24h yield calculation in Polish recorded herds according to milk recording methods

ICAR 2019 Prague
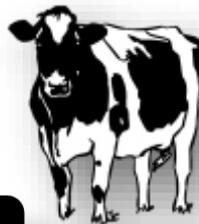
Danuta Radzio

The dairy sector in Poland – FIGURES IN TOTAL
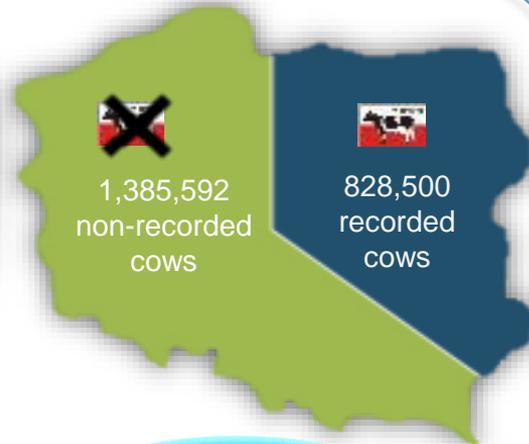
243,559 farms

2,214,092 dairy cows

9.1 cows / farm

1,385,592 non-recorded cows

828,500 recorded cows

1-9 cows/herd
71% farms
17% cows

10-49 cows/herd
27% farms
61% cows

+ 50 cows/herd
2% farms
22% cows

The milk recording – FIGURES IN AVERAGE

828,500 recorded cows
(mostly HO+RW = 89%)
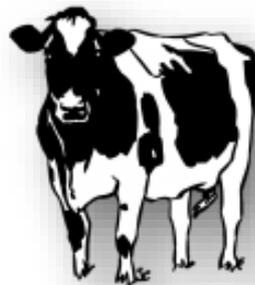
20,000
farms

