

The breeding of a herd of cattle and climatic problems - greenhouse gas emissions

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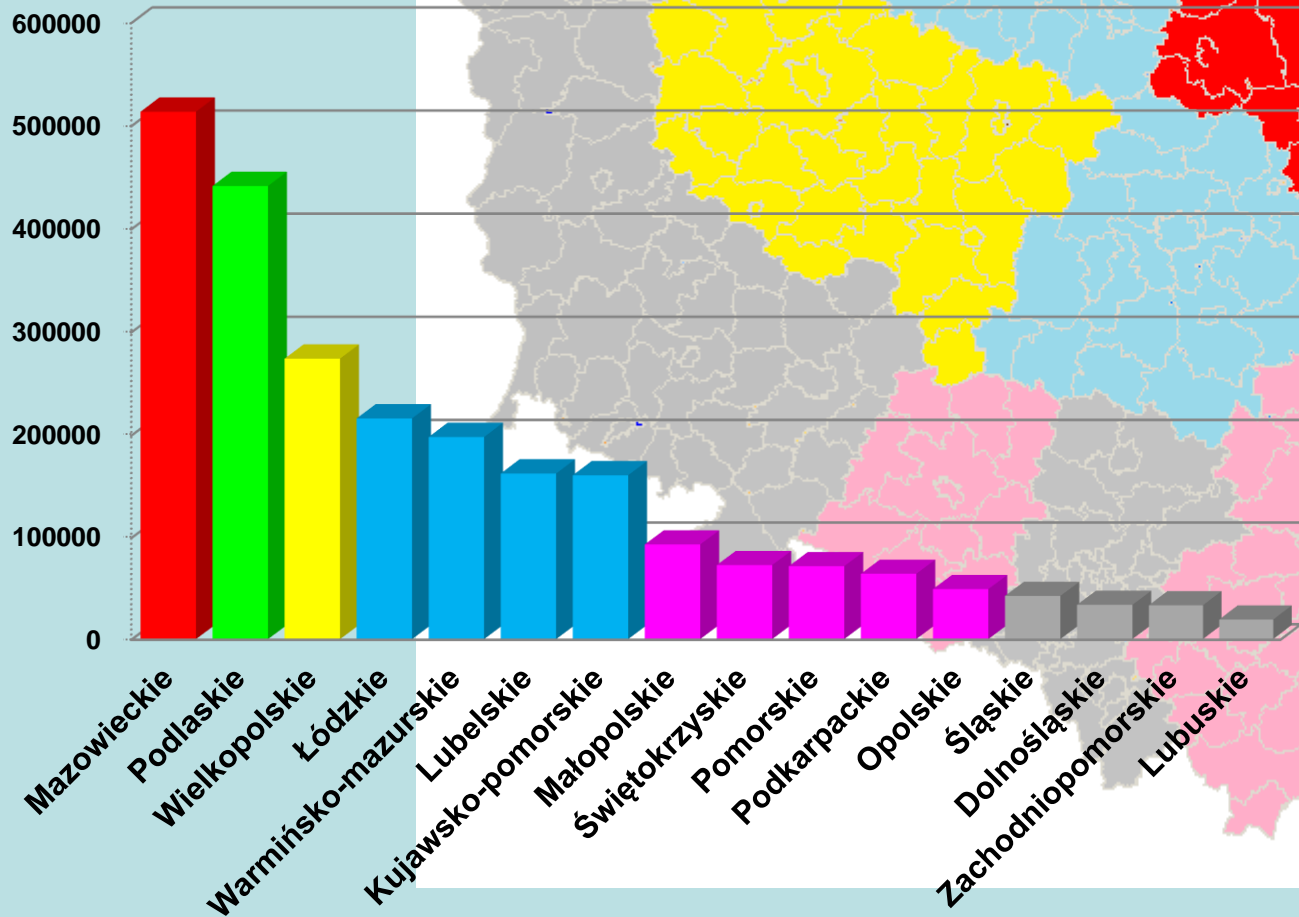
Warszawa 2015.09.01

