University of Michigan | School of Natural Resources and Environment

Aurora Organic Dairy Phase III – Corporate Sustainability Report

Master's Project

A project submitted in partial fulfillment of the requirements for the degree of Master of Science at the School of Natural Resources and Environment at the University of Michigan.

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Abstract

This paper represents the work of the third and final phase of a three-stage sustainability collaboration regarding organic milk production and business practices by Aurora Organic Dairy (AOD). AOD is the leading provider of private label organic milk to retailers throughout the U.S., and operates five farms in Colorado and Texas as well as processing plant in Colorado. This study built on the life-cycle analysis (LCA) research conducted in the first and second phases to develop a prototype for the company's first Corporate Sustainability Report (CSR). The study also updated select data for another year of performance reporting covering the company's energy, greenhouse gas (GHG) and water use from April 2009 through May 2010. The research team worked with senior management to assess the company's stakeholders and sustainability goals and determine relevant reporting metrics. The prototype reporting framework was development based on a review of published CSRs, literature on CSR reporting best practices and consultation from industry experts. The final prototype leverages previous LCA studies and current year data updates to provide recommended quantitative and qualitative information to be reported in AOD's publicly released CSR. The prototype links ongoing operational metrics to corporate sustainability goals, values and internal governance and accountability efforts to create a broad view of sustainability impacts and activities across the entire company. In addition to providing strategic recommendations to AOD management for prioritized tracking of information, the work also included documenting process recommendations for developing future AOD corporate sustainability reports.

Acknowledgements

Acronyms

- **AOD**- Aurora Organic Dairy
- **CR**- Corporate Responsibility
- **CSR**-Corporate Sustainability Report
- **ELT**- Executive Leadership Team
- **GHG**-Greenhouse gases
- **LCA**- Life cycle analysis
- **CO2e**- Carbon dioxide equivalent

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Executive Summary

This study is the third in a three-phase study examining the life-cycle impacts and sustainability practices of Aurora Organic Dairy (AOD). The first and second phases conducted life-cycle analysis studies to determine the examine the environmental impact of a finished, packaged gallon of organic milk, including its associated energy use and greenhouse gas (GHG) emissions, water needs, waste production and nutrient utilization. The Phase III work updated select data (outlined in figure A, with results in figure B and C) and drew from research completed in the first two phases to develop the prototype of the company's first corporate sustainability report (CSR). The prototype linked ongoing operational metrics to corporate sustainability goals and values to create a broad view of sustainability impacts and activities across the entire company.

Figure A | Aurora Organic Dairy Environmental Data Updates

Indicator	April 2007-May 2008	April 2008-May 2009	April 2009-May 2010
Greenhouse Gas (GHG) Emissions	X	X	X
Energy Use	X	X	X
Water Use		X	X*
Waste		X	
Nutrient Use		X	

*Water usage for this timeframe is non-LCA data.

Figure B | GHG and Energy Emissions per Gallon of Packaged Organic Milk

Phase	GHG (kg CO2e)	% change from previous year	Energy (MJ)	% change from previous year
I	9.04		70.3	
II	8.39	-7.19%	68.1	-3.13%
III	7.87	-6.20%	65.6	-3.67%

Figure C | Total Water Use by Source

Total AOD Water Use by Source
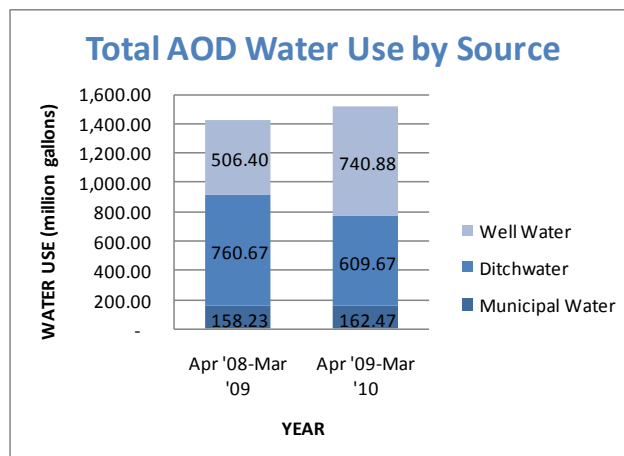
Methodology | In order to determine the appropriate social, environmental, economic, stakeholder, and corporate strategy information to include in the company's CSR Prototype, the Phase III team both reviewed published industry and CSR reporting best practices and worked with AOD's senior management to develop and collect appropriate reporting metrics and content, built from activities to enhance the company's sustainability knowledge building and strategic planning. Phase III worked

directly with AOD senior management to develop the foundation for a sustainability planning and internal governance process. The team developed a "Guidebook for Sustainability Reporting" to enhance company sustainability reporting knowledge and ensure a baseline understanding of the full implications of undertaking voluntary sustainability reporting as a private company. Utilizing reports from industry players, private companies, and companies new to sustainability reporting, it illustrates concrete examples of information disclosure best practices in leading CSRs. This document informed further discussion on sustainability goal setting and reporting and its examples later provided insight for AOD's own prototype.

Based upon research and conversations with sustainability experts, Phase III constructed an iterative process to guide AOD management from initial information discovery to planning and, ultimately, implementation of select sustainability goals. The collective outcome is the formation of AOD's sustainability implementation strategy and specific metrics to report in the company's sustainability report.

Strategic Planning Process | The Phase III team developed interactive sessions around strategic planning for sustainability, specifically stakeholder engagement and sustainability goal setting. The team worked with AOD's senior leadership to conduct an analysis of internal and

Figure D | AOD Stakeholders

external stakeholders (documented in figure D), the issues relevant to each stakeholder, and organizing stakeholders into meaningful groups. Stakeholder engagement allows AOD to understand its stakeholders' expectations, which help define AOD's sustainability strategy and management. Based on this process, the Phase III team recommended 1) institutionalizing the stakeholder analysis process; 2) enhance and strengthening future stakeholder engagement activities and 3) integrating stakeholder engagement and feedback in the CSR.

Sustainability Goal Areas |Using the outcomes of the stakeholder identification' process, AOD identified five **priority sustainability goal areas**, or "pillars", for AOD's corporate sustainability initiatives:

1. Energy / Greenhouse Gas Emissions
2. Employee Satisfaction / Relations
3. Water
4. Community & Philanthropy
5. Animal Welfare

These goal areas formed the focus for five committees to explore possible initiatives and recommend plans for each identified goal area. The Phase III team facilitated committee meetings to encourage discussion of a broad range of available opportunities, determined the driving factors for each goal area,
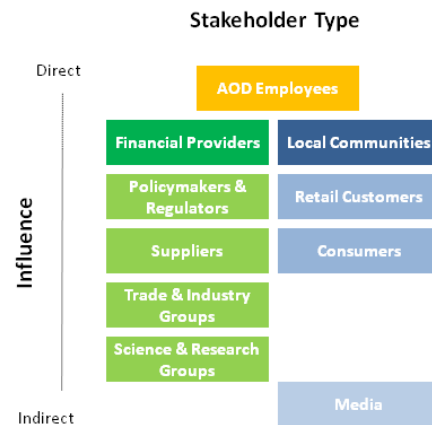
and understood the methods available to analyze potential opportunities and goals. The AOD Sustainability Committees developed high-level draft proposals for how to achieve the goal. Further planning steps will require a more detailed articulation of the goal, including outlining an implementation plan, identifying the timeframe needed to accomplish projects, the level of difficulty associated with implementation, the financial and human resources required, the best metrics for evaluating and tracking a project's success, and assigned responsibility for each project. The Phase III team provides recommendations on the 1) overall goal planning process, 2) strategies for goal development and 3) future sustainability planning.

CSR Prototype Framework | The insight gained from the stakeholder analysis and goal setting process provided guidance towards developing appropriate and relevant indicators for AOD's prototype CSR document. The Phase III research team reviewed reporting frameworks, other CSRs and reporting research literature, in order to document reporting best practices and gather relevant CSR reporting frameworks and appropriate metrics. After reviewing various reporting frameworks, the team determined that the globally respected and widely applied Global Reporting Initiative (GRI) G3 guideline provided the best foundation for AOD's prototype report. The GRI G3 includes an Food Processing Sector Supplement covering additional sustainability topics of food processing but GRI lacks many elements critical to AOD's story, such as organic production, scale and vertical integration, and includes many metrics irrelevant to AOD, such as social metrics like number of violations of indigenous people's rights or incidents of corruption. The Phase III team determined to develop AOD's report based on the GRI framework but ultimately not pursue a formal GRI report.

CSR Content | The GRI G3 framework recommends including content based on its appropriateness to sustainability performance, relevance to stakeholders and completeness. Quality report content should be 1) reliable, 2) provide a balance, 3) comparable over time, 4) accurate and 5) reported in a timely manner. The team examined over 30 CSRs to find appropriate reporting metrics to meet AOD's reporting needs and constraints. This examination found that strong, comprehensive reports include a large focus on social and economic data in addition to environmental metrics. Many reports include clear explanation of governance structures as relevant to general management and decision-making, CSR planning, and company and community engagement.

Phase III examined the boundaries for the Phase I and Phase II LCAs in addition to the insights from the GRI methodology to determine the appropriate scope and boundary for AOD's CSR. The report documents areas within AOD's direct control, defined as beginning with any onsite operations at each farm and ending with delivery of milk to distribution centers. LCA data from previous years' scientific studies, from the feed growing stage through product end-of-life, is discussed for GHG, energy use, water use and waste in order to additional context surrounding the full upstream and downstream organic milk value chain.

Informed by other relevant CSRs, the GRI G3 framework and the stakeholder analysis process, Phase III developed an extensive list of potential CSR metrics. The Phase III team then developed a 'Stoplight' Model to help document and evaluate the metrics, which included all potential metrics and assigned a color rating for each metric. The rating reflected each metric's appropriateness for inclusion in the first CSR based on its relevance, appropriateness, data requirements and data availability. The metric

evaluation aimed to prioritize Phase III's data gathering efforts and later guide the development of AOD's first CSR. Topics for inclusion in AOD's prototype CSR are outlined in Figure E.

Once indicators were prioritized and approved by AOD senior management, the team manually gathered data on-site at AOD Headquarters from May 2010 through July 2010. The team's informational interviews conducted during this time provided the information for general data collection, relevant quantitative data resources and information for qualitative indicators.

Most of the quantitative data needed for the indicators was taken from a company operating records that provided information on AOD's dairy herd, organic feed and bedding purchases, milk production and milk processing. Physical bill invoices were used to gather data on all utility usage (electricity, natural gas, propane and diesel). Data on water usage was collected from municipal water bills, interviews with farm experts and ditch water purchase records.

AOD Prototype CSR Outline

- **Introduction**
- **Background**
- **Corporate Citizenship**
- **Value and Value Proposition**
- **Stakeholders**
- **Animal Welfare**
- **People**
- **Environment** *including:*
  - GHG LCA
  - Energy LCA
  - Water Usage

Figure E | AOD Prototype CSR Outline

CSR and Reporting Methodology Recommendations | The Phase III team compiled a series of recommendations to guide the development of AOD's first CSR. These include developing a report with A) a strong focus on social, environmental and economic data, B) clear identification of stakeholders and stakeholder engagement methods, C) clear explanation of sustainability and CSR governance, D) documentation of company and community engagement and E) highlighting the company's unique value and value proposition. Additional Phase III recommends that *publish key sustainability information annually* and *shift the CSR's reporting cycle* to match AOD's normal fiscal cycle of January – December.

To improve the reporting methodology process, Phase III recommends that AOD 1) use GRI G3 as basis for its CSR report and also report on metrics outside of GRI G3, as appropriate, 2) utilize Phase III "Stoplight Model" to prioritize CSR information to publicly report, 3) focus its efforts on establishing data collection processes that will allow for efficient and easily verifiable data collection, with any third-party verification of data focused on individual data points, and 4) focus its early reporting efforts on impacts directly under AOD's control where data can be measured, tracked and performance controlled (directly controlled operations data are defined as beginning with onsite farm impacts and concluding with the delivery of milk to distribution centers).

The final CSR report should cover all of AOD's products (processed fluid milk, milk powder and butter) and all facilities within AOD's direct scope of business operations. Specific reporting facilities include the five AOD-operated dairy farms & calf ranch, the processing plant and corporate headquarters. These facilities will continue to comprise the foundation for tracking performance data trends in subsequent reporting periods.

Additional details about each section of the AOD Prototype Report are covered in the final section of this paper, providing more detail on the particular metrics and data that will be reported in the AOD CSR. Given that at the time of this paper's writing, the prototype was not yet finalized and not yet publically available, explicit details about the CSR prototype contents could not be shared. However, the

sections describe the general content, rationale and recommendations for the content and reporting methodology for AOD's first CSR.

