

The international competitiveness of the South African primary dairy
sector, 2016



By Koos Coetzee

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1. Introduction

This report is based on the research done within the International Farm Comparison Network in 2016. The comparison of farms is based on the actual income and cost figures for the 2016 year. The International Farm Comparison Network is a network of dairy experts in many countries. The IFCN mission is to create a better understanding of milk production worldwide. Scientists from 105 countries cooperated in the work of IFCN in 2017. It analysed the production and cost of 159 typical dairy farms in 52 countries and published the results in the 2017 Report.

The IFCN is managed by a group of dedicated dairy scientists at the IFCN Dairy Research Centre in Kiel, Germany. The Milk Producers' organisation has been involved in the work of IFCN since 1998. South Africa became a full member of the IFCN in 2008. South Africa's participation in the IFCN work is partially sponsored by Milk SA.

2. Country comparison

The work of IFCN is based on two different comparisons namely a country comparison where total country statistics are used and a farm comparison where typical dairy farms from the different countries are compared. One hundred and four countries featured in the 2016 country analysis.

2.1 Average size of dairy herds.

The global, average dairy farmer owns between 2 and 3 dairy cows. Larger herds are found in Saudi Arabia, South Africa, New Zealand, Australia and a few other countries. South Africa's average herd size of 378 cows is one of the largest in the world

The total number of dairy cows for selected countries are shown in Table 1.

Table 1: Average number of cows in herd. Selected countries, 2016

Country	Average cows in herd
Saudi Arabia	6 924
New Zealand	419
South Africa*	378
Australia	283
Czech Republic	207
USA	203
Denmark	185
Israel	171
Argentina	168
United Kingdom	143
Uruguay	115
Canada	85

Source IFCN 2017 : * MPO survey 2017

2.2 International milk production

IFCN estimates total world milk production, including buffalo, sheep and goat milk, during 2016 at 831 million tonnes. About 96% of total milk is represented by cow and buffalo milk. The largest milk producers in the world are India, the USA, Pakistan, Brazil and Germany. Annual world milk production increased in most major milk producing countries in 2015 compared to 2014. In India production increased by 4,5%, Pakistan 1,8%, Germany 1,2%, the USA 1,1%. Brazil's production decreased by 2,8%, Chinese production slowed down by 0,8% New Zealand production decreased by 1,3% and EU production growth slowed down from 3,9% to 2,5% in 2015. Table 2 shows milk

production and milk deliveries to market for the top 10 milk producing countries. South Africa is added for comparison.

Table 2: Milk production for the top 10 milk producing countries and South Africa, 2016

	Country	Milk produced Mil.Ton	Milk delivered to dairies Mil.Ton
1	India	170,9	29,1
2	USA	96,4	95,9
3	Pakistan	43,4	1,3
4	Brazil	34,7	23,9
5	Germany	32,7	31,3
6	China	39,1	26,5
7	Russian Federation	30,5	20,3
8	France	25,2	24,5
9	New Zealand	22,2	21,2
10	Turkey	16,8	9,2
	South Africa	3,2	3,0

