



**BIOTEXFUTURE**<sup>†</sup>  
TRANSITION LAB

# CONSUMER ATTITUDES TOWARDS LAB-GROWN MATERIALS

**INSIGHTS  
SESSION**

20.10.2023

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FAU,  
Hannah Altenburg  
Lauren Mackintosh

# CONTENT

1. INTRODUCTION
2. METHODOLOGY
3. RESULTS
4. NEXT STEPS



# INTRODUCTION

# CURRENTLY THE TEXTILE INDUSTRY USES MOSTLY UNSUSTAINABLE AND NON-RENEWABLE MATERIALS

Relevance of the Study

## OTHER PRODUCT CATEGORIES



Consumer preferences for farm-raised meat, lab-grown meat, and plant-based meat alternatives: Does information or brand matter?

Ellen J. Van Loo<sup>a,b</sup>, Vincenzina Caputo<sup>c</sup>, Jayson L. Lusk<sup>a</sup>

<sup>a</sup> Marketing and Consumer Behavior Group, Wageningen University & Research, 6700 KN Wageningen, the Netherlands  
<sup>b</sup> Department of Agricultural, Food and Resource Economics, Michigan State University, 440 W. Circle Dr., East Lansing, MI 48824, United States  
<sup>c</sup> Department of Agricultural Economics, Purdue University, 403 W. State St., West Lafayette, IN 47907, United States



## The effects of materialism on consumer evaluation of sustainable synthetic (lab-grown) products

Jessica Keech  
 Department of Business, Organizations and Society, Franklin and Marshall College, Lancaster, Pennsylvania, USA  
 Maureen Morris  
 Department of Marketing, Rutgers University Camden, Camden, New Jersey, USA, and  
 Jeffrey Steven Padooshen  
 Department of Business, Organizations and Society, Franklin and Marshall College, Lancaster, Pennsylvania, USA



## TEXTILES

- There is a general consumer interest in bio-based products, and first studies have further shown that they have a positive effect on consumer preferences.
- However, the important process information that these materials are grown scientifically has so far been omitted.
- There is little information as to how consumers view textile products that are created with lab-grown materials.

*For consumers, textile products that are made with lab-grown materials represent an entirely new phenomenon, as materials made of renewable products were taken from nature up until now.*



# LAB GROWN & BIO-BASED MATERIALS

## *Characteristics*

- Made of different types of renewable raw materials
- Raw materials often subject to physical, chemical, or biological treatment
- May include natural fibers, man-made cellulosic, natural polymers or others

## *The case of mycelium*

- Based on the roots of fungi
- can be used to create renewable fiber
- Promising characteristics for a waterproof, lightweight and elastic fabric
- Wide application range and low production costs



# USE CASE: MYLO™ BY BOLT THREADS

## *Bolt products made of Mylo™*



Stan Smith Mylo by Adidas



Frayme Mylo by Stella McCartney



Mediation and Yoga Collection by Lululemon

## *Mylo™ material*

- Created in a laboratory environment by expert mushroom farmers
- Using less water, less carbon dioxide emissions and less space
- Use of vertical farming methods to reproduce mycelium that grows naturally in a forest