Project Overview

In 2008, in conjunction with the Center for Sustainable Systems at the University of Michigan's School of Natural Resources & Environment (SNRE)[i], Aurora Organic Dairy (AOD) launched a three-phase carbon footprint and sustainability best practices collaboration to examine the environmental impact of a finished, packaged gallon of organic milk, including its associated energy use and greenhouse gas (GHG) emissions, water needs, waste production and nutrient utilization. The study used primary data from AOD's farms and processing plant wherever possible, in addition to information provided by suppliers and vendors, academic research, and publicly available aggregate industry data in order to develop a life cycle analysis (LCA) model of the entire milk production system from organic feed production to end of product life disposal. This was the first comprehensive LCA of a vertically integrated large-scale milk production business in the United States, organic or conventional. AOD's unique vertically integrated supply chain allowed more access to primary data than many dairy LCAs[ii]. The overall system snapshot and boundaries used for AOD's milk LCA research is provided in Figure 1[iii]. Assessing each life cycle stage for a gallon of packaged milk helped the company to understand the environmental impacts across the full production system as well as how to focus additional opportunities to create effective changes within the system. (See Appendix A and B for more details on Phase I and Phase II).

In December 2009, the third phase research team (Phase III) began working with AOD to develop a prototype for the company's first Corporate Sustainability Report (CSR). Phase III's work drew upon research completed in the first two phases while developing additional social, environmental, economic, stakeholder, and corporate strategy information to include in the company's CSR Prototype. Figure 2 identifies the key environmental information updated in each phase of the collaboration with AOD. This paper documents the reasoning, research methodology and results, and resulting prototype outline developed by the Phase III research team.

Figure 1 | AOD's Supply Chain and Boundaries of Direct Control
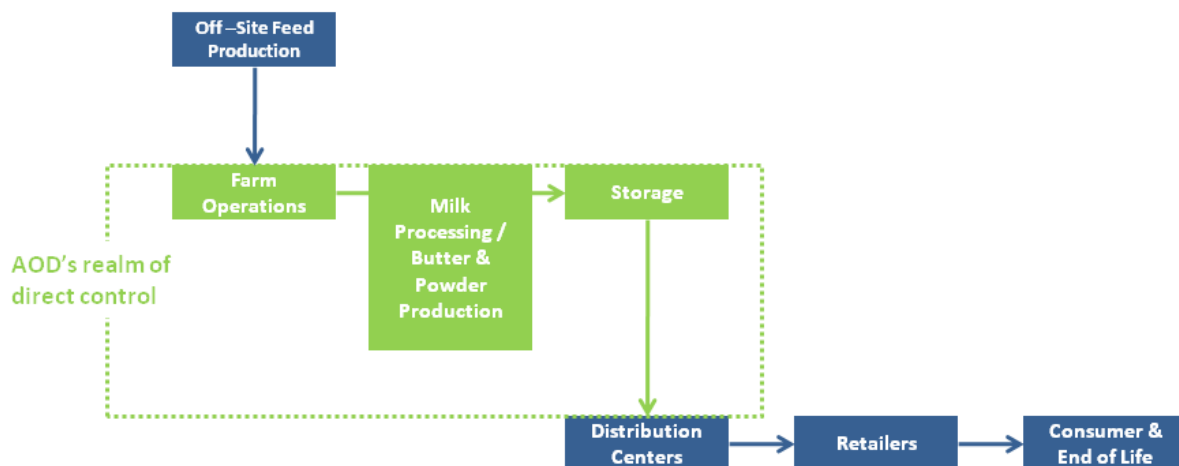
Figure 2 | Aurora Organic Dairy Environmental Data Updates

Indicator	April 2007-May 2008	April 2008-May 2009	April 2009-May 2010
Greenhouse Gas (GHG) Emissions	X	X	X
Energy Use	X	X	X
Water Use		X	X*
Waste		X	
Nutrient Use		X	

*Water usage for this timeframe is non-LCA data.

Aurora Organic Dairy Background

Aurora Organic Dairy is a leading national provider of organic milk with dairy farms in Colorado and Texas. The company owns and manages more than 7,500 acres of organic pastureland surrounding its five dairy farms, and supports over 50,000 acres of organic feed production in several states. Throughout its unique vertically integrated organization, AOD implements a socially responsible business ethic in its various operations ranging from ensuring the humane treatment of animals, to advancing environmentally sustainable operations, to fostering supportive relationships with its employees and surrounding communities. AOD strives to reduce its overall environmental footprint and further develop its industry leadership on sustainability initiatives. In order to better communicate its business practices to internal and external stakeholders, and to strengthen its strategic framework for developing innovative practices, AOD plans to publish its first CSR. The report will show ongoing company efforts in social, environmental and economic areas. It will identify key strengths as well as issues and challenges facing the company in all three areas.

Phase III - Developing a Corporate Sustainability Report

Prototype Corporate Sustainability Report

The Phase III team worked directly with AOD's senior "Executive Leadership Team" (ELT) and other key company personnel to enhance management's sustainability strategy. The ultimate project goal was the development of a prototype for the company's first CSR. The final prototype leveraged previous LCA studies and current year data updates to provide the quantitative and qualitative information to be reported in AOD's publicly released CSR. The prototype linked ongoing operational metrics to corporate sustainability goals and values to create a broad view of sustainability impacts and activities across the entire company. Phase III also updated select previous LCA data, as disclosed in Figure 2.

In order for AOD to be prepared for subsequent CSR reporting and sustainability goal setting, the team took several steps to successfully develop the first company CSR and to expand AOD's internal knowledge base. To meet these objectives, the Phase III team deliverables included the following items:

Deliverables

1. Prototype corporate sustainability report

2. List of currently unmet or untracked indicators and metrics coupled with strategic recommendations to AOD management for prioritized tracking of information

3. Process recommendations for developing future AOD corporate sustainability reports

4. Final summary presentations, including debrief, to AOD and the University of Michigan's School of Natural Resources and Environment community

The team manually collected CSR data for the current reporting year, creating year-over-year trends, as feasible and documenting sources to ensure that all data was verifiable. The team also researched internal benchmarks, as well as stakeholder and industry reporting practices. Along with the final prototype indicators, Phase III provided a list of currently reported, as well as unreported or untracked, indicators to be considered for future reporting periods. This list, combined with team recommendations for improving internal sustainability strategy and streamlining data management, offered guidance to AOD management on how to more efficiently update CSR metrics.

Corporate Strategy

Throughout the process, the team provided feedback to AOD management as the company determined appropriate and realistic sustainability goals. However, it became clear early in the project that there was a unique opportunity for the Phase III team to work in a more proactive and hands-on capacity with senior executives to formalize and integrate AOD's sustainability efforts into broader strategic planning across the company. Years ago the company had identified a strategic opportunity to embark on sustainability planning and has followed through on that commitment, but has yet to weave the various outcomes of research into its annual strategic planning process. As a result, Phase III created additional deliverables for the ELT beyond the initial project scope. These deliverables focus on sustainability knowledge building and strategic planning.

Guidebook for Sustainability Reporting | To enhance company sustainability reporting knowledge, the Phase III team developed a "Guidebook for Sustainability Reporting" in order for the ELT to have customized examples of all aspects of a sustainability report. The guidebook ensured a baseline understanding of the full implications of undertaking voluntary sustainability reporting as a private company. Utilizing reports from industry players, private companies, and companies new to sustainability reporting, it illustrates concrete examples of information disclosure best practices in leading CSRs. The Phase III team also identified examples of CSR pitfalls and poor reporting practices. The guidebook is also a valuable tool for AOD design and copywriting teams because it serves as a comparison point for standard reporting techniques and visual layouts. Phase III also compiled full industry-wide CSRs to serve as a reference point to frame AOD's business landscape within sustainability.

Interactive Sessions (Stakeholder Engagement and Sustainability Goal Setting) | Two additional customized deliverables consisted of interactive sessions around strategic planning for sustainability, specifically stakeholder engagement and sustainability goal setting. Stakeholder engagement efforts focused on conducting an analysis of internal and external stakeholders, what issues are relevant to each stakeholder, and then organizing stakeholders into meaningful groups for AOD. The outcome served to both inform the subsequent goal-setting process as well as to identify company strengths, weaknesses, and opportunities for AOD interactions with its stakeholder groups. The sustainability goal-setting sessions mapped stakeholder group issues to internal company concerns and prioritized a set of five pillars towards which AOD sustainability goals would be focused. The Phase III team then developed best practices criteria to inform the goals process and worked with AOD leadership to form a company goal-setting process within the company.

Corporate Sustainability Strategy

Stakeholder Identification

The Role of Stakeholder Analysis and Engagement

Stakeholders represent individuals, organizations and interests, both within and outside AOD, that are influenced by AOD's operations and, in turn, formally or informally influence AOD's business. Stakeholders can be **contractual:** directly engaged with an organization, generally through financial commitment, or **contextual:** indirectly influencing the success (or failure) of an organization.[iv]

A lack of stakeholder engagement can potentially blindside a firm, as it may not have accurately assessed risks and public concerns regarding social and environmental issues. The level of stakeholder engagement required depends on the initial public trust of the company, the firm's corporate performance and future plans.[v] Stakeholder engagement options vary depending on type of relationship and level of importance of the group to a firm's operations. Engagement methods can range from focus groups, opinion polls and surveys, to formal process meetings and even stakeholder networks, where a firm is part of a group of concerned stakeholders that voluntarily comes together to address an issue. [vi]

Documenting the key stakeholders and relevant stakeholder engagement in a CSR speaks to a company's sustainability efforts and how the firm chooses to engage on those issues. It has also become an expected part of sustainability reporting; a 2008 analysis of several socially responsible business and investing indexes and reporting frameworks (including the Dow Jones Sustainability Index and the Global Reporting Initiative [GRI]) revealed that these indices and frameworks expect a firm's sustainability efforts to include a statement of commitment to stakeholder relations and dialogue.[vii]

Understanding the firm's economic, social and environmental impacts on its stakeholders and how those stakeholders impact AOD is a key part of AOD's corporate sustainability strategy. Stakeholder engagement allows AOD to understand its stakeholders' expectations, which help define AOD's sustainability strategy and management. AOD's CSR presents an opportunity to strengthen AOD's relationships with its stakeholders through increased stakeholder interaction and improved communication and transparency. The CSR will raise external awareness of AOD's sustainability efforts and increase visibility for how AOD is addressing stakeholder concerns. The input Phase III gathered from AOD's stakeholder identification and analysis provided key determinants for selecting relevant indicators to report in its first CSR.

Research Approach

The stakeholder analysis process represents a series of activities from the initial stakeholder identification and prioritization to engagement and follow-through. This process is outlined in Figure 3. The Phase III research team focused on the initial stakeholder analysis: 1) identifying, 2) mapping and 3) prioritizing AOD's stakeholders.

Source: Adapted from Future 500

To determine appropriate CSR stakeholder reporting methods, Phase III researched the importance of stakeholders, reviewed CSRs, and conducted interviews and stakeholder identification workshops with members of AOD's Executive Leadership Team (ELT). The team examined stakeholder reporting in various CSRs in and outside the dairy industry, documenting samples in the team's Corporate Sustainability Reporting Guidebook. The Guidebook presents a series of effective, comprehensive, succinct or creative CSR examples. The Phase III team found that more comprehensive reports not only included a list of stakeholders and their relevance to the firm, but also shared pertinent stakeholder concerns, the firm's engagement plans with the concerned stakeholder groups and how that interaction informs the firm's actions and reporting. Some reports visualized the relationship while others simply highlighted examples of their engagement.[ix]

The Phase III team compiled an initial list of potential stakeholders by examining stakeholders listed in other CSRs. Corporate stakeholders include immediately apparent groups such as investors, regulators, suppliers and customers, as well as less obvious bodies such as NGOs, community, insurers, etc.[x] Subsequently, the team built on that initial list through multiple informational interviews with the ELT, the Platteville and High Plains Farm Managers, logistics and supply chain experts, processing plant officials, AOD's on-site veterinarian, members of the accounting and finance departments and the Manager of Special Farm Projects. The Phase III team captured the input of AOD's ELT by running one-on-one stakeholder discussions to identify relevant stakeholders and stakeholder concerns.

After developing a master list of stakeholders, the team identified the major stakeholder categories by asking the following questions:

1) How will AOD interact with each stakeholder?
2) What is the stakeholder's influence on AOD? How is that impact felt?
3) What other stakeholders have similar issue areas?

