

Facoltà di Bioscienze e tecnologie agroalimentari e ambientali

Performances, carcass and meat quality of Nero d'Abruzzo pig

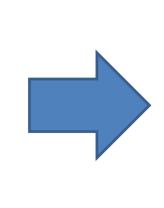
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The Nero d'Abruzzo pig is an autochthonous breed from Abruzzi region, in the center-south of Italy, characterized by dark color and high rusticity. It is reared outdoors in disadvantaged areas for the production of fresh meat and traditional seasoned salami.

OBJECTIVES: The study aimed to evaluate performances, carcass and meat quality of Nero d'Abruzzo (NA) pigs compared to selected breed commercial hybrid-CH).

MATERIALS AND METHODS

FIELD TEST

- 20 pigs were divided into two groups (10 of Nero d'Abruzzo and 10 of commercial hybrid).
- Animals of the two groups were reared outdoors in the same environmental conditions.
- Animals were fed with the same diet.
- The study lasted 160 days.

DURING THE TRIAL

- Feed intake and pigs' individual weights were recorded to define average daily gain (ADG) and feed conversion ratio (FCR).

SAMPLING

Longissimus dorsi muscle samples were collected at 24h, 3 and 7 days after slaughter.

ANALYSIS

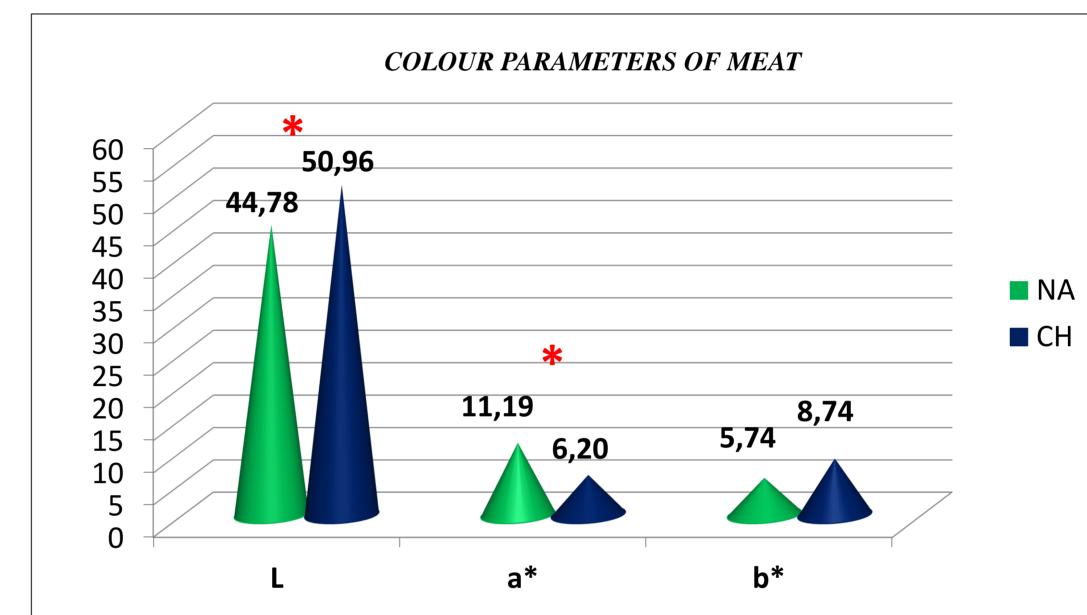
- After slaughter: dressing percentage, fat thickness and pH45
- -At 24h post-mortem: pH24, drip loss, cooking loss and meat colour. Chemical composition (moisture, total lipids, fatty acids profile).
- At 24h, 3 and 7 days after slaughter: lipid oxidation (TBARs test).