# **RESEARCH QUESTION:**

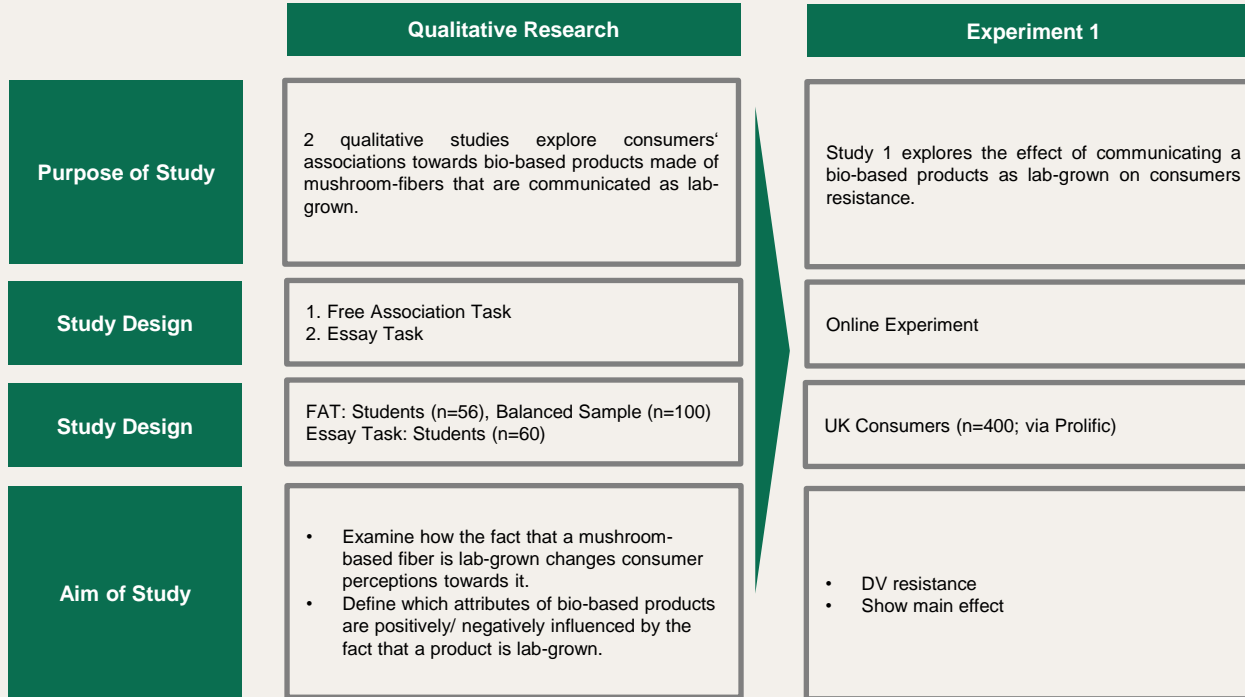
***HOW DOES THE ORIGIN OF BIO-BASED  
MATERIALS WITH EQUIVALENT MATERIAL  
ATTRIBUTES INFLUENCE CONSUMERS  
ATTITUDES?***



# METHODOLOGY



# WE APPLY A EXPLORE AND TEST MULTIMETHOD APPROACH



# FURTHER EXPERIMENTS WILL CLARIFY THE BOUNDARY CONDITIONS OF THE NEGATIVE LAB-GROWN EFFECT

	Experiment 2	Experiment 3	Experiment 4
Purpose of Study	Study 2 explores the mediating effect of psychological risk on consumers resistance to lab-grown products.	Study 3 explores the moderating effect of product type on on consumers resistance towards bio-based products communicated as lab-grown.	Study 4 explores the moderating role of belief in science on consumers resistance towards bio-based products communicated as lab-grown.
Study Design	Online Experiment	Online Experiment	Online Experiment
Study Design	UK Consumers (n=400; via Prolific)	UK Consumers (n=800; via Prolific)	UK Consumers (n = 400; via Prolific)
Aim of Study	<ul style="list-style-type: none"> <li>Psychological risk mediator</li> </ul>	<ul style="list-style-type: none"> <li>Product type moderator</li> </ul>	<ul style="list-style-type: none"> <li>Belief in science moderator</li> </ul>

