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Long Term Meat 2027

Long Term Strategic Trends in World Meat Markets

The global meat sector faces an array of forces for change: Gira forecasts the impact of these key issues on supply and demand to 2027



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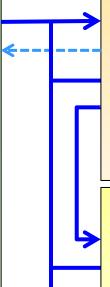
Structure of the Long Term Meat 2027 Report

Analysis and forecasts on a vast, but changing, meat complex

Volume 1: Forces for change in the global meat industry

Analysis of the current and future drivers that are expected to make a significant difference to the way the meat industry operates, locally and globally to 2027: 220 pages

- Demand 'pull' the 'drivers & 'brakes' that impact on consumer choice in meat in the different markets.
 - Economic: Ability to purchase more meat.
 - Social: Population size, segmentation & preferences.
 - Market life-cycle: growth vs. maturity & differentiation.
- Domestic supply 'push' changing productivity, competitive positions, investment and meat supply.
 - Technology & scale: Genetics, feed, farming practices.
 - Regulatory: environmental, animal health and welfare etc.
 - Industrial: modernisation & consolidation of supply chains.
- Trade changing access to key markets.



Volume 2: 4 major Country Reports

Brazil, China, EU and the US – impact of horizontal drivers on both meat demand and the supply chain.

- The 4 key regions for the future of the meat industry; expected to impact global availability and price.
- Quantitative and qualitative analysis at a national level for developments in demand, production and trade across the 4 main meats.
- Data: 2007-2017e, 2022f, 2027f.
- 430 pages: detailed 80-120 page reports per country.

Volume 3: 29 Country Profiles

The other main meat suppliers and markets

- Key assumptions applied to each market, with development criteria explained.
- Drivers and brakes for the next 10 years laid out.
- Quantitative analysis of the developments by species.
- 350 pages: easily digestible @ 10 pages / country.

Volume 4: Long Term Meat 2027 - Synthesis

Detailed review of the implications for global meat industry developments over the next 10 years:

- Quantitative analysis in total and per species, of the impact of key drivers for change.
- Where will demand growth be, and where and how will the supply come from. 130 pages of documented forecasts.

Option: Excel Dataset of key numbers across the 33 markets: 2007, 2012, 2017e, 2022f, 2027f





1.	Background	page 4
2.	Objective & Scope	6
3.	Methodology	7
4.	Structure: Report and Research	8
5.	Staffing	12
6.	Gira's Qualifications	13
7.	Gira's Clients in the Meat Sector	14
8.	Subscription Cost	15

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1. Background

Helpful long-term forecasts in an uncertain world

This is the 6th edition in Gira's series of long-term, world meat forecasting studies going back to 1987 – the previous one published in 2010.

In just the last 5 years (not to mention the last 30!) the world's meat industry has changed dramatically, often out of all recognition. Continuous, if sometimes modest, increases in global consumption and trade hide enormous changes in the very structure of the industry, changes which are still far from complete, and whose outcomes are still far from clear.

- Meat demand continues to grow, especially in Asia where prices are high and imports have grown, where traditional supply chains are challenged by rapidly changing consumer preferences, regulatory changes ... and supply chain industrialisation.
- New and rapidly growing forces in world meat supply the Brazilian corporate concentration & global expansion; Chinese & Russian shift to agroindustrialisation – while the "old" (EU) world stagnates or declines, and the US slaughter industry is increasingly foreign-owned.
- At the same time new, "non-market" factors are fast moving to the front of the stage: ecology & welfare health & obesity vegetarianism & substitution – geopolitics & nationalism – genetics & feed etc., which all impact the meat chain.

The meat supply chain is no longer a straight line, it has become a mosaic. An already complicated world supply structure is becoming even more complex, meaning real opportunities for the well-informed & well-resourced, but bigger, more expensive traps for the unwary.

Among the many key issues that the Study analyses in depth and projects into the future, just a few of the most important are:

> The developing markets' – and particularly China's – appetite for meat; is it really insatiable? How is it changing? China is now the world's single largest meat importer, with around 6.6 million tons cwe imported, not including offals; this is ~20% of total world trade in the 4 main meats (and rising) and a key short term price influence on meat market prices all over the world.

Sustainability in a two-speed world -> schizophrenia? How can increasingly controlled, sustainable & humane systems compete with

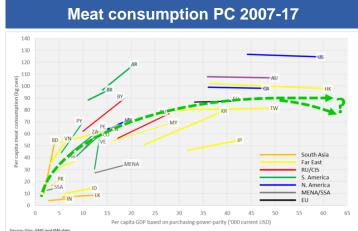
unregulated and "grey" supply?

