Dairy Farming in Israel

➤

Table 1.3

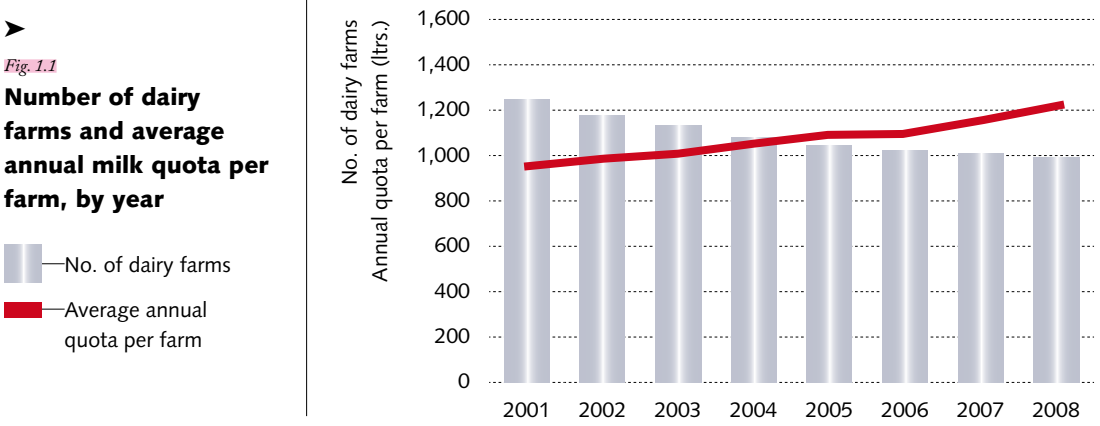
No. of dairy farms, by farm type, and average annual milk quota per farm (x 1,000 ltrs.)

	2001	2002	2003	2004	2005	2006	2007	2008
Family farms (Moshav)								
Number	1,025	962	921	880	855	843	830	811
Average quota (x 1,000 ltrs.)	492	511	524	541	560	564	589	625
Cooperative farms (Kibbutz)								
Number	209	200	196	187	176	167	165	165
Average quota (x 1,000 ltrs.)	3,273	3,335	3,344	3,524	3,747	3,851	4,030	4,198
Agric. school farms								
Number	16	16	16	16	16	15	15	15
Average quota (x 1,000 ltrs.)	750	731	719	733	746	784	811	853
Total								
Number of farms	1,250	1,178	1,133	1,083	1,047	1,025	1,010	991
Average quota (x 1,000 ltrs.)	960	993	1,015	1,059	1,098	1,102	1,155	1,223

➤

Fig. 1.1

Number of dairy farms and average annual milk quota per farm, by year



Types of Settlement

Much of Israel's agriculture is based on cooperative settlements, which were developed in the early 20th century. The Kibbutz is a large collective production unit. Kibbutz members jointly own the means of production and share social and economic activities. At present, most of the Kibbutz income comes from industrial enterprises owned by the collective unit. Another type of settlement is the Moshav, which is based on individual farms yet organized as a cooperative society. The residents in both types of settlements are provided with a package of municipal services. The Kibbutz and the Moshav currently account for 83% of the country's agricultural produce.

In addition to the Jewish agricultural sector, Arab villages are located in Israel's rural areas. Theses villages focus mainly on production of small livestock (sheep and goats), vegetables, field crops and olives.

All the Kibbutz dairy herds participate in the DHI system and represent 62.2% of the cows with recorded production. Their average milk yield in 2008 was 11,862 kg/cow/year and the average production of protein and fat was 808 kg/cow/year. Approximately 75% of the Moshav dairy herds participate in the DHI system and represent 37.8% of the cows with recorded production. Their average milk yield in 2008 was 10,794 kg/cow/year and the average production of protein and fat was 737 kg/cow/year.

Annual Milk Quota and Milk Supply

Cow milk in Israel is produced under a quota system with the annual volume divided into monthly quotas. Because of seasonal fluctuation economic incentives have been set to encourage dairy farmers to regulate monthly production, so that milk supply to the industry is at the desired level throughout the year. Due to the fast increase in the demand for milk products in 2008 the Israel Dairy Board allowed dairy farmers to produce unlimited amounts of milk above their quotas.