3. Farm comparison

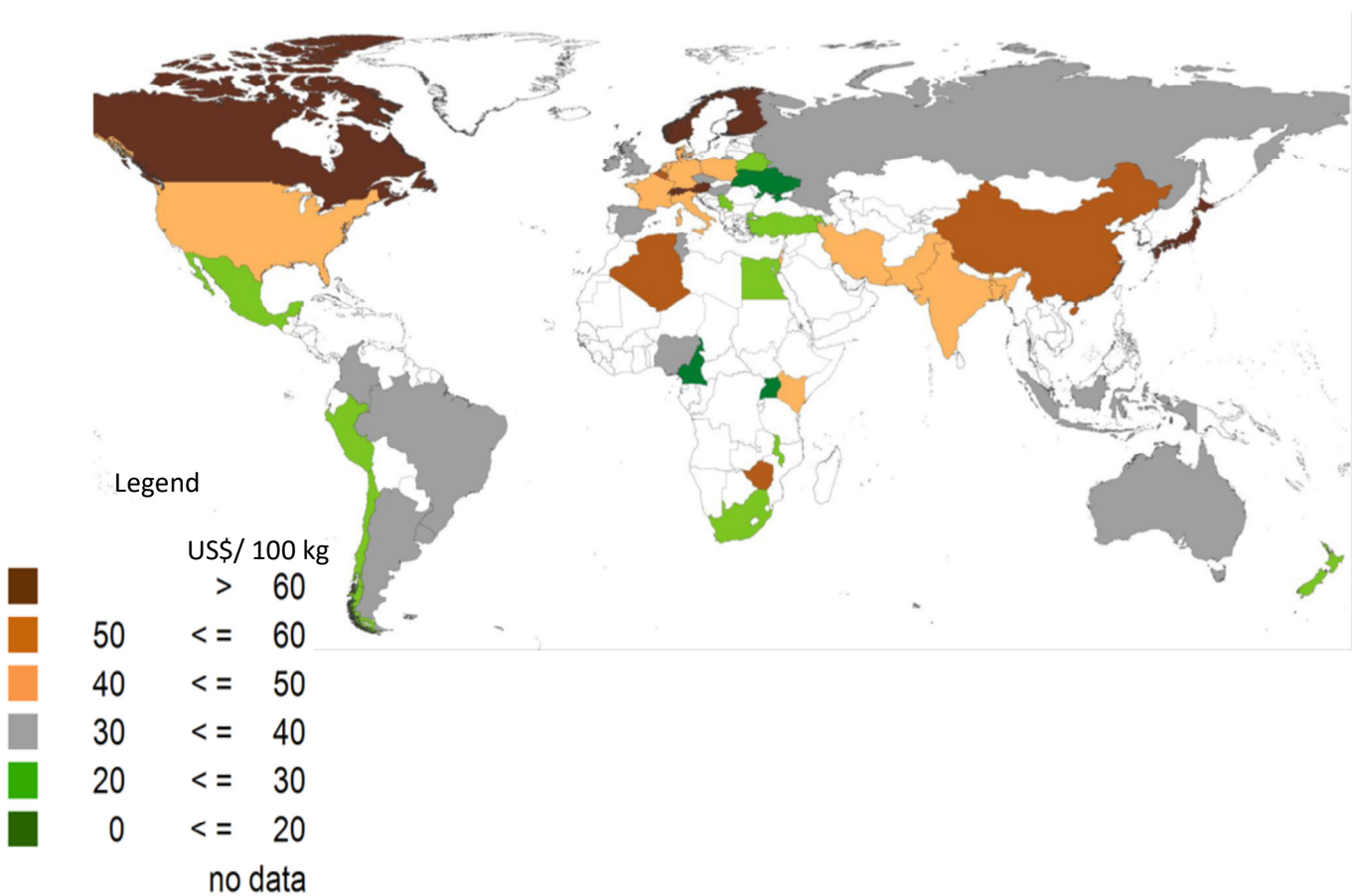
One hundred and fifty-nine different typical farms from 52 countries were compared in the farm comparison. Three South African typical farms namely a 230 cow mixed farm¹, a 520 cow grazing farm and a 630 cow intensive total mixed ration farm were included in the farm comparison. These three typical farms are representative of farms that produce an estimated 85% of milk produced in South Africa and are thus typical of the South African primary sector.

¹ Mixed farm is a farm that farms dairy cattle in addition to other enterprises.

3.1 Cost of milk production

Cost of milk production varies widely between countries. Lower production cost occurs in countries where very little extra concentrates and forage are fed, where the owners' opportunity cost of labour is low and where the bulk of milk is not sold to the market. The average production cost for the analysed farms was on a level of US\$ 38,4/100 kg energy corrected milk (ECM)². Based on the average exchange rate of R 14,70/ US\$ it converts to a South African cost of R 5.45/litre on SA average composition. The average cost level decreased by 7% from 2015 to 2016. Typical farms in Western Europe, and North America produced milk at average cost levels significantly above the global average level. Countries in Africa, South America, Asia and Oceania managed to produce milk at or below the average level. Costs of milk production in different countries are shown in Figure 1.

