

# Truth, Lies and Culture Wars

Social listening analysis of meat and dairy persuasion narratives

**Nick Adams (Alpha Male)**  
@NickAdamsinUSA  
Put down the soy and eat a steak, it's the

if you want to get healthier, eat more meat and eggs.  
I have nothing against vegetables personally (except kale, I hate kale), but there is not a single vegetable in the world that is healthier and more nutrient dense than meat or eggs.  
@Elie Jarrouge, MD  
Elie Jarrouge, MD

**Paul Snow**  
@paulsnow2  
Methane sucks as a greenhouse gas. It's absorption bands don't do much and are largely empty because methane is flammable and our atmosphere is 20% oxygen  
All CO2 and methane emitted by cows comes from the atmosphere (they eat plants). Cows on their own are carbon neutral.

**WORRIED ABOUT GOW FARTS?**  
IN THE EARLY 1800S THERE WERE ROUGHLY 60 MILLION BUFFALO RESIDING IN AMERICA. THERE ARE CURRENTLY 9.4 MILLION DAIRY AND 31.7 MILLION BEEF COWS IN AMERICA.  
LETISTS EITHER HATE TO PROVE GOW FARTS ARE MORE DESTRUCTIVE TO THE ENVIRONMENT OR ADMIT THAT GOW PARTS REALLY ARENT WORRIED ABOUT PARTS REALLY ARENT WORRIED ABOUT PARTS REALLY ARENT WORRIED ABOUT

**NYC Mayor Adams declares war on meat and this was the goal all along with the climate goons. Reject this lunacy, NOT listen to this satanic lunacy!**  
@KCPayTreet  
Even @NYCMayor doesn't believe the garbage lies. He can't even read his prepared script. This dude is a box of rocks

Put an food from for you...  
COW PARTS ARE NOT HEALTHY FOR YOU...  
COW PARTS ARE NOT HEALTHY FOR YOU...  
COW PARTS ARE NOT HEALTHY FOR YOU...  
COW PARTS ARE NOT HEALTHY FOR YOU...

**illuminatibot**  
@illuminatibot  
USDA Approves Bill Gates Lab-Grown Meat For Sale Despite Causing Turbo Cancers In Human Subjects:  
Organic plants require cow manure for healthy soil. There are no organic vegetables without the beef and dairy industry!

**Frank Mitloehner**  
@GHGGuru  
Lab-grown meat could be 25 times worse for the climate than beef | New Scientist

**Attention clinicians We Are Hiring**  
Link below  
Dr. Anastasia Maria Loupis @DrLoupis  
Red meat is not a health risk. New study slams years of

**Donald Trump Jr.**  
@DonaldJTrumpJr  
We must ban fake meat to save the planet!!!  
Lab-Grown Meat Produces Up To 25 Times More CO2, Study Reveals.

**Liz Churchill**  
@liz\_churchill110  
Bill Gates wants to ban red meat...John Kerry wants to reduce 'carbon' to zero...and Klaus Schwab warns that 'Food Supply Chains' will be severely disrupted. Is it just me...or does this sound like pre-meditated starvation?

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#### About Ripple Research

Ripple Research works with policymakers, researchers, businesses, and philanthropies to build resilient societies. We apply large-scale behavioral and cultural insights uncovered through bigdata analysis and machine learning to design solutions for impact-driven organizations.

Our state-of-the-art research methods, natural language processing algorithms and world-class analysts are changing how research is done across sectors like climate change, public health, sustainability and infodemic management.





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# Glossary

<b>Alternative Proteins</b>	Alternative proteins are proteins produced from plants or animal cells, or by way of fermentation. Some of these products are available to consumers today, including numerous plant-based and fermentation-derived options. Others, such as cultivated meats, remain primarily in development.	<b>Mention Volume Analysis</b>	The quantitative analysis of the number of times a keyword or topic is mentioned in online content, helping gauge the extent of its impact and visibility.
<b>Disparage Strategy</b>	A communication approach aimed at critiquing or undermining specific subjects, in this context, used to challenge aspects of the meat and dairy industry.	<b>Misinfluencer</b>	An individual or entity that actively spreads or amplifies misinformation within digital spaces, wielding influence over the narratives and opinions of the online community.
<b>Engagement Metrics</b>	Quantitative measures of how actively and deeply audiences interact with online content, including metrics like likes, shares and comments.	<b>Misinformation</b>	False or misleading information, encompassing misleading and/or biased content, manipulated narratives or facts, pseudoscience, conspiracy theories, and propaganda. Satirical posts are not classified as misinformation.
<b>Enhance Strategy</b>	A communication approach focusing on promoting and highlighting the positive attributes or benefits of specific subjects, such as animal-based food products, in the context of the study.	<b>Peak Analysis</b>	The examination of specific moments when online conversations experience a significant increase in activity or engagement, often attributed to external events or triggers.
<b>Keyword Analysis</b>	Examination of the frequency and context in which specific keywords or phrases are used within online content, enabling the identification of key themes and concerns.	<b>Trend Analysis</b>	The process of analysing data to identify patterns and shifts in the prevalence of specific topics or discussions over time, aiding in understanding the evolution of online conversations.
<b>Meat and dairy industry misinformation</b>	The term used to describe the misinformation in the entirety of this dataset.		
<b>Mentions</b>	The references or instances of a specific keyword, phrase or topic in online content, often used to measure the prevalence of a subject in online discourse.		





## Executive summary and key findings

In an age where information flows freely, misinformation is a potent force that can shape public perception and influence elections, corporate and political decisions. This study is a deep dive into information and misinformation on social media around production and consumption of animal products. We also examine the narratives surrounding meat and dairy alternatives and the science on health and environmental impacts of our food system.

Agricultural production is responsible for an estimated 37% of all global greenhouse gas emissions - of which emissions from animal agriculture represent over half (57%).<sup>1</sup> The sector generates 32% of the world's methane emissions, making it the single largest source of human-made methane emissions.<sup>2</sup> Animal agriculture takes up a disproportionate amount of land:<sup>3</sup> over 80% of the world's land is used by animal agriculture, which only contributes 18% of the world's calories and 37% of its total protein. Meanwhile, crops produce 82% of global calories and 63% of total protein.<sup>4</sup> If the livestock sector grows at a 'business as usual' rate, without diets shifting, by 2030 the sector

will account for 49% of the global emissions budget for 1.5°C degrees.<sup>5</sup> In other words, as meat and dairy production grows at the current rate, its proportion of global emissions will grow to the point that it is almost half of the global emissions deemed acceptable for the world to limit warming to 1.5°C degrees.

High levels of red and processed meat consumption is linked to ‘a higher risk for heart disease, cancer, diabetes and premature death’<sup>6</sup>. In wealthier regions people are eating more animal-derived protein than is required or considered healthy.<sup>7</sup> For example, one study found that in North America, Latin America and Europe red meat consumption is 300-600% higher than daily recommended levels. It found that consumption of other animal-derived protein, such as poultry and eggs, was also over recommended levels. Consumption of fruits, vegetables and plant-sourced protein was roughly half the recommended level.<sup>8</sup>

There is clear scientific consensus on emissions from animal agriculture. Despite this, calls for a shift to healthier and more plant-based diets, and for greater environmental regulation of the sector, often face significant backlash from farmers, meat and dairy companies and associated scientists. Some of the most severe backlash is found on social media - which is why we commissioned this study.

Changing Markets commissioned Ripple Research to review over 285 million digital posts, mostly on Twitter (X), related to meat and dairy. They spanned a 14-month period from 1 June 2022 to 31 July 2023.

The data was extracted using opinion mining technology, leveraging Natural Language Processing (NLP) algorithms and machine learning techniques. This was combined with analysis and background research from a team of data specialists. Out of this, around 948,000 conversations were found to feature misinformation. This was then investigated for specific trends. We were able to categorise misinfor-

mation into seven specific types. We also analysed when the misinformation was posted and what topics sparked a peak in traffic on social media.

## Our key findings

### *Misinformation trends*

We categorised misinformation into two types:

- ‘disparage’: narratives that disparage alternatives to meat and dairy, such as alternative protein and vegan diets (78% of misinformation)
- ‘enhance’: narratives that promote meat and dairy products or diets for their perceived benefits (22% of misinformation).

### *Disparaging meat and dairy alternatives: five attack points*

We found five main attack points in disparaging posts:

1. representing alternative protein products as unhealthy
2. discrediting alternatives for their climate or environmental impact
3. leveraging cultural polarisations (‘the culture wars’)
4. undermining independent scientific research on the impacts of animal agriculture
5. framing changing diets as part of an ‘elite’ agenda for ‘The Great Reset.’



# The findings at a glance

2



## MAIN CATEGORIES OF MISINFORMATION

**78% DISPARAGE**  
vegan diets and science

**22% ENHANCE**  
animal products

7

## CATEGORIES IN TOTAL

**24%**  
**MALIGNING:**  
Competing products are unhealthy

**7%**  
**VILIFYING:**  
Climate-focused misinformation

**9%**  
**POLARISING:**  
Culture Wars

**1%**  
**UNDERMINING:**  
Science and Research

**37%**  
**CONSPIRING:**  
The elite are planning "A Great Reset"

**18%**  
**HEALTH-WASHING:**  
Animal-based food products are essential for good health

**4%**  
**GREENWASHING:**  
Animal-based food products are environmentally friendly



## MISINFORMATION DATASET

USING **10,881** TERMS  
TO BUILD THE DATASET

ANALYSING **285M**  
TOTAL POSTS

**948,000** CLASSIFIED AS MISINFORMATION  
**3.6M** ENGAGEMENTS

FROM **425K** ACCOUNTS

**50** ACCOUNTS CAPTURE



**50%** OF ENGAGEMENT



### *Enhancing meat and dairy: main themes*

We found two main themes in posts that promoted meat and dairy:

1. ‘Health-washing’ - positioning animal-based food products as essential for good health.
2. ‘Greenwashing’ - framing animal products as environmentally friendly options.

Both these narratives are heavily used by meat and dairy companies for their corporate and product branding, as highlighted in our study.<sup>9</sup>

### *Misinformation peaks*

Analysing misinformation over time highlights the frequency of posts around certain topics. A major driver is misinformation generated by conspiracy theories. Conspiracy theories like ‘The Great Reset’ connect powerful people like Bill Gates to misinformation about lab-grown meat. We also saw how climate denialists attacked alternative protein products as worse for the climate. Peaks also happened around UC Davis’ study, which was published as a preprint meaning it hadn’t been peer reviewed, suggesting lab-grown meat is 25 times more environmentally damaging than beef.<sup>10</sup>

### *Misinfluencer analysis*

Our misinfluencer analysis investigates accounts driving engagement and posting most frequently on certain subjects. It shows 50% of engagement comes from just 50 accounts. Many of these are self-described wellness experts or notable far-right and right-wing media and political figures. This suggests certain people are trying to undermine scientific consensus on the reduction of meat and dairy consumption necessary to stop climate change and improve public health.

### *Case studies*

We carried out two case studies to gain a deeper understanding of the spread of misinformation on two critical topics:

- the preprint study from UC Davis suggesting lab-grown meat is worse for the environment than conventional meat
- misinformation around nitrogen policy proposals in the Netherlands and farmer protests.

The first shows how a non-peer-reviewed study<sup>11</sup> on the impacts of lab-grown meat created a spike in online conversations. This study became linked to real-world policy discussions in response to the Irish government’s plan to reduce farming emissions by 25% by 2030. Governments already face a huge uphill battle on policy around meat and dairy from lobbyists and other representatives of the sector. Misinformation and sensationalism creates online hysteria that often diminishes the political will to act.

The second shows how a transnational far-right movement is not only weighing in on, but driving, much of the misinformation around Dutch nitrogen policies. Our

analysis shows how the far-right has used protests in the Netherlands to capitalise on anti-government sentiments.<sup>12</sup> The result is an increasingly polarised and divisive debate fuelled by conspiracy theories. This makes badly needed progress on a real-life environmental pollution problem even more challenging.

Our report outlines how much of the misinformation we've identified can be linked directly to the meat and dairy industry.

Misinformation focused on culture wars and conspiracy theories cannot be directly linked with the meat and dairy industry - it's driven instead by a far-right agenda. However, their agendas can overlap. So while the industry may not be driving more extreme misinformation, they ultimately benefit from 'business as usual'.

Misinformation around animal farming and meat and dairy consumption has dangerous implications for policy development. This is evident in moments when social media misinformation intersects with the real world. For example, UK Prime Minister Rishi Sunak's statement he would drop a non-existent meat tax was rooted in culture war ideas of preserving personal freedoms.<sup>13</sup> Similarly, the disputed study from UC Davis researchers was used for arguments on why the Irish government's plans to reduce farming emissions<sup>14</sup> were misguided. Meanwhile, in the Netherlands the future government will have to tackle the nitrogen crisis against a backdrop of international far-right attention, on top of local increases in populism and polarisation.<sup>15</sup> At the time of writing the far-right party PVV led by Gerd Wilders gained the highest number of seats in the recent Dutch election and might lead the government, potentially reversing climate policies in the country.

We are also seeing a growing surge in policies attempting to, and succeeding in, banning lab-grown and synthetic meat and meat and dairy-related terms for plant-based products. These can be linked to the misinformation identified in our report.<sup>16</sup>

Debate around regulating meat and dairy production and consumption is becoming more divisive - fuelled by concerted efforts to spread misinformation on social media.

Increasing polarisation on a critical climate and health issue risks making policy in this area more difficult. It's vital that governments with high levels of animal agriculture and meat and dairy consumption reaffirm their commitments to the Global Methane Pledge,<sup>17</sup> as well as to addressing the wider climate and health impacts of their food systems. By looking at the evidence, rather than reacting to polarised online misinformation, they can make positive choices for people and the planet.



## 1. Introduction

Agricultural production is responsible for an estimated 37% of all global greenhouse gas emissions - of which emissions from animal agriculture represent over half (57%).<sup>18</sup> The sector is also responsible for 32% of the world's methane emissions, making it the single largest source of human-made methane emissions.<sup>19</sup>

Scientists have stated that 'continued growth of the livestock sector increases the risk of exceeding emissions budgets consistent with limiting warming to 1.5°C and 2°C, limits the removal of CO<sub>2</sub> from the atmosphere through restoring native vegetation, and threatens remaining natural carbon sinks where land could be converted to livestock production'.<sup>20</sup>

If the livestock sector grows at a 'business as usual' rate, by 2030 the sector would account for 49% of the global emissions budget for 1.5°C degrees. This means cuts in carbon from industries such as energy aren't enough to limit warming - methane from livestock has to be cut as well.<sup>21</sup>



There's added urgency for rapid reductions in livestock methane emissions. Methane is a potent but short-lived climate pollutant (SLCP), lasting around 12 years in the atmosphere. The Intergovernmental Panel on Climate Change (IPCC) says that the scale of SLCP reduction is critical to whether the 1.5°C limit to warming is achieved and whether tipping points are reached.<sup>22</sup>

The UN's Global Methane Assessment called for methane emissions to be reduced by 40-45% by 2030. They state this goal is achievable through 'readily available measures'.<sup>23</sup> These include dietary shifts to reduce meat and dairy consumption where possible.<sup>24</sup>

Scientists have made it clear that land use for animal agriculture contributes to climate change and limits scope for carbon sinks. Agriculture currently accounts for 38% of the terrestrial surface of the earth - 3.4 billion ha of this land is pasture compared to 1.5 billion ha of cropland.<sup>25</sup> This is an inefficient use of land since livestock only contribute 18% of the world's calories and 37% of total protein. Other crops make up 23% of agricultural land, produce 82% of global calories and 63% total protein.<sup>26</sup> With growing populations and growing demand for meat and dairy in particular, land use change causes deforestation adding to livestock's emissions footprint. It also limits opportunities for reforestation and rewilding. Animal agriculture not only requires land for pasture but also for feed crops, such as soy. This is among the largest commodity-based drivers of global deforestation.<sup>27</sup>

The scientific consensus is clear. However, calls to change diets and reduce methane from livestock has prompted a huge backlash, not least from the meat and dairy industry and its allies. For example, delegates from Brazil and Argentina, two major meat producing countries, successfully pushed for 'the elimination of the plant-based language that was reportedly in previous drafts' of the IPCC's AR6 Synthesis Report in 2023.<sup>28</sup> In the EU, attempts to see the School Programme's budget, which

funds food and milk for pupils, expand to include plant-based alternatives to milk, saw intense lobbying from the likes of Copa-Cogeca, the EU agri-business lobby group, and the European Milk Association.<sup>29</sup> As a result, legislation to curb emissions from livestock farming or shift to more plant-based diets in countries with high meat and dairy consumption and production is largely absent.<sup>30</sup>

Instead of reducing its environmental impacts, the industry often benefits from special treatment and huge amounts of public subsidies - most of which are harmful for climate, nature and health. In 2021 three UN agencies issued a report, which highlighted that from 540 billion USD taxpayer-funded annual agricultural subsidies, almost 90% are harmful to nature, climate and health, while distorting food prices.<sup>31</sup> This is especially pronounced in the Global North. A recent study published in *One Earth* on a comparative analysis of US and EU food system transition found that animal farming still received most of the financial support allocated to food producers. It also got preferential endorsement in dietary recommendations, and in both regions governments 'mostly preserved the status quo of animal-based production and consumption'.<sup>32</sup>

## Box 1.1 What we know so far: misinformation driven by the meat and dairy industry

**The National Cattlemen's Beef Association (NCBA) runs a Masters of Beef Advocacy (MBA) programme:** a free, by-admission-only online course which has more than 21,000 graduates.

*'The US beef industry is creating an army of influencers and citizen activists to help amplify a message that will be key to its future success: that you shouldn't be too worried about the growing attention around the environmental impacts of its production.'*<sup>33</sup>

MBA-trained 'advocates and spokespeople to help educate consumers and influencers about the role of beef in a healthy diet and how beef farmers and ranchers raise beef responsibly and sustainably'.<sup>34</sup>

### Mitloehner's misinformation war

Frank Mitloehner and the industry-funded CLEAR Centre, which he leads at UC Davis, act 'as an apparently independent, academically credible voice – to make a positive case to the wider world about meat and dairy's environmental impact'. In essence the centre and Mitloehner are funded by the industry for their skill at pro-meat and dairy communications.

The centre has been funded to undertake 'research designed to undermine plant-based alternatives to meat products'. Mitloehner has been linked to the pushback on social media against the EAT-Lancet study around dietary guidelines, an attack which 'was successful in swaying undecided audiences away from the EAT-Lancet report.'<sup>35</sup>

Colleagues of Mitloehner's at UC Davis have raised concerns about the social media messaging coming from him and the CLEAR Centre, stating its 'bias' and that it 'stokes the culture war that we see taking place around diets and climate'.<sup>36</sup>

Mitloehner has also been part of the attack on alternative proteins that compares them to dog food, tweeting a quiz in 2019 that asks which ingredients are for Beyond and Impossible burgers and which are for premium dog food.<sup>37</sup> The quiz has since been shared in different forms across TikTok.<sup>38</sup>

### Rick Berman, the industry operative attacking alternative proteins

Rick Berman is a lobbyist with a record of working for 'dark-money coalitions'. He founded the Center for Consumer Freedom (CCF) in 2019 which focused on attacking vegan meat. It placed ads such as "Fake Meat or Dog Food?", "Should Fake Meat Have a Cancer Warning?" and "Fake Meat Has WHAT in It!" in prominent US papers. In 2020 it ran a Super Bowl ad based on a school spelling bee with children asked to spell some of the ingredients of alternative protein products.

### The milk industry uses a celebrity to attack plant-based alternatives

The campaign 'Wood Milk', by The Milk Processor Education Programme (funded by milk processors), featured a high profile ad and videos with actor Aubrey Plaza mocking plant-based milks by promoting a fake product made from wood.<sup>39</sup> This campaign implies that only animal dairy qualifies as authentic, and that the idea of milk from anything other than animals is ridiculous, while questioning the taste and nutritional content of plant-based milks. It has been suggested the advert is potentially illegal and a complaint has been filed with the US Department of Agriculture who govern The Milk Processor Education Programme.<sup>40</sup>

## Meat and dairy industry greenwashing and health-washing

There have been extensive attempts from the meat and dairy industry to advertise or promote their brand, products and companies as sustainable and 'naturally healthy'. Many of these are also focused around climate claims. These are covered in Changing Markets reports 'Feeding Us Greenwash: An analysis of misleading claims in the food sector' and 'Seeing Stars: The new metric that could allow the meat and dairy industry to avoid climate action'.<sup>41</sup>

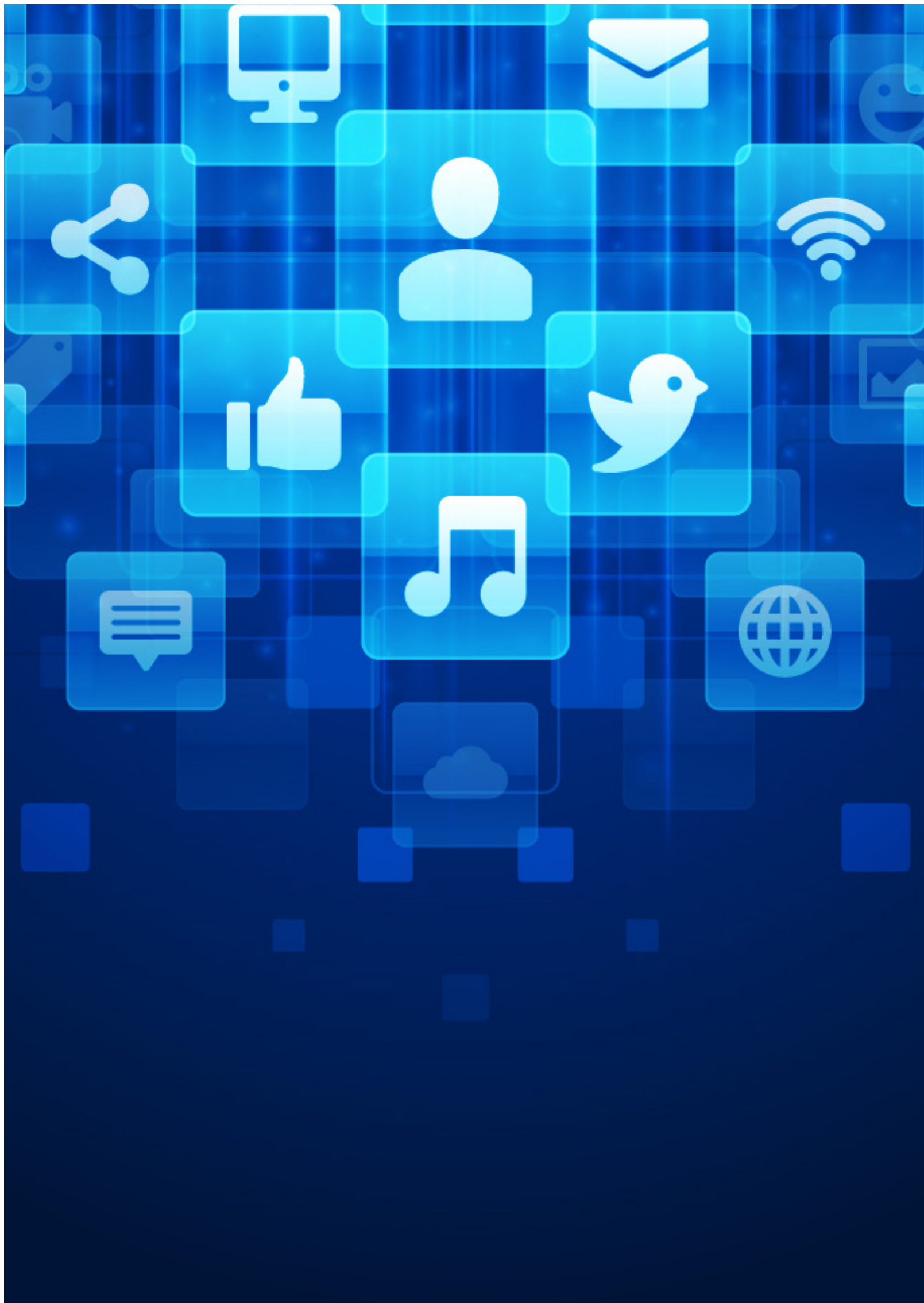
### 1.1 Purpose and objectives of the research

This study investigates online misinformation surrounding the meat and dairy industry.

Our main objective is to identify the extent and nature of online misinformation, the narrative it fits into and how this has changed over time. By doing this we will uncover the factors that drive and shape dissemination of misleading information in this critical sector. This includes the events that spark peaks in misinformation and how online communities respond.

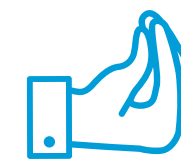
Today, global digital connections mean the impact of misinformation can be far reaching. Understanding the mechanisms and motivations behind it is vital. This study is a crucial step in promoting more informed public discourse and decision-making.





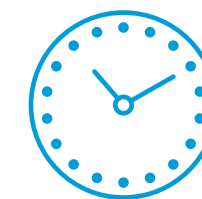
## 2. Inquiry and approach

We developed three sets of specific research questions: What, When and Who, [see figure 1]. We use these questions to untangle online narratives and misinformation.



### WHAT?

- What are the key discourses prevalent in the realm of Big Ag Misinformation?
- How prevalent are they?
- Which ones are the most dominant?
- How much engagement do they capture?



### WHEN?

- When does this misinformation peak?
- What events contribute to these peaks ?
- What are accounts saying during these peaks?



### WHO?

- Who are the key Misinfluencers of the Big Ag misinformation universe?
- How many key Misinfluencers can be identified?
- How much engagement do they capture?

| **Figure 1.** What, When and Who

Through **What** we examined conversations using over 10,000 key search terms, identifying their prevalence and dominance online. Investigating the level of engagement around these terms offers invaluable insights into how they shape public discourse and consumer choices.

