Book of Abstracts of the 73rd Annual Meeting of the European Federation of Animal Science

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Welcome to the EAAP 2022 in Porto

On behalf of the Portuguese Organizing Committee, we are honored and delighted to welcome you at the 73rd EAAP Annual Meeting being held at the wonderful world heritage city of Porto, in Portugal. The last EAAP meeting held in Portugal was in 1987. 35 years and one pandemic later, Portugal has the privilege to finally again host the annual meeting of EAAP.

The years we are living show us that our sector never stops, that animal production continues to put food in people's houses, and that we are an essential part of society. This year, recent war events at our door have put the society under high economic and societal changes. To add up we are faced with the undergoing climate urgency and still adapting to the post pandemic crisis. This conjuncture increases the challenges of Animal Science making them even more relevant than ever, with a consequent higher engagement and responsibility from the scientific community.

The program will cover various areas of knowledge, such as nutrition, genetics, physiology, animal health and welfare, livestock farming systems, precision livestock farming, insect production and use, cattle, horse, pig, sheep and goat production. These topics will be filled with innovation and recent scientific results leading animal production in the right path.

The European Federation of Animal Science (EAAP) Annual Meeting gives an opportunity for the application of new ideas in practice through many parallel sessions, poster presentations, and discussions about scientific achievements in livestock production all around the world. The Plenary Session,under the topic "The coexistence of wildlife and livestock" is a must of 2022 Porto Meeting.

Moreover, as we know, this Meeting is a privileged discussion forum where the research community meets with the industry, to discuss and plan for and how to address the multiple challenges that the animal science sector has to cope with in the upcoming years. All these activities make the EAAP Annual Meeting one of the largest animal science congresses in the world.

Of course our unforgettable social program throughout the week promotes all this scientific activities and networking even more. Starting with the welcome ceremony the programme follows with a typical Portuguese night, a gala dinner and finishes with remarkable technical tours. In parallel an exquisite accompanying persons program is available.

We hope that the 73rd Annual Meeting of EAAP: EAAP 2022, is a unique opportunity to add work with pleasure. We wish you a very pleasant stay in our beautiful city and country!

Ana Sofia Santos and Olga Moreira
Chairmen of the Portuguese Organizing Committee

Session 72. Sustainable pig production

Date: Thursday 8 September 2022; 14.00 – 18.00
Chair: Aluwé / Bee

Theatre Session 72

Poster Session 72

Session 73. Equine nutrition – joint session with Animal Nutrition

Date: Thursday 8 September 2022; 14.00 – 18.00
Chair: Pinotti / Evans

Theatre Session 73

Economic assessment of amino acid deficiency or feed restriction during the pig fattening period

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The profitability of pig farms is influenced greatly by feed efficiency and carcass grading. The aim of this study was to assess the economic impact of two feeding strategies during the fattening period, compared to that of a control (T), which was *ad libitum* feeding with no amino acid deficiency. The first strategy was *ad libitum* feeding with a three-phase sequence limited in amino acids (CA). The second strategy was restricted feeding at 85% of the *ad libitum* without amino acid deficiency (RA). Each of the three feeding strategies was applied to 48 gilts and 48 barrows, crossbred between Pietrain sires and Large White × Landrace sows, reared in pens of 6 pigs. Technical performances were estimated using a general linear model by pen. Then, the feed conversion ratio (FCR) was standardized to the range of 30-120 kg. The lean meat content (LMC), assessed by the Image-Meater carcass classification method, was standardized to 120 kg. These criteria were used to assess the economic feeding margin of each strategy. Therefore, they were input in the 'Calculate' simulator, which was developed by IFIP in the French production conditions, available on the GT-DIRECT portal (https://gtdirect.ifip.asso.fr). Two extreme economic contexts were considered using two assumptions for fattening feed price (HIGH: 290 €/T and LOW: 152 €/T). FCR were 2.57, 2.75 and 2.74 kg/kg for T, CA and RA strategies respectively. LMC were 60.9, 60.4 and 62.4% for T, CA and RA strategies respectively. The CA margin was lower than that of T, by € 3.4 and € 5.6 per pig produced for the LOW and HIGH feed price contexts respectively. The predominant effect was that of feed price, which penalized feed cost due to an FCR higher by 0.18 kg/kg. The RA margin was also lower than that of T, by € 0.7 and € 2.8 per pig produced for the LOW and HIGH feed price contexts respectively. The higher FCR (+0.17 kg/kg) induced an increase in feed cost which was compensated only partially by the rise of output due to the better LMC (+1.5 percentage point). Feeding strategies allowing the FCR to be controlled are to be favoured, especially in a context of high feed prices, so as not to degrade the economic results of the farms. Meeting amino acid needs and mastering feed restriction remain essential.

