

Perceived benefits, risks, and determinants of acceptance of insect-based animal feed among Algerian consumers for poultry, cattle, small ruminants, and fish

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INTRODUCTION & AIM

Algeria's animal feed sector is significantly reliant on imports due to limited domestic fodder production [1]. The country's active involvement in international bodies like the **FAO**, underscores its engagement in global agricultural and **food security** discussions [2, 3].

Globally, protein demand is projected to increase by **60% by 2050**, with animal feed consumption anticipated to surpass 1 billion tons annually [4, 5]. The FAO's influential 2013 "**Edible Insects**" report identified insects as a sustainable solution to this growing demand, advocating for their gradual integration into food systems, particularly as animal feed [6, 7].

Given Algeria's recent escalation in meat imports from countries like Spain and Brazil [8], the introduction of insect-based animal feed, either through import or domestic production, appears increasingly probable. Despite this impending shift, there is a **notable absence** of research regarding Algerian consumer preferences and acceptance of insect-based feed for livestock.

This study aims to fill this knowledge gap by exploring the determinants influencing consumer acceptance of insect-based feed for poultry, cattle, sheep/goats, and fish, specifically examining attitudes, perceived risks, expected opportunities, and socio-demographic factors.

METHOD

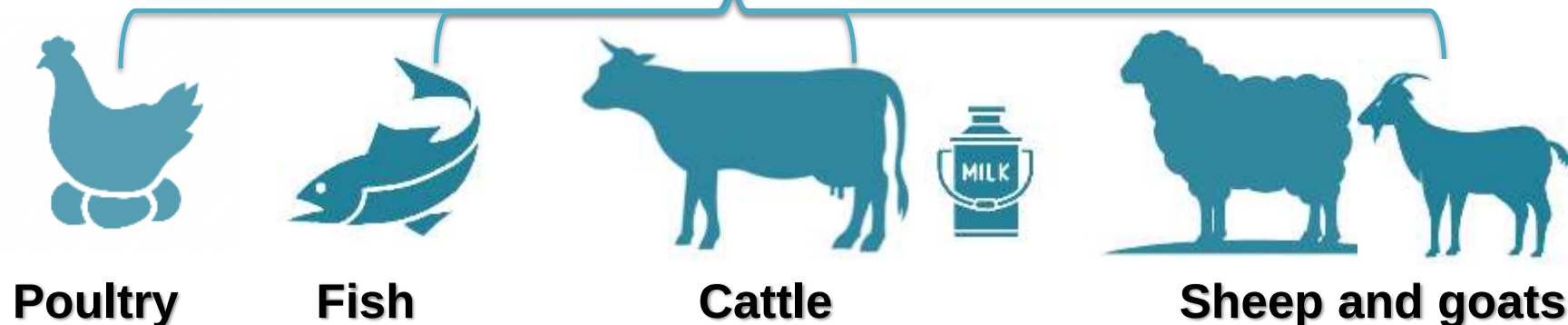
The study is based on a questionnaire designed to gather the opinions of the consumer population regarding Insect-based Feed (IBF)

The questionnaire was formulated based on a previous study and revised with the help of a group of specialists, including : 2 Animal Physiologist, Nutritionist, Psychologist, Sociologist, food scientist...

This questionnaire explores various topics related to the environment, agriculture, and food perceptions. It includes:

Perceptions on the use of insects in animal feed Dietary habits Socio-economic and demographic factors

The research involves four animal groups:



Total number of distinct items (including sub-questions): 84 questions

Released in February 2024



300 Subjects

Statistical analysis were carried out using



SPSS software (25)

Student's t test

For the comparison of means between quantitative variables

Pearson's Chi-square test

For qualitative variables, to compare proportions

CONCLUSION

Changing the diet of any living organism has consequences at multiple levels: molecular, genetic, cellular, all the way to the ecosystem and biome levels.

Detailed and long-term studies are more than necessary before generalizing such an idea, the outcomes of which we do not fully understand or control, especially if things go out of control.

RESULTS & DISCUSSION

Women consistently show **lower** acceptance for insect-based feed across all animal types compared to men, with a particular distinction in poultry and fish. Overall, acceptance is **much higher for poultry and fish** compared to cattle and ovine for both genders.