Cattle in Poland

- **5 659 300 total**
- **1 434 200 calves younger than 1**
- **1 421 900 young cattle 1-2 years**
- **2 803 200 over 2 years**
- **2 411 700 cows**

(As at December 31, 2014)

Cows in Poland



Number of recorded cows in Poland 2014

- **739 638 cows**
- **20 704 herds**
- **32,9% cows – total**
- **35,4 cows / herds**

(As at December 31, 2014)

Breeds in Poland

HO Polish Holstein-Friesian

RW Polish Holstein-Friesian Red

SM Simmental

RP Polish Red

JE Jersey

BG Black & White

MO Montbeliarde

ZB Polish Black & White

ZR Polish Red & White



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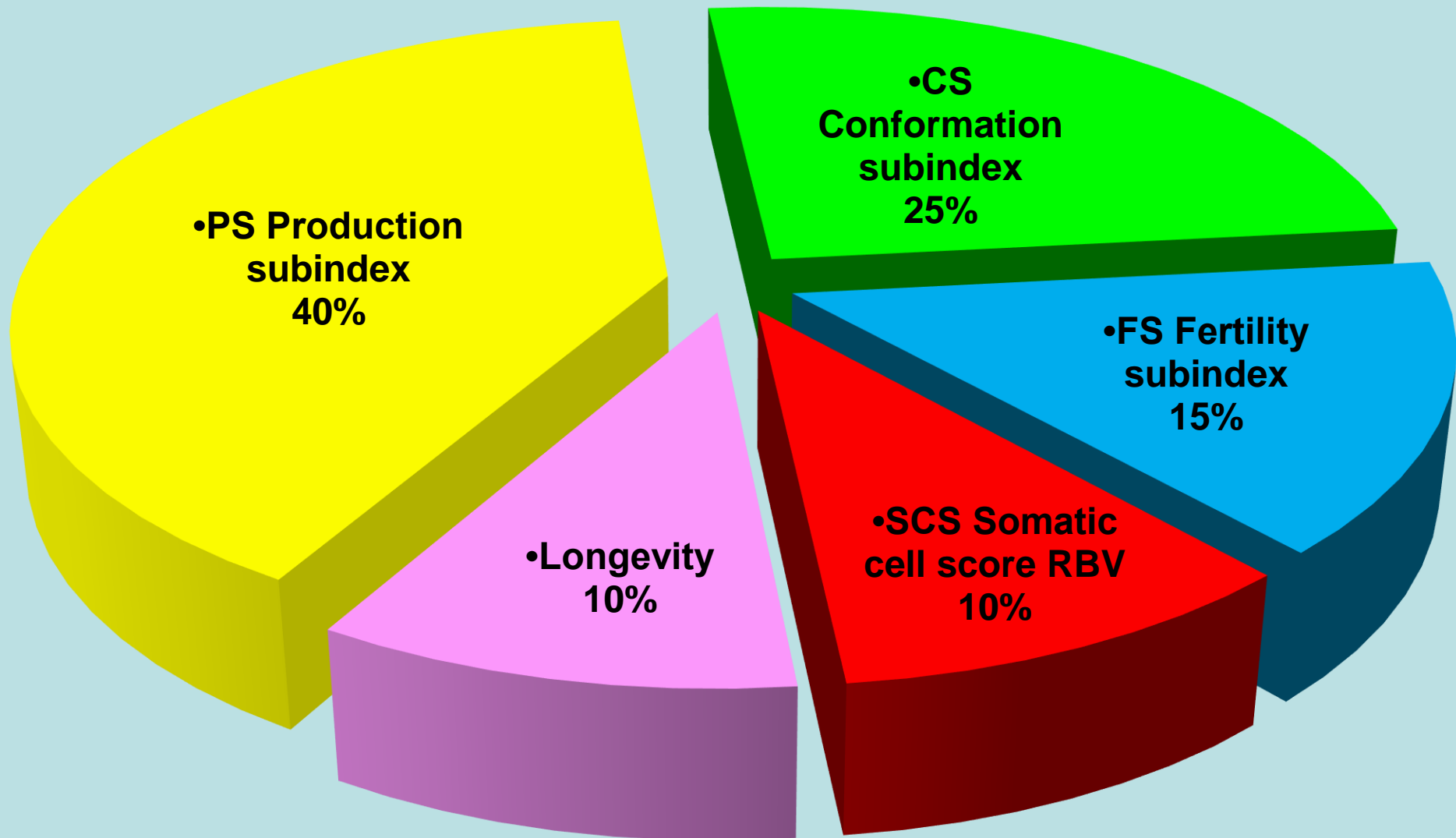
The directions of breeding

