



AEEA
ASOCIACIÓN ESPAÑOLA DE
ECONOMÍA AGROALIMENTARIA

14 CONGRESO DE
ECONOMÍA
AGROALIMENTARIA

ESTRATEGIAS DE LOS SISTEMAS AGROALIMENTARIOS ANTE LOS DESAFÍOS GLOBALES

6, 7, 8 septiembre de 2023

Zaragoza

Is there a room for using insect meal as a sustainable feeding alternative in chicken and pigs?

Consumers' perceptions and willingness to pay

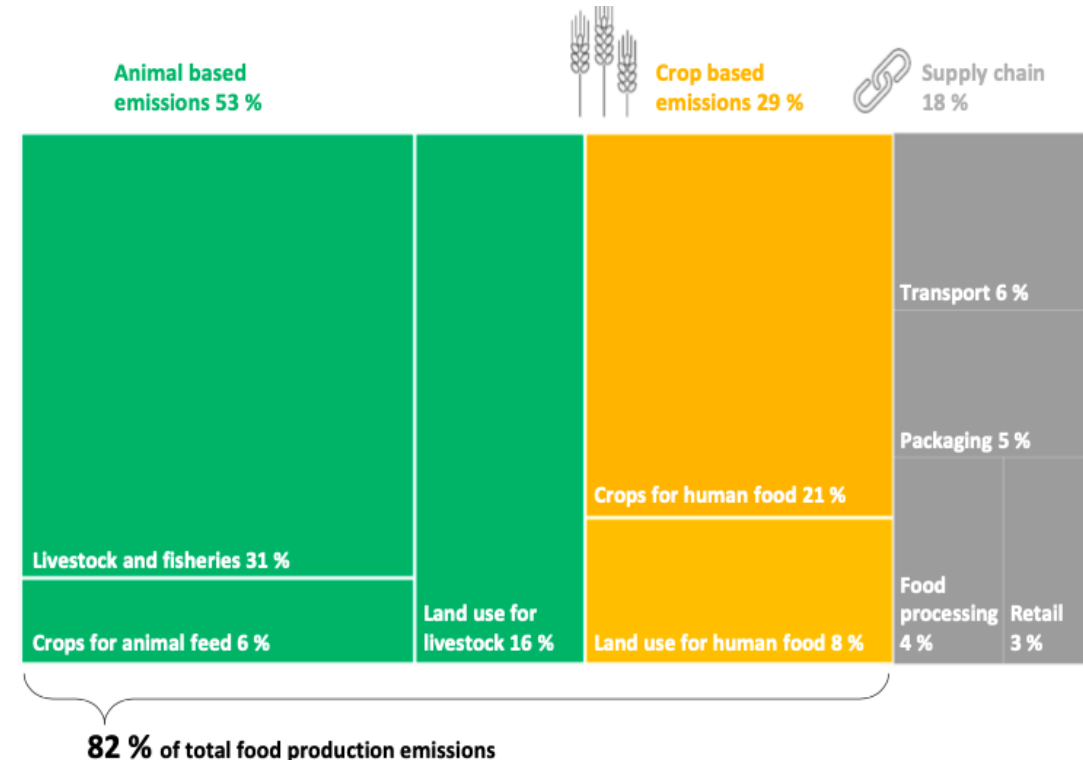
Nada Kajad & Zein Kallas



1. The meat sector is one of the most contributing sectors to the **GREENHOUSE GAS (GHG) EMISSIONS**, which is bringing controversial discussions at the environmental and societal levels.
2. **FOOD PRODUCTION ACCOUNTS** for 26% of global GHG, of which 53% comes from animal production, 29% comes from crops and 18% from supply chain (transportation, packaging and sales).

⌘ The consumption of meat is linked to:

- poorer health results (Cardiovascular disease, cancers and diabetes)
- negative environmental impacts (Greenhouse gas emission GHG)



Several actions and alternatives have been investigated to reduce the impact of the livestock and meat sector on climate change and the GHG emissions.

