



SILVAFEED ANNIVERSARY SYMPOSIUM

Nurturing animal welfare through Nature's bounties

EAAP

Florence- Italy

SILVATEAM
ANIMAL NUTRITION

Silvafeed[®]
Just like Nature 



SILVAFEED® ATX TO MITIGATE THE EFFECT OF OXIDATIVE STRESS IN ANIMALS' HEALTH AND MEAT QUALITY

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Scientist

SILVATEAM
ANIMAL NUTRITION

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Just like Nature 

Life is a process of Oxidation

Breath;

Digestion:

Reproduction

Immunity

...



Life is a process of Oxidation

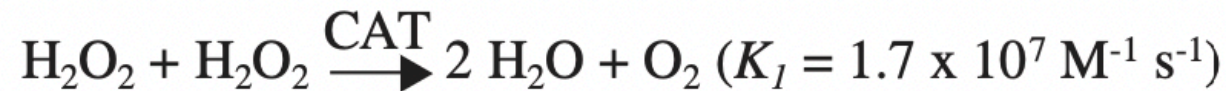
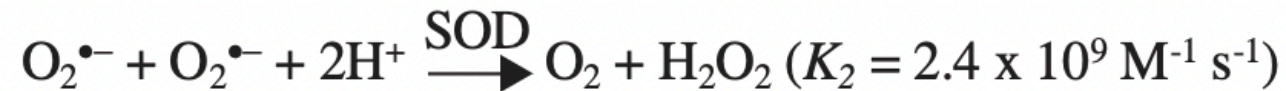
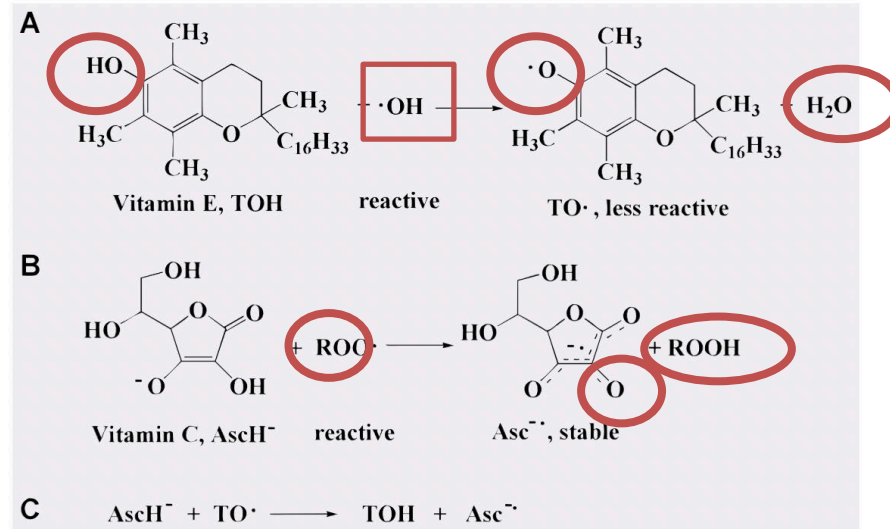


Free Radical production

- ✓ Reactive oxygen species (ROS), reactive nitrogen species (RNS) and reactive sulfur species (RSS) are **Free radicals**, produced in all metabolic pathway as breath, digestion and immune response for example;
- ✓ In low to moderate amounts, **Free radicals** are beneficial to regulation of processes of maintenance of homeostasis;
- ✓ In high dosage it can cause lipid peroxidation in cell membrane, DNA damage, protein denaturation, damage in cells and tissue.

Anti-oxidation Mechanism

Fig. 2 Direct reactions of vitamin E (TOH) with $\cdot\text{OH}$ (A) and vitamin C (AscH^-) with $\text{ROO}\cdot$ (B) and regeneration of vitamin E from vitamin C (C).



Oxidative stress

Defined as an alteration in the balance between the production of reactive oxygen species (free radicals) and antioxidant defenses;

Causes:

Fast growth

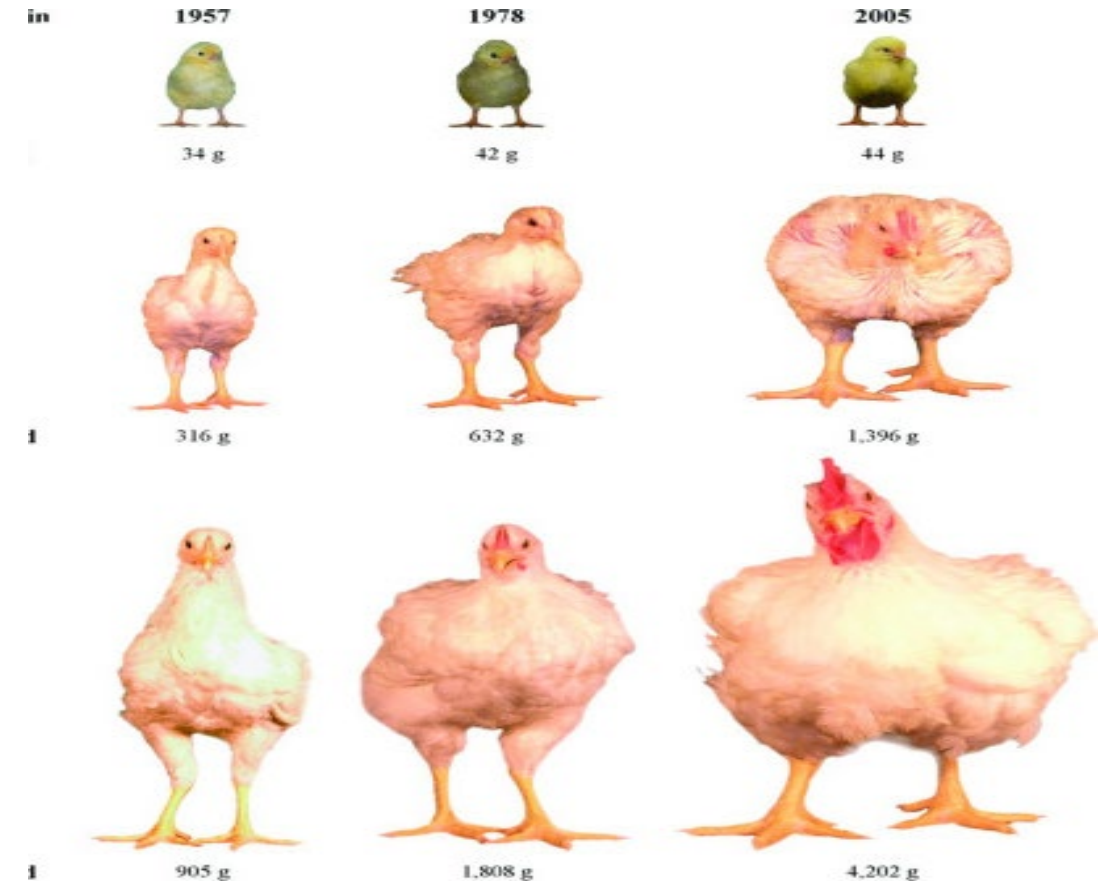
Feed Quality

Inflammation

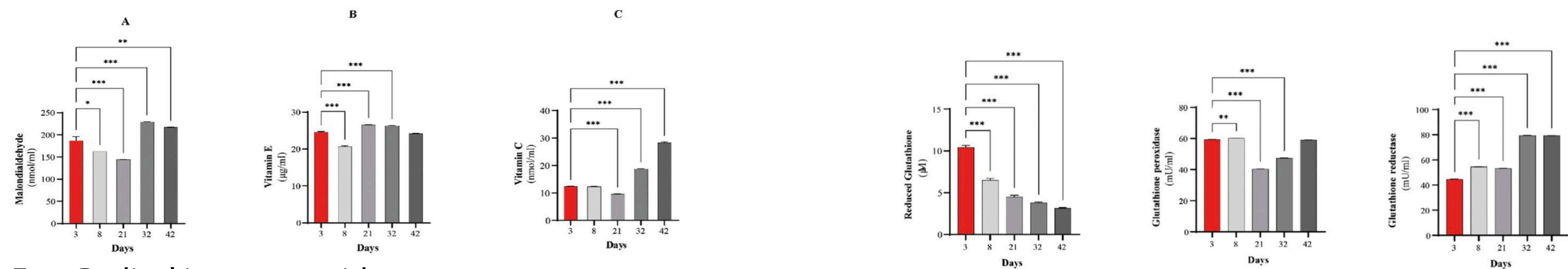
Toxins

Heat Stress

Poor welfare



Fast growth and Oxidative Stress in broiler



Free Radical increases with age;

