FAIRR
FARM ANIMAL INVESTMENT RISK & RETURN
A COLLER INITIATIVE

RESPONDING TO RESISTANCE

Investor exposure to antibiotic risk, and FAIRR's engagement with the restaurant sector

CONTENTS

NOVEMBER 2017

FAIRR | FARM ANIMAL INVESTMENT RISK & RETURN

A COLLER INITIATIVE

The FAIRR (Farm Animal Investment Risk & Return) investor network is a Coller Initiative. It is a collaborative forum for investors that aims to raise awareness of the material impacts factory farming and poor animal welfare can have on investment portfolios, and works to help investors share knowledge and form collaborative engagements on these issues.

"This report demonstrates how investors are stepping up to manage antibiotics risks."

Jeremy Coller
Founder
FAIRR Initiative

FOREWORD

Antibiotic resistance is one of the world's most rapidly emerging public health threats, already responsible for around 700,000 deaths per year.[1] Without effective antibiotics even common infections and minor injuries become risky, perhaps even fatal. Recently, we have seen the global community begin to rally together to encourage better antibiotic stewardship within the international medical community. The need for an accelerated response has echoed from global leaders across all sectors.

The efficacy of our finite pool of antibiotics is also being recognised as a significant material threat to economies and market value. It is estimated that antibiotic resistance could cost the world $100 trillion in lost output between now and 2050. The EU estimates the issue is costing more than $1.5 billion in healthcare expenses and productivity losses in the EU alone.[2]

Investors therefore have a motivation to join this global response to understand the value at risk to their investment portfolios. The market cannot afford to see key sectors of the economy, from big pharma to big farms, infected by antibiotics risk.

From an investor perspective, the livestock sector stands out as a key point in need of intervention. The majority of all antibiotics produced today are given not to humans, but to farmed animals. In the EU, 70% of antibiotics go to the animal farming industry,[3] and in the US the figure is 75%. Stopping the needless misuse of antibiotics has already led to stricter regulation for livestock producers in both the EU and US, with further regulation and trade restrictions likely to come. This puts the business models of a wide range of companies across the entire food supply chain at risk.

The investment community is responding

This report demonstrates how investors are stepping up to manage these risks and the progress on this issue from the corporate and policy communities.

Investors are using their influence and talking directly with companies, industry and policymakers with respect to the food sector's exposure to the 'non-therapeutic' use of antibiotics in agriculture. Through the use of practical guides such as the Best Practice Policy on page 14 of this report, investors are encouraging an important shift in the market.

FAIRR's collaborative engagement on this issue is now backed by 73 institutional investors with collective AUM of over $2.3 trillion. Active dialogue has seen some companies commit to embark on a structured process to phase out the non-therapeutic use of antibiotics in their supply chains. We applaud those commitments, but far more is needed.

I encourage investors to join FAIRR's members to further progress on this important topic, and support a truly collaborative global response.

Jagdeep Singh Bachher, CIO,
University of California Office of the
Chief Investment Officer of the Regents.

OVERVIEW

In September 2016, countries came together at the UN General Assembly and declared antimicrobial resistance (AMR) a global health threat. Progress since then has been measured: 85% of UN member countries are developing or have developed national action plans on antimicrobial resistance, though only 5% of these plans look at multiple sectors and have clear funding and monitoring commitments.[4]

The food industry continues to be the largest consumer of antibiotics globally – and is a leading contributor to rising AMR. In the US, an estimated 75% of antibiotics are used on farm animals, 70% in the European Union and 45% in the UK.[5,6] Worldwide, more than 131,000 tonnes of medically important antibiotics were used in farm animals in 2013; by 2030 it is estimated that India, China and the US alone will increase antibiotics usage by 82%, 59% and 22% respectively.[7]

ANTIBIOTICS USE IN FOOD ANIMALS

The administration of antibiotics to livestock generally falls into two categories:

- Therapeutic use: for the treatment of disease
- Non-therapeutic use [prophylactic use]: to promote growth or to prevent disease and infection in healthy animals. Such routine use of antibiotics allows livestock to be reared in densely packed and often-unhygienic conditions, contributing to dangerously high levels of AMR.

> *A systematic review published in The Lancet Planetary Health found that interventions that restrict antibiotic use in food-producing animals reduced antibiotic-resistant bacteria in these animals by up to 39%.*[11]

Investment Risk and AMR

Antibiotic resistance is a clear material risk for food companies, and consequently for portfolios with an overweight exposure to this industry. The issue of AMR is already on the regulatory agenda. In November 2017, the World Health Organization (WHO) developed guidelines that recommended that farmers and the food industry stop using antibiotics routinely to promote growth and prevent disease in healthy animals. In addition to developing national action plans on antibiotics, federal and local governments are increasingly likely to adopt regulations aimed at curbing antibiotics use in livestock production. This will significantly impact the operational expenditure of businesses that rely on antibiotics as a means to achieve efficiency and keep disease at bay.

A 2017 ordinance by San Francisco,[8] for example, will require grocery stores in the city to report on antibiotics in their meat. While local, the ordinance is expected to impact companies across the breadth of their meat and poultry supply chains. Meanwhile, consumer behaviour is shifting in favour of "antibiotic-free" meat, and corporate practices are being increasingly scrutinised by the civil sector, which could impact corporate reputation and sales. Investors recognise that companies that are actively seeking to reduce the use of antibiotics and improve animal welfare are better positioned to create long-term value.

> *As a global provider of pension funds and life insurance, Aegon has an interest to protect the long-term health of its clients. If left unchecked, antibiotics resistance can significantly disrupt the world we live in today. It's a frightening scenario which can affect the lives of our clients, regardless of age, location or economic status and there are of course possible knock-on effects for industries ranging from pharma – to food – to insurance. Global institutional investors need to take a proactive approach to understanding this emerging global risk.*
>
> **Natalie Beinisch, Engagement Manager, Aegon**

Additionally, AMR presents a systemic risk for other sectors, including healthcare and insurance companies. Multi-drug resistant infections that require more expensive antibiotics will increase diagnostic and treatment costs for healthcare providers. Vulnerable patients, including newborns and the elderly, could face increased risk of mortality from drug-resistant bacteria. Insurance companies may face higher claims as once treatable infections become harder to treat. It is estimated that a business as usual scenario could lead to the loss of 10 million lives a year and risk $100 trillion of economic output by 2050 due to the rise of AMR.[9]

Unfortunately, the development of new antibiotics has failed to keep pace with this growing threat. In 2017, an analysis of the antibacterial clinical development pipeline by the WHO found a "serious lack of new antibiotics under development to combat the growing threat of antimicrobial resistance.[10]" The WHO has identified 12 classes of priority pathogens, including those that cause common infections such as pneumonia or urinary tract infections, which are increasingly resistant to existing antibiotics and urgently in need of new treatments. Hence, the stewardship of existing antibiotics is necessary to protect human health, mitigate financial risk and enhance long-term value.

WHO'S GUIDELINES ON USE OF MEDICALLY IMPORTANT ANTIMICROBIALS IN FOOD-PRODUCING ANIMALS

- We recommend an overall reduction in use of all classes of medically important antimicrobials in food-producing animals.
- We recommend complete restriction of use of all classes of medically important antimicrobials in food-producing animals for growth promotion.
- We recommend complete restriction of use of all classes of medically important antimicrobials in food-producing animals for prevention of infectious diseases that have not yet been clinically diagnosed.
- We suggest that antimicrobials classified as critically important for human medicine should not be used for control of the dissemination of a clinically diagnosed infectious disease identified within a group of food-producing animals.
- We suggest that antimicrobials classified as highest priority critically important for human medicine should not be used for treatment of food-producing animals with a clinically diagnosed infectious disease.