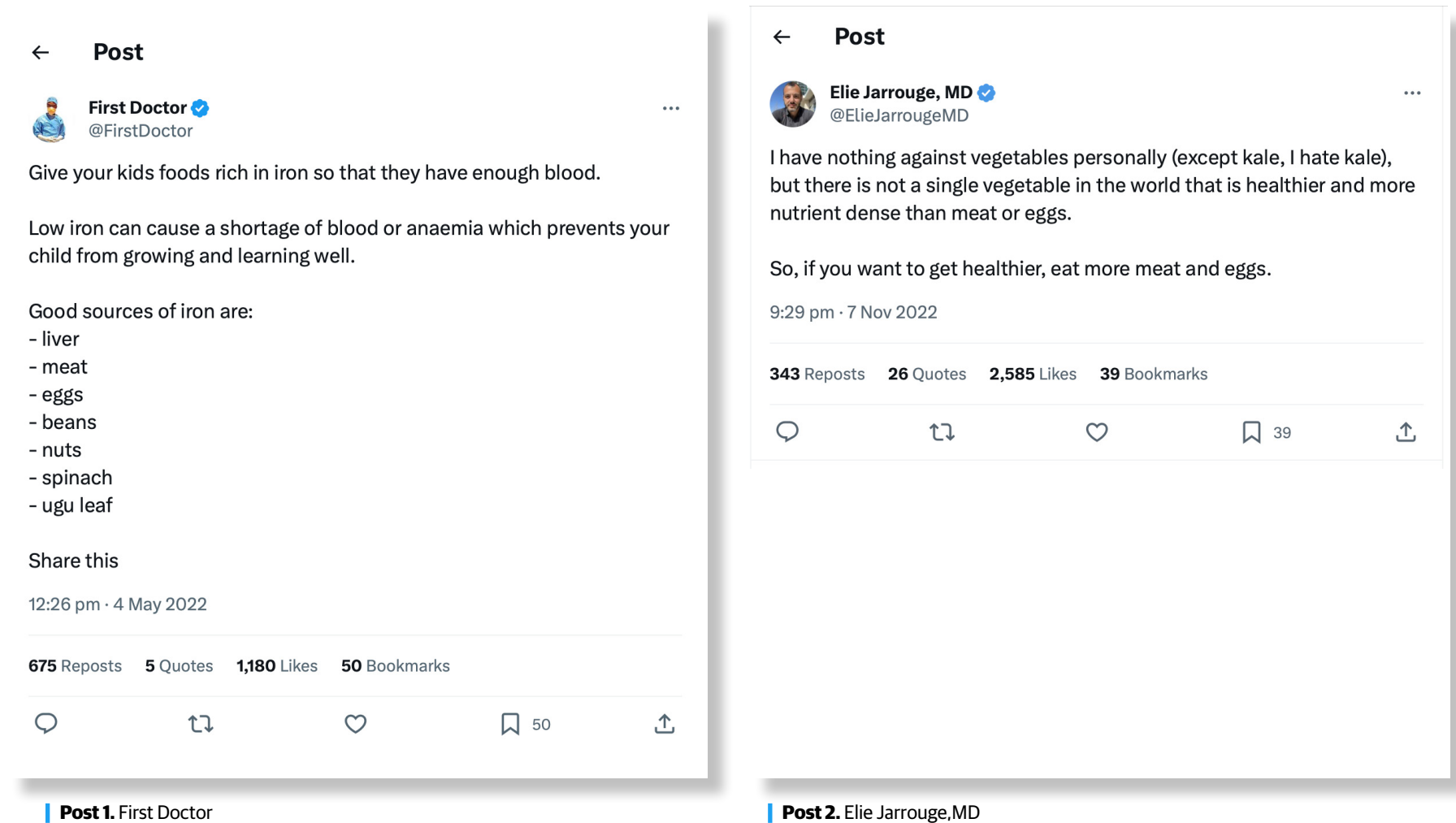
Through **When** we investigated when narratives peak. This allows us to identify the important events that contribute to surges in misinformation. Examining what accounts are saying during these peaks, and which accounts are driving a peak, sheds light on how narratives adapt and respond to real-world events.

Through **Who** we identified and quantified key misinfluencers. This helps us gain a deeper understanding of the people or organisations responsible for shaping narratives. Evaluating the engagement these misinfluencers generate shows their influence in sharing misinformation.

Together, these questions lay the foundation for a comprehensive exploration of the complex and evolving world of online misinformation.

To collect data for the research we built ‘data communities’ based on the theme of meat and dairy-related conversations. We then filtered out the ‘noise’ to focus on the core issues. Identification of misinformation was based on a ‘spotlight approach’ method for constructing search terms. This is a deliberate and pinpointed data collection process which picks up on specific types of narratives, involving multiple rounds of refinement based on the researchers’ evidence base. This ultimately resulted in over 10,000 search terms (our search lexicon).

This approach is a common data collection method for highly targeted studies such as this as it picks up only relevant conversations. For example, the tweet above on



the left (Post 1) relates to our key words, but was not in the dataset as it contains information not misinformation. The tweet (Post 2) on the right is included as it contains phrases that classify it as misleading (for example, that eating more meat ultimately makes people healthier).

Further details on the development of the data communities and methodology can be found in the annex.

## 2.1 The dataset

The extensive data collection process resulted in 285 million digital posts, all related to meat and dairy, spanning a 14-month period from 1 June 2022 to 31 July 2023. Out of the 285 million posts, 948,000 conversations were specifically categorised

as misinformation using a human-AI hybrid approach. This ensure a focused and noise-minimised<sup>A</sup> dataset - removing posts containing key words but that don't classify as misinformation for in-depth analysis. With almost one million posts these formed the largest social-media dataset on meat and dairy misinformation.

Misinformation posts in the dataset received a total of 3.6 million likes, shares and comments. We identified a total of 425,226 distinct social media accounts posting misinformation in the dataset. These accounts included individuals, organisations and bots.

## 2.2 Making sense of the data

The data analysis falls into three categories: timeline analysis, narrative analysis and misinfluencer analysis.

### 1. Narrative and discourse analysis

The narrative analysis revealed two broad themes in misinformation:

- a. Disparage - this frame involves narratives that spread misinformation that discredit plant-based products and diets, as well as attack scientific research that highlights the negative impacts of the meat and dairy industries.
- b. Enhance - this frame involves narratives that promote the consumption of meat and dairy products by emphasising their nutritional value and health benefits. This includes how these products are 'natural' and 'good

<sup>A</sup> This means that we have eliminated conversations that have some of the keywords but are not relevant to our study topic or our research questions. For example, a post could be: "I really like this meat-burger!". This is just a statement/opinion and does not fall under misinformation or explicit propaganda.

for the environment' (for example ideas about regenerative agriculture).

This category includes both health-washing and greenwashing.

Narratives in these two themes are further classified into more detailed categories as explained in later sections of this document.

For each of the narratives a timeline analysis (see description below) explores in detail the events or topics that spark peaks in posts. In some cases a main peak analysis is accompanied by a secondary peak analysis, where such extreme peaks risk overshadowing important, subtler trends.'

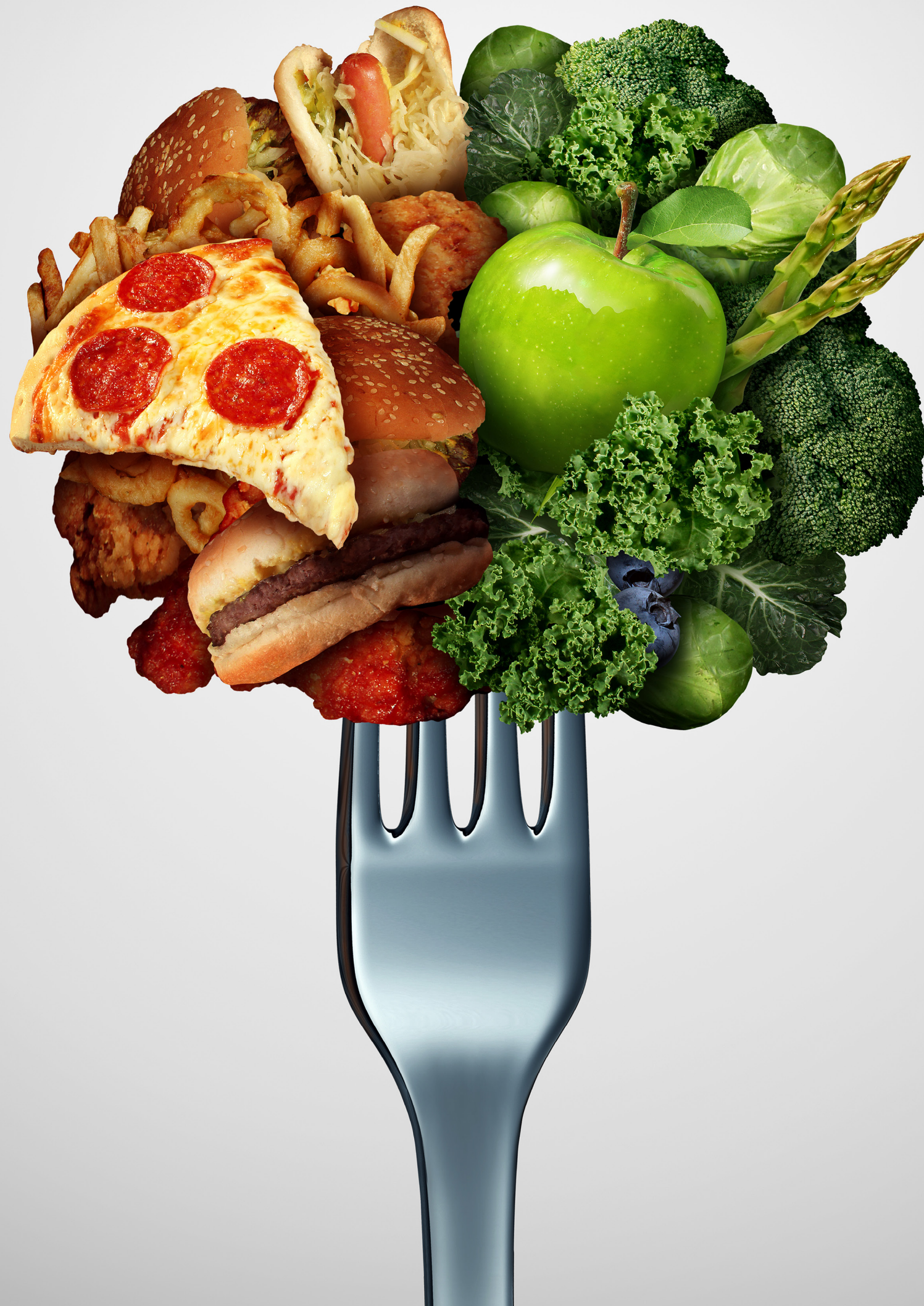
### 2. Timeline analysis exploring the peaks in misinformation

This section explores the time-based dynamics of misinformation in the context of meat and dairy. Through meticulous data analysis we pinpoint key moments when misinformation surges or peaks. Using advanced data analytics tools, we uncover the patterns that dictate when, why (and how) misinformation gains momentum. This detailed examination sheds light on the impact of external triggers, such as significant news events, social media trends, or public controversies, on amplification of false information.

### 3. Misinfluencer analysis

Misinfluencer analysis is a crucial component of social listening research, especially in the context of misinformation studies. A misinfluencer is an individual or entity that actively disseminates or amplifies misleading information, potentially exerting a significant influence on the narratives and beliefs of online communities. The misinfluencer analysis involves the identification, profiling and examination of the most influential accounts that play a pivotal role in shaping the misinformation landscape.





### 3. Narrative analysis

Examining the narratives and discourse of the full data community is key to gaining a fuller understanding of the conversations relating to meat and dairy misinformation.

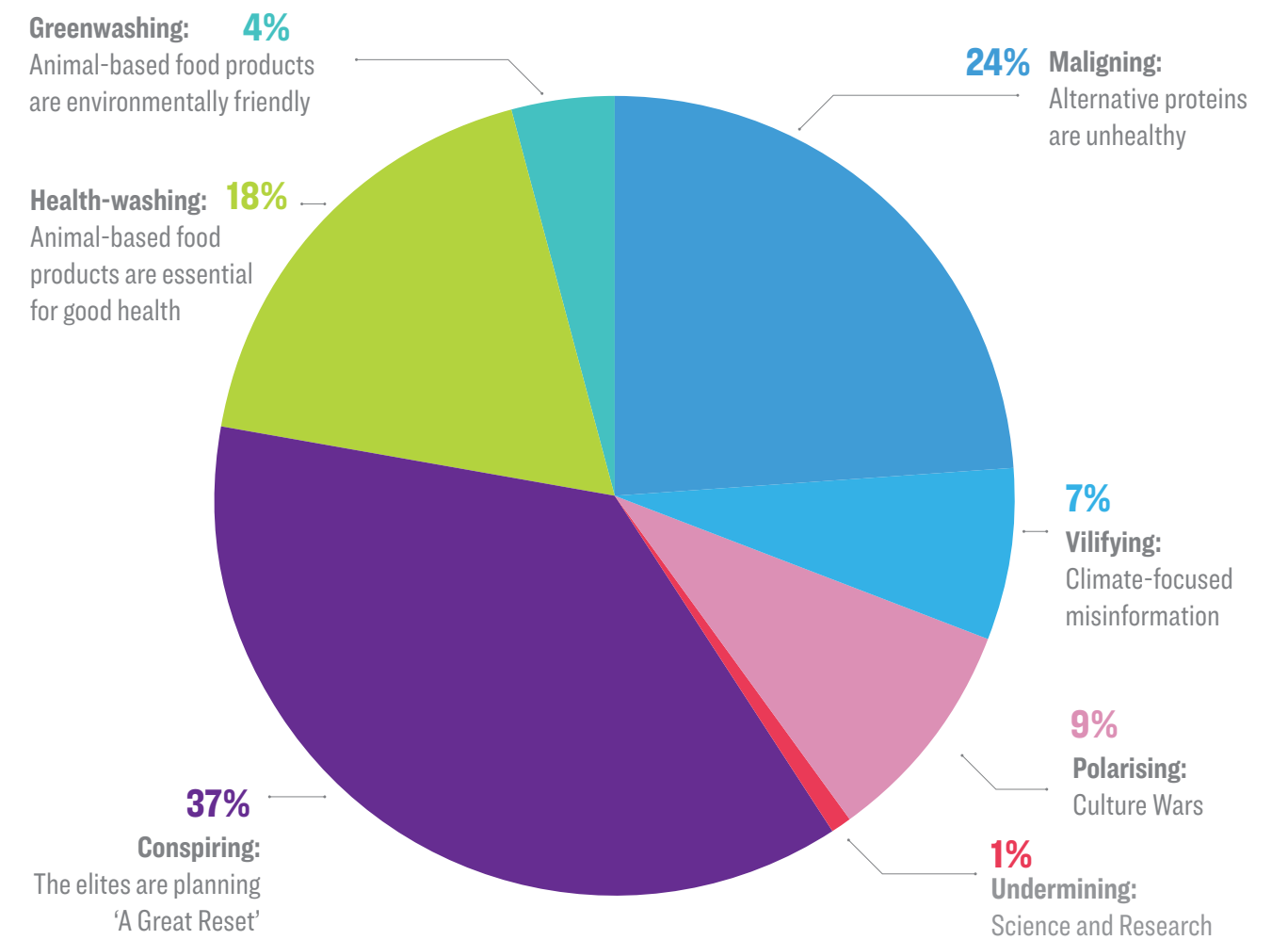
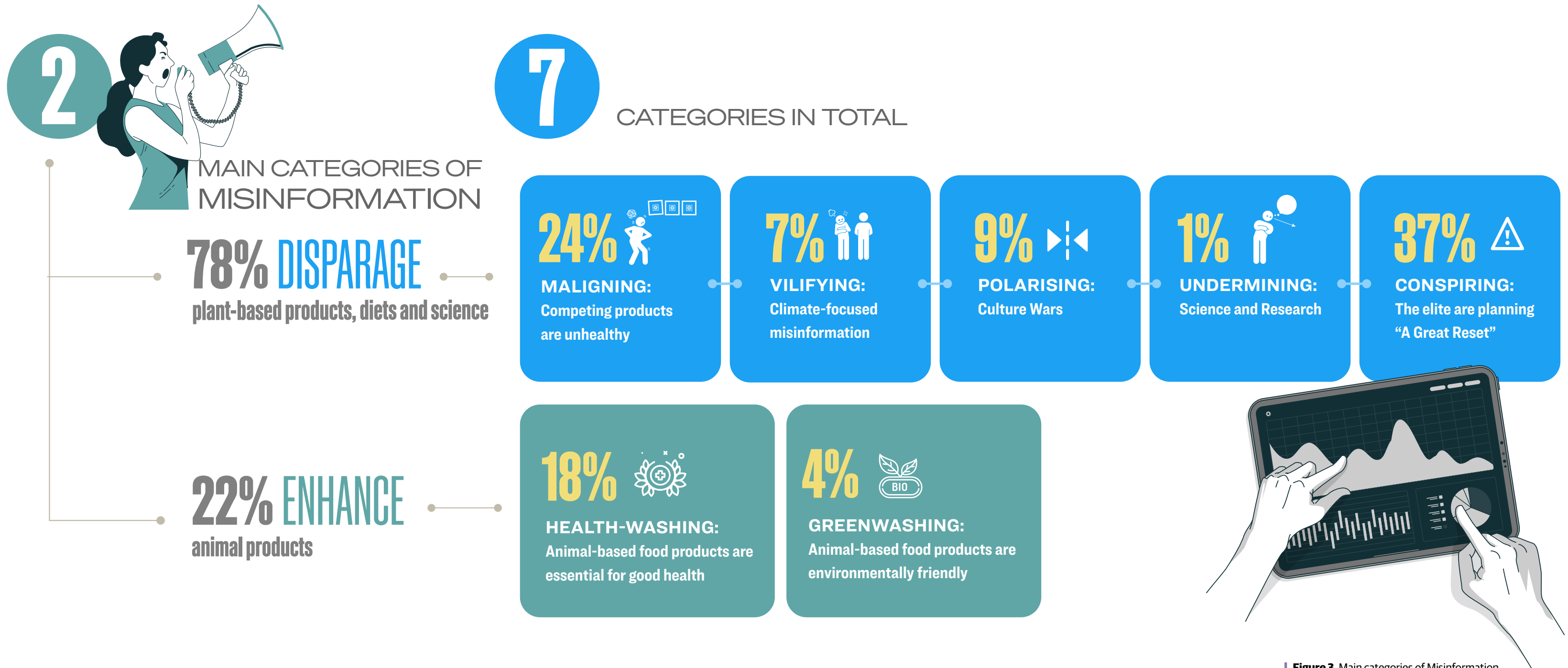


Figure 2. Meat and Dairy Misinformation



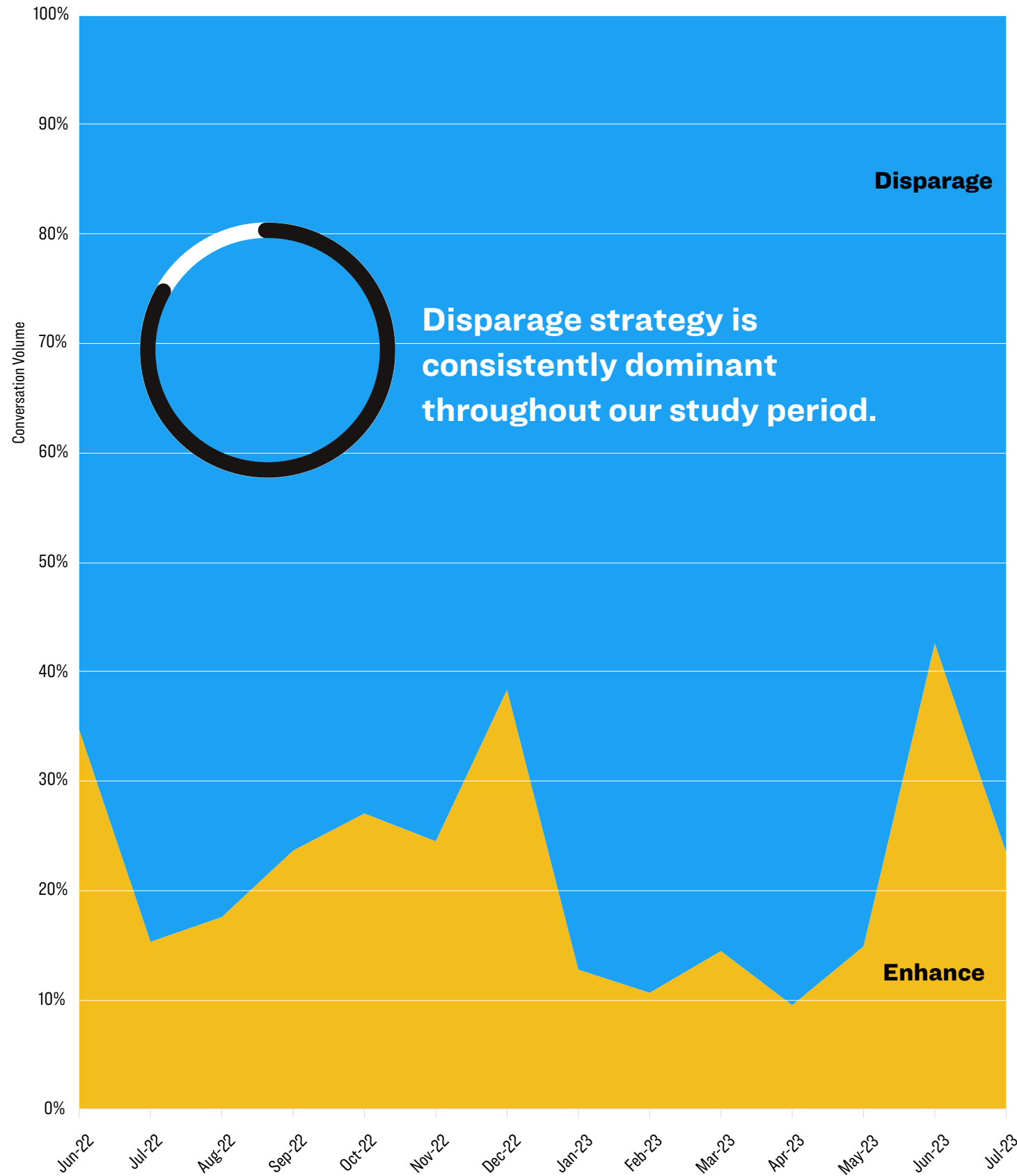


### 3.1 Narrative analysis overview

78% of posts (740,077) disparaged plant-based diets and alternative proteins as well as climate science connected to meat and dairy. When we started this research we expected the majority of posts would relate to greenwashing and health-washing promoting meat and dairy products and diets. However, conversations online turn out to be much more aggressive. The prevalence of the ‘disparage’ frame highlights a substantial and impassioned community actively participating in critical discourse about real or perceived threats to meat and dairy-based diets.

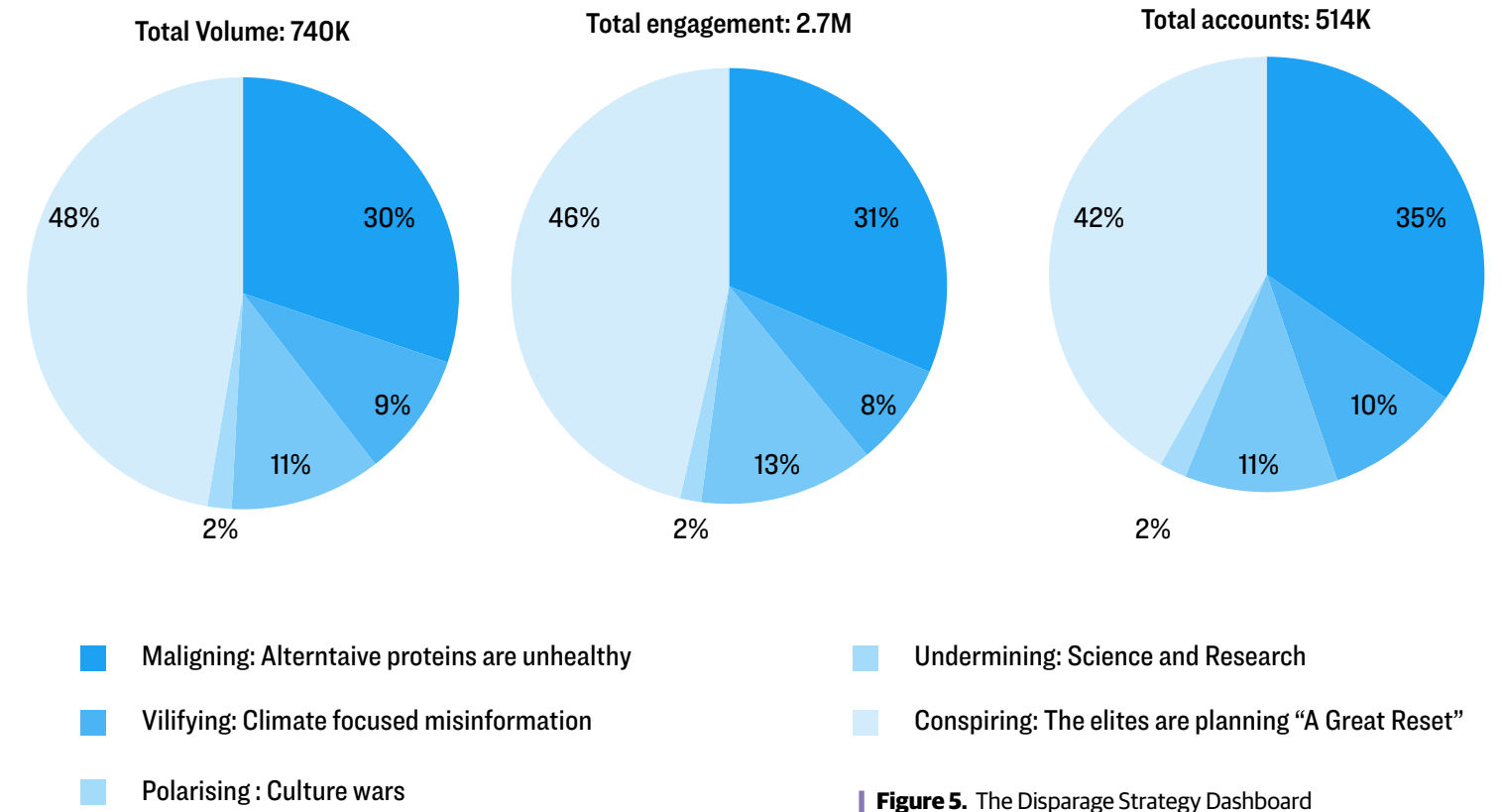
Twenty-two per cent of posts (207,669) promoted and celebrated animal-based food products and dietary choices. Advocates emphasise - to the point of overexaggerating-the nutritional value and cultural significance of meat and dairy products. They paint a positive picture of meat and dairy, while advocating for its role within the larger food industry, that ignores the science around health and environmental implications of overconsumption and production.

**A narrative analysis of the entire dataset reveals two broad misinformation strategies: Disparage and Enhance**



**Figure 4.** A narrative analysis of the entire dataset reveals two broad misinformation strategies: Disparage and Enhance

**The Disparage Strategy Dashboard**



**Figure 5.** The Disparage Strategy Dashboard

**3.2 Diving deeper into the 'disparage' category**

We found five main attack points in disparaging posts:

1. representing alternative protein products as unhealthy
2. discrediting alternatives for their climate or environmental impact
3. leveraging cultural polarisations ('the culture wars')
4. undermining independent scientific research on the impacts of animal agriculture
5. framing changing diets as part of an 'elite' agenda for 'The Great Reset.'

The largest category in our dataset (37% of the total / 350,465 posts) were alarming narratives about how a small group of powerful 'elites' is orchestrating a 'Plandemic'.



This idea is connected to ‘The Great Reset’ conspiracy theory which began during the Covid-19 pandemic.

Our research shows how this wider conspiracy theory appears in debates around diets as well as environmental policies around pollution and climate impacts of meat and dairy production. Their prevalence is concerning as they have the power to drive polarisation and online hysteria, potentially hindering acceptance of climate policies. The Netherlands case study is closely linked with these conspiracy theories. They influenced most of the online misinformation on environmental policy implementation, impacting perceptions of farmers and citizens.

Narratives highlighting the negative effects of alternative proteins on health, categorised as ‘maligning’, make up 24% of the total dataset (223,389 posts).

These findings, combined with research into misinformation around plant-based products, as covered in a recent Fast Company article (see box 3.1), show a pattern in targeting alternative proteins. Some of this can be connected to industry players (see box 1.1). It’s clear that the alternative protein industry is feeling the effects of these attacks. It was reported that ‘In the wake of falling sales, insolvencies and fast-disappearing financing, the plant-based meat sector is now on a mission to win back consumers by explaining its manufacturing processes and highlighting what it says are the health benefits of plant-based meat’.<sup>42</sup>

Conversations denying climate change and vilifying the environmental credentials of plant-based and lab-grown proteins made up 7% of the dataset (69,045 posts). Conversations focused on nutritional science and climate science made up 1% (13,388 posts). This means misinformation around scientific evidence on climate change and nutrition makes up a small share of the overall ‘disparage’ strategy. This

suggests people aren’t interested in engaging with or trying to discredit evidence directly. When it does appear, there is a significant overlap with climate denial.

Posts categorised as ‘polarising’ represent 9% of the total dataset (83,790 posts). While this category is small, its potential impact is significant. Conversations target the choices of individuals rather than organisations, furthering cultural divisions and fostering hatred, playing into culture war divides.

