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Note: This summary was developed by Meridian Institute as an internal document for use by members of the Global Alliance for the Future of Food. It does not represent views of Meridian Institute or of members of the Global Alliance. It is a summary of expert interviews.

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Acknowledgements

Meridian Institute, with guidance from a diverse Global Alliance Advisory Group, selected and interviewed 18 experts (a mix of scientists, researchers, NGO representatives, and private sector representatives) with expertise across animal agriculture and food systems in order to provide their perspectives and insights on key gaps, challenges, and opportunities for impact. This report is a high-level summary of the expert interviews that was presented to members of the Global Alliance for the Future of Food.
Introduction

This summary of expert interviews was developed to serve as internal input to a funder’s convening on animal agriculture, hosted by members of the Global Alliance for the Future of Food. The intent was to engage a diverse cross-section of experts that could lend their perspectives and expertise to the complex issues and relationships within animal agricultural systems.

The report is organized thematically according to the major topics that emerged across the interviews, these included:

- Consumption
- Production
- Externalities
- Climate Change
- Role of Key Actors

Each theme is organized around the trends, gaps, opportunities, and barriers that experts identified. Looking across these themes, one will find complex relationships and linkages, some areas of expert convergence, along with many areas of divergence about priorities and entry points for impact. Overall, many experts underscored the need for more coordinated (systems) approaches in order to avoid unintended consequences and/or working at cross purposes—which, rather than being the challenge itself, seems to be a symptom of not employing systems thinking and approaches.

For all of these themes, it is critical to recognize the spectrum of differences within and across countries’ producer and consumer contexts. While the report is not organized around socioeconomic or geographic lines, it is important to understand that trends, opportunities, or barriers relevant to one country or set of countries do not necessarily apply in other country- or socioeconomic-contexts.

Also worth noting, are some of the themes not explored in this summary, which many experts identified as overall gaps. These included: food waste, aquaculture, and improved understanding of trends and areas for impact in emerging economies such as China and India. While many experts noted these as important issue areas, few spoke in-depth on those issues and therefore, they are not adequately addressed in this report. However, many experts suggested these topics could benefit from greater donor attention or focus.

While some themes and priorities seemed to emerge from a majority of experts, the objective of the interviews and this summary report was to capture and reflect different perspectives and entry points within and across key issues in order to catalyze donor thinking and meaningful discussion.

Methods

The project team, in consultation with Advisory Committee members, developed a list of 67 potential experts with diverse geographic and backgrounds to request telephone
interviews. Of the 42 requests, 17 experts participated in the telephone interview. Interviews included eight semi-structured questions aimed at gathering expert opinion on major trends, gaps, opportunities, and barriers within animal agriculture systems. Recognizing that one respondent’s definition of a gap may be another respondent’s idea of an opportunity, the interview was structured to allow the respondent to provide open-ended responses and self-identify their responses as relating to gaps, opportunities, and/or barriers. In addition, experts were asked to provide suggested literature or resources on animal agriculture issues for the Global Alliance to consult. Those have been included in a literature website (available to donors only) and categorized as “expert-recommended resources.”

Interview data was analyzed using qualitative methods, first by summarizing key points from each interview and then grouping responses according to each question category (e.g., trend, gap, opportunity, barrier). All responses were then analyzed in aggregate in order to identify common themes and topics, as well as areas of divergence within those topics. The major topics that arose across the interviews have been used to organize the interview summary; those are: consumption; production; externalities; climate change; and the roles of key actors (industry, government, and funders).

Where there seemed to be to a majority of experts identifying a particular topic, a quantitative percentage was calculated in order to provide some sense of weighting, although the number of experts interviewed (17) is not statistically significant or representative.

### Consumption Trends, Gaps, Opportunities and Barriers

#### 1.1 Trends in Consumption, Consumer and Public Awareness

Out of the 17 interviews, **70% of experts cited increasing global demand for animal products as a top trend**. Related factors to this trend included:

- In part, greater demand is linked to a growing global population, but moreover, demand seems to be linked to increasing incomes among emerging and developing country populations translating into greater purchasing power and demand for animal products, meat, in particular.
- This trend has major implications for land use, crops (since many are used for feed), country and global greenhouse gas (GHG) emissions, and public health.
- In response to increasing demand, questions arise about whether there is a need to increase production or just distribution of existing production; however, there is a sense that production will follow demand.
- Total food demand, as well as demand for animal protein—and in particular, beef—is expected to dramatically increase by 2050, with some sources projecting a 90% increase in beef demand alone.