Disease, environmental demands and the march of technological progress (or not?).

Can the meat demand growth of the last decade be sustained?

The meat sector faces unprecedented change: be they political, regulatory, technological or structural. These coincide with a still fragile recovery from the Global Financial Crisis, currency changes, the commodity price roller-coaster, dramatic changes in trade policies and attitudes toward globalisation ... aside from a host of other influences.

Fundamental trends still apply: emerging consumer markets, new demands on suppliers, the necessity of lowest cost production, etc. – but these periodically face a severe reality check from food safety and sanitary disruptions, political crises, and changing societal demands.

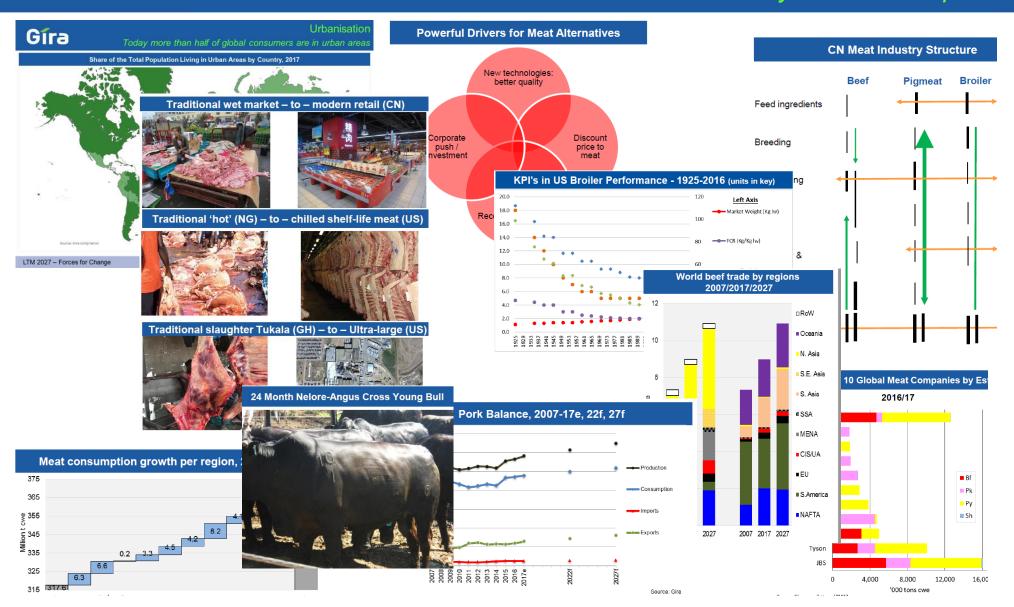


June 2018



Background continued

A world full contradictions ... which are analysed in this report





2. Objective & Scope

Relevant analysis, focused on the key issues & regions

Research Objective: to provide new forecasts for long term global meat demand, and from where and how the meat will be supplied. This has been achieved by analysis of the key forces for change and how these apply in different countries and to the different species. It is documented in a series of reports, the timing of which allowed for iteration and refinement of the forecasts with feedback from Founder Clients and industry contacts. The time series data is consistent with the Gira Meat Club 2017 report.

Scope of this Study: designed to allow us to robustly analyse the key challenges and opportunities facing the global meat industry over the next 10 years. The analysis of these global forces for change was overlapped with specific research in the 4 biggest and most influential meat markets, between which there was some iteration. This analysis is documented into 4 full Country Reports and a Forces for Change Volume. Gira's conclusions were then applied and iterated with the other important markets (documented in the Country Profiles). Gira then pulled together the conclusions, in the Synthesis Report, showing trends for the future at regional and world level.

Products:

We cover the four main meat species – beef, pork, poultry (broilers, turkey, duck, where significant) and sheepmeat – wherever their production or consumption is significant.

Geographical:

The Study covered all the countries indicated in the table here, with data accounting for more than 95% of world population and meat production. Main geographic focus, as indicated, in: Brazil, China, EU and US – with findings extrapolated and iterated to other countries covered in the Gira Meat Club.

Time horizon:

The focus is Long Term: where reasonable, forecasts were focussed on 2027, and 2022, and 'grounded' on the reality of comparable historic annual time series from 2007-2017.

