

## Generate pig fattening standards for Ral d'Avinyó to produce optimal quality pork

**Summary**

In this study an improvement was achieved of the pork production system based on Ral d'Avinyó genetics with regard to animal fasting and transportation conditions, reducing antibiotics in the transition phase and adaptation to thermal stress, assessing how these factors affect the quality of fresh meat.

The fact that the Ral d'Avinyó genetic line was developed in Catalonia, and mainly goes to the Catalan market, makes implementing strategies for continuous improvement of paramount importance to adapt production to the needs of consumers, thereby ensuring the success of this initiative, which is still under development.

**Objectives**

- Find a better quality Ral d'Avinyó meat, improving pH, fat infiltration, colour and tenderness.
- Study factors that affect the quality of the meat to determine their impact and create standards to improve fresh meat and end products.

**Description of the actions carried out in the project**

- Determining the effects of farm fasting times and transport conditions to the slaughterhouse on Ral d'Avinyó meat quality.
- Assessing the effect of ambient temperature on the Ral d'Avinyó production system, approaching the issue of the effect of thermal stress on meat quality variables.
- Reducing antibiotic use by applying dietary alternatives on the meat quality variables in animals of the Ral d'Avinyó line.

**Final results and practical recommendations**

- A protocol was defined to provide adequate conditions for the transport of Ral d'Avinyó animals.
- Monitoring of production data identified a difference of seven days in reaching the target slaughter weight between the hottest and coldest seasons. Reducing antibiotics showed no significant difference in growth rates. Nor did the two types of feed produce significant differences. The genetic variants studied provided the same results in terms of production parameters. Nor were neutered males and females significantly different at the end of the fattening period.
- The temperature of the animals just after slaughter was higher in warmer periods, representing a higher risk of inadequate pH for optimal meat quality; management strategies should be applied to minimise this effect. Castrated males had more difficulty lowering body temperature, possibly due to their higher level of fattening.
- Animals fasted 17 hours before slaughter had a lower percentage of intestinal weight relative to carcass weight compared with those fasted for only 7 hours before. This means that measuring intestinal weight could be a valid indicator for determining whether a batch of animals has fasted properly, improving aspects such as pH (higher in fasting), animal welfare, economic yield, waste management and risk of cross-contamination from faeces.
- The meat from Ral d'Avinyó animals had high intramuscular fat values, being higher in castrated males, and also high pH values, being a meat that received very favourable hardness ratings, especially in animals with a higher pH. The same trend was observed in the cured loin and cooked ham pieces that were assessed during the study.

### Conclusions

The main conclusion from the project is that there is evidence that quality standards for Ral d'Avinyó meat and meat products can be improved based on the assessment of the most relevant variables:

- Transport
- Animal nutrition
- Sex
- Antibiotics
- Fasting
- Genetics

### Leader of the Operational Group

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### Subject area(s) of application

- |                                     |                                           |
|-------------------------------------|-------------------------------------------|
| <input type="checkbox"/>            | Agricultural production system            |
| <input type="checkbox"/>            | Agricultural practice                     |
| <input type="checkbox"/>            | Agricultural equipment and machinery      |
| <input checked="" type="checkbox"/> | Livestock farming and animal welfare      |
| <input type="checkbox"/>            | Vegetable production and horticulture     |
| <input type="checkbox"/>            | Landscape / Territorial management        |
| <input type="checkbox"/>            | Pest and disease control                  |
| <input type="checkbox"/>            | Fertilisation and nutrient management     |
| <input type="checkbox"/>            | Soil management                           |
| <input checked="" type="checkbox"/> | Genetic resources                         |
| <input type="checkbox"/>            | Forestry                                  |
| <input type="checkbox"/>            | Water management                          |
| <input type="checkbox"/>            | Climate and Climate Change                |
| <input type="checkbox"/>            | Energy management                         |
| <input type="checkbox"/>            | Waste and by-product management           |
| <input type="checkbox"/>            | Biodiversity and environmental management |
| <input checked="" type="checkbox"/> | Food quality/processing and nutrition     |

- ☐ Supply chain, marketing and consumption
- ☐ Competitiveness and agricultural and forestry diversification
- ☐ General

### Geographical area(s) of application

|             |           |
|-------------|-----------|
| PROVINCE(S) | REGION(S) |
| BARCELONA   | BAGES     |

### Dissemination of the project (publications, seminars, multimedia, etc.)

- a) INNOVACC annual magazine 2019, where there is an article on the project. See p. 27 of the link: [https://issuu.com/innovacrevistadigital/docs/revista\\_innovacc\\_2019\\_ok\\_br](https://issuu.com/innovacrevistadigital/docs/revista_innovacc_2019_ok_br)  
(Action planned in the Project Dissemination Plan)
- b) INNOVACC annual magazine 2020, where there is an article on the project. See p. 19 of the link: [https://issuu.com/innovacrevistadigital/docs/disseny\\_revista\\_innovacc\\_2020\\_ok\\_2](https://issuu.com/innovacrevistadigital/docs/disseny_revista_innovacc_2020_ok_2)  
(Action planned in the Project Dissemination Plan)

### Project website

<https://www.innovacc.cat/2018/07/23/el-projecte-obtencio-destandards-dengreix-de-porc-ral-davinyo-per-a-una-optima-qualitat-de-la-carn-a-obtingut-un-ajut-de-grups-operatius-del-darp-2017/>

### More information on the project

|                                              |                           |
|----------------------------------------------|---------------------------|
| PROJECT DATES                                | TOTAL BUDGET              |
| Start date (month-year): June 2018           | Total budget: €164,247.00 |
| Completion date (month-year): September 2020 | DARP funding: €67,124.34  |
| Current status: Executed                     | EU funding: €50,637.66    |
|                                              | Own funding: €46,485.00   |

### With funding from:

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*Order ARP/133/2017 of 21 June, approving the regulatory bases for grants for cooperation for innovation by promoting the creation of European Association for Innovation operational groups in the areas of agricultural productivity and sustainability and the execution of innovative pilot projects by those groups, and Resolution ARP/1868/2017, of 20 June, announcing the call for the grant.*



Generalitat de Catalunya  
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Ramaderia, Pesca i Alimentació



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