The basic milk price paid to the producer is agreed upon between the government, farmers and the dairy industry. This price reflects the average production costs plus an agreed compensation for the farmers' labor and invested capital.

➤

Table 2.1

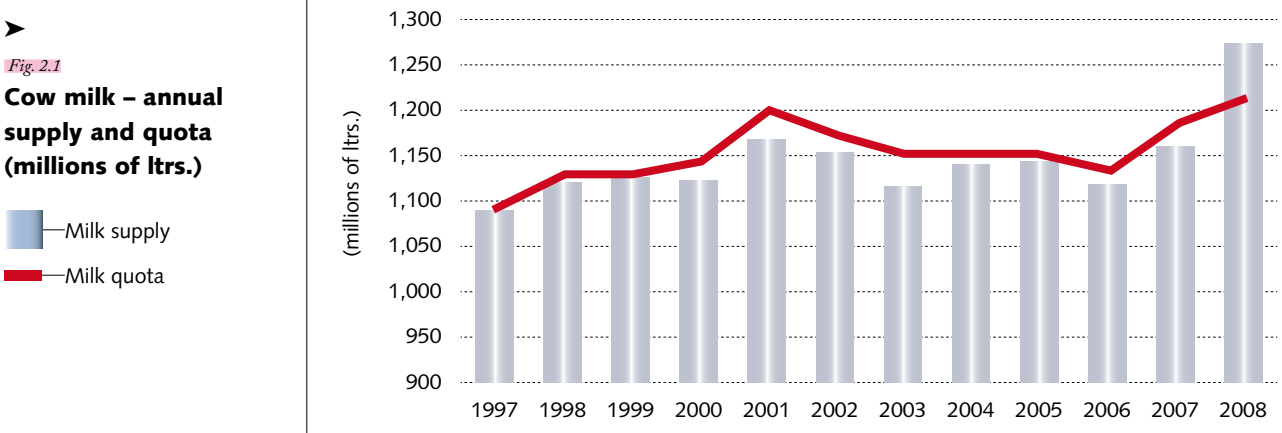
Cow milk – annual supply and quota (millions of ltrs.)

Year	Milk supply (millions of ltrs.)	Milk quota (millions of ltrs.)
1997	1,095	1,085
1998	1,126	1,124
1999	1,132	1,124
2000	1,128	1,140
2001	1,174	1,200
2002	1,154	1,170
2003	1,122	1,150
2004	1,146	1,150
2005	1,150	1,150
2006	1,124	1,130
2007	1,166	1,185
2008	1,273	1,212

