

The "Summer to Winter performance ratio" as a tool for evaluating heat stress relief efficiency of dairy herds

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Israeli “Herdbook” data 2006

- **60,000 milking cows**
- **Israeli - Holstein breed**
- **Average 305 d production :**
 - **Milk (x3 herds) - 11,700 kg (25,700 Lib)**
 - **Fat (%) - 3.60**
 - **Protein (%) - 3.20**
 - **SCC (x10³) - 200**

Introduction

- **Summer conditions in Israel make heat stress relief from cows an important tool for efficient milk production.**
- **New cooling methods have been developed in the last decade and introduced to dairy farms all over the country.**
- **A computerized report, based on the "Israeli Herd book" data and operated by extension agents, evaluates annually, the summer to winter performance ratio of every farm.**
- **Through this report, one can evaluate the effectiveness of each farm, in reducing the negative impact of summer on his cows.**

The “Summer to Winter (S:W) performance ratio” report

- An “Excel” program.
- Based on the “Israeli Dairy Herdbook” data.
- Compares cows performance in Summer (Jul-Sep) to Winter (Jan- Mar).
- Evaluates milk production, milk components, milk quality and reproduction traits.
- Analyzes each dairy farm annually.
- Compares each farm to its average “relative regional group”.
- Compares each farm’s results to the previous 4 years.

The parameters included in the report

- **Milk - (ECM - Economical Corrected Milk, kg/cow/d)**
- **Fat (%)**
- **Protein (%)**
- **Somatic Cells Count (SCC, $\times 10^3$)**
- **Conception Rate - CR (%)**

Distribution of Summer to Winter ECM* ratio in Israeli farms in 2005

S:W ECM* ratio	Farms (%)
> 0.96	40%
0.90 – 0.96	38%
< 0.90	22%

* ECM = Economical Corrected Milk

Summer to Winter (S:W) performance ratio in Cooperative and Family farms in 2005

	Cooperative	Family
No. of Farms	191	495
S:W ratio for:		
ECM (kg/cow/d)	0.93	0.93
Fat (%)	0.95	0.94
Protein (%)	0.96	0.96
SCC (X10³)	1.05	1.20
CR (%)	0.51	0.40

Summer to Winter ratio ECM in Cooperative and Family farms in 2005

	<u>Cooperative</u>		<u>Family</u>	
<u>S :W Ratio</u>	<u>Farms</u>	<u>%</u>	<u>Farms</u>	<u>%</u>
> 1.00	27	15%	66	13%
0.96 – 1.00	49	27%	128	25%
0.90 – 0.95	78	42%	185	37%
< 0.90	30	16%	127	25%

Effect of production level on Summer to Winter ratios of ECM and CR in 2005

Production level	High (25%)	Medium (50%)	Low (25%)
Average winter ECM production (kg/cow/d)	35.2	33.1	30.2
ECM ratio	1.03	0.93	0.82
CR ratio	0.63	0.51	0.38

The “Orion farm ” S:W 2006 report

Farm name	Orion farm	
Geographic zone	Coast	Coast
Farm type	Family	Family
Summer (ECM kg/d)	37.3	33.0 (2.4)
Summer : Winter (ECM, kg/cow/d)	1.02	0.92 (0.04)
Summer : Winter Fat %	0.96	0.96 (0.04)
Summer : Winter Protein %	0.96	0.97 (0.02)
Summer : Winter SCC	1.43	1.15 (0.62)
Summer CR (%)	0.31	0.16 (0.08)
Summer : Winter CR	0.97	0.43
Relative regional farms	-	137

Trends in Summer to Winter ECM ratio in Cooperative and Family farms

1994 - 2004

<u>Year</u>	<u>Cooperative</u>			<u>Family</u>		
	<u>W</u>	<u>S</u>	<u>S:W</u>	<u>W</u>	<u>S</u>	<u>S:W</u>
1994	37.7	31.0	0.82	32.2	27.7	0.86
2004	39.8	36.5	0.92	36.0	32.3	0.90

Trends in Summer to Winter ratio of Conception Rate (%), in Cooperative and Family farms

1994 - 2004

<u>Year</u>	<u>Cooperative</u>			<u>Family</u>		
	<u>W</u>	<u>S</u>	<u>S:W</u>	<u>W</u>	<u>S</u>	<u>S:W</u>
1994	42%	18%	0.43	45%	18%	0.40
2004	42%	28%	0.67	41%	21%	0.51

Conclusions

The S:W performance ratio report:

- Enables the detection of those farms needing improvement of their summer management.**
- Allows the provision of necessary consultancy and follow up by extension agents.**
- Provides tools for evaluation of the results obtained from the measures taken.**

**Thanks for your
attention**