Figure 1: Average Cost of milk production (US\$/ 100 kg energy corrected milk per country, 2016

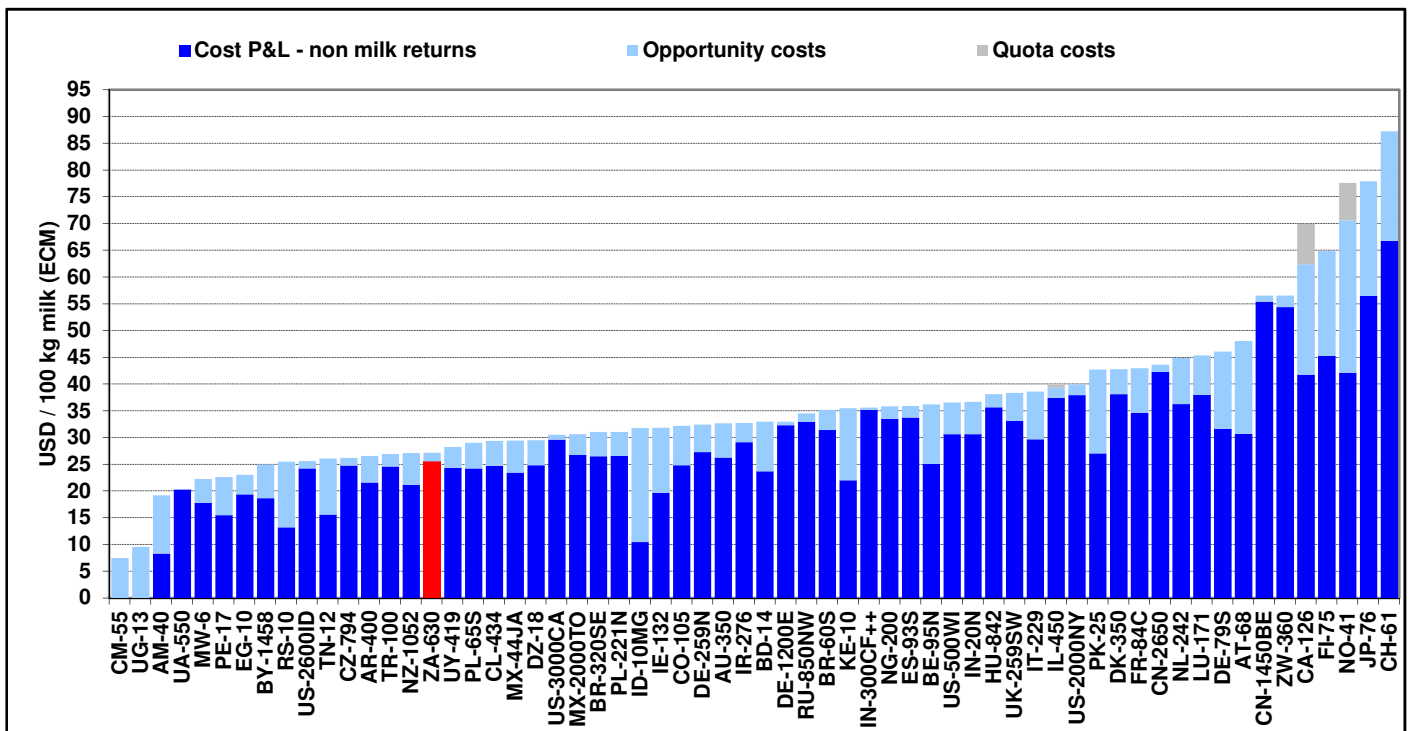


Source IFCN, 2017

² Energy corrected milk = standardised milk with 4% fat and 3,3% protein

The following Figure 2 shows the cost of milk production for larger sized farms in different countries in 2015. South Africa's 630 cow total mixed ration herds had lower production cost than the larger farms in the US.