Source: http://who.int/foodsafety/areas_work/antimicrobial-resistance/cia_guidelines/en/

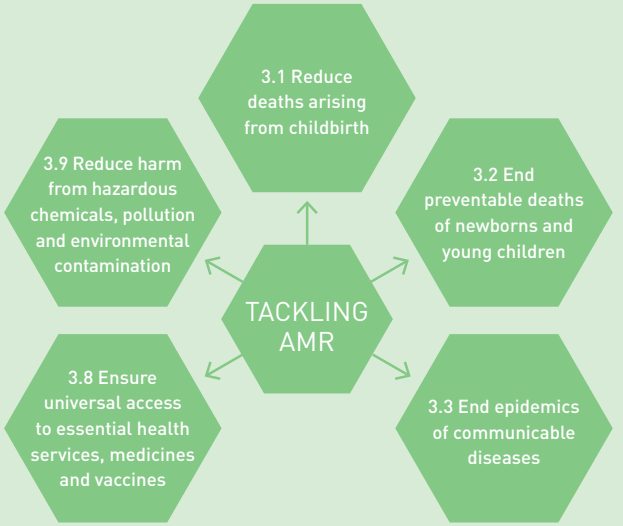
> *Alternative options to using antibiotics for disease prevention in animals include improving hygiene, better use of vaccination, and changes in animal housing and husbandry practices.*
>
> **The World Health Organization**

Growing investor support

Investors increasingly acknowledge that the non-therapeutic use of antibiotics in agriculture has the potential to impact investment risks and returns across asset classes. In the US, the number of shareholder resolutions filed on this issue has risen between 2010 and 2015, there were four resolutions on antibiotics overuse in livestock supply chains; since 2015, this has increased to 13 shareholder resolutions. Proxy voting

Achieving SDG 3: Ensure healthy lives and promote well-being for all at all ages

Tackling AMR is crucial to achieving Goal 3 of the UN's Sustainable Development Goals (SDGs). As shown in the image to the right protecting the efficacy of antibiotics is crucial to achieving at least five of the core targets associated with this SDG.



services have also started to recommend that investors support such resolutions given growing health and financial risks, which is likely to broaden institutional support.

The FAIRR Initiative was set up in 2015 to provide investors with a platform to engage collaboratively with the food sector on ESG risks such as antibiotics use in livestock supply chains. In early 2016, coordinated by the Initiative, 54 investors with combined assets of $1 trillion asked 10 global restaurant brands to limit antibiotics use. This collaborative engagement has now grown to 73 institutional investors with over $2.3 trillion in assets and an expanded list of companies. An overview of company progress in response to the investor coalition is available on pages 8 and 9.

In October 2017, global investors signed a statement urging all food companies to limit antibiotics use to therapeutic purposes only. The statement included a best practice policy, available on page 14, to provide guidance to companies in the development of their individual policies. As of publication, 62 investors, representing $2.3 trillion in combined assets, signed the statement.

> *"Combatting the rise of antibiotic resistant bacteria is a global challenge and investors need to play their part. It's important that shareholders work with the food companies they own to ensure companies both understand the risks posed to our health and our wealth, and take action to reduce antibiotics usage. Major restaurant chains know that it is essential for their business to secure sustainable supply chains – and that includes moving away from farmers who routinely give antibiotics to healthy animals. Personally, I have owned organic farms and ranches and raise cattle naturally for beef. In 30 years of raising animals, I have never used antibiotics except when an animal is sick."*
>
> **John Streur, President & CEO, Calvert Research and Management**

ANTIBIOTICS ENGAGEMENT IN ACTION

In 2017, the investor coalition, coordinated by the FAIRR Initiative, extended their engagement to ask 20 global companies in the fast-food and casual dining restaurant sectors to limit antibiotics use in their supply chains. Companies were initially contacted by post and email, with follow up calls for direct engagement with coalition representatives.

Engagement objectives:

Companies were asked to:

- Establish a comprehensive antibiotics policy to phase out routine, prophylactic use of antibiotics across all livestock, seafood and poultry supply chains.
- Specify clear targets and timelines for implementation.
- Increase transparency by reporting on implementation, including mechanisms to measure and audit the use of antibiotics in supply chains.

Criteria for assessing company policies:

The FAIRR Initiative used six criteria to evaluate company policies on antibiotic use. We welcome the broader use of these criteria by investors and analysts who are evaluating company policies as part of their own engagement strategies.

- Does the company have an antibiotics policy publicly available on its website?
- What is the scope of the policy?
  - Does it cover animal-derived proteins sourced across all its operations and across all relevant species?
  - Does it cover all antibiotics or is it limited to a certain class of antibiotics only (for example, critically important antibiotics)?
- How strong is the commitment? For example:
  - Does it only prohibit growth promotion by complying with FDA guidance?*
  - Does it prohibit all routine uses of antibiotics, i.e., growth promotion and prophylactic use?
- Does the policy commit to specific targets and timelines for all species?
- Does the company commit to third-party auditing and monitoring?
- Does the company report on progress?

* FDA Guidance 213 requires medically important antimicrobials that are used in the feed or drinking water of food-producing animals be under veterinary oversight and to eliminate the use of these products in animals for production (e.g., growth promotion) purposes. Company policies complying with FDA guidance can still use antibiotics routinely in healthy animals for prophylaxis, i.e., to prevent disease.

ENGAGEMENT OUTCOME AND HIGHLIGHTS

- **19 out of 20 companies now have a policy or are expected to release one shortly.**
  - 16 of 20 (80%) companies now have a publicly available policy on antibiotics. This is a remarkable shift from the start of the engagement in early 2016, when only one company had a regional policy on antibiotics use.
  - Of the four companies without publicly available policies, only one company (UK-based Greene King) has a comprehensive 'pharmaceutical use in agriculture' policy for supplier use only; two others (US-based DineEquity and Texas Roadhouse) have committed to releasing a policy in 2017.
  - Only one company – Bloomin' Brands, owner of brands such as Outback Steakhouse and Carrabba's Italian Grill – has no publicly available policy and has not indicated any plans to develop one. The company did not respond to repeated information requests from investors.
- **Policies remain limited in their scope – only four companies have adopted policies that cover antibiotics use across ALL relevant animal species and sources.**
  - US-based companies with publicly available policies (such as McDonald's, Yum! Brands, Wendy's) cover antibiotics use in poultry in the US only. The Cheesecake Factory is the only US-based company in the engagement to commit to no antibiotics in pork, eggs and beef.
  - Policies adopted by all seven UK-based brands in the engagement cover antibiotics use across multiple species.
- **There is little discussion of antibiotics use in farmed fish.**
  - Approximately 90% of the world acquaculture production now originates in Asia, and half of this is in intensive factory farms.[12] By most estimates, antibiotics use is rampant in current production systems. In 2016, the US FDA had a record year for refusals to import Asian shrimp due to contamination with banned antibiotics.[13]
- **Policies differ in strength of commitments, and there is no clear standard for best practice.**
  - US-based companies with leading policies on antibiotics use (such as McDonald's, Yum! Brands, and Restaurant Brands International) have adopted commitments to eliminate medically important antibiotics from their poultry supply chains in the US. (Medically important antibiotics are defined by the WHO list of Critically Important Antimicrobials for Human Medicine).[14]
  - McDonald's is the only US-based company with a policy on broiler chickens for all markets. They have committed to eliminating the use of 'highest priority critically important antibiotics' from their broiler chickens by 2027.
  - UK-based companies have policies that commit to phasing out or not permitting the use of antibiotics for disease prevention (use of antibiotics for growth promotion is banned in the EU and the UK). Some have gone further to reduce or phase out the use of critically important antibiotics.
  - Four US-based companies (Darden, Sonic, Brinker International, Denny's) have adopted policies that are limited to phasing out growth promotion use only, in accordance to FDA guidance 213. This means that antibiotics can still be routinely given to healthy animals to prevent disease. These policies lag behind those of other peers, and do not meet the WHO's recommendations to stop using antibiotics routinely to prevent disease in healthy animals.
  - There is little discussion on the use of ionophores. Ionophores are antimicrobials, and are used widely in animal farming for growth promotion and disease prevention. They are not approved for use in humans.

