk prices offered by the DFBA are not adjusted as the market prices change. Price variation was approximated to take about 2 months before being effected (Table 11). The majority of farmers (58%; 37/64) who said milk prices are adjusted concomitantly with existing market prices agreed that the changes are effected in the next payment.

Table 11: Count of farmers responding to milk price adjustments

Level of decline in milk intake	DFBA	Is price adjustment concomitant to existing market prices			Is adjustment effected immediately? *		
		N	yes	no	n	yes	No (no. days taken)
Low	Sot	25	14	11	14	5	9 (60)
	Chepkorio	25	10	15	10	6	4(90)
Medium	Metkei	25	11	14	11	11	0(.)
	Tanykina	25	6	19	6	3	3(60)
High	Kabiyet	25	11	14	11	6	5(90)
	Kipkelion	25	12	13	12	6	6(60)
Total		150	64	86	64	37	27(60)

Data source: Milk decline household survey, September 2012

From focus group discussions the price paid to the farmers was determined by 1) the buyer at the cooler and 2) the overhead costs at the cooler. The board of directors agrees with the departmental

heads on the amount required for overheads. Results from the household survey showed that majority of farmers (71%) were aware of the board’s role regarding milk price (Table 12). Twenty four per cent of the farmers did not know who is involved in determining the price of milk.

Table 12: Count of farmers indicating participants involved in determination of milk prices⁴

DFBA	N	DFBA board of directors	Farmers	Special committee	Don't know
Sot	25	18	1	0	7
Chepkorio	25	14	0	2	7
Metkei	25	13	0	5	7
Tanykina	25	23	3	4	2
Kabiyet	25	21	1	5	5
Kipkelion	25	18	2	0	8
Total	150	107	7	16	36

Data source: Milk decline household survey, September 2012

4. Use of check-off system

About 71% of the farmers interviewed use the check-off system (Table 13). About 78% of those who reported using it affirmed this system motivates them to supply their milk to the DFBA.

Table 13: Proportion of farmers using check-off system

Level of decline in milk intake	DFBA	Using check-off			Loyal to DFBA due to check off?		
		N	no	yes	n	no	yes
Low	Sot	25	6	19	19	1	18
	Chepkorio	25	10	15	15	5	10
	Metkei	25	8	17	17	5	12
Medium	Tanykina	25	6	19	19	5	14
	Kabiyet	25	5	20	20	4	16
High	Kipkelion	25	9	16	16	3	13
	Total	150	44	106	106	23	83

Data source: Milk decline household survey, September 2012

Farmers’ ability to access the services and/or inputs and pay at the end of the month through check-off makes them remain loyal to the DFBA by delivering their milk (Table 14). This was confirmed during the FGDs where the participants also said that the assurance of access to inputs and services by farmers without necessarily having cash at hand motivates farmers to deliver their milk to the cooler.

⁴ Sum of count is not equal to N due to multiple responses to the question

Table 14: Count of farmers giving reasons why the check-off system makes them loyalty to the DFBA

Reasons for being loyal to DFBA	Chepkorio (n=10)	Kabiyet (n=16)	Kipkelion (n=13)	Metkei (n=12)	Sot (n=18)	Tanykina (n=14)	Total (n=83)
Access to services/inputs on check-off	8	14	9	12	12	10	65
Access to loan/advance	3	3	2		5	3	16
Quality services	1	3			3	1	8
Cheaper services	1			1	2		4
Reliable services					1	2	3
Others*	2	1		1	2	1	7

*Access to trainings, cheaper services/inputs

Data source: Milk decline household survey, September 2012

A few of those who said the check-off system does not make them loyal to the DFBA mentioned reasons like services offered are expensive, services not being satisfactory etc (Table 15).

Table 15: Count of farmers giving reasons why the check-off does not make them loyalty to the DFBA

Reasons check-off does not make them loyal	Sot (n=1)	Chepkorio (n=5)	Metkei (n=5)	Tanykina (n=50)	Kabiyet (n=4)	Kipkelion (n=30)	Total (n=23)
Services are expensive	1	1		2	2		6
Unsatisfactory		2	1				3
Farmers able to pay cash				1	1		2
Others*		1	4	1		2	8

*Low milk prices, have not considered using service, does not use service often, more concerned with cash return from milk

Data source: Milk decline household survey, September 2012

5. Measures taken by the DFBA to counter milk decline now and in future

The extension staff in Metkei, Kabiyet, Tanykina and Kipkelion is investing time in training farmers in fodder establishment and feed conservation (Table 16) in preparation for the dry season and/or prolonged rainfall season to ensure sufficient feed supply therefore sustaining milk production during this period. The extension managers will require more tactful approaches to ensure farmers' uptake of these technologies.