Figure 2: Cost of milk production, larger farms per country, 2016



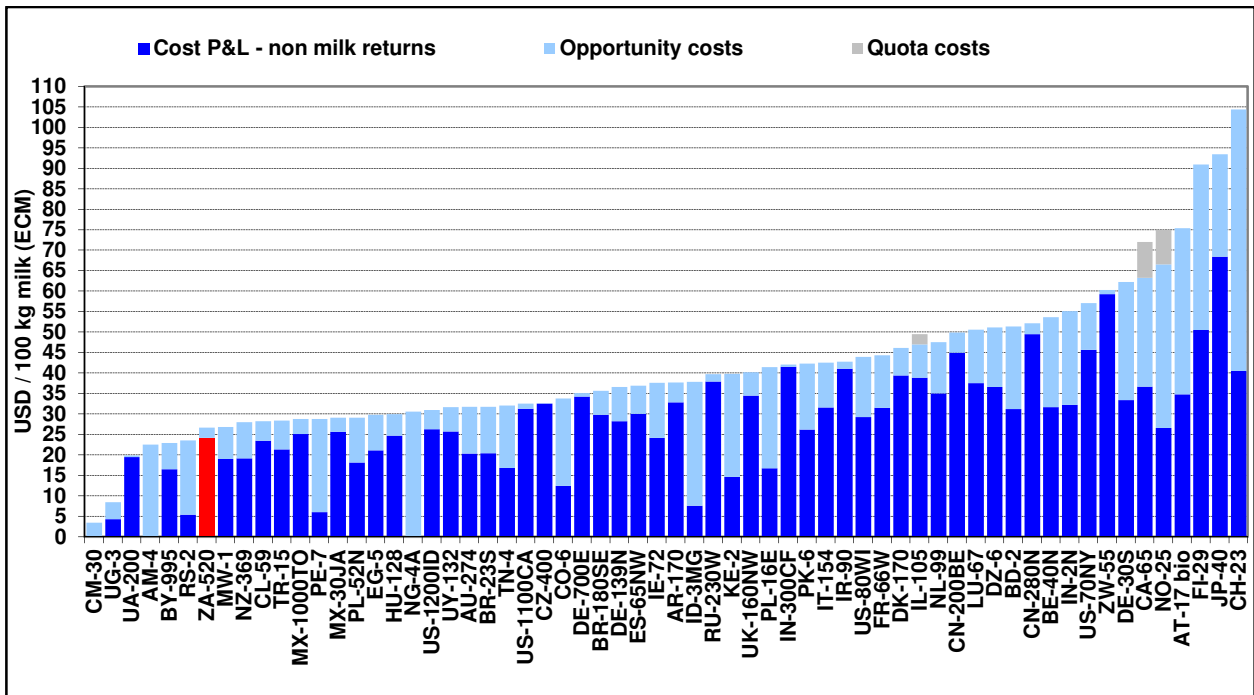
Source: IFCN, 2017

Cost P & L = Total production cost, Quota cost = cost to obtain milk quota, Opportunity cost = cost of using own inputs

Code = International country code plus size of dairy herd, ZA-630 = 630 cow South African herd.

The following Figure 3 compares total cost of milk production on the average typical farms in different countries in 2016. South Africa's typical pasture farms produce milk at lower cost levels than pasture farms in other countries.