RESULTS

PIG PERFORMANCEAS AND CARCASS TRAITS DURING THE TRIAL

| | NA | СН |
|-------------------------------|--------------|---------------|
| Starting live weight, Kg | $50,5 \pm 2$ | 46,5 ± 1,5 |
| Final live weight, Kg | 125 ± 3 | 154 ± 4 |
| Average daily gain (ADG), g/d | 469 | 675 |
| Feed conversion ratio (FCR) | 5,54 | 3,40 |
| Carcass weight, kg | 97 ± 2 | 123 ± 3 |
| Dressing (%) | 78 | 80 |
| Backfat thickness, cm | 5,0 ± 0,2 | $4,2 \pm 0,1$ |

PHISICAL TRAITS OF LONGISSIMUS DORSI MUSCLE COLOUR PARAMETERS OF MEAT



| | NA | СН |
|---------------------|------------------|------------------|
| pH ₄₅ | $6,17 \pm 0,09$ | $6,19 \pm 0,10$ |
| pH_{24} | $5,51 \pm 0,14$ | $5,41 \pm 0,21$ |
| Drip Loss | $6,57 \pm 2,21$ | $5,22 \pm 1,67$ |
| Cooking Loss | $23,13 \pm 1,85$ | $22,88 \pm 1,23$ |

