

Kenyan milk consumers' behaviour and perceptions of aflatoxin

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Outline

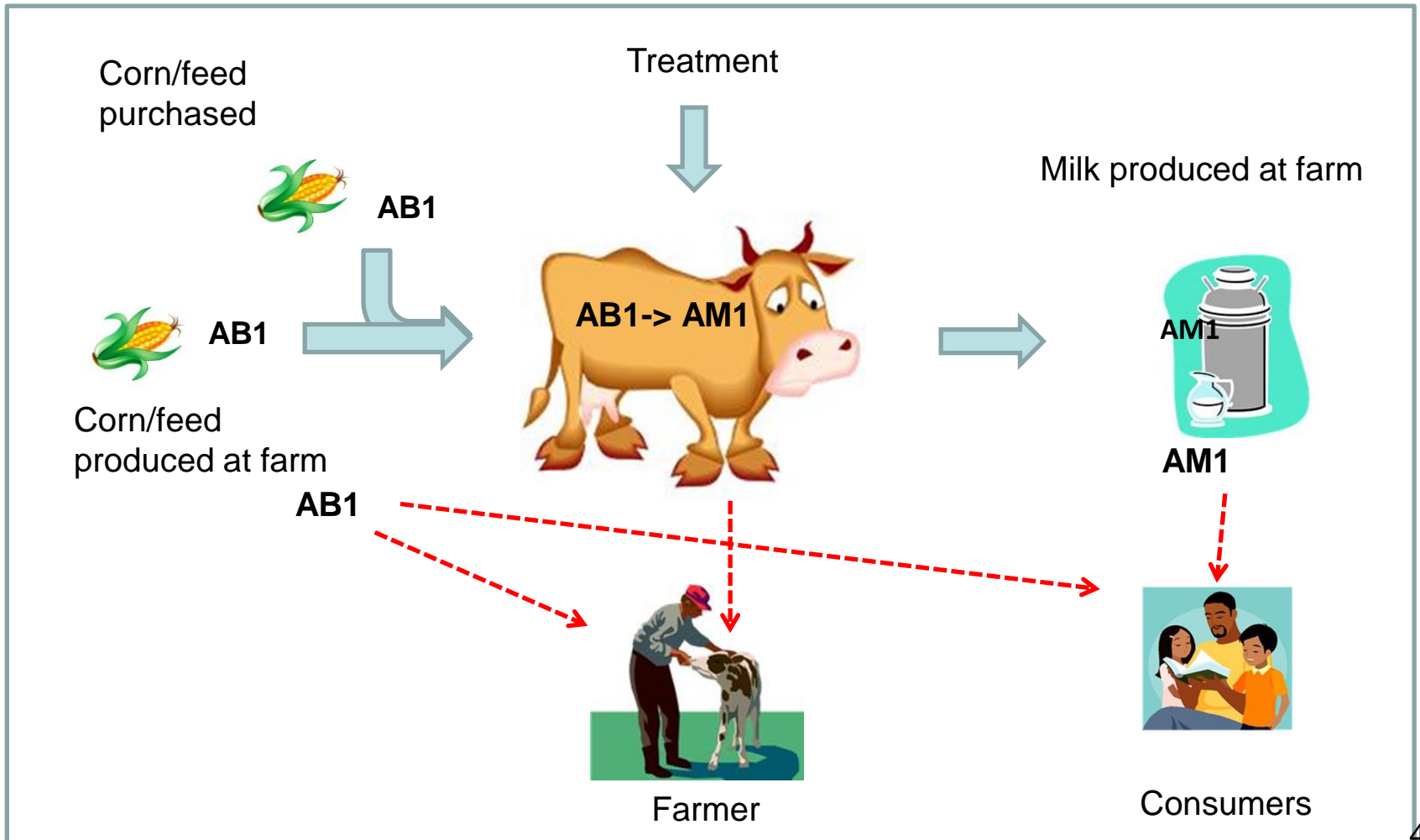
- Introduction
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- Results
- Conclusions

Introduction

- Aflatoxins are mycotoxins produced by certain species of moulds, mainly *Aspergillus flavus* and *Aspergillus parasiticus*
- Aflatoxins could be transmitted to humans through agricultural products consumption

Introduction

Figure 1. Aflatoxin contamination pathway



Introduction

- Aflatoxins could be responsible of:
 - Hepatocellular carcinoma in human
 - Stunting in children
 - Acute aflatoxin poisoning due to consumption of contaminated food causes deaths
 - Chronic aflatoxin poisoning in dairy cattle causes a reduction in milk yield
 - Decreases feed efficiency
 - Reduces reproduction efficiency

Introduction

- There are no accurate estimates of incidence of chronic and acute disease related to aflatoxin exposure
- Outbreaks in Kenya (1982, 2001, 2004 and 2005) and Somalia (1997/98) indicate the magnitude of the problem
- The 2004 outbreak in Kenya was responsible for 317 cases and 125 deaths



Introduction

- Kenya is among the highest milk consumption levels of developing countries (100 kg/year per capita vs 25kg for Sub-Saharan Africa)
- Around 80% of the marketed milk is sold raw and mainly through the informal market
- There is also a growing niche market for packaged milk
- Research questions:
 - Are consumers aware about aflatoxins and possible milk contamination?
 - Is there any difference between urban and rural milk consumers in terms of milk consumption and aflatoxin perception?

Materials and methods

- City of Nairobi - Kenya
- 2 areas:
 - Urban areas in Nairobi → middle income class respondents ; processed milk consumers (305 participants)
 - Dagoretti: peri-urban area of Nairobi → low income class respondents ; raw milk consumers (323 participants)
- Sampling: systematic sampling - assumptions of randomness over time
- Face-to-face interviews conducted in July and August 2013

Materials and methods

- 2 types of questionnaires:
 - One directed to processed milk consumers 
 - One directed to raw milk consumers 
- Both questionnaires have many sections in common on:
 - Milk purchase and consumption habits
 - Aflatoxin Awareness
 - Attitudinal issues
 - Socio-demographic characteristics
- The unique difference is related to the Choice Experiment (CE) attributes

Results

Table 1. Respondents' characteristics

Characteristic	Characteristic level	Raw milk (%)	Procd. milk (%)
Age	≤ 20	6	5
	21-30	50	49
	31-40	28	34
	41 and older	16	13
Marital Status	Single	40	42
	Married	56	57
	Divorced	3	1
	Widow	1	0
Members of Households	One	14	16
	Two	19	14
	Three	22	22
	Four	20	25
	Five	18	17
	More than five	7	6