LTM 27 - Country Coverage

	Country	Profile				
	Report	Report	Bf	Sh	Pk	Ру
US	Yes		Х	х	х	Х
Canada		Yes	х		Х	х
Mexico		Yes	Х		Х	Х
Argentina		Yes	Х			Х
Brazil	Yes		х	х	х	х
Chile		Yes	х		Х	Х
Columbia		Yes	х		Х	х
Peru		Yes	х		Х	х
Paraguay		Yes	Х		Х	Х
Uruguay		Yes	х	х	х	х
Venezula		Yes	Х			Х
EU	Yes		Х	Х	Х	Х
Belarus		Yes	Х		Х	Х
Russia		Yes	х		Х	х
Ukraine		Yes	х		Х	х
Other CIS		Yes	Х		Х	Х
MENA		Yes	Х	Х		Х
Egypt		Yes	х	Х		Х
Iran		Yes	х	Х		Х
Saudi		Yes	х	Х		х
Turkey		Yes	Х	Х		Х
Sub Saharan Africa		Yes	Х	Х	Х	Х
South Africa		Yes	Х	Х	Х	Х
China	Yes		х	х	х	х
India		Yes	х	Х	Х	х
Indonesia		Yes	Х			Х
Japan		Yes	х		Х	х
S. Korea		Yes	Х		Х	Х
Thailand		Yes	х		Х	Х
Vietnam		Yes	х		Х	Х
Other Asia		Yes	Х		х	Х
Australia		Yes	Х	Х	Х	Х
New Zealand		Yes	Х	Х	Х	Х
Reports	4	29				



Logical flow of research stages, designed to allow for iteration

A four stage research and reporting process, culminating in a detailed global synthesis:

- 1. Analysis of the driving **forces for change** on the global meat industry, and discussing them with key stakeholders to estimate their variable impact over the next decade. This drew on Gira's long and global experience of the meat industry. This analysis was conducted simultaneously with the Stage 2 analysis (below).
- 2. Detailed in-country research within the four most important & influential markets of Brazil, China, the EU and the US. These 4

 Country Reports defined the meat market & industry now and forecast its strategic evolution over the next 10 years.
- 3. Applying the results and lessons from Stages 1+2 (above) to 29 other countries/regions, written-up into short Country Profiles in which we defined the impact of the key drivers and breaks in each of the markets.
- **4. Global Synthesis** Combining Stages 1+2+3 into a Global Synthesis analysis and report, allowing Gira to build quantitative and strategic forecasts for the evolution of the global meat industry to 2027 and to identify the key variables.

To achieve this, Gira utilised its global meat analysts and specific industry experts, whilst using its tried and tested, multi-faceted approach to obtaining and evaluating the information required for this ambitious task:

- Documentary research:
 - Detailed analysis, in each country, of the trade press, published statistics & studies, corporate websites, etc.
 - Gira's extensive, in-house experience and databases from its many meat studies in particular from the annual Gira Meat Club.
- A programme of over 150 interviews. Discussions with key stakeholders to probe our hypotheses and to glean their qualitative insights on present and future trends in the competitive environment of the various meat supply chains.
 - We undertook a series of interviews with operators and experts in each of the main countries analysed, as well as with marketing managers in internationally active groups and traders.

Gira's vast experience and extensive contacts in the world meat supply chain ensures that we obtained an immense range of information and opinions – from those very managers who are themselves "creating" the future – to give credibility to our forecasts & conclusions.



4.1 Structure: Volume 1 - Forces for Change Report Key report volume explaining the key long term drivers for change

Thorough examination of the most important drivers for long-term demand development and their impact on the supply chain - including production and trade.

Focus on major global issues which Gira believes will impact the meat industry over the next 10 years.

Key chapters: this volume of the report is structured to include the following chapters addressing the key issues, their likely development, possible scenarios and impact:

- 1. **Population Dynamics** Size, segmentation (class, religion), urbanisation, consumer & societal drivers (ethics, individualism, convenience etc.).
- 2. Economy & Economic Assumptions impact on meat demand of GDP (+ GDP PPP), currency, oil price.
- 3. Societal Concerns:
 - Health & Nutrition Health challenges over meat (cancer, obesity etc.), WHO & national guidelines, alternative proteins.
 - Animal Health & Food Safety Sanitary situation (trade and production impact), food safety (perceived and actual).
 - Animal Welfare Cost of improving standards, consumer demands, impact of key accounts (e.g. McDonald's).
 - Environmental sustainability focus on GHG in wider context.
- **4. Government Policy & Regulatory Change** Agricultural policy + food security, energy policy (biofuel), labour, trade (WTO, FTAs, TBTs), environmental, climate change, sustainability.
- 5. Feed Availability & Developments Availability & supply, productivity & yield (GMOs, agrochemical, etc.), raw material prices, new ingredients (algae, insects, MBM, probiotics...), formulation, FCRs.
- 6. **Technology** Genetics, production systems (scale & system change), meat processing, distribution (cold chain, packaging, shelf life), technology loss (AGPs, AM, hormones, irradiation...), digital (ecommerce, information transfer), meat alternative developments.
- **7. Production Cost Overview** by species, system, region.
- **8. Supply Chain Drivers** Retail & foodservice (demands & influences), processors (structural change, corporate strategy, top companies per species), marketing (differentiation, branding, COOL...), farm upscaling, specialisation, and integration.

