

# Nudging plant-based protein purchases in a real-life online supermarket

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<b>Registration date</b> 14/03/2022	<b>Overall study status</b> Completed	<input checked="" type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 21/02/2024	<b>Condition category</b> Other	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

For challenges of environmental sustainability and health perspective, a shift from consumption of animal-based to plant-based proteins is widely acknowledged to be necessary. Food consumption is heavily influenced by our social and physical environments, for example in terms of availability, price, and social acceptance. One of our food environments is supermarkets, where people buy protein products on a daily or weekly basis. Previous research has shown that adjustments in supermarket environments can affect purchasing behavior towards healthier choices. In addition, experiments in virtual supermarkets and canteens have shown that certain choice architecture (i.e., nudging) strategies can promote plant-based protein choices in terms of products or meals. However, the impacts of nudging strategies on plant-based protein purchases have rarely been studied in real-life settings. Moreover, while previous research found that a combination of nudges can be more effective in changing behavior than a single nudge, most nudges have been studied separately. Therefore, this study will expand existing knowledge by investigating the real-life effect of a combined nudging strategy on plant-based protein purchases relative to animal-based purchases in an online supermarket.

### Who can participate?

All customers of the participating online supermarket chain.

### What does the study involve?

Customers visiting the online supermarket are randomly allocated to:

1. No intervention (regular online supermarket)
2. Addition of three types of nudges (placement, social norm and properties)

During an 8-week study period sales data are collected from all customers placing a delivery order in the online supermarket. Including a 16-week follow-up measurement.

### What are the possible benefits and risks of participating?

The study does not involve direct benefits or risks for the participants.

### Where is the study run from?

National Institute for Public Health and the Environment (RIVM) (the Netherlands)

When is the study starting and how long is it expected to run for?  
September 2021 to September 2022

Who is funding the study?  
National Institute for Public Health and the Environment (RIVM) (the Netherlands)

Who is the main contact?  
Nina van der Vliet  
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## Contact information

**Type(s)**  
Scientific

**Contact name**  
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## Additional identifiers

**Clinical Trials Information System (CTIS)**  
Nil known

**Protocol serial number**  
2021.0703

## Study information

**Scientific Title**  
Nudging plant-based protein purchases in a real-life online supermarket: a randomized controlled trial

**Acronym**  
SHIFT-diets

**Study objectives**  
We will primarily evaluate whether the implementation of nudges will result in a between group mean-difference in the number of plant-based protein purchases in an online supermarket. As

secondary outcome, we will evaluate between groups the mean-differences in the number of purchased plant-based meat replacements, animal-based meat products, plant-based dairy purchases, and animal-based dairy purchases. As a tertiary outcome we will investigate the mean-differences in retailer revenue as a relevant business related outcome. In addition, we will explore if potential effects are sustained after the intervention period has ceased and investigate potential interactions with the primary outcome for neighborhood socio-economic position (SEP), age and sex.

### **Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

Approved 26/01/2022, The Medical Ethics Review Committee of VU University Medical Center (De Boelelaan 1109, kamer 08A-08, Postbus 7057, 1081 HV Amsterdam, the Netherlands; +31 20 444 5585; metc@vumc.nl), ref: 2021.0703

### **Study design**

A two-arm parallel-group individually randomized controlled trial

### **Primary study design**

Interventional

### **Study type(s)**

Prevention

### **Health condition(s) or problem(s) studied**

Promoting plant-based protein products among the general population

### **Interventions**

Current interventions:

Arm 1: Regular online supermarket (control).

Arm 2: Online supermarket with the addition of nudges on plant based protein products.

Randomization and allocation is performed by supermarket e-commerce employees, using a software tool names Blueconic. Randomization is based on participants' browser cookies.

In the control group, shoppers encounter the unadjusted online shopping environment as it currently is.

Participants that are randomized to the intervention group will shop in an adjusted online supermarket website, in which a combination of three nudging strategies are present. The different nudging strategies focus on prominence, dynamic social norms and properties.

#### **Prominence nudge**

First, we will install a prominence nudge, meaning that at two points on the supermarket website, the product categories of plant-based protein products (plant-based meat alternatives and plant-based dairy alternatives) are placed more prominently when navigating the main category called 'Meat, chicken, fish and vegetarian' and when navigating the main category called 'Dairy, butter and eggs'.

#### **Dynamic social norms nudge**

Secondly, we will install a dynamic social norms nudge by means of a label on products. Based on

sales data of all plant-based dairy and meat alternatives in the period before starting the experiment, we will select the 50% most sold products in several product categories. Categories included for example vegetarian minced meat, vegetarian schnitzel or burgers, plant-based drink and vegetarian snacks. These products will be provided with a label in Dutch that translates to 'Increasingly chosen' (in Dutch: 'Steeds vaker gekozen').