- **The majority of companies have no targets or timelines for implementation.**
  - No UK-based company has committed to specific targets and timelines for implementation on any aspect of its policy.
  - US-based companies with leading policies on poultry (such as McDonald's, Yum! Brands, Restaurant Brands International) have committed to targets and timelines.
- **There is little transparency or reporting on implementation, limiting the ability of investors to make informed decisions on implementation and management.**
  - There are no standardised metrics for companies to report on their use of antibiotics.
  - It is unclear how the majority of companies with policies are tracking, monitoring and auditing their use of antibiotics.

Nearly 50% of companies in the engagement spoke or met directly with the investor coalition to discuss their policy and programme, indicating growing company engagement on antibiotics. These include:

DineEquity
Darden
Marston's
Mitchell & Butlers
McDonald's
JD Wetherspoon
Restaurant Brands International
The Restaurant Group
Whitbread

Case Study

THE LINK BETWEEN ANTIBIOTICS USE AND WELFARE

Comment from Rachel Dreskin, Head of US Food Business, Compassion in World Farming

Global patterns of meat consumption have shifted animal protein production to industrial-scale systems, where animals are typically kept in densely populated, disease-prone facilities. Over 70% of farmed animals around the world now live in such intensive farm systems.

Animals raised in these confined spaces often require regular low doses of antibiotics to remain disease-free. Such 'non-therapeutic' application of antibiotics helps prevent illness in healthy animals, and in many cases, promotes growth. This use of antibiotics in livestock production is instrumental to the intensification of farming practices that compromises the welfare of animals.

We now have a food system that has been designed around antibiotic use. And this overuse is a leading contributor to the development of antibiotic-resistant bacteria in animals and humans.

To effectively eliminate or reduce the use of antibiotics and other antimicrobials such as ionophores, we must examine the systems themselves and shift toward production methods where animals can thrive without the crutch of regular antibiotics use.

Moving to higher welfare standards is not only good for animals and for the fight against antibiotic resistance, it's also good for business. Compassion in World Farming's extensive work with global food companies such as Unilever, McDonald's and Walmart clearly demonstrates the business case for higher welfare systems.

Continuing to invest in and support systems that compromise animal welfare, worker health and safety, and preservation of our resources, including critical drugs, is a shortsighted view of business sustainability. To truly address these risks, business must look to systems that produce positive outcomes for people, animals and the environment. In addition, they must be robust, so they are designed to resist internal and external sources of failure – including an over-dependence on external inputs such as antibiotics and antimicrobials.

INVESTOR RESOURCE

CORPORATE COMMITMENTS ON ANTIBIOTICS

	No antibiotics	No routine use (growth promotion and prophylaxis)	No medically important antibiotics	No critically important or highest priority critically important antibiotics	No growth promotion for medically important antibiotics (FDA guidance)	No policy	Direct engagement with investors	Species cover
The Restaurant Group		●					●	●
Greene King		●					●	●
Whitbread plc		●					●	●
Domino's Pizza Group		●					●	●
The Cheesecake Factory	●						●	●
Marston's		●					●	●
JD Wetherspoon		●					●	●
Mitchells & Butlers		●					●	●
Wendy's Company			●				●	●
Yum! Brands			●				●	●
Restaurant Brands International			●				●	●
McDonald's				●			●	●
Papa John's International	●						●	●
Darden					●		●	●
Sonic Corporation					●		●	●
DineEquity					●		●	●
Denny's					●		●	●
Brinker International					●		●	●
Texas Roadhouse						●	●	●
Bloomin' Brands						●	●	●

Direct engagement with investors
● = Yes
● = No
● = No response

Species cover
● = All species
● = Multiple species
● = Poultry only
● = Unknown

INVESTOR RESOURCE

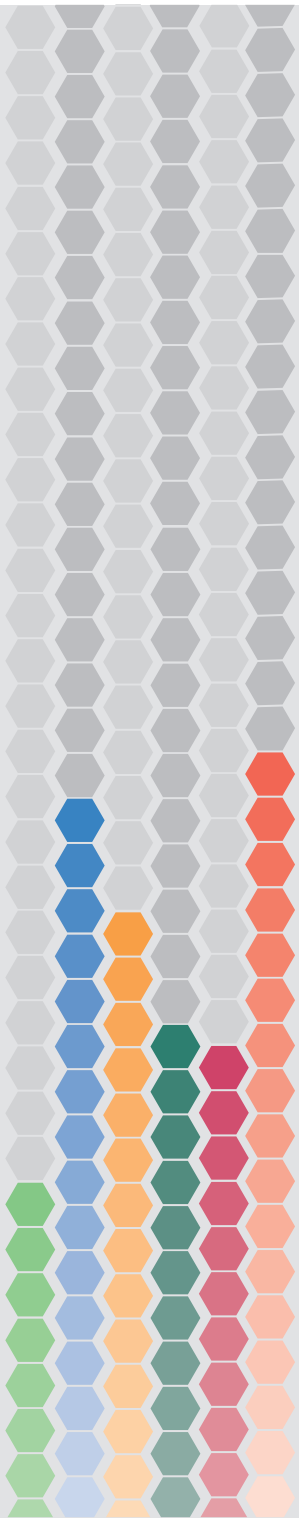
BEST PRACTICE POLICY ON ANTIBIOTICS STEWARDSHIP

This best practice policy on antibiotics stewardship has been developed in consultation with leading industry and issue experts. We encourage food companies, including both meat producers and purchasers (such as retailers and restaurants), to refer to this as guidance in the development of their individual policies.

EXPERT ENDORSEMENTS

This policy is endorsed by:

- Interfaith Center on Corporate Responsibility
- Alliance to Save our Antibiotics
- Center for a Livable Future at Johns Hopkins Bloomberg School of Public Health
- Antibiotic Resistance Action Center at the George Washington University
- Natural Resources Defense Council
- Compassion in World Farming



PRODUCER VERSION

Antibiotics are a critical public health intervention; their prudent use is necessary to preserve their continued efficacy against life-threatening diseases. [Company X] understands that increasing use of antibiotics in humans and animals drives the development of antibiotics resistance. As a producer of products derived from animal agriculture and/or aquaculture, we are committed to being responsible stewards of antibiotics use.

