

Supplementary materials

Figure S1. Negative linear relationship between the prevalence of *C. psittaci* shedders and the mean Cq values accounting for the *C. psittaci* shedding (Spearman's rho = -0.636, $P < 0.001$). The higher levels of *C. psittaci* shedding (lower Cq values) occurred at the peak of shedder prevalence.

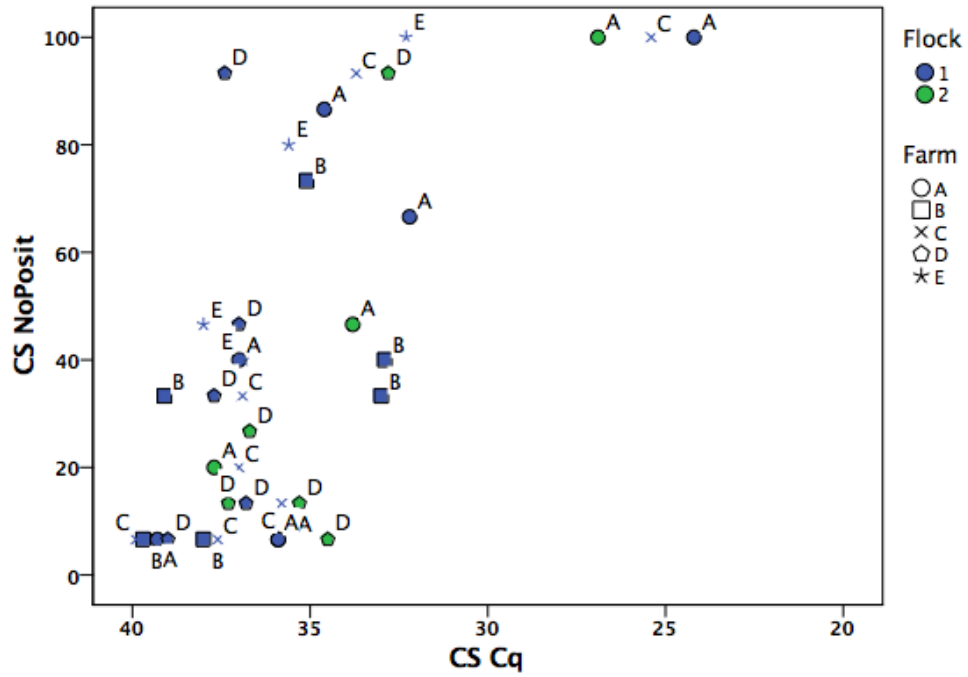


Figure S2. Alignment of nucleotide (A) and protein (B) vp2 fragment sequences obtained from the different duck flocks in comparison with the ORF 2 sequence of Chp1 (Accession number NC_001741).

