

Differential somatic cell count as a potential new supplementary tool for selective dry cow therapy

Shortened title: DSCC FOR SELECTIVE DRY COW THERAPY

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Summary

This Research Paper investigates the potential of the new differential somatic cell count (DSCC) parameter in combination with SCC in connection with selective dry cow therapy (SDCT). Selective dry cow therapy has become an important tool for reducing the use of antimicrobials on dairy farms in many countries as a result of concerns about the increasing threat of antimicrobial resistance in human and veterinary medicine. Recently, DSCC representing the proportion of polymorphonuclear neutrophils and lymphocytes, has been introduced as an additional parameter indicating the presence of intramammary infection (IMI). We used the last dairy herd improvement (DHI) samples taken within 42 d prior to dry-off as well as handstripped samples collected within 5 days prior to dry-off to measure DSCC and SCC. The bacteriological status on cow level was determined using quarter foremilk samples. In total, results were available for 310 cows of which 64 and 149 were infected with major and minor pathogens, respectively, and 97 were uninfected. The area under receiver-operating characteristics curves (AUC) were calculated to compare the diagnostic abilities of the different parameters. The AUC was slightly but not significantly higher for detection of IMI by major pathogens when using the combination of DSCC and SCC (0.64) compared to SCC alone (0.62). Specifically, the sensitivity was slightly higher but the specificity slightly lower using DSCC and SCC. Diagnostic performance of DSCC and SCC was similar for DHI and handstripped samples. In conclusion, this is the first study describing the application of DSCC in connection with SDCT and the combination of DSCC and SCC may represent a practical and convenient tool for further optimizing SDCT (e.g. identification of more major pathogen infected cows at dry-off). More work is required to further optimize the approach by including more data (e.g. from previous test days) in the decision-making process.