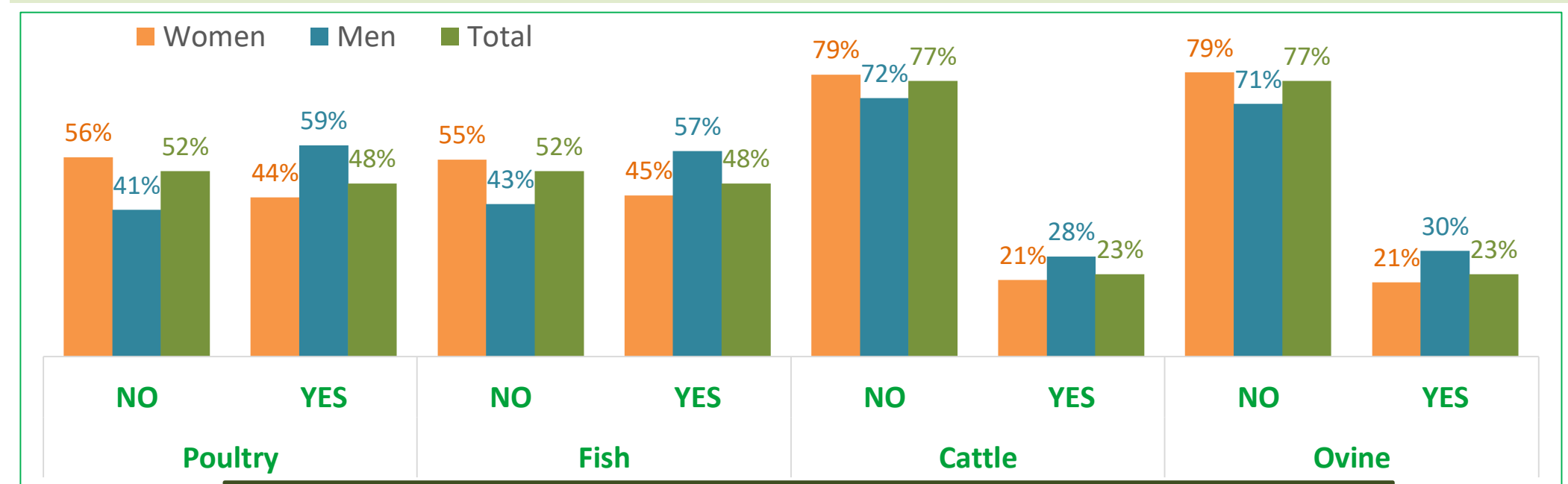


Figure 1. Acceptance of insect-based feed by gender

Older age groups (**31 and over**) generally show higher acceptance rates for insect-based feeds across all animal types compared to younger age groups (**20 or less, 21 to 30**). Across all age groups, the acceptance for insect-based feed for **cattle and ovine remains notably lower** compared to poultry and fish.