While global consumer demand for animal products is increasing, experts also cited growing consumer and public awareness of animal agriculture issues. Specific topics gaining consumer attention included:
• A desire for organic, local, sustainable, and antibiotic-/hormone-free animal products;
• Animal welfare and health issues;
• Food safety and health concerns;
• Diet linkages to environmental issues such as climate change, land use/deforestation, biodiversity, and freshwater availability and quality.

1.2 Opportunities
Overall, many experts underscored opportunities to reduce animal protein consumption in the wealthier countries while simultaneously identifying ways to slow consumption in emerging economies, or to redirect that consumption to more sustainable pathways.

Within the developed country context, many experts underscored the challenge of consumer confusion and mixed messages about animal protein consumption, despite increasing consumer awareness. To address this issue, some experts highlighted the need to clarify the complexity and nuance of meat production and consumption, and to point to sustainable, agroecological solutions. Others pointed to opposing and polarizing “mantras” on food systems (e.g., industrial vs. grass-fed) and emphasized that these debates are not constructive. Instead, a majority of experts identified a need to better understand the complexities of animal agriculture systems and also an opportunity promote more constructive dialogue.

In considering consumer engagement and communications strategies, some experts identified an opportunity to learn from industry marketing techniques proven to be effective at changing consumer behavior (e.g., advertising, product placement, positive framing of vegetable protein), while underscoring the need for those strategies to speak to the general public, and not to already food-conscious consumers.

1.3 Barriers
In regard to barriers, a majority of experts emphasized the need and the opportunity for impact in changing consumption; however, some were less optimistic about whether and how consumer behavior could truly change. Some pointed to the lack of proven success among educational and informational campaigns to date and argued that these strategies are known to be the least effective at changing consumer behavior.

Putting aside marketing strategies and increasing consumer awareness, some experts pointed to an underlying problem of economic barriers in purchasing local, organic, or sustainable products. (This barrier ties closely to the Externalities section.) Taken to the global level, this could mean that while consumer behavior may sustainably shift in wealthier countries, domestic production could be exported to meet global supply demands in other countries.

“We need to rapidly appeal to the masses or the sustainable food movement will become class-exclusive.”

“The message about meat consumption is complex: ‘don’t eat meat’ or ‘eat more meat’ does not lead to balanced food systems. Vegetables can also be unsustainable.”
Due to the lack of proven success to date coupled with the socioeconomic, cultural, and ethical challenges of influencing consumer behavior, another barrier to addressing this issue is the perception among donors that working on the consumption end of animal agriculture systems is too risky, and therefore few donors engage.

Production Trends, Gaps, Opportunities and Barriers

2.1 Trends
Despite the trend towards greater consumer and media interest in agricultural sustainability, many experts indicated that large-scale production trends continue to go in the opposite direction: there is increasing homogeneity of the landscape and a lack of crop and animal diversification.

Within the developing country context, currently there is less pastoralism and most people are working in mixed agricultural systems (crops and livestock). However, some experts expect that growing demand for animal products will be fulfilled through national production, as global trade in animal protein only comprises 5% of production. If this trend continues, the greatest impacts to livelihoods, food systems, and sustainability are expected across Africa, where experts anticipate a doubling of demand for animal products.

Aside from animal protein, however, some experts highlighted the increased demand for, and global trade in, animal feed in order to meet growing domestic demands for animal protein. For example, one expert pointed out that 50% of global soy trade is going to China for animal feed and that this trend is likely to continue, with expectations that, in the near future, most animal feed produced in the U.S. and Brazil will be exported to China. Some experts expect that trade deregulation will amplify this trend line.

2.2 Gaps
Several experts cited the need to design optimal agriculture systems based on agroecological principles, while eliminating or reducing jargon and terminology that does not appeal to farmers and the industry.

Another identified gap was the need for greater data for integrated farming systems, not just mono-cropping systems, in order to help farmers and ranchers make informed decisions about changes to their practices. These types of data would provide greater confidence in agroecological methods and allow for replicability and scalability.