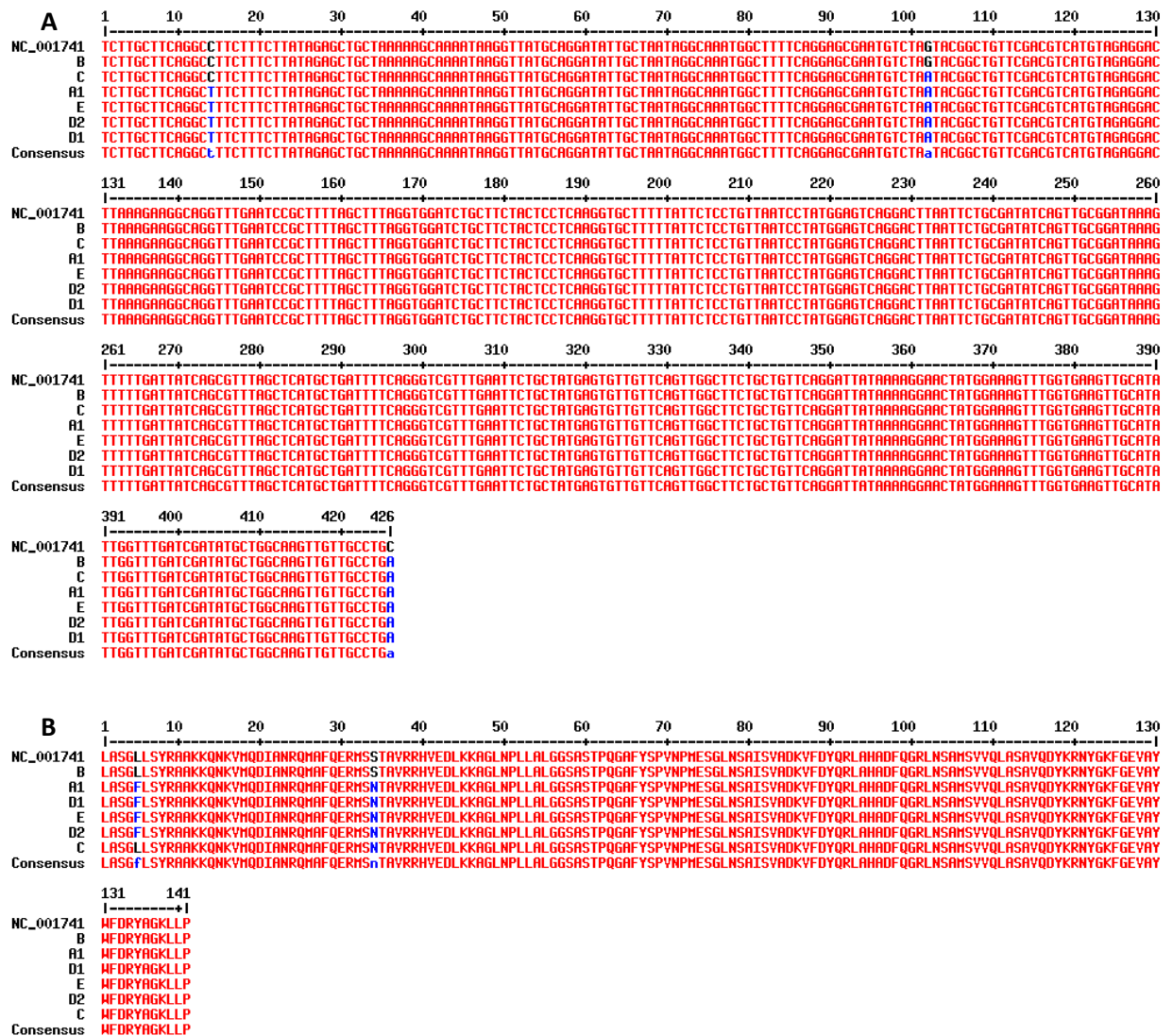


Figure S3. Relationship between levels of disinfection (0: "No use of disinfectant", 1: "Carried out once a year", 2: "One disinfection after washing", 3: "One disinfection after washing followed by one fumigation (Fumagri®, orthophenylphenol) ", 4: "Two disinfections, one after washing and one before arrival of next ducklings") by a disinfectant containing quaternary ammonium and glutaraldehyde (C/D QAG) and the prevalence of *C. psittaci* shedders (CS NoPosit). The differently colored points indicate the starter and expansion buildings for each farm/flock in which the disinfection was applied in various ways. A negative correlation (Spearman's rho = -0.352, p = 0.048), significant with respect to the significance level of 0.05, was detected. Lower percentages of *C. psittaci* shedders are generally associated with high levels of disinfection applied to starter buildings.