**FUTURE RESEARCH: 3 ONLINE EXPERIMENTS**



# RESULTS

# QUALITATIVE STUDIES



# ASSOCIATIONS



# QUALITATIVE RESULTS

## Word Association Task

Associations towards Mushrooms			Associations towards Lab Grown	
Dimension	Significant Examples	Mentions & Evaluation	Significant Examples	Mentions & Evaluation
<b>Product</b>	Attributes (108) ( <i>tasty, delicious, smell, various</i> ) Category Food (116) ( <i>food, champignon, pizza, risotto</i> ) Other Category (3) ( <i>textile</i> )	227 (+)	Attributes (46) ( <i>chemical, synthetic, quality, clean</i> ) Category Food (48) ( <i>meat, meat alternative</i> ) Other Category (12) ( <i>diamonds</i> )	106 (-)
<b>Health</b>	<i>toxic, fungus, drugs, healthy, mould</i>	183 (-)	<i>bacteria, virus, cells, health risk, unhealthy, vaccine, organs</i>	63 (-)
<b>Nature</b>	<i>forest, earth, wood, nature, wild, ecosystem</i>	103 (+)	<i>plant, microorganism, mushroom</i>	15 (+)
<b>Psychological Effects</b>	<i>natural, fresh, dirty, awful</i>	67 (+)	<i>artificial, fake, inauthentic, scary, unsafe, unknown, uncertain</i>	135 (-)
<b>Economics</b>	<i>cheap, easy to grow</i>	14 (+)	<i>efficient, cheap, expensive, progress</i>	46 (+)
<b>Environmental Impact</b>	<i>saving resources, sustainable, vegan</i>	12 (+)	<i>sustainable, saving resources, unsustainable, vegan</i>	27 (+)
<b>Science</b>	<i>petri dish, intelligent</i>	3 (-/+)	<i>science, experiment, petri dish, test tube, genetic engineering, testing, mutation</i>	124 (+)
<b>Future</b>	<i>the last of us, futuristic farming</i>	3 (-)	<i>futuristic, innovative, new, advanced, modern, potential</i>	37 (+)
<b>Ethics</b>	-		<i>animal testing, animal welfare, genetic medicine, unethical, capitalism, exploitation</i>	50 (-)

# QUALITATIVE RESULTS

## Essay Task

Associations towards Mushrooms			Associations towards Lab Grown	
Dimension	Significant Examples	Mentions & Evaluation	Significant Examples	Mentions & Evaluation
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# QUALITATIVE RESULTS

Theories and hypotheses from the qualitative results

## NATURE

*The information that a product is grown in the lab attenuates the connection to nature consumers form for bio-based products.*

## PSYCHOLOGICAL EFFECTS

*Perceived psychological risk mediates the negative lab-grown effect.*

## SCIENCE

*The negative lab-grown effect is attenuated for consumers with a high (vs. low) belief in science.*

## FUTURE

*The negative lab-grown effect is attenuated incase the underlying product is innovative (vs. standard).*



# NATURE – MAINLY RELATED TO MUSHROOMS

*"What I particularly like is the fact that it is made from plant materials."*

*"Aren't mushrooms a super rad life form that can somehow reproduce on their own?"*



*"Apparently, the mushroom can grow naturally in nature."*

*"After all, mushrooms are very frugal and can survive for a long time without "much"."*

# PSYCHOLOGICAL EFFECTS – MAINLY RELATED TO LAB GROWN

*"At the same time, however, I also felt gripped by a quiet uncertainty."*

*"I associate labs primarily with cool places where uniform-looking people in sterile protective clothing examine diseases and experiment with some kind of microorganisms."*


*"For me laboratories are not places that stand for lightness and coolness."*



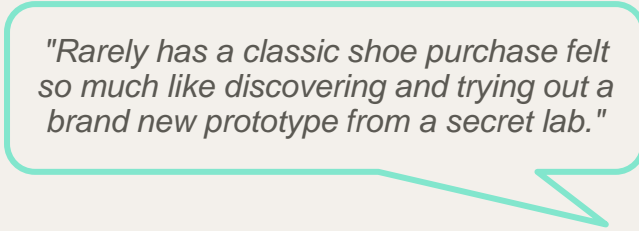
*"So possibly mushroom mycelium could be a good material or ingredient. This thought puts me in a rather positive mood (...)"*

*"All these are not images and impressions I want to feel when I buy a new sneaker."*


## SCIENCE – MAINLY RELATED TO LAB GROWN




*"I imagine a large, brightly lit, cool hall where employees in protective suits walk around and meticulously ensure that the mushroom cultures grow in optimal light and temperature conditions using the latest production and cultivation systems."*



*"Rarely has a classic shoe purchase felt so much like discovering and trying out a brand new prototype from a secret lab."*



*"Since I am always interested in new scientific findings, new inventions and further developments of classic products from the outset, this shoe has a big advantage over the competition in the store.."*



*"Since I am always interested in new scientific findings, new inventions and further developments of classic products from the very start, this shoe has a big advantage over the competition in the store."*

# FUTURE – MAINLY RELATED TO LAB GROWN

## Associations

*"Perhaps this is a serious innovation into a new future of material after all."*

*"Being open to new innovations by nature, I would definitely be interested in the new material."*

*"What I particularly like is the innovative idea behind the new type of material."*

*"I think it's cool that there are so many innovations with new materials right now."*