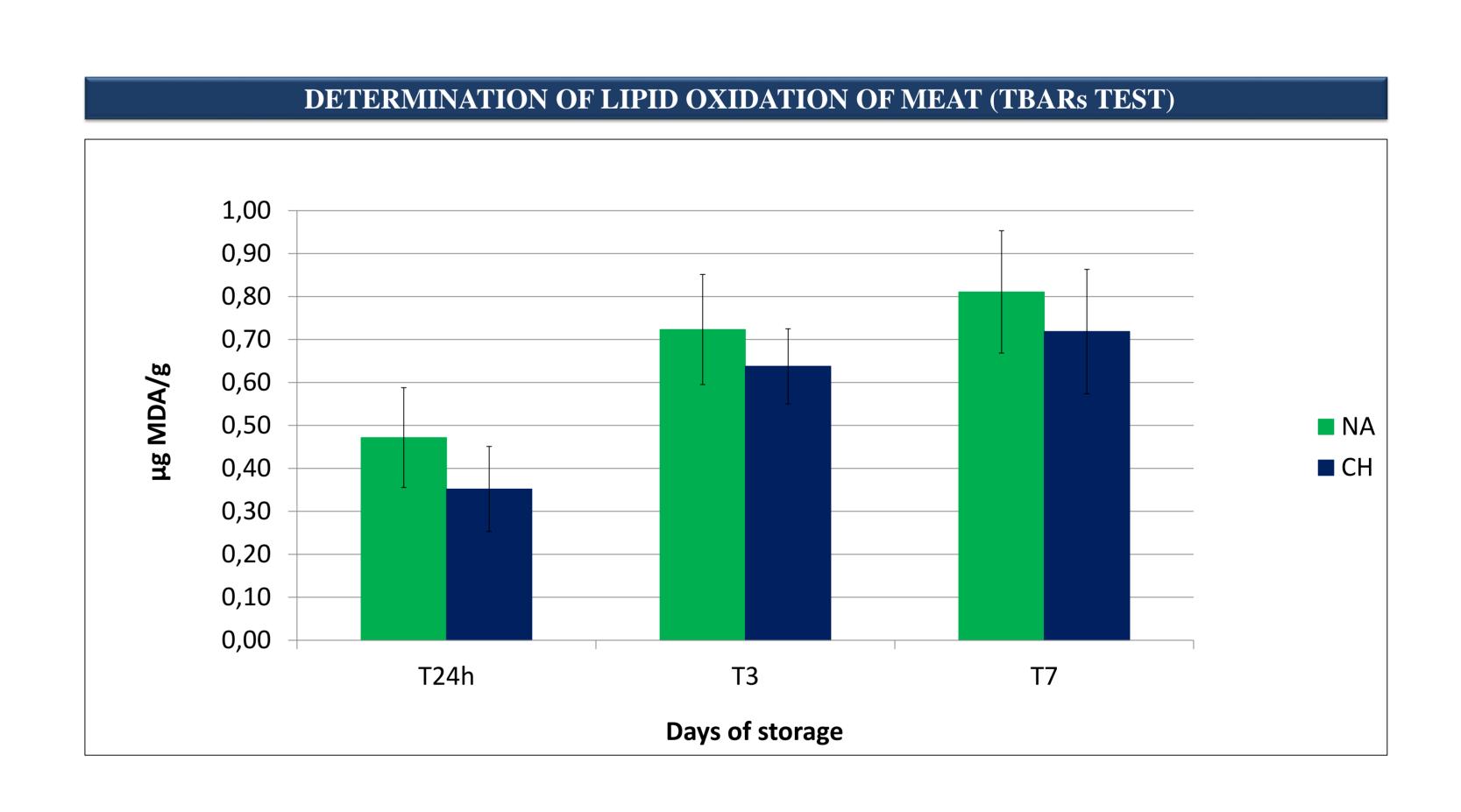
CHEMICAL COMPOSITION AND FATTY ACIDS PROFILE OF MEAT OF THE TWO GROUPS

| Chemical composition | Nero d'Abruzzo | Commercial hybrid |
|---------------------------------|----------------------|----------------------|
| Moisture (%) | 70,91 ± 2,80 | 73,84 ± 2,60 |
| Dry matter (%) | 29,09 ± 2,83 | 26,16 ± 1,57 |
| Lipids | $5,01^{b} \pm 1,29$ | $2,50^a \pm 1,03$ |
| Ash | $1,08 \pm 0,06$ | $1,13 \pm 0,08$ |
| Fatty acids profile | % | |
| C14:0 | $1,53 \pm 0,16$ | 1,56+0,31 |
| C16:0 | $25,22 \pm 1,23$ | $26,66 \pm 1,69$ |
| C18:0 | $8,21^a \pm 0,64$ | $12,57^{b} \pm 1,45$ |
| SFA . | $34,95^{a} \pm 1,50$ | $40,79^{b} \pm 2,42$ |
| C16:1 n7 | $5,78 \pm 0,55$ | $4,47 \pm 0,96$ |
| C18:1 n9 | $42,51 \pm 1,21$ | $42,32 \pm 2,36$ |
| C18:1 n7 | $6,35^{b} \pm 0,34$ | $4,07^{a} \pm 0,36$ |
| C20:1 | $0,97 \pm 0,34$ | $1,24 \pm 0,48$ |
| MUFA | $55,62^{b} \pm 1,26$ | $48,52^a \pm 3,55$ |
| C18:2w6 | $7,44 \pm 1,45$ | $7,28 \pm 1,32$ |
| C18:3 | $0,64 \pm 0,10$ | $0,70 \pm 0,12$ |
| PUFA | $8,08 \pm 1,45$ | $7,97 \pm 1,27$ |
| PUFA/SFA | $0,23 \pm 0,05$ | $0,20 \pm 0,04$ |
| Atherogenic Index 1 | $0,49^{a} \pm 0,04$ | $0,58^{b} \pm 0,07$ |
| Thrombogenic Index ² | $1,04^{a} \pm 0,07$ | $1,35^{b} \pm 0,14$ |

^{a, b}: p<0,05

¹ Atherogenic index = [C12:0 + (4xC14:0) + C16:0] / [(w3 + w6) + MUFA]² Thrombogenic index = [C14:0 + C16:0 + C18:0] / [(0,5 x MUFA) + (0,5 x w6) + (3 x w3)]

+ (w3/w6)]



- ☐ NA pigs showed lower ADG and higher FRC than CH pigs. As a consequence, NA pigs had lower final live weight after 160 days of trial.
- \square NA meat exhibited a redder meat (P<0,05) and lower L value (P<0,05), while no differences were found for the other phisycal parameters.
- ☐ Total lipids and MUFA content were higher in NA pigs while SFA were lower in NA pigs. Consequently, NA meat showed lower value for Atherogenic and Thrombogenic index.
- ☐ No statistically differences were reported for lipid oxidation between two groups, even if NA meat highlights higher MDA value.

CONCLUSION

□ NA pig showed lower growth rate and when compared to CH pigs. This considerable difference is likely to be due to the fact that the CT was never submitted to modern selecting schemes and with the goals of fast growth rate and lean meat production