

Mr. Paul Kiecker, Administrator
Food Safety and Inspection Service
1400 Independence Avenue SW
Washington, D.C. 20250-3700
November 2nd, 2021

RE: Advance Notice of Proposed Rulemaking, Labeling of Meat or Poultry Products Comprised of or Containing Cultured Animal Cells (Posted September 3rd, 2021)

[Docket No. FSIS-2020-0036]

Dear Mr. Kiecker:

Compassion in World Farming (CIWF) is an international, nonprofit organization whose purpose is to peacefully end factory farming practices and create a world where all farmed animals are treated with respect. Compassion advocates on behalf of all areas that are detrimentally impacted by factory farming, including animal welfare, the environment, public health, and community and workers' justice. CIWF believes that meat alternatives, including plant-based analogs, proteins from fermentation, and cultured meat from animal cells will be a vital part of the solution in ending factory farming and transforming the global food system to one that is healthy, humane and regenerative. Our 92,000 supporters in the United States depend on the Food Safety and Inspection Service (FSIS) to ensure that the food they choose to buy and consume is accurately represented and is labeled with enough information to help them make informed decisions. To remain consistent with the Advance Notice of Proposed Rulemaking (ANPR), we will refer to the products in question as "cultured" in the comments to follow. However, this is not the term we ultimately recommend be used as the label for these products.

On the pages that follow, we discuss: CIWF's recommendations on what nomenclature we suggest be used for differentiating products comprised of or containing cultured meat and why; which terms we do not suggest using and why; which products should be subject to these labels; and which specifiers should be allowed to further identify the nature of the product.

1. The current largescale methods of meat and poultry production have significant negative impacts on animal welfare, climate, environmental pollution, biodiversity, and public health. Studies have reported that chickens raised in factory farms have higher incidences of painful myopathies such as white striping and wooden breast and have also been reported to have lower nutritional value than chickens raised in higher welfare systems (CIWF 2021). Livestock production is responsible for 14.5% of global anthropogenic greenhouse gas emissions, with feed production, enteric fermentation from

ruminants, and manure storage accounting for 45%, 39%, and 10%, respectively (Gerber et al. 2013). It accounts for 83% of the total land used for agriculture, but only yields 37% of the world's protein and 18% of the world's calories (Poore and Nemecek 2021). A report published last year confirmed a correlation between cattle farming expansion and emerging human diseases and biodiversity loss (Morand 2020). Other studies conclude that intensive livestock production is the top cause of new infectious diseases and antibiotic resistance (Treich 2021, Roach et al. 2021, UNEP 2020).

For these reasons and others, the demand for cell-cultured meat is increasing. NewHarvest, one of the leading nonprofit research institutions in the field, affirms that cultured animal products have fewer environmental impacts, more consistent supply, and increased safety since they are produced in a sterile, controlled environment (2021). Experts claim that cultured meat will become commercially available in the United States within the next five years (Kateman 2020). A report from AT Kearney predicts that 35% of all meat will be cultured meat by 2040, and Markets-and-Markets predicts the global cultured meat industry will be worth around \$593 million by 2032. Over \$366 million was invested in the cultured meat industry last year alone, up sixfold from the previous year (GFI 2021). Last year also saw the first commercial launch of cultured meat by the company Eat Just, in Singapore, and its cultured chicken product was added to the menu of a partnering restaurant in 2021 (Byrne 2021). This September, Singapore's government granted regulatory approval for the world's first industrial manufacturing platform for cultured meat (Huling 2021). Claims that cultured meat production could contribute more to climate change fail to consider key considerations such as land-use changes and have been debunked (Friedrich 2019).

CIWF believes that products comprised of, or containing, meat from cultured animal cells instead of slaughtered animals should be allowed to differentiate as such. Our organization supports neutrality from regulatory agencies like FSIS in emerging technologies, and as such, the regulatory term for cultured meat should be as neutral as possible. The success or failure of new products, including cultured meat, should be determined by market competition and consumer demand and not by misguided or vague labeling. Enabling these forces to work requires transparency, and with the consumer demand for transparency in product production increasing, consumers ought to know which industries and practices they are supporting with their purchase.

There is sufficient evidence indicating consumer demand for a product with fewer unfavorable ethical, environmental, and socioeconomic impacts. Therefore, such distinctions are necessary for buyers to make informed decisions (Markets-and-Markets 2019). About 66% of Americans believe global climate change is a major threat to the country, with the same percentage concerned about air quality, water quality, and biodiversity, and 79% of Americans view the spread of infectious diseases as a major threat, all of which are severely impacted by factory farming (Funk and Kennedy 2020, Poushter and Fagan 2020). One study found that 80% of people in the US and UK are already willing to try cultured meat, with Gen Z and Millennials being most open to the idea (Szejda 2021). Therefore, the interest in cultured meat will likely continue to grow as Gen Z enters the marketplace.