Gpx use the glutathione reductase for inactivation H_2O_2 and GR improve the Gpx available

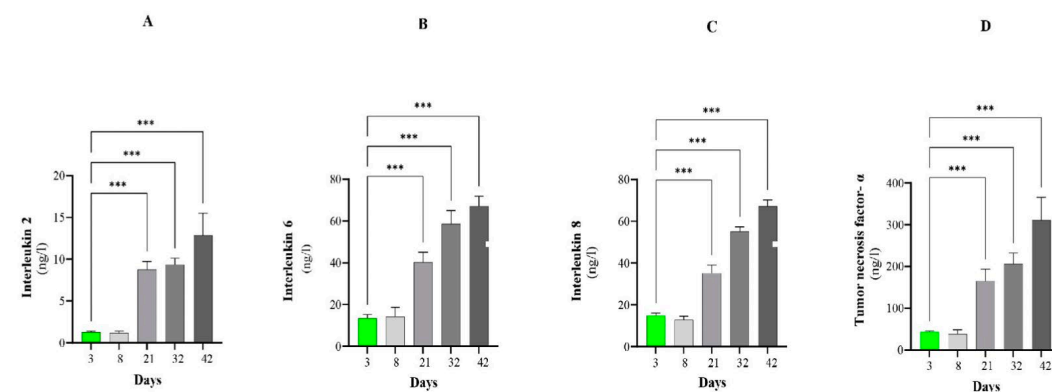


Fig 4. The concentrations of inflammatory markers in the plasma at Days 3, 8, 21, 32, and 42. (A) IL-2 concentration. (B) IL-6 concentration. (C) IL-8 concentration. (D) TNF-α concentration. Significant differences were determined by comparing the data from each time point with the data from the first time point. Data are expressed as the means ± SEMs; *P<0.05, **p<0.005, ***p<0.001.

All inflammatory biomarkers are increase with Age.

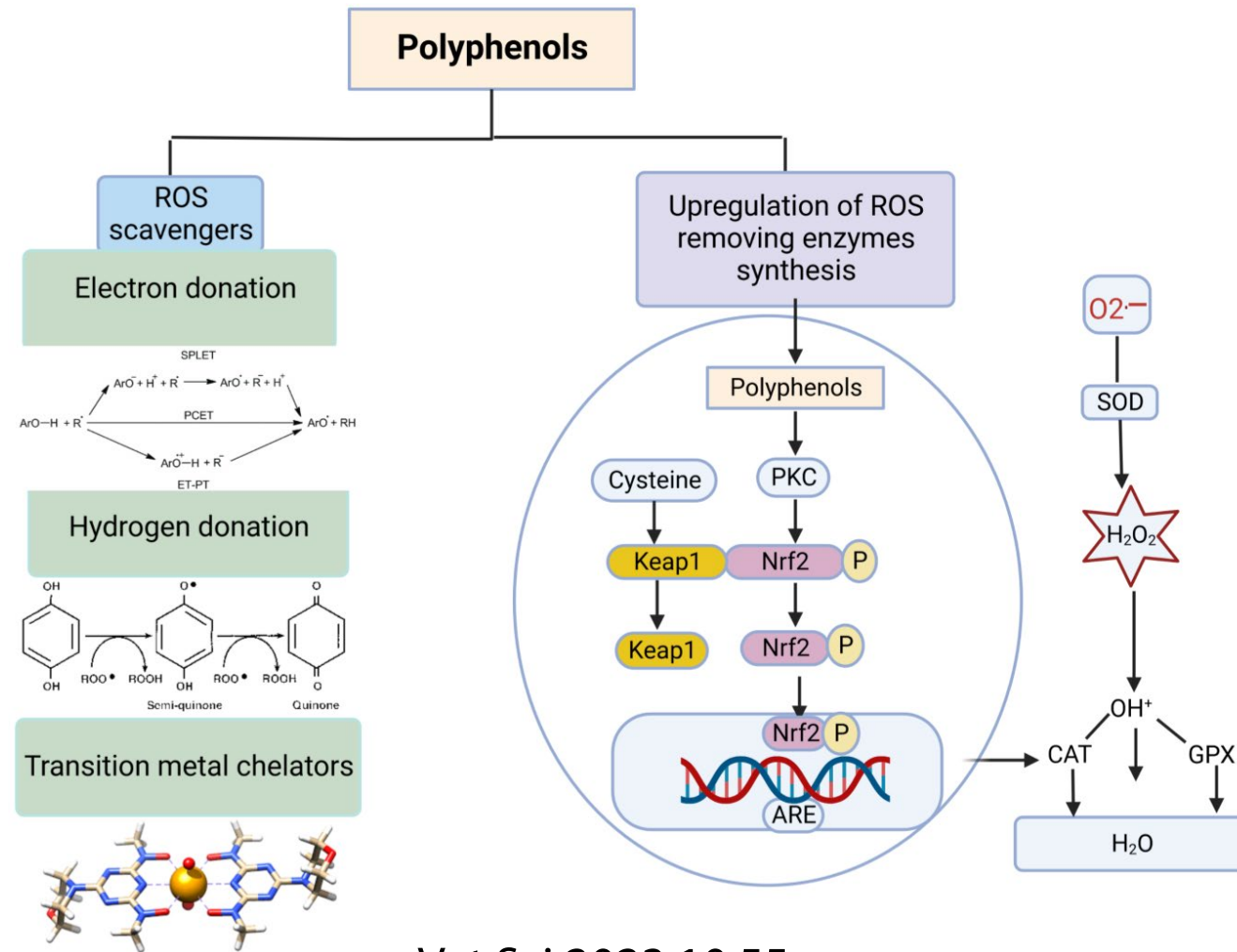
Oxidative Stress Consequences

- Immunosuppression (more diseases)
- Reduces well-being
- Muscle injury and losses at the slaughterhouse
- Reduce performance
- Increase Mortality
- Reduction in the shelf life for meat, eggs and milk
- Reduce performance

Mechanism Of Action Polyphenol as anti-oxidant

Polyphenols are family with more than 8000 molecules;