### 3.2.1. Maligning: Alternative proteins are unhealthy

Thirty per cent of ‘disparage’ posts (223,389 posts / 24% of the total) focus on negative health impacts of alternative protein products. This covers both plant-based milk/meat and cultivated meat, which usually go under the broad category of alternative protein.

Six dominant narratives emerged that were used together to bolster the argument that alternative products are unhealthy:

1. **Ingredients:** There’s strong emphasis on the phrase ‘look up the ingredients.’ It is used to underscore that alternative products - such as plant-based proteins - contain many different ingredients, supposedly making them ‘unnatural’. Specific ingredients like glyphosate, GMO inputs, salt, sugar, oxalate and seed oils are branded as ‘dangerous.’
2. **Production:** Manufacturing processes are also targeted, with alternative proteins labelled as ‘ultra-processed garbage’ manufactured in large factories and labs. This promotes the idea that these products are unnatural due to their production methods.

# Maligning - Competing products are unhealthy - Timeline analysis (Main peaks graph)

## 1 PEAK 1: JUN 15, 2022:

Cattle Deaths and Lab-Grown Meat Narrative: Around 10,000 cattle died in a Kansas heatwave, which misinformation linked to Bill Gates' lab-grown meat investment. False claims suggested the cows were purposely killed to boost lab-grown meat sales, and misinformation maligned the ingredients and nutritional value of lab-grown meat, referring to it as unnatural chemical slop.

Here, the aim of the misinformation seems to be two-pronged – to deny climate change, and to disparage lab-grown meat.

## 2 PEAK 2: JULY 11, 2022:

A distribution centre owned by Dutch grocer E-Picnic caught fire in the Netherlands.

Misleading narratives asserted that the building was a lab-grown meat facility owned by Bill Gates, and rejoiced its destruction with the hashtag #RESIST, despite the claim being debunked. The narratives also frequently used the hashtag #DutchFarmers, tying the misinformation into the Dutch farmers protests regarding potential legislation to halve the livestock in the country.

The grouping together of these seemingly unconnected narratives implies a concerted strategy with one message: that we are “not allowed” to disrupt the traditional agri- livestock industry

## 3 PEAK 3: FEB 22, 2023:

Conversations on this day were driven by a viral “Newspunch” post ( a website well known for spreading misleading narratives) alleging Bill Gates' lab-grown meat causes cancer. This claim has been categorically debunked.

Regardless, the misinformation comprised health scaremongering, and targeted public health, asserting that lab-grown meat caused cancer due to its production methods, specifically the use of immortalized cell lines.

## 4 PEAK 4: MAY 17, 2023:

University of Washington's Institute for Health Metrics and Evaluation (IHME) publishes a study that goes viral - asserting that decades of research linking red meat consumption to heart disease, stroke and cancer was poorly researched and that there is no link between eating red meat and stroke.

Conversations centred around tarnishing the premise of eating less red meat at a whole, hit out at nutrition and climate scientists for “lying”, and proclaimed “fake” meat as a health risk instead. One account (@DrLoupis) that posted these claims received a shocking 60K engagement.

## 5 PEAK 5: MAY 28, 2023:

False claim circulates that Bill Gates' lab-grown meat causes “turbo” cancer, based on a previously debunked theory about immortalized cell lines. Misinformation sparked by a viral post on Newspunch, misquoting a Bloomberg story. Studies have shown the claim to be false.

Narratives referred to lab grown meat as “glorified tumours, and called it disgusting, “pukeworthy”, and untrustworthy.

Seemingly, pushback against lab-grown meat has become more virulent, with narratives utilising more “frightening” and emotion-inducing words, aiming to dissuade public acceptance of the product

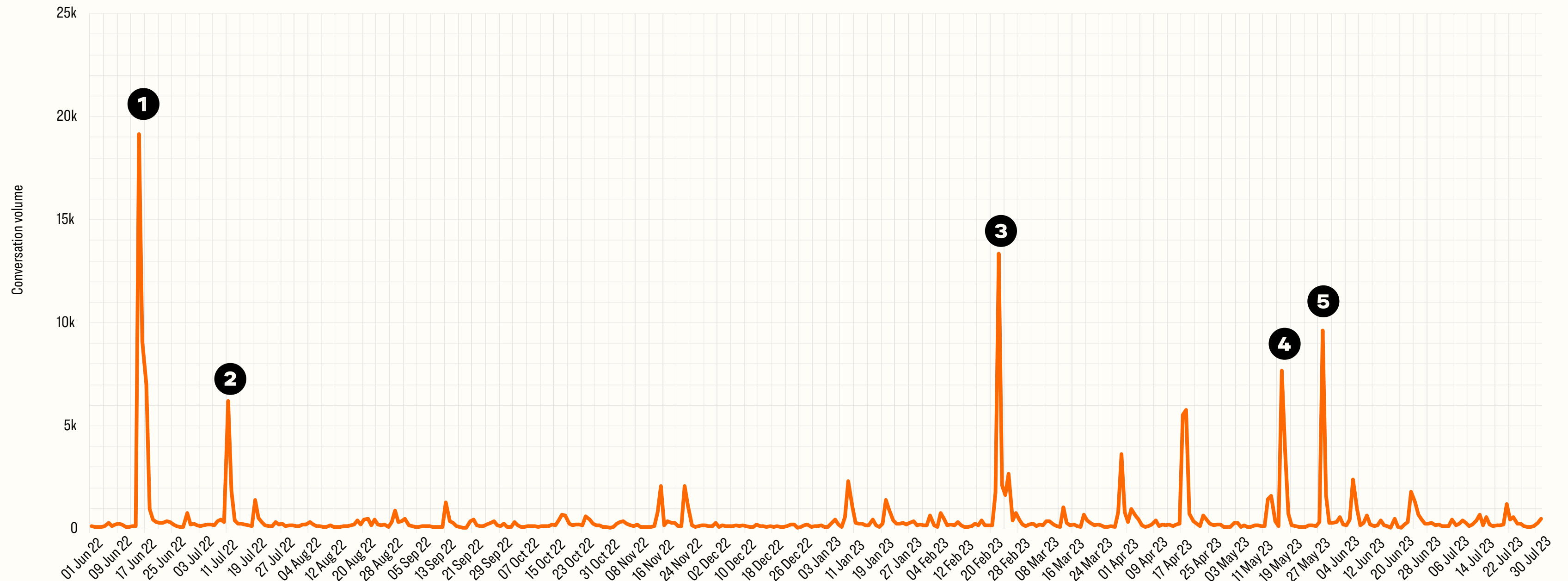


Figure 6. Maligning - Competing products are unhealthy - Timeline analysis (Main peaks graph)

# Maligning - Competing products are unhealthy - Timeline analysis with outliers removed (Secondary peaks graph)

## 1 PEAK 1: JUN 15, 2022:

During the Bonn Climate Conference (June 6 16, 2022), misinformation didn't target the conference directly. Instead, it promoted narratives vilifying alternative meat and dairy products, by referring to them as "fake" casting doubt on the "synthetic" "pharma based" ingredients used to produce them, asserting that they have no nutritional value, and referring to them as junk food.

Since conferences like Bonn steer conversations towards climate change mitigation strategies and products, it seems like narratives actively attempt to push back, more than usual, during this time

## 2 PEAK 2: SEP 13, 2022:

Company Eden Brew announced that their lab grown milk would be ready for sale in Australia by 2024.

Narratives, spurred by this, centred around the ingredients, nutrition, and production of alternate milk, referred to it as unnatural, highly processed, and full of "seed oils", GMO crops, and excessive sugar. This is in line with the overall milk/mylk discourse, which hyper fixates on natural vs unnatural ingredients. This indicates that accounts are attempting to discredit and influence consumers against alt products, well before they hit the market

## 3 PEAK 3: NOV 15, 2022:

Conversations peaked at the start of UNFCCC COP27. Most narratives here did not explicitly mention the conference, but instead tarnished all alt products multidimensionally. Narratives fixated on the ingredients and manufacturing process of alt products, referring to them as ultra processed pesticide laden garbage. Famous American politician Robert F Kennedy in particular sparked conversations with his tweet promoting these narratives.

Once again, the aim here seems to be to discredit all alternative products (that are potentially better for the climate), to make them seem like they aren't a "real" option for consumers.

## 4 PEAK 4: NOV 22, 2022:

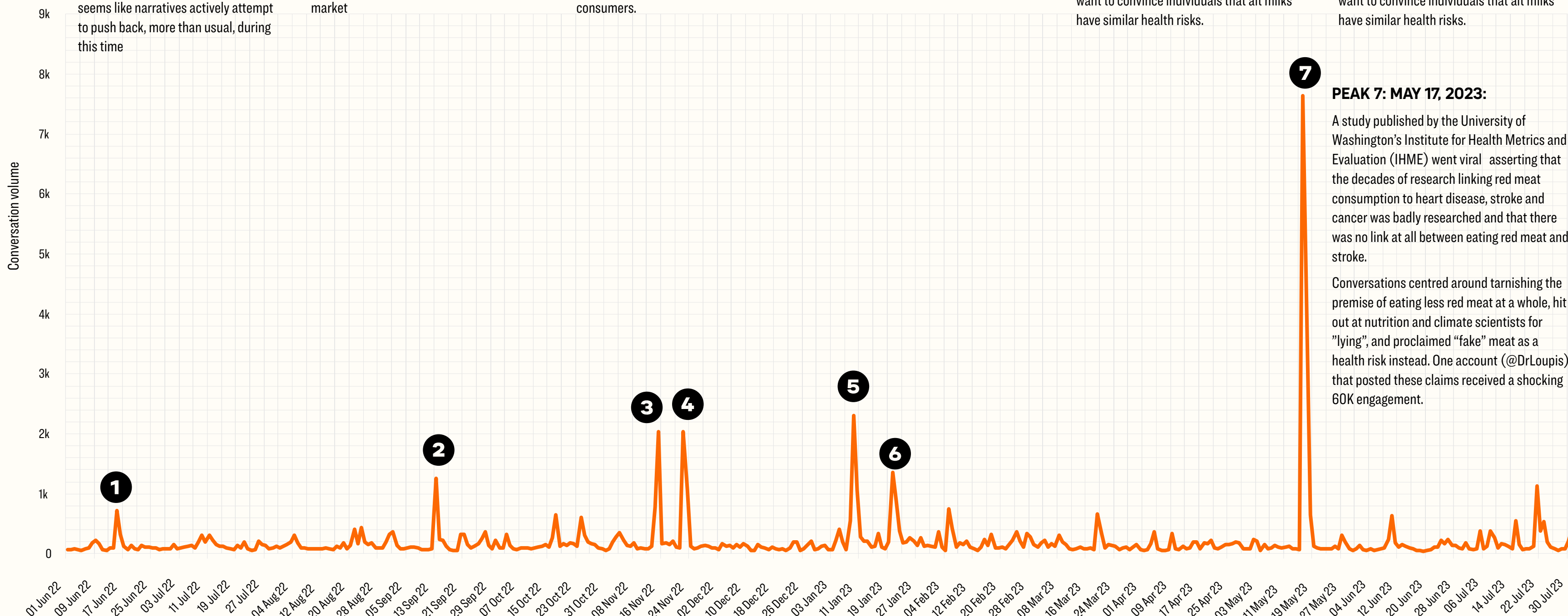
Conversations peaked at the end of UNFCCC COP27, and followed a similar narrative, seemingly with the same goal in mind that alternative products are full of chemicals and made with crops grown through dangerous herbicides and pesticides, with the implication that they are unhealthy and not a real option

## 5 PEAK 5: JAN 9, 2023:

Narratives sought to tarnish the viability of alternative milks largely driven by @MeatMafiaBrett and @AlpacaAurelius. Conversations criticised in alt milks as contributors to "illness and despair" – roping them in with unrelated determinants of health and wellbeing. This conversation trend was peculiar, referring to "fake milks" as poison, and grouping them in with using birth control, vapes, getting drunk, and smoking weed. Here, the items mentioned above have certain negative connotations and health risks associated with them. Narratives seem to want to convince individuals that alt milks have similar health risks.

## 6 PEAK 6: JAN 9, 2023:

Narratives sought to tarnish the viability of alt milks largely driven by @MeatMafiaBrett and @AlpacaAurelius. Conversations criticised in alt milks as contributors to "illness and despair" – roping them in with unrelated determinants of health and wellbeing. This conversation trend was peculiar, referring to "fake milks" as poison, and grouping them in with using birth control, vapes, getting drunk, and smoking weed. Here, the items mentioned above have certain negative connotations and health risks associated with them. Narratives seem to want to convince individuals that alt milks have similar health risks.



## 7 PEAK 7: MAY 17, 2023:

A study published by the University of Washington's Institute for Health Metrics and Evaluation (IHME) went viral asserting that the decades of research linking red meat consumption to heart disease, stroke and cancer was badly researched and that there was no link at all between eating red meat and stroke.

Conversations centred around tarnishing the premise of eating less red meat at a whole, hit out at nutrition and climate scientists for "lying", and proclaimed "fake" meat as a health risk instead. One account (@DrLoupis) that posted these claims received a shocking 60K engagement.

Figure 7. Maligning - Competing products are unhealthy - Timeline analysis with outliers removed (Secondary peaks graph)



**3. Nutrition:** Narratives aggressively emphasise the limited nutritional value of alternative proteins. They question these products' adequacy as animal product substitutes and highlight their supposed lack of health benefits. They identify perceived deficiencies in micronutrients like zinc, iodine, B12 and macronutrients like protein.

**4. Diseases:** This narrative makes claims about cancer and heart disease, apparently to counter scientific consensus on health impacts of red meat consumption. These posts attribute diseases to alternative products, particularly lab-grown meat. They promote the idea of lab-grown meat causing "turbo cancer," clogged arteries, strokes and type-2 diabetes.

**5. Effects on health:** These narratives promote the idea that consuming alternative products carries health risks. Posts talk about endocrine disruptors, skin damage, inflammation due to seed oils, gastrointestinal issues and the potential for chronic illnesses.

**6. Trends:** These narratives involve phrases like 'Wood Milk' and 'Frankenfood'. The first implies that only animal dairy qualifies as authentic. The second suggests alternative protein products are riddled with 'pharma' components and aren't real food. These trends bolster the argument that plant-based products are unhealthy. The campaign 'Wood Milk' was funded by the dairy industry, through The Milk Processor Education Programme. They funded a high profile ad<sup>43</sup> featuring actress Aubrey Plaza attacking plant-based milks.<sup>44</sup>



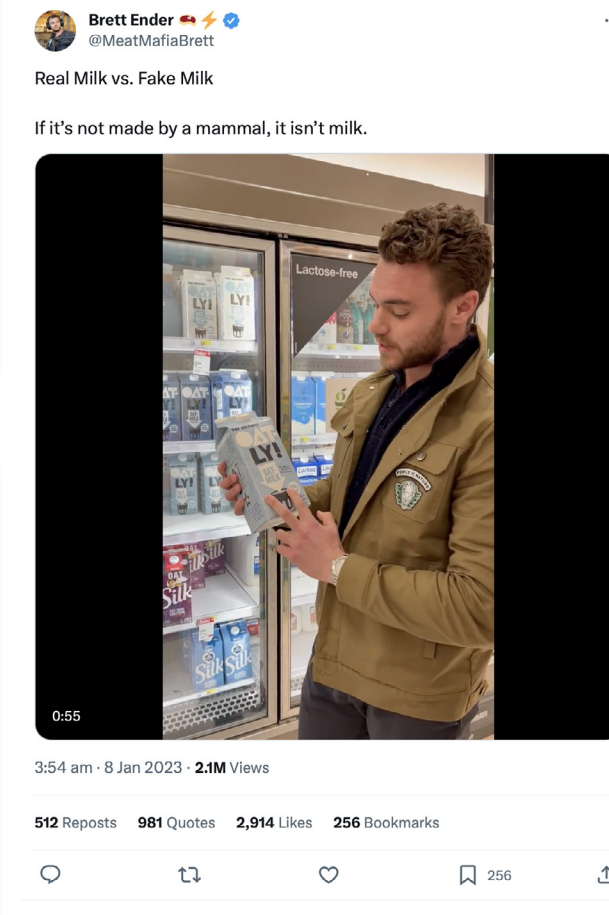
Post 3. Bianca @primalmamas



Post 4. Illuminatibot @illuminatibot



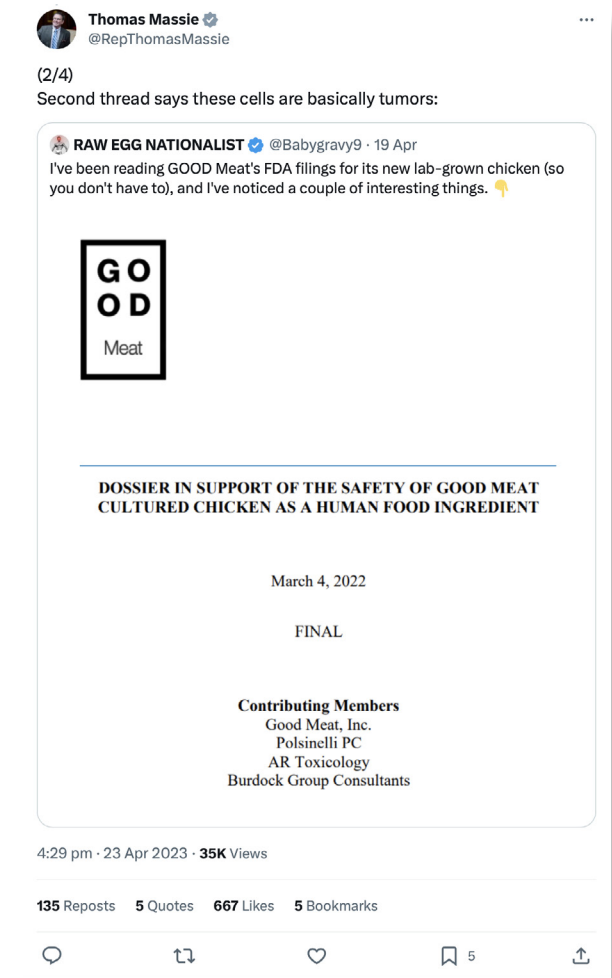
Post 5. P.D. Mangan Health & Freedom Maximalist @Mangan150



Post 6. Brett Ender @MeatMafiaBrett



Post 7. Dr. Anastasia Matia Loupis @DrLoupis



Post 8. Thomas Massie @RepThomasMassie



Post 9. Lioness Deb @LionessDeb19

### Box 3.1 The social media disinformation war and Big Meat operatives

An article published by Fast Company, an American business magazine, in 2023 looked at some of the social media misinformation targeting plant-based meat products and the links to 'Big Meat' operatives, mostly focusing on TikTok and Instagram.

The article took a qualitative dive into the prevailing misinformation around plant-based meat that represents it as undesirable for human consumption. It notes that this misinformation has gained substantial traction on social media platforms and so is impacting the plant-based meat industry's reputation.

The article highlights criticisms of plant-based products. These include that they are ultra-processed and contain too many ingredients – some of which are dangerous. This corresponds with the key narratives that emerged from our research, primarily those categorised as 'Maligning: Alternative proteins are unhealthy' under the 'disparage' category.

In this narrative, there's a strong emphasis on urging people to 'look up the ingredients' in alternative products. This insinuates they contain unnatural and dangerous components. The Fast Company analysis highlights how these discussions target the manufacturing processes of alternative proteins, branding them as 'ultra-processed garbage' produced in large factories and labs. They aggressively question the nutritional value of alternative products, asserting their inadequacy as substitutes for animal products as well as their lack of health benefits.

The Fast Company article specifically highlights two influential figures: Carnivore Aurelius, an influencer, and Dr Shawn Baker, a 'renowned orthopaedic surgeon

known for his 30-day all-meat diet embraced by figures like Joe Rogan and Jordan Peterson'. Within our dataset we found that both Carnivore Aurelius and Dr Shawn Baker were present. They ranked sixth and fifteenth in terms of engagement generated through their posts.

The article draws on connections to the meat and dairy industry to question whether this spread of misinformation is being coordinated by the industry's operatives or if it's just a convenient benefit:

*'Has a master of manufacturing phony grassroots opposition finally tapped the power of social media? Or did Big Beef merely luck out that this crowd started echoing its propaganda?'*<sup>45</sup>

The 'master' is a successful lobbyist named Rick Berman who 'spent three decades leveraging a network of dark-money coalitions to achieve the aims of anonymous corporations via his lobbying firm, Berman and Company'.<sup>46</sup> It's unclear whether Berman is connected to the recent spikes in misinformation as found in this study as well as those highlighted in the analysis for Fast Company. But the narratives certainly track across from the campaigns run by Center of Consumer Freedom (CCF). The CCF is a group funded by restaurant chains and meat companies that Berman set up in 2019 which fixated on alternative proteins when the industry was rapidly growing.

The CCF placed 'Fake Meat or Dog Food?' adverts in prominent papers such as the Los Angeles Times and New York Times as part of this campaign followed by adverts with messages like 'Should Fake Meat Have a Cancer Warning?' and 'Fake Meat Has WHAT in It!'. The group also ran an advert attacking 'fake meat' during the Super Bowl in 2020. It created downloadable shareable images of these types of adverts



on the website CleanFoodFacts.com – which claims it ‘helps consumers better understand what’s in fake meat.’ These lines of attack on plant-based products are prevalent in our dataset.

This tactic focuses on attacks on alternative proteins’ health credentials, questioning nutritional value, ingredients and potential diseases associated with their consumption.

The Fast Company article also draws comparisons from social media misinformation narratives to messaging from prominent big meat and dairy industry-funded scientist Frank Mitloehner, who runs the industry funded CLEAR Centre at UC Davis. In 2019, Mitloehner promoted a quiz comparing ingredients for Beyond Burger and Impossible Burger to premium dog food. As mentioned above, an investigation by Unerthed previously highlighted that CLEAR posed as an independent, academic voice to make a positive case about meat and dairy’s environmental impacts. This included ‘research designed to undermine plant-based alternatives to meat products’, as well as Mitloehner’s capacity to launch campaigns on social media.<sup>47</sup>

The article says it was not possible to link Mitloehner, Berman or other meat and dairy operatives directly with misinformation narratives. But it highlights that some messages overlapped. While one of the influencers in the article mentions she had seen content from Mitloehner, more than a dozen of the influencers contacted by Fast Company would not discuss where they had seen the ideas they were sharing. An investigation from Unerthed directly links Mitloehner with the pushback against the EAT-Lancet study, a ground-breaking study on what constitutes a healthy and sustainable diet, on social media. This ‘was successful in swaying undecided audiences away from the conclusions of the EAT-Lancet report.’<sup>48</sup>

Our analysis of the current social media misinformation trends shows the same lines of attack on the alternative protein industry as uncovered in the Unerthed and Fast Company investigations. The narratives track beyond just Berman’s past campaigns against alternative proteins, echoing recent ad campaigns directly from the meat and dairy industry. For example, the ‘Wood Milk’ advert from the Milk Processor Education Programme that mocked plant-based milks plays on the idea that plant-based alternatives are not very tasty or healthy due to the high content of dubious ingredients.<sup>49</sup>

The ‘disparage’ narrative implicitly represents meat and dairy as both ‘natural’ and ‘healthy’. In reality, the health impacts of high levels of meat consumption, particularly processed meat, are well documented.<sup>50</sup>

This argument also conveniently ignores the fact that many alternative protein products are intended as substitutes for processed meat such as burgers and sausages. A study showed that ultra-processed (UPF) meat accounts for 7% of the UK diet, while fresh or minimally processed accounts for just 5% – and that in total UPF makes up 50% of the average diet.<sup>51</sup>

Criticism of UPF focuses on alternative proteins – when in reality the UPF market is much bigger than just meat substitutes. A recent international study which looked into the risks of different UPFs stated ultra-processed plant-based foods ‘were not associated with risk’ whereas ‘associations [with an increased risk of multimorbidity of cancer and cardiometabolic diseases] were most notable for animal-based products’.<sup>52</sup>



### 3.2.2. Vilifying: Climate-focused misinformation

Nine per cent of the ‘disparage’ dataset (69,045 posts / 7% of the total) focus exclusively on the climate. They range from denying climate change and climate science to attacking alternative protein products as not being any better for the climate than meat or dairy.

Four dominant narratives emerged in this area:

1. **Climate Hoax:** This narrative aggressively disputes climate change, attributing it to the agenda of ‘vegan extremists and alarmists.’ Anecdotal evidence from ancient history is used to back this claim. It shifts the cause of climate change away from livestock to unrelated factors, such as tyre burning, to divert attention from environmental concerns around the livestock industry.
2. **Lab-grown meat is bad for the environment:** Much of this narrative was centered around the UC Davis study (see our case study).

3. **Plant-derived food damages the environment:** This narrative takes a more specific approach, highlighting the environmental consequences of certain farming practices. It details how almond cultivation contributes to desertification, excessive water usage and bee population decline. Similarly, it discusses the adverse effects of soybean farming, including deforestation, monocropping and reliance on harmful chemicals. This narrative contrasts these impacts with claims of animal products’ supposed superiority due to lower transportation emissions.

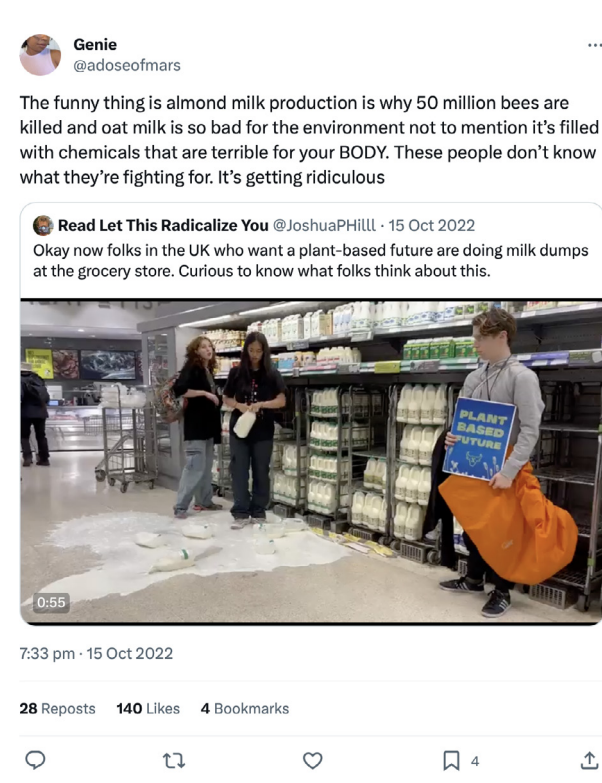
4. **Climate Policy Fearmongering:** This misinformation aims to undermine climate policies, talking about potential ‘meat rationing’ and ‘farm closures’ as inevitable ‘next steps’ to climate mitigation strategies. They amplify the narrative that net zero strategies could infringe on individual rights - including meat consumption and access to electricity. This can create apprehension, weaken public support for climate action and maintain the status quo.



Post 10. Tony Heller @TonyClimate



Post 12. Paul Davis @bleating\_Lamb



Post 13. Genie @adoseofmars



Post 14. Noah Ryan @NoahRyanCo



Post 15. Trumpon country Usa @LauraLeeBordas

# Vilifying - Climate focused misinformation- Timeline analysis

## 1 PEAK 1: JUL 31, 2022

Former New Zealand PM Jacinda Arden proposed a policy that would require farmers (who meet the threshold for herd size and fertiliser use) to pay for GHG emissions from their farms - in order to reduce emissions from the agricultural industry.

Narratives aggressively pushed back against this - targeting Jacinda Arden, the WEF, and “elites”, claiming that climate change was false, and a part of the “lefty agenda”, and all a part of a “grift and land grab”. Narratives also asserted that the “larger plan” was to bankrupt farmers, collapse the meat industry, and make meat inaccessible, except for the “rich elites”.

Overall, this pushback aimed to scare, and reduce acceptance of the policy by alleging ulterior motives by the government to “control” the country.