CIWF has identified three criteria to differentiate cultured meat from its traditional animal analogs:

- No animal was slaughtered to produce the meat product.
 - No animal was severely injured to produce the meat product, meaning that the animal felt no pain and requires no significant medical treatment or recovery time.
 - The culture process (i.e., the incubation or nurturing of the cells) is done entirely externally from the original animal or any other animal.
2. Several research studies have been conducted to determine proper nomenclature for cultured meat and poultry products as this new market emerges. In preparation for making these comments, we considered “cultured,” “cell-based,” “cultivated,” “lab-grown,” “clean,” “animal-free,” “slaughter-free,” “in-vitro,” and “synthetic.” CIWF recommends that the regulatory term for these products be “*cultivated*” meat. The following sections of this question will discuss our reasoning in greater detail.
- a. Accuracy, clarity, and ease of understanding were key parameters that we examined in determining a proper label for cultured meat. In some studies, terms such as “animal-free” and “slaughter-free” caused confusion (some respondents called it an oxymoron or impossible) and left room for misinterpretation as a plant-based product (Bryant, 2019). Terms such as “lab-grown,” while true now, do not accurately reflect cultured meat production at a commercial scale, which would likely be in a facility more like a brewery or a factory than a laboratory. “Cultured” is accurate but only refers to one part of a multi-step process that is still evolving; Cells must be harvested from the animal, transferred to a scaffold, cultured, and—in some recent developments—3D printed through stereolithography before being harvested off the scaffold to form the final product (Garrett 2021). “Cell-based,” while also accurate, lacks clarity on how the product was made and leaves some room for confusion—technically, foods made from plants are also cell-based (Friedrich 2019). We eliminated terms such as “clean,” “in-vitro,” and “synthetic” because they were not descriptive enough for the common consumer to easily understand what the product is at a glance. Our reasoning for not choosing “cultured” due to lack of clarity is further discussed in section 2c.
 - b. Psychology experts have long known that wording and phrasing directly influence perceptions of a person, idea, or object. In one study, political consultant Dr. Frank Luntz found that when respondents were asked if the United States spends too much on “*welfare*,” 42% said yes. However, when asked if the United States is spending too little on “*assistance to the poor*,” an overwhelming 68% said yes (Luntz 2007). Similarly, 51% of respondents agreed they would be willing to pay higher taxes to “*further law enforcement*,” but 68% agreed when asked if they would be willing to pay higher taxes to “*halt the rising crime rate*” (Luntz 2007). According to social representation theory, which argues that humans and society make sense of the unfamiliar by categorizing it and associating it with that which is familiar, anchoring is the process of attaching something new to something already known (Höijer 2011). Anchoring can come in the form of name anchoring, emotional anchoring, thematic anchoring, metaphoric anchoring and anchoring via antinomies, which all must be considered in determining the nomenclature for cultured meat and how the name might impact the market (Höijer 2011, Bryant 2019). Cognitive neuroscientists have described a similar phenomenon as “networks of association,” in which words, thoughts, memories, images, sounds, smells, and feelings are linked to one another. For instance, subjects primed with seeing the word “dog” were quicker to

recognize the words “terrier” and “collie,” which suggests that activating one part of a network spreads activation to other parts of the network (Westen 2007). Linkages also exist across networks—in another study, subjects presented with the words “ocean” and “moon” and then later asked to name the first laundry detergent that came to mind were more likely to respond with “Tide” (Westen 2007).