Principles of antibiotics use

[Company X] is committed to meeting the following principles on antibiotics stewardship across our global supply chains:

- Antibiotics should only be used to treat the diagnosed presence of disease in animals, and in limited circumstances to control disease outbreaks. Antibiotics should not be used to promote animal growth or for routine disease prevention.
- Antibiotic use should be supervised by a veterinarian familiar with the premises and the animals.
- Livestock producers should report their use of antibiotics so that oversight agencies and the public can track progress in meeting use-reduction goals and identify resistance risks and trends.
- Livestock producers should rely on better husbandry practices to improve animal health and welfare, and to minimize the need for routine antibiotics use on farms.

We will apply these principles to our global operations and across all relevant species in our supply chains.[1]

Our commitments

- We will work to eliminate the use of all antibiotics, including animal-only antibiotics, for purposes of growth promotion, feed efficiency and routine prevention (both prophylactic and metaphylactic use).[2]
- We will administer antibiotics to treat animals, including fish, that have a bacterial infection with clinical signs, and only when prescribed by a veterinarian.
- We will prioritise the reduction of all antibiotics classified as "medically important antimicrobials."[3]

1 Refers to all animal-derived ingredients where antibiotics use is prevalent

2 The elimination of routine prophylactic use in groups of animals will not prevent prophylactic use in an individual animal, following an operation, an injury or a difficult birth. Nor does it prevent prophylactic use in a group of animals in exceptional circumstances, for example, to stop a national or regional disease outbreak.

3 As defined by the World Health Organization. Critically Important antibiotics for human use 5th revision. Geneva, 2017. Accessed at http://www.who.int/foodsafety/publications/antimicrobials-fifth/en/

- We will underpin our time-bound antibiotic reduction plan with good animal welfare practices and management (e.g., biosecurity, vaccination, hygiene, and animal welfare practices that include avoiding overcrowding and excessive group size, reducing stress, enabling natural behaviours, maintaining good air quality and avoiding mixing).[4,5]
- We will incorporate antibiotics stewardship into [Company X]'s waste and water management plans for all relevant production facilities to reduce the potential spread of antibiotic-resistant bacteria through the disposal of animal waste.
- We will commit to supporting research to identify the points of exposure of livestock, poultry, meat and seafood production and processing workers to antimicrobial-resistant pathogens, and develop and implement best management practices to protect workers from this growing threat.
- We will engage farmers, suppliers and other stakeholders to reduce the use of antibiotics across the industry and establish standard reporting requirements on antibiotics use.
- We will document and report publicly on [Company X]'s overall use of antibiotics annually, including total weight in kilograms, types of antibiotics administered and reason for administration (by species).
- We will audit [Company X's] compliance against this policy using independent third-party verification and/or certification schemes.

We will set out global targets and timelines to meet these commitments for all relevant species in our supply chains.[6] We will also put in place a transparent mechanism to regularly disclose progress on adoption and implementation.

Suggested targets and timelines

Poultry 	100% of our poultry products will comply with this policy by December 2020.
Fish 	100% of our farmed fish will comply with this policy by December 2020.
Cattle, pigs and lamb 	100% of our products from cattle, pigs and lamb farming will comply with this policy by December 2025.

4 See "Four Golden Rules" of disease control developed by the Responsible Use of Medicines in Agriculture. Accessed at http://www.ruma.org.uk/antibioticss/guidelines

5 See "How to develop an antibiotics stewardship programme: a guide for corporates" by Compassion in World Farming. Accessed at https://www.compassioninfoodbusiness.com/media/7431208/how-to-develop-an-antibiotic-stewardship-programme.pdf

6 Refers to all animal-derived ingredients where antibiotics use is prevalent

PURCHASER VERSION

Antibiotics are a critical public health intervention; their prudent use is necessary to preserve their continued efficacy against life-threatening diseases. [Company X] understands that the higher use of antibiotics in humans and animals drives antibiotics resistance. As a purchaser of products derived from animal agriculture and/or aquaculture, we are committed to being responsible stewards of antibiotics use.

Principles of antibiotics use

[Company X] is committed to meeting the following principles on antibiotics stewardship within our global operations:

- Antibiotics should only be used to treat the diagnosed presence of disease in animals, and in limited circumstances to control disease outbreaks. Antibiotics should not be used to promote animal growth or for routine disease prevention.
- Antibiotic use should be supervised by a veterinarian familiar with the premises and the animals.
- Livestock producers should report their use of antibiotics so that oversight agencies and the public can track progress in meeting use reduction goals and identify resistance risks and trends.
- Livestock producers should rely on better husbandry practices to improve animal health and welfare, and to minimize the need for routine antibiotics use on farms.

We will apply these principles to our global operations and across all relevant species in our supply chains.[7]

Our commitments

- We will not source animal-derived products that use any antibiotics for purposes of growth promotion, feed efficiency and routine prevention (both prophylactic and metaphylactic use).[8]
- We will require suppliers to administer antibiotics to treat animals, including fish, that have a bacterial infection with clinical signs, and only when prescribed by a veterinarian.
- We will require suppliers to prioritise the reduction of all antibiotics classified as "medically important antimicrobials."[9]

7 Refers to all animal-derived ingredients where antibiotics use is prevalent

8 The elimination of routine prophylactic use in groups of animals will not prevent prophylactic use in an individual animal, following an operation, an injury or a difficult birth. Nor does it prevent prophylactic use in a group of animals in exceptional circumstances, for example, to stop a national or regional disease outbreak.

9 As defined by the World Health Organization. Critically Important antibiotics for human use 5th revision. Geneva, 2017. Accessed at http://www.who.int/foodsafety/publications/antimicrobials-fifth/en/

- We will require suppliers to underpin our antibiotic reduction plan with good animal welfare practices and management (e.g., biosecurity, vaccination, hygiene, and animal welfare practices that include avoiding overcrowding and excessive group size, reducing stress, enabling natural behaviours, maintaining good air quality and avoiding mixing).[10,11]
- We will ensure that our products do not have any prejudicial levels of antibiotics residues by requiring suppliers to comply with strict withdrawal periods and through routine monitoring and sampling.
- We will engage farmers, suppliers and other stakeholders to reduce the use of antibiotics across the industry.
- We will document and report publicly on [Company X]'s overall use of antibiotics annually, including total weight in kilograms, types of antibiotics administered and reason for administration (by species).
- We will require suppliers to implement a time-bound action plan, audited by third-party verification schemes, on compliance against this policy. We will support suppliers who meet the commitments included in this policy, and exclude suppliers who are unwilling to comply with them.

We will set out global targets and timelines to meet these commitments for all relevant species in our supply chains.[12] We will also put in place a transparent mechanism to regularly disclose progress on adoption and implementation.

Suggested targets and timelines

Poultry	100% of our poultry products will comply with this policy by December 2021.
Fish	100% of our farmed fish will comply with this policy by December 2022.
Cattle, pigs and lamb	100% of our products from cattle, pigs and lamb farming will comply with this policy by December 2026.