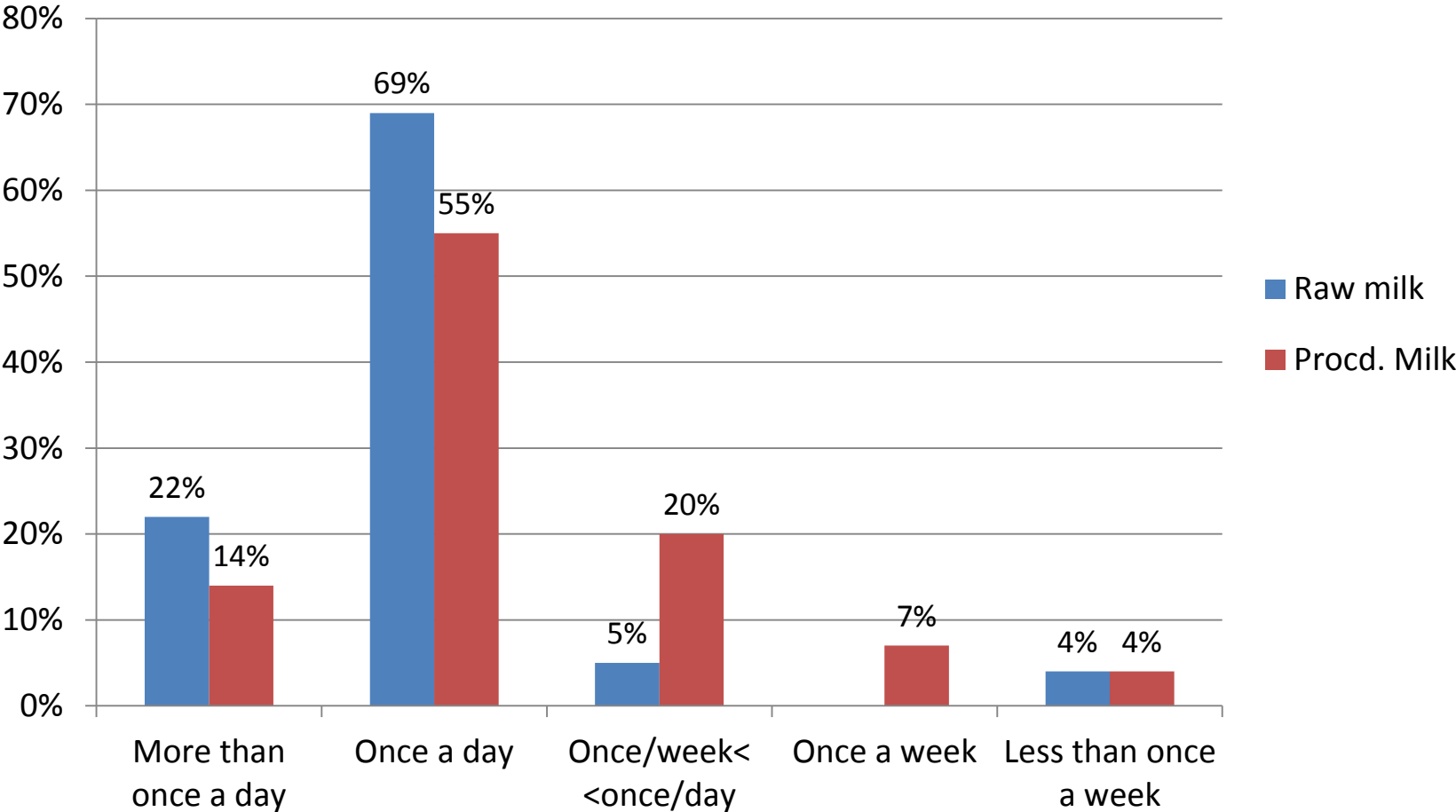
Results

Table 1. Respondents' characteristics (contd.)

Characteristic	Characteristic level	Raw milk (%)	Procd. Milk (%)
Children living in the household	No children	33	33
	One child	26	35
	Two children	24	25
	Three children	14	6
	Four children and more	3	1
Education	No education	1	0
	Primary	23	2
	Secondary	49	18
	College	21	40
	University	6	40