**37% MR cows
produce
57% of milk**

Performance

8,298 kg of
milk

334 kg
of fat

281 kg
of protein

4.03 %

3.39 %

Herd size in recorded population

828,500 recorded cows

20,000 farms
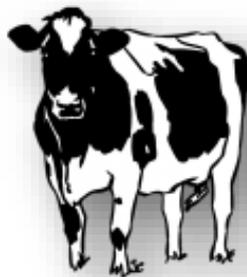
40 cows/farm

1-9 cows/herd

4 % herds
0,7 % cows

10-49 cows/herd

76 % herds
50 % cows

+ 50 cows/herd

20% herds
49 % cows

Polish Federation of Cattle Breeders and Dairy Farmers

Milk recording methods distribution (cows) 2019

20,000 farms

828,500 recorded cows

Milk recording methods

2,3 2,2 0,3 0,5

19,6

75,1

- A4
- AT4
- A8
- AR4
- AR8
- AZ4
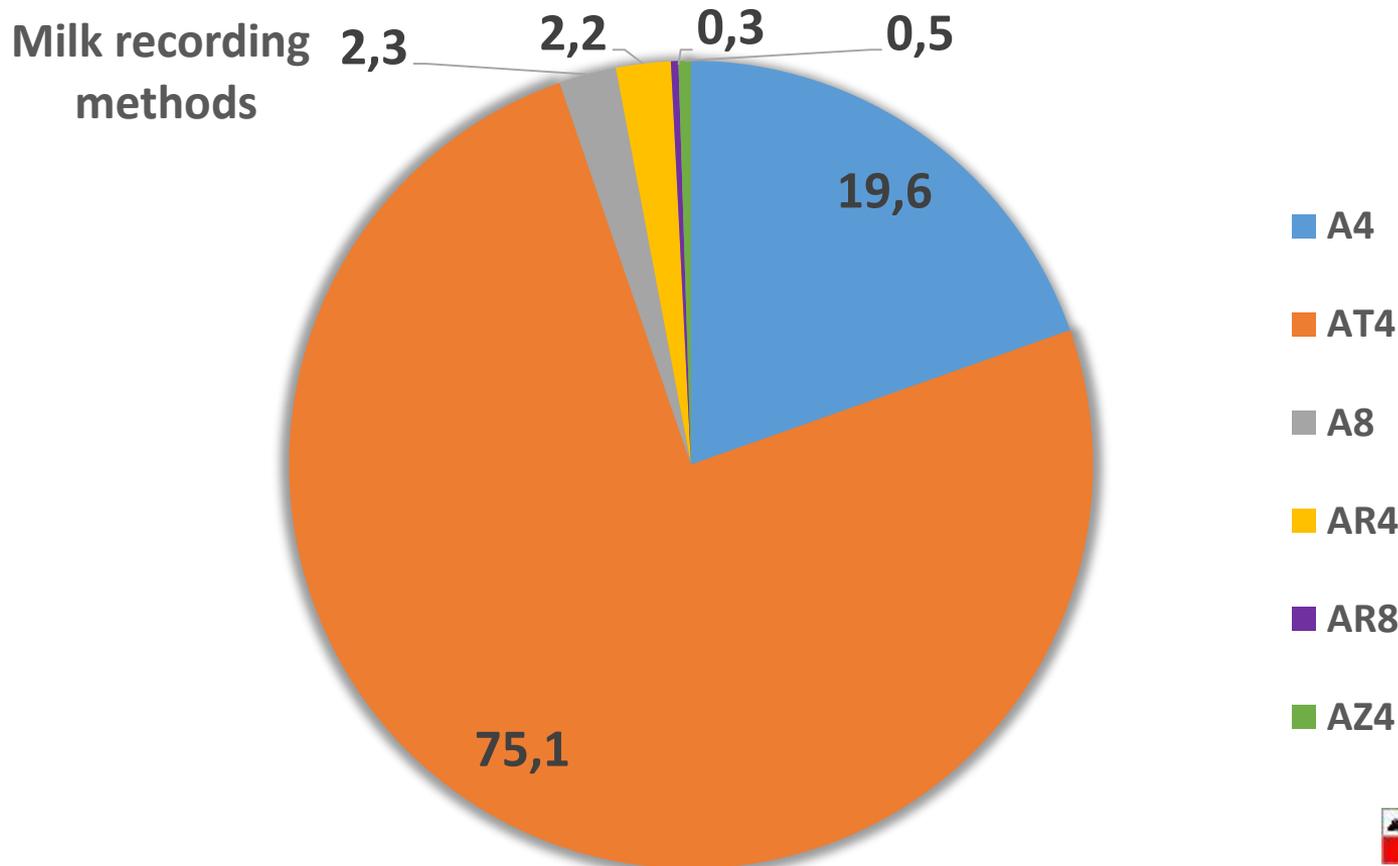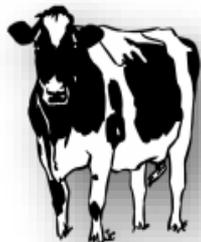
Milk recording methods distribution (cows) 2009

18,345 farms

582,067 recorded cows

Milk recording methods

7,94

29,14

63,92

- A4
- AT4
- A8
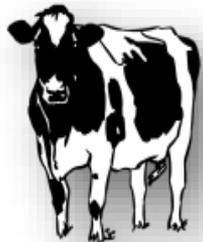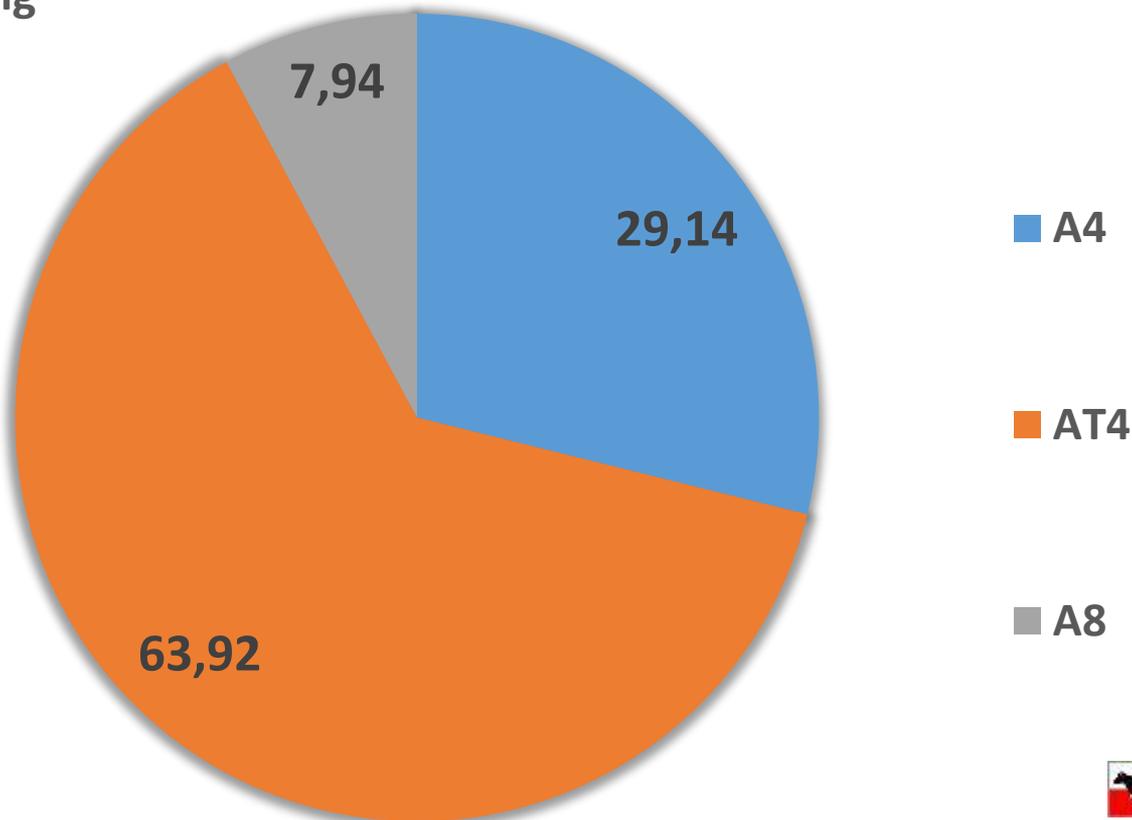
Milk recording methods (herds %) 2019

