

THE HUMANE LEAGUE ®

INVESTIGATIVE REPORT

white striping disease in supermarket chicken

EXECUTIVE SUMMARY

Standard factory-farmed chickens are bred to grow at an extreme pace, and live in cramped, often dirty conditions.

WHITE STRIPING IS A MUSCLE DISEASE THAT IS REPORTED TO IMPACT 50 - 96% OF FAST-GROWING CHICKENS, AND IS A CONSEQUENCE OF FAST GROWTH RATES. Scientists are still studying the causes of this muscle disease in chickens, but one thing is clear: White stripes show up because the chicken's body can't keep up with the unnaturally fast muscle growth. These chickens have so much muscle that they have trouble getting blood to all of it. Their muscles become inflamed and die from lack of oxygen. Their bodies replace this muscle tissue with fibrous tissue and fat. This changes the appearance and texture and, crucially, reduces the nutritional value of the meat by increasing the fat content.

The Humane League, a global animal protection nonprofit, set out to investigate whether the chicken fillets on supermarket shelves had similar levels of white striping disease to those reported in scientific journals.

OUR FINDINGS REVEALED:

- **99% OF PACKETS EXAMINED HAD ONE BREAST FILLET OR MORE AFFECTED BY WHITE STRIPING.** In fact, some supermarkets had white striping in 100% of the packets sampled.
- **ALL SIXTEEN SUPERMARKETS HAD WHITE STRIPING DISEASE PRESENT** in their standard own-brand chicken breast fillets.
- **THE WORST OFFENDERS WERE WALMART, BJ'S, AND MEIJER,** with moderate to severe white striping present in 93%, 87%, and 85% respectively.

INTRODUCTION

Chicken meat, particularly breast meat, is often acclaimed as a healthy option for those wanting high protein with little fat. However, producers have sought greater profits by growing chickens quicker and quicker, and the composition of the meat on our shelves today has now changed.

White striping disease is a muscle myopathy that is reported to be found in 50 - 96% of chicken breasts

In the US, over nine billion¹ chickens are slaughtered for meat every year, and 99.9% of them are reared on intensive farms². These birds, referred to as broiler chickens, suffer every day as a consequence of the conditions they are forced to live in, and in particular due to their genetic make-up. With breast meat being so popular, birds have been selectively bred for bigger breast muscle, which has now increased in size by two-thirds of a traditional chicken³. Because of this selective breeding, chickens now achieve a 400% increase in growth rate and reach market weight in 60% less time than broilers 50 years ago. Their incredible growth rate means that they are slaughtered at a mere 47 days old. Just two breeds of chicken, the Cobb 500 and Ross 308, make up 90% of broilers eaten today⁴. Achieving the best feed conversion rate for premium cuts of breast meat is the economic driver for the modern broiler industry. And, while supermarkets may claim that they are providing the best product to consumers at low prices, it comes at a cost to the birds and our health.

White striping disease is a muscle myopathy that is reported to be found in 50 - 96%⁵⁻¹⁰ of chicken breasts, up from an average of just 5% in 2012¹¹. Studies have shown a correlation between the presence of white striping and increased growth rate, slaughter weight, and high breast meat yield^{5,8,12-14}. The disease is a consequence of fat cells taking the place of protein cells. The fat cells are visible as white striations running parallel to the muscle fibres, predominantly seen on the surface of breast fillets; white striping can also appear on tenders and some thigh muscles¹⁵. The breeding for fast growth and increased breast size has profoundly altered muscle architecture and metabolism¹⁶. White striping can appear in varying degrees, and is not only a visual representation of the welfare issues the chicken suffered as a consequence of fast growth but also impacts the quality of the products.

The nutritional value of the chicken meat reduces when white striping is present, with higher intramuscular fat content and an increase in the collagen to total protein ratio¹³. Studies found a

224% fat content increase, a 9% protein decrease, and a 10% collagen increase when comparing normal breast muscle with those severely affected by white striping, such as a score 3 (see *methodology on scoring system*)¹⁷. The increase in collagen levels means that the protein in the chicken is less digestible and there is a deficiency in some essential amino acids. Fat calories are also impacted, increasing from 7% to 21%¹⁷.