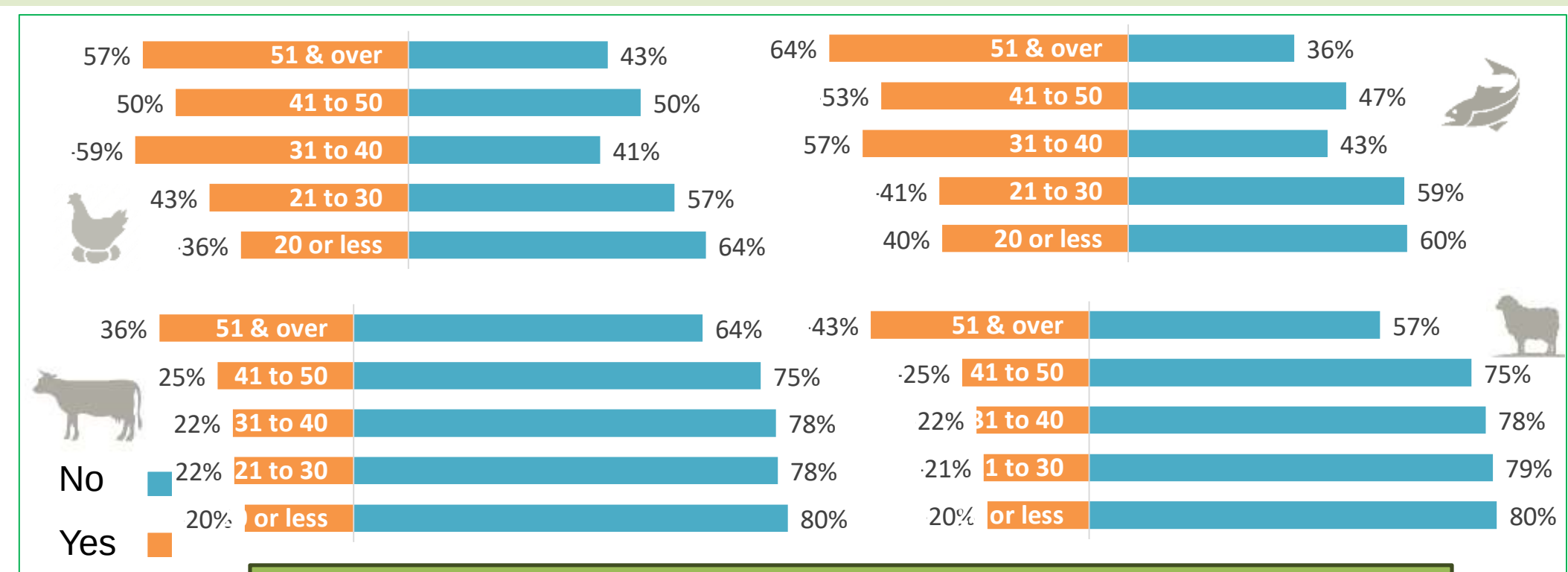


Figure 2. Acceptance of insect-based feed by age group

Education level appears to play a significant, non-linear role in the acceptance of insect-based feeds. While **higher education** correlates with greater acceptance, the **complete rejection by the 'Medium'** education group suggests that simple linear assumptions about education and acceptance may not apply.