The team grouped the stakeholders and issues relative to AOD's direct and indirect operations (seen in Figure 4). This analysis revealed eight major stakeholder categories:
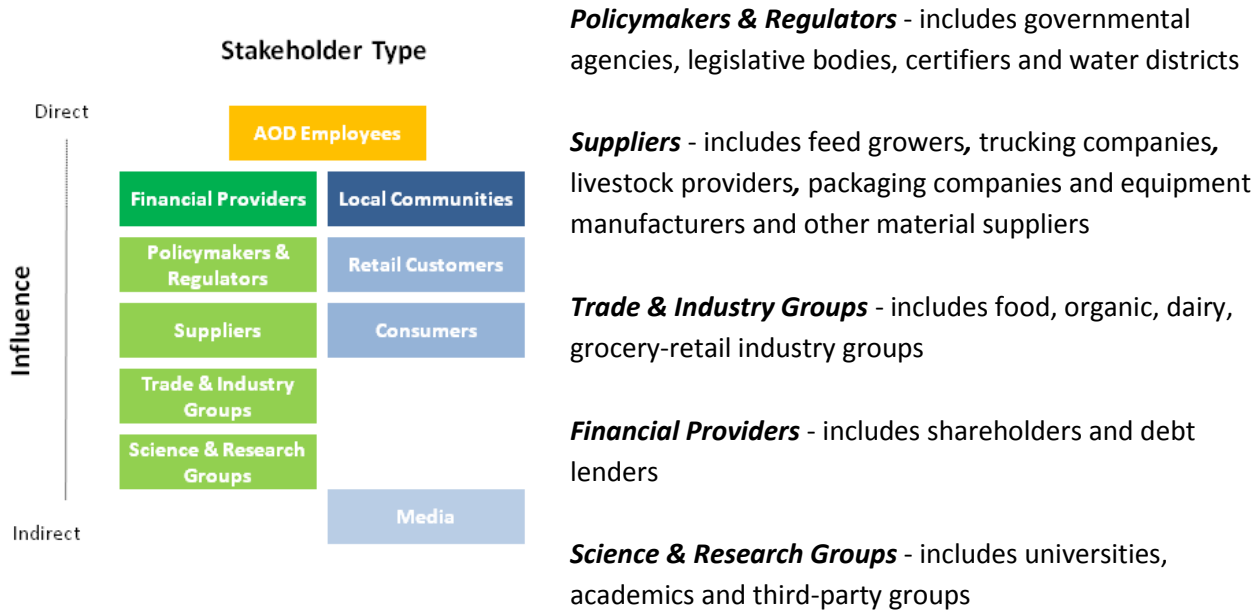
Figure 4 | AOD Stakeholders

Policymakers & Regulators - includes governmental agencies, legislative bodies, certifiers and water districts

Suppliers - includes feed growers*,* trucking companies*,* livestock providers*,* packaging companies and equipment manufacturers and other material suppliers

Trade & Industry Groups - includes food, organic, dairy, grocery-retail industry groups

Financial Providers - includes shareholders and debt lenders

Science & Research Groups - includes universities, academics and third-party groups

Employees - includes employees at the farms, plant, office and their families

Local Communities - includes residential neighbors and communities near farm and plant operations

Customers/Consumers - includes retailers, wholesalers, brokers and end consumers

Issue Areas

Based on the interviews with ELT members, Phase III identified possible issue areas related to each stakeholder group. The team also prioritized issue areas important to AOD as a company, looking for overlap with key stakeholder concerns, areas material to AOD's operations, and areas under AOD's direct influence. After presenting the results to the ELT and discussion regarding the various groups and their issue areas, Phase III directed an ELT vote on the top stakeholder issues, which then informed the creation of the sustainability committees detailed on page 23.[xi]

Application of Stakeholder Analysis

As discussed above, identifying key stakeholders and common issue areas can inform sustainability goal areas.[xii] Active collaboration with relevant stakeholders will also help (1) ensure AOD's long-term strategy is well informed, (2) ensure AOD leverages external resources to better anticipate and mitigate risks, and (3) enhance AOD's corporate reputation and success in executing sustainability initiatives. The initial stakeholder analysis ensured that AOD sustainability initiatives were directly linked to future stakeholder engagements and informed AOD multi-year strategic goals.

Recommendations

From this initial stakeholder analysis process, the Phase III team identified a series of short- and long-term recommendations for AOD's stakeholder analysis and engagement process:

1) **Institutionalize Stakeholder Engagement |** The stakeholder process will find firmer and long-lasting footing in the organization if it is integrated into official roles within the organization and the strategic planning process. [xiii] It is recommended that AOD:
   a. Assign an employee to own and be accountable for AOD's stakeholder engagement.
   b. Establish a stakeholder review team that seeks to gain input from suppliers, services providers and end consumers.
   c. Establish an organizational model that allows AOD to incorporate stakeholder feedback into the decision-making process.
   d. Utilize an outside party (such as Ceres) to facilitate and inform its stakeholder input sessions, providing formal access to and input from investors, environmental groups and other public interest groups on its sustainability reporting, goals and targets.

2) **Future Stakeholder Engagement Process |** Based on stakeholder literature and review of best practices, the Phase III team recommends the following steps for AOD to strengthen its stakeholder engagement process:
   a. Conduct direct outreach (e.g. opinion surveys) to key stakeholders.
   b. Build a database of profiles and contact information for each stakeholder.
   c. Revisit the overlaps and prioritization of stakeholder issues and AOD interests.
   d. Identify potential stakeholder initiatives, including scope and purpose.
   e. Engage stakeholders and follow-through on collaborations.
   f. Evaluate success of outreach and identify new opportunities[xiv].
   g. Establish communication channels to improve stakeholder interactions (especially internal stakeholders) and effectively gather feedback on relevant stakeholder concerns[xv]. These channels include roundtables, questionnaires and web-based feedback, and should provide in-person or anonymous feedback opportunities.
   h. Consider formalizing the current informal stakeholder feedback interactions with investors, customers and suppliers[xvi].

3) **Integrate Stakeholder Engagement and Feedback in the CSR |** Sharing the role of stakeholders in the CSR demonstrates that AOD values its stakeholders.
   a. Stakeholder engagement in the CSR should be supported[xvii] with specific examples.
   b. Actual stakeholder engagement initiatives should be documented and general or vague commitments to improving stakeholder engagement should be avoided. Vague commitments can appear weak or false as though the company failed to commit to any actual improvements.[xviii]
   c. AOD can gather input from stakeholders on its first CSR and use that information to modify and amend key issues in its sustainability reporting framework and methodology. Future reports can highlight this feedback and what came of stakeholder

engagement and dialogues, including how this feedback informed the company's sustainability goals and efforts.[xix]

Sustainability Goal Setting and Governance

Background of AOD Sustainability Strategy

Aurora Organic Dairy was founded with a firm commitment to sustainability principles through its decision to operate as an organic food producer and its dedication to sustainable food production, but it had not yet focused on systematically making sustainability a factor in business decision-making and planning. In its early years, AOD integrated sustainability initiatives into company practices mostly through an entrepreneurial and ad hoc manner. Recently, AOD leadership has taken a more cohesive and strategic approach towards sustainability planning and has increased resources to reinforce sustainability objectives. This effort resulted in initiatives such as the Phase I and Phase II LCAs, its intention to hire a Director of Sustainability, and the creation of the company's first CSR.

The start of the Phase III project provided an appropriate time to merge AOD's business, core values and unique employee culture into a formal strategic sustainability planning process. Formalizing such a process provided a complement to the development of AOD's first CSR because CSR best practices include corporate internal governance and sustainability planning, in addition to traditional performance metrics. Developing sustainability goals can address stakeholder concerns (discussed in "Stakeholder Identification", starting on page 16), provide a roadmap to dedicate resources and efforts towards future sustainability initiatives and document the steps necessary to address current and future challenges.

Recognizing that sustainability goals and sustainability governance typically inform the CSR content and process, Phase III worked directly with AOD senior management to develop the foundation for a sustainability planning and internal governance process.

Methodology

Much like CSR reporting methods, sustainability goal definition and governance structures remain varied and non-definitive. To inform AOD's own goal-setting and governance, Phase III conducted research from independent sources and existing best practice CSRs to determine general goal-setting and governance recommendations. In addition to best practices in process and reporting, this research also identified the pitfalls and practices to avoid in setting goals and governance structures. To augment CSR reviews, Phase III also reached out to various corporate sustainability professionals and participated in webinars about sustainability goal setting. The Phase III team sought to determine what criteria should be used to prioritize and set goals, what governance structures are in place at socially successful companies, and what shared insights would be valuable for AOD's strategic planning. The list of external resources utilized can be seen in Figure 5.

Best practice examples include governance structures outlined in both Campina's and Seventh Generation's CSRs, which demonstrate internal accountability structures including oversight committees, full-time management positions dedicated to sustainability, and project teams that identify and implement individual initiatives.[xx] Additional best practices include clearly articulating specific goals. For example, New Belgium's Sustainability Management System explains the rationale behind company

goal areas, potential company initiatives, and long-term targets that have yet to be achieved. "By 2020, [New Belgium will] reduce greenhouse gas emissions by 20 percent below 2005 levels. By 2050, reduce greenhouse gas emissions by 80 percent below 2005 levels"[xxi].

Weak goal setting processes include only focusing on past company actions and do not articulate the company's future actions. For example, Dairy UK's CSR set targets in its first sustainability report but failed to provide much more than historical information, which detailed projects and goals that were either already in place or nearly achieved by the time the first report was released[xxii]. Campina's CSR identified a diverse subset of goals but lacked clear targets that would provide context to the external reader on the level of ambition or explicit outcome desired by each goal.

> **Figure 5 | External Resources**
>
> To learn how organizations establish and govern sustainability goals, Phase III, on AOD's behalf, sought insight from various external experts and webinar opportunities, including:
>
> - Prof. Andy Hoffman, Holcim (US) Professor of Sustainable Enterprise at the University of Michigan
> - Kirk Myers, Corporate Social Responsibility Manager at REI
> - Paul Murray, former Director of Environmental Health and Safety, Herman Miller
> - Scott Noesen, former Director of Sustainability at Dow Chemical
> - Eric Olson, Senior Vice President of Advisory Services at BSR, a leading sustainability consulting firm
> - Jen Orgolini, Director of Sustainability at New Belgium
> - Dave Stangis, Vice President of Corporate Social Responsibility at Campbell Soup
> - Katie Wallace, Sustainability Specialist at New Belgium
> - Matthew Welch, Manager of Sustainable Business Development at the Innovation Center for U.S. Dairy

Goal Setting

Based upon research and conversations with sustainability experts, Phase III constructed an iterative process (shown in Figure 6) to guide AOD management from initial information discovery to planning and, ultimately, implementation of select sustainability goals. The steps follow a logical pathway similar to traditional strategic planning exercises. First, broad internal company and external stakeholder assessments are conducted as the basis for goal creation. Then topical goal areas are selected and the planning focus increasingly narrows to establish concrete objectives for each goal area and to create plans for each individual initiative within the goal areas. The collective outcome is the formation of AOD's sustainability implementation strategy and specific metrics to report in the company's sustainability report. The process requires consistent evolution and, thus, a new iteration of the process begins during subsequent planning cycles.

Figure 6: Sustainability Goal Setting Process[xxiii]
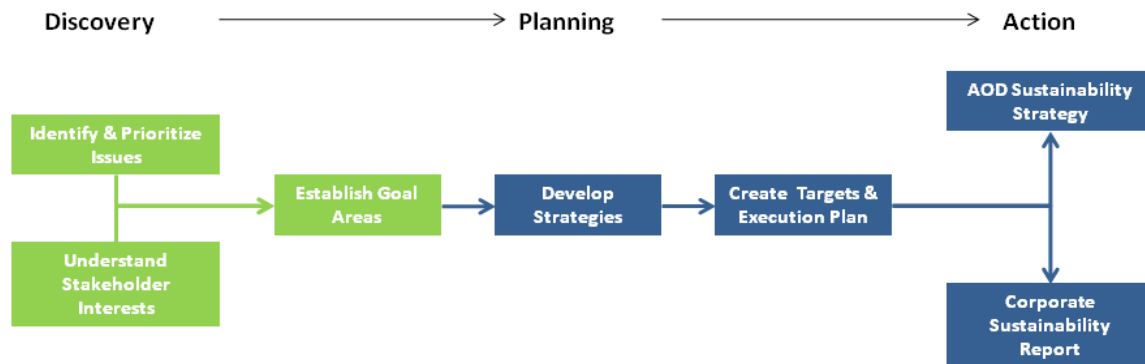
As discussed in the Stakeholder Identification section of this report, after completing stakeholder assessment workshops with AOD, Phase III compiled a list of all AOD/Stakeholder issue areas, led discussions with the ELT group and then the ELT members voted on the issues most important to the company, as well as those issues that could have the biggest impact on the company. The team then created a model to determine the most relevant stakeholder groups associated with each issue area and which issues the Phase III team and AOD's senior management Committee believed provided the best opportunities for making sustainability improvements. Using the outcomes of this process (outlined in 'Stakeholder Identification' starting on page 16) AOD identified five **priority sustainability goal areas**, or "pillars", for AOD's corporate sustainability initiatives:

6. Energy / Greenhouse Gas Emissions
7. Employee Satisfaction / Relations
8. Water
9. Community & Philanthropy
10. Animal Welfare

The inclusion of animal welfare as a key sustainability pillar demonstrates AOD's commitment to developing goals that encompass the core concerns of the organizations and stakeholder groups. While not a traditional sustainability focus for companies, animal welfare represented a fundamental link to AOD's business model, received a high priority rating from the ELT voting process and was significant to at least five of the company's eight stakeholder groups[xxiv].

Governance

Shifting to a formal sustainability planning process requires the development of a corporate system of accountability for every step of the process, from setting the company's broader vision to the implementation and evaluation of individual plans. A report by the Doughty Centre at Cranfield

University found that companies with formal corporate responsibility-focused committees scored an average of 9% better in the UK's Business in the Community Corporate Responsibility Index when compared to the average company[xxv]. The report (quoted in Figure 7) shows the range of possible corporate responsibility (CR) committee structures used by companies.

FIGURE 7: Doughty Centre Report – Corporate Responsibility Committees[xxvi]

Company	Description
Within the board	CR issues are discussed as part of normal board meetings.
Formal committee on CR	A formal committee designs CR strategies and gives recommendations for board approval.
Executive committee on CR	An executive committee has well-defined executive powers in terms of CR strategy and is authorised to make decisions on behalf of the entire board.
Ad-hoc committees on CR	Ad-hoc committees are set up to accomplish a particular task, for example to design or revise the organisation's CR strategy.