While some experts emphasized the need to scale agroecological approaches, others pointed to the need to understand the key differences and gaps within different contexts:

- **For industrial production systems:** the biggest gaps are policy and regulation because there are significant implications for greenhouse gases, animal waste, and emerging diseases. If industrial systems are not well regulated it could cause real challenges for the public.
For large-scale extensive systems: the concern is to keep them away from rainforests and to address land use and governance issues by focusing on land and farming systems issues (e.g., improving productivity of grasslands, land degradation).

For Mixed farming small-scale systems: there is a need to intensify production sustainably in order to alleviate poverty. Livestock is important for intensification because the waste/nutrients can be recycled back into the systems. Small holders in Africa and Asia are focused on income, not yield.

Across many small-scale systems in developing countries, a key gap is that farmers and ranchers lack land tenure rights and therefore control over their lands, which, in some cases, is being exacerbated by land conservation efforts that centralize control in the hands of a few.

Another production gap many experts identified was that animal agriculture producers need better access to finance and resources. Compared to investment and the resulting yield increases in croplands, there is a significant disparity in investment in pasturelands, and yield gaps remain in many small-scale and developing country contexts. One of the greatest hurdles ranchers face in realizing those yield increases is the ability to access adequate and sustained capital. Many ranchers are interested to transition to agroecological methods, however, many existing rural extension and support services, to the extent they are available, are often geared towards industrial agricultural methods. Those services often do not enhance producers’ access to market, another critical factor to improving production.

2.3 Opportunities

Overall, many experts pointed to the need for holistic, inclusive approaches to improving production, rather than an exclusive focus on one production system over another (e.g., agroecological vs. industrial). Some pointed to the opportunities to mix technologies to improve yields, use less inputs, reduce environmental degradation, and improve livelihoods. There was a sense, among several experts, that one can produce more without endangering ecosystems or livelihoods, and that increased sustainable production is possible. To do so, some experts pointed to the ability of case studies to provide greater insights and evidence on the synergies and tradeoffs of complex farming systems. Others pointed to the need for different production approaches in urban and rural contexts, noting that the trend toward urbanization provides significant opportunities to rethink the urban, peri-urban, and rural value chains that can most efficiently and ecologically serve those growing populations. Across all of these production approaches, some experts highlighted the significant scope to improve understanding of social contexts and dynamics (e.g., the role of gender, opportunities for youth employment, land tenure issues) in order to identify incentives and drivers for change that could underpin these production transitions.

Specific opportunities to better address challenges of unsustainable animal agricultural production included creating a global facility to exchange real-time information about
government policies and industry practices in order to inform and empower communities and civil society organizations about critical challenges and opportunities for impact.

“We can apply agroecology to large-scale systems and we need to think more creatively on how to design those big systems to adapt agroecology and landscape scale design.”

Several experts pointed out that it is equally important to support producers and businesses that employ sustainable practices, such as B Corporations, farmer or consumer cooperatives, and fair trade businesses (sometimes referred to as Social and Solidarity Economies (SSEs)).

2.4 Barriers
Overall, many experts cited the need for more research and data to make the case for agroecological approaches to animal agriculture and to provide clear and relevant success stories for farmers and ranchers; while recognizing the important regional differences in that research (i.e., the amount of water needed for cattle production in the U.S. is not necessarily the same in Kenyan highlands).

In addition to the need for more information, some experts underscored the need for constructive engagement of industry, in order to overcome some of the fears (real and perceived) around researching animal agricultural production systems. This engagement could help overcome the divisive relationship between agroecological and industrial production methods, and look to how these approaches could work in complementary ways. However, a few experts expressed significant skepticism of constructive industry engagement, at least as an initial entry point, saying that strong outside pressure is a precursor and catalyst productive dialogue and meaningful change.

Externalities | Trends, Gaps, Opportunities, Barriers

3.1 Gaps
One of the cornerstones (and current gap) many experts identified as critical to the future sustainability of consumption behavior and production practices was the need to better understand, in easily comparable, quantifiable terms, the costs and benefits of different agricultural production systems. Equally important, is the need to ensure those costs and benefits are fully accounted for and conveyed to key actors including farmers/ranchers, investors, and policymakers, in order to foster changes in practice and to ensure those externalities are ultimately reflected in the market.