Legend:
- AT4
- A4
- A8
- AR4
- AR8
- AZ4

Values: 2,92 · 0,95 · 0,07 · 0,03 · 10,59 · 85,44
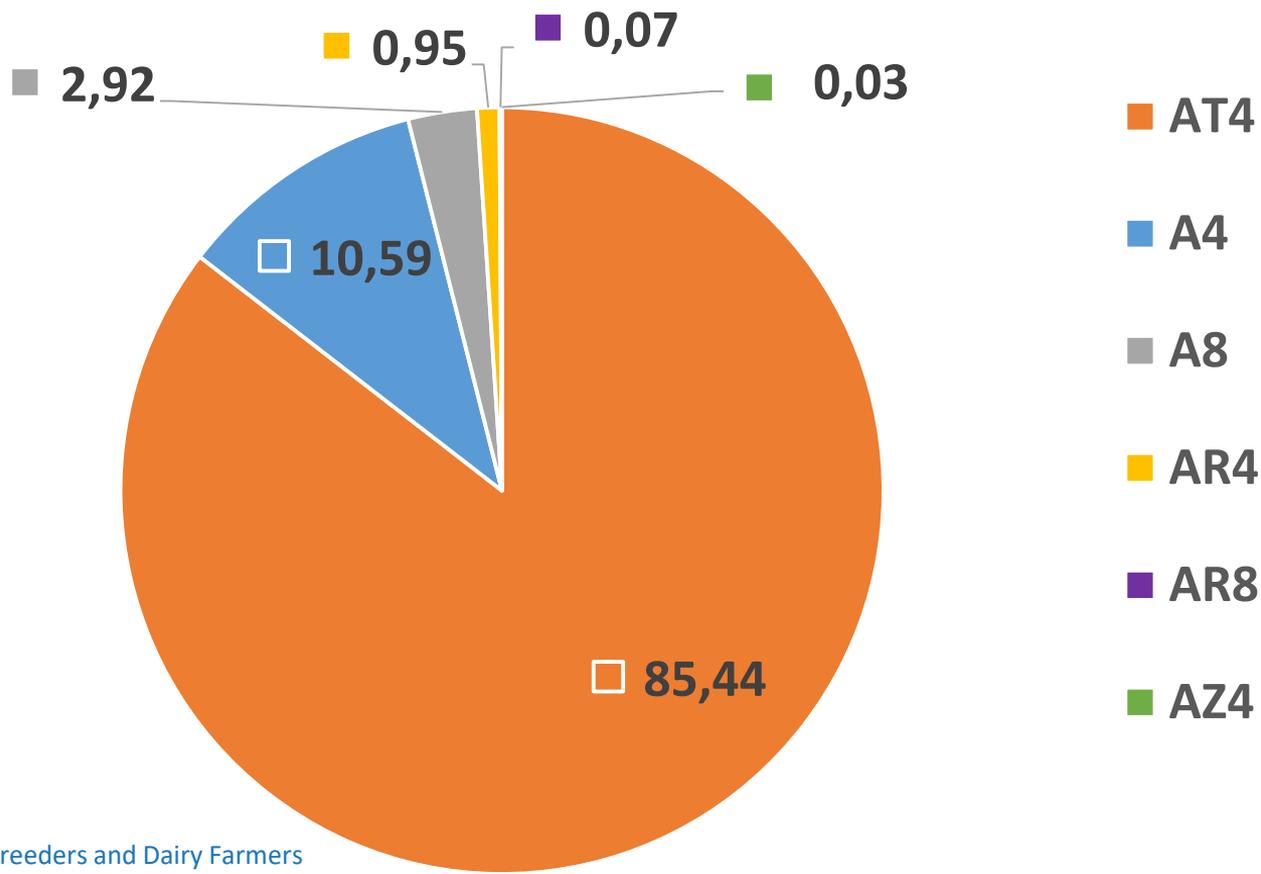
24h calculation – A4 / A8