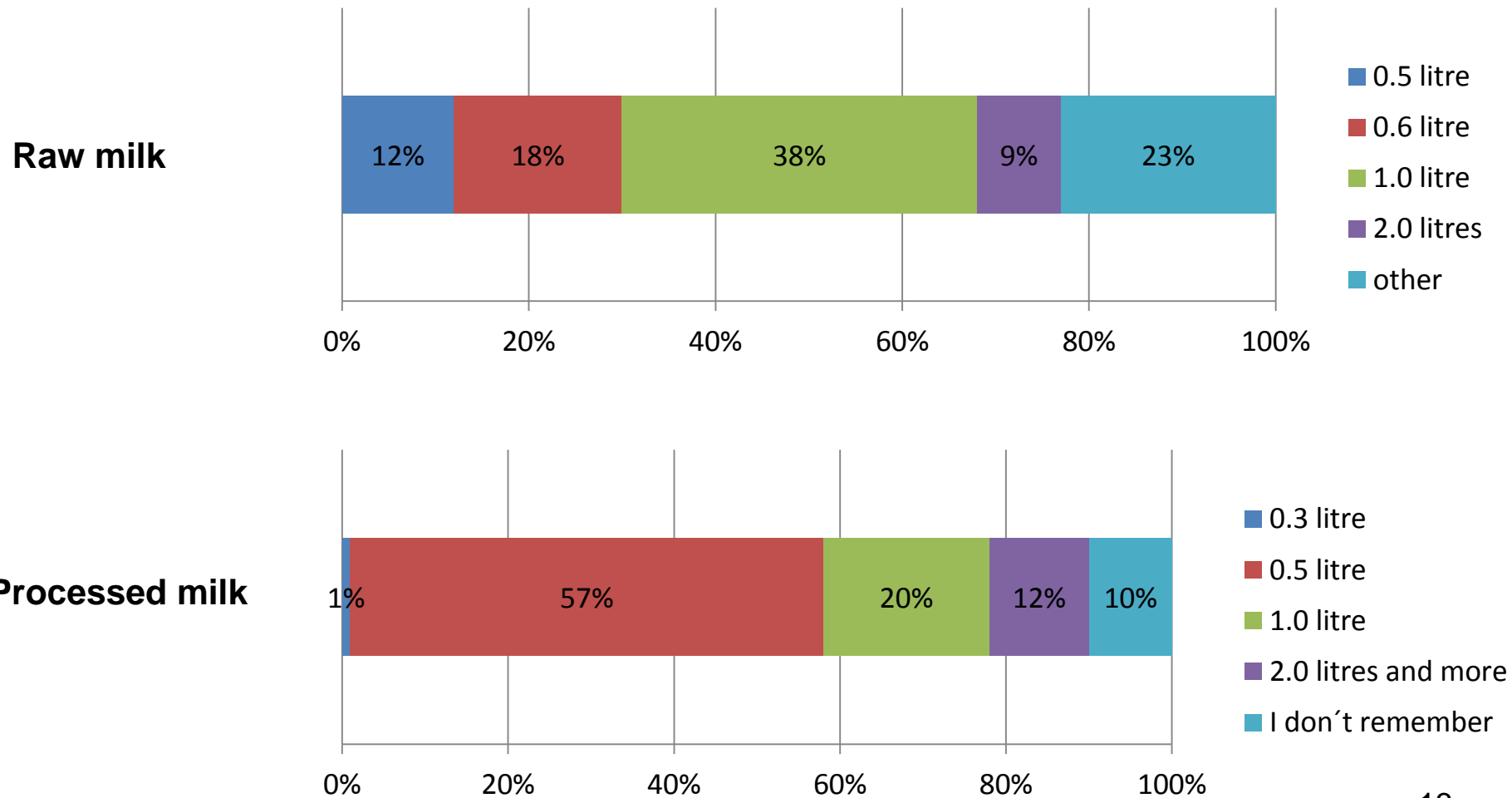
Results

Figure 2. Milk purchase frequency



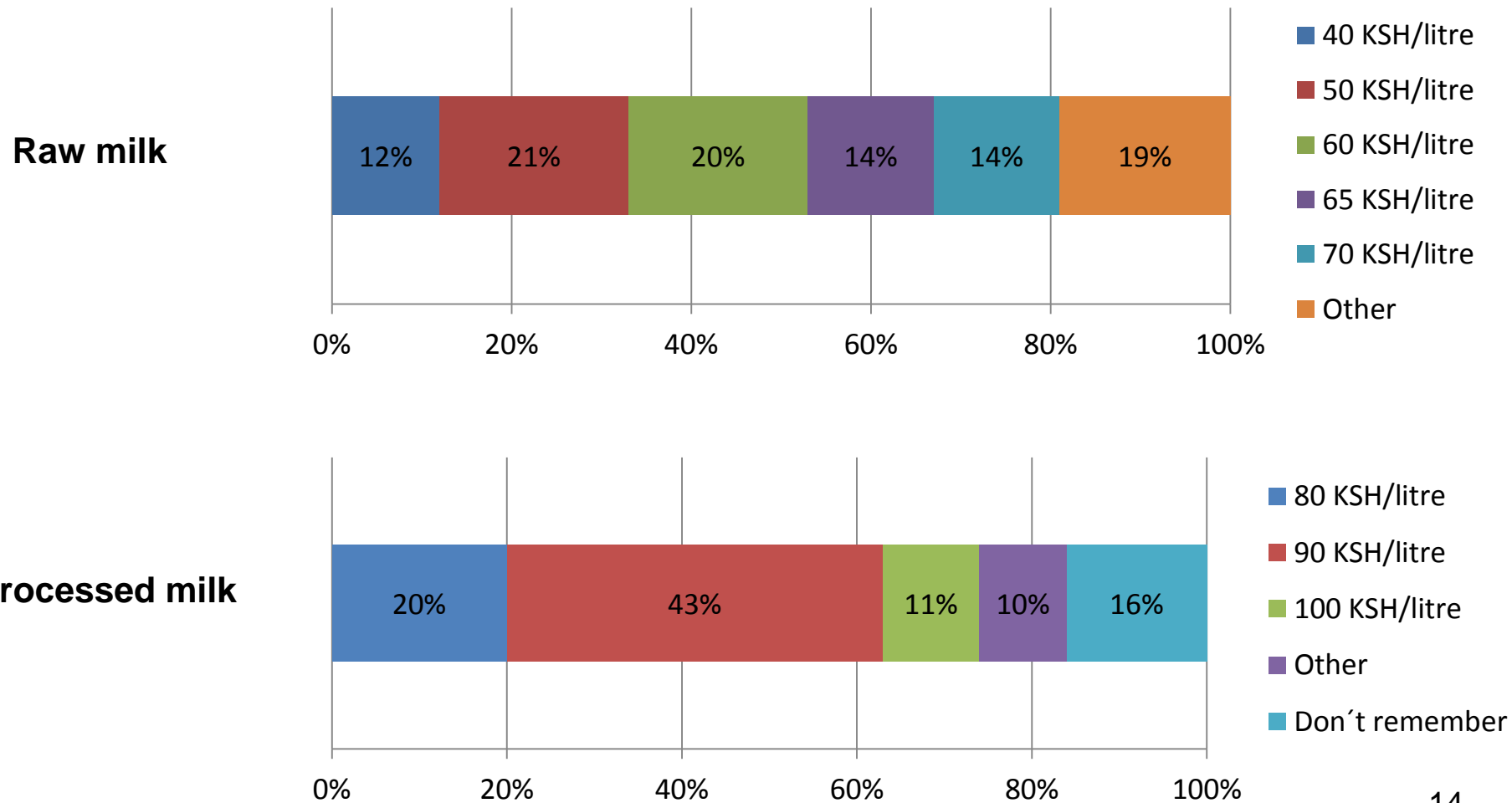
Results

Figure 3. Quantity of milk bought