Insects in feed

Less water

Less land

Less resources

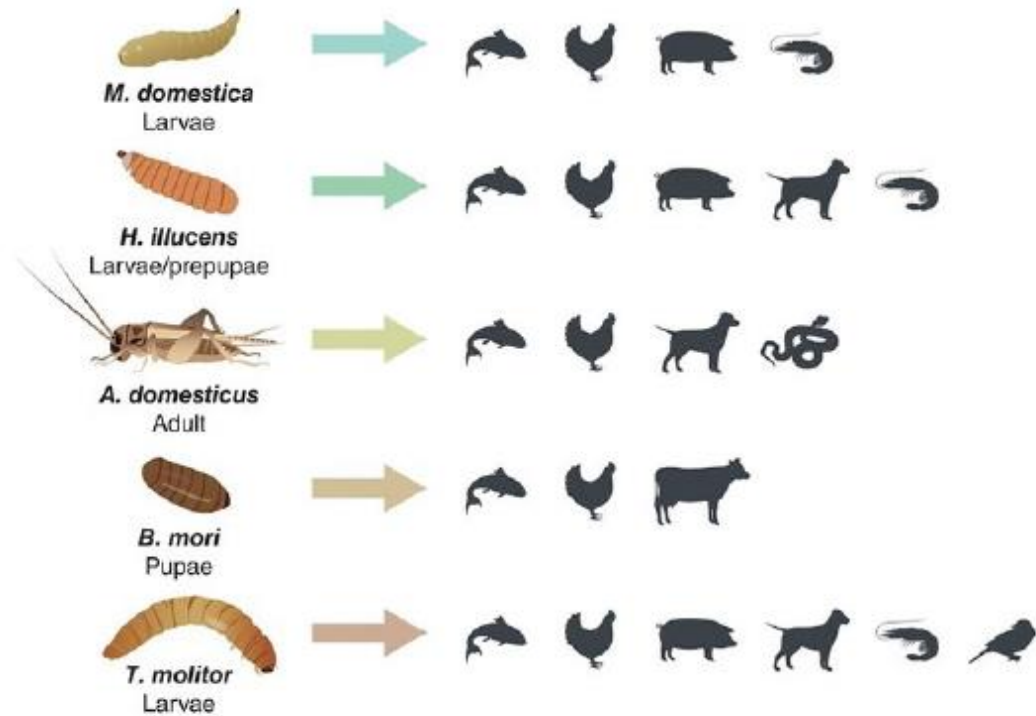
Insect are fed using fruit and vegetable waste, even manure

Chitin strengthen the immune system of animals

Less use of pesticides

Good source of nutrients

Less deforestation



- Regulation (Nº2017/893) that authorizes the use of insect proteins in feed for aquaculture
- Regulation (Nº2021/1372) by the EU which authorizes the use of processed animal proteins derived from insects (insect PAPs) in poultry and pig feed.

It is highly relevant to explore and understand consumers' opinions and attitudes towards such alternatives.

Analyzing how consumers may react in front of introducing insect meal protein in the feed of pig and poultry and their willing to pay more.

SUSPROMO Project (PID2019-111716RB-I00)

“Are promotional strategies a barrier to reduce greenhouse gases emissions from meat products?”.

WTP4: Analyzing consumers’ willingness to pay (WTP) and analyzing their purchase intention for pork and chicken products obtained with animals fed with insect protein meal.



SUSPROMO

Are promotional strategies a barrier to reduce greenhouse gases emissions from meat products?

Impact of promotions on the consumption of meat products and the contribution of such marketing strategies to stimulate GHG emissions

willingness of stakeholders to adopt insect meal as sustainable feed alternatives along the added-value chain of poultry and pig production

Shopping behaviour of the elderly population and the contribution of their consumption to actual and future GHG emissions.