- **Increasing productive life**
 - ✓ Improving reproductive indicators
 - ✓ Improving health
- **Lowering of the costs**
 - ✓ Reduction of treatment costs
 - ✓ Improving cattle immune system
 - ✓ Feet and leg diseases

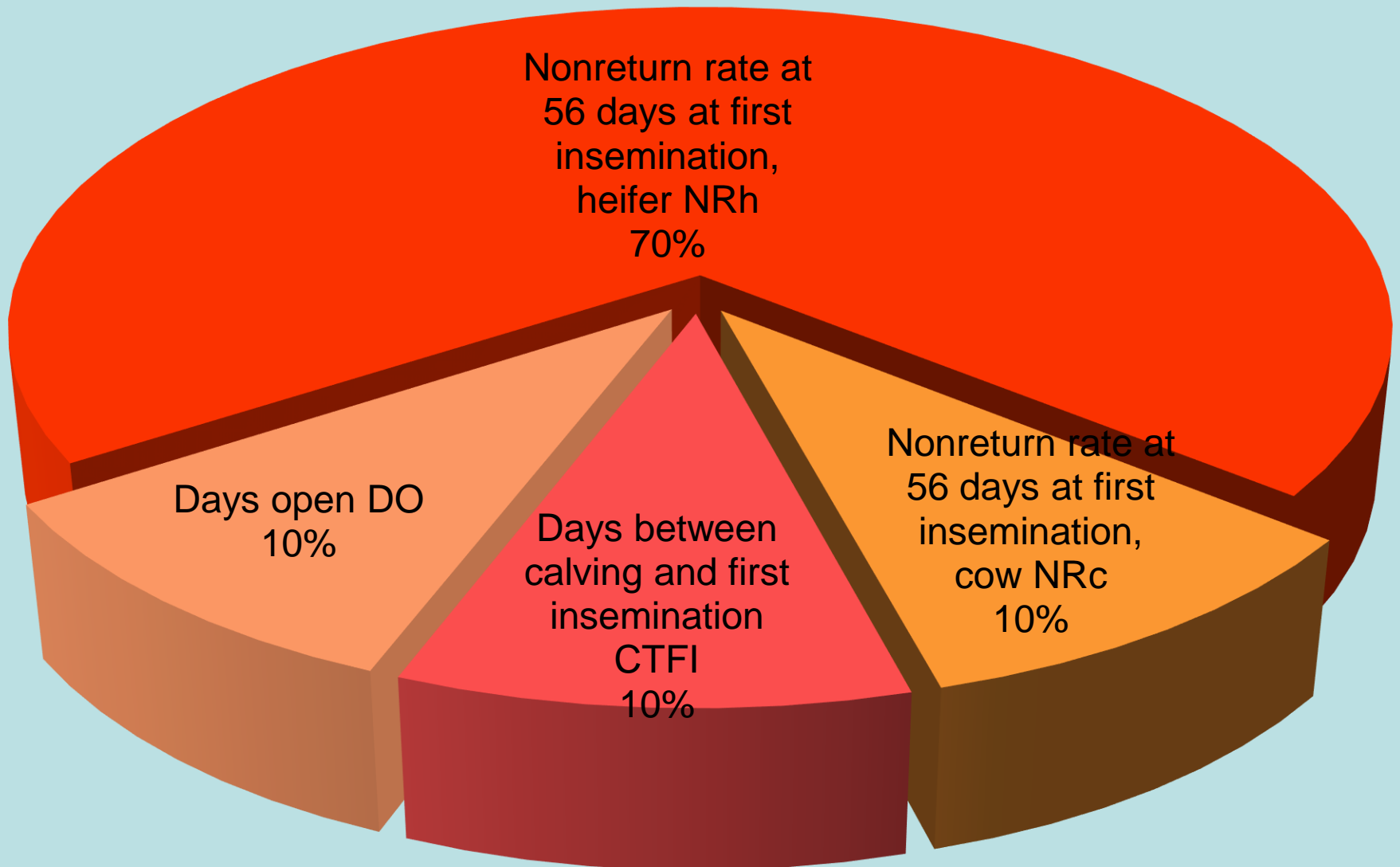
PF index

- The PF index (Production and Functional traits) is defined according to the following formula:
- $PF\ index = (0.4 * PS) + (0.25 * CS) + (0.15 * FS) + (0.10 * SCS) + (0.10 * Long)$
- PS Production subindex
- CS Conformation subindex
- FS Fertility subindex
- SCS Somatic cell score RBV
- Longevity
- All breeding values and indexes are standardized with mean 100 and standard deviation 10.

PF index



FS Fertility subindex



Poland lifetime production cow had left in 2014

| | cows no. | producti on length | lifespan | kg milk | kg fat | fat % | kg protein | protein % |
|-------|----------|-----------------------|----------|---------|--------|-------|---------------|--------------|
