



Antibiotics in agriculture: the retail customer perspective

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At Coles we are constantly asking our customers, through the 'Tell Coles' survey, what is most important to them about their food and what their needs and concerns are. In 2018, Coles conducted a poll asking customers specifically about how they feel when they see references to antibiotics in relation to their food.

The results from that survey showed that when considering antibiotic use in agriculture, customers' primary concern was that they were ingesting antibiotics in their food. They do not have a broad understanding of antibiotic use in agriculture or the microbiological drivers of antimicrobial resistance, or the production safeguards that industry has in place (e.g. withholding periods) to prevent antibiotic residues in food. This lack of customer knowledge, combined with the rise in 'antibiotic free' claims on products and 'super-bug' stories in the media, causes confusion and alarm about agricultural food products. This in turn has the potential to drive the belief that all animals could and should be raised without the use of antibiotics. Clear communication from trusted sources is needed to combat this confusion and misunderstanding.

Coles customer insights on antibiotics in agriculture

Coles conducted research in July 2018, asking customers specifically about their concerns, reactions and interpretations regarding antibiotics in agriculture. The researchers asked the questions shown in Table 1 in an online survey to over 1270 respondents covering a broad range of customer demographics. Each question required a verbatim response, which provided a broad, qualitative dataset. The animals, products and country of origin associated with the questions were open to customer interpretation. When building this piece of research Coles used the term 'antibiotics' rather than 'antimicrobials' as, like our customers, the market research team was not aware of the distinction between the two terms. A sample of the themes found in the verbatim responses collected are also shown in Table 1; the attribution refers to the category of customer the respondent belonged to, as defined by the market research team.

Lack of awareness and confusion

From the research, it is evident that most respondents are not aware that antibiotics can be used in livestock production. Customers are unsure exactly what the issues are and what they should be concerned about, as they are not familiar with the science. It is clear that

packaging messages and claims add to confusion. There is a blending in customers' minds of all the ethical and human health claims in relation to meat. Many customers associate 'antibiotic free' with organic, locally sourced and free range. There is also confusion around the differences between medications such as steroids, hormones and antibiotics, where respondents sometimes used these terms interchangeably. The comments were very similar across customer segments, showing that this confusion is a general reflection of the population; however, 'budget shoppers' are the most unaware group, with 85% holding at least one of the described misconceptions.

Among people with some knowledge of the topic, the understanding of antimicrobial resistance and usage practices in production were shown to be very diverse. A disconnect with the realities of agricultural production is also evident from the customer responses, showing a need for education on production processes, the safeguards that are in place and the Australian Federal Government's strong history of antimicrobial stewardship. A key example of this is the poor customer understanding of withholding periods and their purpose. Several respondents indicated that customers believe antibiotics are largely retained in the meat and that subsequent consumption of residues causes antimicrobial resistance.

As very few customers have an understanding of withholding periods, the term 'antibiotic free' is confusing, and it can also be confusing to the agricultural industry. Internationally, there are many products currently claiming to be 'antibiotic free' on the label and this typically refers to the animal having been raised its whole life without the use of any antibiotics. However, when customers become aware of this claim, they are more likely to interpret this as meaning that all other products have antibiotic residues. Similarly, the claim 'antibiotic free' does not fully clarify for people familiar with animal production regulations that the production method requires no antibiotics to be used in the whole life of the animal.

The role of the media is important to consider, as stories relating to 'superbugs' are likely to cause further confusion in customers. The links between the use of antibiotics in agriculture and microbial resistance are not understood by the general population. When stories appear in media focussing on international cases of antibiotic overuse or resistant bacteria, it influences customer perceptions of the issues here in Australia. This is consistent with responses that specifically called out overuse issues in Australian agriculture.

Reactions to antibiotics messages

When customers were asked about 'antibiotic free' products, we found that there is a strong trust in Australian grown. However, this is also consistent with an assumption that Australian-grown products are already 'antibiotic free'.