Consumers' willingness to pay and purchase intention for pork and chicken products produced from animal fed with insect meal alternative



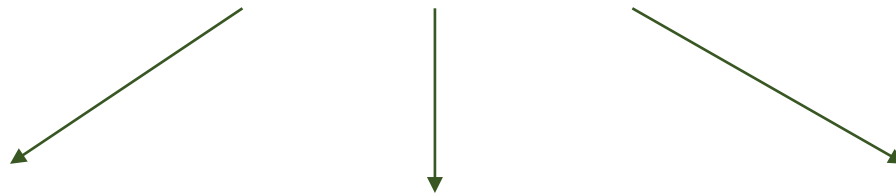
Coordinator: CREDa (CENTRE DE RECERCA EN ECONOMIA I DESENVOLUPAMENT AGROALIMENTARI)

Supported and financed by: GOBIERNO DE ESPAÑA, MINISTERIO DE CIENCIA E INNOVACION, and other entities.

Proyecto de I+D+i Retos Investigación 2019

Bioeconomía: sostenibilidad de los sistemas de producción primaria y forestales, seguridad y calidad alimentaria.

Target population



living in Spain

above 18 years old

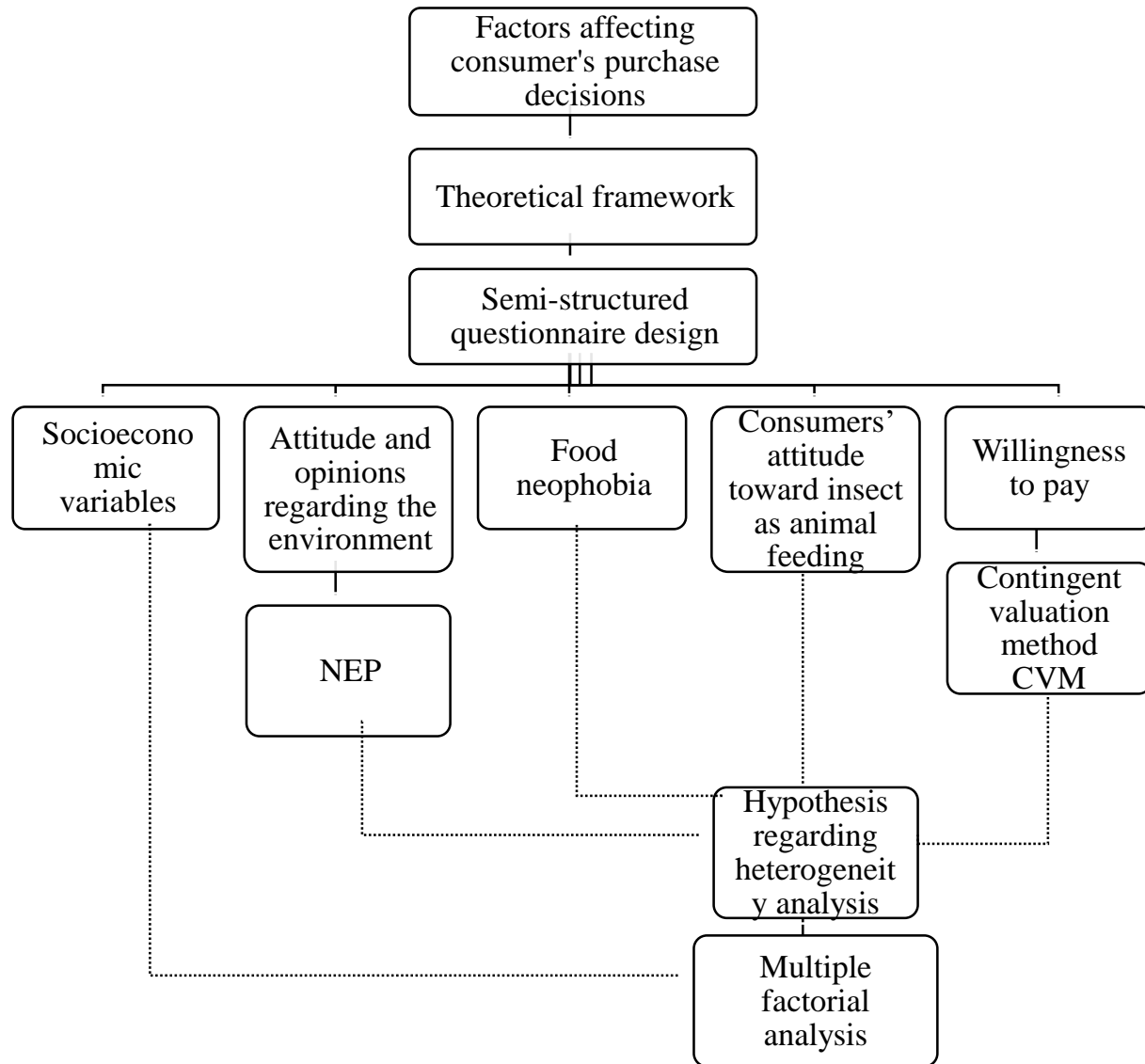
responsible for food shopping and
meat consumers

