

Palatability and Acceptance of Insect-Based Dry Dog Feed: Insights from Two In-Home Feeding Trials and Owner Evaluation

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INTRODUCTION

Edible insects are a sustainable and nutritious alternative protein: high protein content, nutritional profile, and low environmental footprint. Insect-based pet food products are reaching the market, however, research on palatability, pet tutors' perception, and market positioning remains limited. This study assesses Compare the insect-based feed (25% insect protein) with conventional alternatives — canine acceptability, preference and tutors' perception, across two trials.



METHODOLOGY



STUDY 1
n=59 completed
(81 recruited)

Segmented by usual brand:
ActivPet (n=21)
Purina (n=20)
Royal Canin (n=18)



STUDY 2
n=100 analysed
(109 recruited)

Two-bowl Approach

Phase 1 – Weighing the **empty feeders** before the start of the feeding

Phase 2 – Weighing the **feeders and feed** before the start of the feeding session

Phase 3 – Weighing the **feeders and feed** after the meal is over

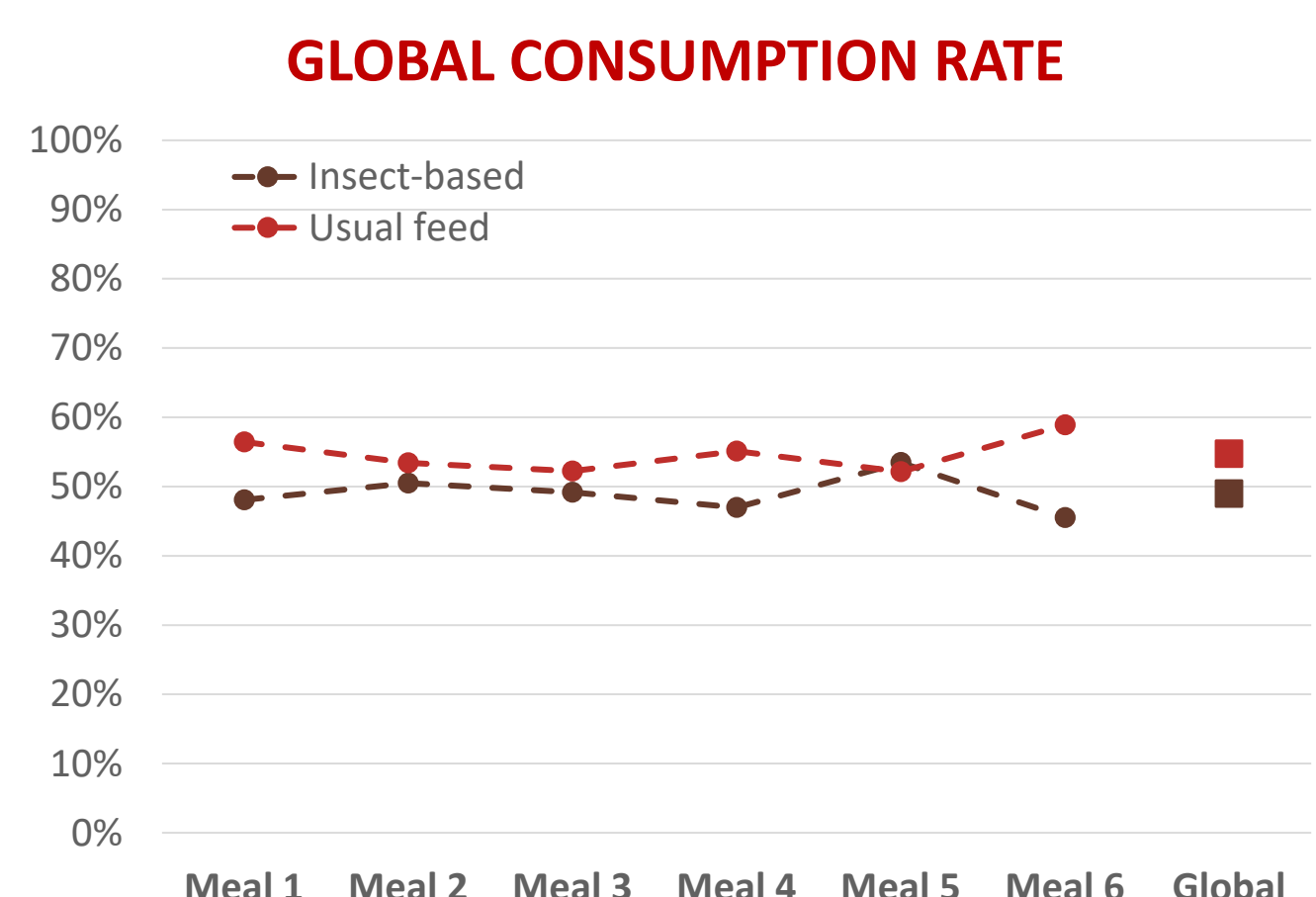


For the 6 meals, positions alternated

Pet tutors recorded, per meal:

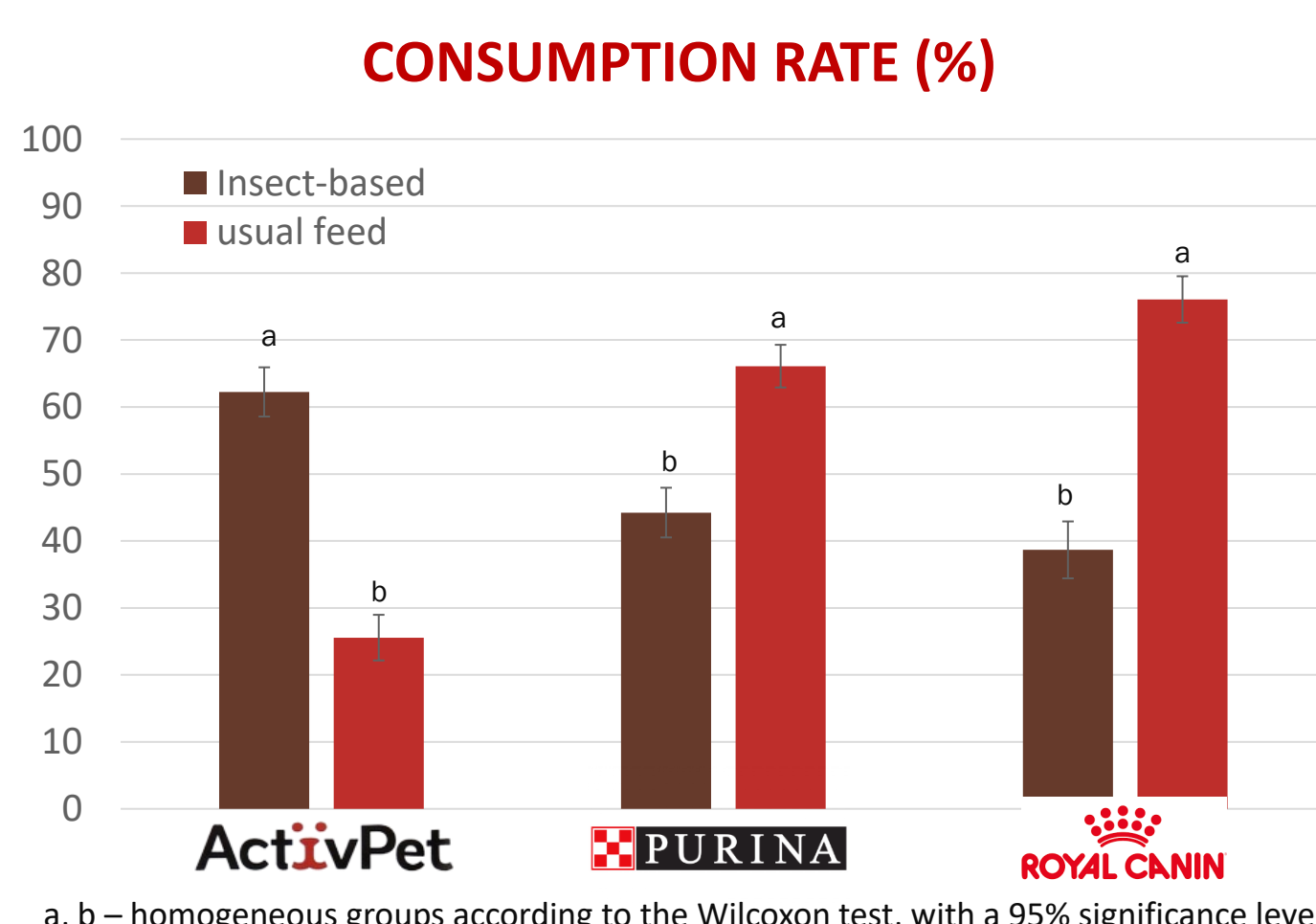
- First bowl approached and consumed
- Amount eaten vs the animal's usual intake
- Comments on the animal's reaction
- Preference between samples and purchase intention
- Product appearance, odour, texture + hedonic liking (9-point scale)