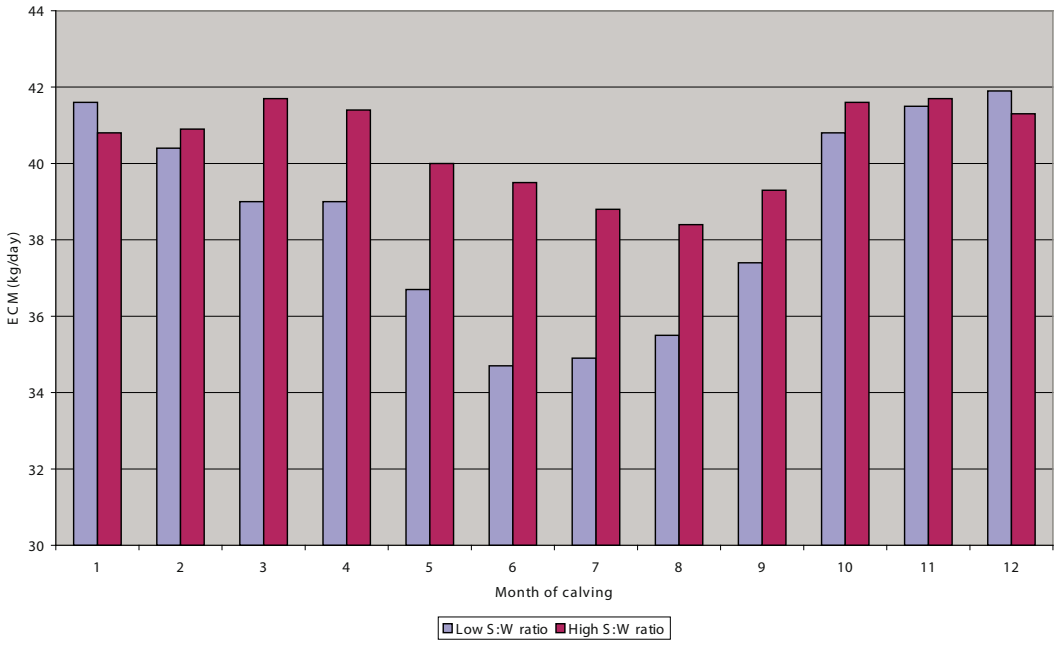
➤

Fig. 2.1

Cow milk – annual supply and quota (millions of ltrs.)



Graph 1
Corrected averages for ECM production in the first 90 days of lactation, for different months of calving, in herds with high and low S:W ratio.



The fact that winter milk production was similar in both groups supports the supposition that a large part of the differences in the S:W ratio among farms relates to the heat-stress management during the hot season, including proper installations and intensive use of cooling methods. Average ECM production in the first 90 days of lactation, according to month of calving (for both groups) is presented in Graph 1.

It is possible to see that production level in winter was similar in both groups. When considering milk production in complete lactation, the differences between the two groups is due greatly to "summer management". L.SMeans for Milk, ECM, milk fat and milk protein in 305 days of lactation for farms with high and low S:W ratio are presented in table 2.

Table 2
Average 305d production for milk, ECM, milk fat and milk protein, for herds with high and low S:W ratio

	Low S : W ratio Herds	High S : W ratio Herds	Difference (kg)	Added production (%)
Milk (kg)	11,346	12,017	671	6.0%
ECM (Kg)	**11,081**	**11,807**	**726**	**6.5%**
Milk Fat (kg)	402.6	430.1	27.5	6.8%
Milk Protein (kg)	360.9	385.3	24.4	6.8%

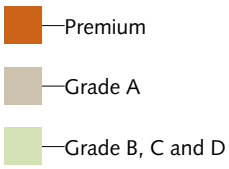
The innovative method used in this study allows, for the first time, to evaluate the net effect intensive cooling has on dairy-cow performance. The fact that both high and low S:W ratio groups had similar production levels during the winter months allows us to assert that most of the annual differences in production and fertility were a result of better management, skillful installation and proper operation of the cooling systems.
According to our findings, intensive use of cooling systems during the summer months, under Israeli conditions, adds approximately 700 kg ECM per lactation for each cow - an

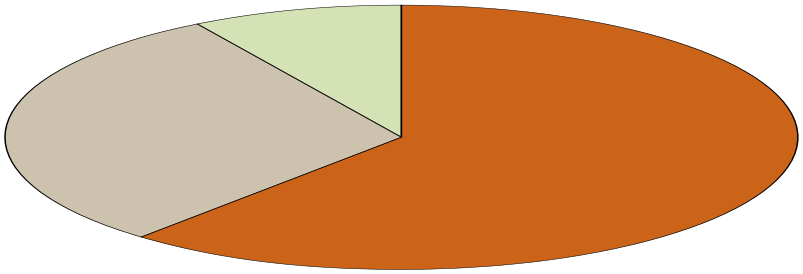
Milk Quality

➤

Fig. 2.2

Milk supply, by somatic cell count categories, in 2008



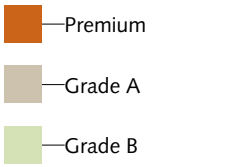


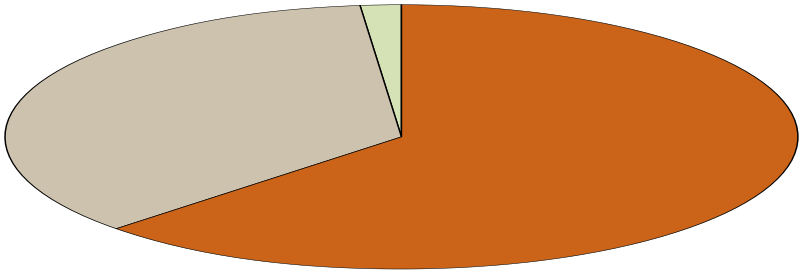
SOMATIC CELL COUNT		
Quality Grade	**Count per ml**	**% of supplied milk**
Premium	Less than 220,000	61.6
Grade A	220,001 – 280,000	29.9
Grades B, C and D	over 280,000	8.5
Total		100.0