## 2 PEAK 2: MAY 18, 2023

UC Davis, a well-known Big Ag conspirator, released a pre-print and not peer-reviewed study claiming that lab-grown meat is 25x worse for the environment than beef. Misinformation distorted findings, alleging a “vegan” agenda causing wildlife loss, barren earth, and soil damage.

## 3 PEAK 3: JUN 7, 2023

The Irish Government announced a goal to reduce farming emissions by 25% by 2030. One option suggested to do this, was to reduce dairy cattle by 10%. The government said that no final decision had been taken, and that culling would be voluntary, similar to a “retirement exit scheme” for farmers.

Narratives sensationalised this proposed solution - framing it as a compulsory measure by a “braindead party”, an attack on farmers’ livelihoods, and a colossal waste of money. Narratives also strongly leaned towards climate change denial, alleging that the proposal was driven by the “cultists” of the “climate scam”, and that these cultists were “lining the coffers” of the government.

Here too, the aim of these narratives seemed to overinflate the impact of potential legislation and framing it as a dangerous means of control for the “globalist elites”.

## 4 PEAK 4: JUL 9, 2023

Conversations spiked in response to a viral World Economic Forum video detailing the various innovations in alternative protein titled “4 new foods that cut down your dinner’s carbon footprint”.

Narratives claimed that the WEF was using the “climate scam” to ban farming and meat consumption, and force people to eat “fake processed food and bugs” to weaken the population. Conversations asserted three key things: climate change denial, climate “propaganda by elites”, and the “vegan agenda”. The narratives aimed at discrediting the need for climate-friendly alternatives, while simultaneously discrediting the viability of these alternatives.

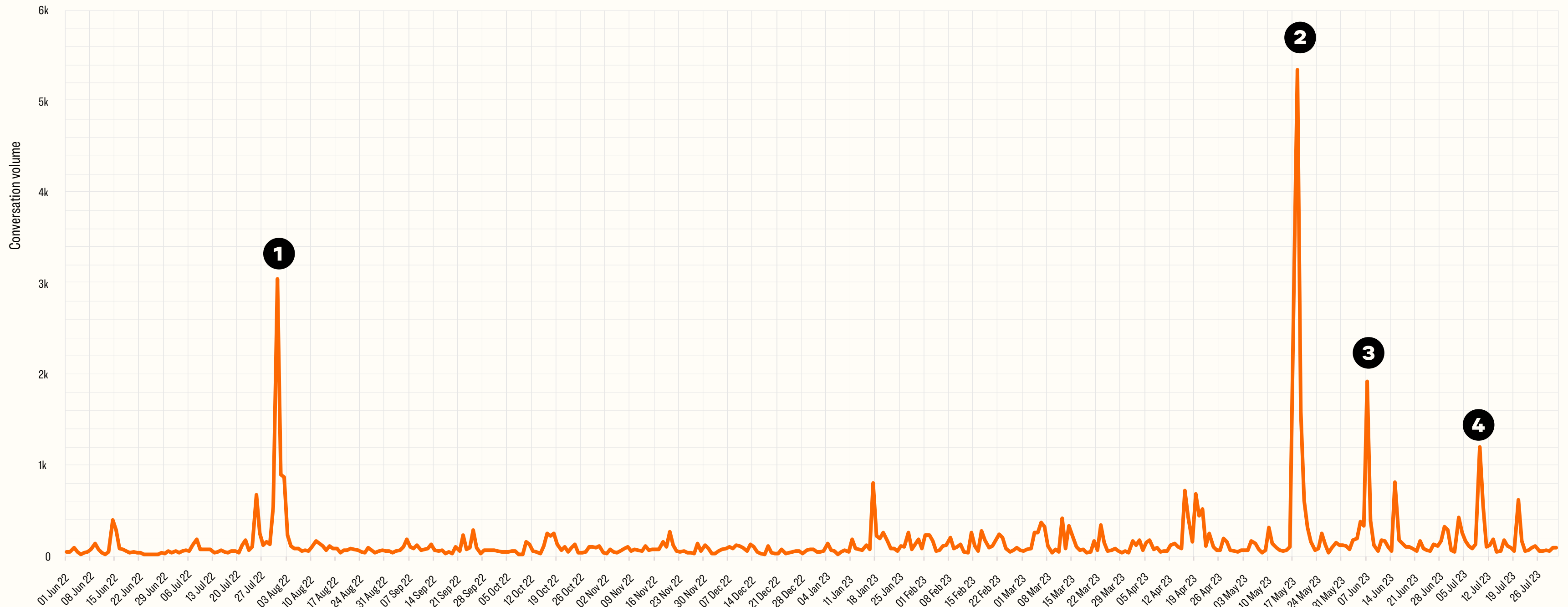


Figure 8. Vilifying - Climate focused misinformation - Timeline analysis





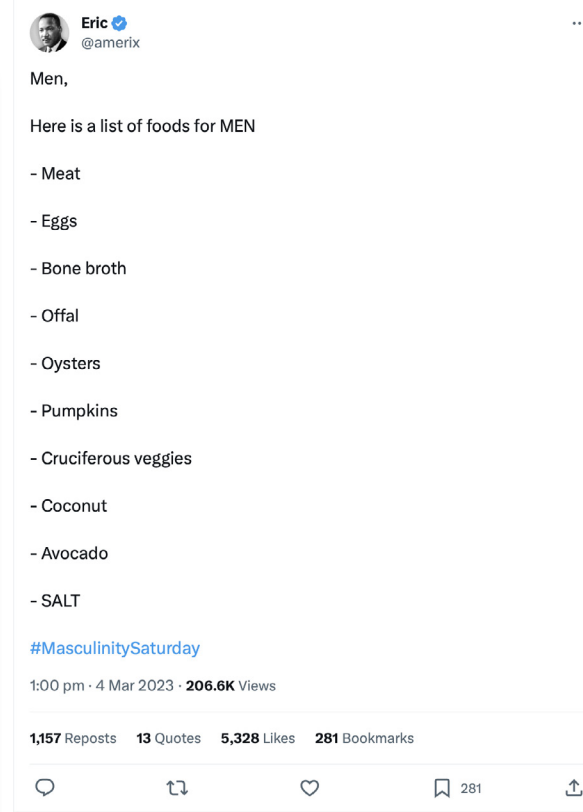
Post 16. The Absolute Truth @AbsoluteWithE



Post 18. Iman Gadzhi @Gadzhilman



Post 20. Carnivore Aurelius @AlpacaAurelius



Post 17. Erik @amerix



Post 19. Nick Adams (Alpha Male) @NickAdamsUSA



Post 21. Nick Adams @NickAdamsUSA

### 3.2.3. Polarising: Culture Wars

Eleven per cent of the ‘disparage’ dataset (83,790 posts / 9% of the total) relates to the culture wars. These are polarising identity-driven conversations aiming to sow divisions, such as questioning the masculinity of men who choose plant-based diets.

These posts reposition meat as not just a dietary choice but part of an identity wrapped in an ‘anti-elite’, ‘us versus them’ ideology. As attacks focus on vegans, ultimately the meat and dairy industry benefits.

An analysis of the meat-based culture wars in America from Jan Dutkiewicz and Gabriel N. Rosenberg states ‘Turning meat into a culture war issue both creates new, tribal ideals of consumption and undermines political and systemic change’.<sup>53</sup> It also says that ‘the biggest beneficiaries of the meat culture war are the incumbent business and political interests that already play an outsize role in setting the menu of the American diet. Among the biggest losers are ordinary consumers’.<sup>54</sup>

Three dominant narratives emerged in this area: two around gender, one around following a ‘green’ lifestyle.

1. **Soyboys:** This narrative targets men who embrace plant-based diets with the derogatory term ‘soyboys’. It asserts that consuming soy products elevates oestrogen levels, leading to perceived physical and emotional vulnerabilities. These narratives not only attempt to ridicule people adopting climate-friendly diets but also contribute to sowing doubt and scepticism about dietary choices.
2. **Masculinity and Meat:** The narrative associating meat with masculinity uses various strategies. It focuses on pseudoscientific claims suggesting that meat (especially red meat) and eggs are the epitome of nutrition while emphasising ‘masculine’ traits like fertility



# Polarising - Culture Wars - Timeline analysis

## 1 PEAK 1: JUN 5, 2022

Conversations revolved around discrediting efforts by plant-friendly groups and individuals to mitigate climate change.

Narratives referred countered the notion that meat is not sustainable by referring to it as hypocritical vegan propaganda, promoted by rich white vegans. Other narratives also aimed to divide “environmentalists” and the “anti-livestock vegans” – by saying that only the former “actually” cared about the environment.

Here, narratives clearly seek to establish “vegans” as the other – and drive animosity towards them.

## 2 PEAK 2: OCT 16, 2022

The milk pouring protest staged by Animal Rebellion activists in the UK, advocating for a plant-based future, triggered a surge in discussions. Hostile narratives targeted “vegans,” ranging from plans to increase meat consumption against “vegan propaganda” to labeling vegans as “privileged” and “wasteful.” Some expressed disdain with the phrase “this is why we hate vegans,” attributing lack of support to such protests. Criticism from Home Secretary Suella Braverman and references to protestors as “thugs and vandals” echoed these sentiments, reflecting negative perceptions of the vegan movement and its proponents.

## 3 PEAKS 3, 4, 5, 6:

**4** Dates: Nov 5, 2022, Nov 19, 2022, 4 Mar, 2023, 19 Mar, 2023.

**5** Conversations during all 4 peaks are driven by **6** #MasculinitySaturday a trend promoting the notion that “meat is masculine”. Narratives focus on highlighting meat’s nutritional contributions to fertility, strength, and vitality. They also emphasize the nutritional value of red meat and eggs, including essential amino acids, fatty acids, zinc, selenium, and multivitamins. Additionally, narratives criticise alternative diets questioning taste and nutritional benefits compared to animal-based sources.

## 7 PEAK 7: 29 APR, 2023

New York congresswoman Claudia Tenney demanded that FBI investigate threats posed by the California-based animal-rights group Direct Action Everywhere. She referred to them as ‘vegan extremists’, and alleged that they were “actively disrupting farms” in rural communities, “stealing livestock”, and violating property laws.

The narratives echoed the congresswoman’s sentiment, using phrases like “the vegan extremists are at it again”. Here, the narrative aims to discredit vegans and the vegan movement as a whole, and amplify the notion of them being “extreme cultist disruptors”.

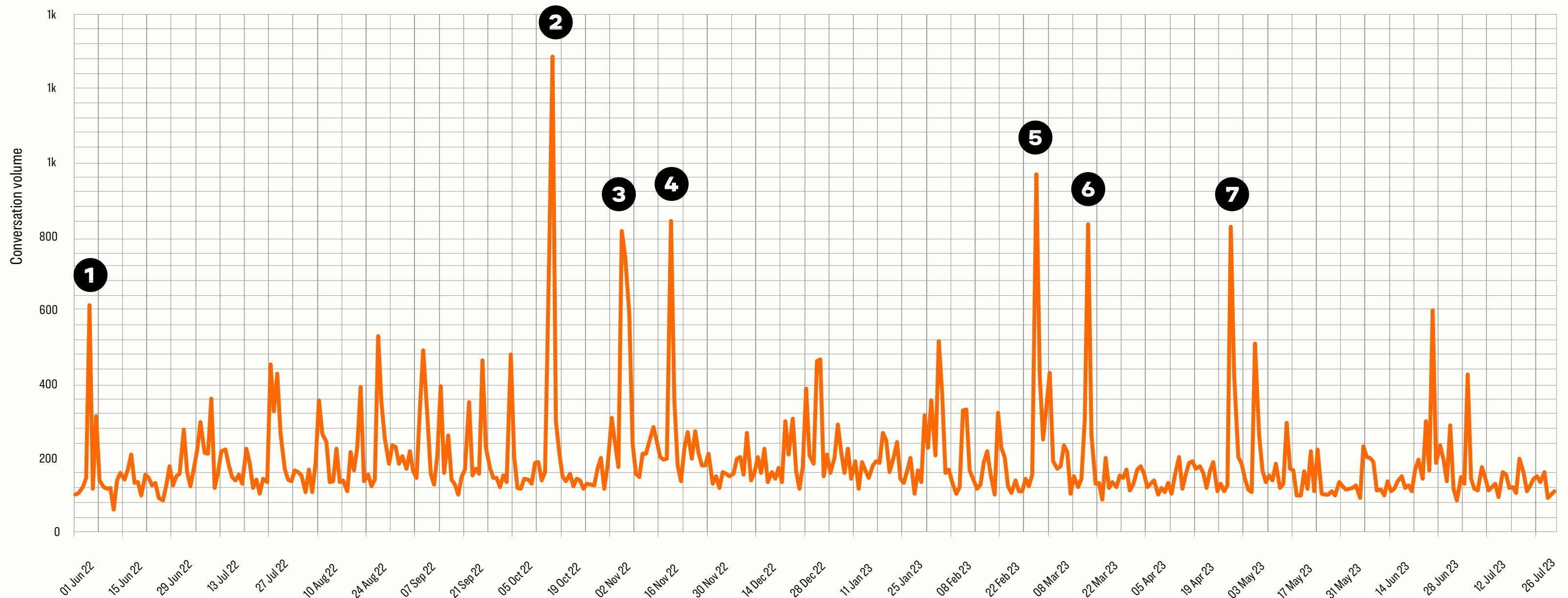


Figure 9. Polarising - Culture Wars - Timeline analysis



and strength. It also emphasises the supposed ‘primal’ nature of meat consumption, appealing to ideas of ancestral lifestyles. Through trends like #MasculinitySaturday and #alphasaturday, the narrative solidifies the link between meat consumption and perceptions of male dominance, implicitly undermining any alternatives as ‘un-masculine’.

3. **Vegan ‘Cultists’:** This narrative attempts to marginalise vegans by labelling them as ‘cultists’ or ‘zealots’. By doing so, it aims to undermine the legitimacy of their dietary choices and climate action. This approach resonates with climate denial rhetoric, portraying climate-friendly practices as propaganda and casting doubt on their validity. Also, this narrative aims to create a negative image of climate advocates by depicting them as privileged and elitist, challenging their credibility.

### 3.2.4. Undermining: Science and research

Two per cent of the ‘disparage’ dataset (13,388 posts / 1% of the total) focus on undermining climate and nutrition research. These narratives question the reliability of health and environmental studies, aiming to cast doubt on the credibility of guidelines and recommendations. By focusing on alleged contradictions, motives and hypocrisy, these narratives challenge the validity of proposed measures.

Three dominant narratives emerged in this area - two around health and one around the climate.

**Post 22.** Chef Andrew Gruel @ChefGruel

There is nothing environmentally friendly about fake meat. Regenerative agriculture is much better for the environment. Any studies saying eating meat kills are also funded by propagandists.

3:36 pm · 14 Jun 2022

528 Reposts 30 Quotes 2,666 Likes 6 Bookmarks

Post 22. Chef Andrew Gruel @ChefGruel

**Post 23.** Suzanne evans @SuzanneEvans1

Nail hit on head by James here. Are you really going to stand for it? Net Zero won't save the planet, but is very likely to strip you of your rights, your freedoms, your health, and your comfort.

**James Melville** @JamesMelville · 13 Nov 2022

They want us to reduce our meat and alcohol consumption, eat insects and tell farmers to reduce methane emissions in livestock, but meanwhile at #COP27 they scoff on meat and indulge on lavish cocktails. They want to control us but continue to do as they please.

**Post 24.** Dr Shawn Baker @SBakerMD

REMINDER: Red meat consumption is down by around 40% in the US over last 50 years, and yet obesity, diabetes, heart disease, autoimmune disease and cancer are all up! Those that claim red meat is causing these things are literally morons!!

**Post 25.** Frédéric Leroy @fleroy1974

The #GBD @Lancet study, claiming that every bite of red meat causes harm, should be corrected or #retracted, given that it is admitted that the evidence for this assumption is too weak, uncertain & insufficient to make strong/conclusive recommendations.

**Post 26.** Nina Teicholz @bigfatsurprise

Influential Gates-backed study on red meat (#GBD), whose estimates were off by 36x, is now questioned by the World Cancer Research Fund Int'l--which says the report lacks transparency and more 1/

**Post 27.** Elander & the News @ElanderNews

COP 27 - The farmers were right. COP27 will preach a 50% cut in meat is required to stop climate change.

This will impoverish millions globally, whilst making processed food corporations & their investors billions.

For the fraud of Net Zero. Focus

**Post 28.** James Melville @JamesMelville

Fury as food menu for VIPs jetting to Cop27 features beef, chicken, fish and dairy products - along with bottomless cocktails for \$125 - amid calls from eco-activists to cut down on meat to save the planet

**Post 23.** Suzanne evans @SuzanneEvans1

Nail hit on head by James here. Are you really going to stand for it? Net Zero won't save the planet, but is very likely to strip you of your rights, your freedoms, your health, and your comfort.

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Post 28. James Melville @JamesMelville



# Undermining - Science and research - Timeline analysis

## 1 PEAK 1: JUN 15, 2022

Conversations slandered the Global Burden of Disease studies, which link red meat consumption to a certain number of deaths. Narratives called into question two things:

- The study's backers** - Alleging that the findings of the study were falsified to make lab-grown meat seem like a safer option, due to funding from the Bill and Melinda Gates foundation
- The findings themselves** - which were called faulty and irregular, in reference to a difference in red-meat related deaths between the 2017 and 2019 studies.

It is important to note that the “unreliability” of the GBD studies has been echoed by multiple Big Ag players, including European Livestock Voice - suggesting a small but concerted goal to delegitimise both nutritional science and alt-products.

## 2 PEAK 2: SEPT 12, 2022

Conversations revolved around the GBD again - this time spurred by The World Cancer Research Fund International (WCRFI) calling its findings into question. It is important to note that the (WCRFI) international findings simply support a previously released study, spearheaded by Dr. Frederic Leroy a well-known and vocal pro-meat academic.

Narratives echoed the findings of the study, calling it “whacky”, and calling into question its methodology. In addition to this, there were widespread calls for the Lancet to retract the study, as well as allegations that the findings of the report were tweaked to favour Bill Gates’ investments in lab-grown meat.

## 3 PEAK 3: OCT 30, 2022

The UNEP Emissions Gap report was released – stating that countries have made very little progress towards the Paris Climate goals and calls for systemic changes in food systems across the globe.

Narratives centred around 2 topics

- EAT-Lancet fearmongering** - focusing on the health ramifications of limiting meat as suggested by EAT-Lancet, asserting that such guidelines would contribute to nutrient deficiencies (protein, selenium, zinc, iron, and folate), as well as a “poorer mood”
- COP27** - Asserting that COP27 would “preach a 50% cut in meat” to meet climate goals, which would harm individual health while benefiting large “corporations”

Overall, the aim of these narratives seemed to be indirect pushback to the UNEP Emissions report - using fearmongering to undermine the viability of “systemic changes in food systems”

## 4 PEAK 4: NOV 13, 2022

As COP27 began, conversations spiked, accusing its attendees of “hypocrisy” for using “private jets” and eating meat at a conference centred around climate change mitigation.

This narrative was shared, verbatim, widely. This suggests that the aim of this narrative was to detract from climate-science discussions, using this sensationalised story

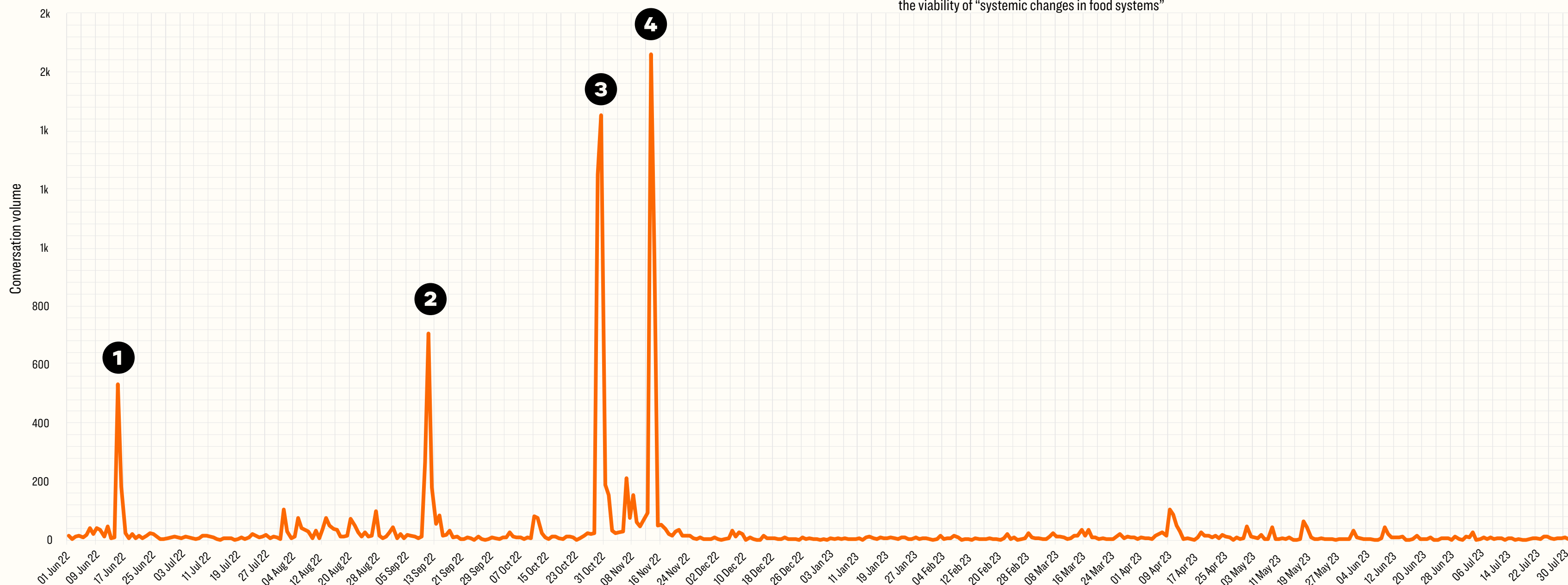


Figure 10. Undermining - Science and research - Timeline analysis



1. **Global Burden of Disease (GBD) Report:** This narrative contests the GBD studies linking red meat to higher mortality rates. A letter in the Lancet journal<sup>55</sup> from a number of scientists from The World Cancer Research Fund International triggered these claims. The letter questions the vast increase in the GBDR statistic on disease linked to red meat (the 2019 GBDR suggested a 36 fold increase) but did not challenge the finding that high meat consumption is linked to cancer. This response was used to question funders like Bill Gates, label the findings implausible and call for retraction. Critics argue that the GBDR evidence is weak and uncertain, warranting correction or retraction.
2. **EAT-Lancet report:** This narrative challenges EAT-Lancet's recommendations on meat consumption. It highlights a response to the study from the Global Alliance for Improved Nutrition (GAIN) published in March 2023. This proposed an increase in the allowance for animal-sourced food to meet certain micronutrient levels - but to a level that would still mean a global reduction in consumption of animal-sourced food<sup>56</sup>. The narrative that followed from this online claims EAT-Lancet's proposed meat limits resemble those of children in malnourished countries, and lead to deficiencies. This is a misrepresentation. The misinformation narrative also suggests negative impacts on mood and mental health, while questioning the scientific basis of the recommendations.
3. **UNFCCC COP27:** This narrative criticises climate conferences like COP27 for advocating meat reduction to combat climate change. It claims recommendations will harm farmers and benefit processed food corporations. Narratives highlight the perceived hypocrisy of leaders indulging in meat and lavish cocktails at these events. They accuse leaders of imposing restrictions on the public while not practicing what they preach, suggesting the 'agenda's inconsistencies'. Conversations around this peaked on 13 November 2022, as COP27 was coming to a close, with 1,660 posts.

### 3.2.5. Conspiring: The elites are planning 'A Great Reset'

'The Great Reset' narrative makes up 48% of the 'disparage' dataset (350,465 posts / 37% of the total). It projects a conspiracy theory that the 'global elite' planned and managed the Covid-19 pandemic to orchestrate an economic collapse and a socialist world government, run for the benefit of powerful capitalists.

These theories started circulating online in June 2020, but really kicked off in November of that year. According to BBC article published in June 2021, "the term "Great Reset" has received more than eight million interactions on Facebook and been shared almost two million times on Twitter since the initiative was launched".<sup>57</sup> Our analysis shows these theories are still very much alive and kicking, and that they connect climate, food and agriculture choices to a plan to weaken humanity and maintain control.

Four dominant narratives emerged in this area:

1. **World Economic Forum:** The WEF is criticised as a conglomerate of global elites striving to manipulate human history. Climate and dietary legislation are reframed as extreme measures intended to lead to the extinction of certain lifestyles. This narrative ties figures like Klaus Schwab, Bill Gates and various organisations together. This suggests a coordinated effort to enforce radical dietary changes that will transform people into weakened, 'diseased subjects'.
2. **Bill Gates:** Bill Gates occupies a significant role in this narrative. Claims assert that he is tampering with livestock, injecting cattle with mRNA shots and engineering artificial food shortages to promote the consumption of lab-grown meat - a sector in which he has financial interests. The narrative

# Conspiring - The elites are planning 'A Great Reset' - Timeline analysis

## PEAK 1: JUN 15, 2022

Misinformation on this date stemmed from two primary events and aimed to deny climate change while derailing climate action.

**Cattle Deaths and Lab-Grown Meat Narrative:** Around 10,000 cattle died in a Kansas heatwave, which misinformation linked to Bill Gates' lab-grown meat investment. False claims suggested the cows were purposely killed to boost lab-grown meat sales and downplay climate change impacts.

**Bonn Climate Conference and Pro-Animal Ag Narratives:** During the Bonn Climate Conference (June 6-16, 2022), misinformation didn't target the conference directly. Instead, it promoted narratives minimizing livestock's climate impact, attempting to undermine momentum towards reduced meat consumption.

## PEAK 2: JUL 25, 2022

This peak saw conversations sparked by narratives that aimed to undermine climate change efforts. Discussions often revolved around fostering a divisive "us" versus "them" atmosphere concerning climate initiatives. Within these discussions, misleading narratives gained popularity, portraying proponents of plant-based diets as engaging in animal product consumption. Similarly, the discourse emphasized the contrast between advocating climate-conscious behaviour while employing private jets. The aim of this misinformation, seemingly, was to cause animosity towards climate action.

## PEAK 6: APRIL 18, 2023

During this peak, NYC Mayor Eric Adams' announcement to reduce meat and dairy in city facilities to cut food-based emissions sparked conversations.

Hyper-politicised misinformation exaggerated this, stoking fears of a "war on meat" or full ban on meat and dairy. Claims attributed motives to "libs" on the "left," alleging intent to weaken and starve meat-eating citizens, and take away their rights.

## PEAK 3: JAN 19, 2023

During its annual gathering from January 16th to 20th in Davos, the World Economic Forum (WEF) was a focal point for misinformation. Criticism of WEF's initiatives emerged, with allegations of hypocrisy as attendees were purportedly consuming meat during the event.

In addition to this, conversations were triggered by the Siemens Chairman's assertion of the potential impact of over a billion people adopting meatless diets and embracing plant-based proteins. Misinformation questioning the effects of oat milk, including claims of blood sugar spikes and inflammatory seed oils, gained traction.

## PEAK 7: MAY 12, 2023

Here, conversations aimed to undermine trust in lab-grown meat by focusing on two key aspects:

1. Initial discussions revolved around challenging the environmental footprint of lab-grown meat, fuelled by suspicions regarding its impact compared to traditional meat sources.
2. Concurrently, a narrative emerged suggesting a collaboration between the WEF, the United Nations, and Bill Gates to coerce individuals into abandoning conventional meat consumption in favour of lab-grown alternatives.