Delivered as: concise report sections on each issue, examining the timing, scale and geographic reach of their impact on the market and the industry.

- Key data in graphs and tables.
- Short and clear explanations of each issue + its impact over 5 and 10 years on the meat sector.
- 220 pages in an easy-to-digest PowerPoint based report style.



4.2 Structure: Volume 2 - The 4 major Country Reports Brazil, China, EU & US - the major countries for the next 10 years

Detailed quantitative and qualitative analysis of the impact of the key drivers on local demand and supply within these 4 major markets, through to 2027.

Focus: detailing the impact of the "forces for change" on the market and its supply base.

Key issues:

- How the forces for change will impact on the various markets.
- Consumer dynamics and what drives the domestic demand outlook.
- Detailed balance tables, with forecasts showing the evolution of the market from livestock base to consumer demand.
- Export and import outlook, and explanation.
- Key variables and uncertainties.
- Explanation of the key influencers ... and some description of their strategies.
- What commercial implications of this are there for operators in or potential suppliers to these key markets?
- Accepting that changes in these 4 markets will transform the global industry, what are the lessons we must learn, and what signals should we be watching for...?

Detailed Country Report Structure

- 1 Executive Summary
- 2 Opportunities & Recommendations
- 3 Forces for Change and their Impact on the National Market
- 4 Total National Meat Outlook:
 - 4.1 Consumption & per-capita consumption
 - 4.2 Relative prices
 - 4.3 Production
 - **4.4** Trade
 - 4.5 Scenarios: Optimistic & Pessimistic
 - 4.6 Top meat companies: size, strategy
- 5 Beef: National Forecasts
 - 5.1 Beef market overview
 - 5.2 Consumption & per-capita consumption
 - 5.3 Prices
 - 5.4 Herd structure & performance, intensification & upscaling
 - **5.5** Production cost outlook
 - 5.6 Production: volume, carcass weights,
 - 5.7 Top beef companies: size, strategy
 - 5.8 Import / Export Flows
 - 5.9 Demand impact
 - **5.10** Positive and negative scenarios
- 6 Sheepmeat: National Forecasts

(as per Beef)

7 Pigmeat: National Forecasts

(as per Beef)

8 Poultrymeat: National Forecasts

(as per Beef)

Delivered as: detailed self-standing reports for each of these 4 major countries, detailing each issue, examining the timing and scale of their impact.

- Key data in graphs and tables.
- Thought through explanations of major drivers & brakes: their national implications over 5 and 10 years on the meat industry in the market.
- 85-130 page easy-to-digest PowerPoint reports



4.3 Structure: Volume 3 - Country Profiles

The implications of the lessons learned on 29 other meat markets

Taking the lessons from the "Forces for Change" and the 4 major Country Reports, and applying them to 29 other key markets that Gira regularly works on. It is only by analysing the individual impacts, that the combined effect for the global meat industry can be fully understood.

Focus: on the national impact of key forces for change on demand, local supply, and consumer dynamics.

Key issues:

- Qualitative analysis of key numbers to allow for detailed global insight into the long term developments and their implications for the meat industry.
- Local analysis of which forces for change are likely to have the strongest impact, when and how they will materialise.
- The key challenges for the production base and traders, who interact within each market.
- Rate of adoption of global consumer led trends, and their impact on the market.
- Focused on the issues of the individual market, but in the full light of the global lessons, and their implications there.
- Inter-species competition between the main meats, and fish. 2007-2017e, 2022f, 2027f.