➤

Fig. 2.3

Milk supply, by bacterial count categories, in 2008



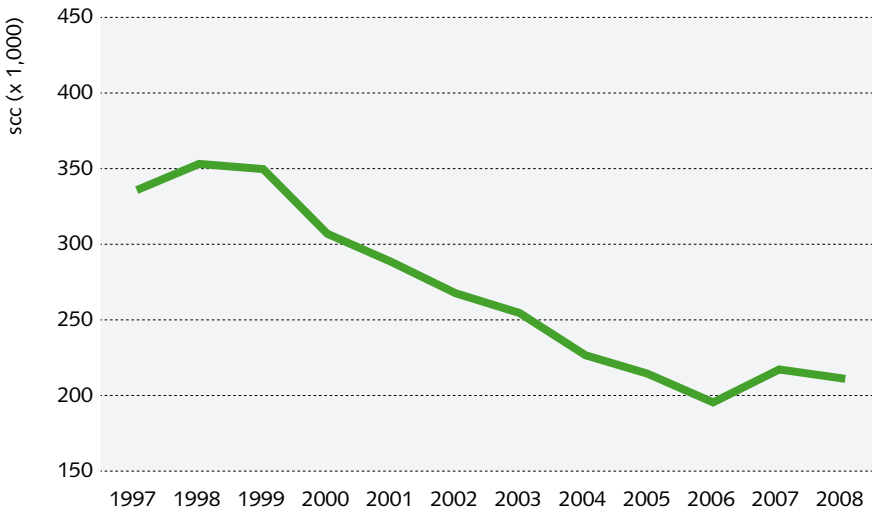


BACTERIAL COUNT		
Quality Grade	**Count per ml**	**% of supplied milk**
Premium	Less than 10,000	62.9
Grade A	10,001 – 75,000	35.7
Grade B	over 75,000	1.4
Total		100.0

➤

Fig. 2.4

Average somatic cell count, by year



A firm and constant policy was established by the Israeli Dairy Board in the 90s with the aim of improving milk quality. Economic incentives were set in order to lower the somatic cell count in the milk supplied to the industry and a threshold of price categories was progressively lowered along years. The farmers' response caused the average SCC (annual average for all farms) to decrease from 428,000/ml in 1995 to 211,000/ml in 2008 (data from milk processing plants).

The increase of the average SCC in 2007 is explained by the efforts to increase milk supply in order to attend the fast growing demand of milk products. Therefore, farmers kept in production cows that in normal times would have been culled out. In 2008 the average somatic cell count decreased once again.

Annual Marketed Milk

Year	Cow Milk					Sheep & Goat Milk		
	Fluid Milk	Fermented Milk and Desserts	Soft Cheese Ton	Hard Cheese Ton	Butter Ton	Soft Cheese Ton	Hard Cheese Ton	Yoghourt and others, Ton
2002	359,594	148,743	79,252	22,435	5,423	925	1,140	446
2003	359,859	147,151	79,900	22,547	5,444	1,040	1,131	776
2004	370,266	146,820	80,703	22,813	5,713	1,266	1,200	1,139
2005	378,957	151,766	82,359	23,528	5,816	1,273	1,236	1,387
2006	402,251	164,220	87,266	25,112	6,209	1,361	1,173	1,328
2007	405,928	166,610	88,177	26,472	6,175	1,703	1,096	1,780
2008	405,736	170,367	91,526	27,547	5,431	1,665	1,092	1,938

Table 2.5

Distribution of annual marketed milk, by dairy products. (tons)

Fig. 2.5

Distribution of annual marketed milk, by dairy products (% of total, based on skimmed milk equivalent)