10 See "Four Golden Rules" of disease control developed by the Responsible Use of Medicines in Agriculture. Accessed at http://www.ruma.org.uk/antibioticss/guidelines

11 See "How to develop an antibiotics stewardship programme: a guide for corporates" by Compassion in World Farming. Accessed at https://www.compassioninfoodbusiness.com/media/7431208/how-to-develop-an-antibiotic-stewardship-programme.pdf

12 Refers to all animal-derived ingredients where antibiotics use is prevalent

Case Study

BUILDING CONSENSUS FOR PROGRESS AROUND THE TABLE

Nadira Narine, Senior Program Director, Strategic Initiatives, ICCR

In October 2017, the investor networks FAIRR and the Interfaith Centre on Corporate Responsibility (ICCR) used the unique convening power of investors to bring together a wide range of stakeholders at a multi-stakeholder roundtable event in New York. The aim was to share perspectives and build consensus on the complex challenge of tackling antibiotic resistance in the livestock supply chain.

The roundtable saw representatives from meat producers and leading retailers sit alongside investors, NGOs and public health experts. Participants discussed a wide range of strategies to reduce needless antibiotic use. In particular, how to replicate recent progress made in sustainable sourcing of chicken in other livestock species.

Despite the many competing interests and viewpoints, a consensus was agreed, including:

- The need for new incentives to encourage producers to implement responsible antibiotic policies. It was widely acknowledged that the current financial market makes it prohibitively expensive to take such action voluntarily.
- The need for levels of acceptable antibiotics use to be clarified and agreed. It was clear that much misunderstanding exists in the market about what 'responsible antibiotic use' means in practical terms.

These points of consensus led to many roundtable participants voicing support for a universal certification or labelling system on antibiotics. This has the potential to both provide clarity about where the line on acceptable antibiotic use should be drawn, and to reward responsible producers with a higher price point in the market.

INVESTOR RESOURCE

GLOBAL REGULATION ON ANTIBIOTICS

TOP 4
Biggest Forecast Growth

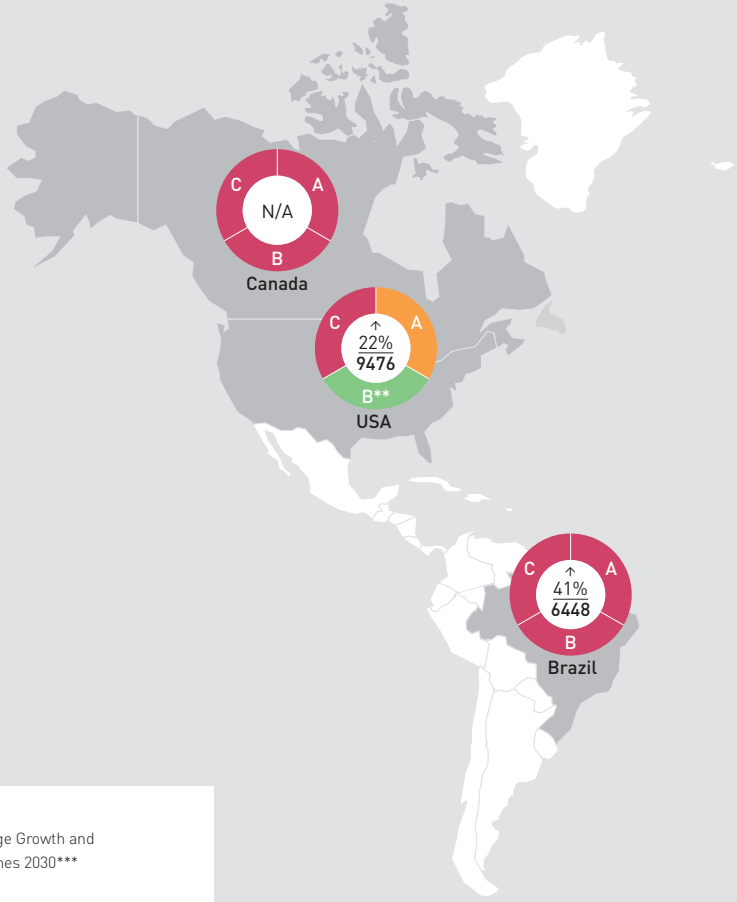
Vietnam	215%
Philippines	194%
India	82%
Turkey	70%

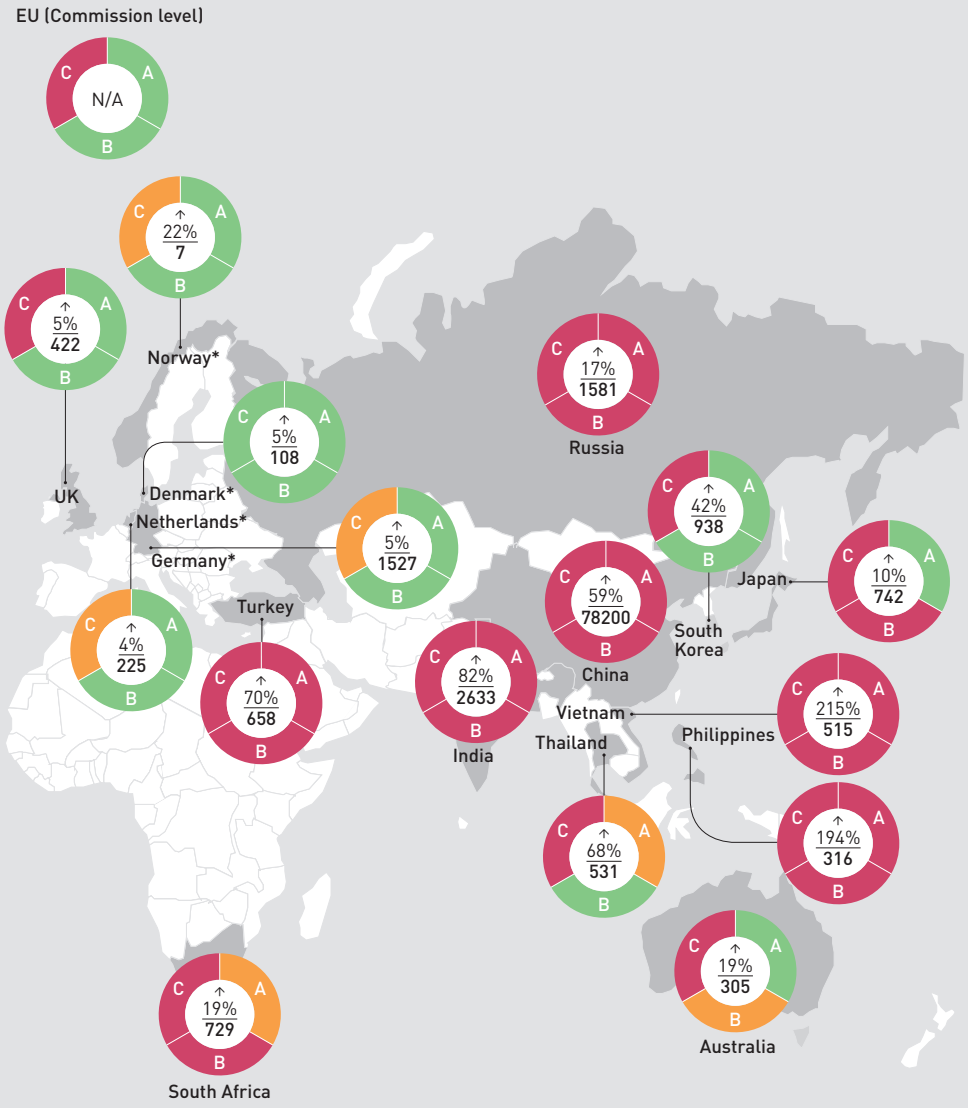
TOP 4
Biggest Forecast Use (tonnes)

China	78200
USA	9476
Brazil	6448
India	2633

TOP 4
Strongest Regulation

Denmark
Netherlands
Germany
Norway





Key

Forecast Percentage Growth and Total Use in Tonnes 2030***

C: Antibiotic routine administration/ prophylaxis

A: Unprescribed use of medically important antibiotics

B: Antibiotic growth promotion

No ban Restrictions Ban

* Regulations exceed EU Commission level regulations. ** voluntary ban. *** From Supplementary material for "Reducing Antimicrobial Use in Food Animals" (2017), T.P. Van Boeckel et al. Available online at: http://science.sciencemag.org/content/sci/suppl/2017/09/28/357.6358.1350.DC1/aao1496-VanBoeckel-SM.pdf

Europe

At a commission level, the European Union bans the use of antimicrobials for growth promotion and veterinary prescription is always required. Some individual countries go further to restrict prophylactic use and the use of critically important antibiotics in livestock. Many countries, such as Germany, also have regulations requiring farmers to report antibiotics use.