Quota

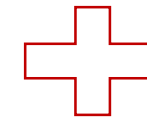
Gender	Male :48% / Female: 52% / Binary: natural fallout
Age	18-34:30% / 35-54: 32% / More than 55: 38%

Characteristics

Population	Food shoppers and meat consumers above 18 years old
Area	All Spain
Sample size	1017 respondents but only 1005 final valid responses
Sample error	3%
Confidence level	95%
Method of collecting data	Online survey (Qualtrics platform)
Date of fieldwork	12 and 23 rd of December 2022



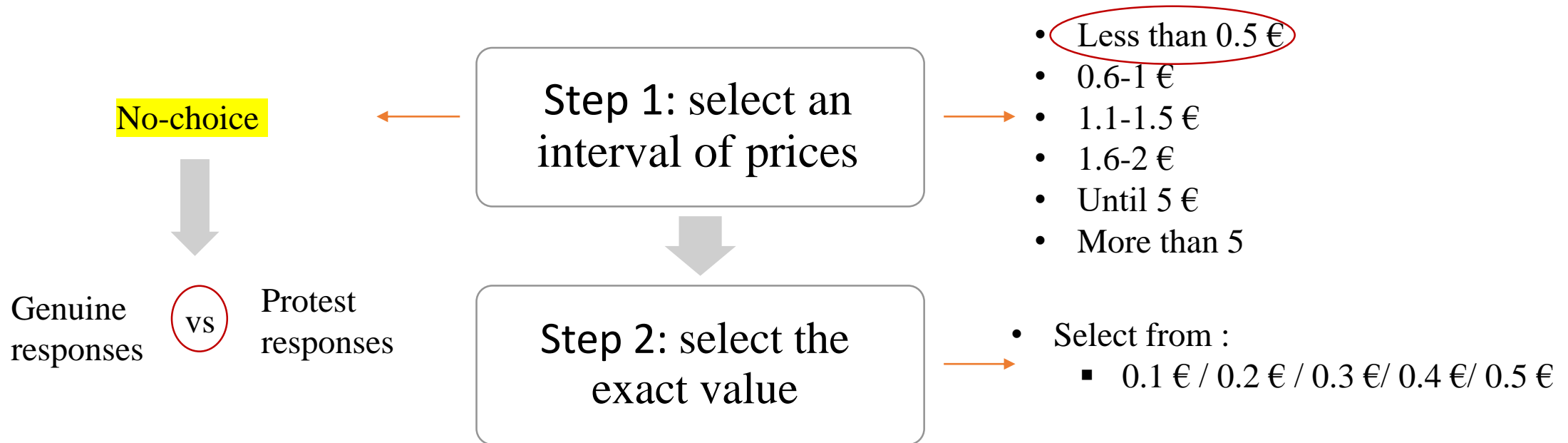
Referendum Vote (Yes/No)



Payment card elicitation format

Contingent valuation method for the estimation of WTP

- ✓ First question: stating the price they pay for the product casually (for home consumption)
- ✓ 2 steps CVM
- ✓ Explanation text: Producing chicken/pork/eggs fed by SUSTAINABLE feed with insect meal implies higher costs for farmers



Expected willingness to pay

Cheap Talk



Next, we will ask you a series of questions about your willingness to pay for various **PRODUCT** alternatives. But **BEFORE** that, please read the following text.