## PEAK 4: JAN 23, 2023

Conversations on this day were spurred by a Bloomberg report discussing Bill Gates' support for the Australian start-up Rumin8, which aims to reduce methane emissions from cows through a livestock additive. Misleading claims emerged, accusing Gates of poisoning food for personal gain and control of global food systems, and "jabbing" cows with mRNA to "kill the livestock industry".

## PEAK 8: MAY 28, 2023

Conversations surged on this particular day, fuelled by two distinct subjects:

1. An article posted by "Newspunch" connected lab-grown meat to cancer, resulting in narratives that both criticized "fake" meat and praised conventional "real meat." Lab-grown meat was derogatorily referred to as "glorified tumours full of chemicals."
2. A misquoted statement attributed to US climate envoy John Kerry suggested that "farmers must halt food production to achieve net-zero." Misinformation portrayed Kerry as an extremist, insinuating that his intentions were to starve the planet and impoverish farmers.

## PEAK 5. FEB 22, 2023

Conversations on this day were driven by a viral "Newspunch" post alleging Bill Gates' lab-grown meat causes cancer. This misinformation had a dual focus:

1. Health Scaremongering: The misinformation targeted public health, asserting that lab-grown meat caused cancer due to its production methods, specifically the use of immortalized cell lines.
2. Policy Exaggeration: It also exaggerated potential climate policies, painting extreme measures as necessary to achieve net-zero goals. This aimed to discourage support for environmental initiatives by presenting them as overly radical.

## PEAK 9: JULY 12TH, 2023

After USDA's approval for UPSIDE foods' lab-grown meat, viral misinformation by "The People's Voice" alleged the meat causes "turbo cancer." This misinformation criticized the product's ingredients, expressing disgust, and accused Bill Gates and governments of conspiring to deprive people of nutrition.

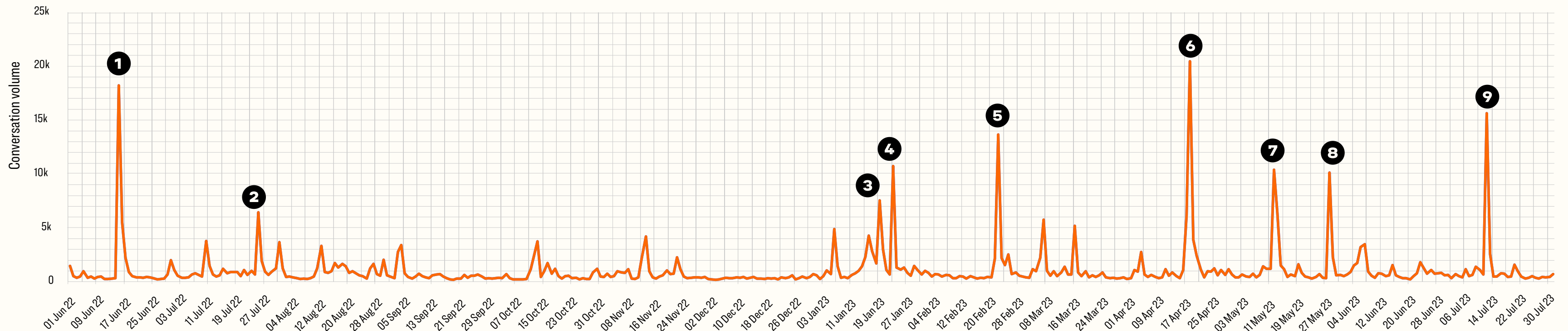


Figure 11. Conspiring - The Powerful are planning "A Great Reset" - Timeline analysis



contends that his advocacy for synthetic meat is part of a broader strategy to induce illnesses, making the population susceptible to disease and dependent on his proposed solutions.

**3. Government Policies and Statements:** The narrative exploits climate-friendly policies and statements to amplify a sense of impending control. Statements made by influential figures such as John Kerry, Eric Adams and Jacinda Ardern are distorted to imply a sinister motive. These policies, which are intended to curb emissions and promote sustainable practices, are reframed as measures that will eliminate traditional farming, tax meat eaters disproportionately and transfer authority to ideologically driven agendas.

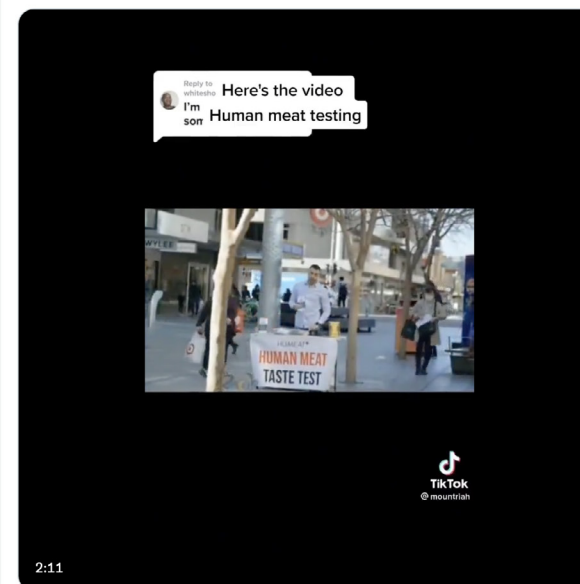
**4. 'Eat Bugs':** This narrative zeroes in on the idea of introducing insects as a sustainable protein source to address environmental concerns. However, it is portrayed as a forced conversion of diets imposed by the 'global elites.' Critics accuse these elites of advocating insect-based diets for the masses without doing so themselves. This perceived hypocrisy further underscores the notion that those in power are dictating mandates they won't adhere to personally.



**Post 29.** P.D. Mangan Health & Freedom Maximalist @Mangan150



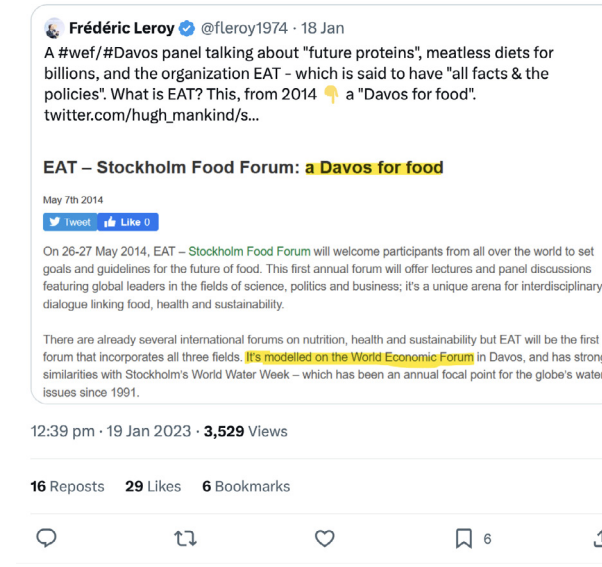
**Post 30.** Liz Churchill @liz\_churchill10



**Post 31.** Stew Peters @realstewpeters



**Post 32.** BeeGromit @SammieJack3



**Post 33.** Frédéric Leroy @fleroy1974



**Post 34.** Jim Ferguson @JimFergusonUK



**Post 35.** Verica @VDejan0000



**Post 36.** Romkadett @romkadett



### The Enhance Strategy Dashboard

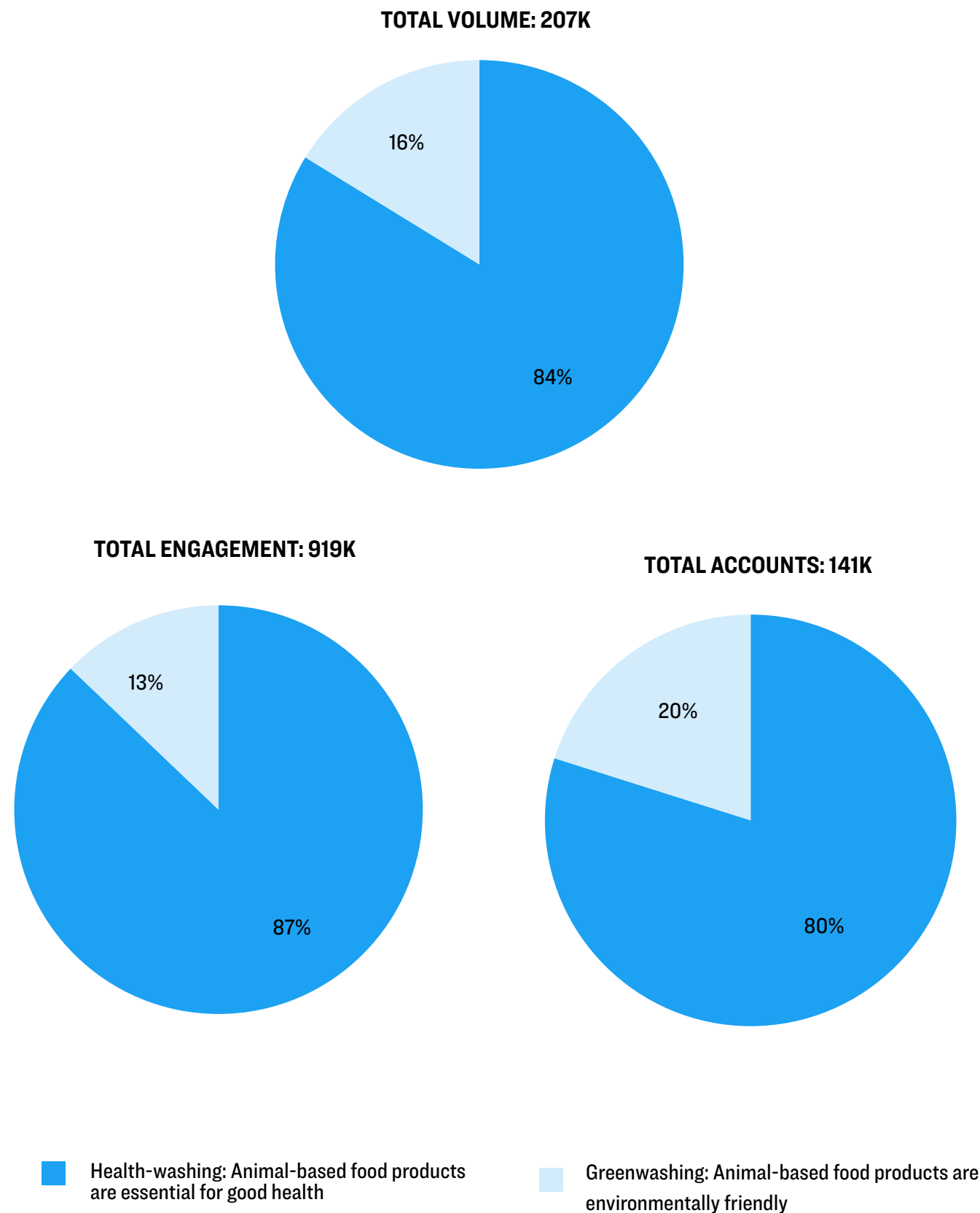


Figure 12. The Enhance Strategy Dashboard

### 3.3 Diving deeper into the 'enhance' narratives

The 'enhance' strategy emphasises health-washing by positioning animal-based food products as essential for good health and greenwashing by portraying them as environmentally-friendly options.

Eighty-four per cent of the 'enhance' dataset (173,971 posts / 18% of the total) centre around emphasising the positive effects of animal-based food products on health. It's notable that there is a lack of emphasis or positive discussion on environmental impact of meat and dairy, with just 16% of the enhance narrative (33,698 posts / 4% of the total) engaged with environmental issues.

#### 3.3.1. Health-washing: Animal-based food products are essential for good health

We identified five narratives which fit this theme:<sup>B</sup>

- 1. Rethinking meat's benefits:** This narrative exaggerates the health benefits of meat, positioning it as a superior option for fitness and disease prevention compared to vegetables, grains and other food sources. It promotes meat as a source of protein and includes misleading slogans like 'no need to fear red meat' and 'crave meat for optimal health' aiming to drive higher meat consumption.
- 2. Animal products are nutritionally superior:** This narrative touts animal-based foods as the sole providers of complete human nutrition, as well as having healing properties. It claims that meat can remedy deficiencies and promote physical and mental wellbeing. This includes generalised statements such

<sup>B</sup> The main peaks from the timeline analysis of this category relate to World Milk day and stem mostly from India. This narrative is associated with religious beliefs and so we have removed it from our analysis.

## Healthwashing - Animal based products are essential for health - Timeline analysis

### 1 PEAK 1: JUL 29, 2022

Here, narratives promoted higher meat and dairy consumption for improved health, driven by the #meatheals trend. Conversations claimed that eating fresh meat could lead to “quicker recovery” and sustained vitality, suggesting a link between its consumption and “youthful” energy.

### 2 PEAK 2: OCT 8, 2022

Here, discussions centred around the misleading association between meat consumption with masculinity. Narratives claimed that “choosing steak over soy” would enhance one’s “alpha male” status. Conversations implied that avoiding meat in favour of plant based products would lead to a “loss of masculinity”, thereby attempting to sway individual choices to “conform” to societal perceptions of manhood

### 3 PEAK 3: NOV 22, 2022

Conversations surged on this day following the FDA’s safety approval of lab-grown meat by California-based startup “Upside Foods.” The discourse surrounding this event intertwined with narratives glorifying the health benefits of “traditional” meat. Misleading claims emerged, characterizing “real” meat as untouched by processing and chemical interventions, in contrast to the perception of lab-grown meat as processed and chemically intensive.

### 3 PEAK 4: JULY 4, 2023

Amid conversations, the state of Iowa officially legalized the sale of raw milk, joining over a dozen other US states where this practice was already permitted. Online discussions utilized personal experiences and endorsements from supposed experts to paint raw milk as safe and beneficial. Claims extended to include the notion that raw milk could serve as a remedy for earaches and promote general health.

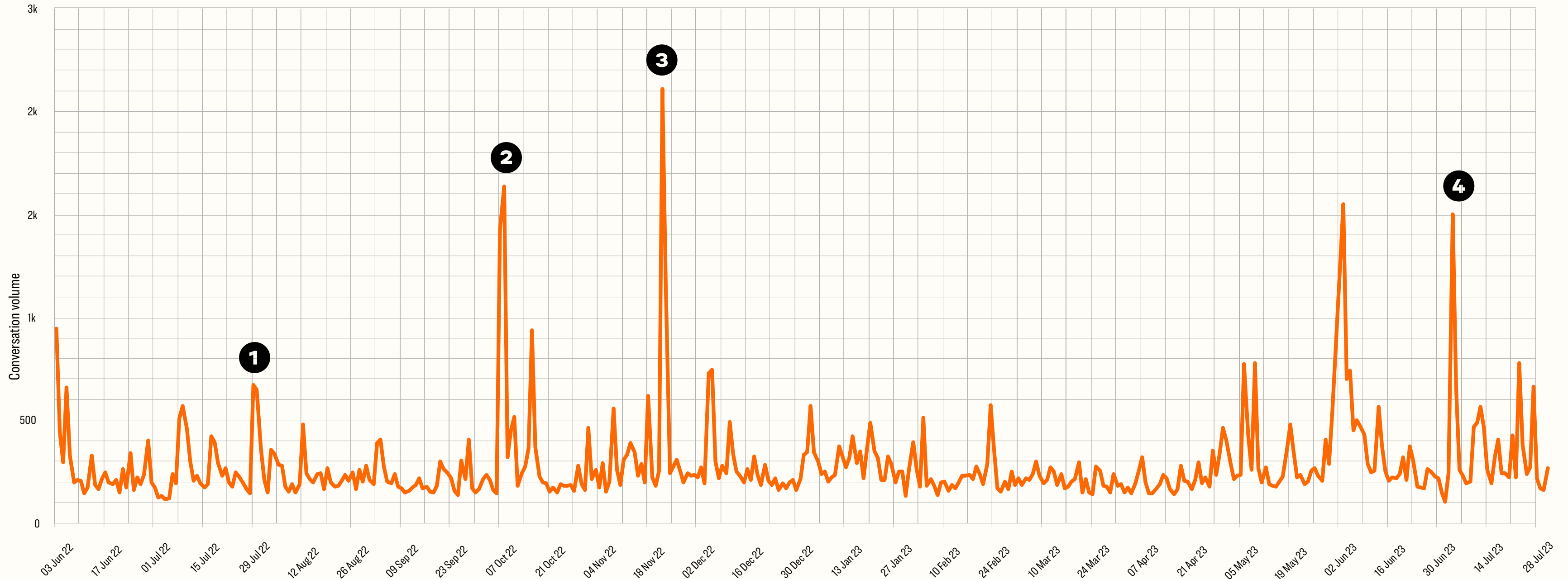


Figure 13. Healthwashing - Animal based products are essential for health - Timeline analysis after removing outliers (Secondary peaks)

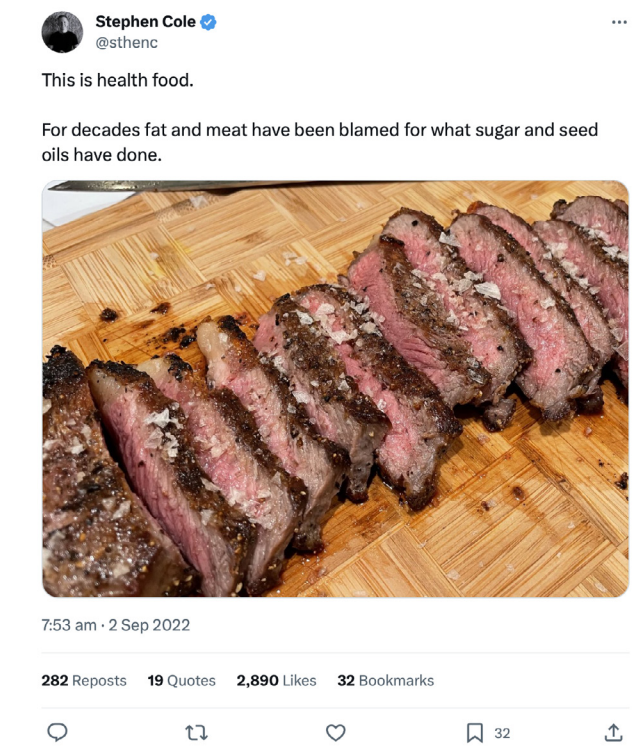


as ‘animal-based diets meet all nutrient needs’ often lacking supporting evidence.

3. **‘Meat is masculine’:** This narrative artificially boosts animal product consumption by associating it with masculinity, playing on men’s fears and insecurities. It suggests that eating meat enhances so-called ‘alpha status’ and testosterone levels, portraying meat as essential for masculine identity while framing non-consumers as less masculine.

4. **Clearing Meat of Accusations:** This narrative counters negative associations with meat consumption. It asserts that red meat is anti-inflammatory, regulates blood sugar levels and doesn’t contribute to disease development. It also frames limiting meat consumption as a disregard for ‘ancestral wisdom’ and cultural heritage, discouraging reduced meat intake.

5. **Trends:** This narrative encompasses emerging trends like the carnivore diet, advocating extreme meat consumption, and the #meatheals movement, which alleges meat can cure ailments instead of conventional medicine. These trends underscore the effort to amplify meat’s perceived benefits and influence consumption patterns.





### 3.3.2. Greenwashing: Animal-based food products are environmentally friendly

Sixteen per cent of the ‘enhance’ dataset (33,698 posts / 4% of the total) features narratives highlighting misinformation or exaggeration around the positive impacts of animal-based food products (both meat and dairy) on the environment.

We found four dominant narratives:

1. **Cows are ‘Carbon Neutral’:** This narrative asserts that production processes, specifically around dairy and beef cattle, are entirely sustainable and don’t contribute to climate change. It emphasises that methane emitted by ruminants is offset through the ‘biogenic methane cycle’ where plants help sequester methane back into the soil. This perspective attempts to portray livestock as part of a balanced natural ecosystem, ignoring the fact that methane is a very potent gas and that methane emissions from livestock farming have increased by 332% between 1890 and 2014.<sup>58</sup>
2. **Regenerative Agriculture:** Emerging from the ‘carbon neutral’ stance, this narrative heavily promotes regenerative agriculture as a solution. Regenerative agriculture is a valid concept. However, the narrative becomes misleading when it minimises the impact of wider environmental issues of livestock production, including methane emissions, in comparison to perceived benefits. Claims that cows are climate neutral due to methane’s short-lived nature, and that we in fact need more (not less) ruminants to graze grasslands, so that they capture carbon into soils, contribute to misinformation.
3. **Livestock supports biodiversity:** Narratives celebrate livestock, sometimes placing specific emphasis on dairy cows, advocating that grazing practices enhance soil health and land fertility, leading to increased agricultural output and reduced carbon footprint. By connecting cows to improved biodiversity, this narrative seeks to position animal product consumption as environmentally responsible.
4. **Unfair targeting:** Conversations in this narrative centre around perceived unfair targeting of cows and farmers as climate villains. It argues that this focus adversely affects food production and farmers’ livelihoods. Some discussions even speculate about potential future taxes on livestock and draw parallels to human taxation, further contributing to the narrative.

Many of these narratives echo those found in our previous research: ‘Feeding Us Greenwash: An analysis of misleading claims in the food sector’ and ‘Seeing stars: The new metric that could allow the meat and dairy industry to avoid climate action’.

Research for ‘Feeding Us Greenwash’ revealed that meat and dairy companies regularly used imagery presenting animal products as natural (produced in close connection with nature), as well as part of a ‘natural, healthy diet’ on their packaging or in adverts. For example, by showing cows in empty, rolling green fields even where the real way these animals are farmed is very far from these idealised images. A recently unsealed legal case from 2016 revealed that meat-packers were intentionally capitalising on consumer interest in ‘natural’ food, despite meat production being heavily industrialised and requiring high levels of ‘unnatural inputs’, like hormones and antibiotics.<sup>59</sup>

‘Feeding Us Greenwash’ also showed that meat and dairy companies and representatives will present claims about the perceived natural health benefits of their

# Greenwashing: Animal-based food products are environmentally friendly - Timeline analysis

## 1 PEAK 1: JUN 15, 2022

During this peak, discussions primarily compared the environmental impacts of animal agriculture and plant-based products. The conversations highlighted the benefits of regenerative agriculture while downplaying the perceived impact of cows on carbon emissions. Simultaneously, there were dialogues discrediting plant-based meat as "fake" and asserting its supposed lack of environmental friendliness.

## 2 PEAK 2: SEP 19, 2022

During this peak, discussions were centered on presenting animal agriculture as a solution to climate change. Narratives advocated for regenerative farming, portraying cows as a comprehensive remedy for all climate-related challenges. Alongside these discussions, there were also instances of misleading information suggesting that consuming beef could reduce carbon footprints, as well as claims asserting cows' carbon neutrality.

## 3 PEAK 3: MAY 21, 2023

Conversations during this peak revolved around portraying lab-grown meat as environmentally harmful while promoting the environmental benefits of animal-derived meat. Fueled by a viral UC Davis study claiming lab-grown meat's environmental impact was 25 times worse than beef, the narrative aimed to undermine confidence in lab-grown meat. Simultaneously, discussions highlighted the recycling of emissions from cattle within a biogenic cycle, suggesting their harmlessness to the environment.

## 4 PEAK 4: JUN 6, 2023

This peak saw a surge in activity driven to a misleading post that aimed to minimize cows' contribution to climate change. The post contended that attributing climate change solely to "cow farts" was misguided, pointing instead to pollution from other industries. Narratives surrounding this discourse suggested that singling out cows for blame was part of a "globalist agenda" to manipulate food systems, diverting attention from other contributors to climate change.

## 5 PEAK 5: MAY 25, 2023

The core of this peak's conversations revolved around a unified narrative that highlighted the environmental friendliness of cows and their role in providing nutrient-rich sustenance. Within this discourse, claims about cows' significance in maintaining ecological equilibrium were intertwined, alongside a renewed emphasis on the consumption of traditional "real" meat.

## 6 PEAK 6: JUL 1, 2023

During this peak, misleading narratives emerged with the aim of diminishing the impact of livestock emissions on the climate. These narratives outright denied the concept of "man-made climate change" and proposed regenerative agriculture as the ultimate solution, seeking to minimize the effect of cow emissions. The prevailing sentiment in these discussions echoed climate denial, often associating such views with elitist propaganda and outdated regulations.

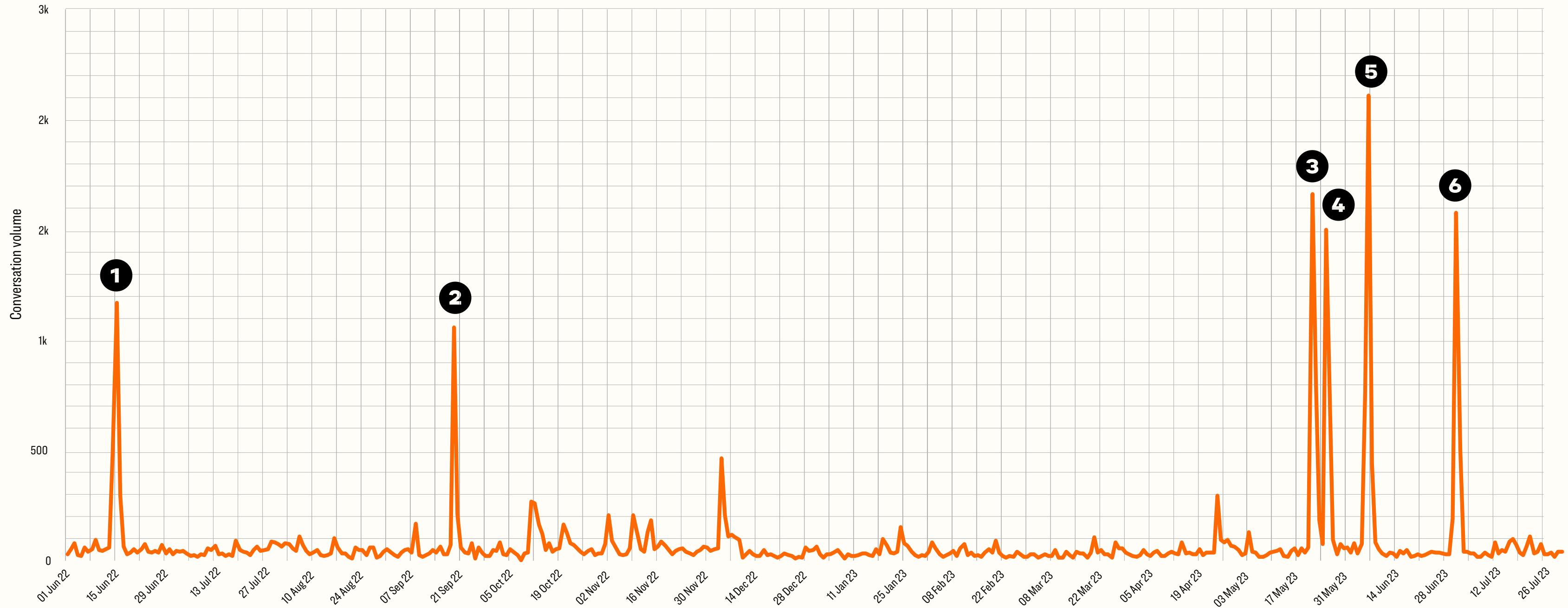


Figure 14. Greenwashing: Animal-based food products are environmentally friendly

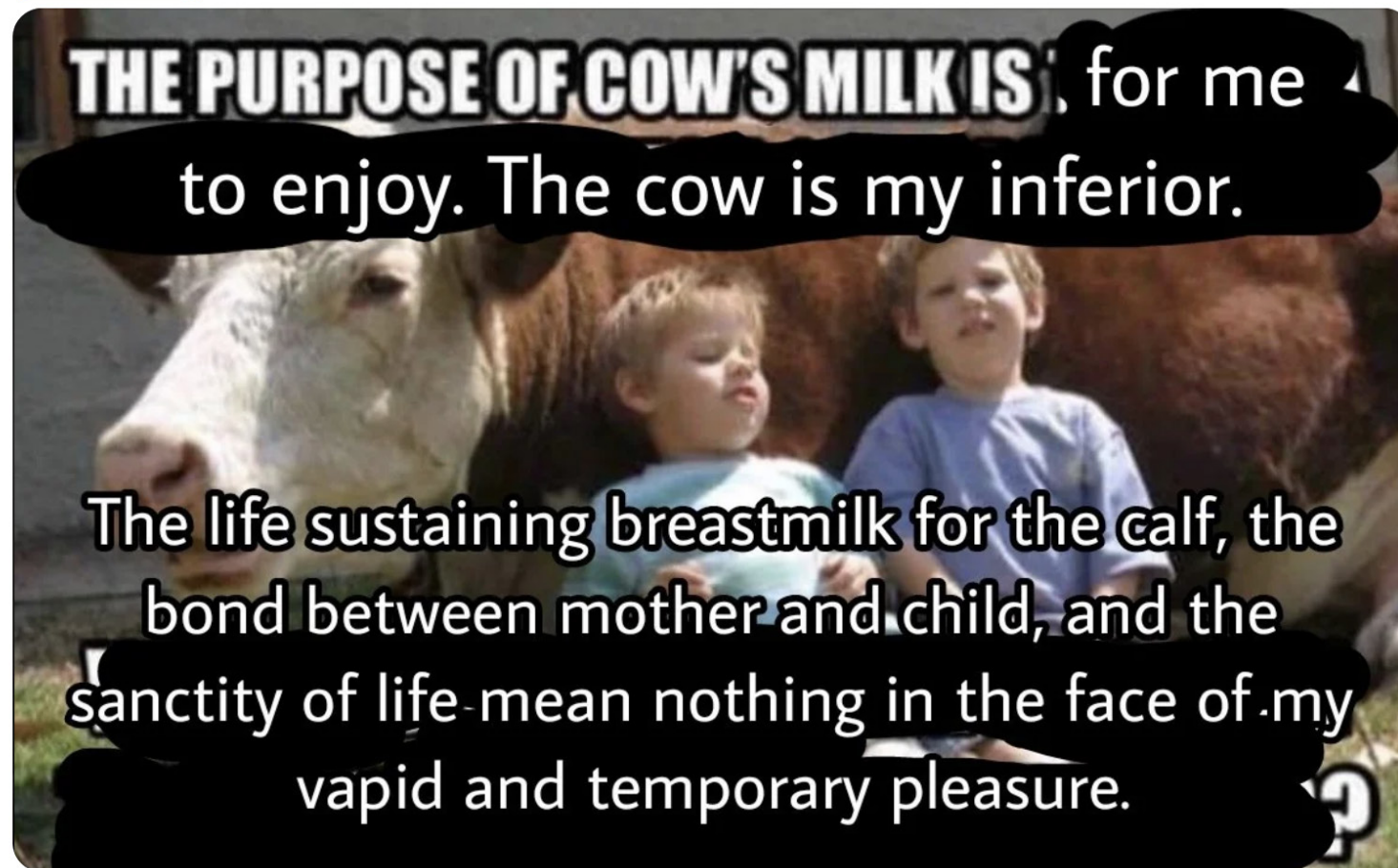


products, presenting them as nutritional guidance.<sup>60</sup> For example, the Agriculture and Horticulture Development Board states: ‘meat and dairy naturally contain vitamin B12’ as part of its campaign entitled ‘We Eat Balanced’. This campaign ignores the

r/196 · 1 yr. ago  
GreedyBastard923

## Seizure Warning

Seizure Warning



Archived post. New comments cannot be posted and votes cannot be cast.