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Table 1. Online customer survey of antibiotics in agricultural food products

Q1. When it comes to antibiotics, what are your concerns?	"That the antibiotics stay in the meat and then my family and I eat them and it effects our health" – Butcher Enthusiast
	"Meat and seafood that have been pumped with antibiotics to boost their size" – Butcher Enthusiast
	"Consumption could contribute to antibiotic resistance" – Uninvolved Shopper
Q2. What do you think 'Antibiotic Free' means?	"I know that if you consume such meat and or seafood, the antibiotics enter your body. I know that I avoid such produce with great care" – Premium Shopper
	"Not much. Farmed seafood might have it. I don't think any Australian meat has it, making it a vacuous claim on meat, if I'm right" – Premium Shopper
	"As far as I know, it's about meat and fish that are farmed for human consumption without the use of antibiotic products in their diet" – Premium Shopper
	"It's more natural and helps prevent build-up of antibiotic resistant bacteria. As Antibiotics are cumulative in our food chain. Woe be the day (fast approaching) when we have no more effective antibiotics, medical science cannot keep pace and are running out of variations not forcing them to seek alternatives previously unheard of" – Budget Shopper
Q3. What products do you think are most likely to be associated with antibiotic use?	"Beef probably because a lot of expensive beef has been fed steroids. Also farmed salmon lives in treated water" – Butcher Enthusiast
	"It used to be common for chickens to receive antibiotics whether they needed them or not. In crowded conditions, stock animals may also have been given them, but this is not general practise in Australia anymore" – Butcher Enthusiast
	"Rather not think about it, and never have but now... Thanks! Probably all but I believe it is regulated" – Butcher Enthusiast
	"Beef, chicken and farmed seafood" – Premium Shopper
Q4. What are the benefits of antibiotic-free meat or seafood according to you?	"Would have to be better for your health and wellbeing" – Butcher Enthusiast
	"Human beings are not ingesting antibiotics" – Premium Shopper
	"I am not getting the antibiotics into my system when I eat them" – Butcher Enthusiast
Q5. What meat and seafood products do you believe can be antibiotic-free?	"Lessens the antibiotic resistance trend in humans" – Butcher Enthusiast
	"I think most Australian meat and seafood products are antibiotic-free because of Australian laws that regulate the use of antibiotics in animals" – Budget Shoppers
	"I think they all should be" – Premium Shopper
	"All of it" – Premium Shopper
	"All of it, However, a producer should be allowed to cure sick animals as long as the treatment is short term and does not lead to a build-up of antibiotics in the animals" – Budget Shopper
Q6. When it comes to meat or seafood sold in store as antibiotic-free, what are your potential concerns?	"Free range products" – Budget Shopper
	"Very concerned due to animal welfare and risks associated with human consumption" – Premium Shopper
	"I didn't have any concerns prior to this because I've never heard of it" – Budget Shopper
	"That all the others therefore have antibiotics!!!!" – Uninvolved Shopper
	"I would have assumed it all was" – Butcher Enthusiast

The research found that, once they are aware of the topic, 50% of customers surveyed want no antibiotics to be used in the production of their food. Low awareness means customers do not seek information or have concerns about their food until the topic is presented to them. When this occurs, it generates new thoughts of distrust and uncertainty surrounding the topic. Some customers indicated that once they become aware of 'antibiotic free' claims, this then called into question all other products that make no mention of antibiotics. Customers were sceptical about claims of 'antibiotic free' where they believed these could be unverified marketing claims rather than auditable production methods.

Beef, chicken and pork were the products most associated with antibiotics, in that order. More than half of the total responses indicated chicken meat was of concern. Other foods that were frequently mentioned include prawns, freshwater seafood and farmed seafood. As beef and chicken are two of the more well-known intensive production industries, we can interpret this focus on beef and chicken as an

association of antibiotic use with intensive industries. Several customers mentioned intensive or factory farming as a key driver of illness and subsequent antibiotic use.

Conclusion

Overall, customers do not understand antibiotic use in agriculture and are distrustful or confused by 'antibiotic free' claims. The customers' misunderstanding of antibiotic use in agriculture especially applies to the regulation of withholding periods and existence of (or lack thereof) residues in meat. Once customers become aware of antibiotic use in agriculture, they want no antibiotics used in production; however, the limitations of these systems are not considered. Australian customers trust Australian-grown products, but the effect of 'superbug' stories in the media may begin to call Australian agriculture into question.

The potential effects on Australian agriculture's social license with regard to antibiotic use requires consumer communication and information delivered by trusted sources. It is critical that the industry communicate to the general population the story of rigorous medicine management and our long history of stewardship in this space to ensure that customers are not confused or misled about the use of antibiotics in agriculture. It is important that we recognise the existing confusion in customers' minds on this topic and how best to

communicate the message to an audience that is not familiar with the science.

Conflicts of interest and sources of funding

This survey was paid for and conducted by Coles Supermarkets.

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