

# Next Generation Sequencing as a Novel Tool for Quality Control of Food Products: Hotdog Study

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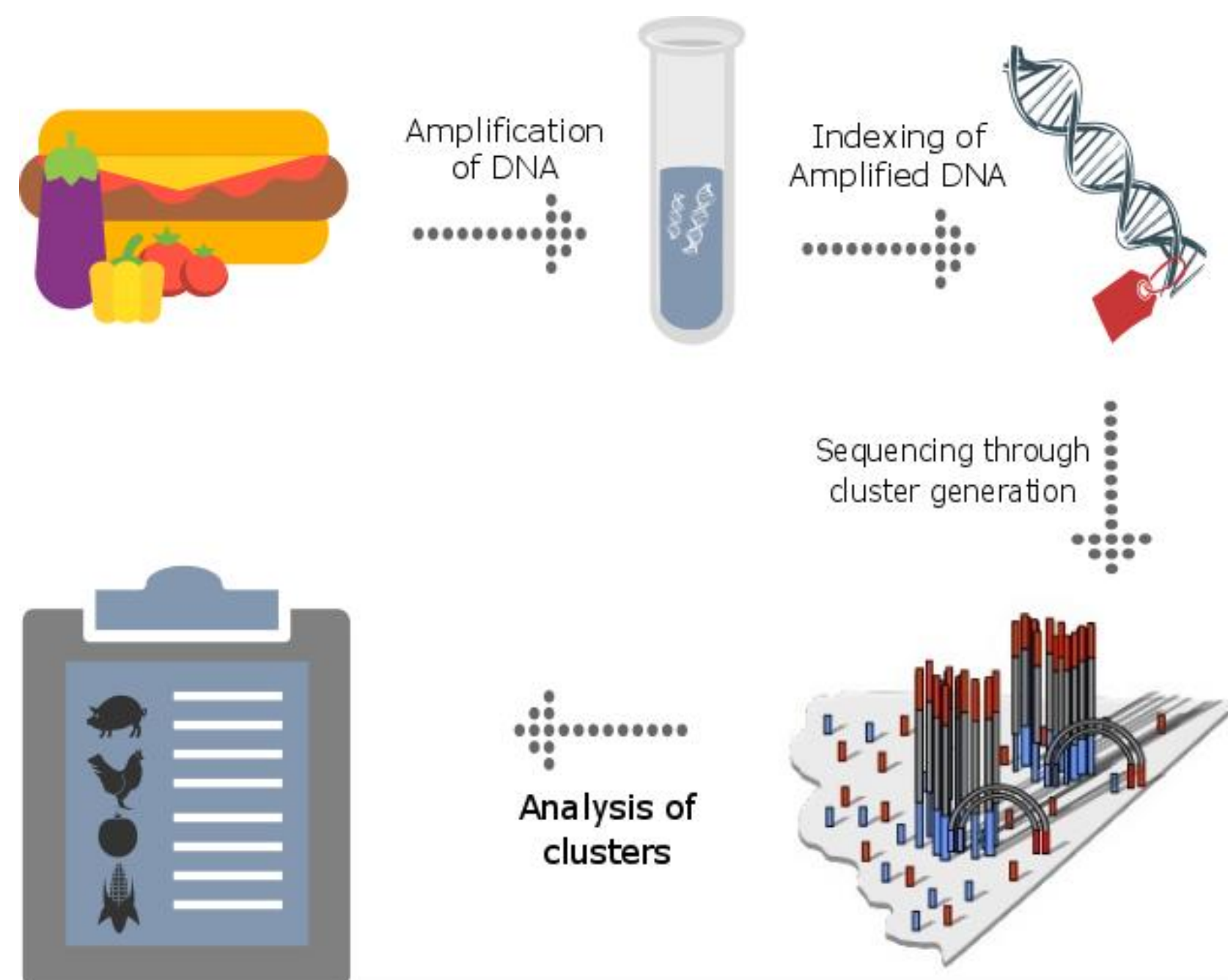


## Introduction

- DNA Barcoding using Next Generation Sequencing (NGS) for species identification in food products is a unique tool that combines accuracy, reliability, and high-throughput capability.
- The NGS platform, through sequencing-by-synthesis, can sequence DNA fragments for a given region and, combined with clustering technology, can give an accurate report of species present in food products.