7.3K 1.1K Share

Single comment thread See full discussion

alternate\_egg-ccount · 1 yr. ago

Cow milk, much like chicken eggs or wool. Can be harvested completely humanely. Factory farming is fucked up but it's not the only type of agriculture. Cow-based regenerative agriculture can actually restore entire grassland ecosystems if done right.

Post 44. r/196 @greedyBastard923

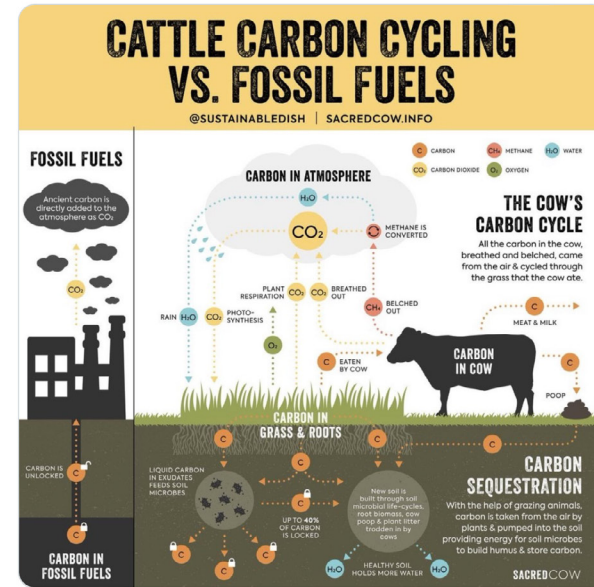
Justin Mitchell @Justinmtch

If you believe in climate change and you wish to save the planet.... Your best bet is regenerative farming.

Cows are not the problem. They are a part of the solution

With the help of grazing animals, carbon is taken from the air by plants & pumped into the soil providing energy for soil microbes to build humus & store carbon 🐮

#sacredcow #climatechange



9:04 pm · 9 May 2023 · 1,591 Views

6 Reposts 30 Likes 1 Bookmark

Post 45. Justin Mitchell @Justinmtch

Max Plaid @Max\_Plaid

Depends how the cow is raised - pasture fed cows are carbon neutral, possibly even removing carbon from the atmosphere - they process captured atmospheric carbon in the form of grass into high-quality protein for humans. It is very efficient and a closed-loop system

4:28 pm · 2 Nov 2022

1 Repost 39 Likes

Post 46. Max Plaid @Max\_Plaid

Zwartbles Ireland · Suzanna Crampton @ZwartblesIE

For those who don't believe here are some of the research papers. Livestock are needed for a healthy soil biome to produce vegetables & grains with a healthy nutrient density. Artificial agro chemistry kills a soil's nature biome & depletes nutrients



9:00 am · 21 Nov 2022

12 Reposts 28 Likes

Post 47. Zwartbles Ireland · Suzanna Crampton @ZwartblesIE

Paul Snow @paulsnx2

Yet 100% of that carbon came from the atmosphere. Cows are carbon neutral ... they eat plants for goodness sake.

6:23 pm · 21 May 2023 · 1,160 Views

1 Repost 25 Likes

Post 48. Paul snow @paulsnx2

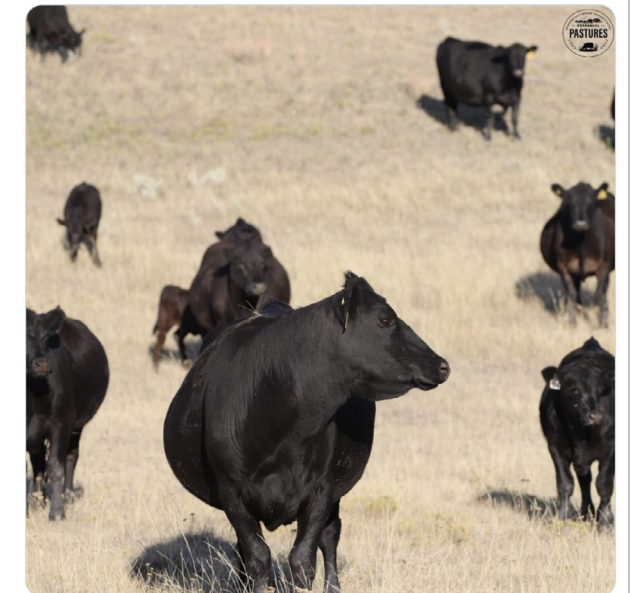
Perennial Pastures @regenranching

Cows (if raised properly) are amazing for the environment

Cows (if raised properly) are the most nutrient-dense food you can eat.

Cows (if raised properly) are incredibly sustainable.

RT if you love cows!



1:15 am · 25 May 2023 · 112.1K Views

1,106 Reposts 49 Quotes 2,955 Likes 17 Bookmarks

Post 49. Perennial Pastures @regenranching

Lobby New Zealand @LobbyNewZealand

Lobby NZ will do everything we can to oppose the Cow Fart Tax.

NZ is agriculture.

We have the most sustainable farmers in the world. 90% of carbon is offset by woody plants within farms.

We can't let Govt drive out food production, destroy livelihoods & shatter food security.

5:23 am · 12 Oct 2022

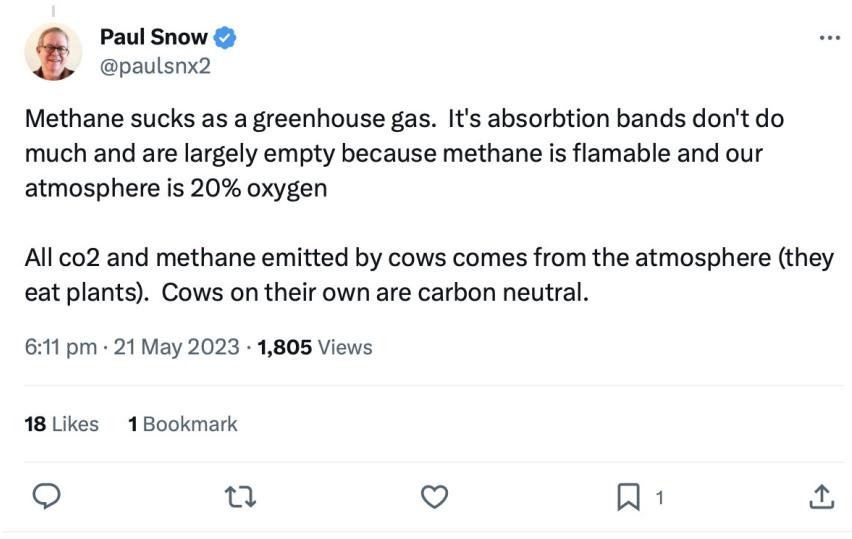
24 Reposts 109 Likes

Post 50. Lobby New zealand @LobbyNewZealand



science around overconsumption of meat and dairy in the UK, where the campaign was run.<sup>61</sup> This approach can be directly linked to the health-washing narratives found in our research.

Besides claims that animal products are a natural and essential part of a healthy diet, our investigation into greenwashing found that the vast majority of meat and dairy product claims refer to greenwashing around their impacts on the climate. Many meat and dairy companies were found to be using ‘carbon neutral’ or similar claims, while providing little evidence of real emissions reductions. Many large food producers, such as Nestlé, Danone and Unilever, have been accused of greenwashing by adopting vaguely defined commitments to regenerative agriculture.<sup>62</sup> Evidently, these greenwashing practices are being translated into the misinformation spread on social media to defend meat and dairy products, echoing the tactics used by companies themselves. This shows how the attempts to mask the true environmental impact of the industry seep into the public consciousness.



Post 51. Paul snow @paulsnx2



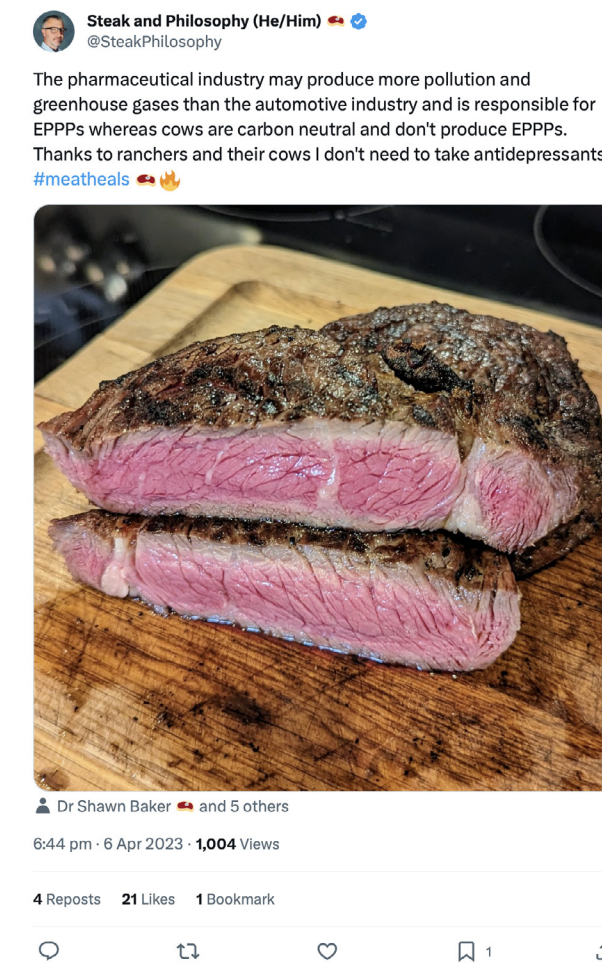
Post 52. James Rebanks @herdyshepherd1



Post 53. Eat Meat and Be Happy! Let Them Eat Steak @Kemminnick



Post 54. Steak and Philosophy (He/Him) @SteakPhilosophy



Post 55. Steak and Philosophy (He/Him) @SteakPhilosophy



Post 56. Roxanna Soetebeer, PhC, MHP



Post 57. Recovering Vegan @VeganRecovering





## 4. Timeline analysis

For the timeline analysis, we identified and categorised the key themes and narratives that dominate online discussions related to the meat and dairy industries. This analysis is essential in understanding the core issues that misinformation revolves around. It also offers insights into prevailing concerns and controversies.

We used natural language processing (NLP) and machine learning techniques to assess the content of online conversations. This approach allowed us to identify recurring keywords, phrases and hashtags associated with misinformation in meat and dairy. By using a combination of quantitative and qualitative methodologies, we identified the overarching discourses that frame these conversations as well as specific thematic areas within misinformation. These have a pivotal role in shaping discourse and capturing attention.

### 4.1 Main peak analysis

The timeline analysis, based on post volume, highlights 6 major peaks, all including over 15,000 posts.



## Full dataset timeline analysis (Main peaks graph)

### 1 PEAK 1: JUN 1, 2022

Conversations are driven by World Milk Day. India leads the propaganda on this day, driven by socio-political and religious factors, promoting animal dairy consumption as essential. Not directly related to Big Ag interests.

### 2 PEAK 2: JUN 15, 2022

Misinformation on this date stemmed from two primary events and aimed to deny climate change while derailing climate action.

- Cattle Deaths and Lab-Grown Meat Narrative:** Around 10,000 cattle died in a Kansas heatwave, which misinformation linked to Bill Gates' lab-grown meat investment. False claims suggested the cows were purposely killed to boost lab-grown meat sales and downplay climate change impacts.
- Bonn Climate Conference and Pro-Animal Ag Narratives:** During the Bonn Climate Conference (June 6-16, 2022), misinformation didn't target the conference directly. Instead, it promoted narratives minimizing livestock's climate impact, attempting to undermine momentum towards reduced meat consumption.

### 3 PEAK 3: FEB 22, 2023

Conversations on this day were driven by a viral "Newspunch" post alleging Bill Gates' lab-grown meat causes cancer. This misinformation had a dual focus:

- Health Scaremongering:** The misinformation targeted public health, asserting that lab-grown meat caused cancer due to its production methods, specifically the use of immortalized cell lines.
- Policy Exaggeration:** It also exaggerated potential climate policies, painting extreme measures as necessary to achieve net-zero goals. This aimed to discourage support for environmental initiatives by presenting them as overly radical.

### 4 PEAK 4: APRIL 18, 2023

During this peak, NYC Mayor Eric Adams' announcement to reduce meat and dairy in city facilities to cut food-based emissions sparked conversations.

Hyper-politicised misinformation exaggerated this, stoking fears of a "war on meat" or full ban on meat and dairy. Claims attributed motives to "libs" on the "left," alleging intent to weaken and starve meat-eating citizens, and take away their rights.

### 5 PEAK 5: MAY 28, 2023

Misinformation during this peak arises from two interlinked sources:

- UC Davis Study on Lab-Grown Meat's Environmental Impact:** UC Davis, a well known Big Ag conspirator, released a pre-print and not peer-reviewed claiming that lab-grown meat is 25x worse for the environment than beef. Misinformation distorted findings, alleging a "vegan" agenda causing wildlife loss, barren earth, and soil damage. It also accused "elite organisations" such as the WEF of lying about animal agriculture's environmental impact.
- Misinformation after John Kerry's AIM for Climate Summit Speech:** Misinformation followed the UC Climate envoy's speech, misquoting him and asserting that he urged farmers to cease food production for 'net zero' emissions, pushing lab-grown meat.

### 6 PEAK 6: JULY 12, 2023

Misinformation during this peak revolves around the legalization of two products in the USA: raw milk and UPSIDE foods' lab-grown meat.

**Raw Milk Legalization:** Despite federal health warnings, the legalization of raw milk sales in Iowa and possibly other states drives discussions. Misinformation touts raw milk's benefits and dismisses its risks, occasionally comparing it unfavorably to plant-based alternatives.

**Lab-Grown Meat Approval:** After USDA's approval for UPSIDE foods' lab-grown meat, viral misinformation by "The People's Voice" alleged the meat causes "turbo cancer." This misinformation criticized the product's ingredients, expressing disgust, and accused Bill Gates and governments of conspiring to deprive people of nutrition.

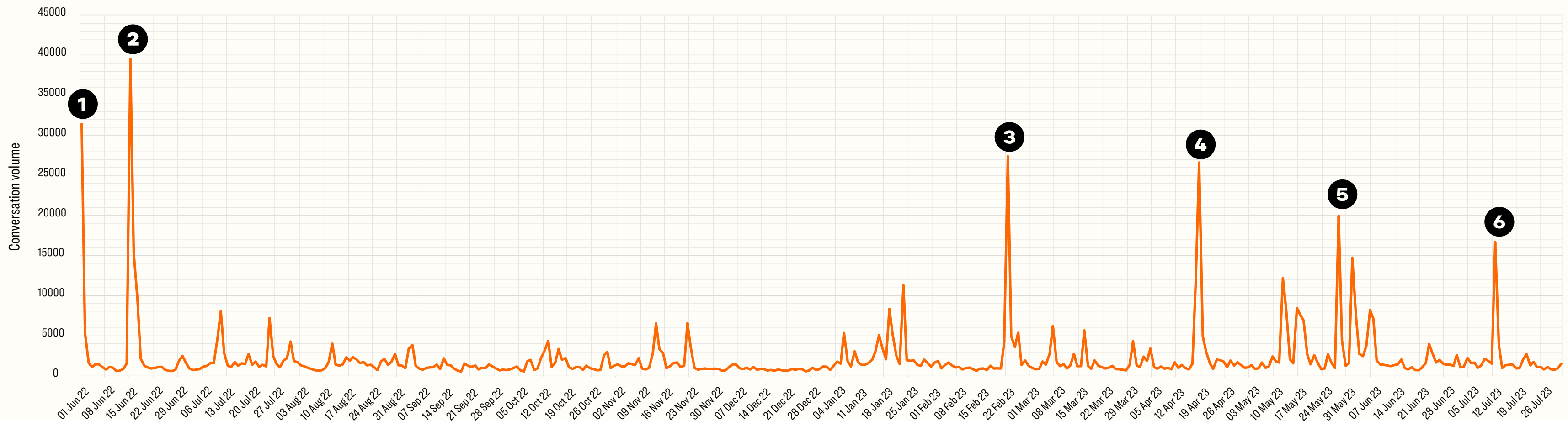


Figure 15. Full dataset timeline analysis (Main peaks graph)



### 4.1.1. Three distinct insights emerge from analysing these peaks.

1. **Misinformation targeting Bill Gates and lab-grown meat.** Many of these peaks are driven by misinformation campaigns aimed at discrediting Bill Gates and lab-grown meat. False narratives often accuse Gates of attempting to interfere with cattle and the livestock industry to promote lab-grown meat. For example, peak 2 was largely focused around linking Bill Gates' lab-grown meat investments to the death of 10,000 cattle in a heatwave in Kansas. These posts claimed that the cattle were killed to boost investment in lab-grown meat - not because of climate change-related extreme heat. The narratives in the dataset also claim that Bill Gates is promoting lab-grown meat to consciously affect public health and 'give them diseases'. These narratives create fear

**Chad Prather** @WatchChad  
10,000 head of cattle don't just drop dead from heat. It's Kansas. It's not hell. Maybe Bill Gates has an answer since he's the biggest farmer in America and wants you eating his synthetic meat.

**Ian Miles Cheong** @stillgray · 16 Jun 2022  
Extreme heat and humidity killed thousands of cattle in Kansas this week so far. An estimated 10,000 heads of fat cattle dead.



7:09 am · 16 Jun 2022  
7,961 Reposts 834 Quotes 24.7K Likes 679 Bookmarks

Post 58. Chad Prather @watchChad

**No One** @tweetruth2me  
Where was Bill Gates when the cattle in Kansas suddenly died?

2:57 am · 16 Jun 2022  
114 Reposts 10 Quotes 639 Likes 1 Bookmark

Post 59. No One @tweetruth2me

and push consumers towards discarding lab-grown meat as a viable alternative. It's important to note that misinformation surrounding lab-grown meat specifically targets Bill Gates, and not meat and dairy industry players that have invested in lab-grown meat, such as Tyson and JBS.

**Cari Kelemen 2.0** @CariKelemen  
Who would benefit from thousands of cows simultaneously dropping dead? Maybe someone invested in synthetic meat?

3:44 pm · 16 Jun 2022  
1,847 Reposts 136 Quotes 6,811 Likes 15 Bookmarks

Post 60. Caru kelemen 2.0 @CariKelemen

2. **Misleading narratives surrounding government policies.** Misinformation in response to government policies and actions drives several peaks. Notable instances include the USDA's approval of UPSIDE Foods' lab-grown meat (peak 6), NYC Mayor Eric Adams' food-emissions reduction plan (peak 4) and

**illuminatibot** @illuminatibot  
USDA Approves Bill Gates Lab-Grown Meat For Sale Despite Causing Turbo Cancers In Human Subjects:

10:15 pm · 11 Jul 2023 · 1.9M Views  
15.4K Reposts 1,493 Quotes 22.4K Likes 1,222 Bookmarks

Post 61. illuminatibot @illuminatibot

**Wide Awake Media** @wideawake\_media  
Frequent private jet passenger, John Kerry, admits that destruction of the farming industry is essential to achieving 'Net Zero':

"Agriculture contributes about 33% of all the emissions of the world. And we can't get to net zero—we don't get this job done—unless agriculture is front and centre as part of the solution."

"You just can't continue to both warm the planet, while also expecting to feed it. It doesn't work. So we have to reduce emissions from the food system."

Source: [youtube.com/live/IF8opPN16...](https://youtube.com/live/IF8opPN16...)

For more content like this, visit: [wide-awake-media.com](https://wide-awake-media.com)

#ClimateScam #ClimateCult #NetZero

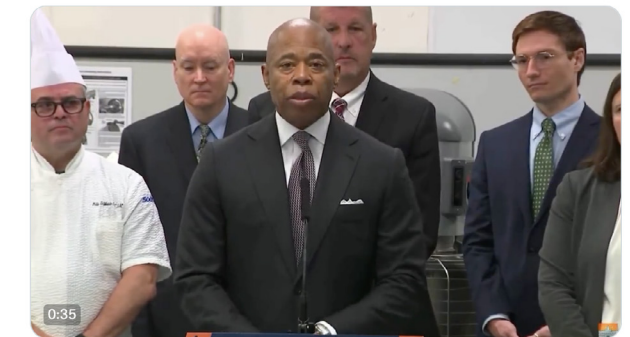


11:56 am · 30 Jul 2023 · 6M Views  
8,371 Reposts 3,283 Quotes 16.3K Likes 1,577 Bookmarks

Post 62. wide Awake Media @wideawake\_media

**KC** @KCPayTreeIt  
NYC Mayor Adams declares war on meat and this was their goal all along with the climate goons. Reject this lunacy, do NOT listen to this satanic lunacy!

Even @NYCMayor doesn't believe the garbage lies. He can't even read his prepared script. This dude is a box of rocks



4:57 am · 18 Apr 2023 · 119.3K Views  
1,611 Reposts 254 Quotes 3,093 Likes 41 Bookmarks

Post 63. KC @KCPayTreeIt

**ULTRA-MAGA Lori** @LiberatedCit  
Don't think they won't try to force this they're doing it in the Netherlands. The plan is to force the little people to eat bugs or toxic fake meat.

John Kerry: Farmers Must Stop Growing Food to Meet 'Net Zero' Goals for 'Emissions'



4:52 pm · 28 May 2023 · 16.6K Views  
281 Reposts 31 Quotes 256 Likes 5 Bookmarks

Post 64. Ultra-Maga Lori @LiberatedCit



US Climate Envoy John Kerry’s statements on agricultural innovation (peak 5). These events are exploited to advance narratives that down-play risks and foster suspicions about motives behind government decisions. Events in which there are developments in, or support shown for, tackling emissions from food (not just alternative proteins) spark a rise in misinformation. The narratives seek to disparage alternative proteins and foster suspicion of the motives behind these events.

3. **Socio-political and religious factors on World Milk Day** (Peak 1) coincides with World Milk Day and was largely motivated by socio-political factors. The discourse was particularly influenced by India, and focused on religious beliefs and cultural significance of dairy, advocating animal dairy consumption for its perceived indispensability. This topic technically contains misinformation. However, we will be excluding it from our analysis given its connection to cultural and religious beliefs.

These six spikes are so vast that they risk overshadowing other smaller but still substantial trends. So we did another round of timeline analysis where we excluded the original six major peaks.

## 4.2 Secondary peak analysis

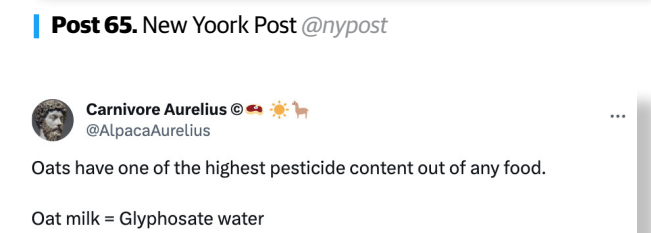
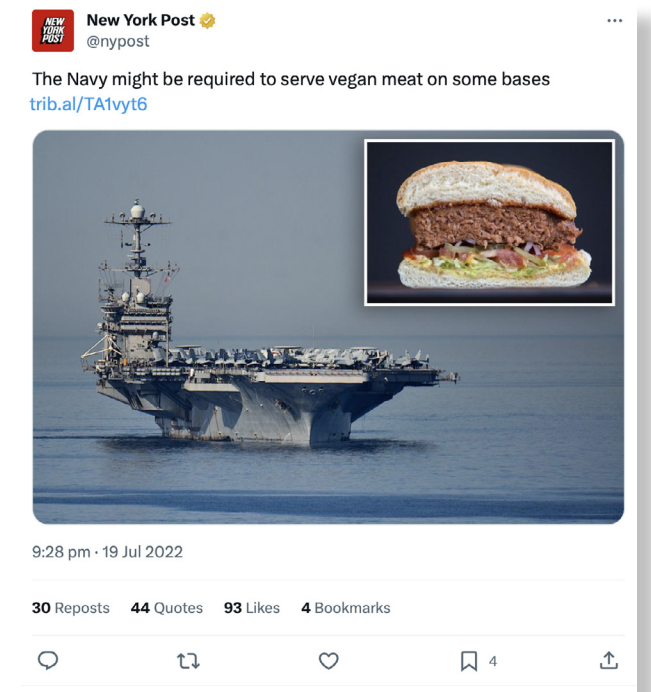
Once the main six peaks are removed, a second timeline analysis reveals four new peaks all with over 7,000 posts.