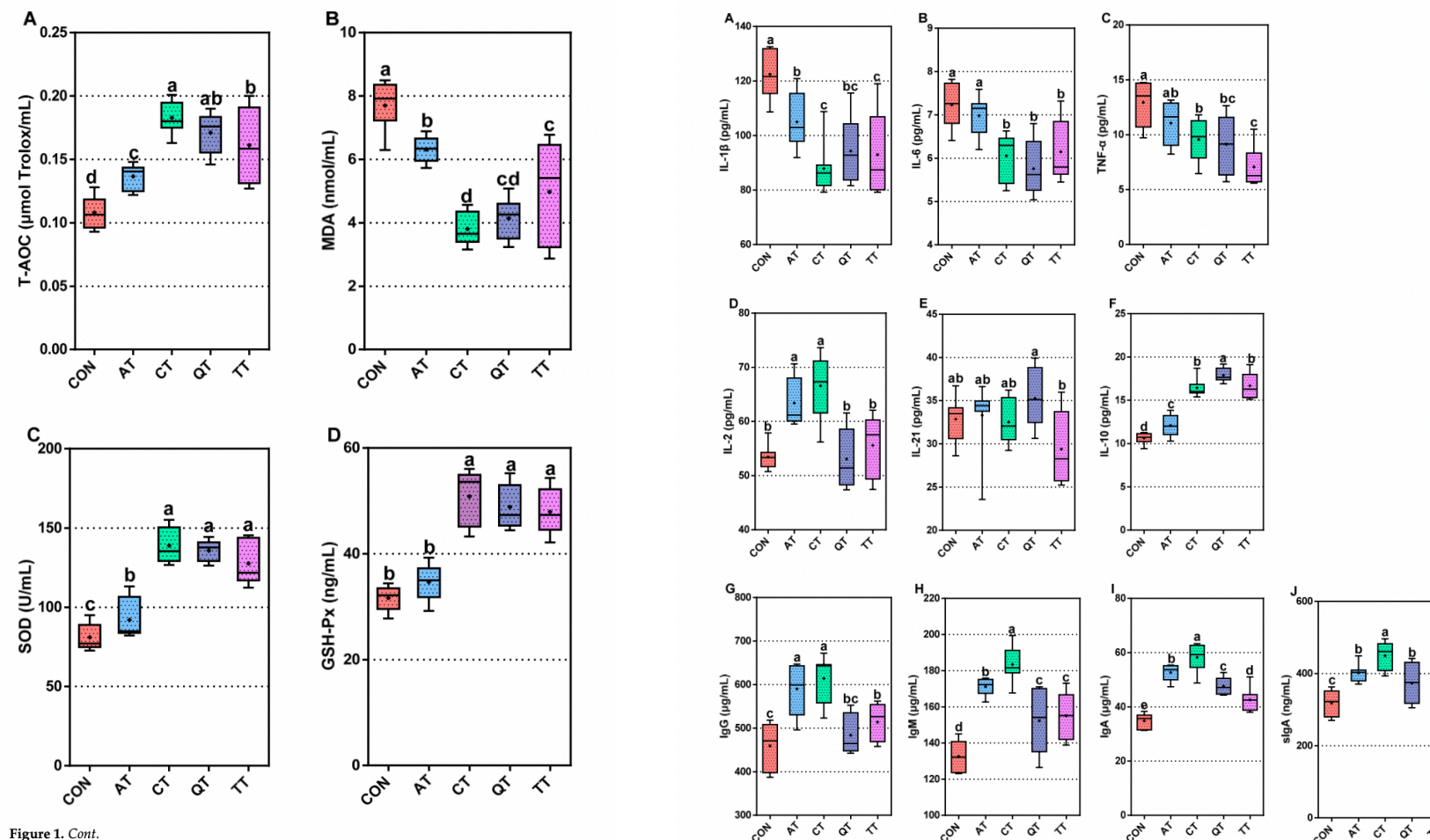
They are secondary plant metabolites produced as defense mechanism



Vet.Sci 2023,10,55

The antioxidant effect of different Polyphenos

Citation: Liu, S.; Wang, K.; Lin, S.; Zhang, Z.; Cheng, M.; Hu, S.; Hu, H.; Xiang, J.; Chen, F.; Li, G.; et al. Comparison of the Effects between Tannins Extracted from Different Natural Plants on Growth Performance, Antioxidant Capacity, Immunity, and Intestinal Flora of Broiler Chickens. *Antioxidants* **2023**, *12*,441. <https://doi.org/10.3390/antiox12020441>



($p > 0.05$). CON, control; AT, *Acacia mearnsii* tannin; CT, *Castanea sativa* tannin; QT, *Schinopsis lorenzii* tannin; TT, *Caesalpinia spinosa* tannin.

Silvafeed ATX®

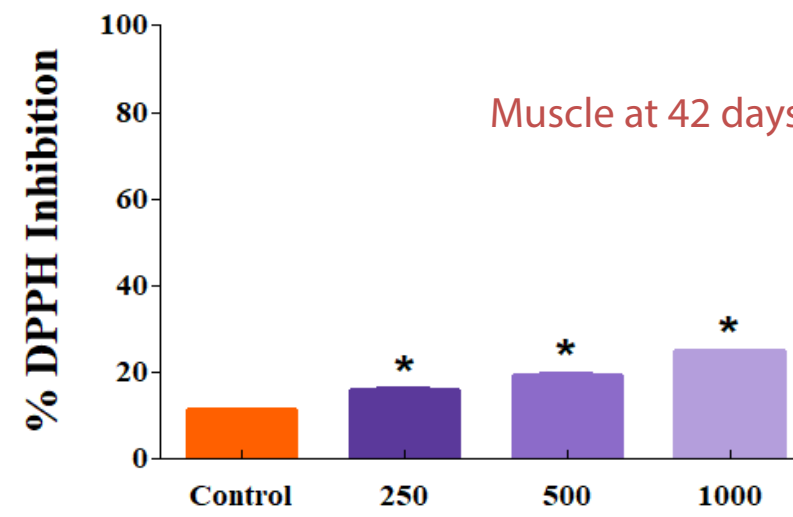
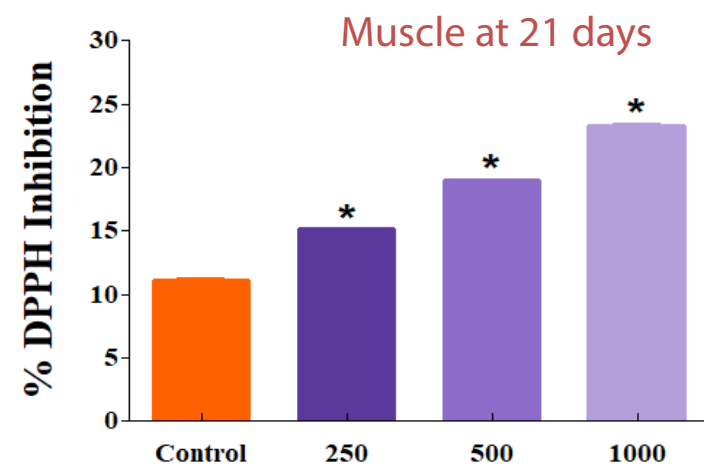
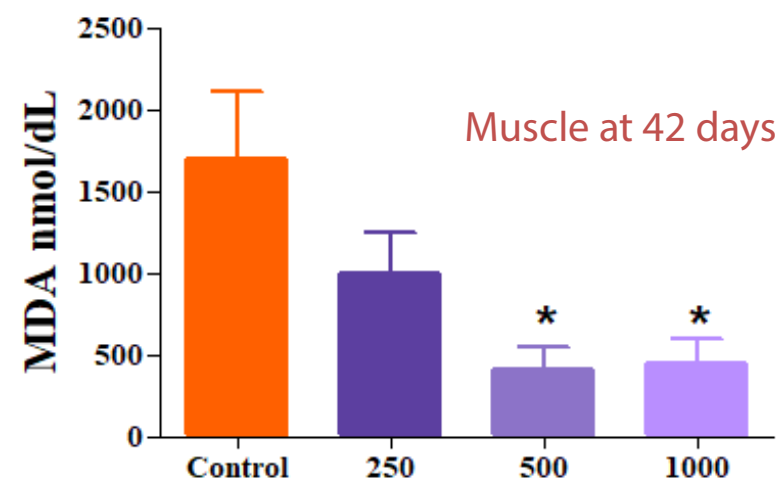
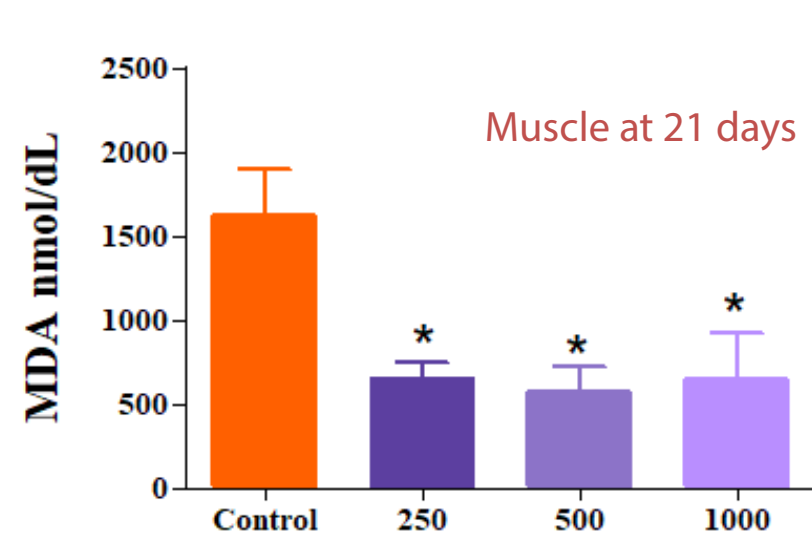
Precise blend of polyphenol from
natural and sustainable plant stract