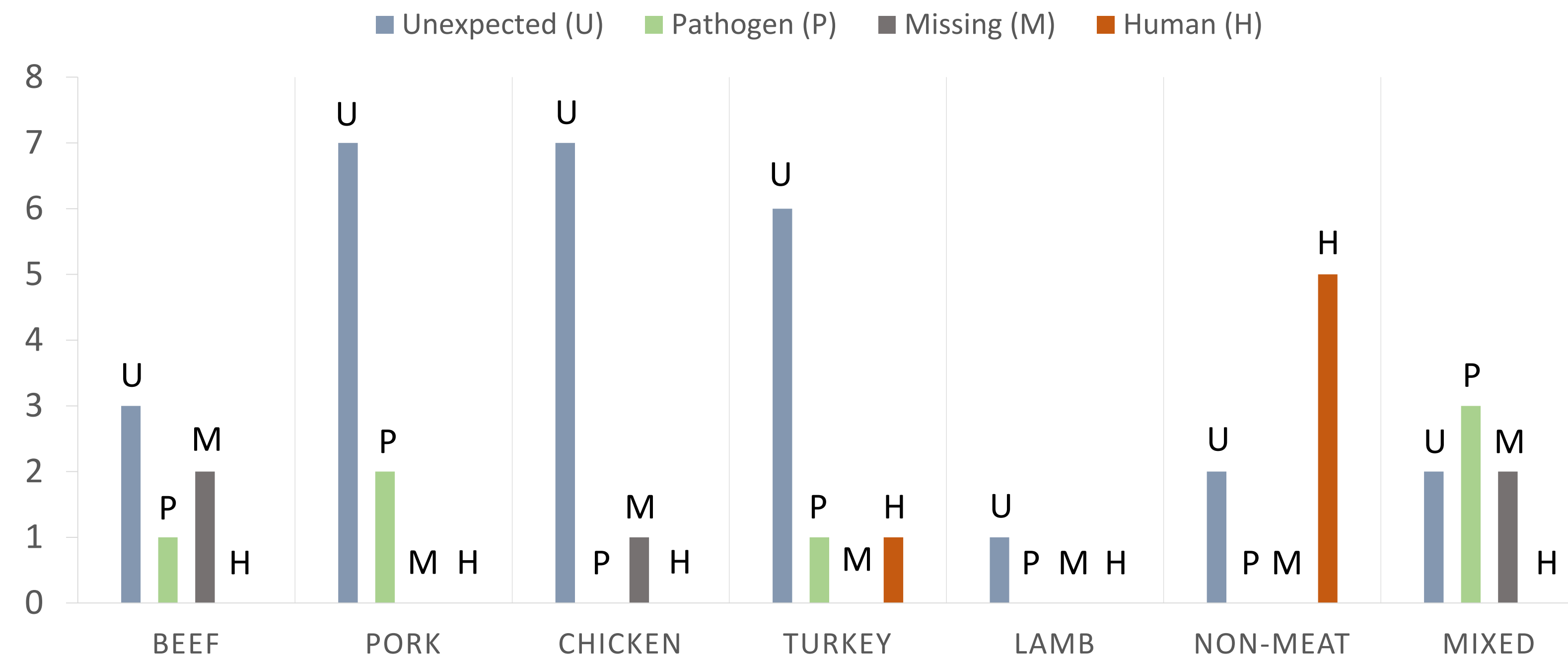
## Methods

345 hot dog products were purchased and were sampled for DNA extraction. Following extraction, universally-accepted regions for animals, plants, and bacteria were amplified, in a 96-well format, using Polymerase Chain Reaction (PCR). PCR products were sequenced on a NGS platform to identify species in products.