Experience from **PREVIOUS SIMILAR** surveys shows that people often answer one way but act **DIFFERENTLY**. It is especially common for people to state a **HIGHER** willingness to pay than they are actually willing to pay for the products they buy in the store. We believe this is because one does not really consider the **IMPACT** that an **EXTRA COST** has on the family budget. It is easy to be generous when one does not really need to make the decisions in a store.

We want you to behave the **SAME** way you would if you **REALLY** had to pay for the product and take it home. **PLEASE** keep in mind how much you really want the product, versus other alternatives you might like or any other constraints that would cause you to change your behavior.

Then the survey displays the “solemn oath” so they can answer by yes or no, it contains the following details:

Solemn Oath



SOLEMN OATH

Topic: SUSPROMO project ; Research number: PID2019-111716RB-I00

I, the respondent of this questionnaire, swear upon my honor that, during the whole experiment, I will:

Tell the truth and always provide honest answers.

- yes I swear
- no I don't

Spain

Information load impact

A written text with an
image [2]

+

A video



A video



The simplest
information:

Producing chicken/ pork/
eggs fed by a
SUSTAINABLE feed
with **INSECT** meal
proteins implies higher
costs for farmers.

Option 1



Food production accounts for 26% of global greenhouse gas emissions, of which 53% comes from livestock production, 29% comes from crops and 18% from the supply chain (transportation, packaging and sales). To increase the sustainability of animal production, recently, in August 2021, the European Commission approved regulation No. 2021/1372 in which the use of insects in poultry (chicken and hens) and pig production is authorized. The regulation is based in part on the fact that the production of insects is more environmentally sustainable than the production of other protein sources for animal feed.

Option 2

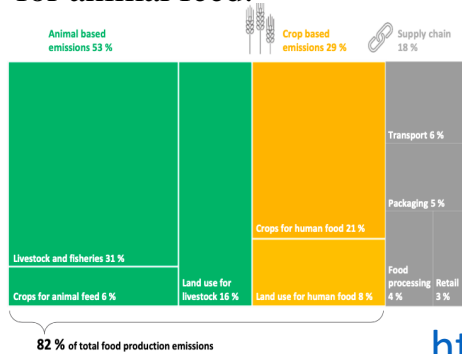


Option 3



minimum information

<https://www.youtube.com/embed/XJw3i2a2qxo>



<https://www.youtube.com/embed/XJw3i2a2qxo>

Results

The “no” choice: 35% not willing to pay more

Reasons	Percentage (By product)(%)			Percentage (within the option)(%)		
	Chicken	Pork	Egg	Option 1	Option 2	Option 3
I cannot pay more because my food budget does not allow it.	38.7	40.7	39.3	40.5	35.9	42.8
I believe that the additional costs of this type of sustainable food should be assumed by the producer.	12.3	11.9	13.1	13.2	12.3	11.8
I am more confident about eating fresh chicken meat/ pork/ egg if it is organic.	9.7	7.9	10.7	8.7	12	7.2
I think that sustainable food with insect meal is just a fad and an invention to make us pay more.	14	14	11	14.8	12.8	11.1
I don't trust this type of sustainable food with insect feed.	22.9	23	23.5	20	26	23.4
Other reasons	2.3	2.4	2.4	7.9	1.1	3.6

Results

Percentage WTP (%) by option

**Text description +
Video**

Only video

Min information

WTP

Std. dev

WTP

Std. dev

WTP

Std. dev

Chicken

24.01

3.24

20.80

2.17

29.12

3.06

Pork

23.10

2.87

19.56

2.31

24.21

3.44

Eggs

31.39

1.66

28.05

3.91

35.70

3.64

1. **INFORMATION CONTEXT** influences consumers' preferences.
2. The **SIMPLEST** information implies the highest WTP.
3. Consumers' **AWARENESS**, credible sources of information is significant drivers of the perception toward insect as a feed.
4. High **HETEROGENEITY** levels were found according to the main characteristics of consumers



Sustainable Production and Consumption

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Towards more sustainable animal-feed alternatives: A survey on Spanish consumers' willingness to consume animal products fed with insects