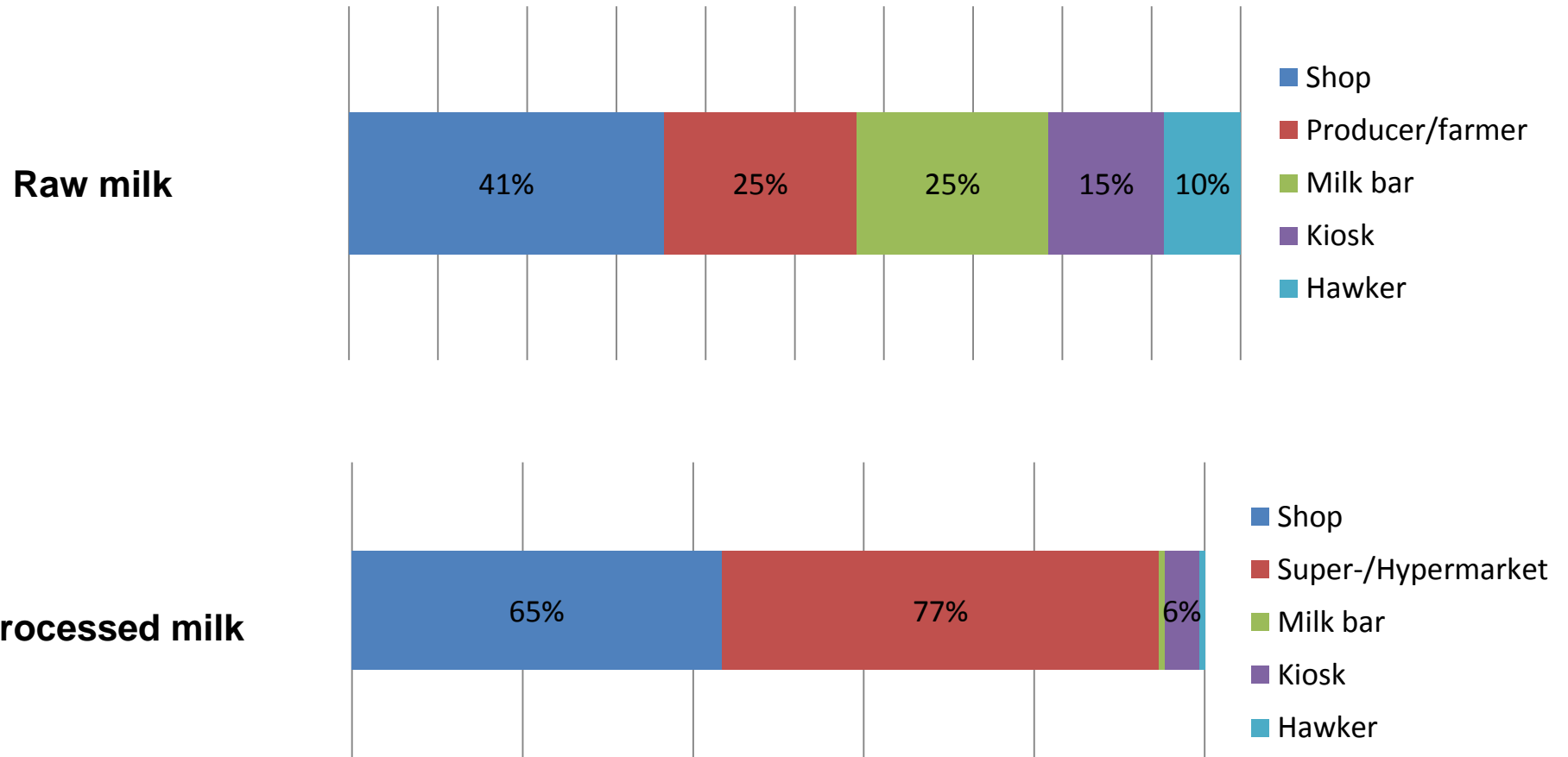
Results

Figure 4. Price of milk



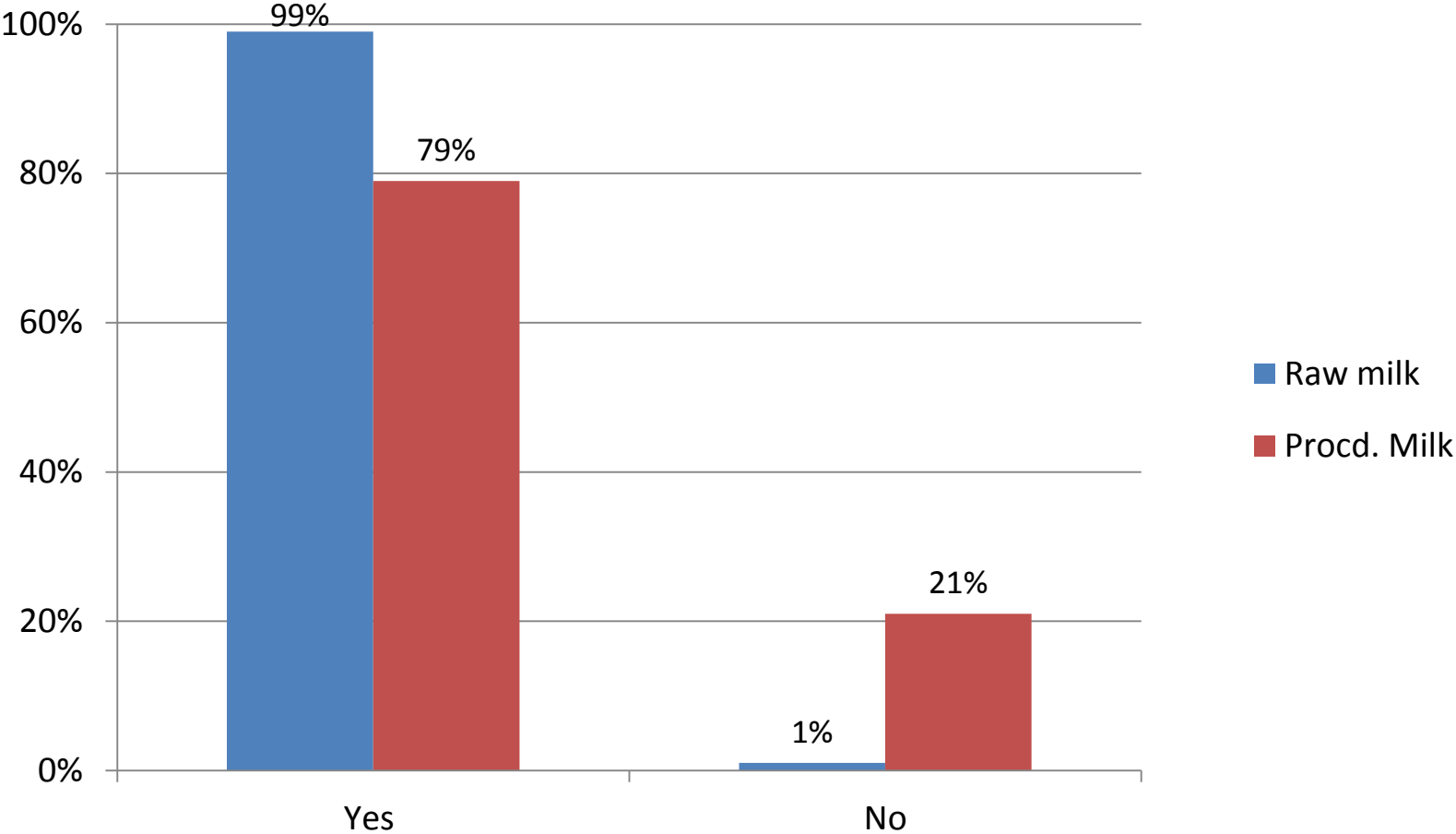
Results

Figure 5. Outlet of purchase*



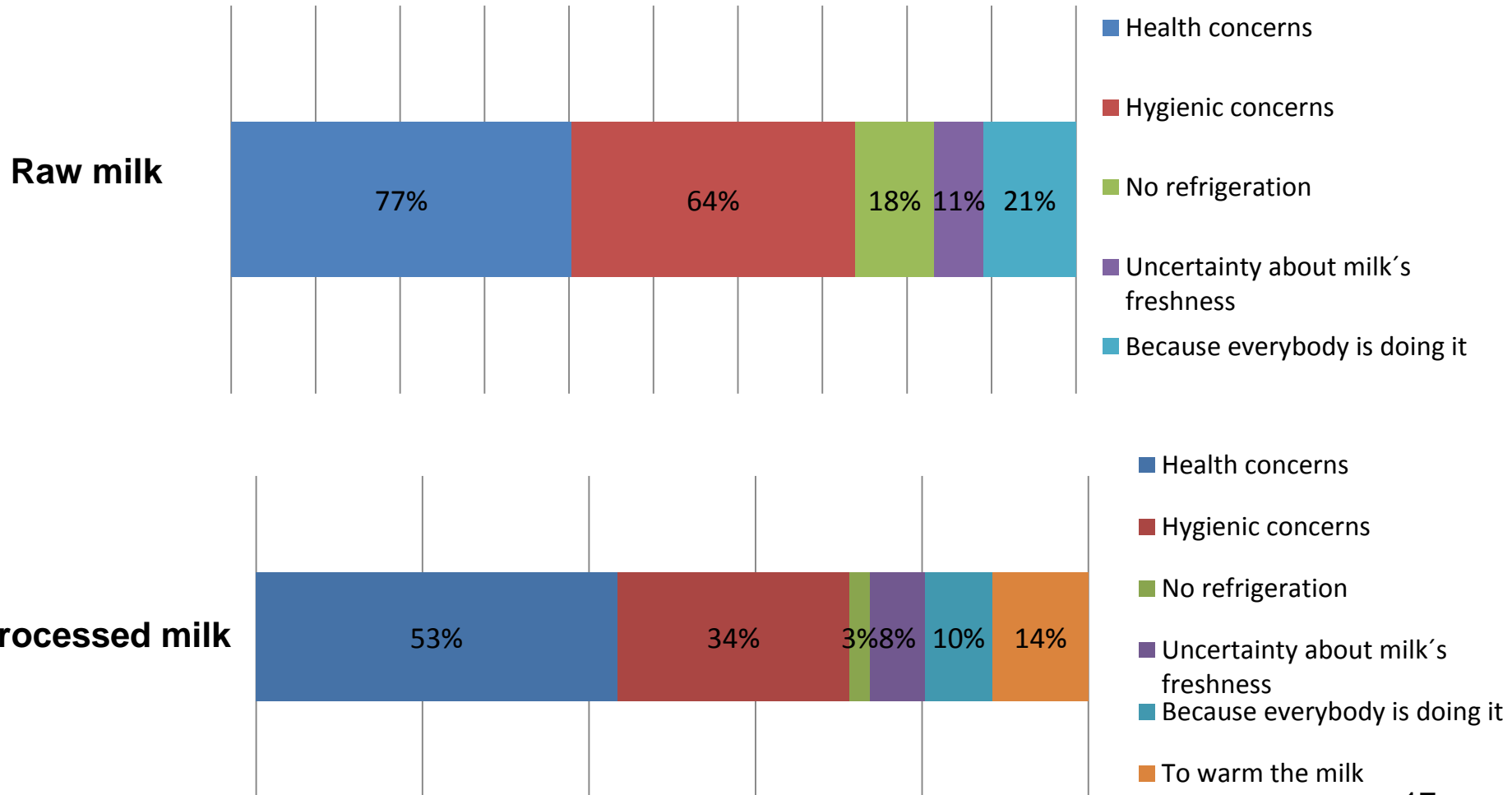