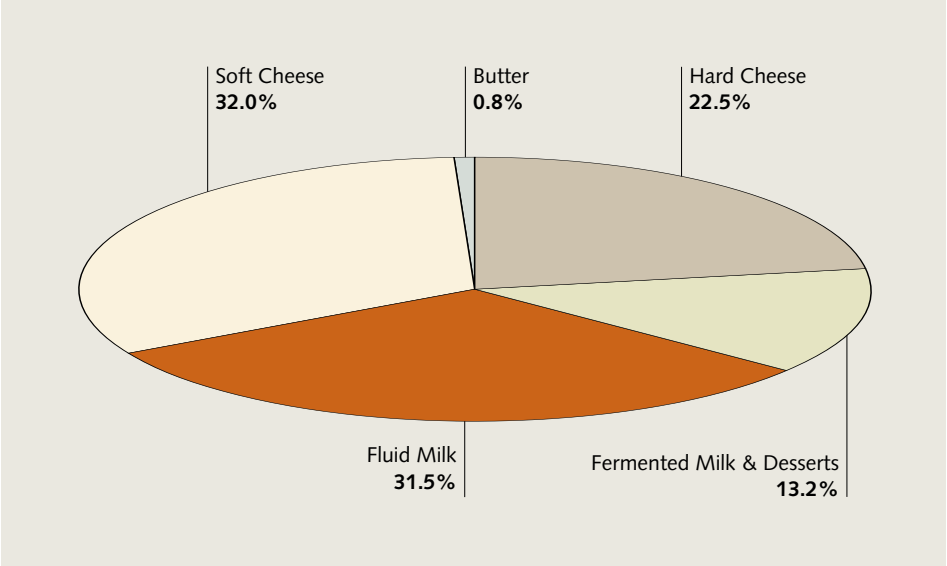
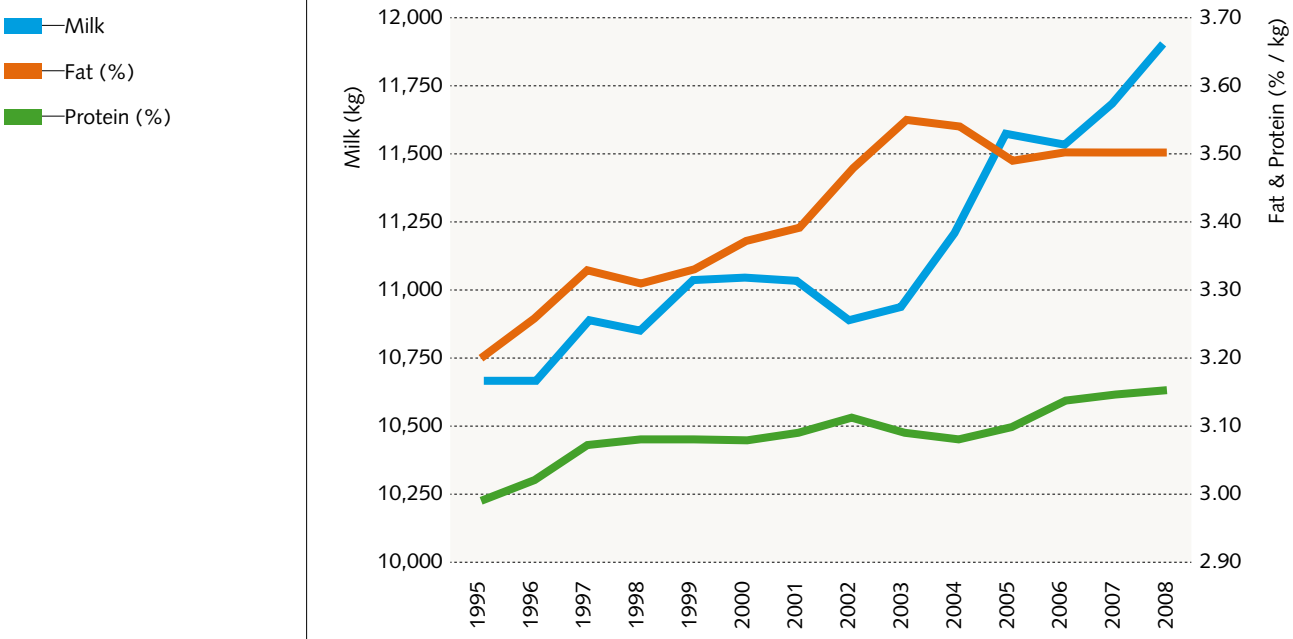


