



# Implications of dynamics of changes on work organization in smallholder dairy farms in Brazil

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# Introduction

Development of milk production systems in developing countries as in the district of Unai in Brazil

3 dynamics of change of family dairy farms

	<b>Socio-economic context</b>	<b>Main changes</b>
<b>Dairy specialisation</b>	Structured supply chain (CAPUL)	increase of herd size and milk production
<b>Dairy intensification</b>		intensive techniques (silage)
<b>Agricultural diversification</b>	Brazilian governmental programs (market gardening, fruit pulp)	Complex farming activities



# Introduction

Labour, a brake for the development of these 3 dynamics (increase of work durations, workloads, different work rhythms, decrease of time available)

**Which are the consequences of dynamics of changes on work organization in the case of dairy farms in the municipal district of Unai ?**

- To analyse the consequences of dynamics of change on work durations, workloads, and room for manoeuvre in time
- To suggest actions that could be taken to reduce work constraints observed at the farm level.



# Area of study

The municipal district of Unai, in the Brazilian state of Minas Gerais

80 % of the milk from family dairy farms

Concentration of agrarian reform settlements (low capital level, production systems in transformation / development)

A structured dairy cooperative (320 000 l/day of milk over a 200 km area)



# Sample

15 dairy farms surveyed in the agrarian settlement of Boa União

- 5 farms feeding the herd with cane => dairy specialisation
- 5 farms feeding the herd with cane plus silage (maize and/or sorghum) => dairy intensification
- 5 farms feeding the herd with cane and/or silage plus developing other agricultural activities => diversification

Diversity of production structures : 8 to 40 dairy cows, 15 to 59 ha of main forage area, 16 500 to 133 100 litres of milk/year

Low level of equipment



# The Quaework method to qualify work organization

2 surveys conducted with the farmers

- 1° : production structures, workforce, equipment-buildings available, combinations of activities (on-farm and off-farm) and livestock management practices (feed, reproduction)
- 2° : quantification of i) routine work and seasonal work durations, ii) work performed by the workers, iii) calculated time available





**2 types of tasks**

→ **Routine work (hours/year)**  
(to be done every day, daily tasks)

→ **Seasonal work (hours/year)**  
(more easily postponable and concentrable)

**Calculated time available (CTA)** : the time left for the basic group to perform unrecorded tasks or to have free time **(hours/year)**

# Results

## Routine work

3364 h/y (1864 to 5289 h/y)

Daily animal cares (milking, cutting cane, cane transportation, cane grinding, feed distribution, milk transportation)

Daily market gardening tasks (weeding, irrigation)

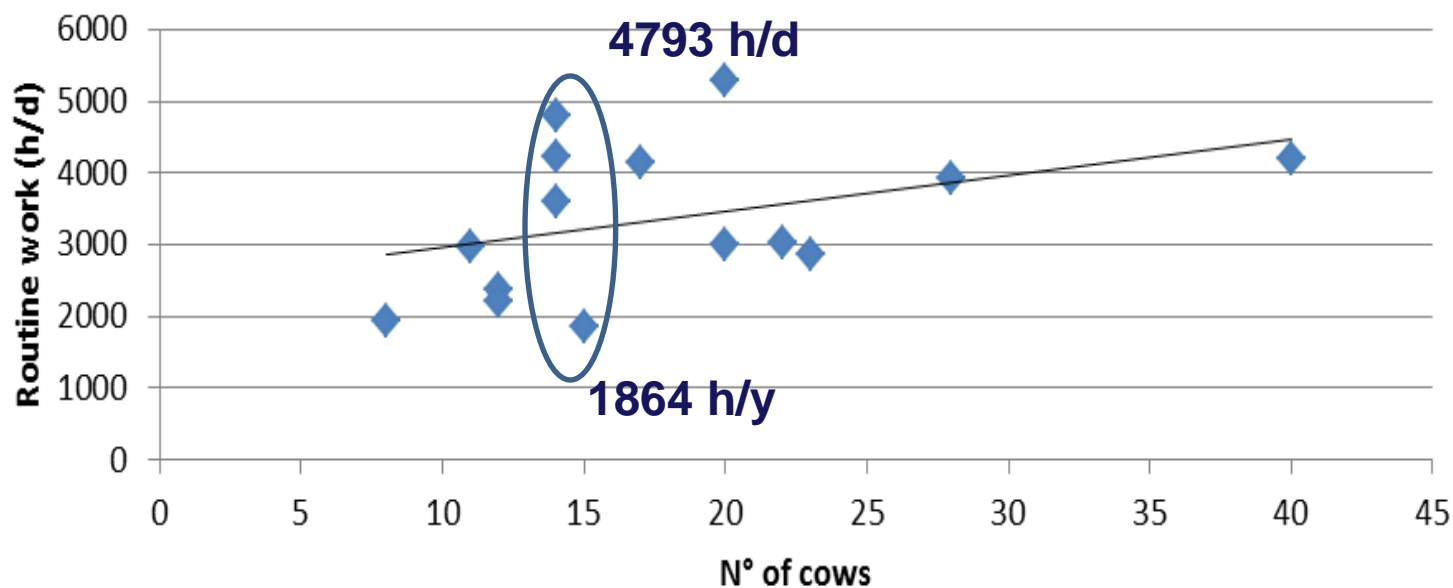
Farms' dynamics	Routine work (h/y)	Routine work per person of the basic group (h/y)
Dairy specialisation	3013	<b>3013</b>
Dairy intensification	3247	2027
Diversification	<b>3832</b>	2006





No relation between routine work and size of the herd

Routine work (hours/year) according to the number of cows



Feeding : cane feeding (5,9 hours/person/day)  
more consuming in time than silage feeding (3,4  
hours/person/day)



Maize



Cane



To cut



To grind



To distribute

Milking (1,5 hours/day to 8 hours/day) => number of milking/day (1-2) and equipment (by hand - milking machine)



# Routine work efficiency

Farms' dynamics	Routine work efficiency (h/y/dairy cow)
Dairy specialisation	271
Dairy intensification	<b>138</b>
Diversification	262

## Workforce

94% of routine work by the basic group

No relation with the dynamics of change





## Seasonal work

960 h/y (349 to 2870 h/y)

Tasks with forage (weeding, pasture maintenance, silage) and with diversification (production of fruit pulp)



Farms' dynamics	Seasonal work (h/y)	Seasonal work delegated (%)
Dairy specialisation	672	4
Dairy intensification	700	37
Diversification	1508	33

27% delegated

- Pasture maintenance (cutting back weeds) and silage
- Unpaid family workforce (children), wage earners

# Calculated time available (CTA)

1466 h/y



Farms' dynamics	CTA (h/y)	
Dairy specialisation	1038	High duration of routine work (farmer alone), daily tasks consuming time in dry season (cutting and distribution of cane), no seasonal work delegated
Dairy intensification	2194	Daily tasks less consuming in time (silage feeding), routine work more efficient per cow, several workers in the basic group
Diversification	1166	High work durations (routine and seasonal) due to diversification (market gardening, fruit pulp)

# Discussion - Conclusion

High variability of work durations :

- Level of equipment (milking machine)
- Feeding practices (silage)

Relation between the dynamic of change and work duration

- Diversification : higher work duration and lower room for manoeuvre in time / increase of incomes / diferents kinds of activity

Relations between work organisation and choices made by the family for investment and for the developement of activities on the farm important to take into account



Thank you