White-striped meat has a softer texture and lower water-holding/binding capacity than normal meat. During cooking it influences the ability of the meat to pick up a marinade, and the meat retains less moisture¹⁸. Overall, white striping means lower quality meat.

It is apparent just how prevalent white striping disease is on the chicken fillets piled on our shelves.

Step into any of the major supermarkets and you will see the shelves stacked with factory-farmed chicken. Now, as outlined in this report, it is apparent just how prevalent white striping disease is on the chicken fillets piled on our shelves. We conducted an investigation across all the major US supermarkets—Walmart, Kroger, Costco, Albertsons, Ahold Delhaize, Publix, Target, H-E-B, Meijer, Aldi, Wakefern, Trader Joe's, HyVee, BJ's Wholesale Club, Wegmans, and Giant Eagle—to measure the level of chickens suffering from white striping disease and the results show that all the supermarkets are selling chicken with white striping.

METHODOLOGY

In order to examine how prevalent white striping disease is in the chicken fillets purchased daily in the US, we conducted a study of chicken breast fillet packets across 16 of the top supermarkets by revenue.

In total, 29 states were covered, spanning the country from California and Washington to Maine and Florida. Shoppers who conducted the study chose the location of supermarkets based on their most local stores. This gave a varied spread around the country. At each supermarket location, we assessed the store's own-brand of chicken. As many own-brand fresh breast fillet packets as available were inspected and photographed, typically up to 25. Some supermarkets didn't have enough own-brand chicken on the shelves to examine 25 samples. Through this method we examined between 76 - 154 own-brand packets for each retailer.