STUDY 1 – Insect-based vs. Usual Feed



Overall **consumption** was **slightly higher** for the **usual feed**, not significant ($p = 0.08$). **Large interindividual variability**: some dogs ate the insect feed enthusiastically, others barely (according with tutors' observation)

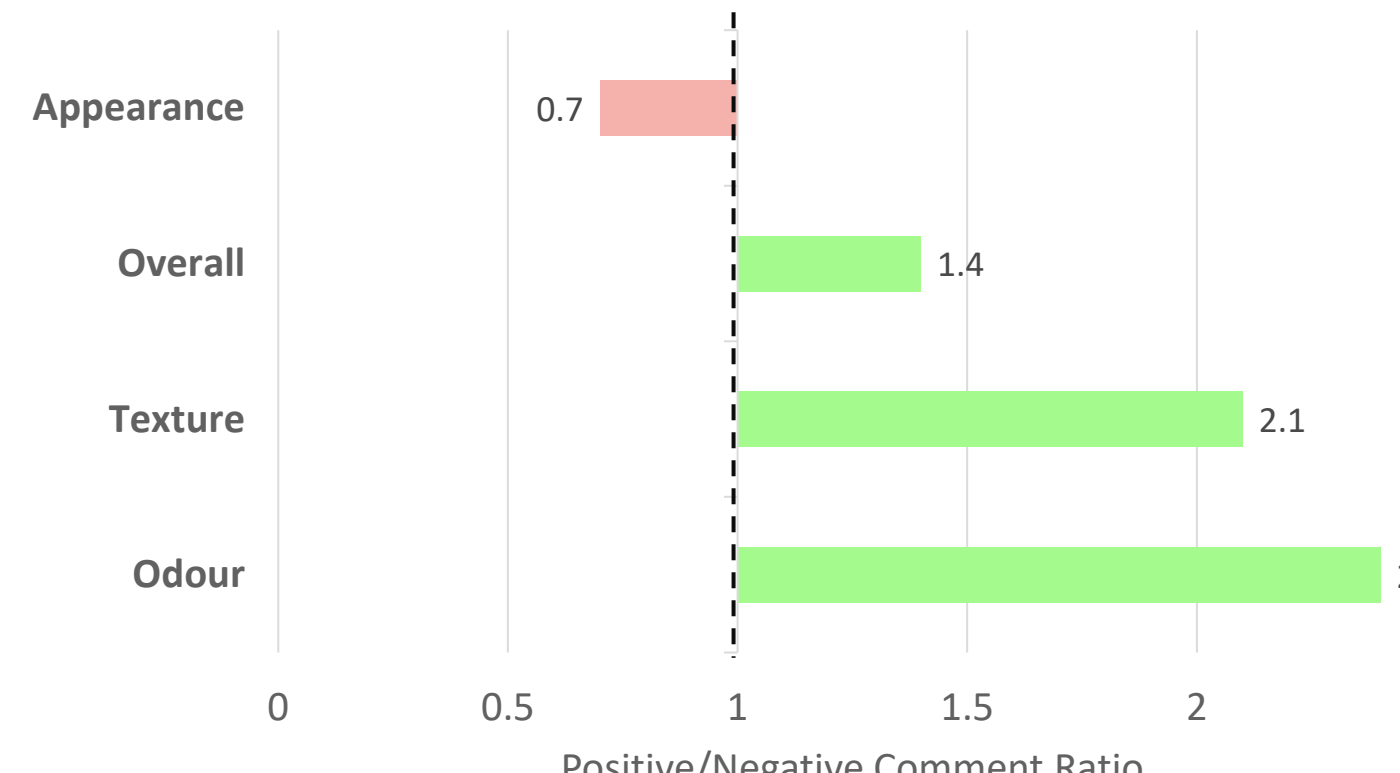
Segment analysis was insightful. The insect feed **significantly outperformed the low-cost ActivPet** ($p \leq 0.001$), but the premium **Purina and Royal Canin** were **significantly preferred** over it ($p \leq 0.001$).