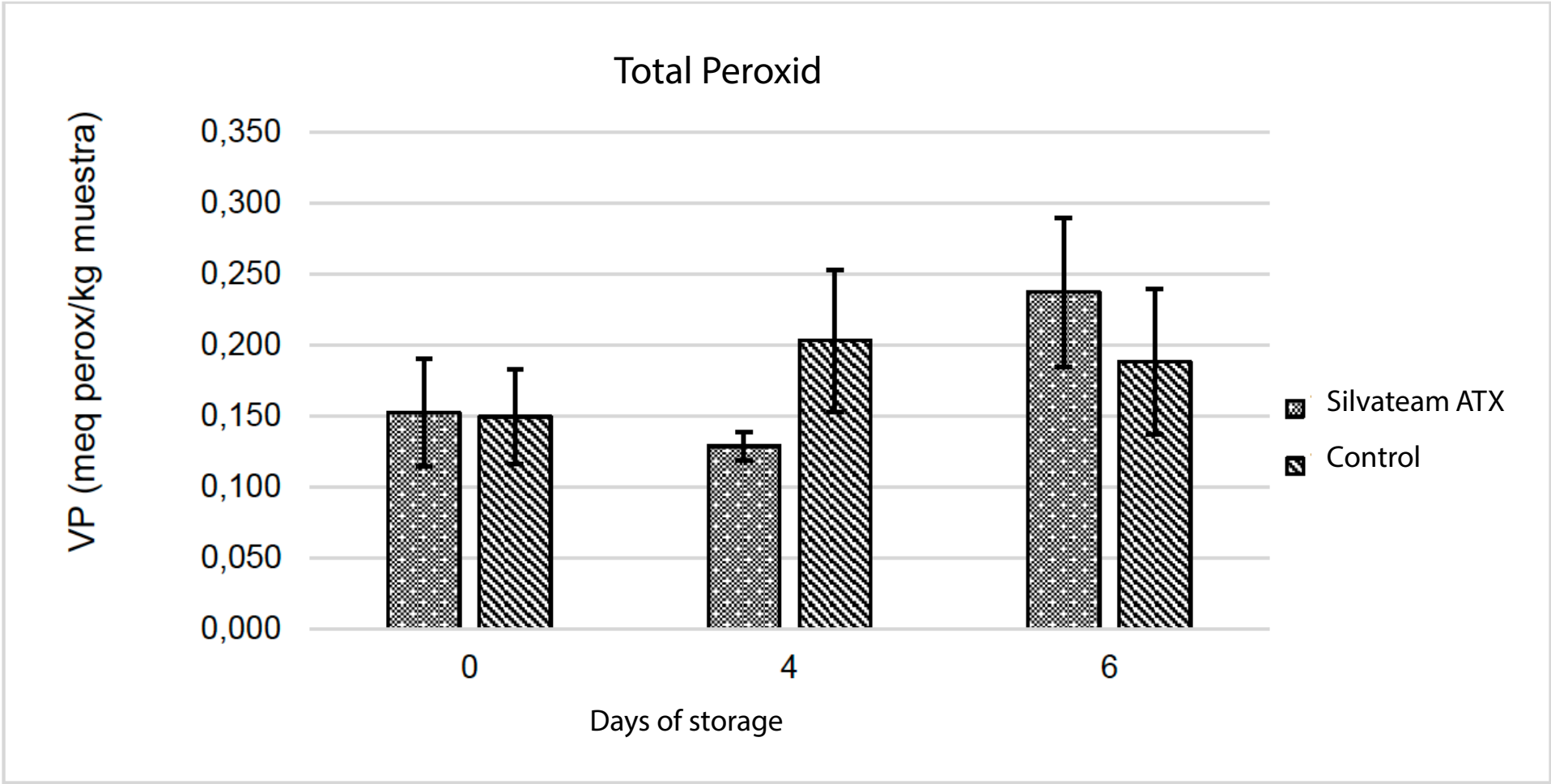
Antioxidant Capacity with Vit E on Breast meat 38d broilers

Treatment, ppm		MDA ¹ (mg/g)		
ATX	Vit E	1 d	3 d	7 d
0	40.0	3.96	4.64	7.35
37.5	30.0	4.19	4.99	7.05
75	20.0	4.15	5.43	8.01
112.5	10.0	4.44	5.96	10.4
150	0.0	4.32	5.96	12.2
P-value				
Treatment ²		NS	NS	***
Linear		NS	*	***
Time				***
Treatment x time				*

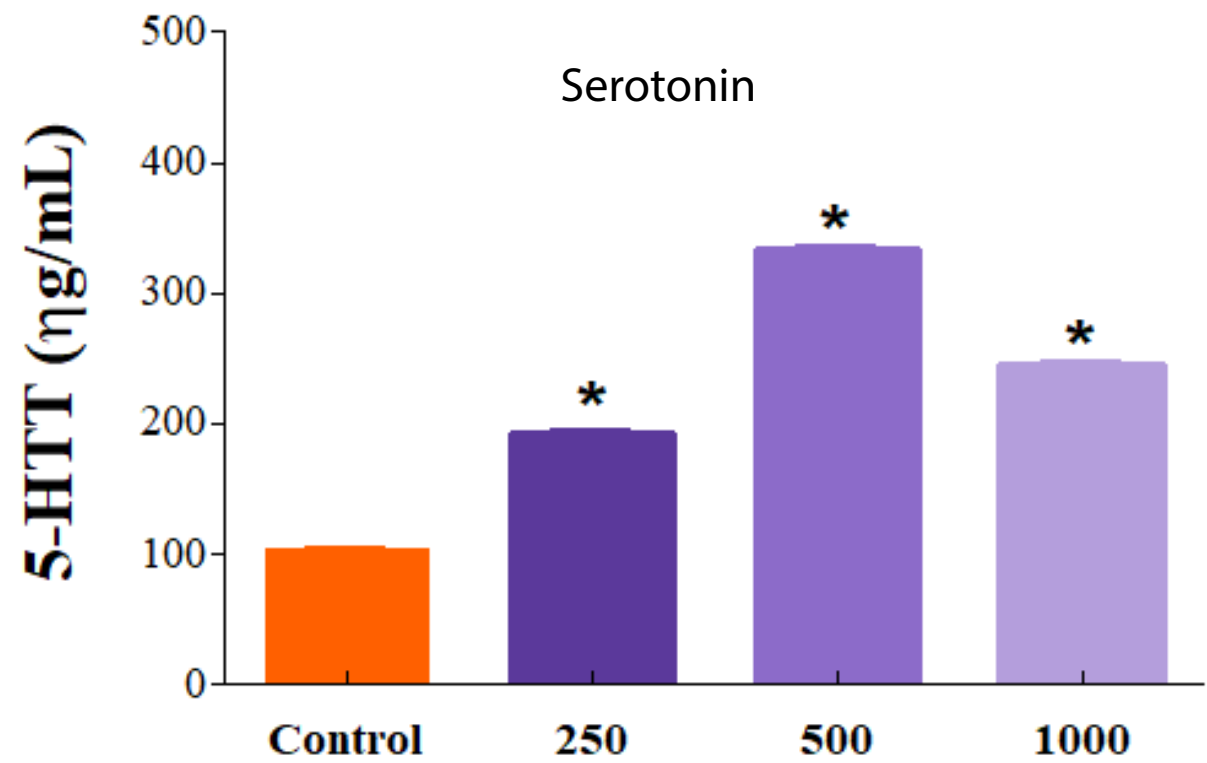
Silvafeed ATX[®] in antioxidante capacity