| HO | 181 384 | 3,16 | 5,78 | 23 399 | 967 | 4,13 | 782 | 3,34 |
| RW | 6 310 | 2,99 | 5,70 | 20 296 | 849 | 4,18 | 683 | 3,37 |
| SM | 2 791 | 3,31 | 6,08 | 18 688 | 773 | 4,14 | 642 | 3,44 |
| RE | 428 | 5,27 | 8,57 | 18 917 | 800 | 4,23 | 636 | 3,36 |
| JE | 339 | 3,20 | 5,88 | 17 768 | 929 | 5,23 | 681 | 3,83 |
| MO | 644 | 2,99 | 5,52 | 21 526 | 859 | 3,99 | 751 | 3,49 |
| BG | 65 | 4,00 | 7,39 | 17 651 | 711 | 4,03 | 581 | 3,29 |
| ZR | 509 | 5,27 | 9,22 | 24 335 | 991 | 4,07 | 787 | 3,23 |
| ZB | 415 | 5,25 | 9,15 | 24 692 | 1 019 | 4,13 | 807 | 3,27 |
| BS | 44 | 2,72 | 5,27 | 17 813 | 798 | 4,48 | 642 | 3,60 |
| SRB | 63 | 3,92 | 6,18 | 28 866 | 1 270 | 4,40 | 1 026 | 3,55 |
| NRF | 22 | 2,56 | 4,70 | 17 746 | 762 | 4,29 | 621 | 3,50 |
| cros | 11 764 | 2,34 | 5,06 | 15 114 | 643 | 4,25 | 515 | 3,41 |
| other | 220 | 0,90 | 4,13 | 5 147 | 216 | 4,20 | 179 | 3,48 |
| razem | 204 998 | 3,12 | 5,76 | 22 722 | 941 | 4,14 | 761 | 3,35 |