Based on the five sustainability goal areas and the entrepreneurial and relatively autonomous planning style at AOD, Phase III recommended that AOD develop five committees to explore possible initiatives and recommend plans for each identified goal area. This strategy allowed diverse groups of employees to become quickly engaged in AOD's sustainability efforts and develop actionable strategies for the first cycle of formal sustainability planning. Additionally, this structure provided a strong foundation for future sustainability planning while maintaining flexibility in the event future planning needs required modifications to the current plan.

Drawing from interviews with CSR experts, Phase III also recommended that committees be cross-functional and include employees from multiple levels of the company, allowing the groups to draw upon a diverse range of expertise[xxvii]. Company response was positive and resulted in the creation of five sustainability goal area committees ('Sustainability Committees'), which then embarked on a series of brainstorming and goal setting activities. Current committee membership is limited to management, but AOD leadership has indicated interest in including employees from all levels of the company in future sustainability planning cycles. This approach will address the common challenge of creating broad support for company sustainability efforts by connecting employees throughout the company to the sustainability goals. AOD can further follow the best practices of companies such as New Belgium Brewing Company, which successfully involved employees at all levels in sustainability initiatives by

developing internal champions for sustainability practices and creating a culture focused on sustainability improvement[xxviii].

To implement and monitor the committee goals and sustainability efforts, Phase III recommended the creation of a Sustainability Steering Committee[xxix]. If put into place, this committee could provide accountability for company-wide policies, processes, and strategic planning, as well as evaluate and assess the performance of individual projects and Sustainability Committees As recommended, the Steering Committee should consist of top decision-makers such as the President and CFO, and employ an executive committee structure (see Figure 7), similar to the company's current senior management committee for ultimate decision-making on sustainability efforts.

Goal Setting Process

The establishment of five priority goal areas allowed AOD to advance to the 'develop strategies' and 'create targets & execution plans' steps shown in the "Sustainability Goal Setting Process" (Figure 6). The Phase III team facilitated committee meetings to ensure that AOD discussed the broad range of available opportunities, determined the driving factors for each goal area, and understood the methods available to analyze potential opportunities. Additionally, the AOD teams identified the timeframe needed to accomplish projects, the level of difficulty associated with implementation, the financial and human resources required, the best metrics for evaluating and tracking a project's success, and assigned responsibility for each project. Additional questions posed to AOD management as it entered the goal setting process can be seen in Figure 8.

Figure 8 | Goal Setting Interview Questions

- What are short (1-2yr) and longer (3-5yr) term goals in individual roles, departments, and company-wide?
- What opportunities do you see to achieve your sustainability goals through collaboration with other stakeholders?
- What are the biggest challenges your department or role faces?
- What sustainability goals are important to AOD's customers and end consumers?
- What are your customers saying about sustainability?
- What does your community think about sustainability?
- How does AOD respond and prepare for regulatory risks?
- How can the sustainability planning and implementation process be streamlined in the future?
- What data needs to be collected, what metrics need to be tracked, and how will each project's success be determined?
- Who will be accountable for carrying out each initiative?

[Source: Lapka, Rosemary, Start, Lauren and Weinglass, David, *062410 Stakeholder Presentation ELT FINAL.pptx*. Boulder, CO, 24 June 2010. PPTX.]

The Phase III team highlighted not only the need for an immediate sustainability action plan for the coming year, but also that management should consider developing a larger sustainability vision/plan that includes coordinated goals and targets spanning a longer timeframe. Discussions with sustainability experts suggested it may be more pragmatic to develop a cohesive long-term sustainability plan after the company gains experience from one or two iterations of the full goal setting process detailed in Figure 6.[xxx] However, early company considerations on how to shape a long-term sustainability vision can help ensure that initial goals build towards a common purpose.

Building Actionable Goals –

As of part of the sustainability goal setting process, Phase III constructed a **goal-setting template** (Figure 9) to provide each committee with a common set of criteria needed to clearly identify and execute specific committee goals. The template identifies the goal, the scope of the effort, and how the effort will be executed. The potential goal example contained within Figure 9 is a direct result of the creative brainstorming exercise described below.

Figure 9: Goal Setting Template with Example Goal
Note: This potential goal is an actual first draft result from the creative brainstorming exercise described below. More detailed information on data needs, implementation plan, etc. would be needed prior to actual use.

Goal: Improve chain of communications at Plant, Farms, Boulder in order to improve employee job satisfaction and work efficiency

Target: Backup employees at each farm, plant, office etc. to answer emergency calls from farm management or other to fill in.

Rationale: Opportunity is to create a contingency line of communications and have employees on call at certain times in case primary contact unavailable.

SCOPE	EXECUTION
Stakeholder: AOD	**Primary Accountability**: Director of Farm Resources
Issue Areas: Risk management, work/life balance, improved Communications	**Secondary Accountability**: Location Managers TBD
Timeframe: 2011	**Data to Track:** TBD
Benchmark: Internal	**Resources Needed**: Additional internal training
Challenge & Resource Level: Low	

The *goal* itself is separated into its stated purpose and the desired outcome, which should include a measurable target. The *scope* criteria provide the supporting context and boundaries defining the goal for the organization. Finally, the *execution* component of the template assigns staff accountability for the initiative, the required financial and human resources, as well as a structured implementation plan for how the goal will be achieved.

Additionally, Phase III provided advice to AOD management on how to determine and evaluate data tracking needs, appropriate sustainability metrics and success evaluation during the goal setting process. The team provided such advice to encourage a strong, consistent framework for goal-setting to ensure long term viability and validity of the process.

At the request of AOD's President, members of the Phase III team led the first meeting of each sustainability planning goal area committee in order to frame and jumpstart the goal-setting process at AOD. The team restated the company's sustainability work to date, the suggested goal setting process and template (Figure 9), the committees' objectives and nominations for committee leadership, and the expectation of formal committee recommendations. Phase III then led a creative brainstorming exercise with each committee to stimulate new idea generation for sustainability efforts. Each committee was tasked with developing a range of ideas within six weeks, including both short-term and long-term ideas, as well suggestions that did not require significant financial investment. [xxxi]. The hypothetical goal outlined in Figure 9 was a high-level example created during the first Employee Satisfaction Committee meeting[xxxii]. This process followed the steps outlined in Figure 10.

Figure 10 | Brainstorming Goal Development Process

_____

The iterative exercise developed by Phase III to create this goal example in Figure 9 followed these steps:

Step 1 – Brainstorm and record all possible topics related to employee satisfaction at AOD, being as inclusive as possible for any suggested idea.

Step 2 – Select a single topic from the list created in Step 1 and conduct a deeper discussion addressing the topic's implications to the company, what advantages or challenges it poses, and what are its underlying drivers. The topic selected in the example in **Figure 9** was how management and employees interact.

Step 3 – Explore in greater depth and record a range of possible ways that the topic can be addressed as an actual goal for the company. The group was asked to think as "outside of the box" as it liked and to include realistic thoughts on how to address the selected topic, as well as thoughts that may not at all be feasible. Unrealistic ideas were included because they encourage creativity and can provide clues into unique solutions to common problems.

Step 4 – A single potential approach to addressing the topic was selected from Step 3. Phase III guided committee members through a discussion to articulate the topic and approach as a feasible goal, using the goal-setting template described earlier.

Each committee developed high-level draft proposals for how to achieve the goal. Further planning steps will require a more detailed articulation of the goal, including outlining an implementation plan. A standard format across all committees encourages future AOD goal proposals to be produced in the same format so that all potential goals can be easily catalogued and discussed using a common language. It also allows the company to create a varied portfolio of activities that can be compared to one another in order to achieve its five sustainability objectives.

NBB Sustainability Portfolio Screening Tool: Customized Triple Bottom Line

Proposed Sustainability Strategy Title	Brief Description
Action (Environmental benefits to NBB)	Relative benefits: High, med, low
reduces energy use	
reduces energy demand	
reduces water use	
reduces other material inputs	
reduces ghg emissions	
increases renewable energy	
reduces transportation impacts	
closes loops	
other environmental benefits not tied to SP goals	
Qualitative Score (1-3)	(overall score 1-3; 3 is highest benefit)
Advocacy (Ripple effect of NBB action)	Relative benefits: High, med, low
effect on supply chain	
effect on current customers	
alignment with branding	
effect on local community	
effect on sustainability movement	
effect on distribution chain	
effect on brewing industry	
effect on employees personal life	
other ripple effects	
Qualitative Score (1-3)	(overall score 1-3; 3 is highest benefit)
Financial Value	Relative benefits: High, med, low
Top-line potential	
Bottom-line savings	
Cost to implement	
Cost-share potential (partners, rebates, etc.)	
Financial certainty/risk management	
Qualitative Score (1-3)	(overall score 1-3; 3 is highest benefit)
TOTAL SCORE	(Action x Advocacy x Financial Value)

Figure 11: New Belgium Sustainability Portfolio Screening Tool

After compiling possible goals, AOD will need to determine the criteria to evaluate, compare, approve and fund the various committee goals. Resources do not exist to pursue all initiatives simultaneously, so it will be vital for the company to determine a method to strategically and appropriately allocate resources to initiatives. Some organizations compare initiatives purely on financial metrics, such as net present value or internal rate of return (with sometimes establishing a lower threshold for sustainability initiatives compared to general company initiatives), while others prioritize by using quantitative environmental metrics such as tons of carbon dioxide equivalent abated. New Belgium Brewery developed a balanced portfolio approach of evaluating sustainability initiatives and is one example of how multiple priorities can be weighed in a decision-making scorecard (Figure 11).

Recommendations

The Phase III team identified a series of short and long-term recommendations for AOD's sustainability goal planning and development process:

OVERALL GOAL PLANNING PROCESS

1) **Follow through with intent to hire a Director of Sustainability.**
2) **Integrate sustainability planning into company-wide strategic planning process.**
3) **Create a Sustainability Steering Committee**[xxxiii] which selects projects and strategies to implement, oversees accountability across all goal areas, verifies the success or remaining obstacles to succeed for goals, suggests process improvements for internal measuring, tracking, and implementing of initiatives, and provides guidance to committees, as needed.
4) **Determine clear criteria for how to compare value and prioritize sustainability-focused projects and regular projects that have sustainability benefits.** It is important to have an established method for evaluating project proposals, especially when projects are competing for limited funding. The company may have previously based Go/No Go project decisions purely upon a financial return hurdle, but indirect financial gains bring strategic value to the company and should be factored into every project decision proposal and analysis. Metrics to quantify internal sustainability value may include dollars invested per unit of GHG reduction and other measurements. The company should also decide if sustainability projects will be held to the same ROI hurdle rate.
5) **Establish a clear document trail for all sustainability data,** which allows for third-party auditing of sustainability reports. Such auditing enhances the company's internal ability to manage its performance and increases transparency.
6) **Strengthen internal culture** and awareness of sustainability at all levels of the organization.

GOAL DEVELOPMENT

7) **Create early successes in the first year by implementing smaller, more manageable goals and essential needs.** Use this experience to build more ambitious goals in subsequent planning cycles. It is common practice to state a long-term vision and goals without knowing how, or if, they can be accomplished, but make sure near-term efforts always follow clear objectives and implementation plans.
8) **Commit to sustainability goal areas for longer than a single cycle in order to aggregate impacts achieved in each area and allow for medium- and long-term progress.** The company's sustainability strategy should include a range of 1-2 year goals, 3-5 year goals and 5+ year goals.
9) **Set targeted accomplishments for individual goals and the overall company by conducting in-depth assessment.** Deciding whether a 5% GHG reduction or a 1000 ton of $CO2_{equivalent}$ reduction is appropriate is not a trivial question to answer and should be spearheaded by the Director of Sustainability. Questions to consider when setting targets include:
   a. What is the status quo in a goal area?
   b. What full range of initiatives could the company consider for making progress on a goal area?
   c. What is the individual impact that can be attained by successful implementation of each initiative and what risks could compromise these results?
   d. What is the cumulative impact across ALL possible projects?

    e.   What level of human and financial resources would be needed across various projects and what level of commitment is the company willing to make over one, three or five years?

When used in a detailed analysis, this line of sustainability planning questions will inform what goal targets are appropriate.

FUTURE SUSTAINABILITY PLANNING

1) **Articulate a vision with long-term goal targets for the company's sustainability strategy.** Phase III interviews with sustainability professionals indicate that a long-term "vision" may best be determined once the company has completed one or two sustainability planning cycles, and has the benefit of internal experience regarding the strategies that do/do not work for the company. Questions to ask include:
   a. What does the world look like under AOD's sustainability ideals and what is its definition of sustainability?
   b. How do the company's short-term goals create progress towards the long-term vision?

2) **Require that each sustainability project identifies, in advance, which metrics or criteria need to be tracked and measured before, during and after implementing the goal.** Whenever possible, project results should be translated into common units, such as lbs. or tons of $CO2_{equivalent}$, kWh of electricity abated, or lbs. of raw material or dollars saved, in order to allow individual project results to be aggregated into a company-wide impact.

3) **Allow Sustainability Committees to become additional leadership opportunities** for individuals looking to have a greater impact and take on a larger role within the company. This supports the company's history of providing leadership advancement to its employees.