### 4.2.1. Three distinct insights emerge from analysing these secondary peaks.

1. **A misleading study published by UC Davis drives a major spike.** A non-peer reviewed study from researchers at UC Davis suggesting lab-grown meat is significantly worse for the environment than beef,

drove a major peak (peak 4) in social media conversations. The study has been used to claim that lab-grown meat is worse for the environment than beef and then used in the narrative that people should eat more beef. More on this study and the issues can be found in the case study in box 4.1.

2. **Narratives target other people in positions of power.** In the initial timeline analysis, Bill Gates was the primary focus. The new timeline suggested a shift in targeting other people in positions of power taking climate action. New York City Mayor Eric Adams, the World Economic Forum and the US Navy are all linked to conspiracies. This shift highlights a concerning trend, where conversations aim to undermine climate-mitigation efforts, influence public opinion and cast suspicion on the motives of people in influential roles.





## Full dataset timeline analysis after removal of outliers (Secondary peaks graph)

### 1 PEAK 1: JULY 25, 2022

Misinformation on this date arose from two key sources. An article on July 25th in The Washington Post highlighted beef's substantial climate impact, sparking claims of an elitist climate agenda pushing insect consumption while enjoying traditional meat. This was portrayed as a tactic to weaken individuals mentally for control.

Additionally, a July 22nd report from the New York Post suggested the US Navy might introduce vegan meat on select bases. This fuelled misinformation discrediting plant-based options, labelling oat milk as "Glyphosate water" and oats as pesticide-laden, aiming to undermine their credibility.

### 2 PEAK 2: JAN 19, 2023

During its annual gathering from January 16th to 20th in Davos, the World Economic Forum (WEF) was a focal point for misinformation. Criticism of WEF's initiatives emerged, with allegations of hypocrisy as attendees were purportedly consuming meat during the event.

In addition to this, conversations were triggered by the Siemens Chairman's assertion of the potential impact of over a billion people adopting meatless diets and embracing plant-based proteins. Misinformation questioning the effects of oat milk, including claims of blood sugar spikes and inflammatory seed oils, gained traction

### 3 PEAK 3: APR 18, 2023

During this peak, NYC Mayor Eric Adams' announcement to reduce meat and dairy in city facilities to cut food-based emissions sparked conversations.

Hyper-politicised misinformation exaggerated this, stoking fears of a "war on meat" or full ban on meat and dairy. Claims attributed motives to "libs" on the "left," alleging intent to weaken and starve meat-eating citizens, and take away their rights.

### 4 PEAK 4: MAY 16, 2023

Here, misinformation surged in response to reports from UC Davis and IHME. UC Davis, an institution with known links to the agricultural industry, released a pre-print study asserting that lab-grown meat had an environmental impact 25 times worse than beef, albeit lacking peer-review. In parallel, an IHME study challenged decades of research linking red meat consumption to heart disease, stroke, and cancer. This IHME report, suggesting no link between red meat and stroke, triggered a narrative targeting the idea of consuming less red meat altogether. The narratives attacked nutrition and climate scientists as alleged "liars" and criticized plant-based or "fake" meat, pushing the narrative that they were even worse. This environment of misinformation advocated for a ban on such products, purportedly as a solution to environmental concerns

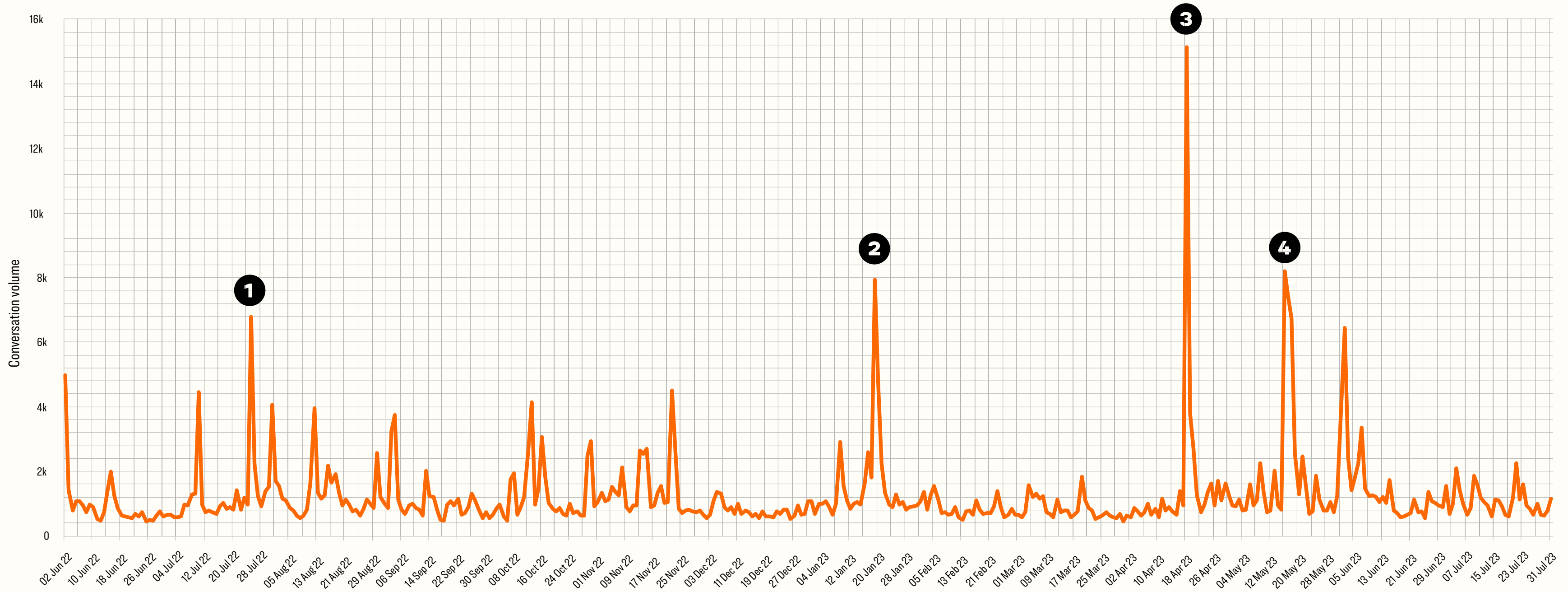


Figure 16. Full dataset timeline analysis after removal of outliers (Secondary peaks graph)

3. **Climate conversations are low in number, but high in peaks.** Despite representing a smaller portion (12% of total dataset / 116,131 posts covering the vilifying, undermining and greenwashing categories) climate and environment focused conversations frequently occur in all four peaks in the secondary timeline (once outliers are removed). Two peaks revolve around beef’s environmental impact, while others focus on disparaging climate mitigation strategies in food and agriculture.

### Box 4.1 Case study: Narrative evolution around the UC Davis study on lab-grown meat

A study published by researchers at UC Davis asserting that the production of lab-grown meat is worse for the environment than traditional beef caused a significant spike on social media.<sup>63</sup>

This study is significant for two reasons:

1. The study was published by researchers at UC Davis, a university with known links to the livestock industry due to funding for the university’s CLEAR Center, a research institute focused on animal agriculture.<sup>64</sup> An investigation by Unerthed revealed that the CLEAR Center was industry funded and highlighted that CLEAR presented itself as an independent, academic voice making a positive case for meat and dairy environmental impacts (impacts which have been frequently challenged and labelled as bias). The investigation found they



Post 69. Donald Trump Jr. @DonaldJTrumpJr

conduct 'research designed to undermine plant-based alternatives to meat products' and receive funds to allow Frank Mitloehner to launch campaigns on social media.<sup>65</sup> In its communication with agribusiness donors obtained by Unerthed, CLEAR highlighted a 'campaign to have the industry's climate footprint revised and outlines research designed to undermine plant-based alternatives to meat products'.

2. This spike in conversation is an outlier, because conversations mentioning the environment are relatively scarce (12%) in our dataset. They generally do not go viral.

The study was a preprint (a preliminary version of a scientific study) and hadn't been peer reviewed. Yet it was presented as showing conclusive results. The focus was on a life cycle assessment of animal cell-based meat production and the environmental impact in the short-term. This was then compared to 'median beef production' to suggest that animal cell-based meat production is likely to have a higher impact in the near-term. The foundations of the study have since been criticised.<sup>66</sup>

Critics, including Elliot Swartz of the Good Food Institute, argue that commercial lab-grown meat



Post 70. Dr. Anastasia Maria Loupis @DrLoupis



Post 71. Luke Rudkowski@Lukewearchange



Post 72. New Scientist @newscientist



# UC Davis Case Study – Progression



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**Environment**  
**Lab-grown meat could be 25 times worse for the climate than beef**  
 Analysis finds the carbon footprint of cultivated meat is likely to be higher than beef if current production methods are scaled up because they are still highly energy-intensive  
 By Alice Klein  
 9 May 2023



**Cultivated meat is made by growing muscle tissue from stem cells**  
 Meat produced from cultured cells could be 25 times worse for the climate than regular beef unless scientists find ways to overhaul energy-intensive steps in its production.  
 Lab-grown or "cultivated" meat is made by growing animal stem cells around a scaffold in a nutrient-rich broth. It has been proposed as a kinder and greener alternative to traditional meat because it uses less land, feed, water and antibiotics than animal farming and removes the need to farm and slaughter livestock.

**Website 73.** New Scientist: Lab-grown neat could be 25 times worse for the climate than beef

**MailOnline** Science

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**Burger lovers rejoice! Lab-grown meat is up to 25 times WORSE for the climate than beef, study claims**

- One Dutch scientist says lab-grown meat will knock plant burgers off the shelves
- But a study says the industry could have a huge carbon footprint once it takes off
- **READ MORE: British scientists are among those growing meat products in a lab**

By JONATHAN CHADWICK FOR MAILONLINE  
 PUBLISHED: 12:25 GMT, 10 May 2023 | UPDATED: 13:26 GMT, 10 May 2023


1.7k shares | 106 View comments

Lab-grown meat has been touted as a way to save the planet, but a new study suggests its green credentials are not as solid as many believe.  
 Researchers have revealed that lab-grown or 'cultured' meat, produced by cultivating animal cells, is up to 25 times worse for the climate than real beef.  
 Production of real meat has a huge carbon footprint because it requires water, feed and the **clearing of trees to make way for cattle.**

**Website 74.** Mail online: Burgers lovers rejoice! Lab-grown meat is up 25 times WORSE for the Climate than beef, study claims

**SLAY** HOME NEWS POLITICS ECONOMY MORE

**Bill Gates' Lab-Grown 'Meat' 25 Times Worse for Climate than Beef, Study Finds**  
 Frank Bergman | May 10, 2023 - 12:45 pm | 24 Comments



The lab-grown "synthetic meat" being pushed by Microsoft co-founder Bill Gates is far worse for the environment than beef, a new study has found.  
 Bill Gates and his allies in the World Economic Forum (WEF) have been **heavily pushing** for the public to switch to lab-grown meat by arguing it helps fight "climate change."  
 In a 2021 interview with *MIT Technology Review*, Gates argued that "all rich countries should move to 100% synthetic beef" in an effort to meet the green agenda goals of the WEF.  
 However, the new study suggests that lab-grown meat's "green" credentials are not what people have been led to believe.  
 Researchers have revealed that lab-grown or "cultured" meat, produced by cultivating animal cells, is up to 25 times worse for the climate than real beef.

**Website 75.** Slay: Bill Gate' Lab-Groen 'Meat' 25 Times Worse for Climate than Beef, Study Finds

**Figure 17.** UC Davis Case Study – Progression

See timeline on page 51 for key dates linked to the peaks

production won't require such energy intensive processes. Other scientists working on the environmental impact of lab-grown meat have pointed out that even the best case scenario in the UC Davis study is already out of step with many existing practices.<sup>67</sup>

The UC Davis study diverges from earlier peer-reviewed studies that generally supported cultured meat as a low-emission alternative to conventional beef production, assuming more energy-efficient and widely available ingredients would be used in the future.<sup>68</sup> The main benefit of this emerging technology is a significant reduction in land use to grow protein, a major factor in meat production. While the source of energy can be decarbonised by switching to renewables, the climate impacts of land use are more difficult to reduce.

This case study tracks the timeline surrounding this paper going viral and who the key players were in driving this, as well as how the narrative evolved and was further distorted over time.

### Amplification and evolution of the narrative around this study

The evolution of the narrative surrounding the UC Davis study is a testament to the power of misinformation dissemination on social media.

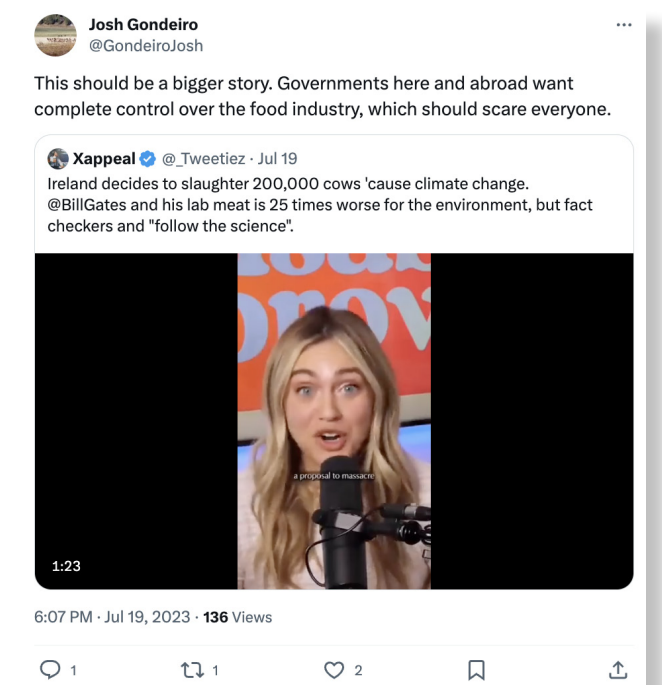
The study's misinformation journey began when it was featured in an article 'Lab-grown meat could be 25 times worse for the climate than beef', published by the New Scientist magazine on 9 May 2023,<sup>69</sup> elevating its status from pre-peer review paper to a newsworthy scientific study. Frank Mitloehner tweeted the New Scientist story on 12 May. Following the article, extreme right-wing news outlet The National Pulse wrote a story about it on 17 May. It highlighted the main findings and then linked them with Bill Gates, as the proponent of this technology, and with the Chinese communist party and its biowarfare programme.<sup>70</sup> This story led to a significant

spike on social media, with various news agencies and influential spokespeople, as outlined on the graph, amplifying the narrative that 'lab-grown meat is 25 times worse for the climate than beef.'

US conservatives, including notable figures like Donald Trump Jr and Tomi Lahren, fuelled a second wave of amplification, as seen on the graph. The study's findings were co-opted into the growing political discourse that sees lab-grown meat as a battleground in the culture wars.<sup>71</sup>

Subsequently, the conversation became linked to 'The Great Reset' conspiracy theory, in this case arguing the WEF is 'forcing' people to consume 'environmentally unfriendly' lab-grown meat. Health and product fearmongering narratives emerged, referencing the study's claim and emphasising the perceived dangers of lab-grown meat for both the environment and public health. These narratives highlighted high-profile figures like Bill Gates for his association with 'climate-unfriendly fake meat.' This complex and multifaceted evolution of the narrative illustrates the intertwining of science, politics, sensationalism, conspiracy theories and misinformation in the digital age.

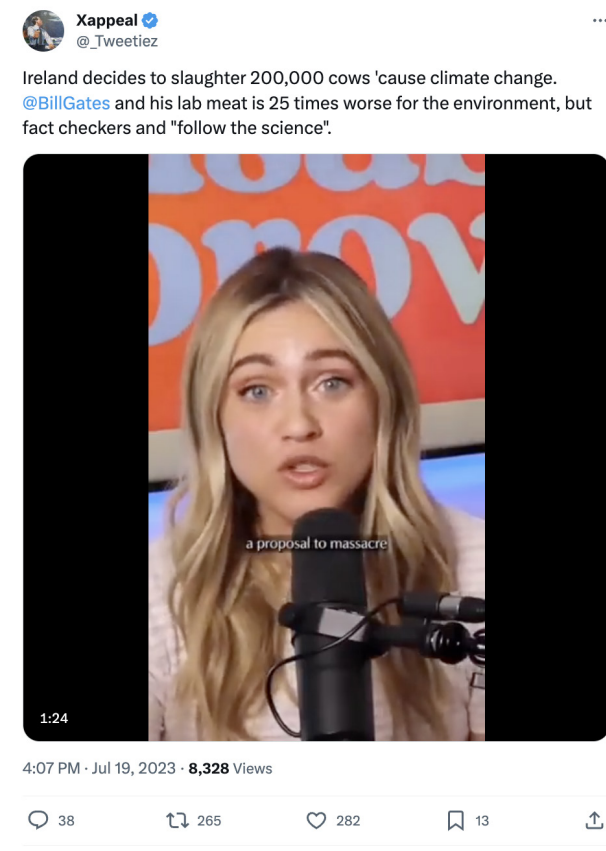
The evolving narrative reached a crucial juncture when it intersected with policy debates, specifically Ireland's 25% agricultural emissions reduction policy. It was reported that the government were considering culling 200,000 dairy cows over three years, a proposal obtained via a Freedom of Information request by the Irish Independent newspaper. The proposal was not official policy.





The UC Davis narrative was used to push back on this policy proposal. Critics misleadingly blamed lab-grown meat for its potential contribution to climate change, rather than cow-derived products. It's too early to tell the impact this misinformation and heightened discussion on the topic may have had on the policy debate. The 25% reduction target currently remains in place, but policy proposals to achieve it have yet to be confirmed.

This policy pushback highlights how a single study can be manipulated and weaponised to serve the agenda of people who want to prevent change. The discussion ignores that Ireland is a huge producer of meat and dairy, where agricultural emissions represent the largest share of national emissions (38.4% in 2022<sup>72</sup>) - yet this sector is required to cut its emissions the least,<sup>73</sup> indicating preferential treatment for farmers. Since 2015, the Irish dairy cattle herd has increased and its per capita methane emissions from dairy and beef are the highest in the EU and rising.<sup>74</sup>



Post 77. Xappeal @\_Tweetiez



Post 78. Soupy @JamesCa38867516

## Timeline

- 9 May, 2023
- 10<sup>th</sup> May, 2023
- 17 May, 2023
- 7 June, 2023
- 19 June, 2023
- 24 June, 2023
- 19 July, 2023

## Events

- Reportage:** First amplification wave is kickstarted when this study is featured in an article in the New Scientist.
- Sensationalism:** Narrative that 'lab-grown meat is 25x worse for the climate than beef' amplified by multiple publications and influential spokespeople.
- Politicisation:** A second wave of amplification was fuelled by US conservatives, including Donald Trump Jr and Tomi Lahren, as well as the study being taken up by the National Pulse on 17 May 2023.
- Plandemic:** The narrative of the WEF 'forcing' people to eat 'environmentally unfriendly' lab-grown meat rose to prominence.
- Health fearmongering:** Narratives highlighted the 'dangers' of lab-grown meat on the environment while creating fear about its health impacts.
- Product fearmongering:** Narratives hit out at Bill Gates for his 'climate unfriendly fake meat', while disparaging the production process of lab-grown meat.
- Policy pushback:** Narratives criticise Ireland's proposed plans to reduce agricultural emissions and blame lab-grown meat for climate change.



## 5. Misinfluencer analysis

Misinfluencer analysis is a crucial component of social listening research. A misinfluencer, in this context, refers to an individual or entity that actively disseminates or amplifies misleading information, exerting a significant influence on the narratives and beliefs of online communities. Our misinfluencer analysis involves identifying, profiling and examining the actors who play a pivotal role in shaping the landscape of misinformation. We only class the most attention-grabbing as misinfluencers.

Our dataset identified 425,226 accounts which posted about our search terms in the time period investigated. Though all these accounts contribute to the overall conversation volume, most don't result in significant engagement.

Engagement analysis showed that just 50,000 accounts are responsible for the 3.6 million in engagement for posts in the dataset. Five thousand were responsible for 15% of engagement (a 626,690 engagement rate), 500 were responsible for 25% (a 875,858 engagement rate) and only 50 accounts capture 50% of the total engagement (1,842,134 engagement rate).



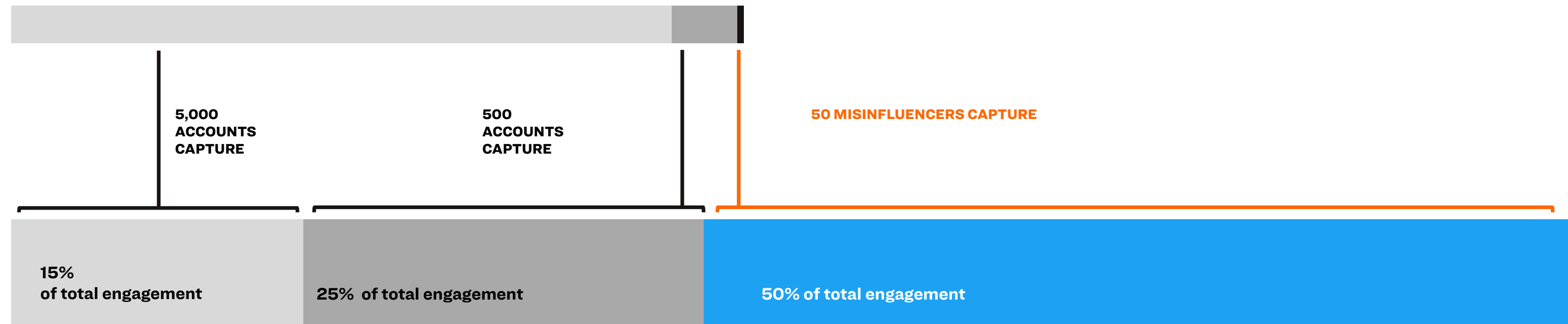


Figure 18. the pivotal role of a few accounts in driving engagement

This finding showcases the pivotal role a few accounts have in driving engagement. Understanding these influential voices provides valuable insights into the factors that captivate and resonate with the audience, shaping the overall narrative.

For this report, the 50 misinfluencers drawing significant online engagement have been classified as ‘attention grabbers’, those who post constantly are ‘background noise’. Whilst the background noise accounts don’t receive engagement, the frequency with which they post means they still contribute to the narrative around misinformation.

## 1. Attention grabber accounts

- Characterised by high engagement.
- Tend to hold apparent positions of professional influence (real or fake, it isn’t always clear) - as doctors, politicians, media personalities and thought leaders.
- Hold importance owing to the power they have in shaping public opinion.
- Make up a small percentage of our overall dataset (50/425k accounts).

## 2. Background noise accounts

- Characterised by a high number of posts.
- Tend to be laypeople, anonymous accounts, or bots.
- Hold importance due to their high-volume contribution to debates around agriculture.
- Make up a large percentage of our overall dataset.

## Box 5.1 Who's who of the attention grabbing misinfluencers

### Disparaging influencers

The attention grabbers who focus on 'disparage' are affiliated with alt-right and extreme right ideologies, often pushing anti-vax, anti-immigration, Islamophobic and/or antisemitic content.

**Cabot Philips** is a senior editor at Daily Wire, an American conservative news website and media company founded in 2015 by political commentator Ben Shapiro (Brietbart) and film director Jeremy Boreing.

**Peter Imanuelsen**, known as Peter Sweden, is a self-proclaimed journalist 'working to expose the globalist agenda', who was previously a Holocaust denier.<sup>75</sup>

Other prominent or notable names include **Tucker Carlson**, former Fox News presenter, **Donald Trump Jr** and Republican Congressman **Thomas Massie**.

Apparent health and wellbeing professionals are also high on the list. **Dr Loupis**, a doctor of medicine based in Denmark, ranks third among 'disparage' accounts. She is known for spreading conspiracy theories, racist and anti-vax content.

**@Amerix** claims to be a 'certified medical specialist in reproductive health' whose areas of consultancy are obesity, diabetes and sexual health. He 'helps men beat addiction towards pornography, masturbation, smoking and alcohol.'

**@SBakerMD** claims to be a 'Multi sport world record setting athlete, physician, author of The Carnivore Diet [and] Founder [of] REVERO'. He has also been known as **Dr Shawn Baker**. It appears his medical license was revoked in 2017. Despite rumours that it's been reinstated he still doesn't show any medical credentials on his LinkedIn.<sup>76</sup>



Post 79. Cabot Phillips @cabot\_phillips



Post 80. Peter Sweden @PeterSweden7



Post 81. Tucker Carlson Originals @TuckerOriginals



Post 82. Donalds Trump Jr. @donaldJTrumpJr



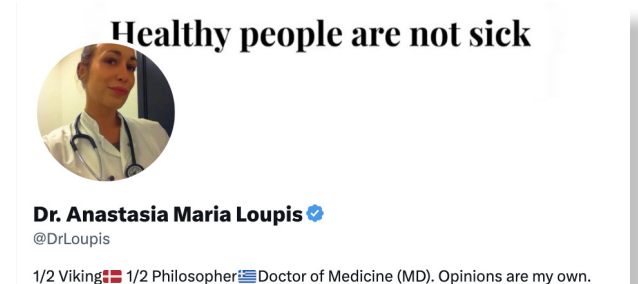
Post 83. Eric@amerix



Post 84. Dr Shawn Baker@SBakerMD



Post 85. Thomas Massie @RepThomasMassie



Post 86. Dr. Anastasia Maria Loupis @DrLoupis



**Carnivore Aurelius** has a disclaimer that the account doesn't give medical advice but it is promoting the brand's 'carnivore diet'-related products such as collagen from cows and beef liver.<sup>77</sup>

Some of the attention grabbers are potential bot accounts or have a hidden identity.

For example '**Truth Seeker**' (@Xx17965797N) regularly tweets and retweets conspiracy theories. The account with the second highest engagement for the 'disparage' category is called **@iluminatibot** which regularly publishes conspiracy theories linked to the Illuminati, Bill Gates and similar anti-elite ideas. '**End Wokeness**' is another account that is prolific in spreading conspiracy theories and misinformation, some of which has been retweeted by the current owner of X, Elon Musk.

### Misinfluencers on the 'enhance' narrative

On the 'enhance' side, the attention grabbers also include media personalities connected to the far right - for example **Nick Adams** (@NickAdamsinUSA) an author who has been endorsed by Trump and tags himself as an 'Alpha Male'. There are also people who proclaim the bene-



Post 87. Carnivore Aurelius @AlpacaAurelius



Post 88. Truthseeker @Xx17965797N



Post 89. illuminatibot @iluminatibot



Post 90. Nick Adams (Alpha Male) @NickAdamsUSA

fits of meat, dairy and eggs through their own weight loss journeys such as **@NewDawn7411** and **@kemminnick**.

It also features crossover with some of the leading 'disparage' misinfluencers like Shawn Baker and Rep Thomas Massie.

The 'enhance' category's main misinfluencers are less connected to conspiracy theories than the 'disparage' category. Instead they're more focused on over-inflating the benefits of meat and dairy, while ignoring critical issues. For example, the fact that meat and dairy products are a source of nutrients, such as Vitamin B12, is overinflated to state that meat and dairy are essential for health, ignoring critical issues such as the health risks of overconsumption. The narratives in this category, as covered above in our narrative analysis, can be directly traced to the meat and dairy industry. These attempts to promote meat and dairy as innately sustainable and healthy are common industry tactics.



Post 91. New Dawn @NewDawn7411

Attention grabbers drive the misinformation in this study, with the majority contributing to conspiracy narrative.

Many of the accounts are people who claim to be health or wellness professionals. Some are media personalities including the well-known former Fox News presenter Tucker Carlson. Some are also politicians, like Congressman Thomas Massie (@RepThomasMassie), and others can be categorised as 'meatfluencers' given their focus on promoting meat (see box 5.1 for more details on the misinfluencers).

For some accounts it's hard to work out who they are and if they have any links to the meat and dairy industry.