Immunocastration in heavy pig production: growth performance and carcass characteristics

G. Pesenti Rossi[1], M. Comin[1], M. Borciani[2], M. Caniatti[1], E. Dalla Costa[1], A. Gastaldo[2], M. Minero[1], A. Motta[2], F. Pilia[1] and S. Barbieri[1]
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Immunocastration is an effective method to prevent boar taint, avoiding pain and stress due to surgical castration. Immunocastration maintains good productive performances, with faster growth rate and better feed conversion than barrows. Also, it is associated to heavier carcasses, higher percentage of lean meat and lower fat thickness. Few studies evaluated these aspects in heavy pig production: our aim is to compare growth performance and carcass characteristics in immunocastrated and surgically castrated pigs, raised for heavy pig production. 166 commercial-hybrid male pigs were randomly allocated to two treatment groups: Immunocastration (IC; n=83), pigs receiving 4 doses of Improvac® at 15, 22, 32, and 36 weeks of age; Surgical Castration (SC; n=83), pigs surgically castrated at 4 days of age. Animals were kept under the same feed and housing conditions, in compliance with Dir. 2008/120/EC. IC and SC pigs were slaughtered respectively at 40 and 41 weeks of age. Carcass classification was made accordingly to Decision 38/2014/EC using the Fat-O-Meter system. The average daily gain was 1,020 g in IC and 770 g in SC pigs. Despite the slightly shorter fattening period, IC pigs were significantly heavier (T-Test; P=0.007), with a mean weight of 180.99±14.54 kg, while SC pigs weighted 171.32±12.52 kg. Hot carcass weight also resulted significantly higher for immunocastrated pigs (T-Test; P=0.007): 150.54±12.48 kg for IC and 145.10±10.75 kg for SC. The lower mean fat and muscle thickness of IC (30.38±4.94 mm and 55.34±8.94 mm, respectively) resulted in a higher mean lean meat content (51,67%). Our results confirm that immunocastration is an interesting alternative to surgical castration in heavy pigs, as neither performance nor productive quality are negatively influenced. Further studies are required to evaluate sustainability in terms of animal welfare and economic impact in this production system.

Immunocastration in heavy pig production: growth performance and carcass characteristics

G. Pesenti Rossi[1*], M. Comin[1], M. Borciani,[2] M. Caniatti[1], E. Dalla Costa[1], A. Gastaldo[2], M. Minero[1], A. Motta[2], F. Pilia[1], S. Barbieri[1]

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1. Introduction

Immunocastration, through a process of active immunization which ends with the suppression of testicular function, is an effective method to prevent the presence of boar taint, avoiding pain and stress associated to surgical castration [1].

Several studies have evaluated its impact on productive traits and carcass characteristics in light pig production, whereas these aspects were less studied in heavy pig production [2-4].

Our aim is to compare growth performance and carcass characteristics in immunocastrated and surgically castrated pigs, raised for heavy pig production.

2. Materials and Methods

166 commercial-hybrid male pigs were randomly allocated to two treatment groups:

- Immunocastration (IC; n=83), pigs receiving Improvac® at 15, 22-24, 32, and 36 weeks of age
- Surgical Castration (SC; n=83), pigs surgically castrated at 4 days of age

Animals were kept under the same feed and housing conditions, in compliance with Dir. 2008/120/EC.

- IC and SC pigs were slaughtered respectively at 40 and 41 weeks of age.
- Animals were weighed across the experimental period and average daily gain was calculated.
- At slaughter, carcasses were weighed and classification was made accordingly to Decision 38/2014/EC using the Fat-O-Meter system.

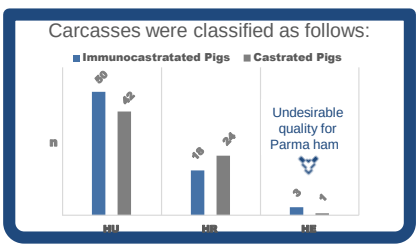
3. Results

Productive performance and carcass traits are reported below.

	Immunocastrated Pigs	Surgically Castrated Pigs	T-test
Average Daily Gain *(fattening phase_ 5-9 months of life) (g)*	820	710	
Average Daily Gain *(fattening phase_ last 2 weeks of life) (g)*	1020	770	
Live weight at slaughter *(kg)*	180.99±14.54	171.32±12.52	$p = 0.007$
Hot carcass weight *(kg)*	150.54±12.48	145.10±10.75	$p = 0.007$
Fat thickness *(mm)*	30.38±4.94	32.31±4.72	$p = 0.022$
Muscle thickness *(mm)*	55.34±8.94	58.47±6.48	$p = 0.022$
Lean meat content *(%)*	51.67%	50.86%	

- Immunocastrated pigs showed faster growth rate, reaching a higher slaughter weight than barrows.
- Hot carcass weight was also superior in these animals.
- Both fat and muscle thickness were lower in immunocastrated pigs, and as a result they showed higher percentage of lean meat.

Carcasses were classified as follows:



4. Discussion

Our results confirm that immunocastration is an interesting alternative to surgical castration in heavy pigs, as neither performance nor productive quality are negatively influenced. Further studies are required to evaluate sustainability in terms of animal welfare and economic impact in this production system.

References

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Ethic statement

The protocol was approved by the Animal Welfare Committee of the University of Milan (OPBA_26_2020), according to the Directive 2010/63/EU.