

Carcass Quality and Hematological Alterations Associated with Lung Lesions in Slaughter Pigs



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Introduction

Respiratory diseases remain one of the most challenging problems in intensive pig farming (Savić et al., 2015, Cojkić et al., 2015), accounting for significant economic losses result from:

- ✓ reduced growth rates and feed conversion efficiency,
- ✓ increased mortality, morbidity and treatment costs,
- ✓ condemnation of edible losses and carcasses at slaughter and
- ✓ lower meat and carcass quality (Stärk, 2000, Fraile et al., 2010).

The aim of the study

- ❑ The aim of this study was to determine effects of lung lesions on carcass quality and hematological parameters of slaughter pigs.



Materials and methods

Experimental population.

- ✓ The study was conducted during autumn of 2014 (October and November) on 30 fattening pigs per sampling day (120 in total, 68 barrows and 52 gilts, Yorkshire x Landrace crossbreeds), with the average live weight of 112.3 ± 8.95 kg and 6 months old.
- ✓ The pigs were fattened on the same farm of origin under identical conditions.
- ✓ They were all exposed to the same condition of pre-slaughter treatments and were killed at the same slaughterhouse.

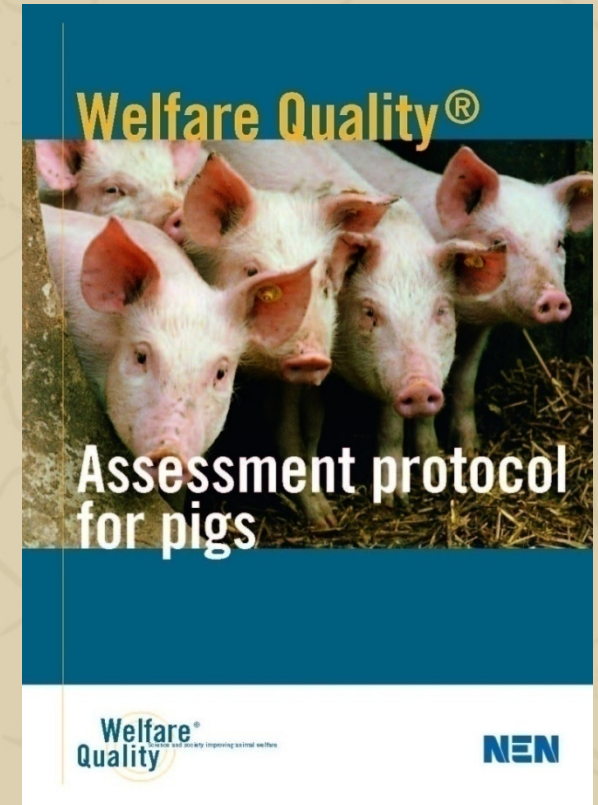
Materials and methods

Macroscopic lung lesions.

✓ The lungs of slaughtered pigs were palpated and visually appraised at the slaughter line for macroscopically visible pneumonia and pleurisy according to the Welfare Quality® protocol (2009).

According to the presence of lung lesions, pig carcasses were classified in two groups:

- 1) group of carcasses without lung lesions (lung lesions score 0); and
- 2) group of carcasses with lung lesions (lung lesions score 2).



Materials and methods

Carcass quality analyses.

- ✓ Live weight (LW);
- ✓ Hot carcass weight (HCW);
- ✓ Cold carcass weight (CCW);
- ✓ Carcass dressing (CD);
- ✓ Fat thickness at two points (on the back - FTB and at the sacrum - FTS);
- ✓ Meatiness (M) - according to Serbian regulation (Official Gazette SFRY, No 2/85, 12/85, 24/86) on the basis of hot carcass weight and the sum of carcass fat thickness at two points (on the back - FTB and at the sacrum - FTS)



Materials and methods

Hematological analyses.