As a measure to ensure farmers don't look for cash alternatives elsewhere, Chepkorio, Tanykina and Kipkelion plan to provide advance payment. They consider using transporters/middlemen, who are in daily contact with farmers, to make advance available to farmers in need of it.

DFBAs collect milk mainly along the main roads. By so doing they lose a lot of milk from farmers in inaccessible areas to milk traders or hawkers using motor bikes to reach these farms. Chepkorio, Kabiyet and Tanykina are seeking to be more efficient even if it means using motor bikes to reach these farms.

Table 16: Counter milk decline measures by Site

Counter milk decline measure	Sot	Chepkorio	Metkei	Tanykina	Kabiyet	Kipkelion
Training/exchange visits			√	√	√	√
Advance farmers/middlemen		√		√		√
Step up efficiency in collection		√		√	√	
Improve on marketing strategies		√		√	√	
Join Kenya Dairy Farmers Federation	√					√
Stocking quality fodder	√					
Purchase feed mixer					√	
Increasing range of services (e.g establishment of a FOSA)		√				

Data source: Milk decline FGDs, September 2012

Conclusion

Although the DFBA maintained the highest overall share of milk produced at the farm, farmers agreed there was a decline in volume of milk delivered to the DFBA in all the sites. This was attributed to overall decline in milk production as a result of feed unavailability following the dry spell and subsequent rains. About 29% of the farmers attributed the decrease in milk sale to DFBA to the low milk prices, thus diverted their milk to other buyers. Eight per cent also mentioned access to better services like cheaper or free transport, reliable milk collection and prompt payment from other buyers. In Chepkorio where 52% of the farmers interviewed reported an increase in milk production due to more cows being in the lactation peak and better management, a correspondingly higher proportion of these farmers (69%) reported an increase in the milk sold to the DFBA. Although the decline could heavily be associated to decline in milk production, the role played by the price offered at the DFBA cannot be ignored. The DFBA's are not ignorant of these challenges. They are also aware of loop holes that need to be tightened in order to counter the fall in milk volumes delivered to the coolers.

Appendix: Selection criterion for the six sites

Site	Jan'12	Feb'12	March'12	April'12	May'12	Average milk decline	Level of decline	Sampled
Chepkorio	49%	29%	-6%	-71%	-17%	-3%	Low	in
Cherobu	-109%	-663%	-1415%	-811%	-285%	-657%		
Cheranganyi	53%	6%	-13%	-95%	-51%	-20%		
Kabiyet	-110%	-208%	-241%	-551%	-120%	-246%	High	in
Kapcheno	-13%	-65%	-102%	-190%	-106%	-95%		
Kieni	21%	-3%	-33%	-74%	-17%	-21%		
Kipkelion	-10%	-44%	-95%	-342%	-107%	-120%	High	in
Kokiche	19%	-269%	-4091%			-1447%		
Lelchego	-47%	-134%	-146%	-176%	-25%	-106%		
Lelan	23%	13%	-9%	-77%	-26%	-15%		
lessos								
Metkei	6%	-22%	-80%	-172%	-48%	-63%	Medium	in
Olenguruon	1%	-15%	-33%	-57%	-17%	-24%		
Olkalou	3%	-6%	-20%	-68%	-21%	-22%		
Siongiroi	40%	-45%	-85%	-206%	-28%	-65%		
Sirikwa	59%	40%	11%	-133%	31%	2%		
Sot	39%	4%	-34%	-53%	6%	-7%	Low	in
Tanykina	-48%	-113%	-99%	-124%	-53%	-87%	Medium	in
Taragoon	0%	-10%	-63%	-152%	-27%	-50%		
Tinderet	-696%	-1408%	-1673%	-4117%	-3898%	-2358%		

Highlighted sites exempted due to either data missing or management issues,

Annex: Household questionnaire and FGD checklist



DFBA MILK INTAKE
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Checklist for
DFBA_Kabiyet.docx