Delivered as: concise Country Profiles summarising the relative impact of the global forces for change on the market and industry in each country and applying this to local forecasts:

- Total consumption, production and trade: broken down between species
- Simplified balance tables per species, and key data in graphs and tables.
- Short and clear explanations of each issue + its impact over 5 and 10 years on the meat industry.
- ~10 pages per country in easy to digest PowerPoint based reports









4.4 Structure: Volume 4 - Global Synthesis Report Implications for global meat industry over the next 10 years

Application of the "forces for change" and individual country analysis on the global meat market. What will be the biggest changes, where will they occur first, and what does it mean for those invested in the industry.

Focus: pulling together key market data and insights to create a global view to 2027 for the evolution of meat demand, the supply industry, and its winners and losers.

Key components:

- Summary of the relative impact of the forces for change on the meat complex: globally, regionally and between the species.
- Key global data & forecasts, per species and total meat: consumption, production, imports, exports, industry structure.
- Key opportunities and challenges for the future. Winners & losers.
- Strategic implications for those invested in the industry and/or supplying.

Delivered as: a concise Synthesis Report summarising the forces for change, and applying the impact in global synthesis numbers for overall meat, and for each of the main species. Examining the timing, scale and geographic reach of their impact on the industry.

- Key data in graphs and tables.
- 130 pages in an easy-to-digest PowerPoint based report style.

Synthesis Report Outline

- 1 Executive Summary & Conclucions
- 2 Forces for change: demand drivers and brakes
- 3 Forces for change: supply drivers and brakes
- 4 Total Global Meat Outlook:
 - 4.1 Per-capita & total consumption
 - 4.2 Relative prices
 - 4.3 Production
 - **4.4** Trade
- 5 Beef: Global Outlook
 - **5.1** Per-capita & total consumption
 - 5.2 Herd developments
 - **5.3** Live Trade
 - 5.4 Production
 - 5.5 Productivity
 - 5.6 Trade: products
 - 5.7 Trade: volumes, origins & destinations
 - **5.8** Trade: net trade by region
 - **5.9** World trade flows
 - 5.10 Trade Prices
 - 5.11 Market Structure
 - **5.12** Price Developments
- 6 Sheepmeat: Global Outlook (as per beef)
- 7 Pigmeat: Global Outlook (as per beef)
- 8 Poultrymeat: Global Outlook (as per beef)

OPTION

Excel Dataset

- Production, trade and consumption data: 2007, 2012, 2017, 2022f, 2027f
 - By country and species
- Live and searchable Excel format allowing incorporation in your own strategic planning tools.



Gira's team of managers & consultants is probably the most experienced & knowledgeable in world meat markets today:

Richard Brown, Director of Gira, >25 years with Gira. MBA (LBS): acted as Project Supervisor. Richard has headed a very large number of strategic consultancy and research assignments throughout the meat chain worldwide. He supervises all of Gira's consulting and research activities in the meat sector. He is well-known throughout the meat industry and he has managed and presented the annual Gira Meat Club for the last 15 years.

Nils Beaumond – Manager. Nils managed the Study as well as conducting much of the Forces for Change research and the Global Synthesis Report. He is a multi-lingual veterinarian with >30 years at Gira, interspersed with Interbev, the French interprofession for the beef and sheep supply industry. Hugely experienced in international analysis of the meat industry: its drivers and brakes – both at a macro level and in the all important detail.

Other key members of the management team included:

- Rupert Claxton Manager. >15 years with Gira, directing and managing a wide range of meat sector research and
 consultancy in both the developing world throughout Africa and Asia, and in the EU. Rupert managed the Asian research and
 worked on a number of the Forces for Change topics as well as the Australian Country Profile.
- James Caffyn >5 years with Gira, wide range of meat and dairy sector research including Africa, Middle East and a variety
 of EU countries. James managed the MENA and SSA research and is responsible for Gira's Brazilian meat and dairy sector
 research.

A large number of Gira's experienced meat-sector consultants, researchers and interviewers were also involved – utilising the same sectoral and geographic expertise as for the Gira Meat Club.

Only Gira possesses the global meat market experience and understanding to be able to undertake such a unique and demanding study of opportunities. This 6th edition builds-on the experience of previous editions.



6. Gira's Qualifications

Worldwide reputation for quality research and strategic insight

Gira is active in strategy consulting and market & industrial research through a range of food & drink sectors worldwide. More details of our activities and coverage are available on: www.girafood.com. This is the 6th edition of our Long Term Strategic Trends in World Meat Markets research over the last 30 years.

Over >40 years we have built up a major reputation and client base in the worldwide meat sector: including high profile speeches at conferences all over the world. Gira is the only research and consulting firm that is a member of the International Meat Secretariat (IMS) with whom we have a close and longstanding relationship ... along with our wide range of clients, worldwide. A list of our recent meat sector clients is given on the next page of this proposal.