This is important because these networks are laden with emotion, and they shape our knowledge and attitudes toward everyone and everything we encounter (Westen 2007). Thus, any label runs the risk of activating positive or negative emotions, attitudes, opinions, and feelings for the consumer. CIWF believes that the regulatory label for cultured meat should provide a foundation for this emerging market that is as free of strong emotional and attitudinal bias as possible. As seen in section 2a, multiple studies have researched how the different terms for cultured meat resonate with potential consumers. One study found that the name “cultured” fared more favorably among subjects than “artificial” and “lab-grown,” but that conventional meat was still preferred to cultured meat under any of those three names (Asioli 2018). Another study by Hart Research Associates concluded that participants had a more negative initial reaction to the term “cultured meat” than the term “cellular agriculture” (2017). Both terms initially generated some misinterpretations, with participants supplying words that came to mind such as “cell phones” and “land development” for “cellular agriculture” and words such as “processed,” “preservatives,” “GMO” and even “seasoning meat with chemicals” for “cultured” meat (2017). In a study by Bryant and Barnett, “lab-grown,” “in-vitro,” and “synthetic” generated the most negative associations, with subjects providing words they associated them with such as “artificial,” “disgusting,” and other words related to unusualness, unnaturalness and even threats to health (Bryant 2019). These labels also generated anchors in antinomies, e.g., science vs. nature and natural vs. unnatural. “Clean” meat received significantly higher positive associations than the other names tested in this study, producing associated words from participants related to healthiness, tastiness, cleanness, and naturalness. Therefore, we determined the term “clean” was not only too vague but also had too much positive bias to be used as a regulatory label.

Although the term “cultivated” was not assessed in the Bryant study, a study by the Good Food Institute and Mattson found that it fared the most favorably with respondents compared to “cell-based,” “cell-cultured,” and “cultured,” and met the researchers’ criteria for neutrality and descriptiveness/differentiation (Friedrich 2019). The labels “cell-based” and “cultured” had mixed results, and “cell-cultured” received the most neutral and negative responses, further supporting Asioli’s and Bryant’s findings that labels closely related to science and laboratories are more likely to generate negative associations with unusualness and disgust and lack market appeal, placing startup cultured meat companies at a disadvantage.

Based on the literature, CIWF recommends the term “cultivated meat” for three main reasons. First, as stated, “cultivated” concisely and accurately captures the essence of the product and how it is produced. Second, “cultivated” is emotionally neutral for potential consumers and conjures the correct associations with food and agriculture. Although not formally tested, we suspect that the term “cultivated” would be associated with nurturing, thoughtful preparation, and improvement. The word “cultivated” also draws parallels to traditional farming, in which plants are *cultivated* through planting, fertilizing, and harvesting just as the cells used for

cultured meat are “planted” into a scaffold and media, fertilized with nutrients, and then harvested once they have multiplied and grown sufficiently. The research suggests that the label “cultivated meat” will activate more accurate, more palatable, and more familiar associations with food and food production rather than confusing, unappealing, or antagonistic associations with a laboratory or artificiality. Bryant and Barnett noted that “By anchoring [cultured meat] to more positively valenced associations, participants in [the] study appeared to locate it in a network of non-threatening concepts, and subsequently develop more positive attitudes and intentions towards it.” Third, the term “cultivated” has received positive responses from industry stakeholders. As cultured meat scientist Jess Krieger concluded, “‘Cultivated’ meat conjures images of agriculture and natural processes, is biologically correct, and isn’t used by any major food type—it’s a great name for us to stand behind as an industry” (Friedrich 2019). In September 2021, a poll by the Good Food Institute found that 75% of industry companies now prefer the name “cultivated” for their products, while 20% preferred “cultured” and only 2% preferred “cell-based” (Friedrich 2021).

- c. CIWF believes that question 2c renders itself moot—the word “cultured” should not be used as a regulatory term to describe cell-cultured meat because it is already in use for other products, thereby risking confusion for consumers. The ANPR’s concern that “cultured meat” may be confused with meat cured with cultured celery powder is valid. Bryant’s study found that some respondents conflated “cultured meat” with meat that had been salted, cured, or otherwise processed (2019). In addition, “culture” already refers to the bacterial fermentation process used to make food items such as yogurt and cultured butter, which invites further misunderstanding. Therefore, we suggest that the word “culture” be avoided when referring to meat or poultry products made from cultured animal cells.
3. For products that contain both slaughtered meat and cultured meat, the label should be allowed to indicate the percentage of meat from cultured animal cells. Using the suggested term “cultivated,” it would read as “xx% cultivated meat.”
4. See 2a and 2c. The terms “animal-free,” “slaughter-free” and “cultured” were proven to cause confusion for research study respondents. “Clean” and “pure” meat also have the potential to be misleading, although proven to a lesser degree.
5. See 2b. In short, CIWF recommends avoiding the terms “cell-based,” “cell-cultured,” “lab-grown,” “in-vitro,” “cultured” and “synthetic.” These labels have been shown to activate negative biases and associations, putting the cultured meat industry at a competitive disadvantage. Conversely, the term “clean” meat, which has been sometimes used to refer to cultured meat, implies that slaughtered meat is “dirty” based on the theory of anchoring in antinomies, which could negatively impact the existing industry (Bryant 2019).
6. CIWF believes that common and regulatory names including “beef,” “pork,” “chicken,” “turkey,” “duck,” etc. should be allowed to be used as far as: 1) the original cells came from the same animal as the slaughtered meat equivalent, and 2) the product meets consumer expectations for characteristics such as taste and texture.