Figure 3: Cost of milk production for average farms, 2016



Source: IFCN 2017

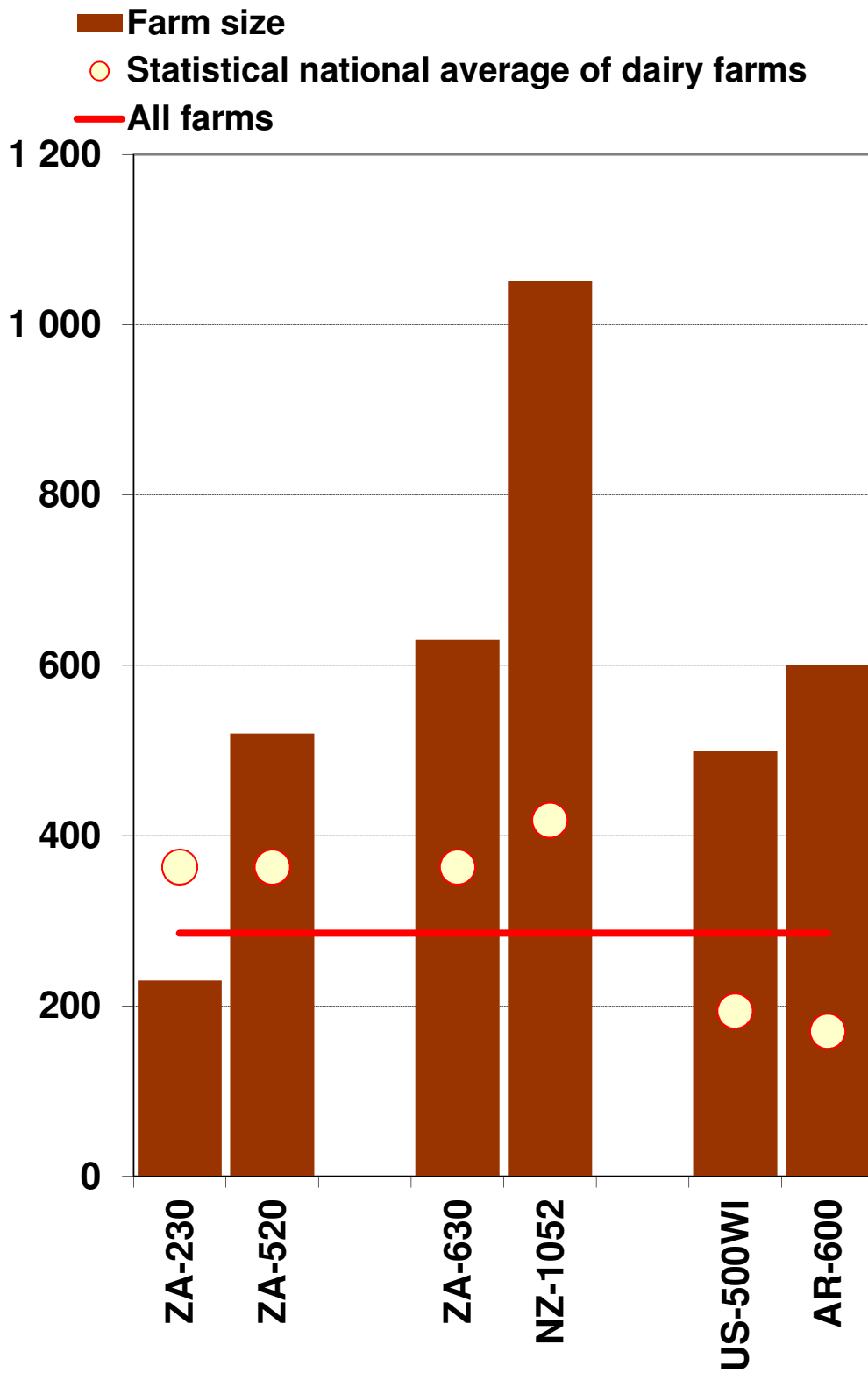
Cost P&L = total production cost, quota cost = cost of obtaining production quota, opportunity cost = cost of own inputs

Code = International country code plus size of dairy herd, ZA-520 = 520 cow South African herd.