Results

Figure 6. Boiling milk prior to consumption



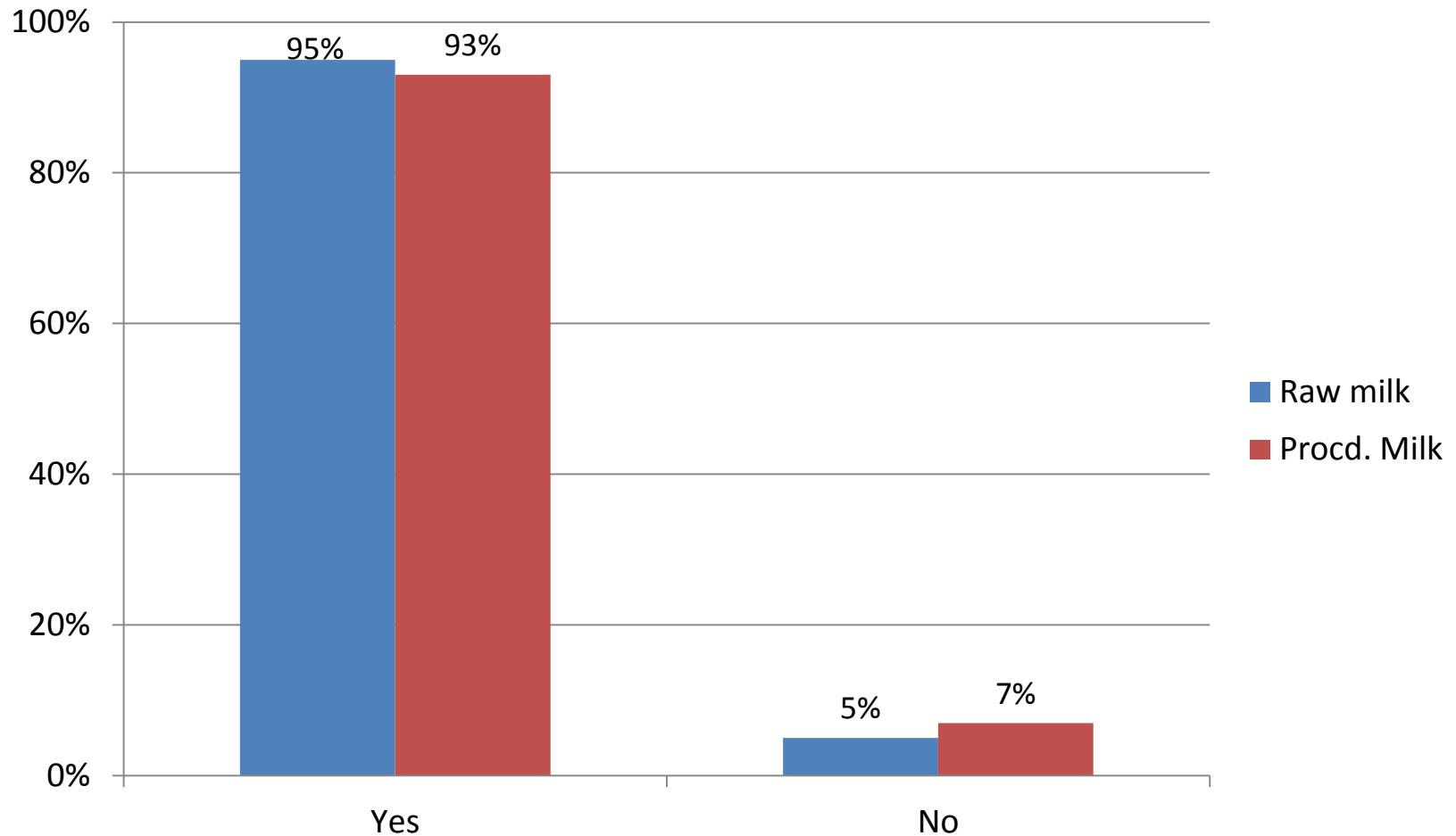
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Figure 7. Reasons for boiling the milk*