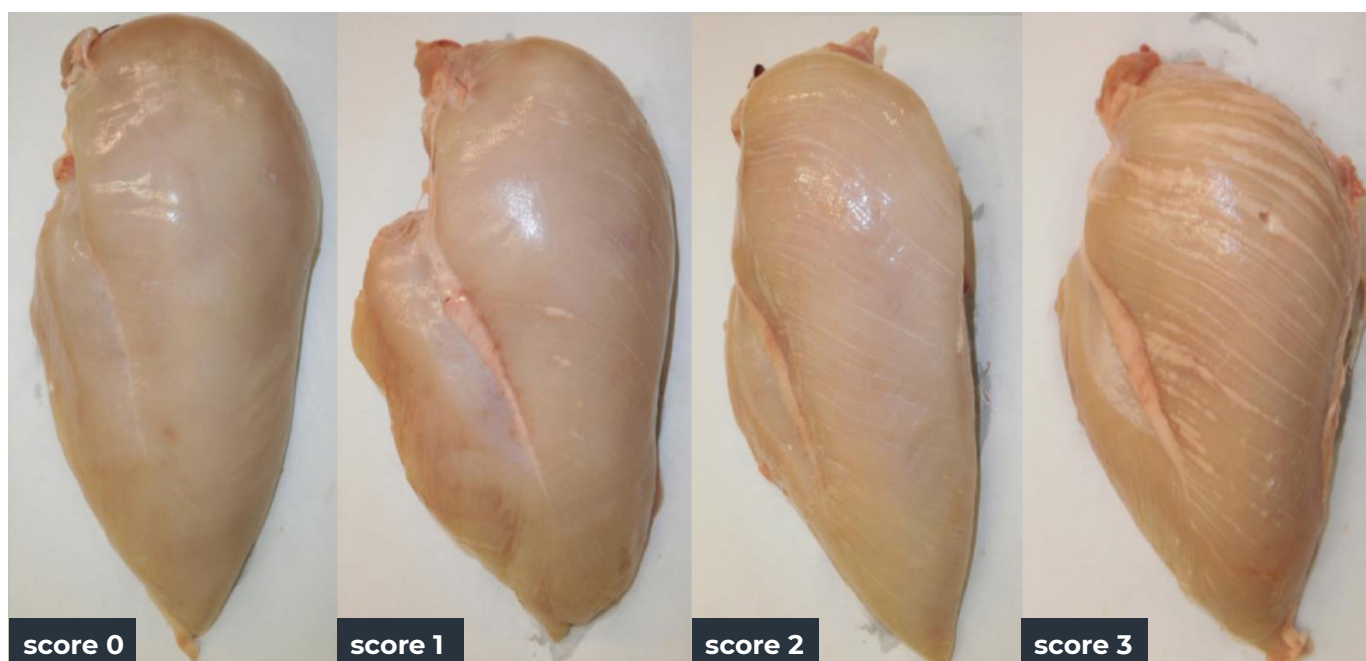


Figure 1 Breast fillets displaying different degrees of white striping. Score 0 indicates no white striping and score 3 indicates severe white striping¹⁹.

Data collection ran from May 2021 through July 2021. Photographs were used to score all samples. Each packet was examined by 2 independent scorers to see if any of the chicken breast fillets had white striping present and the score was noted for that packet based on the highest level of white striping present. Where the 2 scorers disagreed, they reviewed the samples together to reach a consensus. Some packets may have had two chicken breasts while others had

4 or even 6 - 10. We examined packets rather than individual breast fillets as this is what consumers are buying; they aren't able to split the breast fillets out of the packet before purchase. The photos in **Figure 1** were used as a guide for scoring. We followed the premise that score 0 = no white stripes visible on the breast muscle; score 1 = white striping present but the stripes are very fine and may not cover the breast muscle; score 2 = white striping obviously present and slightly thicker covering the breast; score 3 = easily detectable white stripes with many thicker bands. Where packets had too much condensation to examine properly they were noted as unknown.

RESULTS

Below is the results table for each supermarket comparing the percentage of own-brand packets with different white striping scores. Percentages are rounded to whole numbers.