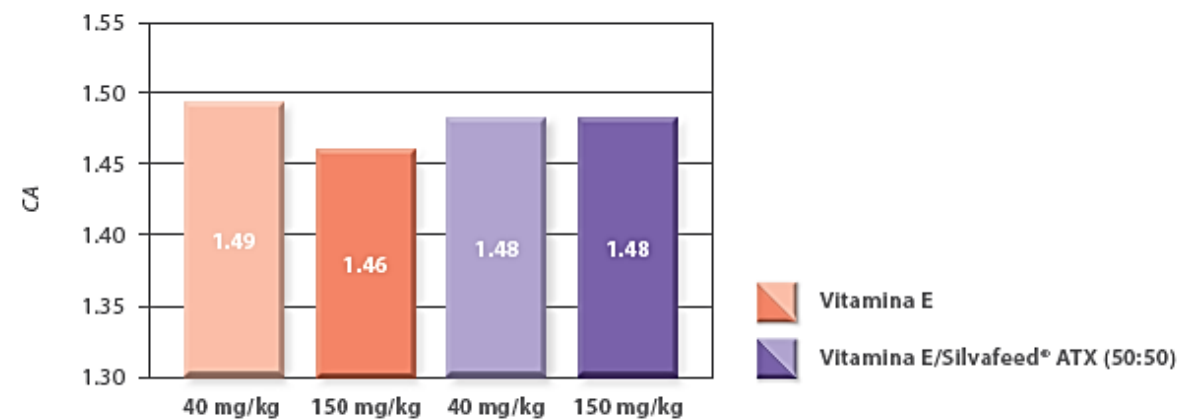
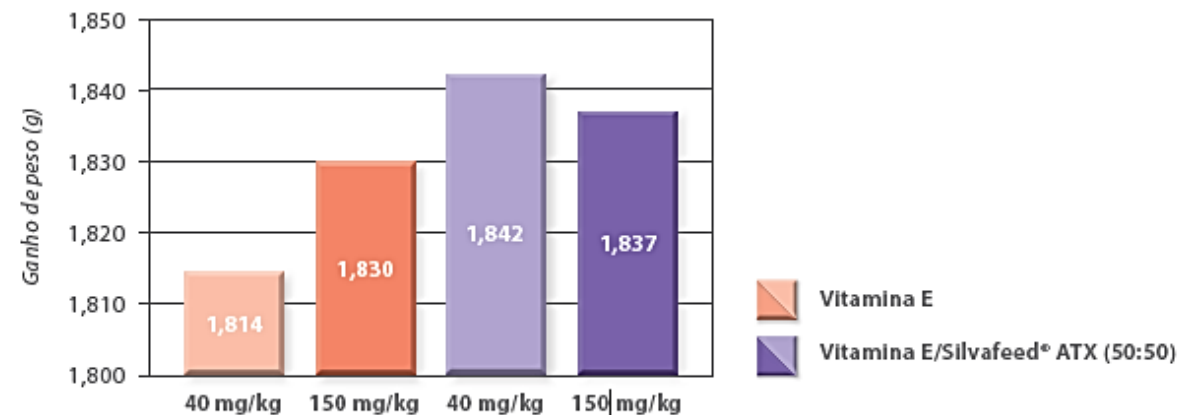
Silvafeed ATX[®] in antioxidante capacity



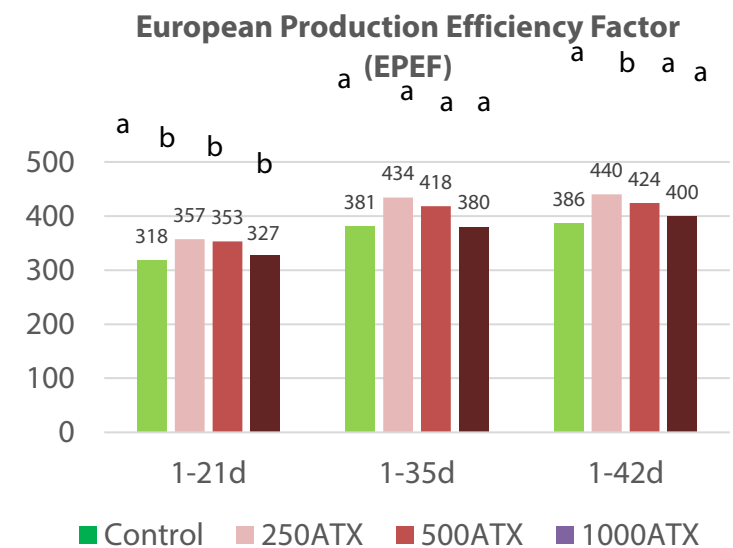
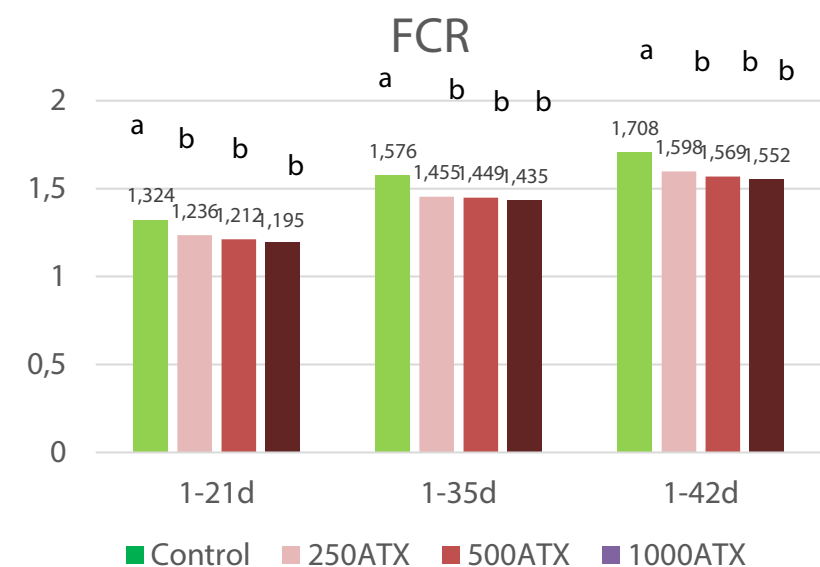
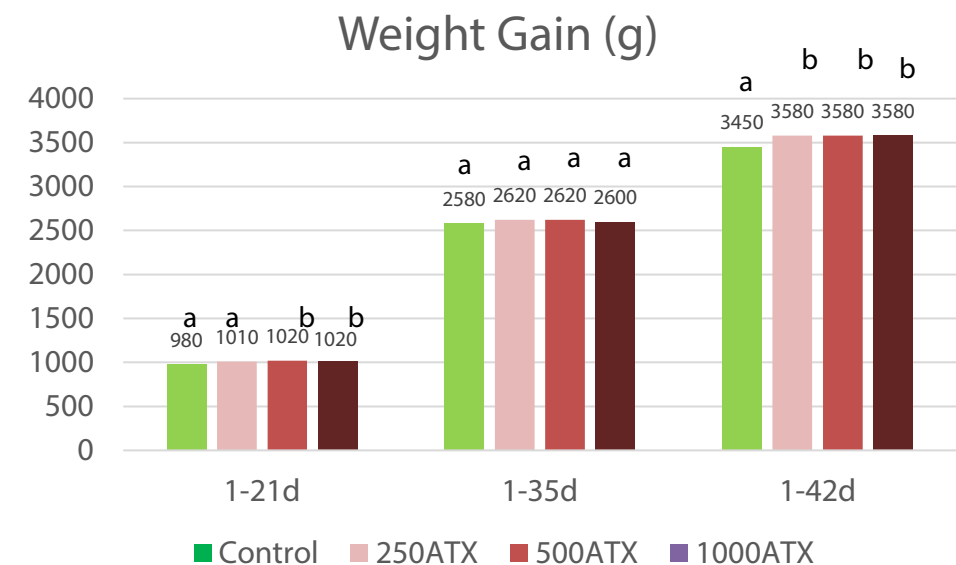
Silvafeed ATX[®] in Welfare



