

# Lexicon Development for the Texture of Plant-Based Chicken Alternatives

Kenzie McClintic<sup>1</sup>, Zata Vickers<sup>1</sup>

<sup>1</sup> Department of Food Science and Nutrition, University of Minnesota, Saint Paul, MN, USA

Kenzie McClintic mcclintickenzie@gmail.com

## INTRODUCTION

- Plant based protein is widely used in the application of meat alternatives due to growing consumer awareness surrounding the ethics and environmental impacts of meat consumption.
- While the growing demand for meat alternatives has led to many imitation chicken products, the successful replication of chicken texture poses a challenge in the development of these products.
- A sensory lexicon for alternative chicken is needed for the development and communication about these products.

## OBJECTIVE

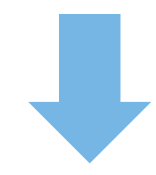
The objective of this study was to develop a sensory texture lexicon for comparing the texture of plant-based chicken products with real chicken.

## METHOD

Assemble group of trained panelists



Identify attributes



Create definitions



Select reference samples



Measure intensity of attributes

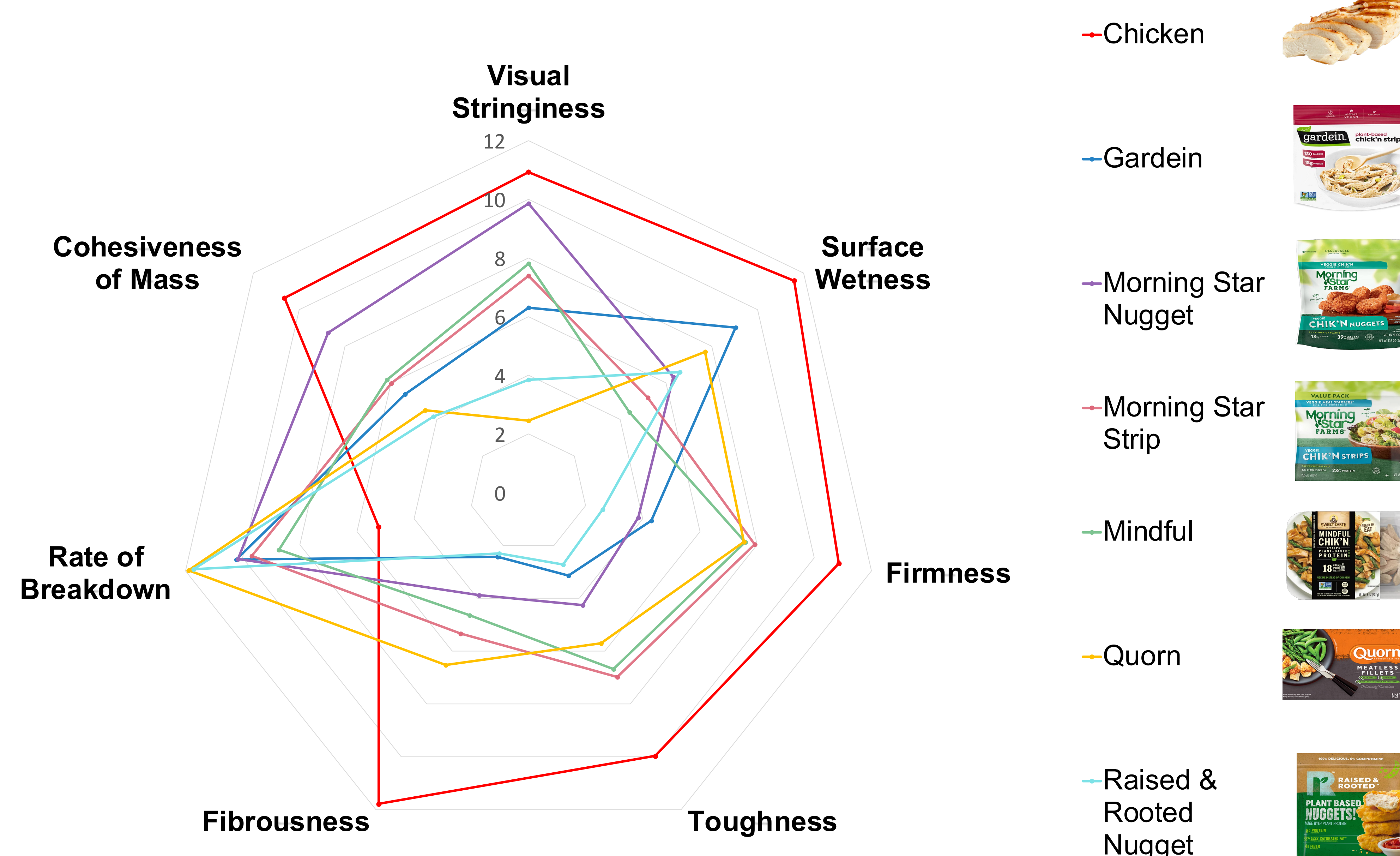
Ex: "Springiness"

Ex: "The degree that the sample returns to its original shape after partial compression"



# Alternative chicken products are less firm, tough, cohesive, and fibrous compared to real chicken.

## RESULTS: ATTRIBUTE RATINGS



## RESULTS: LEXICON

### 1) Visual Structure

Action: look at the sample

- Visual layering
- Visual fibrousness
- Visual porosity
- Visual uniformity of structure

### 2) Texture when touched against lips

Action: touch the sample to your lips.

- Surface wetness

### 3) Texture at first compression with tongue and palate

Action: compress sample between tongue and palate (3 compressions)

- Surface roughness
- Mushiness

### 4) Texture with gentle compressions in molars

Action: gently compress the sample between your molars without rupturing or biting through it (3 compressions).

- Initial juiciness
- Springiness
- Firmness

### 5) Texture when chewing with molars

Action: Place a sample between the molars and chew (10 compressions)

- Uniformity of structure
- Toughness
- Pastiness
- Cohesiveness of mass
- Rubbery
- Chew count
- Rate of breakdown
- Fibrousness
- Moistness

### 6) Texture at point of swallowing

- Bolus wetness
- Bolus size

### 7) Texture residual

(what's left in mouth after swallowing)

- Residual Particles
- Tooth pack
- Residual Mouth Coating

## CONCLUSIONS

- The alternative chicken products had lower firmness, toughness, cohesiveness of mass, and stringiness when compared to real chicken.
- The alternative chicken products had a much quicker rate of breakdown and were less moist than real chicken.

## ACKNOWLEDGEMENTS

This work was supported in part by the Good Food Institute (GFI) and the Minnesota Agricultural Experiment Station.

## REFERENCES

Lyon, B.G. and Lyon, C.E. 1993. Effects of water-cooking in heat-sealed bags versus conveyor-belt grilling on yield, moisture, and texture of broiler breast meat. Poultry Sci. 72: 157-165