4) **Place sustainability data tracking responsibilities with the most relevant positions to the data**. For instance, the accounting department should enter data on kWh or MCF consumed as monthly bills are naturally handled by staff.

5) **Build a master list of possible sustainability initiatives,** which the company may consider undertaking. The costs and benefits of initiatives will likely change over time and should periodically be reviewed by the Director of Sustainability and Steering Committee. Additionally, only some projects can be undertaken at once and a master list will become a valuable reference point for next projects to consider.

Corporate Sustainability Reporting

CSR Research

Approximately 6,400 organizations globally produce some version of a Corporate Sustainability Report, commonly using it as an effective organization communication tool to share the current social and environmental state of the company while outlining the sustainability vision of an organization. CSR reporting is currently a challenge for many organizations. Unlike corporate financial reports, CSRs lack a set of established metrics and formats. Many companies use a variety of frameworks and metrics to tailor the report content and format to meet industry needs and the company's own particular sustainability objectives. AOD's report will be the first CSR from an integrated organic dairy company, providing AOD the challenge and opportunity to help the industry define the CSR reporting content and metrics appropriate for the organic dairy supply chain.

In order to document reporting best practices and gather relevant CSR reporting frameworks and appropriate metrics for AOD's first CSR, the Phase III research team reviewed reporting frameworks, other CSRs and reporting research literature. Phase III research provided valuable insight into the benefits of CSR reporting, potential uses of such a report for stakeholder engagement, types of reporting frameworks, reporting channels and reporting levels. The results of this exploration formed the basis for the format and content of AOD's prototype CSR, the details of which are discussed starting on page 39.

Reporting Framework

To help frame what a CSR could look like for Aurora Organic Dairy, Phase III researched reporting frameworks such as the Global Reporting Initiative (GRI) G3 guidelines, a globally respected sustainability reporting methodology, and how such frameworks were applied to private, public, small and large companies. The team also researched the Stewardship Index for Specialty Crops, Food Trade Sustainability Leadership Association's metrics and ISO 14031.

GRI G3 Reporting | GRI is an independent organization that has developed the most widely adopted CSR framework to date[xxxiv]. The organization's goal is to make disclosure of economic, environmental, social and governance performance common practice regardless of business sectors, company size and company location.[xxxv] The framework, which was developed by collaboration from stakeholders from business, civil society, labor, academic and professional institutions[xxxvi], emphasizes comprehensive measuring and managing of a business's impacts and subsequently implementing the necessary changes to optimize social, environmental and economic performance[xxxvii]. As of 2009, almost 2000 organizations had registered CSR reports with GRI[xxxviii] including 80% of G250 Companies and 45% of N100 issue a sustainability report[xxxix].

GRI G3 recommends that all companies cover the topics listed in Figure 12[xl]. Based on the number of metrics and which metrics are reported on, companies can rank their reports with one of three grades (A, B, C). If a third party verifies that the level of disclosure matches that of the grade, the report can gain a "+" (e.g. A+)[xli].

To enhance the completeness of reporting, GRI has also developed sector-specific supplements, including a Food Processing Sector Supplement.

GRI G3 also provides specific attributes for a report that help guide content selection and report quality. Please see figures 13[xlii] and 14[xliii] for more detail.

Figure 12 | GRI G3 Recommended Reporting Areas

GRI G3 recommends reporting on metrics in these areas:

- Company Profile and Strategy
- Economic
- Environmental
- Social, including:
  - Labor
  - Human Rights
  - Society
  - Product Responsibility

GRI Food Processing Sector Supplement Reporting Categories include sourcing, consumer health and animal welfare as incremental categories to report.

Figure 13 | GRI G3 Guidance for Report Content

Report content should reflect the following characteristics:

Appropriate content is material in nature and includes financial, environmental and social topics and issues that are significant to stakeholders.

Stakeholder Inclusion: all relevant stakeholders and their concerns should be clearly identified, as well as an outline of how the organization responded to concerns.

Sustainability Content: context should be provided around sustainability performance.

Completeness: information should be of sufficient detail to accurately reflect the organizations economic, environmental and social impact.

Figure 14 | GRI G3 Guidance for Report Quality

CSRs should share information in a manner that increases the reader's ability to evaluate the firm's sustainability efforts. Information should reflect the following attributes:

Reliability: information reported should be accurate, traceable and able to withstand third-party examination.

Clarity: information should be easy to understand and access by all stakeholders.

Balance: report should include both positive and negative organizational performance.

Comparability: information should be reported consistently year over year.

Accuracy: information is sufficient to assess organizational performance.

Timeliness: report is published on an established and consistent time schedule.

Additional Reporting Frameworks | The three other reporting models evaluated included the Stewardship Index for Specialty Crops, FTLSA's reporting guidelines and metrics and ISO. The Stewardship Index for Specialty Crops, currently in the development phase, breaks metrics down into three groups: people, planet and profit. The metrics span farming, processing, distribution and retail[xliv].

FTLSA's framework, which was developed through collaboration with members, focuses on organic and continuous improvement. Topic areas include organics, distribution, energy, climate change, water, waste packaging, labor, animal rights, education and governance[xlv]. Suggested metrics are both qualitative and quantitative and provide both total data for the whole company and data normalized to a unit (such as dollar of revenue) in order to make the metric more comparable across companies. ISO 14031 provides suggestions of over 200 specific sustainability topics a company can report on with providing specific suggestions about which specific metrics a company should select[xlvi].

GRI was found to be the most widely utilized of the frameworks and its Food Processing Sector Supplement provides the more directly applicable metrics (including reporting metrics on food safety and animal welfare) than the other reporting frameworks. However, GRI lacks many elements critical to AOD's story, such as organic production, scale and vertical integration, and includes many metrics irrelevant to AOD, such as social metrics like number of violations of indigenous people's rights or incidents of corruption. Thus, the Phase III team determined to develop AOD's report based on the GRI framework but ultimately not pursue a formal GRI report.

CSR Content and Metrics

The team examined over 30 CSRs to find appropriate reporting frameworks and metrics to meet AOD's reporting needs and constraints as a small, private organic dairy company (see Figure 15). The team examined relevant reports from private companies, food and beverage companies, food retailers, and dairy companies and industry associations for examples of pertinent reporting practices and metrics. The team also found that while conventional dairy industry-specific reports existed (Dairy UK, Australia Dairy, etc.), there was no publicly available organic dairy sustainability report to serve as a comparison point for AOD's own report.

Of the relevant reports, the team found a wide variety of reporting frameworks utilized, styles employed and level of detail shared. Although many of the reports use the GRI G3 reporting framework, early editions of reports tend to use a mix of framework-derived and tailored approaches. Early versions of reports for private companies that were based on GRI reporting usually followed a C-level format, reflecting a narrow set of metrics reported.[xlvii] Most reports balance both data-driven metrics and qualitative narrative, with information used strategically to strengthen the credibility of the sustainability strategy, vision and success. Multiple reports are published both online and in a paper format, with a trend over the past few years towards online only reporting.

Figure 15 | Reports Reviewed

Australia Dairy
Dairy UK
Danone
Delhaize
Land O'Lakes
The Co-operative Group
Innovation Center for U.S. Dairy
FAFO (Farmers Advocating for Organics)
Stonyfield Farm, Inc.
Royal FrieslandCampina
Ahold
Safeway
Costco
Kroger
Walmart
Seventh Generation
New Belgium Brewing Company
Ball Corporation
Mars
Campbell's
Dow Chemical
Ball Corporation
Cargill
SC Johnson
Tesco
Monsanto
Archer Daniels Midland
Frontier Natural Products Co-op
ConAgra Foods
McDonald's
Nestlé
Tyson
Dean Foods

Strong, comprehensive reports include a large focus on social and economic data in addition to environmental metrics. This includes clear identification of stakeholder categories, both internal and external to the company, and stakeholder engagement methods. Many reports include clear explanation of governance structures as relevant to general management and decision-making, CSR planning, and company and community engagement.

Private companies report economic performance overviews and general market presence without disclosing more sensitive company information and financial data. For example, Seventh Generation's report shares growth trends that point to a ballpark of the company's size without precise financial details. Economic performance can also be reported as indirect impacts on surrounding businesses and communities. Private companies highlighted efforts towards straightforward communication and marketing of product differentiation. This topic is especially important to AOD, which aims to communicate the differentiation of its organic product quality and vertically integrated process.

Reporting cycles varied by company and size. Most companies aim for, at a minimum, published annual communications regarding sustainability, even if it is not a comprehensive CSR. Annual updates that communicate progress towards sustainability goals (both positive and negative) are a best practice.

CSR Guidebook
In order to capture the learning from this research and communicate them with AOD Leadership, the Phase III team developed a "Corporate Sustainability Report Examples Guidebook" based on the list of relevant CSR examples. The document provided a snapshot of how companies were using CSRs to report on their environmental, social and economic sustainability. The team used a combination of best-in-class and dairy-relevant CSRs to explain useful reporting examples and their attributes, while also providing examples that demonstrate areas for improvement. The team utilized this report in its interactions with AOD leadership and ELT members in conducting AOD's stakeholder analysis and developing sustainability goal areas (as discussed in 'Stakeholder Identification', starting page 16).

The primary reports cited in the guidebook included:
> 2008 Ball Corporation GRI Content Index Report
> 2007 Campina CSR Report
> 2007 New Belgium Brewing Company Sustainability Report
> 2008/2009 Co-operative Group Sustainability Report
> 2007 Seventh Generation Corporate Consciousness Report

Third-Party Verification
At the end of the reporting activity, some companies choose to have key metrics (such as carbon footprint), sections or even the entire report validated by a third-party auditing body. Companies verify information in order to increase credibility of the statements disclosed in the report, and third-party

verification is required to receive a '+' rating in the GRI reporting categories. AOD currently uses third-party auditors to verify its organic certification and other quality, safety and animal welfare certifications. AOD expressed interest in having its CSR verified to provide the document with the same level of credibility. Phase III investigated verification options for AOD by meeting with a third-party auditor to learn about the process and then by looking at the amount of data currently being tracked and the ease of retroactively auditing data from previous phases. Given the wealth of previously gathered data that would have to be verified and the time needed manually locate all of that data, Phase III does not recommend a complete third-party audit of AOD's first report. Instead the team focused on noting areas for improvements in data collection to increase the ease of verifying future reports.

## Methodology for Indicator/Metric Selection

After Phase III decided to use GRI G3 to inform data collection and metric selection, the team set the scope boundary for the report, identified any additional data that could be useful to report (AOD specific metrics), and narrowed down the metrics list to what AOD should include in the CSR.

Report Scope and Boundary | The first step is to draw the boundary for the scope of the CSR. To help set the report scope and boundaries, GRI has developed a decision tree. The tree(Figure 16[xlviii]) shows how the GRI assigns primary importance to reporting data directly within the company's control and then making mention of additional issues connected to the company's business units, but over which direct control may not exist. Deliberate consideration and communication of the report boundaries and scope is integral in report development. [xlix]

Figure 16 | GRI Scope Decision Tree
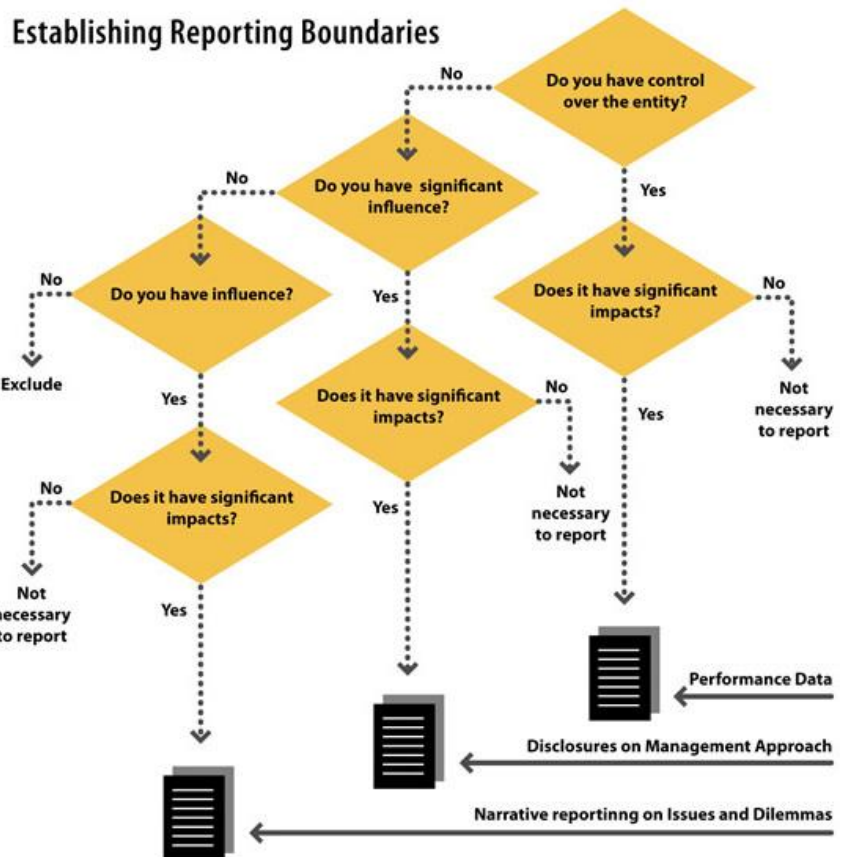
Phase III examined the boundaries for the Phase I and Phase II LCAs in addition to the GRI decision tree to determine the appropriate scope and boundary for AOD's CSR. The report documents areas within AOD's direct control, defined as beginning with any onsite operations at each farm and ending with delivery of milk to distribution centers. LCA data from previous years' scientific studies, from the feed

growing stage through product end-of-life, is discussed for GHG, energy use, water use and waste in order to provide additional context surrounding the full upstream and downstream organic milk value chain.