GILLETTE E SMURF



Han Hopman

HOCANF6567959

GILLETTE E SMURF ur 13-09-96

| lp | calvings | DD | Milk kg | Fat kg | %F | Prot kg | %P |
|----|--------------|------|---------|--------|-----|---------|-----|
| 1 | 08-sty-99 | 322 | 12 222 | 434 | 3.5 | 405 | 3.3 |
| 2 | 24-sty-00 | 303 | 15 043 | 500 | 3.3 | 482 | 3.2 |
| 3 | 21-sty-01 | 313 | 19 138 | 703 | 3.7 | 611 | 3.2 |
| 4 | 25-sty-02 | 328 | 20 676 | 673 | 3.2 | 689 | 3.3 |
| 5 | 07-lut-03 | 334 | 21 871 | 704 | 3.2 | 651 | 3.0 |
| 6 | 29-lut-04 | 512 | 28 974 | 1041 | 3.6 | 895 | 3.1 |
| 7 | 27-wrz-05 | 673 | 31 517 | 1115 | 3.5 | 1014 | 3.2 |
| 8 | 07-paź-07 | 481 | 26 327 | 1008 | 3.8 | 806 | 3.1 |
| 9 | 27-mar-09 | 562 | 31 493 | 1156 | 3.7 | 955 | 3.0 |
| 10 | 01-cze-11 | 261 | 9 959 | 355 | 3.6 | 320 | 3.2 |
| 11 | 12-maj-12 | 850 | 30 491 | 1188 | 3.9 | 934 | 3.1 |
| | 50,15 | 4939 | 247 711 | 8 877 | | 7 762 | |

POLAND

Cost of raising a cow 1200 € - two years

- 5,76 life span
- 3,12 productive life
- 2,64 raising a heifer
- 22 722 kg average milk production
- 0,05 \$ cost of raising a cow per produced liter of milk
- 11 liters per day

GILLETTE E SMURF

Cost of raising 1200 € - two years

- 18,00 life span
- 15,70 productive life
- 2,30 raising heifer
- 247 711 kg average milk production
- 0,005 \$ cost of raising a cow per produced liter of milk
- 37,7 liters per day

Semex „Immunity+”

- Professor Bonnie A. Mallard (PhD)

Department of Pathobiology Ontario Veterinary
College University of Guelph

1. Red ... out 8%
2. Arou
3. 25%

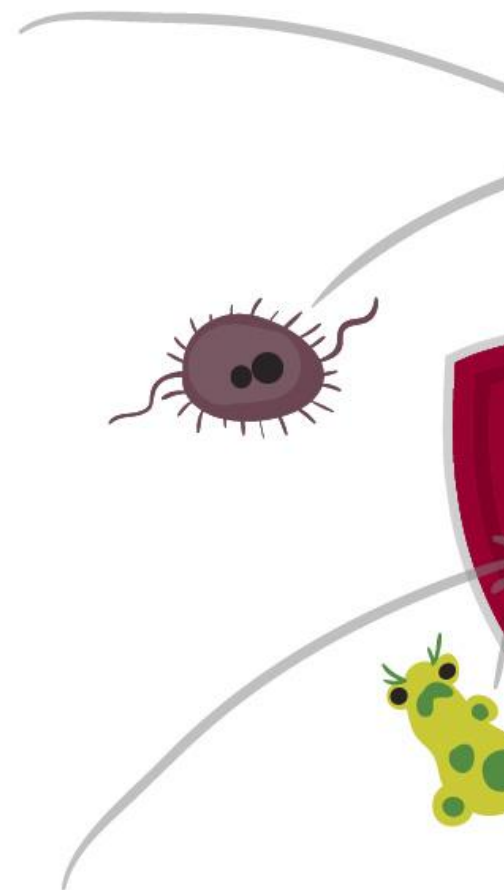




Immunity+™

Disease Resistant Genetics

- **27% less Mastitis**
- **38% less Metritis**
- **12% less Retained Placenta**
- **15% less Ketosis (indirect effect)**
700 cows in 3,000 Cow Dairy in Florida
- **Paratuberkulozy - choroba Joh**



Reasons for culling in Denmark

| Reason | % |
|---|------|
| 1. High Somatic Cell Count and mastitis | 20,2 |
| 2. Low production | 16,7 |
| 3. Reproduction problems | 16,4 |
| 4. Problem with feet and legs | 11,3 |

Correlation between NTM and single traits

| | |
|-----------------------|-------------|
| Longevity | 0.68 |
| Yield | 0.62 |
| Udder health | 0.48 |
| Other diseases | 0.46 |
| Fertility | 0.42 |
| Birth index | 0.34 |
| Claw health | 0.34 |
| Calving index | 0.25 |
| Feet and legs | 0.23 |
| Mammary system | 0.19 |
| Growth | 0.12 |
| Milk ability | 0.04 |
| Temperament | 0.03 |



Thank you for your attention!