

Food heroes - improving resource efficiency through designing innovative solutions to reduce food waste

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Introduction

Every year, around 40 million one-day-old male chicks only in Germany and around 300 million over the EU are culled as they are not valuable for the industry (Weissmann et al. 2013). One potential solution of this problem could be dual purpose chicken, a breed which is suitable both for meat and egg production.

The aim of this study was to investigate the capability of a dual purpose chicken to function as an alternative to chick culling by means of testing consumer's awareness for this issue, the sensory acceptance and willingness to buy for dual purpose chicken meat. The project is part of the INTERREG NEW project "Food Heroes".

Methods

Different methods were used with an emphasis on sensory test in this poster.

Literature research

- **Face-to-face interviews in a Randomised convenience sampling design** conducted in Fulda (n= 60), Munich (n=60) and Hamburg (n=30)

- **In-depth telephone interviews of farmers**

- Visit to the Schönecker Geflügelmarkt

- **Sensory test**

After a pretest (n=8) 32 participants compared the dual-purpose and the conventional chicken breast on a 9 point hedonic-scale in a randomised and balanced sensory design. Dual-purpose chicken breast meat from the organic farm Dorn & Schmidt in Unterrieden and Normal conventional single purpose chicken breast meat from Tegut were used (see Image 1). The meat was grilled, with the same amount of oil and salt, on 250 Celsius for 15 min. Both meat types were served with 30 gramms of Matzen bread and water. The results were evaluated by the FIZZ program and after the test the participants also filled out the consumer questionnaire with open and closed questions.

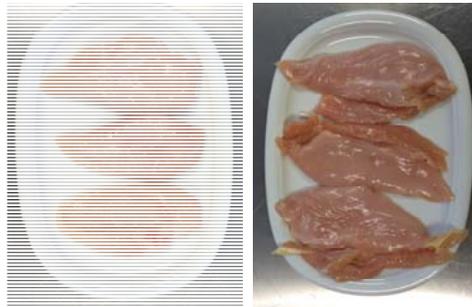


Image 1 - Conventional single purpose chicken breast meat from a supermarket (l.) and organic dual-purpose chicken breast meat (r.) from an organic farm.

Results

Figure 1 shows the attributes (taste, texture, smell, appearance, overall expression) median values of the two different meat. As the Radar chart shows there is no significant difference among the conventional and dual-purpose chicken by the participants. After analyzing the willingness to pay, 37% of the participants would pay 4,20 €/1 kg and in the same proportion they would pay 3,85 €/1 kg and 5,25 €/1 kg or more for conventional one-purpose chicken meat. (see Figure 2)

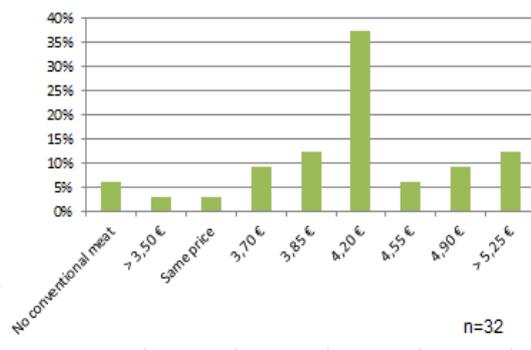


Figure 2 – Frequencies of willingness to pay for conventional dual-purpose chicken breast meat after sensory evaluation (n= 32)

Discussion

In the main sensory test, smaller dual-purpose chicken breast pieces were delivered. This could have had an influence on the attributes of the breasts. Compared to the pre-test more people evaluated the dual-purpose chicken different in texture and commented it as "dry" which can be caused by the smaller side pieces.

As Figure 1 shows, the participants in Smell, Taste and Overall expression attributes found better the dual-purpose chicken meat. However the overall acceptance do not differ significantly.

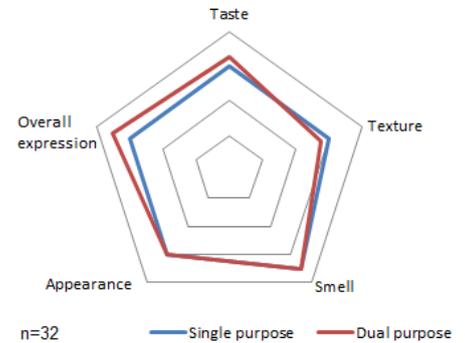


Figure 1 Radar chart about the median values of the conventional and dual-purpose chicken attributes (red = DP, blue = conventional) (n=32)

With regard to the higher willingness-to-pay for dual-purpose-chicken in the survey, the moral value to avoid chick culling seems to be important to people and can be put into focus.

However, the willingness-to-pay can be different in reality and people might not be willing to pay more or only in combination with a label which proves that no-chick culling was applied. The label could lead to higher costs which might not be covered in the range of the people's paying willingness anymore.

Furthermore, in this sensory evaluation only 32 people were asked which were mainly students. These respondents cannot be considered as representative for the German population for example regarding age, income and education.

All three farmers reported the problem that the laying performance of dual-purpose chicken, in their case the breeds Mechelner and Les Bleues, are not consistent and satisfying. Egg production on an industrial scale can be therefore considered questionable. Regarding meat production, reached weight was less than expected by the farmers. However, they report that the quality of meat is highly appreciated by their customers.

Conclusion

The male chick-culling is far unknown in Germany, therefore informing and educating the people could be powerful in this matter. Further research needs to be conducted to find out the opportunities and feasibility of the successful market introduction of dual-purposed chicken.