Gira has carried out many assignments in recent years for international meat groups in the sectors covered in the present Study. These have included market research, strategic analysis and interview programmes in all the countries covered here.

We regularly produce multiclient studies concerning several of the meat sectors and countries involved in this study, including the strategic impact of retailers, farmer-owned cooperatives etc. on the supply chain. The most relevant regular research is the annual Gira Meat Club, which is now in its 43rd year and which covers all the countries which were analysed here.

Gira's extensive network of international experts, contacts and clients in the worldwide meat supply chain means that it is highly qualified to have carried out this unique and highly challenging project. Experience has also shown that our long-standing reputation for research and consultancy in the global market opens doors for us to the most informed and competent sources of information. We have access to the key managers & influencers; they will discuss key issues and developments with us.

Our specialist consultants – our credibility in the meat sector – our long client list – and the multiclient studies for which Gira is widely known, all these give us privileged access to decision-makers in meat markets throughout the world.



7. Some of Gira's Meat clients Key commercial players in the global meat industry

Client	Country
Abbott Laboratories	Intl.
ABF	UK
ABP	IE/UK
Agri Ranch	US
Agroeco	RU
AHDB	UK
Alic	JP
ALMA	CA
AMIC	AU
Animex (Smithfield)	PL & Intl.
Asoporcicultores	CO
Australian Pork Itd.	
AVEC (European Poultry Association)	EU
Aviagen	Intl.
Bain	Intl.
Bemis	Intl.
BRF	BR - Intl.
Bunge	Intl.
Canada Beef	CA
Canada Pork	CA
Canadian Cattleman's Assoc	CA
Cargill Inc	US
Cargill Meats Europe	EU
Cobb	Intl.
CP Foods	Intl.
CFG (Campofrio Food Group)	EU
COV	NL
Danish Crown	DK
Danish Farmers Abroad	DK
Dawn Meats	IE/UK
DSM Nutritional Products	Intl.
DuPont	Intl.
Elanco	EU/Intl.
European Commission	EU
FAO	Intl.
FECIC (Catalan Meat Industry Association)	ES
Fedegan	CO
Fenavi	CO

Client	Country
Foss	DK
H.K. Scan	SF (Finland)
HCC	UK (Wales)
Hilton Food Group	UK/EU
IFC (World Bank)	Intl.
I.M.S.	Intl.
INAC	UY
Inalca/Cremonini	IT
Inaporc	FR
Interbev	FR
Irish Food Board	ΙE
JAPFA	Asia
JBS	BR - Intl.
Kemin	Intl.
Landbrug & Fødevarer	DK
LMC	UK
McDonald's	EU
Meat & Livestock Australia	AU
Meat Industry Association NZ	NZ
Minerva	BR
Multivac	Intl.
National Pork Board	US
Nutreco	NL - Intl.
O.E.C.D.	Intl.
Pfizer	Intl.
Rabobank	Intl.
Rusagro	RU
Scottish Assoc'n of Meat Wholesalers	UK
Sealed Air	Intl.
Silver Fern Farms	NZ
Smithfield (WH Group)	US/CN
UECBV	EU
Unic	IT
Unigrains	FR
USMEF	US
Vion	NL/DE
VLAM	BE
Westbridge Foods	UK



8. Subscription & Timing

Quality, affordable output ... with service available

Subscription

The post-publication subscription price for the complete study programme is Euros 29,500 (before any applicable taxes). This consists of the 4 Report Volumes in PDF form, plus a Presentation (at your office, but excluding travel costs).

Part-subscription options are available, presentation always included (at your office, but excluding travel costs), e.g.:

- Synthesis only subscription: Euro 15,000
- Synthesis + Forces for Change volumes: Euro 20,000
- 1-species option: Relevant species + General section of all reports: Euro 20,000
- Other options: POA

In addition, for those clients whose subscription includes the full Synthesis, the core Synthesis dataset is available for an additional Euro 2,000.

Payment will be due within 30 days of invoice.

Timing

The reports were completed in May 2018, and are available immediately in PDF form.

The research was undertaken in 2 phases:

- Phase 1 "Forces for Change" and "The 4 Major Country Reports" published initially as Preliminary Drafts in September 2017 to Founder Clients as an input into the rest of the global research and for iteration.
- Phase 2 "29 Market Profiles" and "Synthesis report" published in May 2018 (+ final update/iteration of phase 1 reports).

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