European Commission Regulations

Antibiotics are banned as feed additives (with exception of coccidiostats or histomonostats) by Regulation 1831/2003/EC (Art. 5, 4).[1] A veterinary prescription is required for dispensing to the public veterinary medicinal products for food-producing animals through Directive 2001/82/EC, Art. 67.[2]

United Kingdom

The rules governing the authorisation and use of veterinary medicines are set at the European level through an EU Directive and these apply to all Member States. All antibiotic veterinary medicines in the UK are available only on prescription by a veterinary surgeon, who in turn is only permitted to prescribe to animals under their care.[3]

REGULATIONS EXCEED EU COMMISSION LEVEL REGULATION

Denmark

Recognizing the potential for a health crisis, Denmark stopped the administration of antibiotics used for growth promotion (i.e., non-medical uses) in broiler chickens and adult swine (finishers) in 1998, and in young swine (weaners) in 1999. Today in Denmark, all uses of antibiotics in food animals must be accompanied by a prescription in a valid veterinarian-client-patient relationship, and veterinarians cannot profit from the sale of antibiotics. In addition, farmers, veterinarians and pharmacies must report the use and sale of antibiotics, and farm inspections are conducted regularly.[4]

Netherlands

Routine preventative use has ended which has largely contributed to reducing overall use, but mass medication remains nevertheless by far the most common form of treatment.

Since 2011, all antibiotics used in Dutch farming have been classified as 1st, 2nd and 3rd choice. Only 1st choice antibiotics can be used "empirically", ie. before it is know what the bacteria causing the infection are, and without carrying out sensitivity. Second-choice antibiotics can only be used if sensitivity testing (ie. testing to see whether the bacteria are resistant to particular antibiotics) shows that 1st choice antibiotics would be unlikely to work. The 3rd choice antibiotics can only be used if sensitivity testing shows that neither 1st or 2nd choice antibiotics would work. All critically important antibiotics are classified as 3rd choice, which has greatly helped in reducing their use since 2009.[5]

Norway

The use of antibiotics as growth promoters has been banned in Norway since 1995.[6] There is a national regulation that forbids veterinarians to profit from selling antimicrobials and other drugs according to "the Norwegian livestock industry's joint action plan on antimicrobial resistance".[7] As a routine, antibiotics are not used prophylactically, but unclear if this is mandatory. Currently there appear to be no blanket restrictions on use of critically important antibiotics for preventative uses.

Germany

In Germany, as in the rest of the European Union, antibiotics cannot be used for growth promotion and a veterinary prescription is always required. When the veterinarian dispenses veterinary drugs to the animal owner, "strict rules ensure the close correlation between diagnosis and treatment of the animals." It is unclear if any of these rules ban prophylaxis. The 16th amendment of the German Drug Act, which came into force in 2014, requires farmers to report on their use.[8] There appear to be some restrictions on the sale of systemic antibiotics in livestock.[9]

OTHER PROMINENT MEAT PRODUCERS

France

In France, as in the rest of the European Union, antibiotics cannot be used for growth promotion and a veterinary prescription is always required. However, most European countries, including France, still permit antibiotics to be used for routine disease prevention.

There appears to be some additional restrictions on critically important antibiotics: per Decree No. 2016-317, drugs containing one or more antibiotic substances of critical importance listed by order are prohibited in veterinary medicine for preventive use.[10] For other uses (curative or metaphylaxic), they can be prescribed laboratory results indicate that the bacterial strain identified is sensitive only to this critical antibiotic substance. Law no °2014-1170, Art. L. 5141-14-2 bans promotions/price discounts of farm antibiotics.[11]

Spain

As in the rest of the European Union, antibiotics cannot be used for growth promotion and a veterinary prescription is always required. Antibiotics can still be used for routine disease prevention. There appear to be no Spanish laws specifically regulating veterinary antibiotics (other than EU regulations).[12]

Poland

As in the rest of the European Union, antibiotics cannot be used for growth promotion and a veterinary prescription is always required. Antibiotics can still be used for routine disease prevention. There appear to be no Polish laws specifically regulating veterinary antibiotics (other than EU regulations).[13]

North America

In the US, medically important antimicrobials require a prescription for use on livestock. There is a voluntary ban on growth promoton. Canada is working on reclassifying medically important antimicrobials as prescription only but this is still in progress.

United States

The use and legislation of antimicrobials varies by state. Federal FDA Guidance #213, implemented Jan 2017, prohibits use of medically important

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8 Federal Ministry of Food and Agriculture, Germany (December 2014) 'Antibiotics in Agriculture'. Available online at: https://www.bmel.de/EN/Animals/AnimalHealth/_Texte/Antibiotics-In-Agriculture.html

9 Federal Ministry of Health, Germany (November 2008) 'DART German Antimicrobial Resistance Strategy'. Available online at: https://www.bundesgesundheitsministerium.de/fileadmin/Dateien/5_Publikationen/Gesundheit/Berichte/DART_-_German_Antimicrobial_Resistance_Strategy.pdf

10 Legifrance (November 2017) 'Décret n° 2016-317 du 16 mars 2016 relatif à la prescription et à la délivrance des médicaments utilisés en médecine vétérinaire contenant une ou plusieurs substances antibiotiques d'importance critique'. Available online at: https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000032251629&categorieLien=id

11 Legifrance (October 2014) 'LOI n° 2014-1170 du 13 octobre 2014 d'avenir pour l'agriculture, l'alimentation et la forêt'. Available online at: https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000029573022&categorieLien=id

12 Alliance to Save Our Antibiotics (October 2016) 'Farm Antibiotic Use in Spain'. Available online at: http://www.saveourantibiotics.org/media/1739/farm-antibiotic-use-in-spain.pdf

13 Alliance to Save Our Antibiotics (October 2016) 'Farm Antibiotic Use in Poland'. Available online at: http://saveourantibiotics.org/media/1733/farm-antibiotic-use-in-poland.pdf

antibiotics for growth promotion. Animal producers will also need to obtain authorization from a licensed veterinarian to use medically important antibiotics for prevention, control or treatment of a specifically identified disease.[14] This is considered a voluntary ban at this stage.

Canada

Growth promoting use of antibiotics is permitted. New regulations set to take effect in December 2018, making veterinary antibiotics prescription only.[15]

BRICS

There is limited legislation regulating antibiotic use in the BRICS countries. South Africa requires a prescription for certain antibiotics based on release date. Brazil and Russia have yet to release National Action Plans for addressing AMR.

