Factors affecting milk price and revenues of dairy farms in the central region of Thailand

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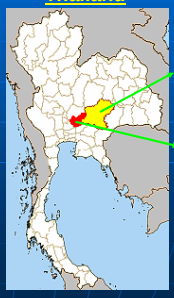
Location

Southeast Asia

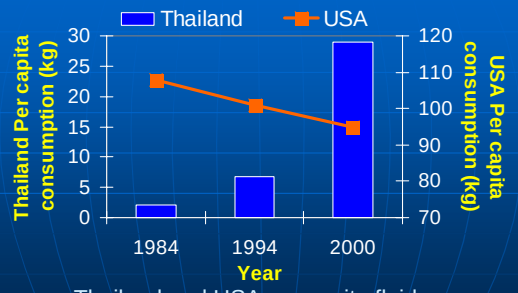
Thailand



Nakhon Ratchisima

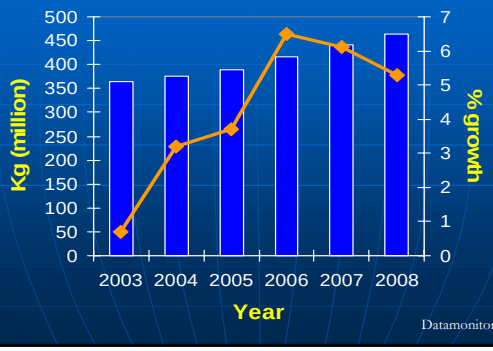
Saraburi

Thailand: Milk Consumption



Thailand and USA per capita fluid milk consumption from 1984 to 2000

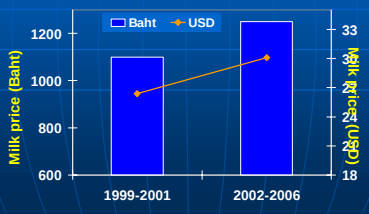
Thailand milk market forecast



Datamonitor, 2004

Thailand: Milk Price

- Milk price set by government
- Milk price 12.5 baht/kg or 1200 baht per 100kg ≈ 15 USD per 100 pounds (equivalent to US milk price)
- 1 USD ≈ 35 Thai Baht



Thailand milk prices per 100 kg raw milk

Objectives

- Determine pricing system, month and year, district of farm, and farm size effects on milk price
- Calculate farm milk revenues and losses in farm milk revenue across time, farm location, and farm size

Materials and Methods

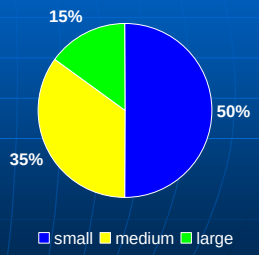
- 1034 farms
- Members of Muaklek dairy cooperative ltd.
- Records were collected at Muaklek milk collection centers by cooperative personnel
- Data from February 2004 to June 2006
- 58,575 farm milk price records
- 813,636 farm milk yield records

Materials and Methods

Data

- Farm districts
  - Kaeng Khoi
  - Wang Muang
  - Muaklek
  - Pak Chong
- Farm size: # cows milked per day
  - Small = 1-9
  - Medium = 10-19
  - Large > 20

Farms by farm size



Materials and Methods

Data

- Pricing system variable
  - ❖ Pricing System 1
    - Formula = 11 baht ± additions/deduction for milk fat %, solids non-fat, and bacterial score
    - February 1, 2004 to September 30, 2005
  - ❖ Pricing system 2
    - Formula = 11 baht ± same addition/deductions in pricing system 1, including bulk tank somatic cell count
    - October 2005 to June 30, 2006

Pricing systems

Factor	Grade	Effect on price	Price (baht/kg)
Milk fat %	Less than 3.5%	Deduction	0.2
Solid non-fat	Less than 8.4%	Deduction	0.1
Bacterial score	1	Addition	0.7
	2	Addition	0.5
	3	-	0
	4	Deduction	1
	Previous test was 4	Deduction	2
	Two previous tests were 4	Deduction	3
BTSCC (cells/cm3)	Less than 200,000	Addition	0.1
	200,001 to 1,000,000	-	0
	1,000,001 to 1,500,000	Deduction	0.05
	1,500,001 to 2,000,000	Deduction	0.1
	2,000,001 to 2,500,000	Deduction	0.15
	2,500,001 to 3,000,000	Deduction	0.2
	More than 3,000,000	May reject milk	

Statistical Analysis

Farm milk price trait

- Logistic transformation
- Linear model
- GLM procedure of SAS

Farm milk price =
pricing system + month (year) x by pricing system + farm district x farm size x pricing system + residual