## 6. Case study: Netherlands nitrogen policy and farmer protests

Since June 2022, the Netherlands has been in the grip of political and social turmoil over plans to reduce livestock numbers to stay within legal limits for nitrogen pollution. Protests across the country sparked political resignations with a new party, the Farmer-Citizen Movement (BBB), winning 15 seats at the 2023 provincial elections.<sup>78</sup> The protests and backlash to the policy have also caused international interest. There has been high volumes of discussion on social media and interest from right-wing commentators, including Roman Balmakov, who focused on this issue in his documentary for Epoch Times ‘No Farmers, No Food’.<sup>79</sup>

The origins of this heated debate go back several years. As a country with a high production of meat and dairy, the Netherlands has long



faced a nitrogen problem. Technical measures, such as injecting liquid manure in the soil and installing air scrubbers on pig and poultry facilities, reduced ammonia pollution by 60% since the 1980s. But levels rose again following expansions of dairy farming, particularly since 2014.<sup>80</sup> The government was forced to take drastic measures following a ruling from the Dutch High Court in 2019 which suspended the expansion of any nitrogen-emitting projects. This included livestock farms but also new homes, roads and airports.<sup>81</sup> The High Court stated the government needed to come up with a better system and a long-term plan to reduce nitrogen emissions.<sup>82</sup> After considering measures that would only have a minor impact on nitrogen levels (such as reducing speed limits on highways), it set a target to halve nitrogen pollution by 2030. This goal would require livestock numbers to reduce by a third given the sector is responsible for nearly half of nitrogen emissions.

In 2022, the government set out plans to buy-out farms, budgeting €25 billion for this.<sup>83</sup> However, farmers have shown fierce opposition to the plan. They have been protesting since the move was announced by blocking roads, airports and train stations. Politico reported that the agriculture minister Henk Staghouwer resigned after he failed to convince the farmers to accept the programme.<sup>84</sup>

Farmers have criticised the proposed solutions, including the buy-outs but also the additional demands to cut back on fertiliser use and reduce livestock numbers. Farmers argue that these measures are not only impractical but would also destroy their livelihoods.

Against this backdrop, we noted a spike in social media conversations around the Dutch farmers’ protests. For this reason, we decided to do a specific case study surrounding social media misinformation. During this time, key events unfolded, including the government’s offer to buy out up to 3,000 ‘peak polluters’, including farmers but also industrial polluters such as Tata Steel and Schiphol airport,<sup>85</sup> as well

as numerous protests, the rise of the BBB farmers’ party in the provincial elections, and the dissolution of the ruling government coalition.

### 6.1 Key findings

The dataset for this case study includes posts in English and Dutch, and contains 156,406 posts identified as misinformation. They span one year – from 1 Nov 2022 to 31 Oct 2023. These were made by 85,107 unique accounts and garnered 490,988 engagements over the 12-month timeframe.

*85,107 unique accounts and garnered 490,988 engagements over the 12-month timeframe.*

English posts were included in the dataset because English is widely used in the Netherlands. Our analysis showed that 75% of conversations were in English (116,711 in total). Additionally, of the geographically identifiable posts,<sup>c</sup> there is a broad

Foreign countries contribute almost the same number of misinformation posts as the Netherlands

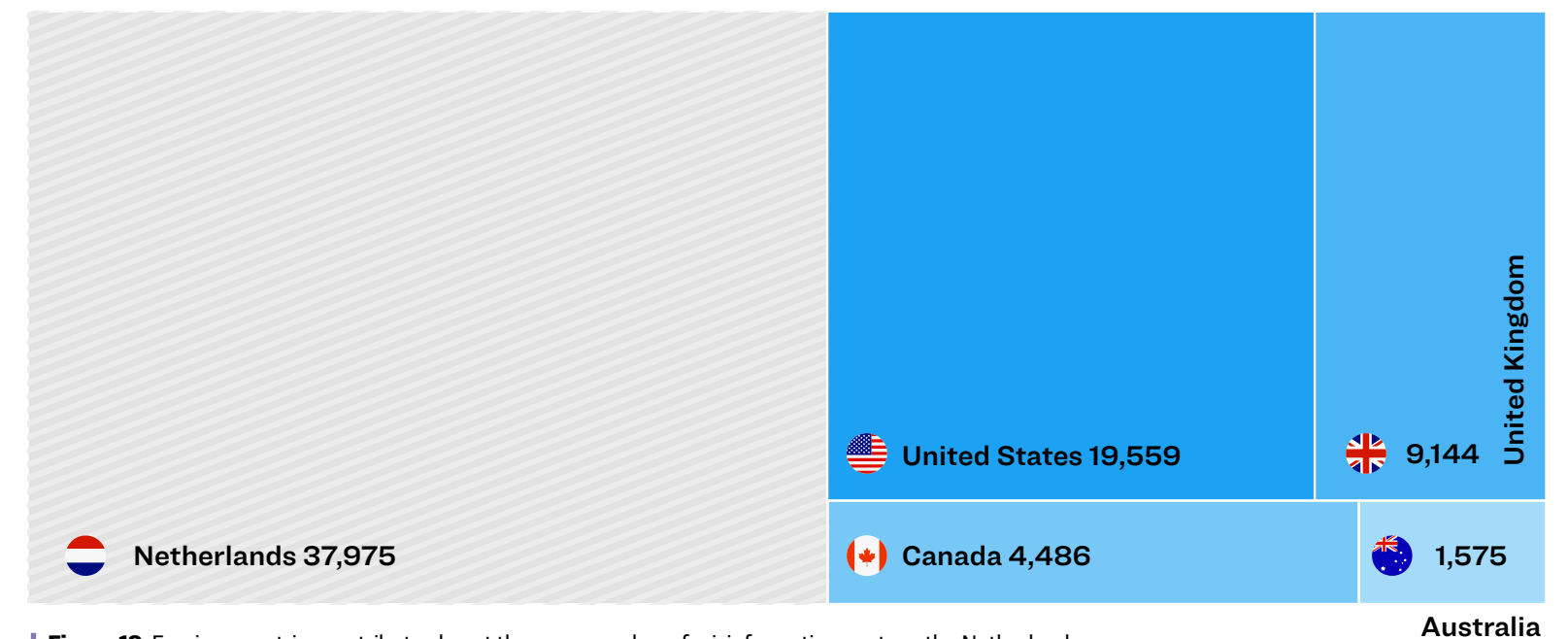
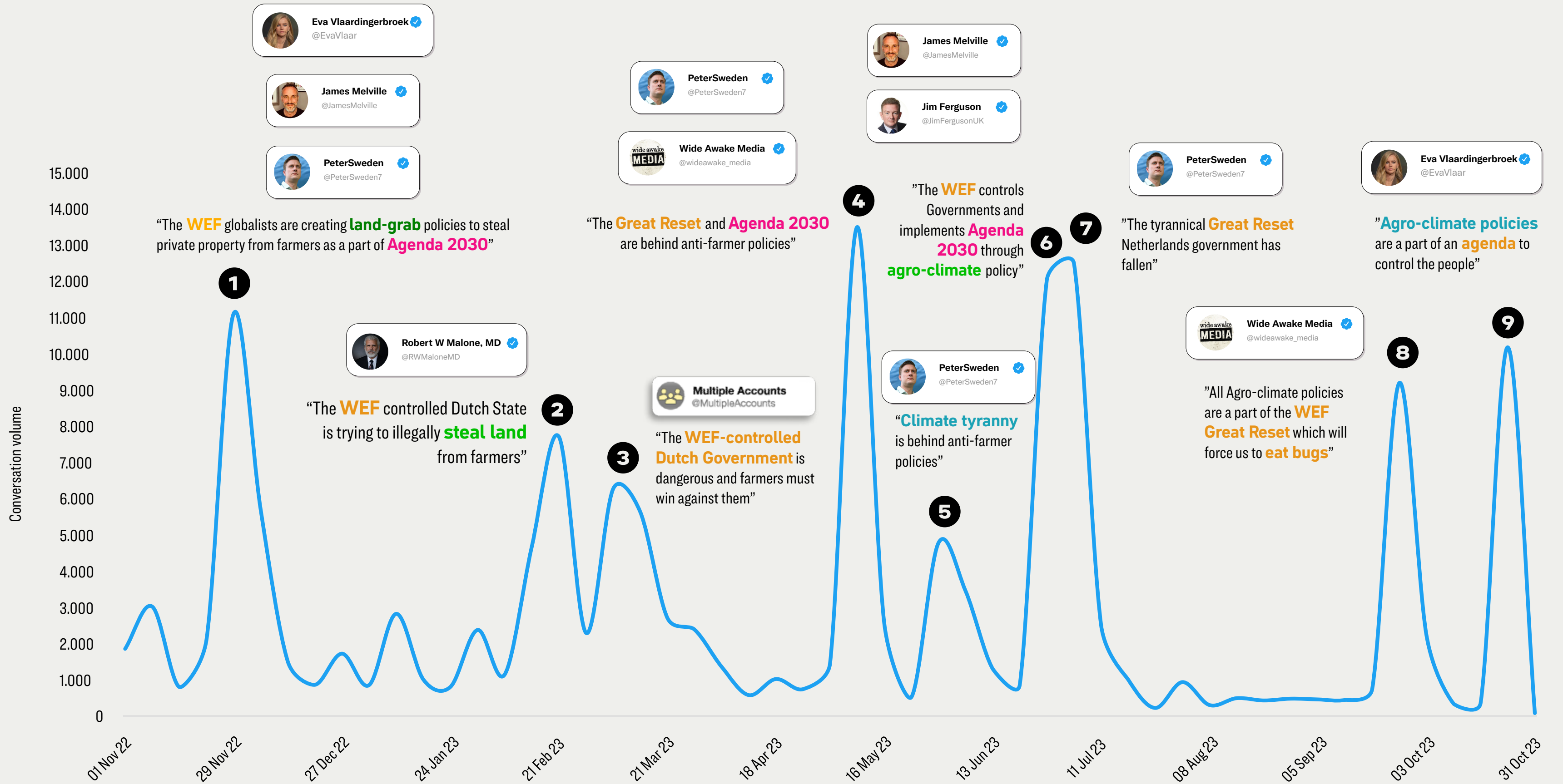


Figure 19. Foreign countries contribute almost the same number of misinformation posts as the Netherlands

<sup>c</sup> Not all conversations have location tags, and these numbers only reflect the ones that do.

# “The Great Reset”, “Agenda 2030” and claims of illegal land grabs dominate the online misinformation landscape



\*The quotes are a summarised adaptation of the misinformation narratives collectively driving the peak. In the case of peaks where multiple people are mentioned, the overall narrative can be attributed to all of them.

Figure 20. “The Great Reset”, “Agenda 2030” and claims of illegal land grabs dominate the online misinformation landscape



reach. Some 37,975 posts originate in the Netherlands, but a nearly matching figure of 34,764 posts come from countries like the United States, the United Kingdom, Canada and Australia.

Nine major peaks over the 12-month period were identified, with a notable lull in misinformation following the stepping down from office of Netherlands PM Mark Rutte <sup>86</sup>(on Jul 8, 2023) and deputy PM Sigrid Kaag<sup>87</sup>(Jul 12, 2023).

In this case study, we do not see a significant evolution of misinformation narratives over time. Instead, the broad themes of misinformation remain remarkably consistent. The narratives found all primarily fall into ‘The Great Reset’ category.

There are three main themes:

1. **The Great Reset conspiracy:** The narrative alleges that the pandemic was used as a pretext to collapse the economy intentionally and set up a tyrannical world government. This conspiracy is used in the conversations around the nitrogen policy to explain the Dutch government’s motives. People claim they’re linked to the ‘elite’ promoting consumption of bugs and pursuing government-controlled land.
2. **The Agenda 2030 conspiracy:** This conspiracy suggests that the UN’s Agenda 21 and Agenda 2030 sustainability action plans are fronts for a plan to orchestrate a new world order. Despite the stated goals of ending hunger and fighting climate change, the conspiracy narrative twists these into claims of enforced microchipping, a push for depopulation and the elimination of private property.<sup>88</sup> This theory is used to explain the Dutch government’s motives and attack the environmental reasoning for the policies. Both of these conspiracy theories play out in this dataset. They connect with

the idea that among the main objectives of global elites are stealing private property, as well as broader government control - in the case of the Netherlands a targeted ‘land-grab’ of farms. This narrative has subverted government efforts to reduce emissions into accusations of planned land theft, stoking fears of radical government actions.<sup>89</sup>

3. **Climate tyranny:** The climate tyranny narrative paints climate action as governmental overreach, infringing on individual freedoms. It’s a term used by people like Donald Trump to critique the environmental policies of the Dutch government, implying that these policies are just a way to create food scarcity and exert population control.

This conspiracy melds climate denial with government mistrust, even though the actual policies aim to address environmental concerns.<sup>90</sup>

## 6.2 Transnational far-right driving misinformation around Dutch nitrogen policy changes

Our research substantiates the existence of a transnational far-right movement which is not only weighing in on, but driving, much of the misinformation around the Dutch nitrogen policies. From the beginning of the Dutch farmers’ protests, digital conversations have been heavily influenced by far-right commentators and their agendas. This includes connecting local opposition to environmental policies to wider conspiracy theories around global elites’ agenda, as outlined below.

*The “No Farmers No Food” documentary closely associated with the far-right ecosystem causes a major spike.*

One of the peaks in the dataset (Peak 8), is solely driven by conversations surrounding the release of the documentary “No Farmers No Food”. The documentary covers ‘stories of farmers forced out of business and exposes the hidden agenda behind Green Policies that are pushing people to eat bugs, a global food crisis ignored by the world’s media’<sup>91</sup>.

The documentary, and previews shared on social media, feature images of former Netherlands Prime Minister Mark Rutte, Dutch farmers and WEF’s Klaus Schwab, implying nefarious agendas. Both the interconnected conspiracies of the Agenda 2030 and Great Reset are referenced throughout the documentary.

Roman Balakov of The Epoch Times, a far-right media entity, directed the documentary.<sup>92</sup> The Epoch Times has been identified as a major pro-Trump supporter in the US. A 2019 NBC News report calls it the second-largest source of pro-Trump Facebook ad spend.<sup>93</sup>

### *Misinfluencers are primarily from outside of the Netherlands*

Overall, the misinfluencers amassing significant engagement are not based in the Netherlands, and the primary misinfluencer from the Netherlands communicates predominantly in English suggesting she is targeting an international audience.

1. **Misinfluencers amassing significant engagement are not based in the Netherlands.** People like James Melville, Peter Sweden and Jim Fergusson, who are instrumental in driving misinformation peaks, are from the US and the UK.

2. **The primary misinfluencer from the Netherlands spreads misinformation predominantly in English.** Eva Vlaardingerbroek, one of the only identifiable key misinfluencers from the Netherlands, is a recognised right-wing commentator and ex-member of the far-right political party, Forum for Democracy (FVD). Vlaardingerbroek has promoted her views on American far-right news platforms, notably on the show Tucker Carlson Tonight, on the Fox News Channel.<sup>94</sup>

The other identifiable Dutch misinfluencer is Geert Wilders who founded and leads the far-right Party for Freedom (PVV) for which he’s held a parliamentary seat since 1998. He predominantly tweets in Dutch.

## 6.3 Misinfluencers

Our misinfluencer analysis examines the most influential spokespeople in the misinformation dataset. These are the social media accounts that created misinformation posts which garnered the most engagement. The top 15 misinfluencers can be split into a few key categories:

1. **Self-proclaimed journalists and political commentators:** Five accounts fall into this category:



- a. **Peter Immanuelson** (otherwise known as Peter Sweden) - a self-proclaimed Swedish journalist (although he is British and was born in Norway<sup>95</sup>), conspiracy theorist and far-right commentator who previously denied the Holocaust and suggested Hitler had good ideas.



- b. **Eva Vlaardingerbroek** - A Dutch far-right commentator, previously affiliated with the far-right FvD political party in the Netherlands.





c. **James Melville** - A Scottish media personality, who is known for Covid-19 related misinformation.



d. **Neil Oliver** - A Scottish TV presenter who currently works for right-wing, populist media outlet GB News.



e. **Michael Yon** - An American citizen journalist, referred to as ‘the reporter of choice for many conservatives’<sup>96</sup>

2. **Politicians:** These include politicians from across the world. They are:



a. **Jim Ferguson** - A former Parliamentary candidate with The Brexit Party, was formerly a part of the Conservative Party, and describes himself as someone who is ‘opposed to lockdowns and other methods or control including censorship’.<sup>97</sup> He also claims to be a farmer and businessman.



b. **Geert Wilders** - A member of the House of Representatives of the Netherlands, and leader of Party for Freedom, a nationalist, right-wing populist political party.



c. **Herman Tertsch** (MEP) - A Spanish journalist and politician, integrated within the European Conservatives and Reformists, and a signatory of the Madrid Charter, an alliance of right-wing and far-right individuals

### 3. Miscellaneous:



a. **Social media pages** - These are popular social media pages, not identifiably run by a single individual, with a large number of followers. This includes pages like Wide Awake Media, CanadaInDistress, Anti-WEF and Wall Street Silver.

b. **Individual influencers** - These are identifiable individuals who play a role in spreading misinformation and have substantial online followings. In this category are public personalities like Rob Schneider (an American comedian with anti-vaccine views) and other influencers such as Vince Clements and Pelham, who, while not widely known, still have a strong presence and influence online.





## 7. Conclusion: Coordinated or coincidence?

Our research has highlighted the spread of misinformation on the environmental and health impacts of meat and dairy consumption, as well as pro-meat and dairy narratives on social media, uncovering that - after we take out conspiracy theory oriented posts<sup>D</sup>-the vast majority of conversations are focused on disparaging alternative proteins and peddling fake news and distorted narratives to do so.

Over 50% of engagement relates to posts from just 50 accounts. Many of these people claim to be doctors or wellness experts. Others are notable (mostly far-right) media or political figures. For many of them, posting about meat and dairy is just part of what they do. However, there's significant potential to use meat or dairy content to

<sup>D</sup> Conspiracy focused posts, which makes up 37% of our entire dataset, also contain mentions of alternative proteins, but those posts are already captured within the 'maligning' and 'vilifying' narratives, which make up 31% of our dataset. Standalone posts attacking alternative proteins, that do not also reference conspiracies constitute 31%.



drive polarisation. This can then undermine specific policies to curb climate change and improve public health. Polarisation also drives general mistrust towards government regulation. By straying into culture war territory and conspiracy theories around climate and health, the topic becomes more divisive, leading to growing polarisation. The misinformation connected to conspiracy theories, driven by far-right actors, is particularly prevalent in relation to the case study on misinformation surrounding the Netherlands' nitrogen policy and resultant farmer protests. This case study highlights how a cross-border far-right movement has seized the moment to promote its ideologies and conspiracy theories. The result is that the local opposition to environmental policies has been caught by those trying to push for greater political polarisation globally.<sup>98</sup> Although it is impossible to say whether the online narratives contributed to the fall of the Dutch government and the resulting elections that led to the rise of the farmers and far right parties, it is clear that growing political polarisation is one factor in this.

Although social media platforms like Facebook and Twitter/X are likely not the root cause of political polarization, which is a complex phenomena, they are a factor in exacerbating it. Social media algorithms that maximise user engagement, might be to blame for amplifying divisive content, as this makes people stay longer on the platform, consume more content and be exposed to more ads. However, this can drive extreme polarisation, which leads to the erosion of democratic values, declining trust in institutions and science and in some cases real world violence or deaths, as was the case with the misinformation around vaccines and masks during Covid pandemics.<sup>99</sup> Even with narratives that seem harmless on how meat must be consumed to improve one's health and masculinity, such misinformation might have real impacts on people's health and life expectancy.

It might also have a real impact on climate and wider environmental policies and the uptake of alternatives to meat and dairy. The UC Davies case study shows how

a non-peer reviewed paper on the impacts of lab grown meat created a spike in online conversations and spread misinformation related to the real-world policy discussions on agricultural emissions reductions on the other side of the world, in Ireland. Although it is unclear if this heightened debate on social media had an impact on the Irish policy discussions, governments around the world already face a huge uphill battle on policy relating to meat and dairy due to opposition from farmers, as well as lobbyists representing big companies operating in the sector, so the use of misinformation and sensationalism, which create online hysteria, risk further diminishing the political will to act.

#### Box 7.1 **How a social media campaign swayed public opinion on a major scientific study**

The initial social media backlash to the EAT Lancet report in 2019, analysis of which was published in The Lancet journal<sup>100</sup> was outside the timeframe of the research for this report but it provides a clear example of where the livestock industry is clearly driving a polarising backlash on social media against scientific research, and how social media campaigns have successfully swayed public opinion away from conventional science.<sup>101</sup> An investigation by Unearthed<sup>102</sup> revealed that not only was the concerted campaign, linked to the #yes2meat message, driven by the then newly created and industry funded CLEAR Centre and its lead Mitloehner, but that the campaign is celebrated for swaying 'undecided' audiences against the rigorously researched and peer-reviewed findings of EAT Lancet.

The attacks on alternative proteins also appear to have real world implications, with evidence suggesting it has played a part in the reduction in the growth of the

alternative protein sector, as well as making it more difficult for these innovative companies to attract investments.<sup>103</sup>

Big meat and dairy representatives have also directly pushed back on policy to support plant-based or lab-grown alternatives by using the argument they're not comparable to conventional animal products in terms of nutrition and threaten the farmers.<sup>104</sup> This push back is resulting in government led restrictions and limits on the fledgling alternative protein industry. For instance, major industry led lobbying resulted in the inclusion of plant-based milks in the EU's schools' food scheme being prohibited.<sup>105</sup> Additionally, several governments and jurisdictions have banned or are looking to ban the use of 'meat and dairy terms' for plant-based alternatives as well as bans on the lab-grown and synthetic meat industry: Italy has recently announced a ban on lab-grown and synthetic meat as well as the use 'meat-related words on labels to describe plant-based protein',<sup>106</sup> meanwhile there have been steps towards banning meat and dairy related terms for plant-based products in both the UK and France,<sup>107</sup> and there is pressure to ban lab-grown meat in Florida too, a move supported by the major meat industry lobby group the NCBA.<sup>108</sup>

Although it is impossible to prove conclusively to what extent social media debates and misinformation narratives influence political decisions, it is clear that they contribute to a general inertia against regulating big meat and dairy for their outsized climate and wider environmental impact. Some of the statements of politicians, for example UK Prime Minister Rishi Sunak's declaring he would drop a non-existent meat tax, as part of his recent package to water down and delay climate policies, the rise of the populist agenda in the Netherlands and Italy's recent ban on lab-grown meat suggest there is a move to embracing the meat and dairy focused culture war narratives to gain votes and political support.<sup>109</sup>

The purpose of this report has been to provide a quantified insight into the dominant misinformation narratives on social media with regards to the pro-meat and dairy agenda. Determining to what extent the meat and dairy industry representatives and people working for them are directly orchestrating these conversations was out of the scope of this report, but we were able to draw some parallels based on findings from previous investigations.

Through our analysis we concluded that misinformation categorised within the 'Enhance' narrative can be linked directly to the meat and dairy industry, similarly attacks on alternative proteins which sit within the 'Disparage' narrative have been linked to representatives of the meat and dairy industry. The misinformation focused on culture wars and conspiracy theories cannot be directly linked with the meat and dairy industry and is driven instead by a far-right agenda. Whilst there might be no links between big-business and some of the far right misinfluencers identified in our research, they might at times have a shared agenda, one to undermine climate science and prevent governmental regulation. This ultimately maintains (or even enhances) the status quo of high meat and dairy consumption and low regulation of the sector for their pollution and negative health impacts.



# Annex

## Methodology: data collection

The research for this report was undertaken by Ripple Research, a non-profit data consultancy organisation that has developed a unique human-AI hybrid approach to big data analysis to support research on pressing global issues. The data for this report was extracted using opinion mining technology, leveraging Natural Language Processing (NLP) algorithms and machine learning techniques. The toolkit enables the isolation of conversations relevant to this area of study, while sifting through large volumes of publicly available and openly accessible digital content across the internet, including news and digital media. Ripple also accessed unrestricted data from X (formerly known as Twitter) which formed a large part of the dataset.<sup>E</sup>

The research process began by curating a set of research questions focused around establishing the what, when and who of misinformation relating to the broadly defined topic of ‘Pro Big Meat and Dairy narratives’. These questions guide the parameters of the research.

The ‘what’ questions include:

- What are the key discourses prevalent in the realm of misinformation surrounding meat and dairy production and consumption?
- How prevalent are they?
- Which ones are the most dominant?
- How much engagement do they capture?

The ‘when’ questions include:

- When does this misinformation peak?
- What events contribute to these peaks?
- What are accounts saying during these peaks?
- The ‘how’ questions include:
  - Who are the key misinfluencers of the Big Ag misinformation universe?
  - How many key misinfluencers can be identified?
  - How much engagement do they capture?

A comprehensive dataset was then developed from which these questions could be explored. The data collection stems from the development of a comprehensive

<sup>E</sup> Despite changes in access to Twitter’s API early in 2023, Ripple Research maintains unrestricted access meaning the changes did not limit the scope of this research. For more on the changes to Twitter’s API. Weatherbed, Jess (2023) Twitter replaces its free API with a paid tier in quest to make more money, The Verge, <https://www.theverge.com/2023/2/2/23582615/twitter-removing-free-api-developer-apps-price-announcement>

search lexicon (a collection of search terms, key words and phrases). For this research a collection of over 10,000 search terms was created. This process took place over three stages involving both human and AI analysis:

1. **A literature review** was undertaken to ensure the researchers are up to date on the latest analysis and findings around this topic and to enable the development of search lexicons gathered from the keywords, phrases and terminology used in previous studies, public debates and online forums.
2. **A small listening** stage built on the literature review and consisted of a review of news media outlets and the most used social media platforms (Reddit, Facebook, TikTok, X/Twitter), in essence a scan of various articles, studies and opinion pieces in order to build a context for the research and further develop the search lexicon. The objective of the small listening is to capture the complexities, nuances, textures and patterns of the emerging frames and narratives. Close examination of emerging trends and conversations within the online data communities is used in order to adapt and expand the search lexicon to remain agile and responsive to evolving discourse.
3. **A final big listening** stage relied fully on the use of the data collection software and machine learning tools to mine narratives. In this step, various digital media sources including forums, Twitter/X posts, Reddit posts, blogs and forum websites are scanned, using the search lexicon, to lift up data around the research questions. Meta platforms and private communication platforms, such as Telegram and Signal, are excluded as these sites offer only limited access to public data from

certain regions and in a controlled environment, creating restrictions which would have distorted the findings.<sup>F</sup>

Once the dataset was developed, relevant conversations were isolated by filtering out the ‘noise’ from this large pool to focus on the core issues of the research. The filtering of noise involved any content that did not directly relate to the propagation or dissemination of misinformation within the Big Ag context being removed. For example, conversations that included key words and phrases but were information based rather than misinformation were removed. This enabled the focus to be on the deliberate spreading of deceptive narratives, providing a clear lens through which to scrutinise the driving factors, engagement patterns and influential voices in the misinformation landscape surrounding meat and dairy industries.

Using the researchers’ domain knowledge - the understanding built up through the literature review and small listening - they were able to make sense of the data, selecting analysis methods relevant to the research questions through which to explore, extract insights from and categorise the dataset.

The findings from different levels of analysis, as covered in the report, were then passed to Changing Markets for further contextualisation, analysis and from which this comprehensive report and assessment of misinformation on meat and dairy was developed.

<sup>F</sup> An internal battle at Facebook resulted in the site opting to only ‘selectively disclose its own data in the form of carefully curated reports, rather than handing outsiders the tools to discover it themselves’. Roose, Kevin (2021) Inside Facebook’s Data Wars, New York Times, <https://www.nytimes.com/2021/07/14/technology/facebook-data.html>



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