Brazil

No legislation found.

Russia

No legislation found. Regulation only seems to pertain to residues in the final product.[16]

India

Has no mandatory regulations on antibiotics use or surveillance. Routine use of antibiotics is widespread. Within aquaculture, some antibiotics are prohibited, such as nitrofurans, glycopeptides, chloramphenicol, neomycin, fluoroquinolones and select sulfonamide drugs.[17] Government has stated objective to ban non-therapeutic use of antibiotics in feed but there is no regulatory framework for implementation currently.[18]

China

Only on use of colistin – Ministry of Agriculture banned the use of colistin as a growth promoter and feed additive for animals (announcement no. 2428), stated by the China National Center for Food Safety Risk Assessment (CFSA).[19] No other regulation was found.

South Africa

Antibiotics for use in animals are regulated by the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act 36 of 1947). Antibiotics intended for use by the lay public (chiefly farmers) are registered under Act 36 as stock remedies and are available over the counter.[20] Veterinary medicines are controlled by the Medicines and Related Substances Control Act (Act 101), which primarily controls human medicines. Antibiotics intended for use in animals and registered under Act 101 may only be administered or prescribed by a veterinarian.[21]

Asia

There is limited legislation regulating antibiotic use in farms across the selected Asian countries. South Korea and Thailand have both banned growth promotion. Given the general lack of monitoring frameworks, regulation and surveillance of usage are critical factors in these areas, making them top goals in the National Action Plans developed by Vietnam, Thailand and the Philippines to tackle antibiotics use.

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South Korea

There is a ban on growth promotion since July 2011 and a veterinary oversight systems is currently being implemented.[22]

Japan

Antimicrobial additives permitted by ordinance number 271 (20/06/03), for growth promotion and feed efficiency under Law No. 35, 1953.[23] Prescriptions are required for all veterinary antimicrobials by Article 49 of the Pharmaceutical Affairs Law.[24]

Thailand

Existing registered antibiotics are prohibited from use as growth promoters in food animals in accordance with the regulations of the Ministry of Agriculture and Cooperatives 2015.[25] Thailand FDA states that 'growth promotion' is not permitted; specific antibiotic classes such as fluoroquinolones, cephalosporins and polymyxins should be used in animals as restricted drugs and require a prescription. However, medicated feed is exempted from being a drug and is controlled under the Animal Feed Quality Control Act.[26]

Philippines

No regulation found beyond requirements that veterinary medicines must be sold by registered pharmacies or drugstores, biological laboratories, veterinary clinics and government veterinary agencies.[27]

Vietnam

No AMR regulation was found. Antibiotics are used for both treatment and as feed additives for prophylaxis and growth promotion. Chloramphenicol has been banned by National Fisheries Quality Assurance and Veterinary Directorate (NAFIQAVED),[28] but this is not a critically important antibiotic (CIA). Unsupervised use of CIAs in animal feed has been observed.[29]

Other

Australia has a ban on unprescribed use and a ban on virginamyacin use for growth promotion. There is no information on antibiotic legality in Turkey available online.

Australia

No ban on growth promotion but some antibiotics are banned for growth promotion, such as fluoroquinolones, avoparcin, virginiamycin, etc.[30] Antibiotic use must be prescribed and overseen by a veterinarian.[31]

Turkey

No legislation found.

22 Food Safety News (June 2011) 'South Korea Bans Antibiotics in Animal Feed'. Available online at: http://www.foodsafetynews.com/2011/06/south-korea-bans-antibiotics-in-animal-feed/#.WfMPA2hSw2w

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30 OECD (February 2015) 'Working Party on Agricultural Policies and Markets, GLOBAL ANTIMICROBIAL USE IN THE LIVESTOCK SECTOR'. Available online at: http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=TAD/CA/APM/WP(2014)34/FINAL&docLanguage=En

31 OECD (February 2015) 'Working Party on Agricultural Policies and Markets, GLOBAL ANTIMICROBIAL USE IN THE LIVESTOCK SECTOR'. Available online at: http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=TAD/CA/APM/WP(2014)34/FINAL&docLanguage=En

APPENDICES

APPENDIX

COMPANY COMMITMENTS IN DETAIL

The Restaurant Group
We are committed to phasing out the routine, purely preventative use of antibiotics in groups of entirely healthy animals (prophylaxis). Reducing and refining the use of the 'critically important' antibiotics – to the point where these antibiotics are only to be used where sensitivity testing, or the results of recent sensitivity testing, shows that no other antibiotics are likely to work.

Greene King
No publicly available policy, but has a Responsible Use of Pharmaceuticals in Agriculture policy that covers this issue.

Whitbread
Animals are always provided with the appropriate veterinary care when needed, but medicines including antibiotics will only be used where it is absolutely necessary to ensure good health and welfare. Substances such as growth promoter hormones will never be used. FAIRR has confirmed with the company that the policy ensures that prophylaxis is not permitted.

Domino's Pizza Group
We do not permit the use of antibiotics for any use other than treatment purposes. When used for treatment, medicines should only be administered when absolutely necessary or as prescribed by a qualified vet. A clear policy must exist at farm level for the metaphylactic use (treatment of a group) of antibiotics and should only be used in conjunction with good husbandry practices under the supervision of a qualified vet. No veterinary medicines including antibiotics should be used for prophylactic treatment (disease prevention). The use of antibiotics, hormones or growth promoting antibiotics is strictly prohibited and will be subject to ad-hoc audit by the Company.

The Cheesecake Factory
Partnering with our suppliers, we are sourcing antibiotic-free poultry, pork, eggs, and beef.

Marston's
For meat: Antibiotics are only permitted when prescribed by a vet to prevent discomfort or treat illness and no growth promoters are allowed in any medicine or animal feed.

JD Wetherspoon
Wetherspoon does not support the preventative mass medication of animals by the use of antibiotics (prophylactic) within its supply chain. We will also encourage producers to phase out the use of 'critically important antibiotics', as defined by the World Health Organisation (WHO).

Mitchells & Butlers
Mitchells & Butlers do not support the routine prophylactic use of antibiotics and we are working with our suppliers to encourage farmers to remove this practice, encouraging the adoption of enhanced levels of biosecurity and animal husbandry to reduce the risk of disease challenge.

The Wendy's Company
In collaboration with our chicken suppliers, we have begun the process of eliminating all antibiotics important to human medicine from chicken production. We aim to achieve this goal in 2017.

Yum! Brands
Taco Bell U.S. and Pizza Hut U.S. (on chicken for its pizza) have met public commitments to remove antibiotics important to human medicine from our U.S. poultry supply chain. By the end of 2018, all poultry purchased by KFC U.S. will be chicken raised without antibiotics important to human medicine.

Restaurant Brands International
We are committed to using chicken that is raised without the use of antibiotics important to human medicine and we intend to meet this commitment in U.S. and Canada by the end of 2018.

McDonald's
Starting in 2018, we will begin implementing a new broiler chicken antibiotics policy in markets around the world1, which will require the elimination of antibiotics. In 2016, we were proud to reach our commitment to serve broiler chicken not treated with antibiotics important to human medicine in all U.S. McDonald's restaurants.

Papa John's International
In December of 2015, Papa John's International Inc. announced that its grilled chicken pizza toppings and chicken poppers would consist of poultry raised without human or animal antibiotics and fed on a vegetarian diet by summer 2016. The company has achieved this commitment.