Silvafeed ATX[®] in Animal Performance When substitute Vitamin E



Silvafeed ATX® in Animal Performance on top of diet

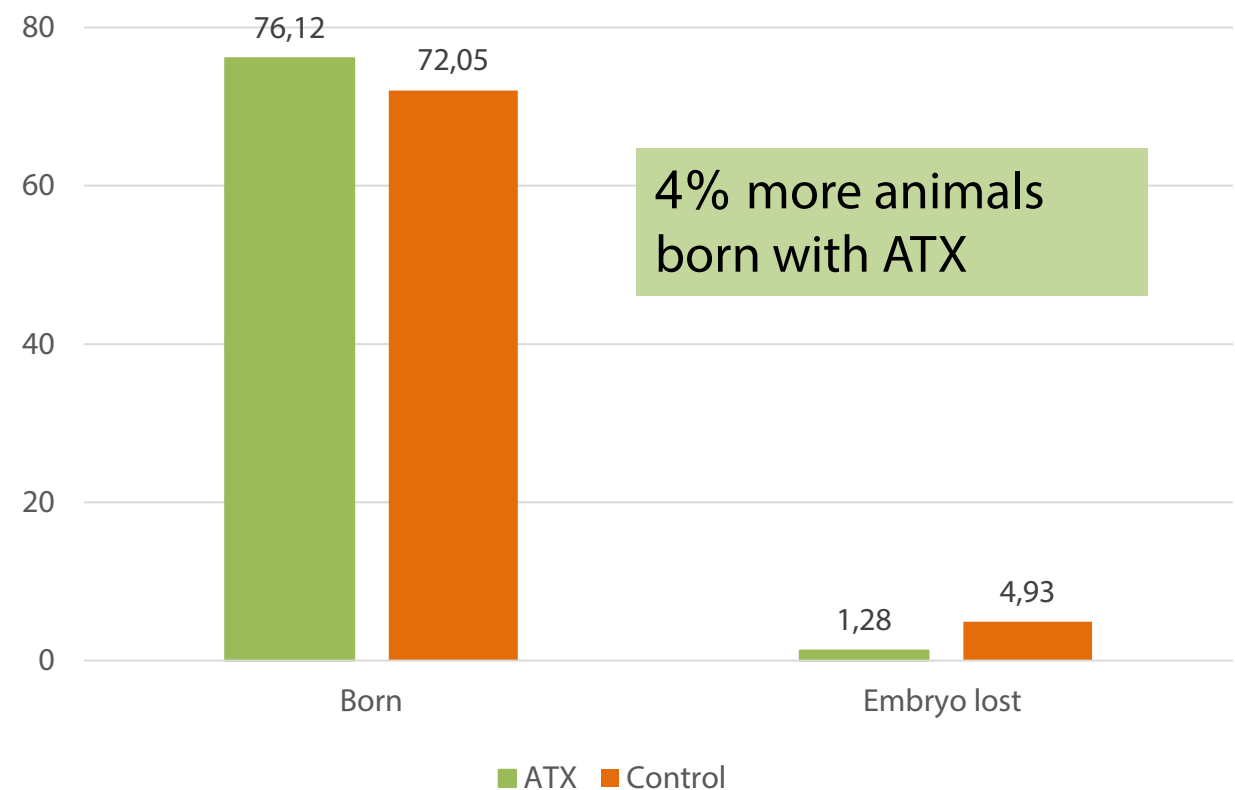


Silvafeed ATX® in Animal Performance When substitute Vitamin E

ATX, ppm	0	37.5	75	112.5	150
Vitamin E, ppm	40	30	20	10	0
BW 38 d, kg	3.13	3.08	3.05	3.10	2.95
BW gain, g/d	81.2	79.9	79.3	80.4	76.4
Feed intake, g/d	110	108	108	110	105
FCR, g/g	1.36	1.36	1.36	1.37	1.38

No significant differences among treatments were detected for any of the variables studied