Table 3.1 & Fig. 3.1

Production averages of Israeli-Holstein cows, by calving year

305-day adjusted lactations (1-5)

Calving year	No. of cows	Milk, kg	Fat, %	Protein, %	Fat (Kg)	Protein (Kg)
1995	83,696	10,665	3.20	2.99	341	319
1996	81,477	10,665	3.26	3.02	348	322
1997	81,507	10,887	3.33	3.07	363	334
1998	82,004	10,850	3.31	3.08	359	334
1999	81,742	11,029	3.33	3.08	367	340
2000	81,622	11,048	3.37	3.08	372	340
2001	80,787	11,031	3.39	3.09	374	341
2002	86,554	10,890	3.48	3.11	379	339
2003	84,696	10,938	3.55	3.09	388	338
2004	84,694	11,200	3.54	3.08	396	345
2005	83,456	11,565	3.49	3.10	404	359
2006	77,334	11,506	3.52	3.14	405	361
2007	80,874	11,687	3.52	3.15	411	368
2008	88,147	11,903	3.52	3.16	419	376



Due to a policy which encouraged the production of milk rich with protein and fat there was an increase in their quantity over the years. The average fat content during 2008 was 3.71% (data from milk plants). The rise in fat content in raw milk is opposite to the decline in average fat content in consumption, for the consumers preference is low-fat milk products. Thus arose a need to suppress the growth in fat content. Starting August 2005 a policy of lower payment per fat above a specific level every year (in 2008 the level was 3.779%) caused a decline in fat content.