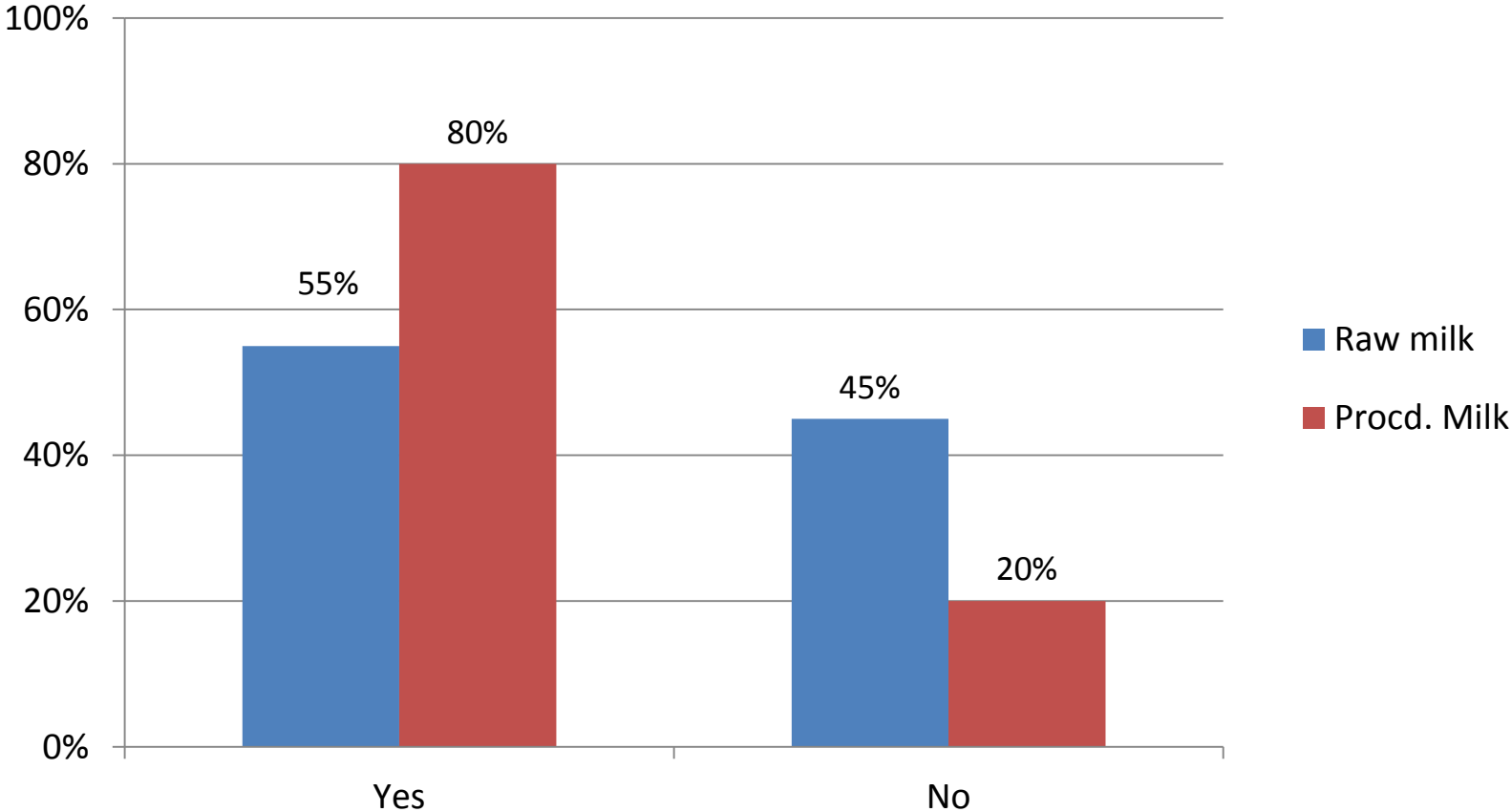
Results

Figure 8. Milk is safe after boiling



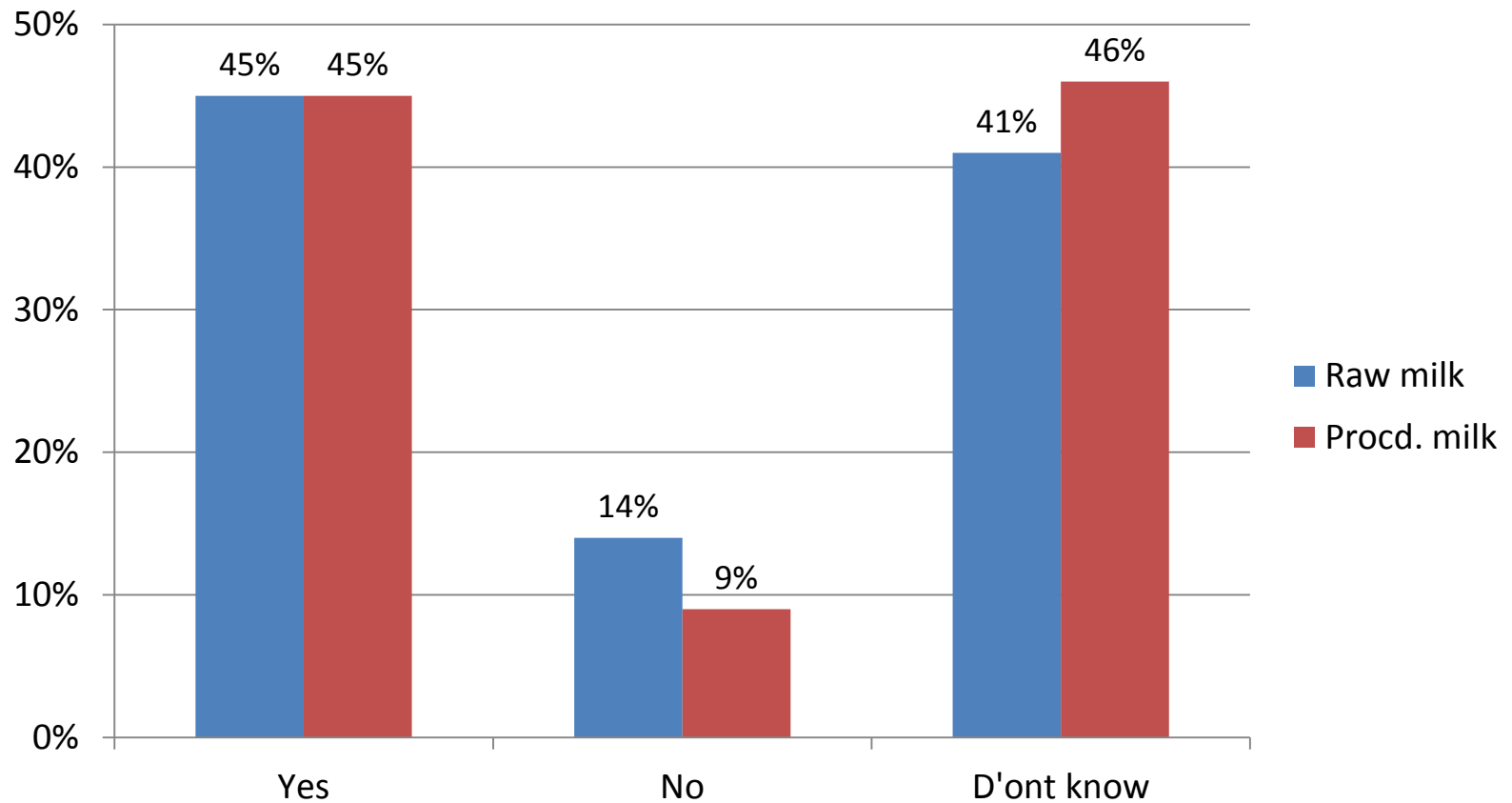
Results

Figure 9. Have you heard about aflatoxin?