WHITE STRIPING SCORE

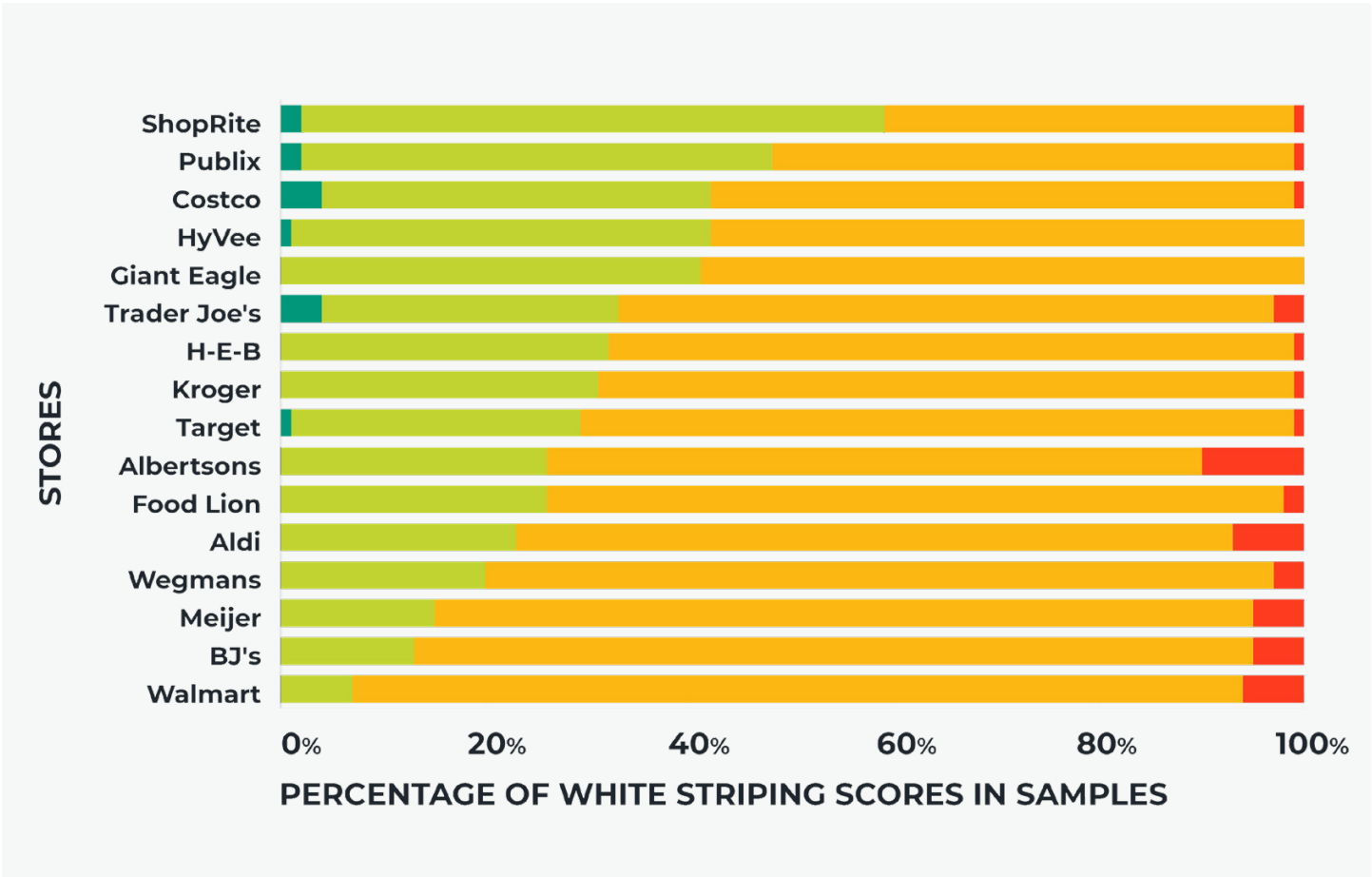


CHART 1 *The prevalence of white striping disease in packets of breast fillets from own-brand chicken. See Appendix for individual supermarket scores.*

EXAMPLES OF WHITE STRIPING

SCORE 0

These chicken breasts are free from any white striping and appear pink and fleshy. Of the more than 1,600 samples, only 15 received a score of 0.



SCORE 1

These chicken fillets have clear fine lines running across the breast muscle. ShopRite, Publix, and HyVee had the highest percentage of packets with score 1. This ShopRite sample demonstrates that animal welfare labels that don't require higher welfare breeds, like "American Humane Certified", do not prevent myopathies like white striping.



SCORE 2

Here it is clear that there are many easily visible white striping lines running along the breast. Walmart had the highest proportion of chicken breasts scoring 2.



SCORE 3

On this fillet there are many thick white stripes on the breast. Albertson's had the most packets with a score of 3.



DISCUSSION

All the supermarkets had white striping present in own-brand packets of chicken fillets, with all but 2 having some with white striping score 3 present. In our sample, Walmart, BJ's, and Meijer had the highest levels of white striping present. Albertsons, Aldi, and Walmart had the worst percentage of score 3 white striping. Only 6 of the 16 supermarket chains had any samples at all with no white striping present. Despite 96% of its packets having white striping, Trader Joe's had the lowest prevalence of white striping of any supermarket.

Due to the size of the breast muscle in the packets it's likely that fast-growing chicken breeds were used in all the standard chicken brands on the shelves. On average, 99% of standard packets had at least one breast fillet affected by white striping. These results corroborate recent studies showing that 50 - 96%

of breast fillets are affected by white striping and that there is a correlation between growth rates and the presence of white striping.

The Better Chicken Commitment (BCC) is a criteria for improving the lives of chickens raised for meat. They include changing to a higher welfare breed, providing more space (maximum stocking density 6lbs./sq foot), enrichment, controlled atmospheric stunning, and third-party auditing. These criteria were agreed by every major farm animal protection organisation in the US including the The Humane League, Animal Equality, The Humane Society of the United States, Mercy For Animals, World Animal Protection, the ASPCA, and Compassion in World Farming. Since being launched in 2016, over 200 companies in the US and Canada have signed up to the BCC.