a, b – homogeneous groups according to the Wilcoxon test, with a 95% significance level

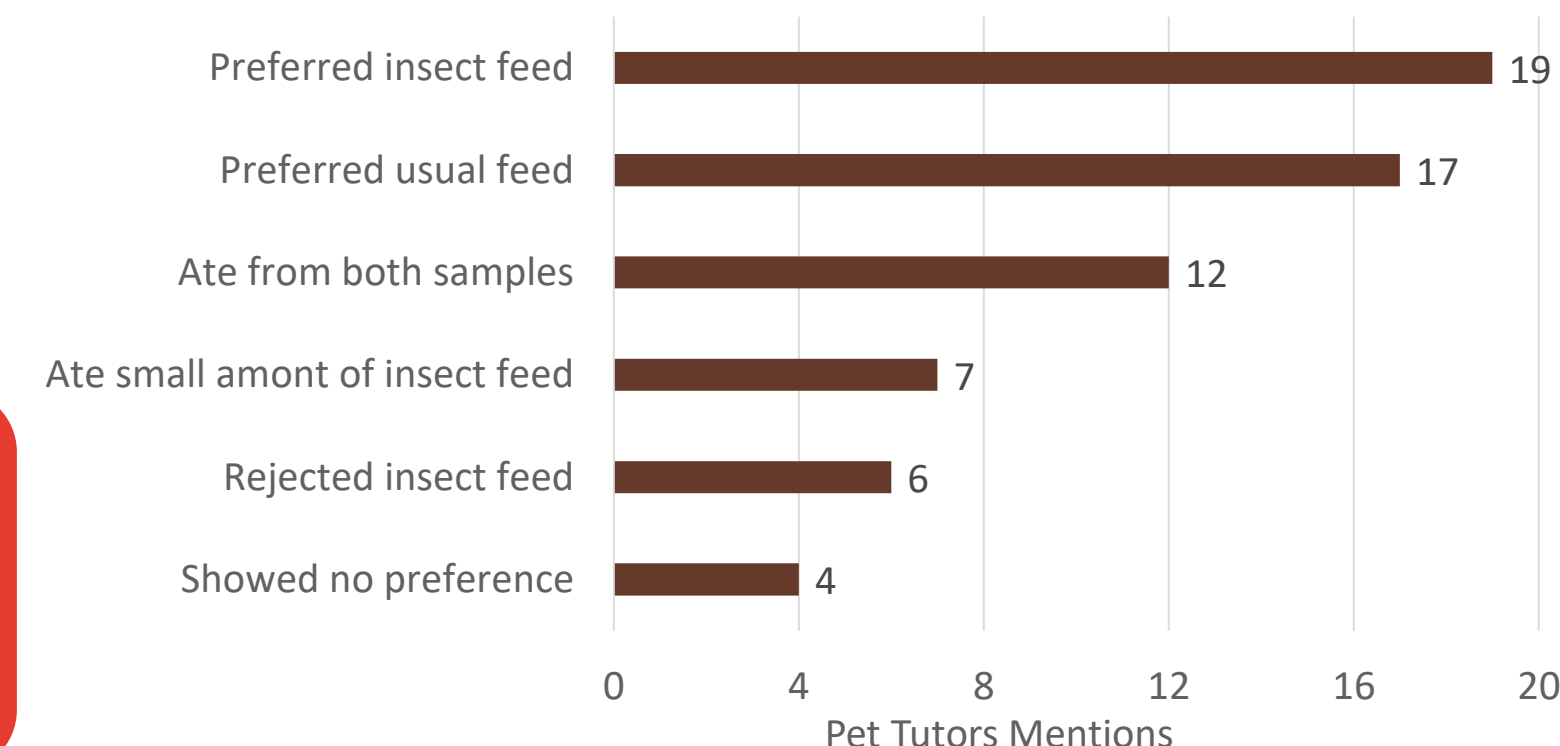
PET TUTORS ACCEPTANCE

PET TUTORS COMMENTS ON INSECT FEED



Tutors' comments on the insect feed were net positive (ratio=1.4). Odour and texture scored best; **appearance was the weak point**; the dark kibble colour was the most cited negative.