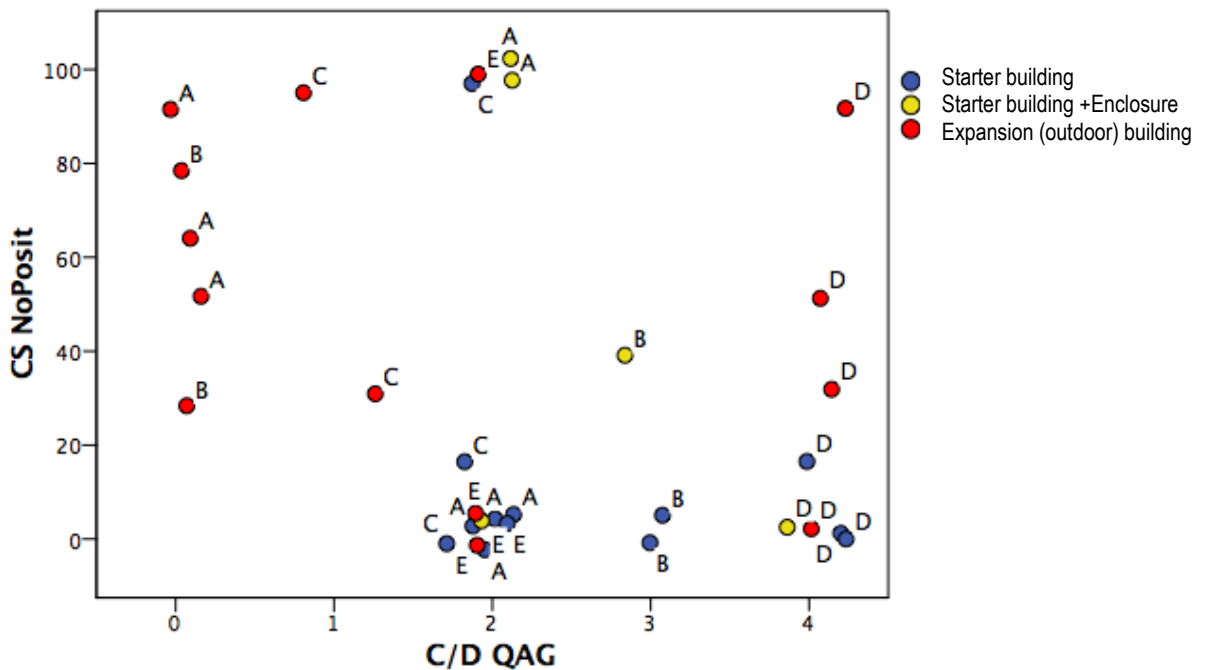


Figure S4. Relationship between the place of intervention (1: "open air", 2: "Building with wide-open doors", 3: "Closed building") and the prevalence of *C. psittaci* shedders (Spearman's rho = -0.629, $p < 0.001$). The points indicate the percentage of positive birds in different places in which the different interventions took place. The scatterplot depicts the "place-of-operation" variable (PIPer) on the horizontal (X) axis, and the "prevalence-of-shedders" variable (CS NoPosit) on the vertical (Y) axis. The prevalence was lower when the corresponding intervention was taking place in a closed building.