Indicator and Metric Selection | Phase III added to the metrics selected by GRI G3 by analyzing other reporting frameworks, CSRs and informational interviews with AOD employees. These sources informed an expanded list of possible metrics and identified good qualitative information that may not be captured in quantitative metrics. Additional metrics and stories included things such as Validus Animal Welfare certification for all farms, as well as stories about long-time management-level AOD employees who were promoted from within AOD.

Subsequently, Phase III evaluated this list of possible metrics by asking the following questions to identify the most relevant and appropriate metrics (Figure 17). Was the indicator:

1. Relevant to the industry? Appropriate industries include organic, dairy and food/beverage.
2. Relevant to AOD? Relevant indicators fell within the scope of the report.
3. Appropriate for AOD to report? Information may be proprietary for a private company.
4. Information available? Data may not be tracked or easily accessible.
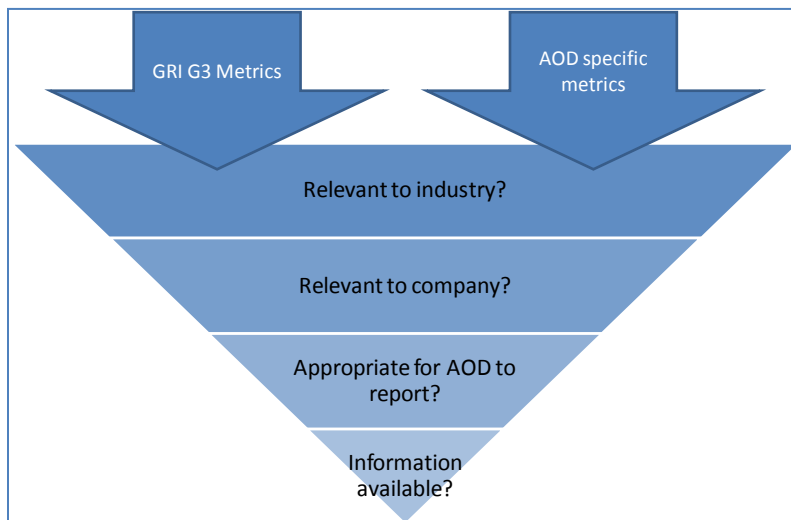
Not all metrics are relevant to the organic milk industry or AOD. For example, one GRI metric for the Food Processing Sector includes "Percentage of security personnel trained in the organization's policies or procedures concerning aspects of human rights that are relevant to operations"[l]. AOD is a small company doing business solely in the United States and AOD has direct oversight of all employees. The company is not exposed to the same human rights risks comparable to a large multinational corporation, making this metric less relevant to AOD's sustainability reporting.

The availability of reliable and verifiable information played a large role in the selection of metrics for the first CSR. The CSR metrics report AOD's direct business operations and required direct data from the company. This requirement is in contrast to the LCA methodology in which not all data utilized was from AOD's own operation. For example, the Phase I and Phase II LCAs utilized publically available datasets and academic reports for the information on the energy, carbon and water impacts of feed production.

Based on this evaluation, the team initially compiled over 100 potential indicators for inclusion in AOD's first CSR. Subsequently, Phase III identified the appropriate data requirements for each metric, based on research into potential reporting standards for each metric. For example, GHG emissions could be

reported according to World Resources Institute and the World Business Council for Sustainable Development's GHG Protocol, which defines three levels of GHG reporting: Scope 1, 2 and 3 emissions. Yet other metrics, such as initiatives to measure the company's indirect financial contribution to a community, lack clear best practice for data to report. In addition to understanding clear data needs, the Phase III team noted if that data was currently tracked or easily assessable by AOD.

The Phase III team developed a 'Stoplight' Model to help document and evaluate the metrics. The model included all potential metrics, grouped by GRI reporting topic area, and assigned a "green", "yellow" or "red" rating for each metric. The rating reflected each metric's appropriateness for inclusion in the first CSR based on its relevance, data requirements and data availability.

- Green: Phase III recommends inclusion in AOD report
- Yellow: Phase III considered for recommendation but data may not currently be collected or AOD may not be comfortable disclosing. While yellow metrics will not be included in the first CSR, they represent important information that AOD should consider tracking and disclosing as data management and CSR reporting expands
- Red: Not appropriate for AOD to disclose due to lack of relevance for industry, size or private nature of company

The Phase III Team developed this Stoplight Model based on insight gathered during the initial CSR research and interviews with reporting experts. Key takeaways from informational interviews with experts emphasized the need to start with a broad base of metrics and continuously narrow down to what AOD can and wants to report. Once metrics were assigned a color status, AOD management provided input on the relevance, feasibility and appropriateness of each indicator. This metric evaluation aimed to prioritize Phase III's data gathering efforts and, ultimately, will guide the development of AOD's first CSR.

Once indicators were prioritized, the team manually gathered data on-site at AOD Headquarters from May 2010 through July 2010. The team's informational interviews conducted during this time provided the information for general data collection, relevant quantitative data resources and information for qualitative indicators.

Most of the quantitative data needed for the indicators was taken from a company operating records that provided information on AOD's dairy herd, organic feed and bedding purchases, milk production and milk processing. Physical bill invoices were used to gather data on all utility usage (electricity, natural gas, propane and diesel). Data on water usage was collected from municipal water bills, interviews with farm experts and ditch water purchase records. The following sections provide more detail on the particular metrics and data that will be reported in the AOD CSR. Given that at the time of this paper's writing, the prototype was not yet finalized and not yet publically available, explicit details about the CSR prototype contents could not be shared. However, the sections describe the general content, rationale and recommendations for the content and reporting methodology for AOD's first CSR.

Recommendations

CSR RECOMMENDATIONS

1) **CSR should include**:
   a. Strong focus on **social, environmental and economic** data
   b. Clear **identification of stakeholder types and stakeholder engagement methods**, which includes internal stakeholders, engagement efforts and also external stakeholders.
   c. Clear explanation of governance structures as relevant to general management, decision-making and CSR planning
   d. **Company and community engagement** in order to show that a diversity of perspectives and relevant interests are brought to the table to make well-informed decisions.
   e. **Highlighted efforts towards straightforward communication and marketing of product differentiation** to communicate the differentiation of its organic product and vertically integrated process.

2) **Publish key sustainability information annually**: Although an annual full LCA is not necessary, AOD should aim to annually report key data on social and environmental performance, stakeholder engagement updates, and progress towards stated sustainability goals.

3) **Shift CSR reporting cycle** to match AOD's normal fiscal cycle of January – December.

REPORTING METHODOLOGY RECOMMENDATIONS

1) **Reporting Framework |** Use the GRI G3 framework for data gathering to ensure the data gathered is comprehensive and discloses key information on all aspects of the business.
   a. Many of the specific metrics were also borrowed from the GRI G3 framework.
   b. AOD should also report on aspects outside the recommended GRI G3 metrics, including information relevant to the company's unique business model, such as emphasis on animal welfare and advantages of vertical integration.

2) **Utilize Phase III "Stoplight Model" to prioritize CSR information** to publicly report, what additional information can be considered for future development and reporting, and what information is currently not suitable to report.

3) **Third-Party Audit and Verification |** AOD should focus its efforts on establishing data collection processes that will allow for efficient and easily verifiable data collection.
   a. In the short term, if AOD management wants third-party verification in the first CSR, Phase III recommends auditing individual data points (e.g. carbon footprint).

4) **Scope and Boundaries |** AOD should focus its early reporting efforts on impacts directly under AOD's control where data can be measured, tracked and performance controlled (directly controlled operations data is defined as beginning with onsite farm impacts and concluding with the delivery of milk to distribution centers). The report should cover all of AOD's products (processed fluid milk, milk powder and butter) and all facilities within AOD's direct scope of business operations. Specific reporting facilities include the five AOD-operated dairy farms & calf ranch, the processing plant and corporate headquarters. These facilities will continue to comprise the foundation for tracking performance data trends in subsequent reporting periods.

Aurora Organic Dairy Prototype CSR Report Overview

CSR Section 1| Introduction, Background and CSR Section

The introduction section of AOD's CSR report is where AOD communicates key messages about their strategic sustainability vision and why sustainability reporting is integral to the company's long-term success. The fundamental element of the introduction section is a welcome letter from the CEO and Chairman of AOD. The letter emphasizes AOD's commitment to sustainability from the very top of the company. Starting with a strong statement that sustainability and social responsibility are core components of overall company strategy demonstrates buy-in from all levels of the company and a long term commitment to corporate responsibility.

All sustainability reports researched included some form of communication from the highest level within the organizations. GRI provides clear guidelines on what information the high-level communication should include, such as the overall vision and strategy for the short-term, medium-term and long-term or key events, achievements and failures during the reporting period. See Figure 18 for complete GRI guidelines.

Background | The prototype background section is intended to provide a general history of the progression and purpose of the company. Its goal is to tell a story about where the organization began and how it has evolved over the years.

Strategy and Analysis

1.1 Statement from the most senior decisionmaker of the organization (e.g., CEO, chair, or equivalent senior position) about the relevance of sustainability to the organization and its strategy.

The statement should present the overall vision and strategy for the short-term, medium-term (e.g., 3-5 years), and long-term, particularly with regard to managing the key challenges associated with economic, environmental, and social performance. The statement should include:

- Strategic priorities and key topics for the short/medium-term with regard to sustainability, including respect for internationally agreed standards and how they relate to long-term organizational strategy and success;

- Broader trends (e.g., macroeconomic or political) affecting the organization and influencing sustainability priorities;

- Key events, achievements, and failures during the reporting period;

- Views on performance with respect to targets;

- Outlook on the organization's main challenges and targets for the next year and goals for the coming 3-5 years; and

Figure 18 - GRI G3 Guidelines on Introduction Letter

AOD's background section is based on GRI's G3 guidelines for the "Organizational Profile". The section includes such information as a company history that discusses the guiding principles of the organization and a high-level overview of AOD's commitment to organic standards, innovative organic agriculture, environmental sustainability and social responsibility. Additional information provided for further context include what products the company creates and the company's workforce composition.

Corporate Citizenship | The CSR section on corporate citizenship acts as a sustainability-focused complement to general disclosures in AOD's introduction, company background, and corporate governance. It provides a brief description of the five sustainability goal pillars selected by AOD management (see page 23) as well as the company's multi-year sustainability collaboration with the

University of Michigan to develop LCA models, corporate strategy and its first CSR. The segment concludes with GRI-based standard disclosures on the report scope and boundaries (see page35).

CSR Section 2 | Value and Value Proposition

The Value and Value Proposition is not a standard part of a CSR, however some of the topics covered in this section of AOD's report stem from conventional CSR metrics. During stakeholder discussions with the ELT, it became clear that this section is vital to communicating the AOD's unique value proposition to their customers, suppliers, end consumers and other stakeholders. This section expands on some of the unique value features offered by AOD in order to make high-quality organic milk widely available to retail brand customers. Its vertical integration, traceability, efficiency and scale, sourcing policies and controllable production standards are keys to its value proposition. Additionally, this section also discusses how AOD's attributes support sustainable production and business practices, which benefit its stakeholders and environment.

Vertical integration and Scale represent not only efficiencies that is passed along to retail private label customers and, ultimately, the end consumer, but vertical integration and scale represent significant quality and food transparency opportunities, as well. This vertical integration allows AOD to have better management, information and control over its processes and allows it to better respond and improve on stakeholder concerns.

Sourcing represents some of the GRI reporting recommendations found in the Food Processing Sector Supplement of the G3 Reporting Guidelines[li]. Here the company outlines its sourcing guidelines and requirements (compiled from interviews with AOD Farm leadership) and how AOD assesses supplier compliance with the sourcing policy. The report covers the various sourcing policies and approaches for vendors, feed sourcing, animal growing/ sourcing and product sourcing, reflecting AOD's influence over most of its supply chain.