- a. CIWF suggests that such names be preceded with the label “cultivated.” For example, a meat product comprised of animal cells that came from swine should be allowed to be labeled “cultivated pork.”
 - b. The phrasing outlined in 6a should be sufficient to differentiate foods comprised of or containing cultured animal cells from slaughtered products. Contrary to the US Cattlemen’s Association’s petition, we believe using the common, statutory, and regulatory terms listed above most accurately discloses the biological nature of the product and most clearly communicates consumer expectations (U.S. Cattlemen’s Association 2018). In the 2017 Request for Information (RFI) regarding plant-based beverages and the use of the term “milk” (soy milk, almond milk, oat milk, etc.), some commenters cited the need for nutritional equivalence to traditional dairy milk. While CIWF believes the nutritional equivalence argument has some merit, it is ultimately the responsibility of the consumer to read the nutrition label as with any other food product. We feel that using common terms like “meat” and “beef” will be the most helpful to consumers in understanding the product characteristics such as taste, texture, color, uses, preparation, and likely (although more research is needed), nutritional values.
- 7. Yes, CIWF believes that products comprised of or containing meat from cultured animal cells should be allowed to use descriptive terms such as “fillet,” “patty,” “steak,” “burger,” etc. on the label.
 - a. These terms should be allowed when accompanied by the cultured meat specifier “cultivated” and the common or regulatory name of the product’s animal origin. For example, a cultured animal meat product from chicken cells could be labeled “cultivated chicken tenders.”
 - b. Descriptors such as “steak” and “fillet” convey to consumers how the product is prepared and served. For example, consumers can generally assume that any food product labeled as a “burger” can be cooked on a grill and served with ketchup or mustard and lettuce on a bun. A “steak” is generally thick and eaten hot with one or two side dishes, whereas “deli slices” are assumed to be thinly cut and eaten hot or cold on a sandwich. Therefore, descriptive terms can be used so long as the product can meet the general consumer expectations of how it would be prepared, served, and paired with other ingredients.
- 8. CIWF does not have sufficient data to comment on this question.
- 9. CIWF does not have sufficient data to comment on this question.
- 10. Yes, CIWF suggests that the definition of “meat” in 9 CFR 301.2 be amended to: “The part of the muscle of any cattle, sheep, swine, or goats which is skeletal, *derived from skeletal muscle*, or found in *or derived from* the tongue, diaphragm, heart, or esophagus, with or without the accompanying and overlying fat....” The definition for “meat byproduct” need not be amended.
- 11. Yes, CIWF suggests that the definition of “poultry product” in 9 CFR 381.1 be amended to: “This term means any poultry carcass or part thereof, or any product which is made wholly or in part

from any poultry carcass, part thereof, *or cells derived from poultry*, excepting those exempted from definition as a poultry product....” Similarly, we suggest the definition of “poultry food product” be amended to: “This term means any product capable of use as human food which is made in part from any poultry carcass, part thereof, *or cells derived from poultry*, excepting those exempted from definition as poultry product....”

12. CIWF believes that transparency in production is key to enabling market forces to function and allows consumers to make buying decisions based on their preferences and those of their families and communities. Therefore, FSIS-regulated broths, bases, and reaction flavors produced from cultured animal cells should be allowed to declare the source material in the ingredient sub-listing. However, as per the USDA’s precedent, disclosure of production processes should only be required if the final product does not meet consumer expectations when compared to slaughtered meat or if it has increased safety risks.
13. For the same reasons described in our response to question 12, we believe products containing cultured animal cells should be allowed to differentiate from those containing slaughtered meat. This distinction should be allowed in the ingredient sub-listing.
14. There are several claims we anticipate the producers of products containing or comprising cultured animal cells to make that we believe are valid and should be allowed so long as they receive the appropriate certification. These are: USDA certified organic, non-GMO, antibiotic-free, hormone-free, cruelty-free, and kosher. Claims that should not be allowed are “vegan” or “vegetarian”. Such companies also must not be allowed to claim endorsements from other companies, nonprofits, government agencies, or institutions unless granted approval by the entity. We suggest that any health claims, nutrition claims such as “low fat,” or “good source of Vitamin D,” and structure/function claims such as “helps build strong bones” must comply with the established standards under the Food and Drug Administration (FDA).

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