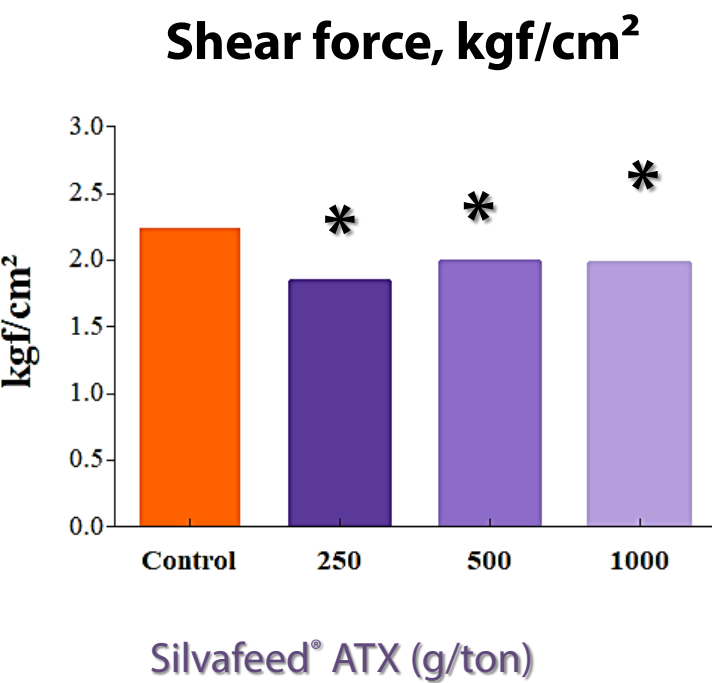
Silvafeed ATX[®] in Reproduction



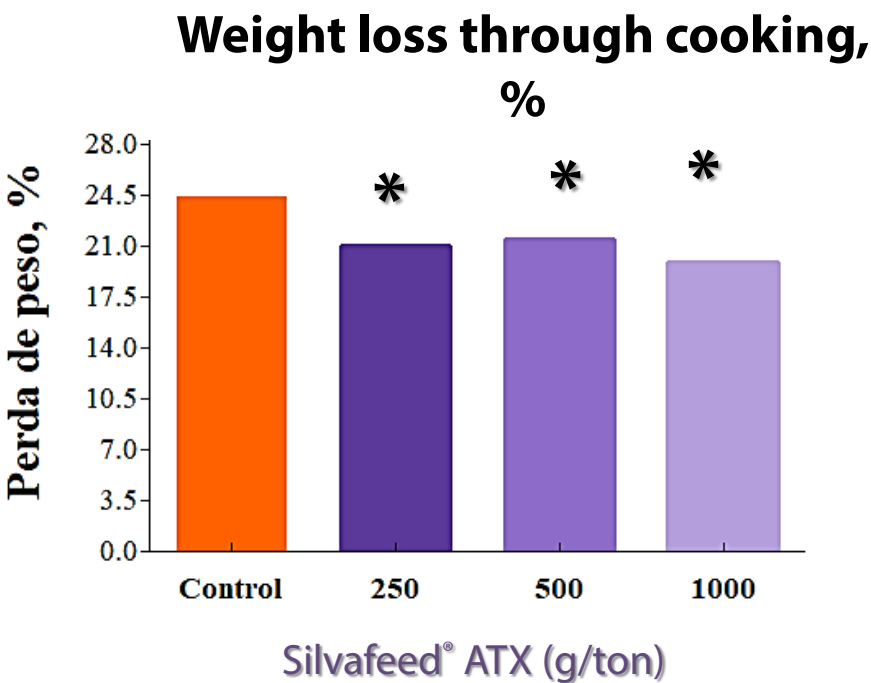
0.5g ATX/head/day

1011 cows

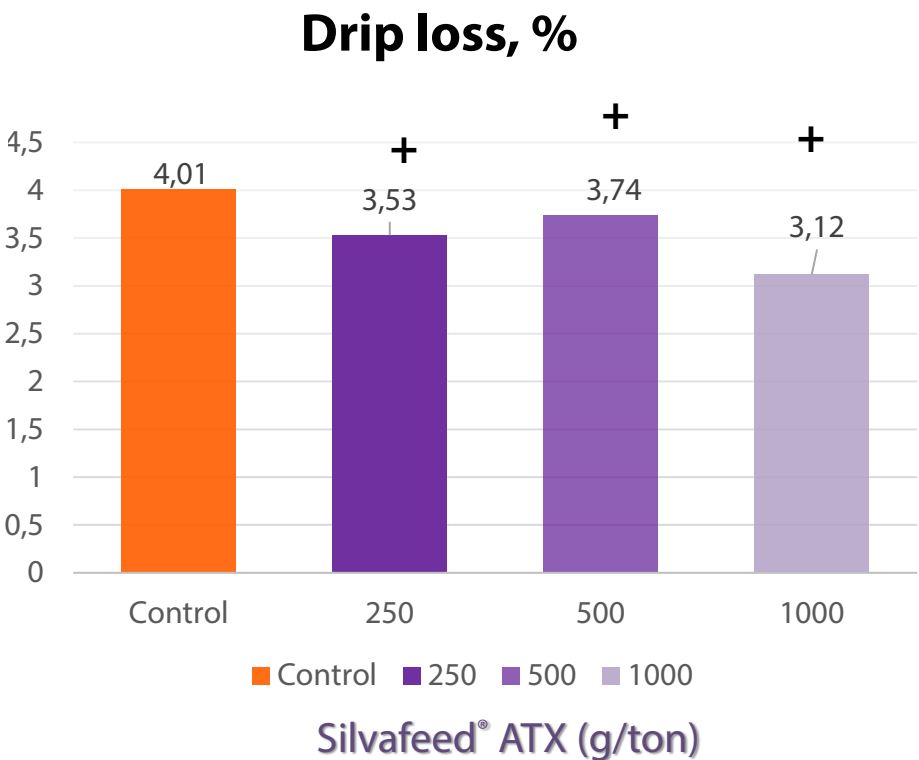
Silvafeed ATX® in Reproduction



* p<0.01

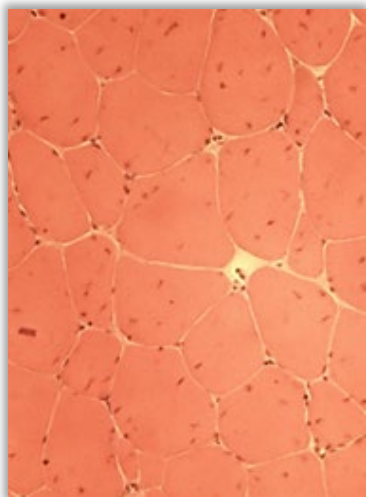


* p<0.01

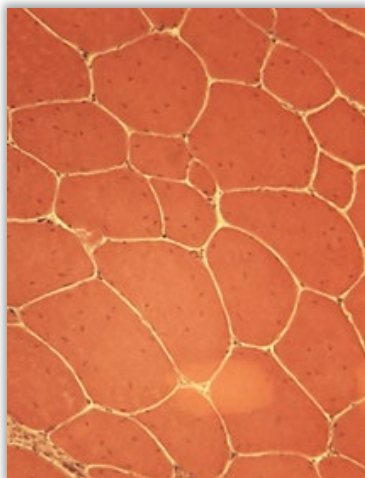


+ p=0.09

Silvafeed ATX® in Meat quality

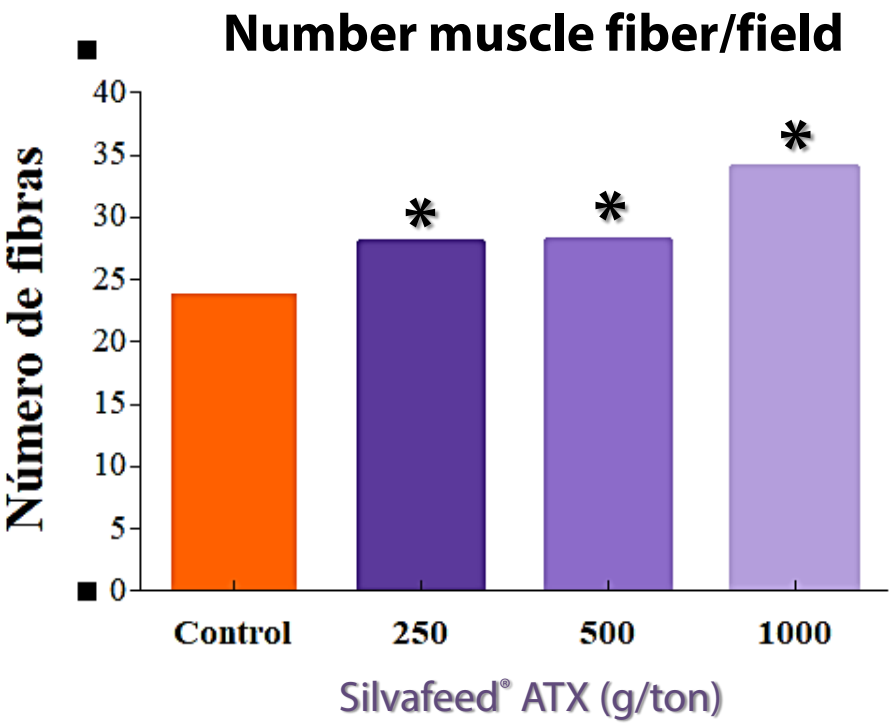
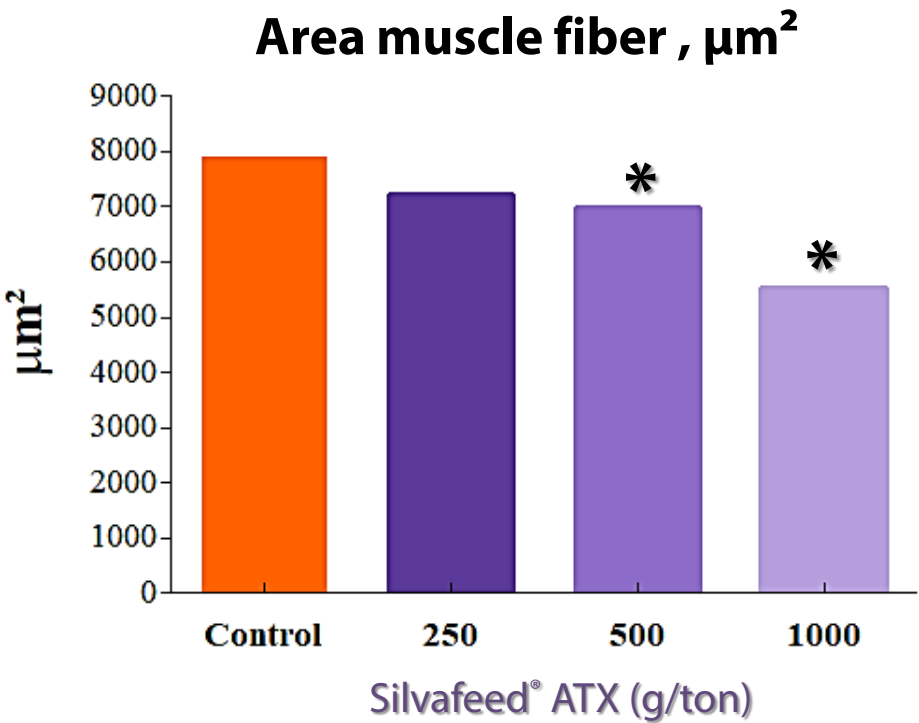