Production Standards and Third-Party Audits outlines the company's commitment to quality and safe products and production, as confirmed by third-party audits and verifications. This section documents audits at the processing plant and farm level, with reporting topics derived from the GRI Food Processing Sector Supplement Guidelines. [lii]

CSR Section 3 | Stakeholders

Informed by the CSR research and interactions with AOD's ELT, Phase III chose to document and visualize AOD's main stakeholders as part of AOD's CSR. (See Figure 19) The stakeholder information included in the CSR prototype is similar to the stakeholder identification and analysis covered in 'Stakeholder Identification', starting on page 16. Given that AOD is in the process of developing a comprehensive stakeholder engagement plan, this report could not include significant detail about how the stakeholders were identified or the level of interaction with each stakeholder group. Since this is also AOD's first report, it cannot document or report on stakeholder feed-back on previous outreach or CSR documents. Additional detail and stakeholder information can be included in future reports. In the first CSR, AOD can show its commitment to stakeholders by demonstrating its collaboration with
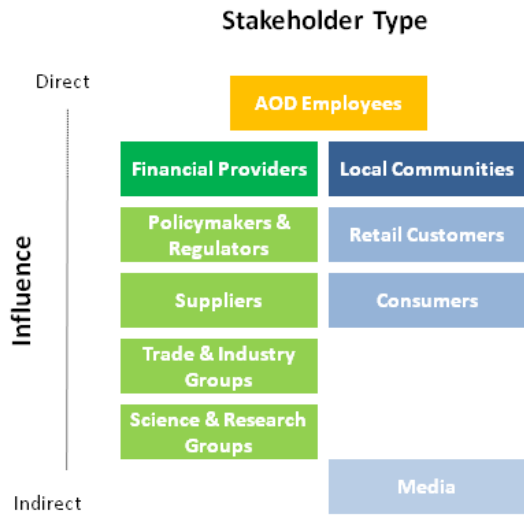
Stakeholder Type

stakeholders, and providing visible opportunities for stakeholder dialogue. AOD should also consider publicly reporting stakeholder feedback.[liii] Future AOD CSR reports could highlight stakeholder comments and feedback in the report, increasing transparency of the stakeholder process and increasing stakeholder trust and credibility. [liv]

The FTSLA-OTA reported that stakeholder surveys indicate that company's failures are often left out of reports, reducing reporting transparency and eroding stakeholder trust. AOD should strive for honesty and transparency in its report, including admitting wrongdoing and mistakes, in order to improve the credibility of the report.[lv]

CSR Section 4 | Animal Welfare

A standalone Animal Welfare section within the CSR is important for a dairy company like AOD, where animal health and well-being is a core principle. This section communicates the company's dedication to the utmost level of animal care and demonstrates the organization's long-term commitment to keeping the animals safe and healthy. The team utilized the GRI Food Processing Sector Supplement [lvi] as the foundation of the Animal Welfare section, with the supplement specifically separating Animal Welfare as a distinct reporting section, like the environment or economic section. With input from the Farm Management Team, the Phase III team recommended topics, which included information on breeding/genetics, animal husbandry, and transportation, handling and slaughter.

The team also reviewed other CSR reports to gather best practices for animal welfare reporting. CSRs with comprehensive animal welfare sections include information on current animal treatment practices but also forward-looking goals on how the organization strives to continuously improve its animal welfare practices. For example, Smithfield Foods prominently highlights its animal welfare goals in a clear and straightforward manner. [lvii] Yum Brands highlights their animal welfare advisory council to demonstrate their dedication to monitor and improve animal health. [lviii]

In addition to the GRI recommended indicators, the team investigated other animal welfare topics such as ongoing research, the AOD Animal Welfare Initiative and internal animal welfare practices to further support that animal well-being is a company priority. Using GRI guidelines and examples from other CSR reports, the team gathered in-depth information on these Animal Welfare indicators from interviews with AOD staff and the AOD veterinarians. The animal welfare experts in AOD provided insight on the AOD animal health philosophy and unique programs, like the AOD Animal Welfare Initiative. These interviews served to further highlight the organization's commitment to animal health.

It is recommended that AOD's report include highlights of the AOD Animal Welfare Initiative, which covers four areas of focus: 1) 24/7 Animal Care Assurance, 2) Lifecycle Care, 3) Pain Management and 4) Community Outreach. The report also includes AOD's Animal Welfare Policies and Procedures, outlining AOD's adherence to animal care protocols which are verified by 3rd party process certification agent,

Validus Associates. These certifications by Validus complement internal auditing practices and support key animal welfare priorities, such as measurement of herd comfort and safety, full-time veterinary staff, animal welfare training, and contributions to mastitis research, among others.

CSR Section 5 | People

A corporate sustainability report should give particular emphasis on the company's social influence and impacts, both on its own employees and on greater society. AOD's 'People' section documents AOD's relations with both employees and communities near its headquarters, processing plant and farms. The employee material covered in this section draws heavily from the GRI G3 'Labor' reporting section, including employee benefits, training, safety precautions, diversity and promotion approach, in addition to programs promoting healthy living among employees.

AOD's CSR initially placed great emphasis on determining the company's social metrics and performance. During ELT interviews, the Phase III team noted potential GRI G3 social indicators from management's description of AOD's operations and values. However, the team found that the majority of GRI G3's social metrics touched on sensitive employee data or were from international supply chains and did not relate to AOD's domestic production and operations. Other social metrics were not currently tracked by the company or proved difficult to quantify (such as indirect economic contribution to the local communities). As a result, the team chose to report AOD's direct interactions with its employees and community, documenting standard practices and areas where the organization went beyond the norm to the benefit of its employees and neighbors.

From the informational interviews, the Phase III team also recognized that there were other additional social impacts not covered under the G3 Reporting Guidelines that greatly contributed to AOD's social story. These elements included additional attributes of AOD employment such employee success stories and employee benefits, including recognition programs, farm infrastructure and in-kind perks (such as complementary milk and butter). AOD prides itself on its community engagement and involvement, something not necessarily covered in G3 Reporting Guidelines. Phase III chose to highlight details of AOD's engagement with its neighbors and community, including donation programs (both monetary and in-kind), its approach to developing its farm facilities and operations, along with the efforts of the AOD Foundation and its policy of supporting local suppliers.

CSR Section 6 | Environment

AOD's desire to share its environmental footprint and goal to reduce that footprint is one of the main motivators for the creation of AOD's first sustainability report. AOD aims to demonstrate that it is a leader in the dairy industry by measuring, monitoring and reducing its environmental impact. The fact that the dairy conducted one of the first full carbon and energy LCA on organic milk is further proof of AOD's environmental commitment[lix].

Indicators for the environmental section of the report followed the same research approach and methodology (outlined on page 36), similar to the other CSR sections. However, it also included the previous results of the Phase I and Phase II LCA research on energy, GHG, water, and waste and updates to a select number of data points (see Figure 20). While the LCA results are not traditionally included in

any CSR frameworks, the original LCA studies and updates enable AOD to discuss its various footprints and the changes to those footprints over time. The research methodology for the LCA analysis is outlined in the Phase I[lx] and II[lxi] reports.

Drawing on Phase III's CSR research and the previous LCA research, the Phase III team chose to include environmental indicators that would enable AOD to build on previous research of its water, carbon and energy footprints. While the LCA results provide the impact of a gallon of milk from seed-to-shelf, the other metrics selected for the first CSR report focus on environmental impacts directly under AOD's control, as discussed on page 35. While AOD may seek to report indirect environmental effects in future reports, at the moment there is no data collection systems in place to continually measure impacts outside the AOD business. AOD's first generation sustainability goals also focus on the areas under AOD's direct control with the long-term hope that AOD can positively affect the upstream and downstream environmental impacts of its milk.

Many of the environmental indicators were derived from GRI G3, including indicators on direct and indirect energy consumption, water withdrawal by source, direct and indirect GHG emissions, initiatives to reduce energy consumption and GHG emissions, and reductions achieved. Other GRI G3 environmental indicators were not included if the indicator had low relevance to the company's operations or data was simply not available at this time. One such example includes indicators surrounding biodiversity, which were not included; AOD does not operate in biodiversity hot spots and has little data to support biodiversity indicator reporting. As the company develops a policy on biodiversity or conducts research to link organic farming to biodiversity, biodiversity remains a possible topic for inclusion in subsequent CSRs.

For environmental impacts such as GHG emissions, clear reporting standards exist, such the GHG Protocol's Scope 1, 2 and 3 emissions definitions or GRI G3's direct and indirect energy consumption. However, similar to social metrics, the Phase III team soon discovered through informational interviews with AOD that relevant environmental AOD policies would be overlooked if the CSR only reported standards environmental metrics. Nonstandard environmental indicators include initiatives such as AOD's efforts to convert local farmers to organic feed production in order to reduce the transport distance for AOD's feed. While converting farmers is a more qualitative story, it does have an impact on AOD's transport emissions. The Phase III team compiled the environmental data and internal benchmarks for both the standard data and the custom AOD metrics during its time onsite at AOD Headquarters from May 2010 to July 2010 and remotely through the rest of 2010.

As previously mentioned LCAs are not standard disclosures in CSRs because many companies have not yet had the opportunity or resources to investigate the full seed-to-shelf impact of products. Unlike CSRs, LCA standards and best practices are more clearly established, and the previous Phase I and II teams followed these standards while conducting the LCAs. While the Phase III team updated elements of the Phase I and Phase II LCA models (see figure 20), the Phase III project scope did not include updating the underlying calculations in the energy and GHG LCA models. This effort would be unnecessary as the LCA models are still current and relevant for AOD data. Because of scope and data availability and quality limitations, Phase III focused on updating the energy and GHG footprints with the

most recent year of data for stages under AOD's direct control. For the LCAs, Phase III defined direct control starting at the purchasing of feed and bedding through to the delivery of milk to retail customers' distribution centers. All other impacts were held constant from the Phase II LCA covering data from April 2008-March 2009 data. This includes impacts such as growing each ton of feed and the transportation impact from the retailers' distribution centers to retail customer stores. No new data was available suggesting dramatic changes in the practices up and downstream from AOD's direct control. Phase III also updated total water withdrawal under AOD's direct control.

The April to March data reporting cycle is a result of the annual timeframe for LCA data gathering in both Phase I and Phase II, which Phase III utilized for consistency. However, Phase III recommended to AOD management that future data collection and reporting be conducted along the company's January to December operating calendar. A best practice for altering the reporting cycle includes identify the new reporting cycle, collect comprehensive data covering all time frames, and align the old and new reporting results if possible.

Figure 20 | Aurora Organic Dairy Environmental Data Updates

Indicator	April 2007-May 2008	April 2008-May 2009	April 2009-May 2010
Greenhouse Gas (GHG) Emissions	X	X	X
Energy Use	X	X	X
Water Use		X	X*
Waste		X	
Nutrient Use		X	

*Water usage for this timeframe is non-LCA data.

Green House Gas and Energy| Four key updates were made to the LCA model for the GHG and energy footprints. These updates reflect the impact of two changes by AOD management and the correction of a modeling error and data input error in the previous years. The changes include:

- Correlations within the model updated to reflect updates discovered while Marty Heller's journal article on Phase I and II was under peer review.[lxii]
- Manure management was updated to reflect the purchase of a vacuum for parlor manure at the Pepper Farm.
- Manure management for High Plains was updated to reflect the transition to manure composting
- Updated Phase II culled cow numbers to reflect corrections from farm experts.

Leveraging the new LCA model, the energy and GHG impacts of one gallon of packaged AOD milk can be seen in Figure 21.

The GHG and energy emissions are spread across the lifecycle are seen in Figure 22.

Figure 21 | GHG and Energy Emissions per Gallon of Packaged Organic Milk

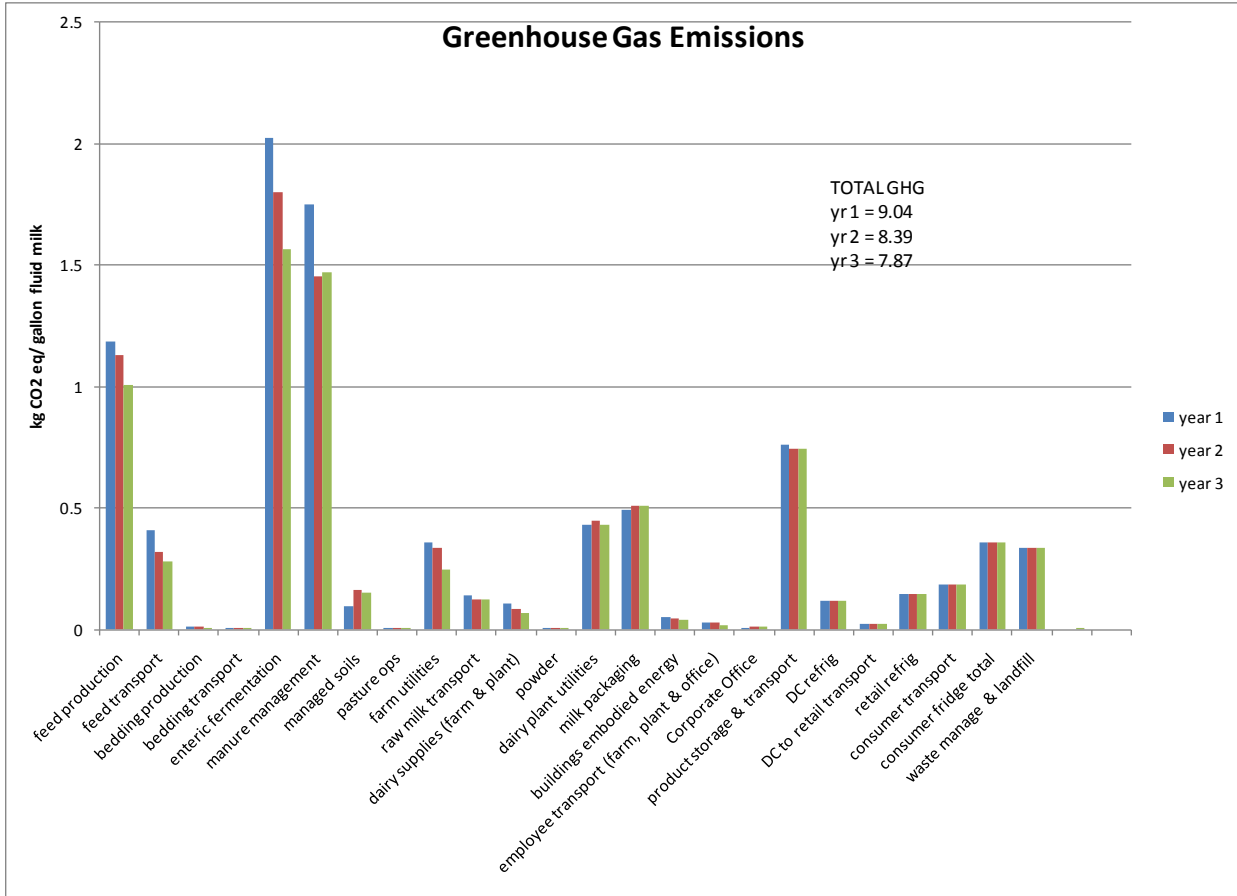| Phase	GHG (kg CO2e)	% change from previous year	Energy (MJ)	% change from previous year
I	9.04		70.3	
II	8.39	-7.19%	68.1	-3.13%
III	7.87	-6.20%	65.6	-3.67%