3.2 Detailed analysis of selected farms

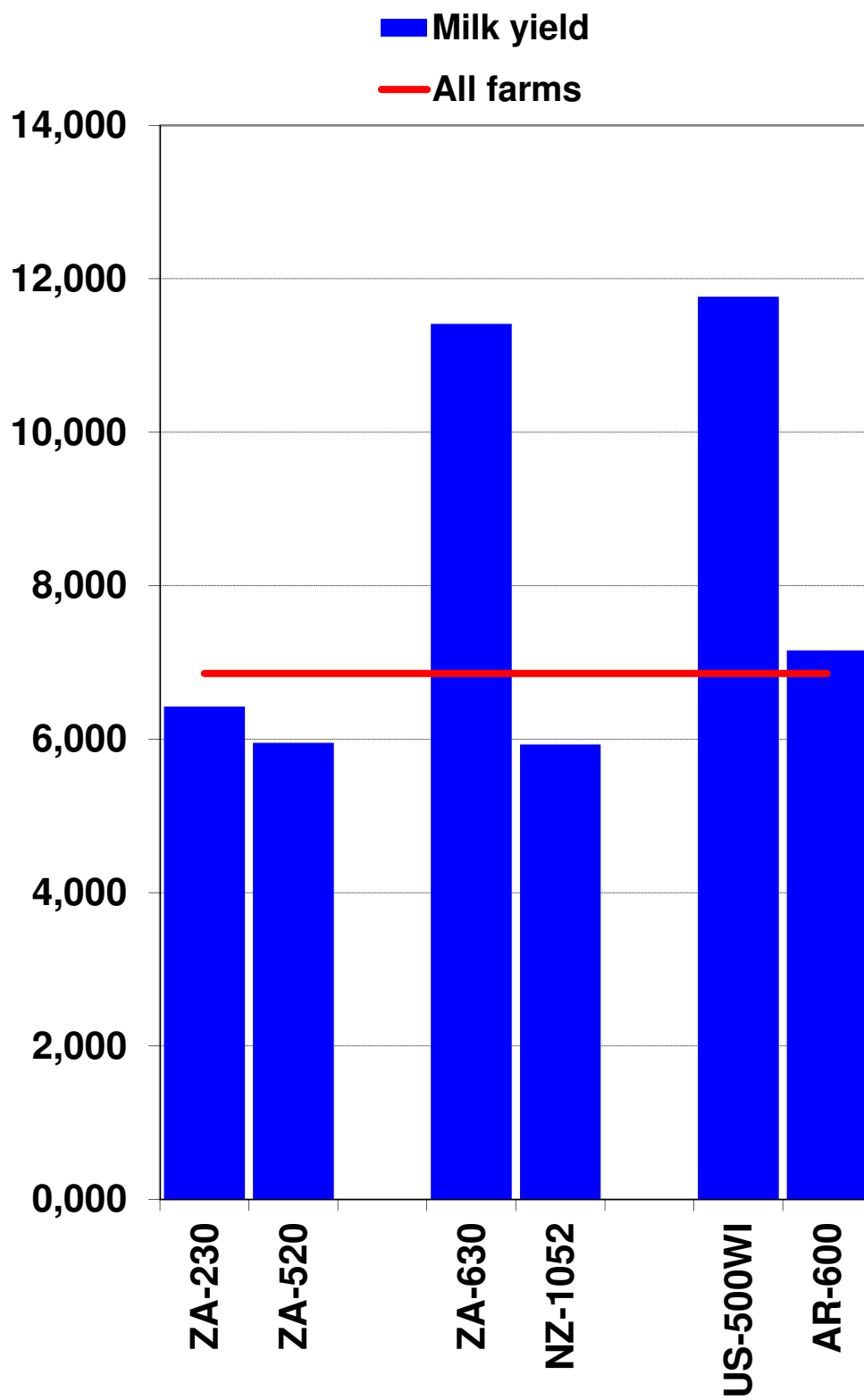
In this section the performance of the three typical South African farms are compared with similar farms from Argentina, New Zealand and the USA. The following figures 4 - 6 indicates the comparable variables for these farms. In addition to the three SA farms (ZA-230, ZA-520 and ZA-630) a 600-cow Argentinian (pasture plus concentrate), a 500-cow US farm (Total mixed ration) and a 1052-cow New Zealand pasture farm were used.

