Session 34

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Reproductive performances of Charolais cows: analysis of 18590 carriers from 124 farms on a 37-year period.

A french network of Charolais farms was established by Inra in the 70's to study the evolution of their technico-économic results on a long period. We built a database of 18 590 cows with at least 3 calvings. Our objective was to analyze the variability of their reproductive performances, by combining multivariate analyses and clustering. Eight variables were included in the analyses: number of calvings (NbC), age at 1rst calving (AgC1), calving-to-calving interval (CCI), variability of CCI (CCstd), interval between 1rst and 2nd calving (C1C2), the shorter CCI (CCmin), the longer CCI (Ccmax), the average difference between 2 successive calvings (CCsucc).

The first analysis allowed to distinguish 2 groups. Cows (n=3784) from one group (G1) have lower performances and a shorter carrier than cows (n=14806) from the other group (G2). The two groups differ for all the variables ($P<0.001$), respectively for G1 and G2: AgC1 =1036 and 1058 d, CCI=411 and 374 d, CCstd=47 and 20, C1C2=440 and 386 d, CCmin =359 and 345, CCmax=489 and 410 d, CCsucc=-22 and -5. Then the same analysis was performed separately for the two groups. Respectively 4 and 7 sub-groups were obtained for G1 and G2.

Within G1, the sub-groups differ in the number of calvings: 3, 3.1, 4.8 and 6.1. For the two first ones, the difference is in the variability of the CCI (std = respectively 52 and 17 d, i.e. 2 long intervals for the latter cows). The 308 cows who had 4.8 calvings on average had the worst performances (CCI=476 d, CCstd=116 d, CCmax=677 d). They also had the soonest first calving (1018 d). The cows who had 6.1 calvings had both short and long calving intervals during their carrier (337 and 501 respectively for CCmin and CCmax).

Within G2, there is one group consisting of 837 2-year-first-calving cows, having the lowest C1C2 interval (376 d) and almost the lowest CCI (369 d). All the other groupes are made of 3-year calving cows. One sub-group is made of cows with short carriers (3 calvings) and another is made of cows with long carriers (8.7 calvings). The two groups with the highest CCI (380 and 388 d) have also the highest C1C2 interval (respectively 397 and 393 d). Cows in those two groups have more variable CCI, from respectively 311 to 423 and 338 to 438 d (std=30 d vs 13 to 19 in the other 5 groups).

The work follow-up consists of connecting these results with the regions, the livestock systems and the birth year of cows for each group.