Price is often cited by supermarket chains as one of the main reasons for the bargain brands, but when consumers were asked about animal welfare and the cost of meat, 83% supported switching to breeds with higher welfare outcomes, and 78% supported banning cruel practices even if per-pound cost of chicken meat increases²⁰. A recent report by World

Animal Protection showed that shifting from a factory farm to a higher welfare indoor farm with slow-growth chickens increases production costs by only 4.87 cents per pound of chicken in the US. This same report states that more than half of US consumers are willing to pay more—with studies indicating up to 14% or \$0.54/lb more—for slow-growth chicken²¹. This is much more than necessary to offset the cost of using slower-growing breeds. In 2012, 50% of shoppers said they would not buy chicken with white striping²², but now they are being left with no other option. Supermarkets often claim that they want to give consumers choice but as we found there was infrequently any choice of anything but factory-farmed chicken.

THE RESULTS HIGHLIGHT SEVERAL KEY ELEMENTS:

- All sixteen supermarkets had white striping disease present in their own-brand chicken fillet breasts.
- On average, 99% of own-brand packets showed one or more breast fillets with white striping.
- The highest score, level 3, was present in 14 of the 16 supermarket chains' own-brand chicken and accounted for 3% of all packets examined.
- The worst offenders in our sample were Walmart, BJ's, Meijer, and Wegmans with white striping present in 100% of packets and scores of 2 or more in 93%, 87%, 85%, and 80% of packets respectively.



And it's not just the chickens whose quality of life will improve with higher welfare breeds²³ and more space. Chicken farmers are reported to prefer rearing BCC chickens over conventional breeds. There is lower mortality and they like seeing the birds more active.

UK broiler producer Charles Bourns was quoted in Poultry News saying *"Standard birds eat, eat, eat, grow, grow, grow, but these birds rush around and by [...] 18 days they are on bails and perches, building their frame and building strength."* Another broiler producer Simon Barton has said *"I like growing these birds,"* with a senior manager at the same company agreeing that *"for the farmers that have grown this chicken, they wouldn't want to go back"*²⁴. These improved conditions should become the norm for chickens in this decade. Not only will the birds have better welfare but producers will have more work satisfaction and consumers will have a healthier, better quality product.

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Finally, there is the greater issue of the nation's health at stake. For years, millions upon millions of chickens have been given antibiotics. Every time any animal is given an antibiotic there is a risk of producing some resistant bacteria. The risk increases further if the animal is not actually sick at the time. Producers don't pick out the sick birds unless it is to cull them. Instead, they treat the whole flock, with tens of thousands of birds in a single shed under medication, all increasing the risk of antibiotic resistance. ***In the Netherlands, producers switched entirely to higher welfare breeds a couple of years ago, and they are now finding they use two-thirds less antibiotics***²⁵.

CONCLUSION

99% of the packets of chicken on the shelves were found to be affected in our investigation.

The results are in stark contrast to the ‘healthy chicken’ that supermarkets and the chicken industry promote. The dramatic increase in the prevalence of white striping over the last decade clearly indicates that the selective breeding of chickens has gone too far and created a chicken that could rightly be called, given their changed morphology, a ‘Frankenchicken’.

White striping disease is now so prevalent that 99% of the packets of chicken on the shelves were found to be affected in our investigation. These findings should be a wake-up call to the chicken industry that has consistently denied that fast growth impacts the quality of the meat. Not only are birds suffering due to fast growth but now it is evident on every supermarket shelf that the quality of meat has suffered too. Whole Foods and Thrive Market have already signed up to the Better Chicken Commitment along with 200 other major food companies including Popeyes, Denny’s, HelloFresh, Papa John’s, Kraft Heinz, Campbell’s, Unilever, Subway, Burger King, TGI Fridays, Starbucks, and Compass Group. If supermarkets are serious about providing truly nutritious food for customers they need to commit today to improve the welfare of their chickens by signing up to the Better Chicken Commitment and improving the quality of the food they provide.