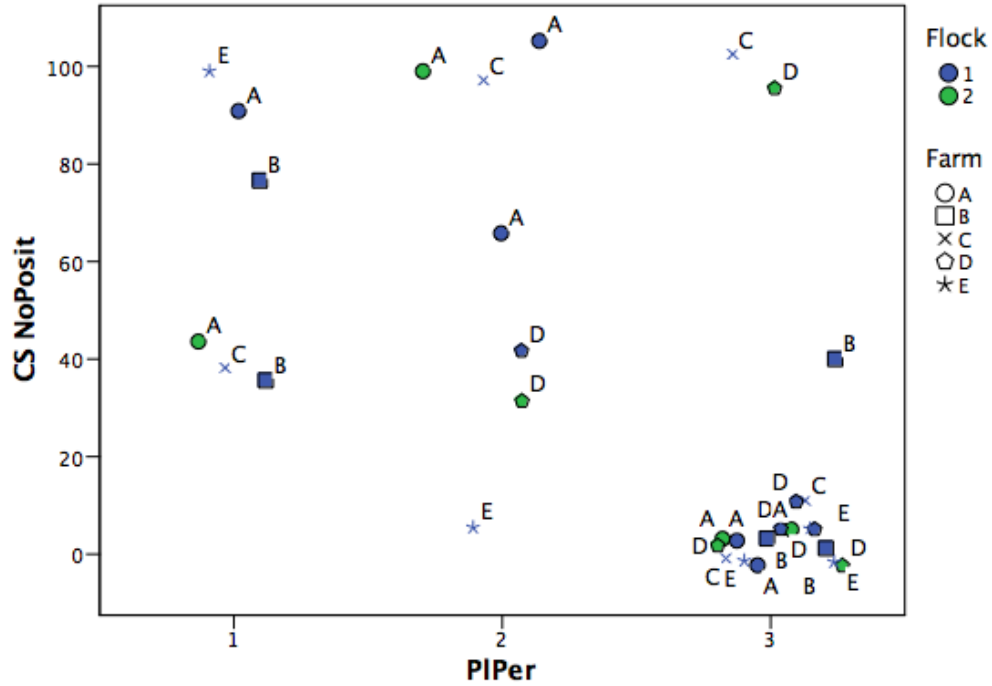


Figure S5. Relationship between the duration of interventions (1: "1 to 2 hours", 2: "1/2 day", 3: "1 day or several 1/2 days", 4: "More than one day") and Cq values of *C. psittaci* shedding (Spearman's rho = -0.498, $p = 0.035$). The points indicate the percentage of positive birds in different places in which the duration of interventions varies. The scatterplot depicts the "duration-of-operations" variable (DPer) on the horizontal (X) axis, and the "mean-Cq-value" variable (CS Cq) on the vertical (Y) axis. The load of shedding was higher (low Cq values) when the intervention lasted for one or more than one day.

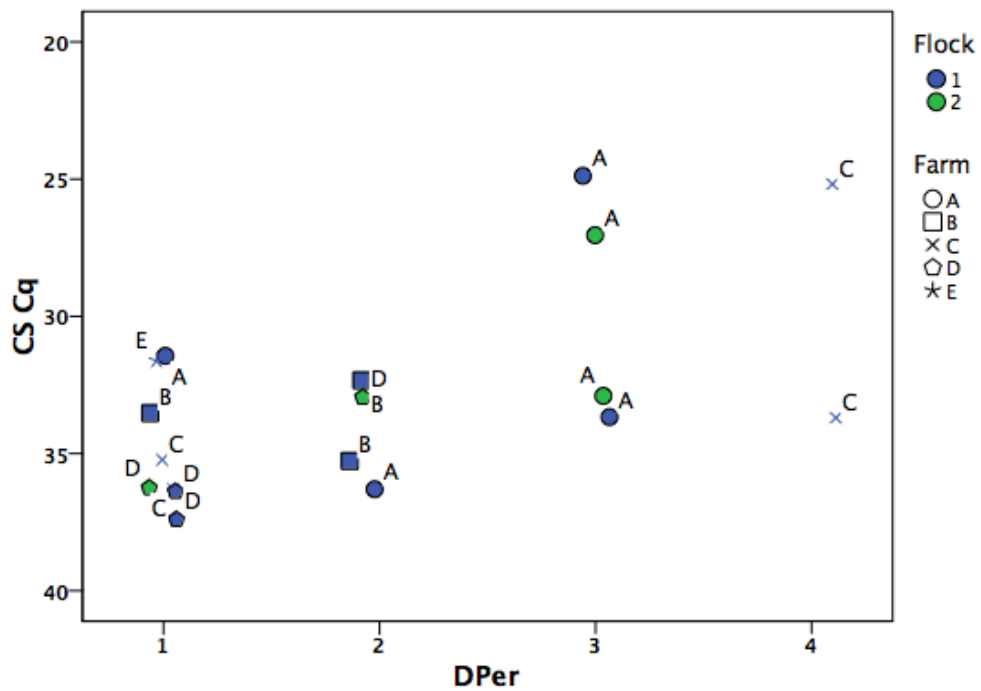
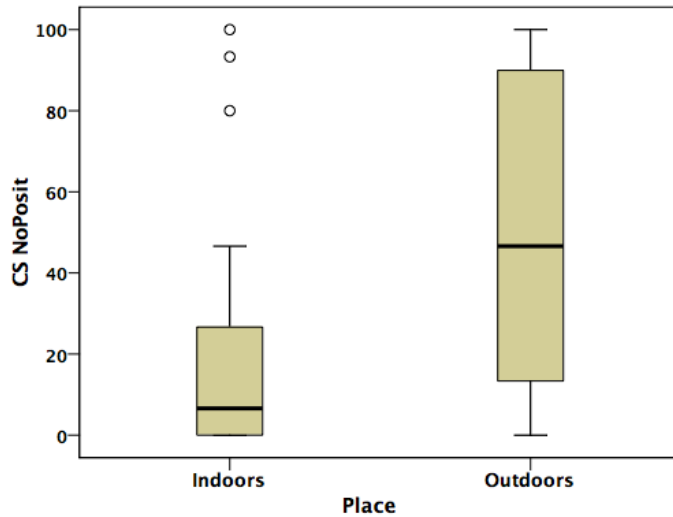
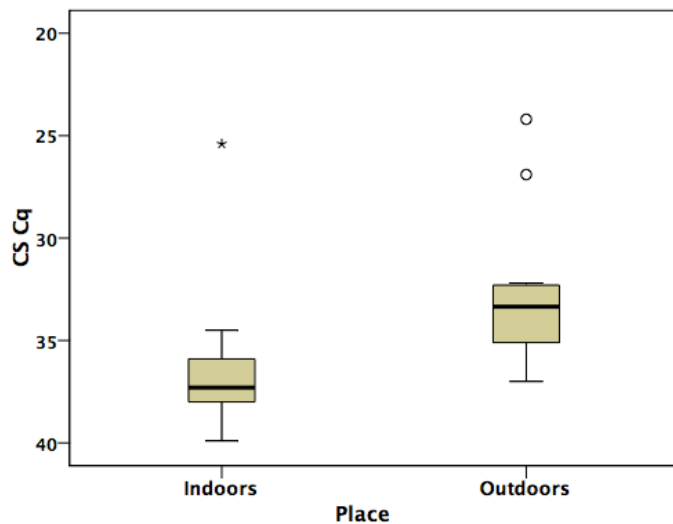