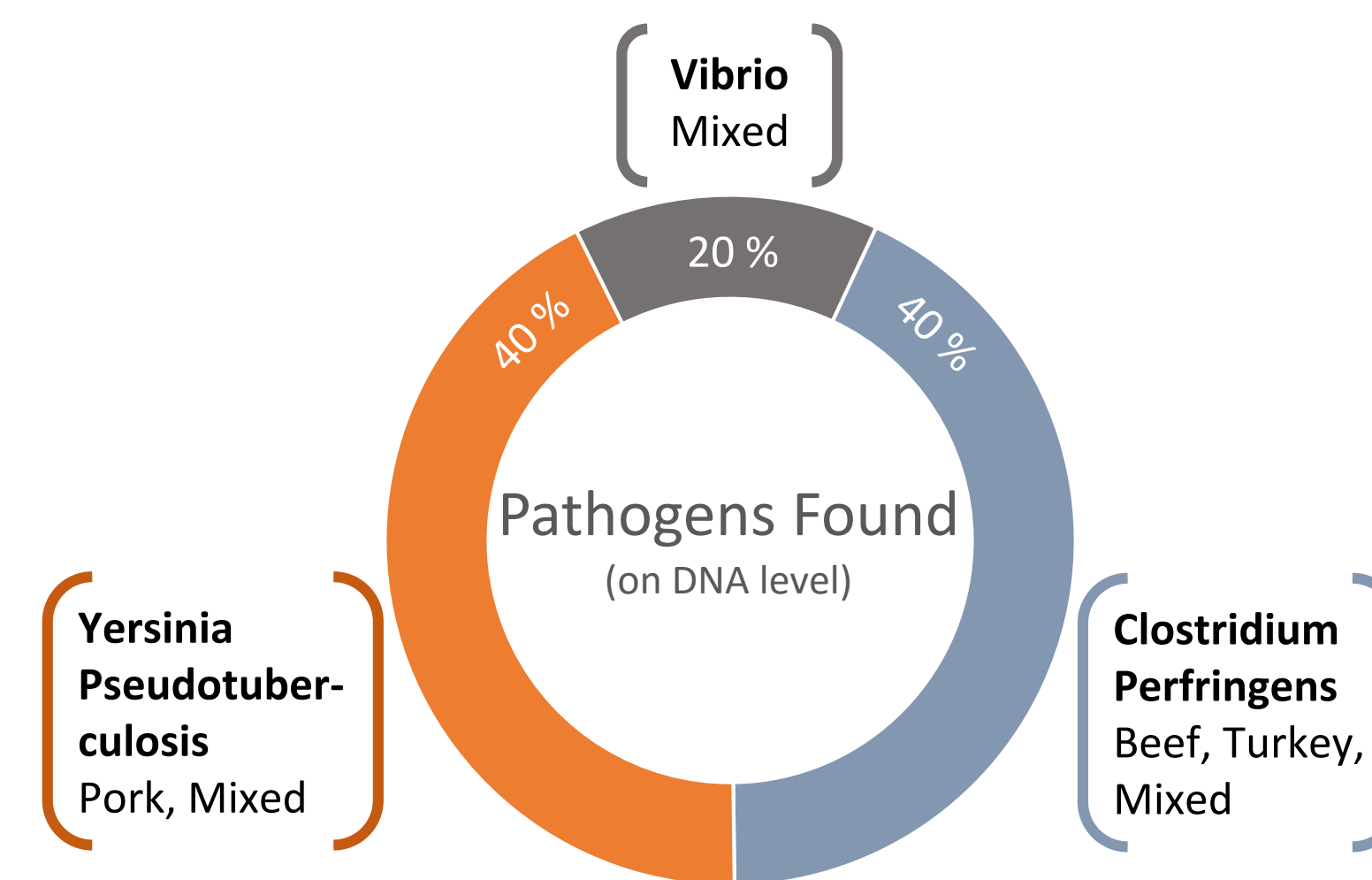
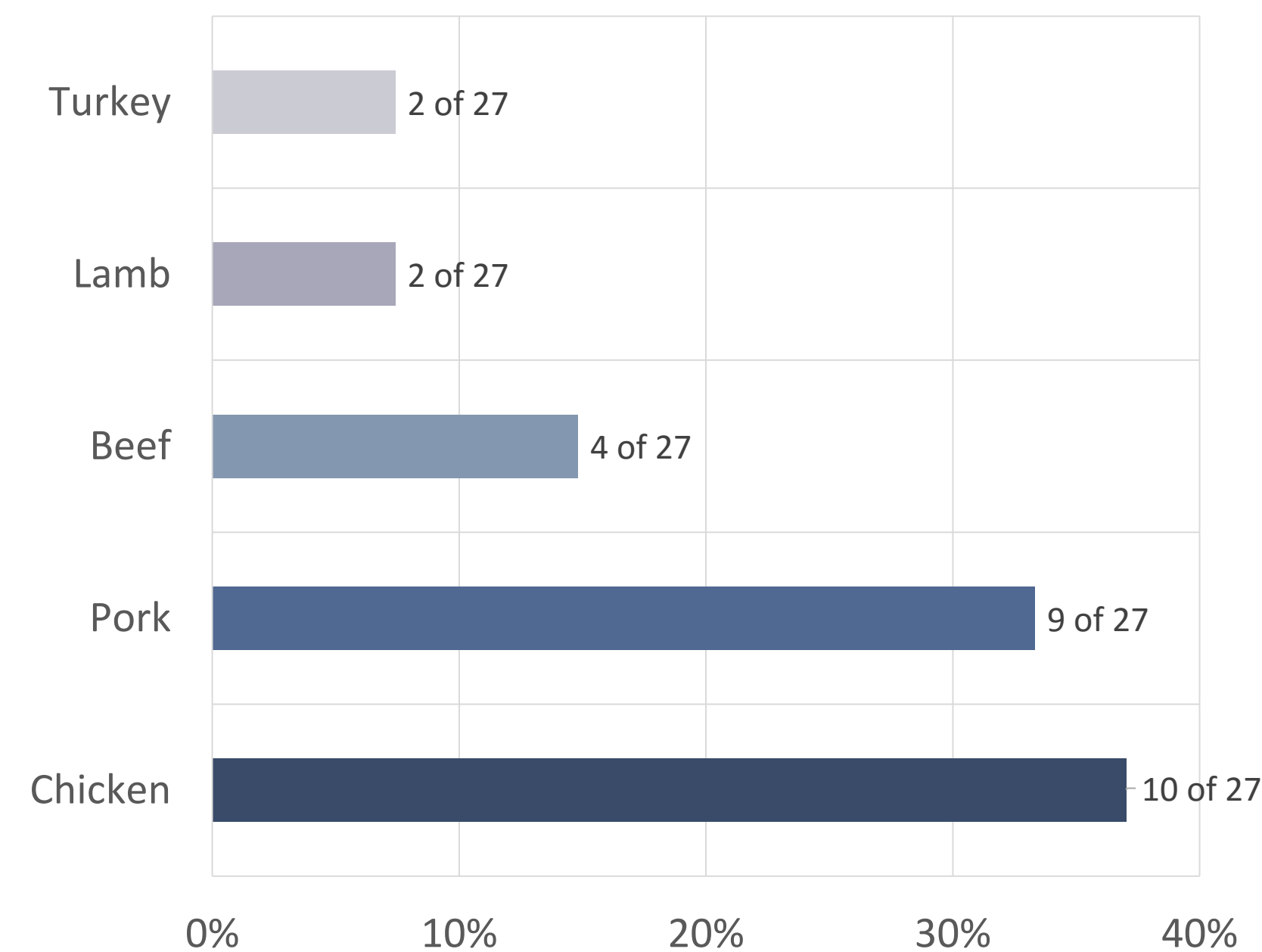


## Results

### NUMBER OF ISSUES IN EACH HOTDOG TYPE



### Distribution of Unexpected Ingredients



## Conclusion

Due to the risk of adulteration being undetectable by human consumption, there is a need for a method that is unbiased and accurate in discovering fraud.

DNA barcoding technology, combined with the NGS platform utility, can be successfully applied to various food products (e.g. dairy, meats, plant products). Through the use of universal barcode markers, the technology becomes unbiased to what is amplified and subsequently analyzed. Hence, a variety of unexpected results can be obtained. Hygienic concerns or consistently missing ingredients can set off feedback loops within a manufacturing chain and the food industry.

Clear Lab's technology of reliably sequencing barcoded regions can allow for a more honest food industry. Being able to detect ingredient and/or label accuracy will encourage transparency in the food industry and allow consumers to make informed food choices that fit a variety of lifestyles.

## Contact

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