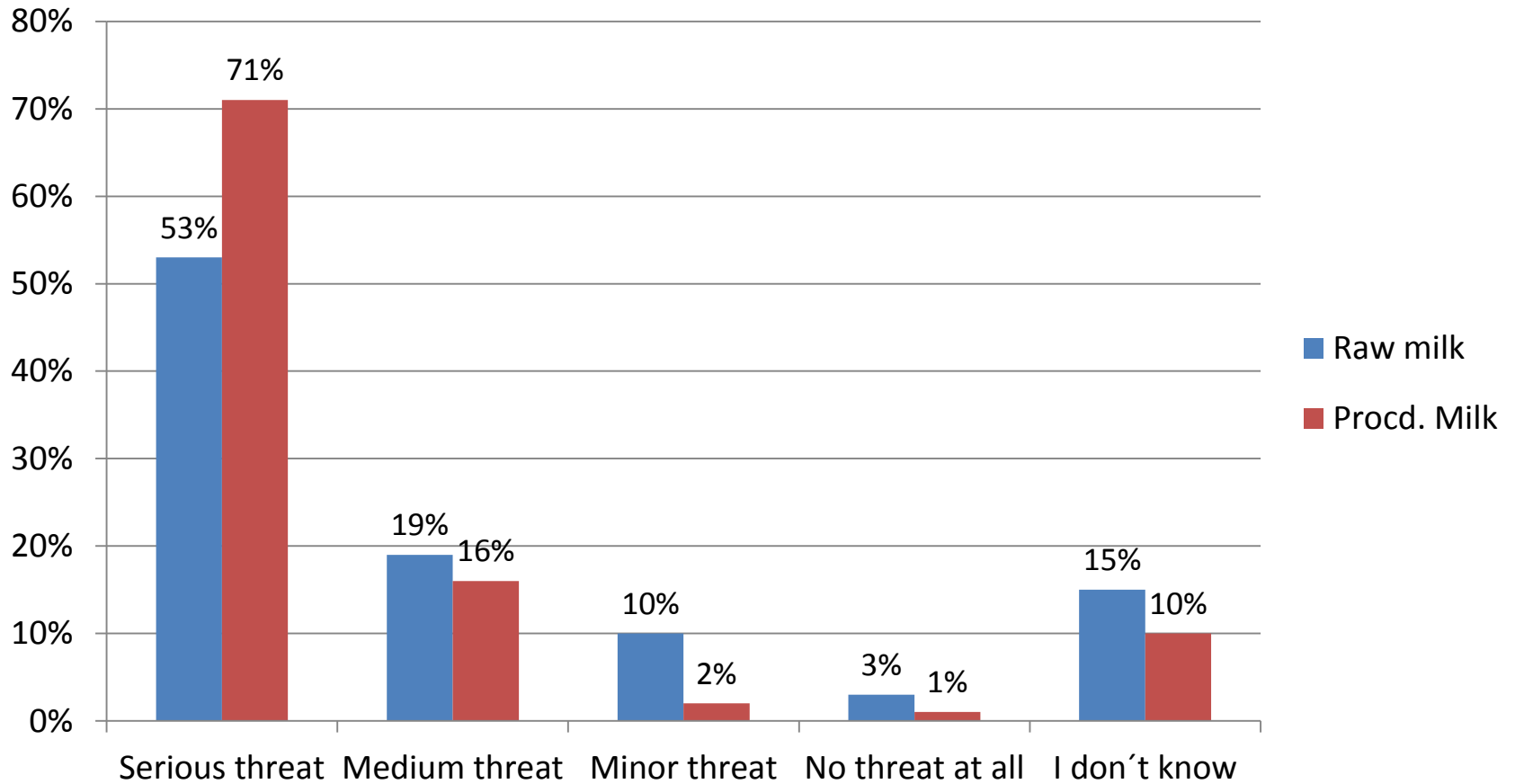
Results

Figure 10. Aflatoxin can be transferred into milk?