Darden
Darden supports the FDA guidelines which recommend that by the end of 2016, antibiotics that are medically important in human medicine be phased out from use with farm animals for growth purposes, and shared-class antibiotics (i.e., those used for both humans and animals) only be used for the treatment of disease in farm animals under the supervision of a veterinarian. All of our land-based protein supply will meet these guidelines by December 2016.

Sonic Corporation
Effective January 2017, poultry suppliers should only administer antimicrobial drugs to animals for the prevention, control and treatment of disease. Use of antibiotics that are medically important to humans, for the sole purpose of growth promotion is strictly prohibited.

DineEquity
No publicly available policy yet but is planning to institute a process to ensure suppliers comply with recent FDA Guidance for industry proclamations.

Denny's
Denny's supports the responsible application of antibiotics for the sole purpose of maintaining animal health managed through veterinary oversight in accordance with GFI 213.

Brinker International
We fully support the action that FDA is taking to eliminate the use of medically important antibiotics for growth promotion and feed conversion. We will continue to work with our suppliers to ensure that antibiotics are used judiciously and only when necessary so that their effectiveness is maintained.

Texas Roadhouse
No policy.

Bloomin' Brands
No policy and no response to investor query.

APPENDIX

INVESTOR RESOURCE

TEMPLATE OF LETTER TO COMPANIES

Dear X,

We are writing to you as representatives of a coalition of institutional investors, with over USD 1.5 trillion in assets under management, about the systemic overuse of antibiotics in livestock production. Specifically, we are concerned by [Company X's] lack of a comprehensive and publicly accessible policy on this issue. We appreciate that the entirety of your risk management may not yet be in the public domain, and would appreciate some insight on the steps that [Company X] may already be taking to address the use of antibiotics in your supply chain.

Around 75% of all antibiotics used in the US, two-thirds in the EU, and 40% in the UK are given to farm animals – many of which are important to human medicine. The high proportion of antibiotics given to livestock is a significant public health concern, and is contributing to the emerging global threat of antibiotic resistance in humans.[15] While antibiotics should be used for the treatment of sick animals, they should not be used to support irresponsible practices, such as growth promotion or routine disease prevention of animals kept in closely confined and unsanitary conditions. Companies with exposure to antibiotic overuse in their meat supply chain face significant risks, including:[16]

Changing regulatory landscape: The clear link between the overuse of antibiotics in livestock production and rising antibiotic resistance in humans is drawing regulatory scrutiny. In January 2017, the updated US federal regulation to phase out labelling of antibiotic growth promoters as suitable for use on livestock came into force. The regulation also requires veterinary supervision of antibiotic use in livestock production. In Europe, Members of the European Parliament voted in favour of an amendment that bans nontherapeutic mass medication of groups of healthy animals (i.e. prophylactic use). This proposal will be considered in a trialogue with the European Commission and Council of Ministers.[17]

Operational disruptions: The changing legislative landscape will create operational disruptions for intensively-farmed supply chains due to the increased prevalence of disease and sickness in densely packed facilities.[18] The higher costs incurred during this adjustment are likely to be passed through the value chain, and can erode the profit margins of companies with high exposure to this produce. On the other hand, forward-looking companies that manage the transition and establish links with higher-welfare producers will gain from cost savings and reduced disruption.

Negative brand equity: [Company X's] exposure to prophylactic antibiotic use through supply chains creates the risk of reputational damage to your restaurant brands. Negative media coverage and consumer campaigns can harm sales and affect consumer loyalty – a matter of concern for restaurant chains whose customers can easily shift their spending habits. Conversely, changing consumer attitudes towards the use of antibiotics in healthy animals also presents commercial opportunities. We note positively that industry peers including Chipotle Mexican Grill and Panera Bread are already responding to this consumer demand opportunity.

To respond to these risks and opportunities, we respectfully recommend that [Company X]:

1. Prohibit the use of all medically important antibiotics in the company's global meat supply chain for purposes other than disease treatment or non-routine control of illness. This still allows for the continuation of group treatments where disease within the group has been diagnosed by a vet;
2. Identify appropriate timelines for global implementation of this guidance and report back to shareholders on implementation.

We look forward to your response, and thoughts on a timescale for taking action on this matter.

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OUR WORK TO ENGAGE STAKEHOLDERS

We engage and work in partnership with a wide range of stakeholders, including the Business Benchmark on Animal Welfare (BBFAW), Ceres and other investor groups, NGOs, regulators and academics.

AMR call to action: The FAIRR team participated and spoke at Call to Action on Antimicrobial Resistance conference in Berlin in October 2017. The event, organised by the Wellcome Trust in partnership with the UK, Ghanaian and Thai governments and the UN Foundation in support of the work of the Inter-Agency Coordination Group (IACG), brought together national governments, multilateral institutions and civil society to focus on the most critical gaps in tackling the development and spread of drug-resistant infections.

Access to Medicines Index (ATMI): The FAIRR team provided feedback into the development of ATMI's new benchmark focussed on assessing the policies and practices of leading pharmaceutical companies on AMR.

PRI in Person: The FAIRR team presented its antibiotics work to global institutional investors at the 2017 PRI in Person, the leading global conference on responsible investment.

Robeco Business Roundtable: The FAIRR team presented its animal welfare and antibiotics work to European investors, and chaired a discussion on available investor resources and actions.

PRI in Person: The FAIRR team presented its antibiotics work to global institutional investors at the 2017 PRI in Person, the leading global conference on responsible investment.

ICCR/FAIRR Panel: "Opportunities for Sustainable Animal Agriculture: Addressing Antibiotic Risk and Protecting Human Health," was an open dialogue between investors and stakeholders from both the supply and demand sides of the meat distribution chain – producers, meat processors, suppliers, restaurants, retailers, industry trade associations, and consumer groups – as well as NGOs, and public health advocates. See case study 'Building consensus for progress around the table' here.

European Public Health Alliance:
The FAIRR team presented to policymakers, the medical community, academics and NGOs at the European Public Health Alliance (EPHA) conference in Brussels on potential health-related investment risks associated with intensive livestock production. The aim was to encourage an active dialogue on the negative financial impacts to capital markets if risks associated with antibiotic resistance, nutrition, and broader health concerns are not tackled. It also highlighted the influence that institutional investors can exert on these issues.

FAIRR
FARM ANIMAL INVESTMENT RISK & RETURN
A COLLER INITIATIVE

JOIN THE FAIRR COLLABORATIVE ENGAGEMENT ON ANTIBIOTICS USE IN LIVESTOCK

Antibiotics use in livestock is a leading cause of rising AMR. AMR is a material risk not only for food companies but presents a systemic risk across multiple sectors including the pharmaceutical, healthcare and insurance industries. The non-therapeutic use of antibiotics in livestock production is necessary to protect public health and essential to risk mitigation and long-term value creation.

The FAIRR Initiative works with issue experts to encourage global food companies to reduce antibiotic use. We are backed by more than 70 investors, with assets of nearly $4 trillion. Benefits of joining our collaborative engagement on antibiotics include:

- Access to company-specific research on antibiotics in livestock.
- Opportunity to participate in direct engagement with senior company representatives.
- Access to new research and analysis on antibiotics use in livestock.
- Access to best practice tools, networking and knowledge sharing with the entire FAIRR investor network.

To learn more, contact the FAIRR engagement team:

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