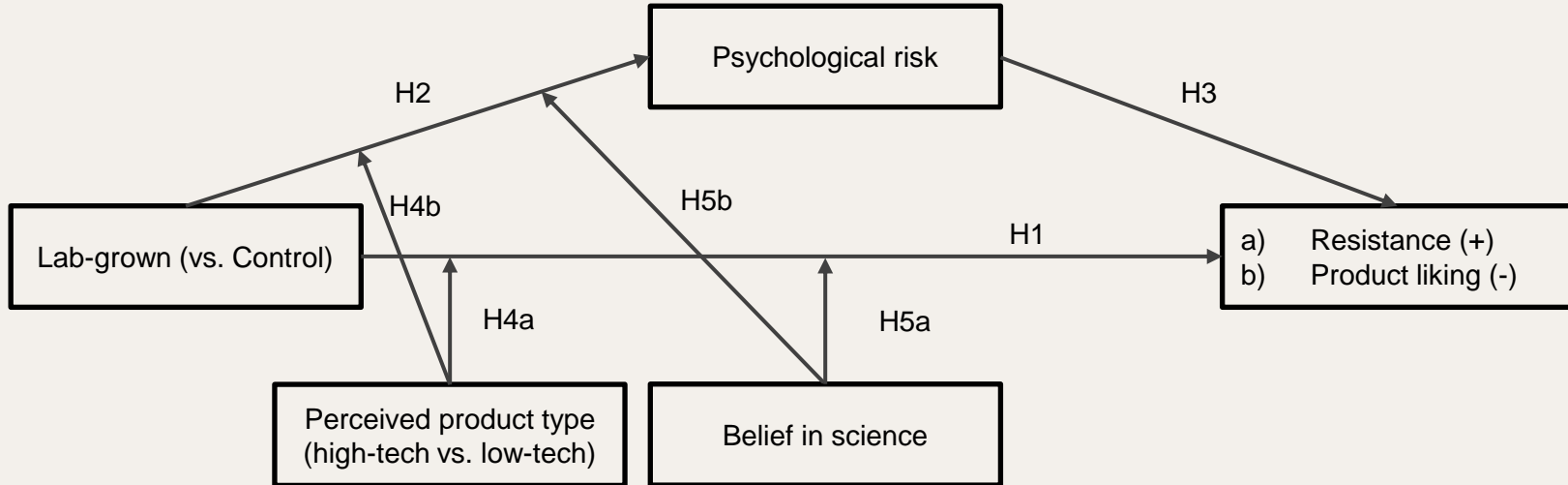






**NEXT STEPS**

# 1. WE PLAN TO CONDUCT FURTHER EXPERIMENTAL STUDIES UNTIL END OF YEAR



## 2. WE ARE COLLECTING FURTHER QUALITATIVE DATA ON THE LAB-GROWN FRAMING IN COOPERATION WITH GOLD/GYX

1. Name the first four words, thoughts, or associations that come to mind when you think of **collagen**? (Rate the individual aspects negatively (-) or positively (+))
2. Name the first four words, thoughts, or associations that come to mind when you think of **lab-grown**? (Rate the individual aspects negatively (-) or positively (+))
3. Name the first four words, thoughts or associations that come to mind when you think of **a lab-grown collagen based jacket**? (Rate the individual aspects negatively (-) or positively (+))
4. What would you like to know about a **collagen based garment that is lab-grown**?
5. Do you believe **collagen based garment that is lab-grown** is more sustainable than synthetic textiles? Why do you think so?

# Consumer Attitudes towards Lab-grown Materials

Please reach out for feedback and questions to:

**Hannah Altenburg<sup>a</sup>, Lauren Anne Mackintosh<sup>a</sup>, Christian Baccarella<sup>b</sup>, Kai-Ingo Voigt<sup>a</sup>**

<sup>a</sup> Friedrich-Alexander Universität Erlangen-Nürnberg, <sup>b</sup> Universität der Bundeswehr München

**Corresponding Author:**

Hannah Altenburg, FAU Erlangen-Nürnberg, Lange Gasse 20, 90403 Nürnberg, [hannah.altenburg@fau.de](mailto:hannah.altenburg@fau.de)

Please reach out for full report,  
feedback and questions to

**Franziska Seehausen**

[Franziska.seehausen@adidas.com](mailto:Franziska.seehausen@adidas.com)



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