Figure 3: Farm size (number of cows in herd) comparison



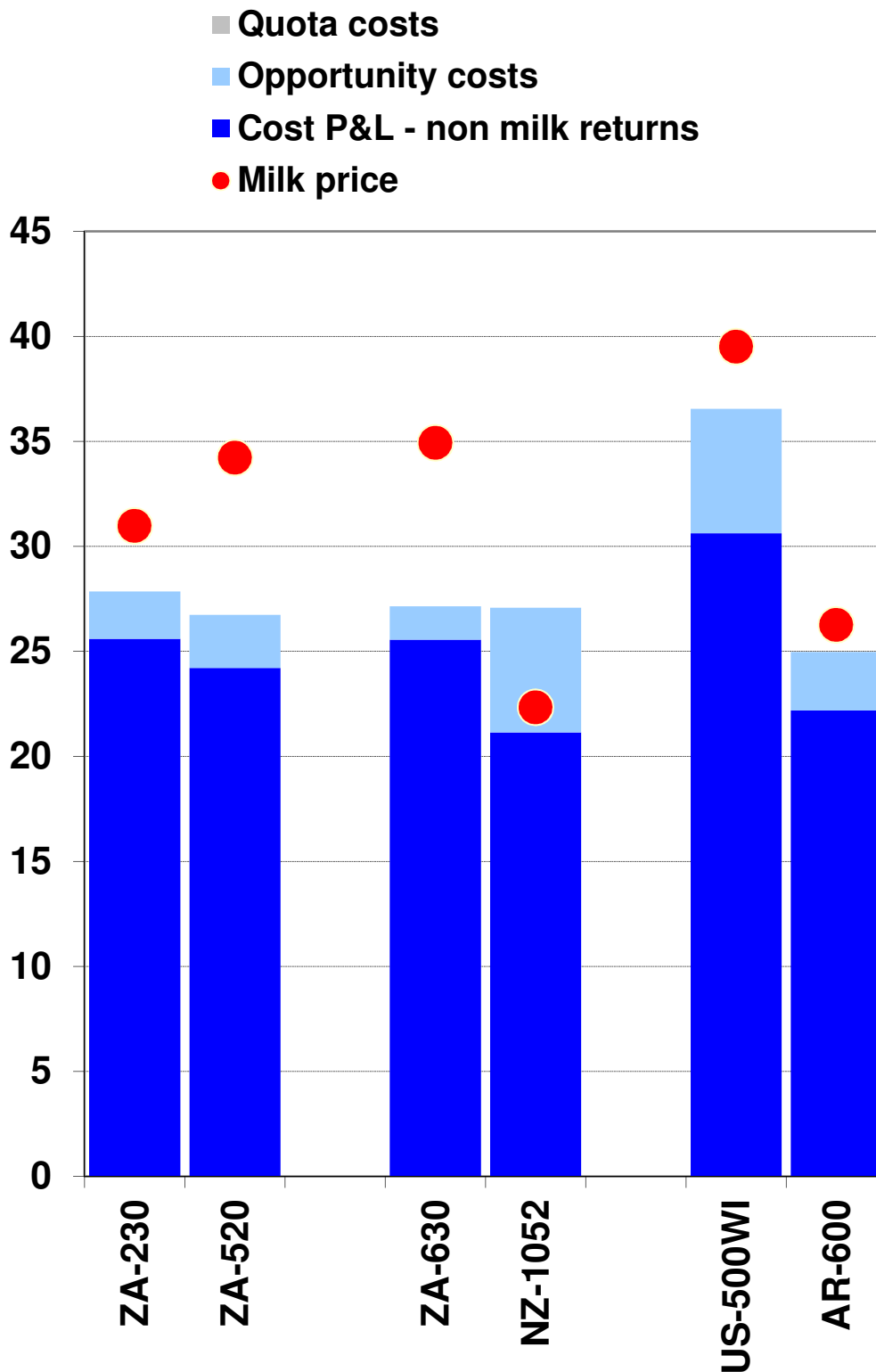
Source: IFCN, 2017

Figure 4: Milk yield (1 000 kg of energy corrected milk per year) comparison



Source: IFCN, 2017

Figure 5: Production cost (US\$ per 100 kg energy corrected milk) comparison



Source: IFCN 2017

Cost to P&L = total production cost, quota cost = cost of obtaining production quota, opportunity cost = cost of own inputs

Summary

The average South African dairy farm is larger than average dairy farms in many other countries. Milk yield and cost of production is comparable to dairy farms in developed countries. However production cost is marginally higher than in New Zealand. Both the large TMR and large pasture farm in South Africa can compete with similar farms in other countries.