In addition to the label, on 11 product category overview pages (for example, potatoes, pasta, rice, coffee), a purple-colored frame, from now on called a 'toaster' will be shown on the top right side of the page. When clicked on by the shopper, this toaster will direct shoppers to plant-based alternative category pages, that are relevant for the product page. The different toasters each will show two images of relevant plant-based meat- or dairy replacement products.

#### Properties nudge

Regarding properties, a nudging strategy will be used in the form of a tastiness product label on the frame. Besides the text 'Increasingly chosen' / 'Steeds vaker gekozen', an additional text is shown saying: 'Have a look at these tasty products' / 'Bekijk ook deze lekkere producten'. This so-called frame will be installed on the top left side of three main category pages (Meat, chicken, fish and vegetarian products; freezer products; dairy products).

#### Previous interventions:

Arm 1: Regular online supermarket (control).

Arm 2: Online supermarket with the addition of nudges on plant based protein products. Randomization and allocation is performed by supermarket e-commerce employees, using a software tool names Blueconic. Randomization is based on participants' browser cookies.

In the control group, shoppers encounter the unadjusted online shopping environment as it currently is.

Participants that are randomized to the intervention group will shop in an adjusted online supermarket website, in which a combination of three nudging strategies are present. The different nudging strategies focus on placement (increasing availability and prominence), social norms, and properties.

#### Placement nudges

Firstly, we will use a prominence (position) nudge, entailing that plant-based protein products are placed more prominently when searching for (animal-based) protein products groceries or navigating towards animal-based protein products (for example, plant-based chicken-like pieces are presented when searching for chicken).

Secondly, we will also use an availability nudge in combination with the prominence nudge, entailing multiple plant-based protein product alternatives are suggested when navigating or searching animal-based protein products, thereby increasing the availability of these products.

#### Social norm nudge

We will install a dynamic social norms nudge. When navigating or searching for animal-based products, plant-based alternatives will be suggested between the results with a label 'Increasingly chosen' (Dutch translation: 'Steeds vaker gekozen'). In addition, there will be a frame linking to two plant-based products with the label 'Increasingly chosen'.

#### Properties nudge

We will install a tastiness product label. On the previously described frame linking to plant-based products with the label 'Increasingly chosen', an additional text is installed saying: 'Also have a look at these tasty products' (Dutch translation: 'Bekijk ook deze lekkere producten'). Furthermore, within other categories (e.g. pasta, rice, potatoes, vegetables, coffee), a frame will

be installed that suggests plant-based products and contains the label 'Have a look at these tasty products'

### **Intervention Type**

Behavioural

### **Primary outcome(s)**

The number of plant-based protein products purchased measured using the online shopping website at a single time point

### **Key secondary outcome(s)**

Measured using the online shopping website at a single time point:

1. The number of purchases from (a) meat, (b) plant-based meat substitutes, (c) dairy products, and (d) plant-based dairy products.
2. Total revenue in Euros.

### **Completion date**

22/09/2022

## **Eligibility**

### **Key inclusion criteria**

Current inclusion criteria as of 13/06/2022:

All customers placing a delivery order (i.e., shops) in a real-life online supermarket between mid May 2022 until mid September 2022.

Previous inclusion criteria:

All customers placing a delivery order (i.e., shops) in a real-life online supermarket between mid February 2022 until mid June 2022.

### **Participant type(s)**

All

### **Healthy volunteers allowed**

No

### **Age group**

Adult

### **Sex**

All

### **Total final enrolment**

3502

### **Key exclusion criteria**

Does not meet inclusion criteria

**Date of first enrolment**

18/05/2022

**Date of final enrolment**

22/09/2022

## Locations

**Countries of recruitment**

Netherlands

**Study participating centre****National Institute for Public Health and the Environment (RIVM)**

Antonie van Leeuwenhoeklaan 9

Bilthoven

Netherlands

3721 MA

**Study participating centre****Amsterdam UMC, VU University**

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Amsterdam

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**Study participating centre****Wageningen University & Research**

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Wageningen

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## Sponsor information

**Organisation**

National Institute for Public Health and the Environment

**ROR**

<https://ror.org/01cesdt21>

# Funder(s)

## Funder type

Other

## Funder Name

Investigator initiated and funded

# Results and Publications

## Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are not expected to be made available due to confidentiality agreements with the collaboration supermarket chain

## IPD sharing plan summary

Not expected to be made available

## Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>		17/02/2024	21/02/2024	Yes	No
<a href="#">Statistical Analysis Plan</a>			07/02/2022	No	No