- ✓ Red blood cells (RBC);
- ✓ Hemoglobin (HEM);
- ✓ Hematocrit (HCT);
- ✓ Platelet count (PLT);
- ✓ White blood cells (WBC);
- ✓ Lymphocytes (LYM), middle-sized cells (MID) (monocytes, eosinophils, basophils), and neutrophils (NEU) count;
- ✓ The percentage of lymphocytes (LYM%), middle-sized cells (MID%) (monocytes, eosinophils, basophils), and neutrophils (NEU%).



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Results and discussion

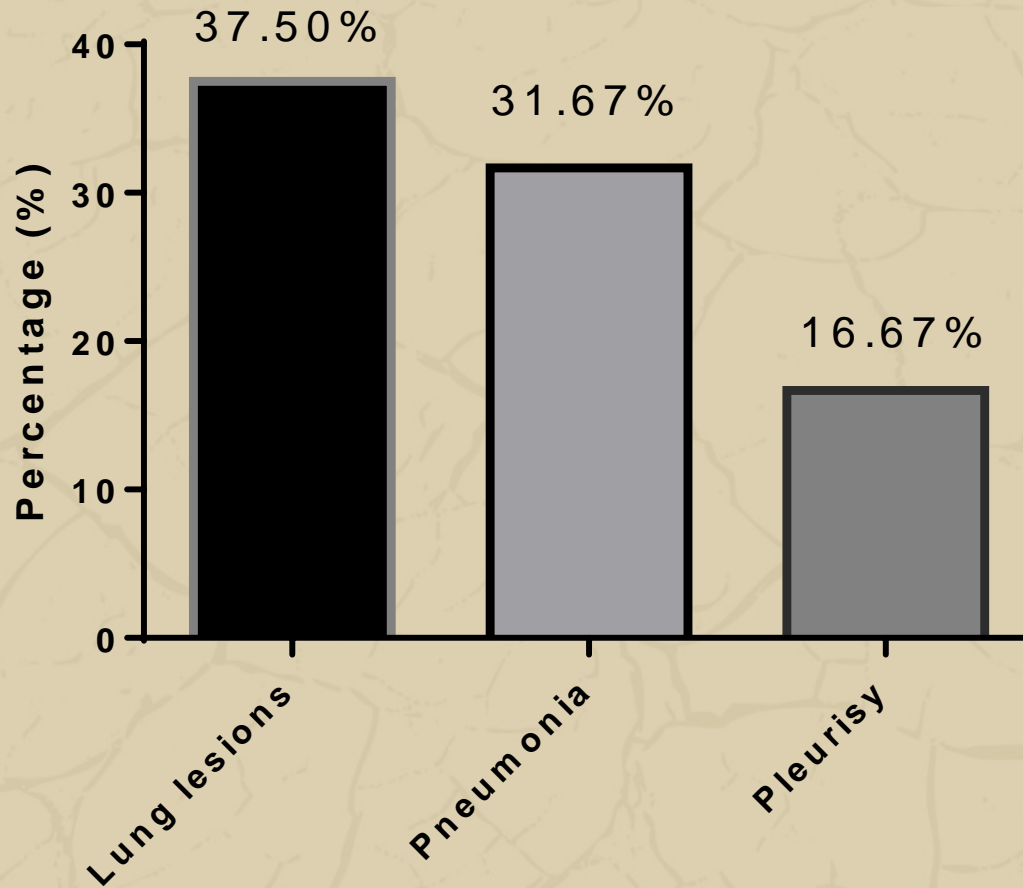


Figure 1. The percentage of fattening pigs with lung lesions

Results and discussion



Figure 2. Lung lesions in slaughter pigs

Results and discussion

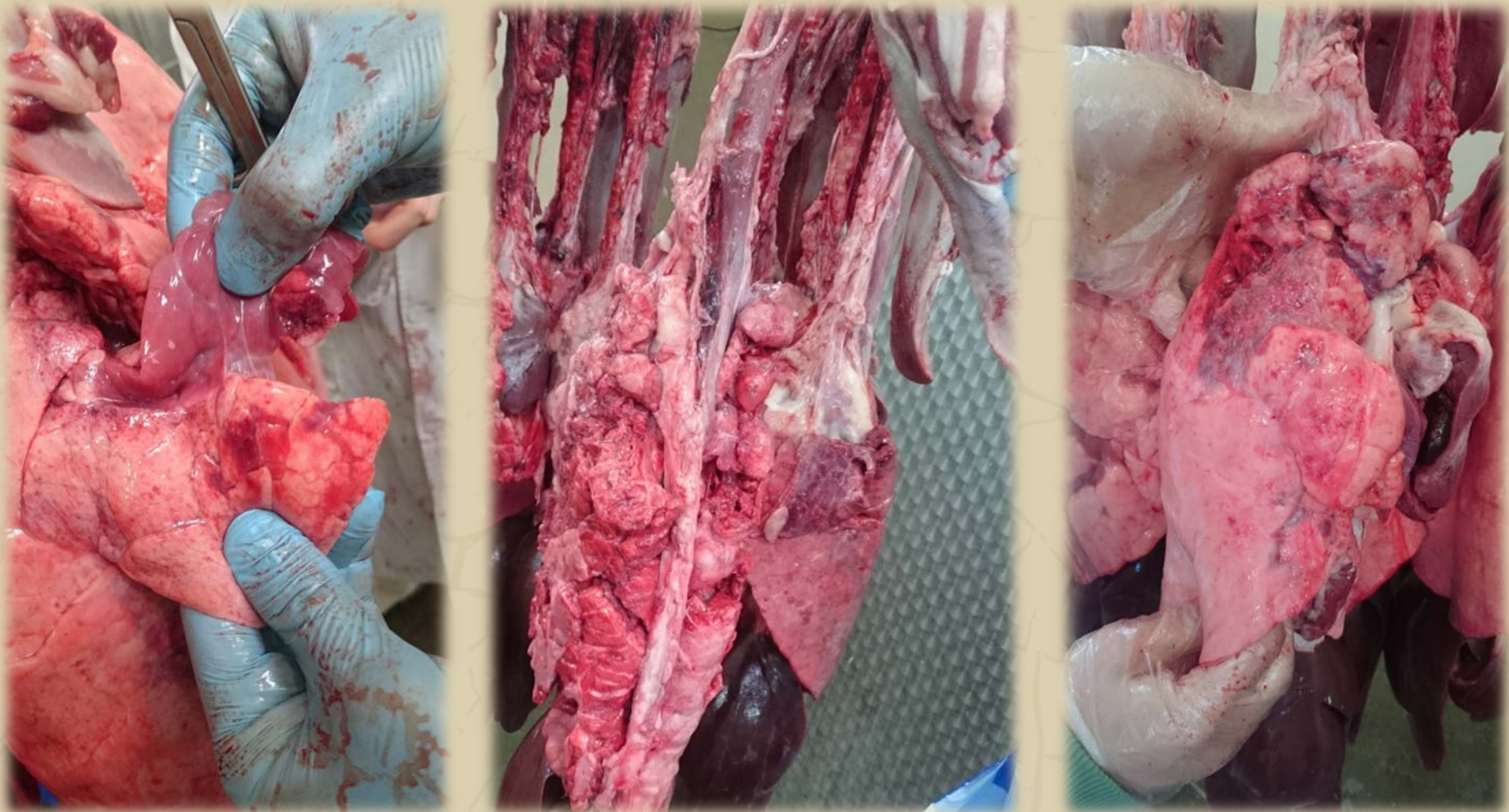


Figure 3. Lung lesions in slaughter pigs

Results and discussion

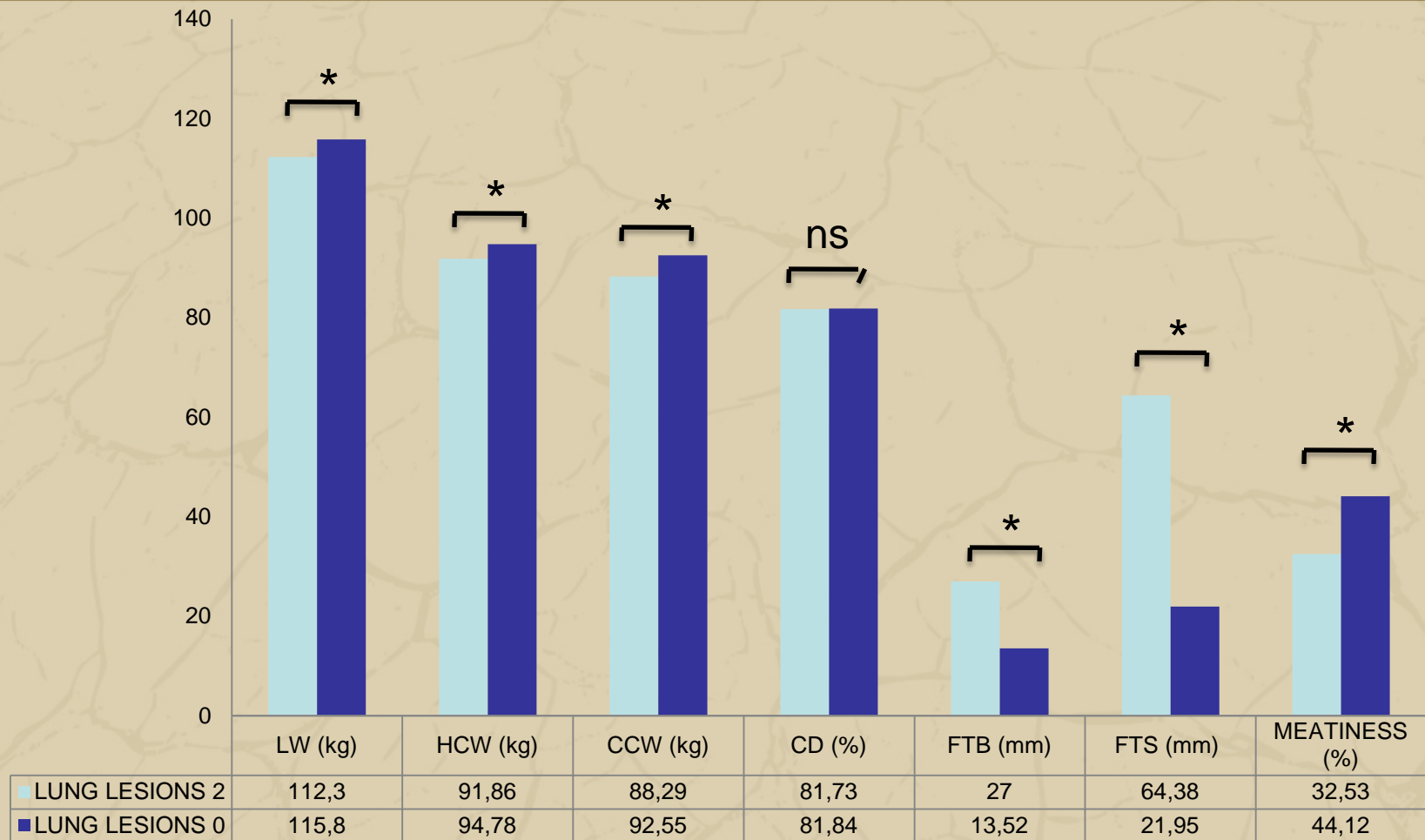


Figure 4. Differences in carcass quality parameters in relation to lung lesions score

Results and discussion

- ❑ on average, pneumonia caused 17% and 14% decreases in daily live weight gain and feed conversion efficiency, respectively, while pleuropneumonia decreased the same parameters for 34% and 26%, respectively (Straw et al., 1989);
- ❑ weight loss in pigs with different degree of lung lesions can vary from 1 kg to 6.4 kg compared to pigs free of lung lesions (Henninger et al., 2014).