APPENDIX

Albertsons (or other Albertsons owned stores: Jewel Osco, Vons, Safeway)

OWN-BRANDS

Aldi, Kirkwood

LOCATIONS

Palos Heights, IL (Jewel Osco); Pleasanton, CA (Safeway); West Linn, OR (Safeway); Los Angeles, CA (Albertsons); Del Mar, CA (Vons)



	SCORING OF WHITE STRIPING				TOTAL SAMPLES
	0	1	2	3	
NUMBER OF SAMPLES	0	24	58	9	91
PERCENT OF SAMPLES	0%	26%	64%	10%	100%

Aldi

OWN-BRANDS

Open Nature, Signature Farms

LOCATIONS

Rutland, VT; Chicago, IL; Brooklyn, NY; Newington, NH; La Verne, CA



	SCORING OF WHITE STRIPING				TOTAL SAMPLES
	0	1	2	3	
NUMBER OF SAMPLES	0	24	73	7	104
PERCENT OF SAMPLES	0%	23%	70%	7%	100%

BJ's

OWN-BRANDS

Wellsley Farms



LOCATIONS

Oaks, PA ; Raleigh, NC;
Albany, NY; Seekonk, MA

	SCORING OF WHITE STRIPING				TOTAL SAMPLES
	0	1	2	3	
NUMBER OF SAMPLES	0	16	100	6	122
PERCENT OF SAMPLES	0%	13%	82%	5%	100%

Costco

OWN-BRANDS

Kirkland, Kirkland Organic



LOCATIONS

Durham, NC; Indianapolis, IN;
Pacoima, CA; Burbank, CA;
Northridge, CA; Brandon, FL

	SCORING OF WHITE STRIPING				TOTAL SAMPLES
	0	1	2	3	
NUMBER OF SAMPLES	6	59	88	1	154
PERCENT OF SAMPLES	4%	38%	57%	1%	100%



Food Lion (or other Ahold Delhaize brands: Giant, Hannaford, Stop&Shop)

OWN-BRANDS

Food Lion, Giant, Nature's Promise, Nature's Promise Organic

LOCATIONS

Carrboro, NC (Food Lion); Charlotte, NC (Food Lion); Brunswick, ME (Hannaford); Wilmington, NC (Food Lion); Millsboro, DE (Giant); Roslyn, PA (Giant); Huntersville, NC (Food Lion)



	SCORING OF WHITE STRIPING				TOTAL SAMPLES
	0	1	2	3	
NUMBER OF SAMPLES	0	25	68	2	95
PERCENT OF SAMPLES	0%	26%	72%	2%	100%

Giant Eagle

OWN-BRANDS

Giant Eagle, Nature's Basket

LOCATIONS

Columbus, OH; Greensburg, PA; Pittsburgh, PA; Frederick, MD



	SCORING OF WHITE STRIPING				TOTAL SAMPLES
	0	1	2	3	
NUMBER OF SAMPLES	0	37	53	0	90
PERCENT OF SAMPLES	0%	41%	59%	0%	100%

H-E-B

OWN-BRANDS

Open Nature, Signature Farms

LOCATIONS

Austin, TX; Bee Cave, TX; San Antonio, TX; Waco, TX; Houston, TX Albany, NY; Seekonk, MA



	SCORING OF WHITE STRIPING				TOTAL SAMPLES
	0	1	2	3	
NUMBER OF SAMPLES	0	27	56	1	84
PERCENT OF SAMPLES	0%	32%	67%	1%	100%

HyVee

OWN-BRANDS

HyVee, HyVee True

LOCATIONS

Robbinsdale, MN; Liberty, MO; Springfield, MO; Fitchburg, WI; Omaha, NE



	SCORING OF WHITE STRIPING				TOTAL SAMPLES
	0	1	2	3	
NUMBER OF SAMPLES	1	46	66	0	113
PERCENT OF SAMPLES	1%	41%	58%	0%	100%