Statistical Analysis

Farm milk revenue

- product of the average farm milk yield and farm milk price

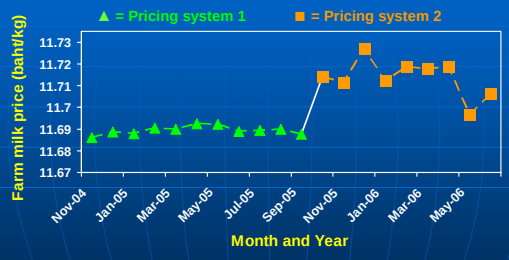
Maximum farm milk revenue

- average farm milk yield of farm x maximum milk price
- maximum milk price
- 11.7 = pricing system 1
- 11.8 pricing system 2

Loss in farm milk revenue

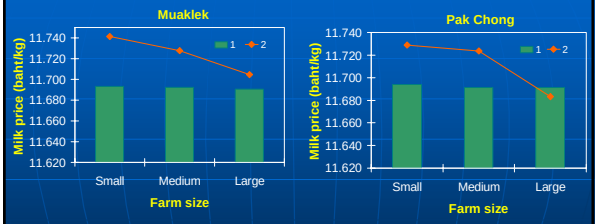
- maximum farm milk revenue – actual farm milk revenue

Results: Least square means of farm milk price by pricing system and across time



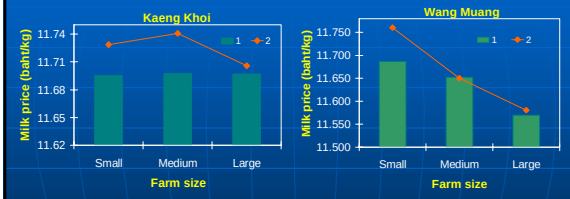
- Farm milk prices were higher in pricing system 2 than 1 (11.71 vs. 11.68, $P < 0.05$)

Results: Least square means of farm milk price by farm size and pricing system



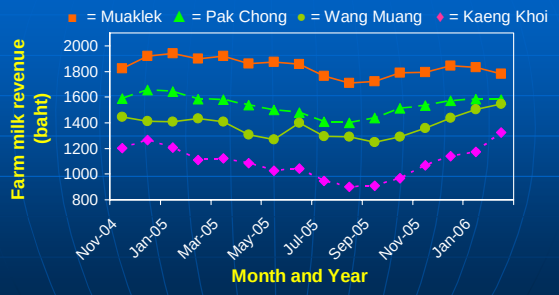
- Milk prices for small farms within each district and pricing system were higher ($P < 0.05$) than medium and large farms

Results: Least square means of farm milk price by farm size and pricing system

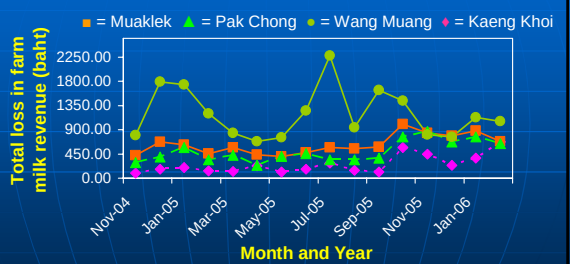


- In Wang Muang, small farms had higher ($P < 0.05$) milk prices in both pricing systems than medium or large farms
- There was no difference for milk price of farms in Kaeng Khoi

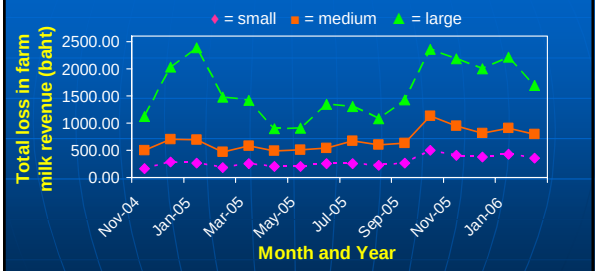
Results: Farm milk revenue by district



Results: Loss in farm milk revenue by farm district



Results: Loss in farm milk revenue by farm size



Conclusion

- On average farms had higher farm milk prices in pricing system 2 versus pricing system 1 (11.71 vs. 11.68, $P < 0.05$)
- Majority of small farms had higher farm milk prices and lower losses in farm milk revenue than medium and large farms across both pricing systems

Implications

- Results of this study should help motivate farmers to adopt desirable management practices that could lead to higher farm milk prices and lower losses in milk revenue

Questions ??