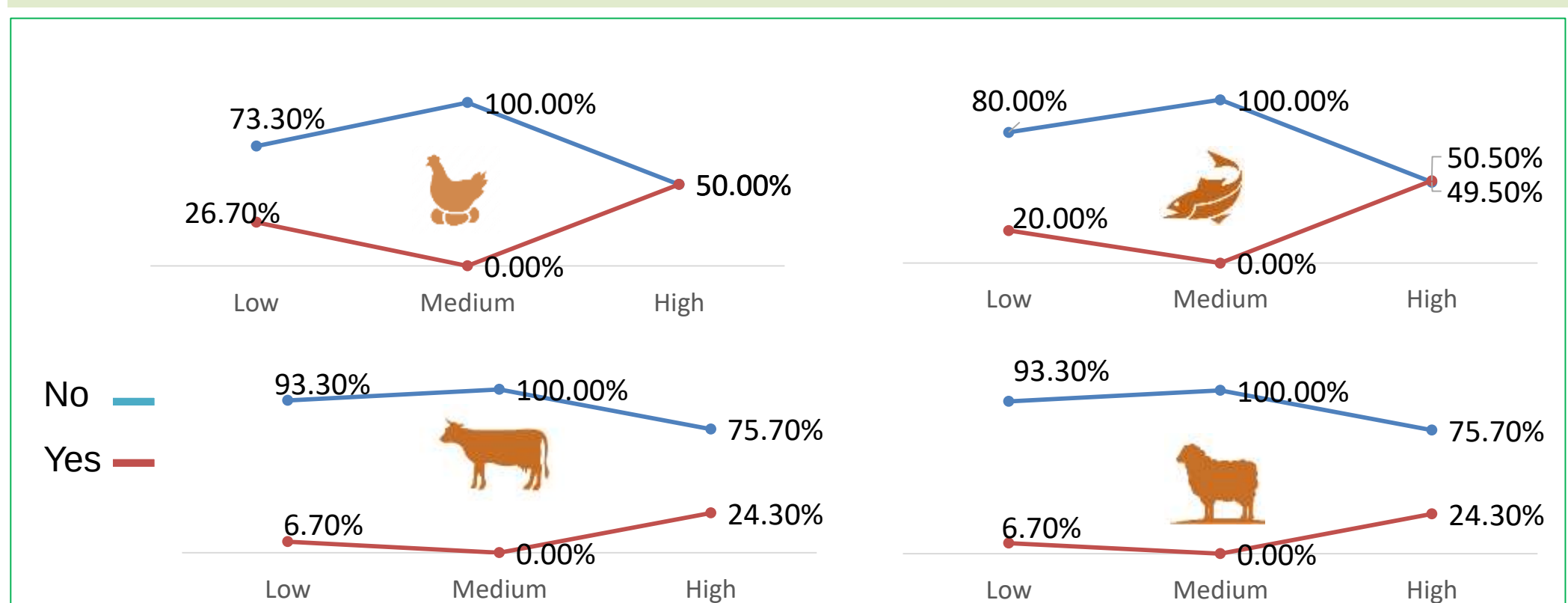


Figure 3. Acceptance of insect-based feed by educational levels

This data reveals a compelling tension: while **rational drivers** like **Nutritional benefits** and **Environmental concerns** are strong positive influencers, a primal **emotional barrier—Disgust**—almost equally dictates acceptance. This isn't a knowledge gap; it's a sensory and psychological one. Factors often assumed to be dominant, such as **Economic considerations** or **Cultural beliefs**, are surprisingly less impactful than core values (welfare) or deeply ingrained psychological responses.

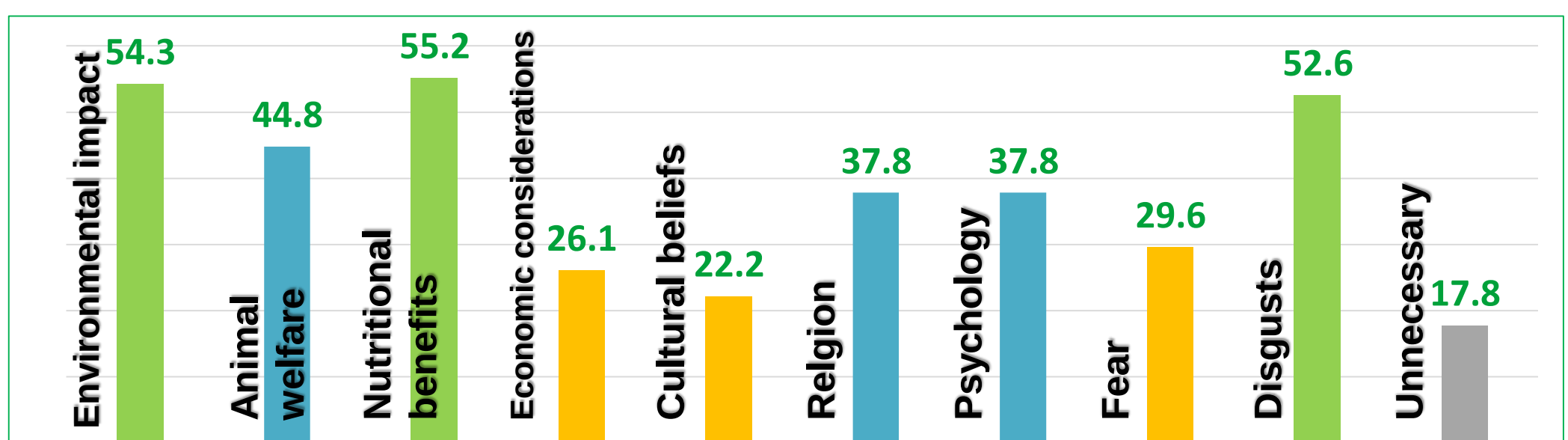


Figure 4. Opinion influencers on the acceptance of insect-based feed

FUTURE WORK / REFERENCES

[1] Benali, H. (2018). *The feed industry in Algeria: Challenges and prospects*. Ministry of Agriculture, Rural Development and Fisheries.