Figure 22 | GHG LCA Emissions from Phase I, II and III

The decrease in the GHG footprint over the past three years is primarily attributable to:

- Enteric Fermentation: decreased due to the more mature and productive herd
- Manure Management: decreased due to the implementation of composting manure at High Plains and the vacuuming of manure in the milk parlors at Pepper
- Farm Utilities: decrease in electricity, diesel, gasoline and natural gas usage. Somewhat offset by increase in propane usage

The energy emissions are spread across the lifecycle can be seen in Figure 23.
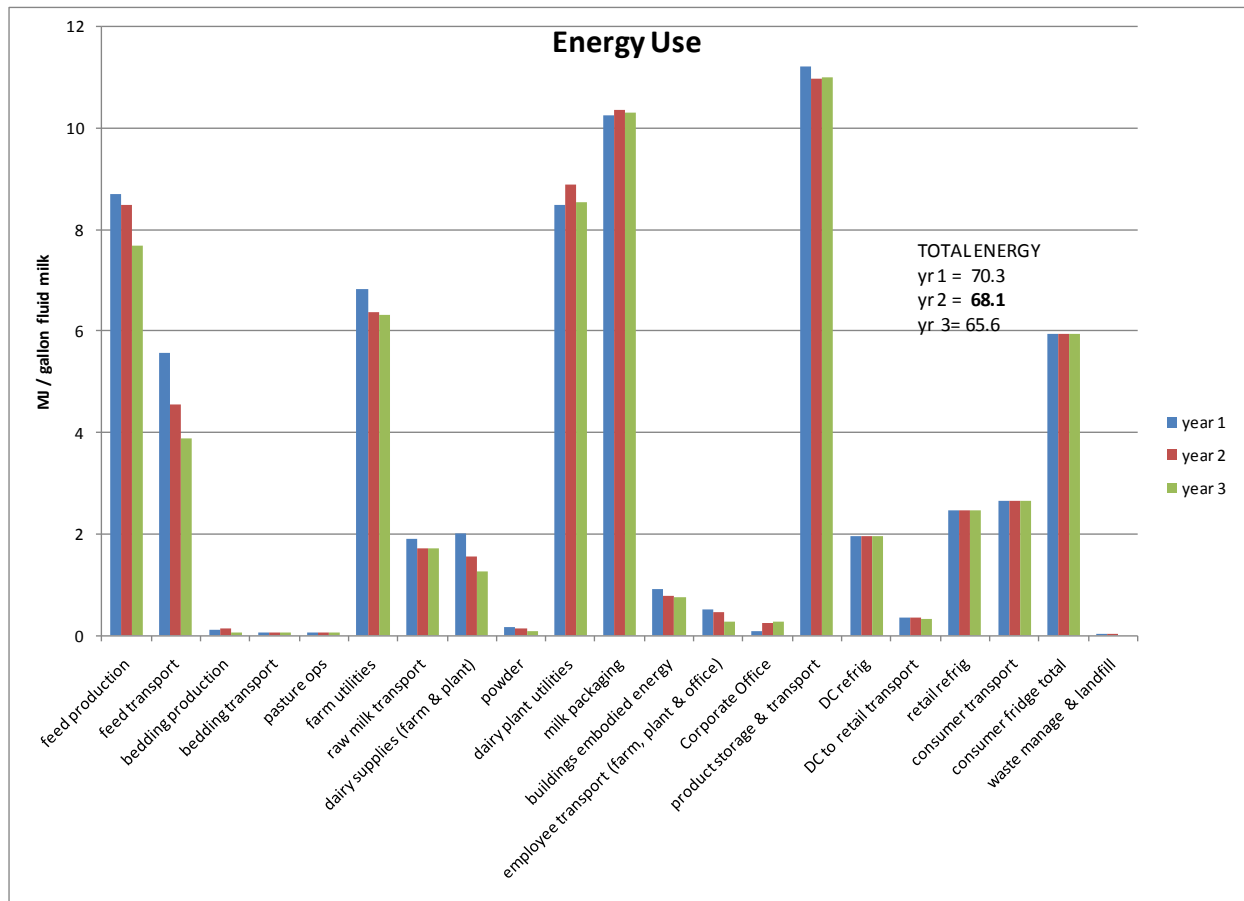

Figure 23 |Energy LCA results over Phase I, II and III.

The decrease in the energy footprint over the past three years is primarily attributable to:

- Increase in feed efficiency with mature herd and increased reliance on grazing for feed intake in the growing season.
- Decrease in feed transport: efforts to source more locally and the more productive herd

In addition to the full lifecycle impacts, AOD aims to communicate its Scope 1 and 2 emissions based on the GHG Protocol, which is currently the most common way to report GHG emissions. Typically an LCA model is not a method for estimating Scope 1 and 2 emissions. While the model does allow AOD and the Phase III team to narrow down on the impacts of the stages under direct AOD control, the impact of each stage includes total life-cycle impacts for everything involved at that stage, including all AOD purchases, from fuel to udder wipes. Using the existing life-cycle model accounting as the best tool currently available to AOD means that the total reported impact of operational steps under AOD's control are **larger** than they should be if AOD were to use a more common GHG reporting format, which would exclude energy and emissions outside of AOD's direct control. For example, the impact of farm

equipment burning diesel gas, which is part of the "Farm utilities" stage, includes not just the GHG created with the burning of the fuel, but also any GHG creation in the upstream oil extraction and processing (Scope 3 emissions). The Phase III team strongly recommends that, for future reporting cycles, AOD management create a new tool specifically designed to report the company's direct energy and GHG impacts instead of continuing to overestimate its actual emissions by using a LCA model not built for CSR reporting purposes.

Use the LCA model calculations as the best available proxy for reporting current year emissions, Phase III estimates a total of 1.55×10^5 metric tons of CO2equivalent for AOD's Scope 1 and 2 emissions for April 2009 through March 2010. This figure includes the total LCA emissions associated with activities directly under AOD's direct control (e.g. the burning of fuel in farm equipment, the use of propane to heat water) and the emissions associated with the electricity production of the electricity AOD consumed over that time period.

Water | While the full lifecycle water footprint was not updated by Phase III, the team did update data on the water use directly under AOD's control. Phase III used Phase II methodology with the exception of the following changes and methodological assumptions used to reach the most accurate water use number possible:

- **Pepper Farm**: Water use was held constant because no verifiable data exists on the farm's water use. The only available information was the General Manager's estimates of well flow rates from 2008-2009, which he restated for the 2009-2010.

- **Coldwater Farm**: As in April 2008-March 2009, data was only available as a single January-December total. This total was used as a proxy for annual consumption during the April-March reporting cycle.

- A unit conversion error was fixed in Platteville ditchwater calculations changing 100 acre-in/acre-ft. to 12 acre-in/acre-ft. This resulted in a significant **216 million gallon increase** in actual water use for the April 2008-March 2009 reporting year above previously reported total.

- An estimate of 25 gal/min of well water withdrawal on the single well at High Plains was revised to reflect actual water withdrawal of 10 gal/min, as confirmed by well permit allowance. This resulted in an **8 million gallon decrease** of actual well water use below High Plains' previously reported total for April 2008-May 2009.

- Result: A total increase of 208 million gallons of water use from April 2008-March 2009, or **a 5 gallon increase per gallon of finished milk to 813 gallons total,** up from 808 gallons as previously stated in the Phase II LCA.

The total water use results for Phase II and Phase III are 1,425.31 million gallons and 1,513.01 million gallons of water use, respectively. Water usage is broken down in Figure 24 by water source: well water, ditchwater and municipal water. While the Phase III team looked at meaningful ways to normalize water

usage, the complexity of AOD's mixed agricultural and industrial system has meant that common normalization methods (water use per gallon finished milk, heating degree days, water use per dollar sales revenue, etc.) are thus far unable to separate the effect of pure management decisions from changes in precipitation, temperature, average age of cow herd, and other factors. As a result, the Phase III team recommends that any water reduction initiative uses alternative benchmarks for gauging achieved water reductions instead of total water use levels observed at each company facility.

Total AOD Water Use by Source

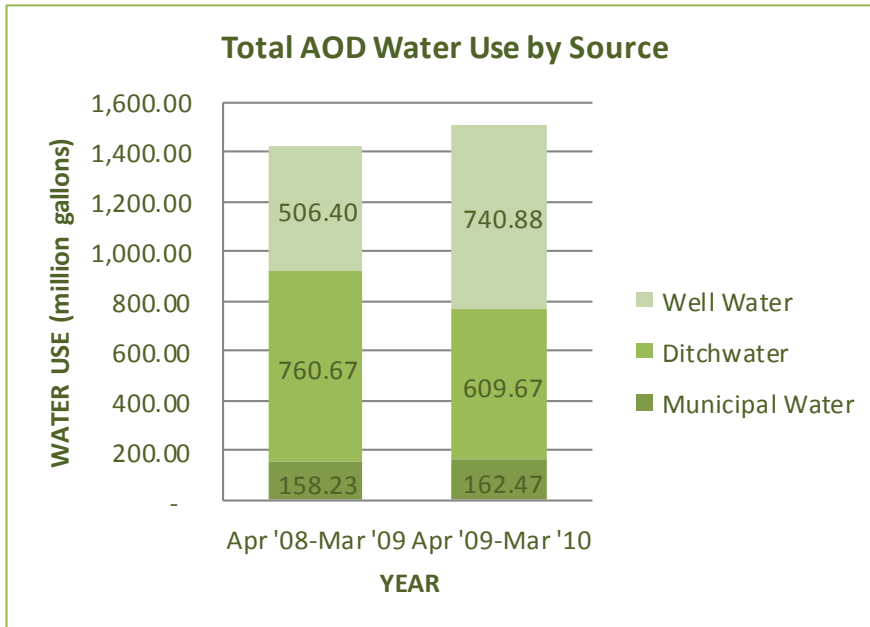|	Apr '08-Mar '09	Apr '09-Mar '10
Well Water	506.40	740.88
Ditchwater	760.67	609.67
Municipal Water	158.23	162.47

WATER USE (million gallons) vs YEAR

Figure 24 | Total Water Use by Source

The estimation of water recycling and reuse was not updated by Phase III because verifiable data did not exist on exact water flow to or from manure lagoons, making it difficult to reach a true calculation of water recycling and reuse rates even though management practices indicate company recycling and reuse of gray water remains high. The Phase III team reiterated to AOD previous phases' recommendation that AOD install water flow meters to track water flows in key location such as the lagoons.

Appendix A – Phase I LCA Overview

Objectives:

- Model GHG and lifecycle energy of a gallon of packaged Aurora Organic milk from feed to landfill

Key Findings:

- Feed production is 24% of total emissions across lifecycle

    – 71% of that is actual feed production, 28% is transportation

    – Or 57% and 42% of energy, respectively

- Farm operations stage largest emitter of GHG (37%)

- Milk processing is 13% of emissions, 29% of energy

- Distribution is 9% of GHGs, of which transportation from cold storage to distribution centers is 86%, and 15% of energy and 35% of total transportation GHGs

- CO_2 is 49% of GHG emissions, methane is 45%

Recommendations:

- Examine ways to reduce enteric fermentation & utilize alternative energy

- Perform energy audits and make energy efficiency improvements at older farms

Appendix B – Phase II LCA Overview

Objectives:

- Update data from Phase I

- Model the water use, solid waste production and nutrient use efficiency of one gallon of packaged Aurora milk from feed to landfill

Key Findings:

- Nutrient Use

    – High acidification potential from manure management

    – High eutrophication potential from feed/bedding production

- Water Use

    – Irrigation dominates life-cycle water use

    – AOD operations account for <5% of total life-cycle water use

    – 1/3 of feed comes from areas of high water stress

MSW Generation

Product packaging at retail and consumer/end-of-life dominates DMSW

Recommendations:

Install water meters at strategic locations on AOD farms

Reduce fossil energy use

Favor more efficient farms

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