Kroger (or other Kroger owned stores: City Market, Harris Teeter, King Soopers, Ralphs, Fred Meyer)

OWN-BRANDS

Simple Truth, Simple Truth Organic

LOCATIONS

Portland, OR (Fred Meyer); Bloomington, IN (Kroger); Pasadena, CA (Ralphs); Los Angeles, CA (Ralphs); La Jolla, CA (Ralphs)



	SCORING OF WHITE STRIPING				TOTAL SAMPLES
	0	1	2	3	
NUMBER OF SAMPLES	0	26	58	1	85
PERCENT OF SAMPLES	0%	31%	68%	1%	100%

Meijer

OWN-BRANDS

Meijer

LOCATIONS

Marquette, MI; Oak Creek, WI;
Greenwood, IN; Louisville, KY



	SCORING OF WHITE STRIPING				TOTAL SAMPLES
	0	1	2	3	
NUMBER OF SAMPLES	0	13	68	4	85
PERCENT OF SAMPLES	0%	15%	80%	5%	100%

Publix

OWN-BRANDS

Publix, Greenwise, Greenwise Organic

LOCATIONS

Winston-Salem, NC; Charlotte, NC;
Cornelius, NC; Lilburn, GA; Brandon, FL



	SCORING OF WHITE STRIPING				TOTAL SAMPLES
	0	1	2	3	
NUMBER OF SAMPLES	2	44	48	1	95
PERCENT OF SAMPLES	2%	46%	51%	1%	100%

ShopRite (and other Wakefern brands: Price Rite)

OWN-BRANDS

Wholesome Pantry, Wholesome Pantry Organic

LOCATIONS

Brooklyn, NY (ShopRite); Bel Air, MD (ShopRite);
Hatfield, PA (ShopRite); Providence, RI (Price Rite); Jersey City, NJ (ShopRite)



	SCORING OF WHITE STRIPING				TOTAL SAMPLES
	0	1	2	3	
NUMBER OF SAMPLES	2	46	32	1	81
PERCENT OF SAMPLES	2%	57%	40%	1%	100%

Target

OWN-BRANDS

Good & Gather

LOCATIONS

Marquette, MI; Spring Valley, CA; Somersworth, NH; Tulsa, OK; Abington, PA; Huntersville, NC



	SCORING OF WHITE STRIPING				TOTAL SAMPLES
	0	1	2	3	
NUMBER OF SAMPLES	1	22	54	1	78
PERCENT OF SAMPLES	1%	28%	69%	1%	100%

Trader Joe's

OWN-BRANDS

Trader Joe's, Trader Joe's Butcher Shop, Trader Joe's Organic

LOCATIONS

Chicago, IL; New York, NY; Seattle, WA; North Hollywood, CA; Beaverton, OR



	SCORING OF WHITE STRIPING				TOTAL SAMPLES
	0	1	2	3	
NUMBER OF SAMPLES	3	22	49	2	76
PERCENT OF SAMPLES	4%	29%	64%	3%	100%



Walmart

OWN-BRANDS

Freshness Guaranteed

LOCATIONS

La Habra, CA; Somersworth, NH; Marquette, MI;
Roseville, MN; Lakewood, CO



	SCORING OF WHITE STRIPING				TOTAL SAMPLES
	0	1	2	3	
NUMBER OF SAMPLES	0	8	95	6	109
PERCENT OF SAMPLES	0%	7%	87%	6%	100%

Wegmans

OWN-BRANDS

Wegmans

LOCATIONS

Chapel Hill, NC; Brooklyn, NY; Alexandria, VA;
Parsippany, NJ; Collegeville, PA



	SCORING OF WHITE STRIPING				TOTAL SAMPLES
	0	1	2	3	
NUMBER OF SAMPLES	0	21	79	3	103
PERCENT OF SAMPLES	0%	20%	77%	3%	100%

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