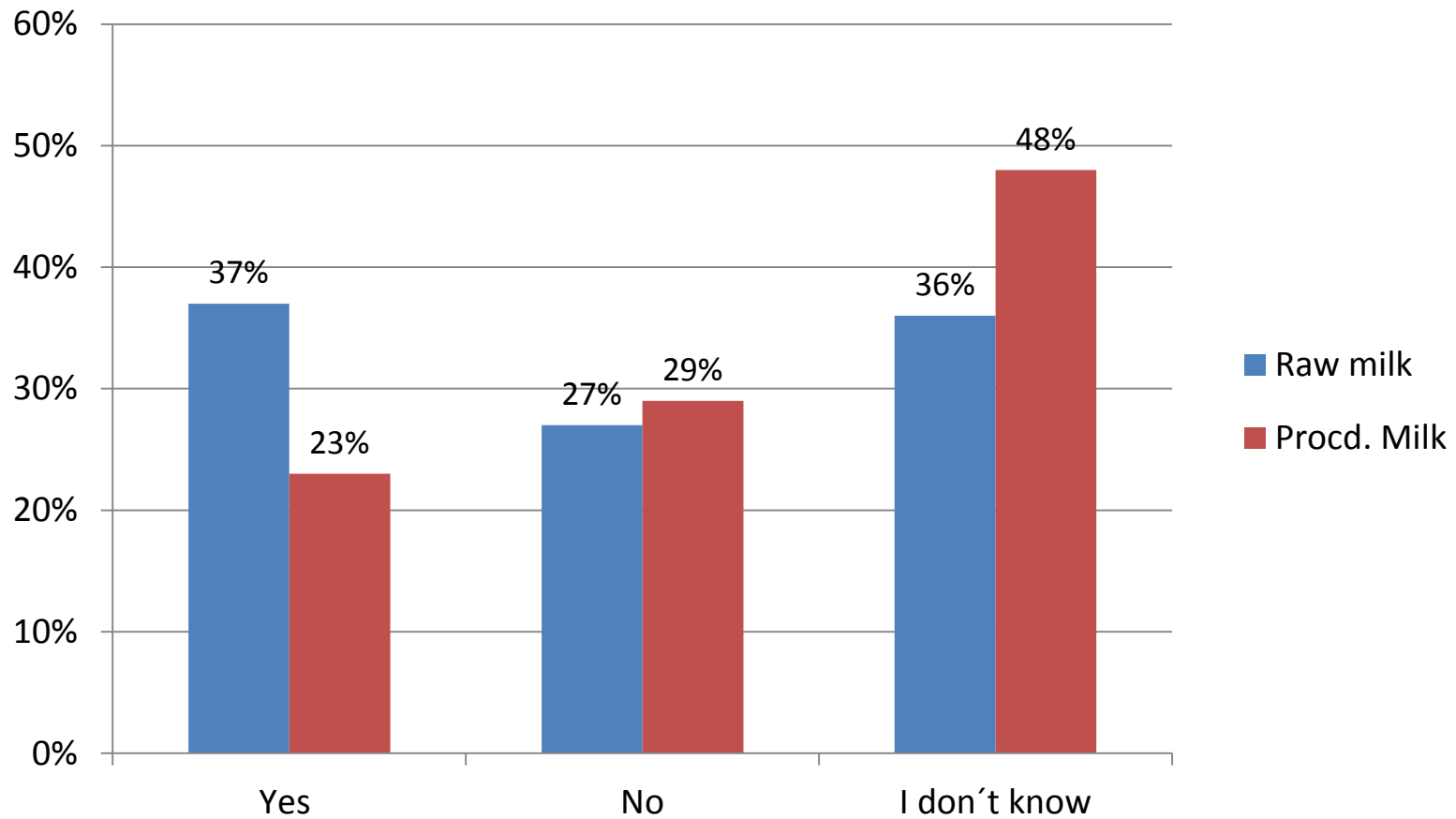
Results

Figure 11. Health impact of aflatoxin on humans



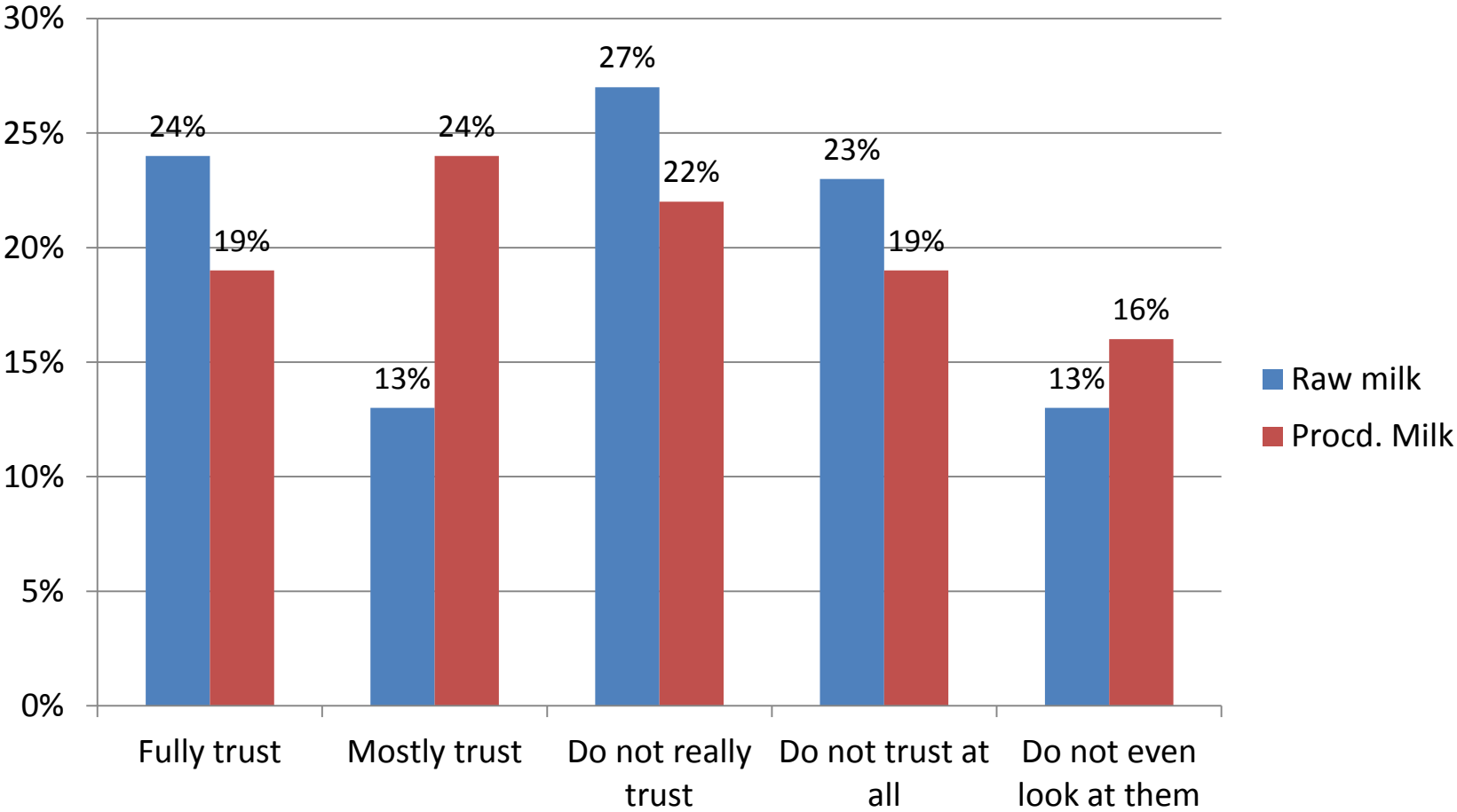
Results

Figure 12. Is it possible to make aflatoxin contaminated milk safe?



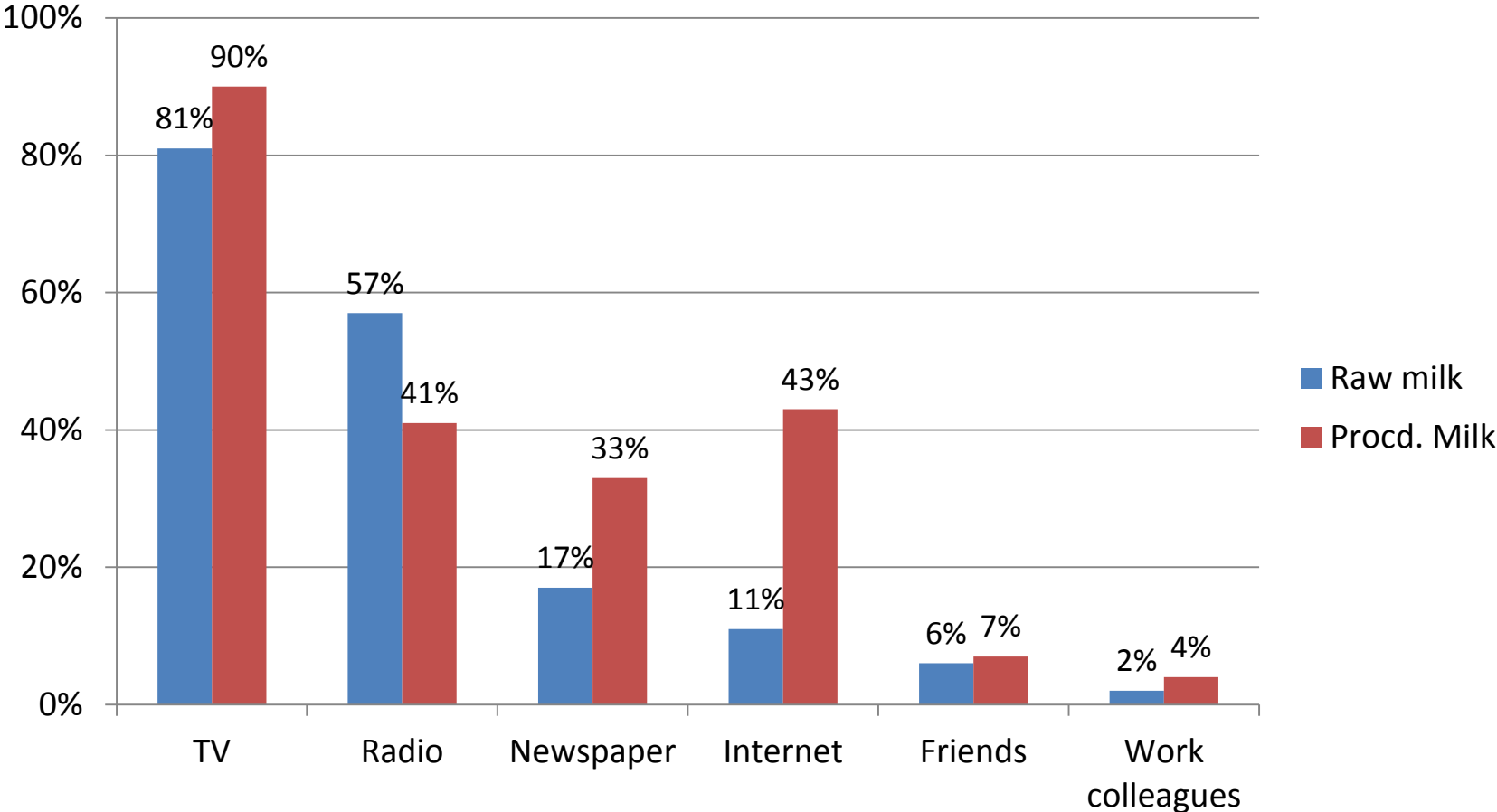
Results

Figure 13. Opinion on food certificate/ food safety labels?



Results

Figure 14. Main sources of information



Results

Table 2. Respondents' willingness to pay (WTP) estimates (in KSH/Litre) and 95% confidence intervals (CI) for "aflatoxin free" certified milk

Group	Raw milk	Processed milk
	WTP 95% CI	WTP 95% CI
All sample	69.3 [55.3; 89.2]	136.8 [108.7; 176.3]
Heard about Aflatoxin	73.0 [55.7; 102.4]	161.7 [121.4; 226.4]
Have not heard about Aflatoxin	66.4 [47.6; 99.5]	99.0 [68.0; 154.1]
Aflatoxin can be transferred	154.3 [96.3; 370.7]	165.2 [111.0; 259.2]
It can't or don't know	45.6 [36.8; 57.4]	129.7 [95.7; 179.3]

Conclusions

- Milk consumers/buyers awareness about aflatoxin is high in urban areas high (80%) and relatively high in peri-urban area (55%)
- Insufficient knowledge of respondents on the health risks of aflatoxin and if it can be transferred to milk → importance to inform/educate consumers (communication, TV, radio)
- A high proportion of respondents believe that boiling the milk will eliminate aflatoxin from the milk (which is wrong)

Conclusions

- Respondents are willing to pay a premium for certified “aflatoxin free” milk → These results are of value to the dairy industry in the design and implementation of the necessary actions to improve the quality of the product (certification? Trust?)
- Respondents’ WTP depends on their awareness about aflatoxin and it’s presence in milk → higher awareness implies higher premium

Acknowledgement

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Thanks

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