Fully accounting for externalities could help address some of the identified consumption barriers such as the market price disparity between agroecological- vs. industrial-produced animal products, and to assess the cultural and societal values without negating the costs of those preferences.

“Currently, we are comparing apples to oranges; we need to be able to truly compare agroecological and industrial systems.”
3.2 Opportunities

In addition to fully accounting for production externalities, some experts highlighted the opportunity for impact in making that information open source. This type of open information could inform consumers, investors, and policymakers, and be instrumental in creating incentives for companies to change production practices.

“Make food production systems account for externalities. Foods that use less natural resources and inputs will be cheaper and in higher demand, rather than the other way around.”

Within the investment community, some experts pointed to the trend and opportunity that investors are increasingly looking to divest from unsustainable industries such as fossil fuels and industrial agriculture. There is a growing sense among investors that sustainable agriculture can outcompete conventional agriculture. Currently, tracking of water efficiency in agricultural supply chains is seen as a proxy for return on investment: corporate supply chains with more efficient water use have more significant returns.

Within the Chinese context, some experts identified the condition of the natural environmental as the biggest threat to the government; and that government research has documented animal agriculture as the largest source of water pollution as well as a significant source of air pollution. There is also growing public awareness and concern about antibiotic resistance. Opportunities to reduce these externalities and engage the Chinese public include, for example, identifying and engaging those that have been disenfranchised by these externalities (e.g., loss of land, polluted water systems) and providing translated data and information about the social and environmental costs of unsustainable production and consumption, including implications for public health.

3.3 Barriers

In relation to the Chinese context opportunities outlined in the previous section, some experts cautioned about growing suspicion and distrust of foreign people and entities operating in China, and underscored the need to commit long-term investments and build relationships and trust.

Overall for externalities, the greatest barrier experts identified was economic. Specifically, this barrier was described as a lack of economic incentives for both producers and consumers to change practices. However, some experts pointed out that the expression of economic barriers change depending on the context. For low-income countries, animal agriculture value chains are not working: prices are too high and meat is inaccessible to people who need it. For high-income countries, the biggest barrier is the political economy and the economic and political power of industry.

Some experts also identified a circular economic barrier: since externalities are not currently being taken into account in order to accurately compare different production systems, sustainable agricultural producers have not been able to demonstrate financial returns to attract interest of finance, and instead often rely on grant-making. There is a need for a self-sustaining agricultural finance model; which presumably would evolve once externalities are known and accounted for, but currently this presents a significant challenge for sustainable producers to proliferate and grow.
4.1 Trends
Several experts highlighted the complex relationship between animal agriculture and global greenhouse gas (GHG) emissions. Some experts presented animal agriculture and beef, in particular, as a major part of the climate problem. For example, the world’s cattle would rank third behind the U.S. and China in terms of GHG emissions. Others pointed to the possibility that agroecological production systems could enable animal agriculture to be a significant part of the climate solution by restoring carbon to the soils. Globally, the relationship between animal agriculture and climate change has tended to focus on stopping encroachment into tropical forests and resulting deforestation. As a result, there is an overemphasis on one type of cattle ranching and lack of attention to other causes of deforestation including land conversion for crops (including those produced for livestock feed) and deforestation as a result of degraded agricultural lands.

4.2 Gaps
Experts pointed to a number of critical gaps in the nexus between animal agriculture and climate change, including:

- Agriculture is a major contributor to global GHGs but the sector was not explicitly mentioned in the recent Paris Climate Agreement.
- At the national level, over 80% of countries included agriculture in their intended nationally determined contributions (INDCs), however, these only focused on production and not on consumption.
- Food waste overall is a significant gap and is the third largest contributor to global GHG emissions.
- There is a need to better understand whether and how animal agriculture can be part of a climate solution by promoting carbon sinks and soil carbon sequestration.

4.3 Opportunities
Despite differences of opinion about the complex relationship between animal agriculture and climate change, the most significant opportunity highlighted by a majority of experts was how animal agriculture could be part of achieving the national and global goals set in the recently negotiated climate change agreement. Specifically, some experts underscored that ruminants can play a central role in restoring the world’s carbon base if there are systemic and fundamental changes to animal agriculture production systems. Others suggested greater emphasis on changing consumption behavior in order to prevent some of the expected increases in demand for animal products and meat, in particular.