Results and discussion

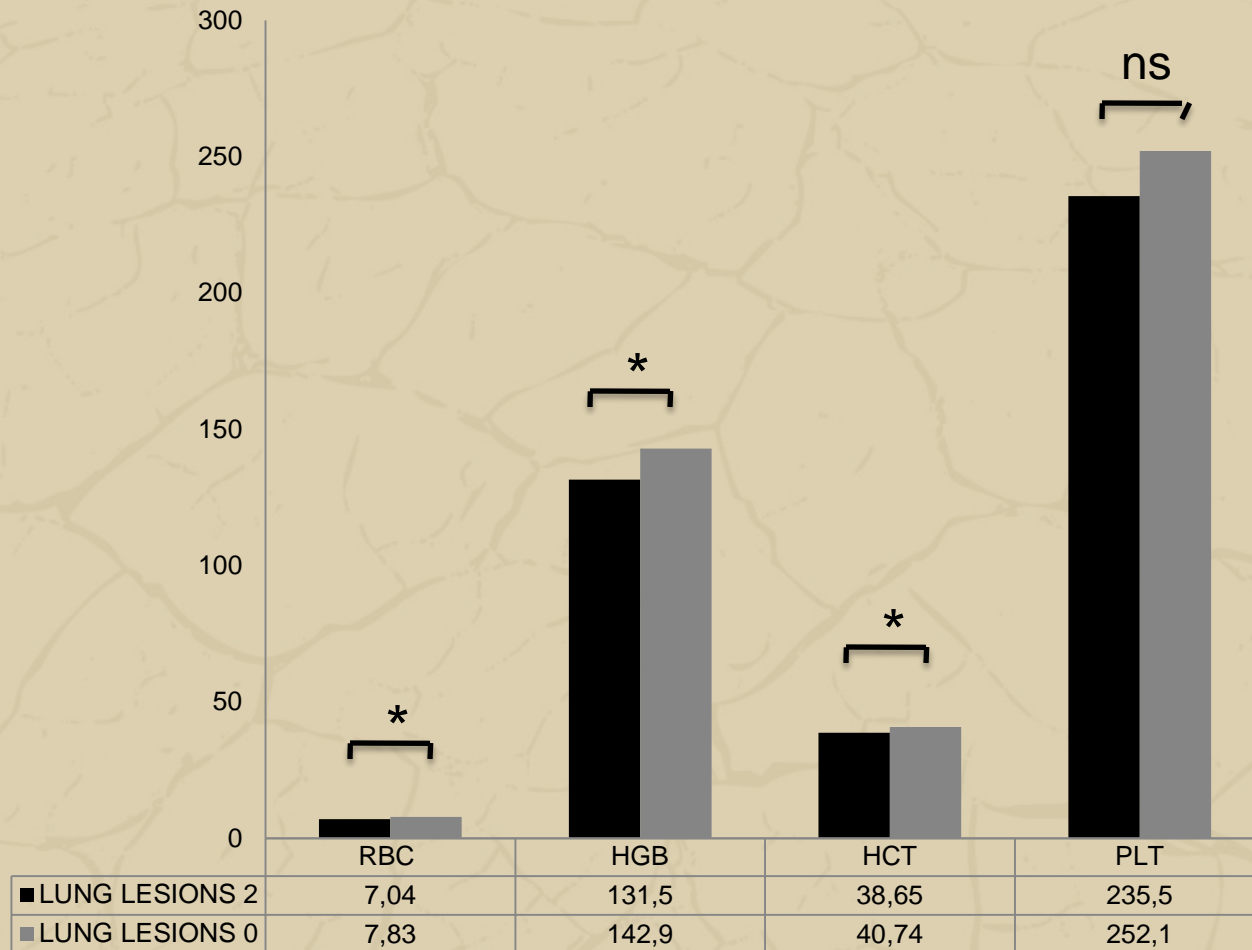


Figure 5. Differences in hematological parameters in relation to lung lesions score