PET TUTORS' ACCOUNT OF THE DOG'S REACTION



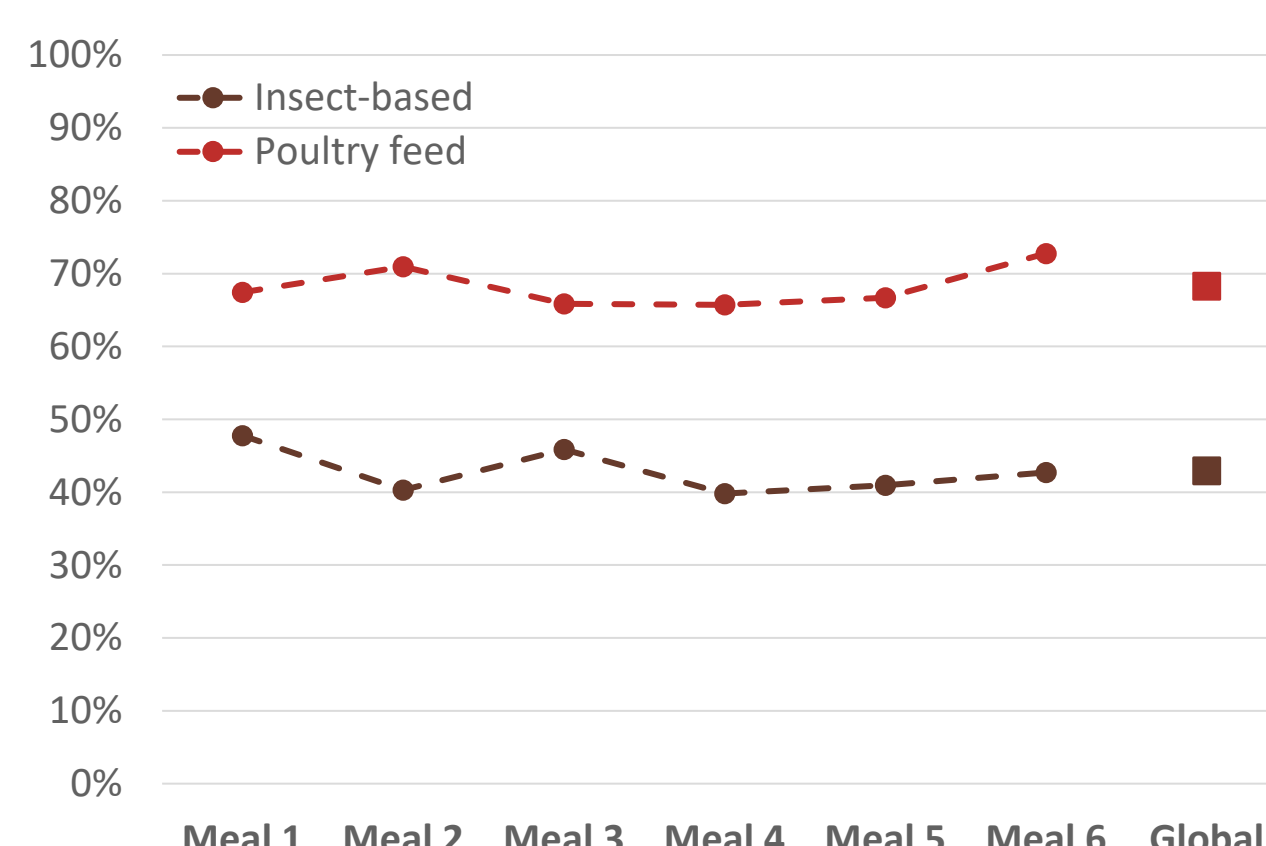
STUDY 2 – Insect-based vs Poultry-based



Figure1: Dry Dog Food for Adults – Fresh Poultry Meat and Dry Dog Food for Adults – Insect Protein Samples Evaluated

The poultry feed was consumed far more than the insect feed (68.2% vs. 42.9%, $p \leq 0.001$). Poultry stayed above 65% every meal; the insect feed stayed below 50% with no upward trend — **novelty did not drive consumption**, pointing to palatability differences, behaviour related.

CONSUMPTION RATE



61.5%

chose poultry on first approach

67.8%

consumed poultry first

PET TUTORS ACCEPTANCE

APPEARANCE

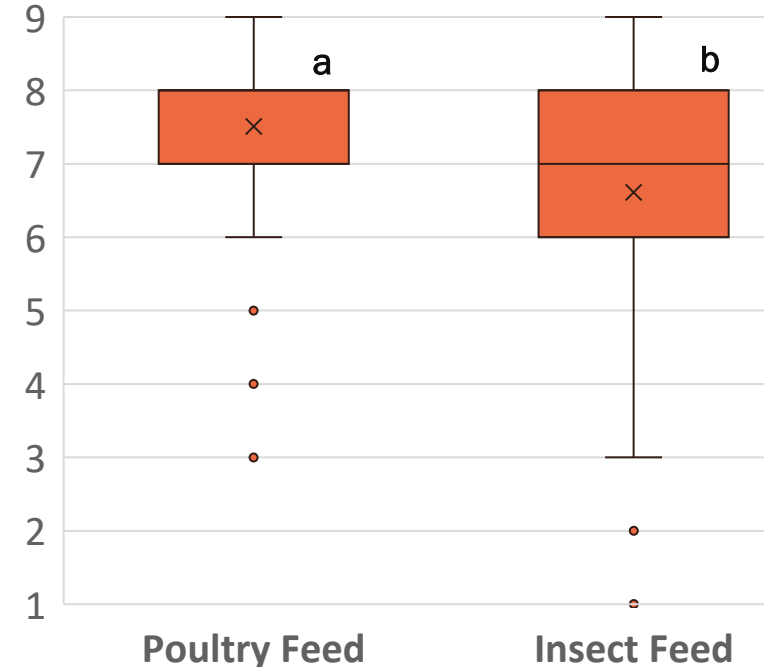


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TEXTURE



ODOUR



9 – I like it extremely
8 – I like it a lot
7 – I like it moderately
6 – I like it slightly
5 – I neither like nor dislike it
4 – I dislike it slightly
3 – I dislike it moderately
2 – I dislike it a lot
1 – I dislike it extremely

Regarding overall pet tutors' acceptance, the food with poultry protein was **better accepted** and **did not receive a significant number of negative comments** when compared to the food with insect protein (ratio=0.9). The **most appreciated attribute** in the insect-based formulation was **“Odour,”** and in the poultry-based formulation, it was **“Appearance”**. The most frequent **negative comment** regarding the (insect) food was that the **“colour was too dark.”**

CONCLUSION

- Positioning is mid-range: competitive against low-cost feed, below premium brands. Small per-segment n limits statistical robustness.
- High dispersion in consumption reflects strong interindividual variability and lower market predictability.
- The poultry-based pet food was preferred by dogs and owners, whilst the lower acceptance of the insect-based version may reflect reluctance towards a less conventional product and potential differences in palatability.
- Sensory optimization targets: lighten the dark colour, moderate odour intensity, soften the hard texture.

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