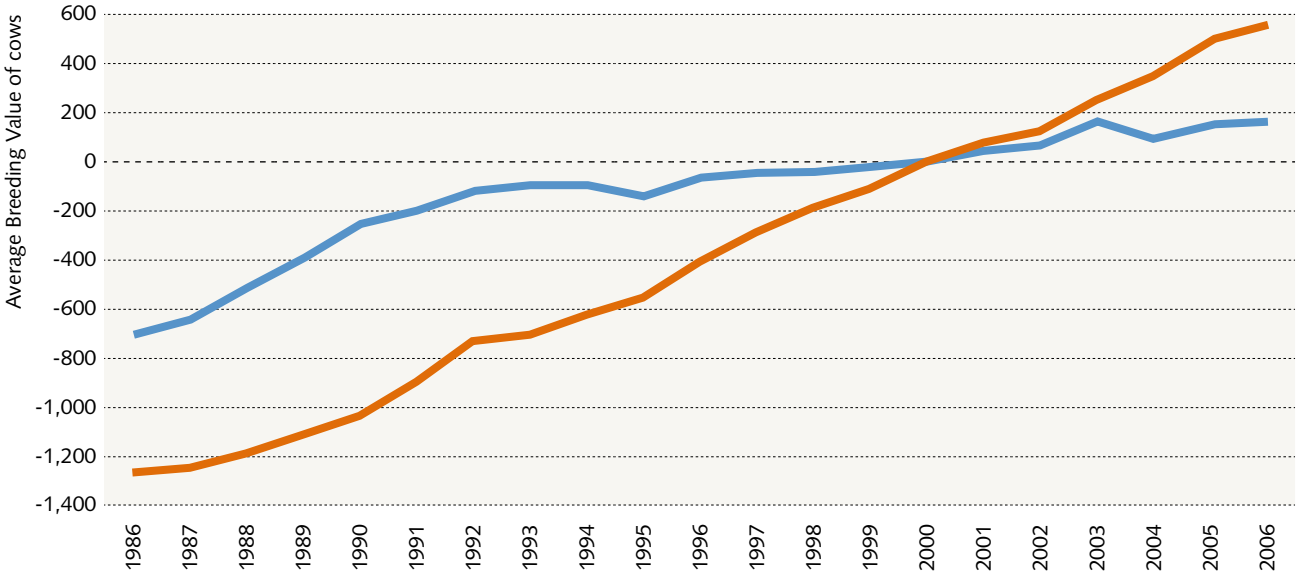


Fig. 3.2

Average Breeding Value of cows for PD07 and Milk, by birth year – Genetic Trends

Milk

PD07

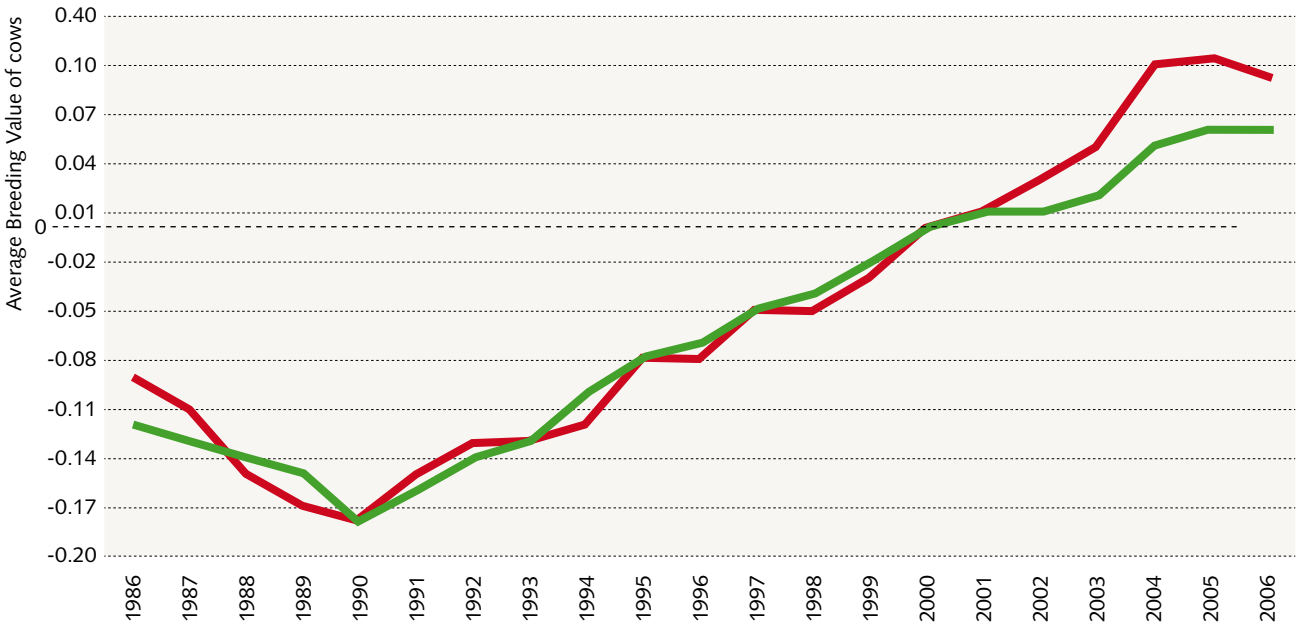


Fig. 3.3

Average Breeding Value of cows for Fat and Protein percentages, by birth year – Genetic Trends

Fat %

Protein %

Fertility Statistics

Information on insemination and pregnancy checks enable a thorough analysis of fertility performance at national and herd level. Reports are issued to farmers and are the basis for practical decisions regarding fertility management.
Data is presented as average results by parity categories.

➤ ⮟

Table 3.10 & Fig. 3.4

Average Conception Rate at 1st service, for Heifers, 1st Lact. cows and Adult cows (all herds), by years

Conception Rate at 1st service (%)

Year	Heifers	1st Lact. cows	Adult cows
1994	65.6	42.6	34.7
1995	65.1	44.7	36.8
1996	64.6	44.2	36.9
1997	62.7	43.9	35.7
1998	59.6	40.4	33.2
1999	63.3	43.1	36.7
2000	63.2	44.5	37.4
2001	63.9	44.0	37.1
2002	63.8	43.0	36.1
2003	64.6	43.0	36.4
2004	65.9	43.0	35.6
2005	64.2	40.7	32.6
2006	64.3	41.2	33.3
2007	64.3	40.9	33.0
2008	63.1	40.7	30.5