Figure S6. Prevalence and level of *C. psittaci* shedding variables, analyzed and evaluated by the Mann-Whitney test for all breeding spaces overall, showed significant difference between indoors and outdoors ($p = 0.018$ for the prevalence and $p < 0.001$ for the Cq values). The box-plots depict the “place-of-operation” variable (Place) on the horizontal (X) axis, and the “prevalence-of-shedders” variable (CS NoPosit) or the “mean-Cq-value” variable (CS Cq) on the vertical (Y) axis (A and B, respectively). Significant differences were also found between indoors, enclosures, and outdoor expansion areas concerning the level of *C. psittaci* shedding ($p < 0.001$), with the highest levels (lower Cq values) corresponding to enclosures (C).

A



B



C

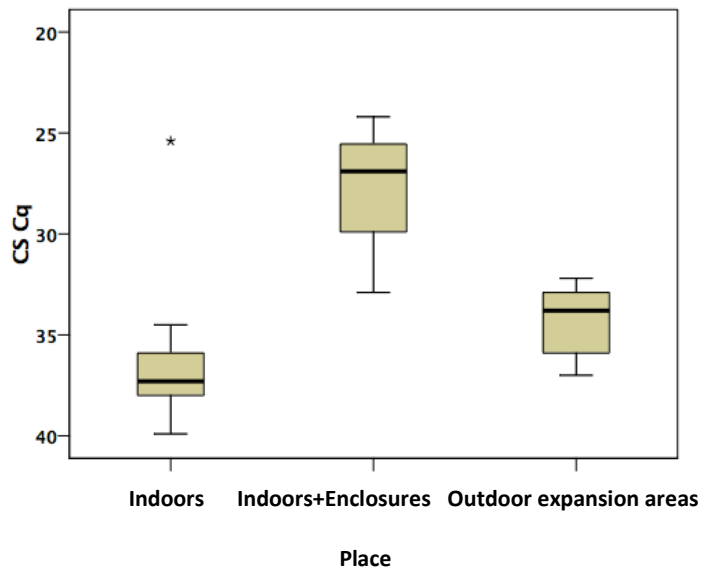


Figure S7. A significant effect of the intervention factor was found on prevalence ($p = 0.008$) and level ($p = 0.001$) of *C. psittaci* shedding. The box-plots depict the "Intervention" variable on the horizontal (X) axis, and the "prevalence-of-shedders" variable (CS NoPosit) or the mean-Cq-value variable (CS Cq) on the vertical (Y) axis.