Control

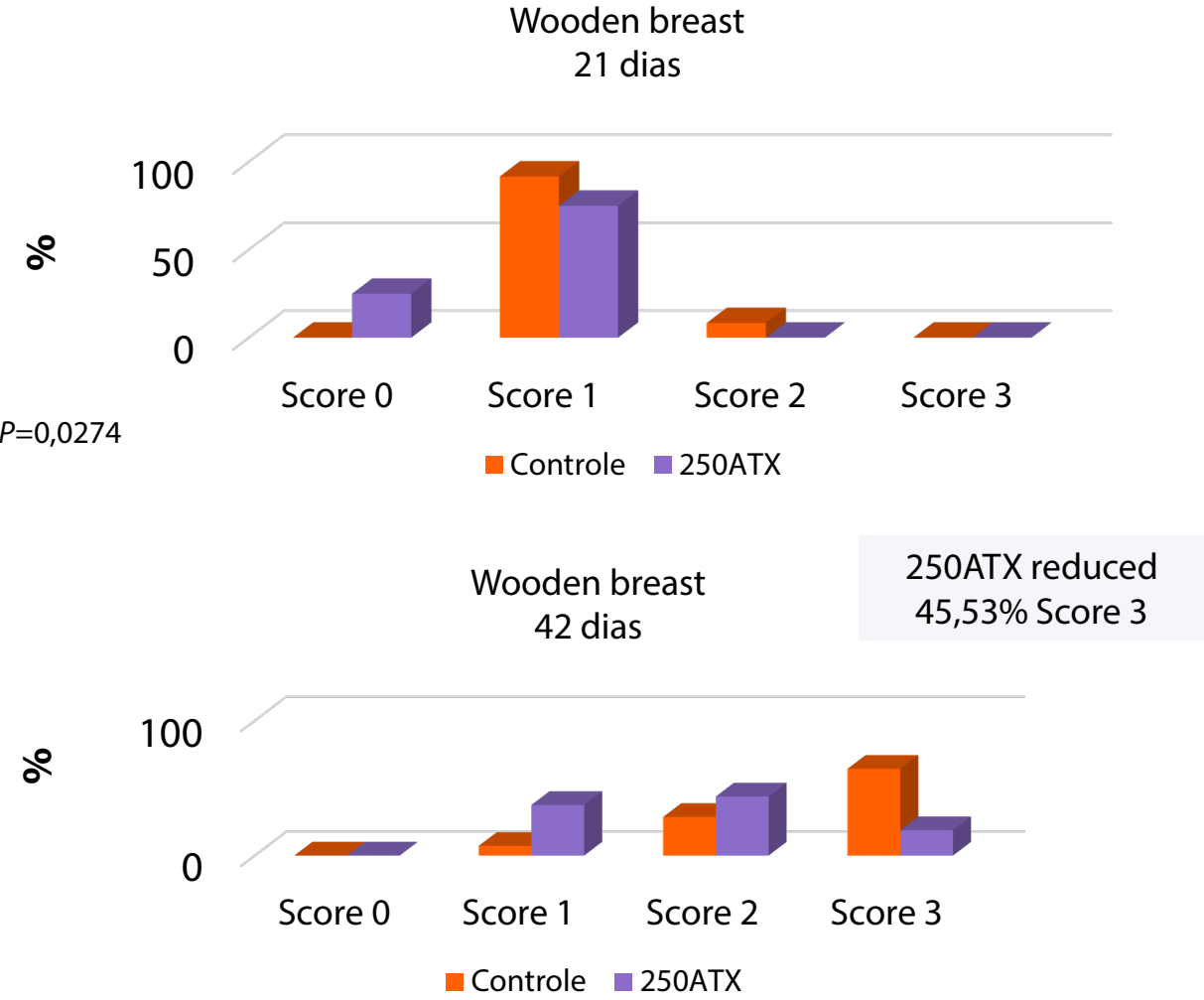


250ATX

Relatively large muscle fiber are responsible for the coarse, undesirable texture on the transversely cut surface of meat (Joo et al., 2013).

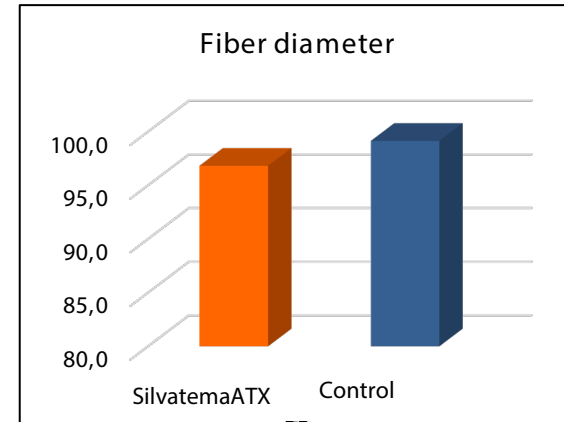
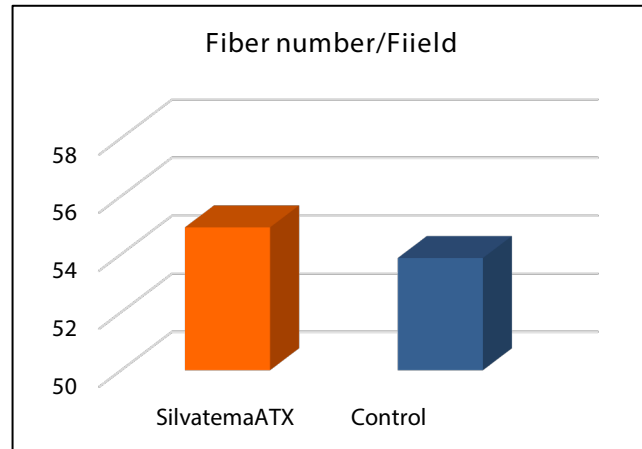


Silvafeed ATX® in Meat quality



Diferença de grau extremo em
45,53 %

Silvafeed ATX® in Meat quality in Field trial



Silvafeed ATX® in Meat quality in Field trial

500-700mg/head – 150 days at feedlot

Nelore X Angus

Better marmoreo

Better shell of life



Final Mensage

The oxidative stress is the principal factor that affect animal welfare, health, growth and production;

To control oxidative stress not only increase vitamin will help;

Polyphenols are very good solution to prevent and control oxidative stress;

There is different polyphenol so to have sure about their properties and applications it is need research and quality control;

Silvafeed ATX® showed a clear potential as a functional agent in animal production with range of anti-oxidative protection action and also to protect or substitute the vita min E.

Thank you – Grazie!!!