The Role of Key Actors
Over the course of the interviews, experts were asked about key actors in relation to the gaps, opportunities, and barriers they identified. While many of those interviewed come from civil society, research and/or academic institutions, the main actors that
consistently surfaced across the interviews were industry, government, and funders. That is not to say these are the only key actors in animal agricultural systems, but that these actors seemed to be priority focal or leverage points from the perspective of many experts interviewed.

5.1 Industry
Nearly all experts interviewed emphasized the role of industry in animal agriculture systems. Some suggested greater global attention to the trends and issues such as the vertical integration of animal agriculture industry through mergers and acquisitions in the last decade and the resulting implications on food safety, animal and worker welfare, and a trend towards the lowest common denominator in the globalization of industry standards. Some experts also pointed to the need to better understand the roles of the investor community and of the pharmaceutical industry in shaping current and future animal agriculture systems.

While many experts cited challenges with the industry, nearly all experts emphasized the need for civil society, researchers, and funders, to constructively engage industry in order to create opportunities to influence industry’s production systems and also to harness corporate marketing experience in order to effect positive change on consumer behavior. Some experts pointed to growing industry awareness and anxiety of the long-term investor and consumer trend lines moving away from unsustainable, unhealthy consumer-facing companies, citing recent examples of corporate voluntary measures to foster greater consumer appeal, such as antibiotic free meat. This is creating more opportunity to engage those companies and to help inform their transition to more sustainable business models.

5.2 Government
The role of policymakers and government was frequently highlighted as an integral piece of transitioning to sustainable animal agriculture systems and consumption patterns. Historically in many countries, however, there is a lack of political interest and investment in the livestock sector despite its importance in the national economy, food security, livelihoods, trade, and culture. While some experts underscored government’s role in providing food security, food safety, and nutrition, many experts observed that policy regulation and incentives often follow the market, and therefore there is an opportunity to drive the market through accounting for externalities (especially in the price of consumer goods), constructively engaging industry in sustainable production practices, and finding mutually reinforcing strategies (including policy) for shifting consumer behavior.
Within the Chinese context, it is important to note that the government aims to promote the perception of their ‘peaceful rise’ as a major global power and to be welcomed as a benefactor in other countries. Instances where Chinese animal agriculture companies have acted irresponsibly have caused embarrassment for the government. This relationship could serve as a strategic leverage point for Chinese policymakers to incentivize industry change around issues like pollution, public health, labor conditions and compensation.

5.3 Funders
In addition to the role of industry and government, many experts provided insights and advice on the role of funders. Expert observations about the role and relationships to funders included:

- Among grantees there is a fear of disagreeing with donors and losing funding. Therefore, many grantees try to avoid saying anything controversial in case the donor has a different view.
- Historically, it has been difficult for donors to fund animal agriculture issues because of the environmental perceptions around it. It is easier for donors and grantees to say, ‘become vegetarian’ than it is to explain a more nuanced argument.
- Every donor wants to be associated with a particular achievement or outcome which can sometimes undermine the ability to scale. Donor alignment and co-investing in larger programs is a real challenge and opportunity.
- Foundations assume that NGOs working with private sector businesses do not need grants, but grants are needed to get the private sector buy-in and catalyze longer-term efforts.
- Agricultural funders need to think about outcomes beyond 5 years, which involves higher risk but is essential to assess long-term outcomes. Philanthropies, in particular, are better positioned than bilateral and multilateral donors to fund longer-term agricultural research because of their ability to take more risk.

Conclusion

The areas of convergence and divergence across the set of experts interviewed provides a sense of the complexities in animal agricultural systems and of the need to better understand key leverage points and perhaps more importantly, the relationships between them. There were different opinions about whether there is truly opportunity for impact in some areas (consumption, for instance) and also different views about how to best pursue opportunities and address barriers. While these differences provide some insight
into the relationships and tension points, the reality is that probably all of these efforts and approaches are needed in order to foster positive, comprehensive change at a systems level. The challenge is to determine how these efforts can be complementary and mutually reinforcing in ways that align with priority opportunities for impact; and to use this understanding to help inform where additional and/or coordinated resources may be most valuable.