Results and discussion

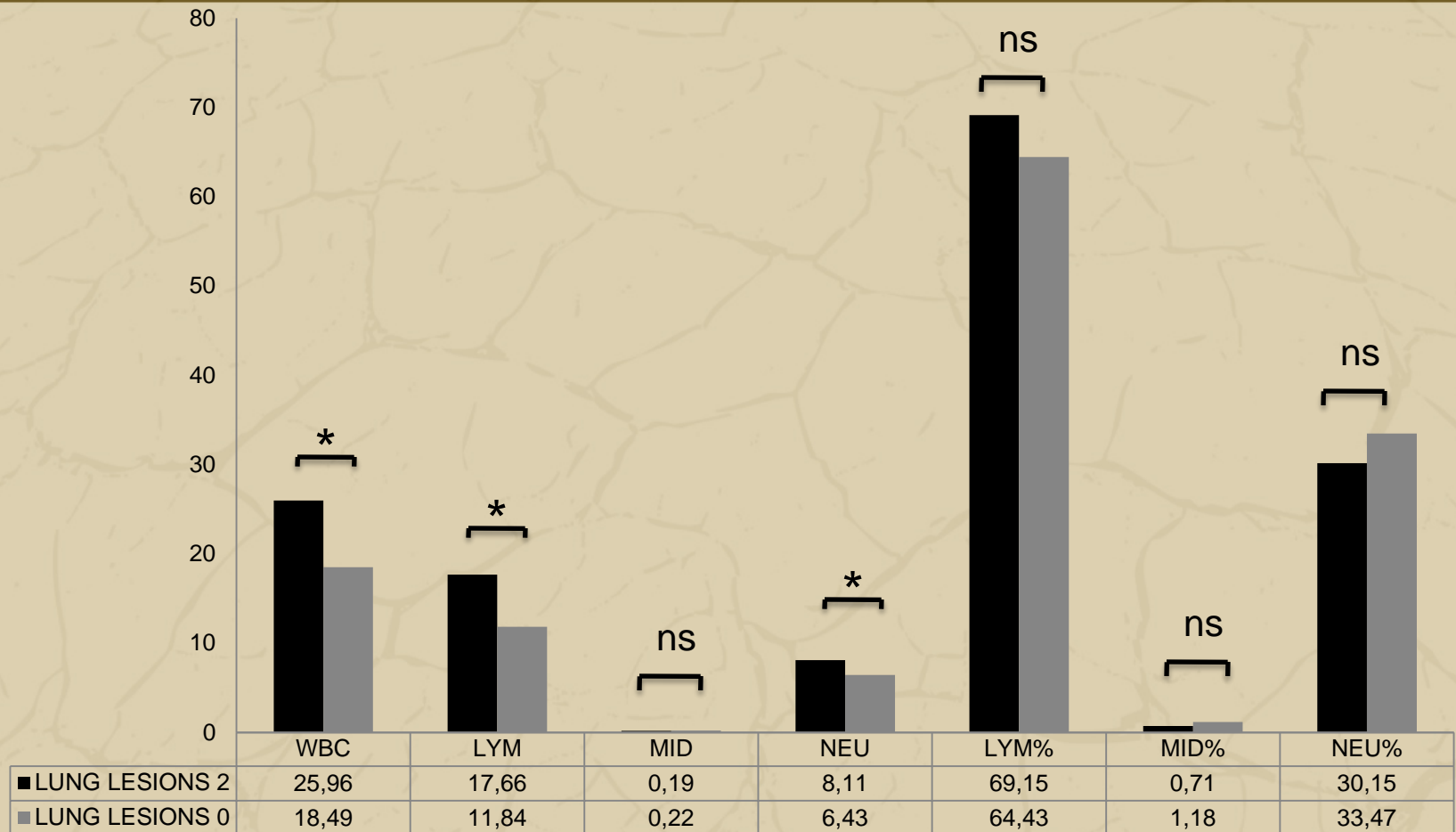


Figure 6. Differences in hematological parameters in relation to lung lesions score

Conclusions

- ✓ A 37.50% of pigs had lung lesions, wherein pneumonia was observed in 31.67% of assessed lungs, while pleurisy was found in 16.67% of assessed organs.
- ✓ Lung lesions had a negative effect on live weight, hot carcass weight, cold carcass weight, back fat thickness at two points and meatiness.
- ✓ Significant changes compared to fattening pigs without lung lesions were recorded in more than half of the analyzed hematological variables, including red blood cells, hemoglobin concentration, hematocrit, white blood cells, lymphocytes and neutrophils.