➢ Milk yield recorded from each milking on the test day (2 or 3)

✓ 24h milk kg = a simple sum from all milkings

➢ Samples taken in equal amount form each milking to one vial = one analysis.

✓ 24h milk components yields = % * 24h milk yield

24h calculation – AT4

➤ One milk yield recorded alternately (AM/PM)

✓ 24h milk kg = calculated using Delorenzo&Wiggans original factors.

➤ One sample taken alternately from the same milking

✓ 24h fat % and fat yield calculated using Delorenzo&Wiggans original factors.   Protein % accepted as analysed.

Milking interval = always milking beginning for the whole herd.

24h calculation – AZ4

➢ Milk yield electronically captured from each milking within 24h prior to sampling (including sampling milking).

✓ 24h milk kg = a simple sum from all milkings form the last 24h

➢ One sample taken alternately (AM/PM)

✓ 24h fat % and fat yield calculated using Delorenzo&Wiggans original factors.   Protein % accepted as analysed.

Milking interval = exact milking time for each cow individually

24h calculation – AR4 / AR8

➢ Milk yield electronically captured for each cow from the last ~ 72h prior to sampling (including sampling milking).

✓ 24h milk kg = calculation of exact production within 48h and then for 24h

Example:

	date	milking time	interval	Mkg	Σ time	Σ Mkg	
1	20190305	02:30	495	10.5	495	10.5	sampling
2	20190304	18:15	400	15.3	895	25.8	
3	20190304	11:35	762	18.9	1657	44.7	
4	20190303	22:53	545	15.1	2202	59.8	
5	20190303	13:48	877	19.2	3079	79.0	48 h
6	20190302	23:11	557	14.6	3694	96.1	

48 h = 2880 Min.

Time missing to full 48 h:
(2880 − 2202 = 678 Min.).

$\Rightarrow$ **19,2 Mkg / 877 Min.   x 678 Min. = 14,8 Mkg**

$\Rightarrow$ **(10,5 kg + 15,3 kg + 18,9 kg + 15,1 kg + 14,8 kg) / 48 h *24 h**

$\Rightarrow$ **= 37,3 Mkg produced exactly during the last 24 h**

24h calculation – AR4 / AR8

➢ One sample taken during sampling period (12-16h)

  – condition 1 sample per a cow!

✓ 24h fat % and yield calculated using Peeters and Galesloot, 2002 method; for 24-hour fat % in AM/PM milk recording scheme, renewed in 2006.

Protein % accepted as analysed.

The method was created by: R.M.G. Roelofs*, G. de Jong and A.P.W. de Roos; NRS, P.O. Box 454, 6800 AL Arnhem, The Netherlands.

Shortcomings:

➤ AT, AZ, factors + formula available in ICAR Guidelines, need updating and <u>should be calculated</u> for a specific cows' population

➤ AT – time of curent/previous milking – beggining of milking a herd

➤ Robots: formula + factors calculated for Dutch cows' population, bought directly

➤ Any attempt to update the factors demands a huge bunch of data + human resources to calculate them appropriately

THANK YOU FOR YOUR ATTENTION

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