REPORT

of the

American Society of Agricultural and Biological Engineers (ASABE)
Foundation Mission and Vision Statements (FMVS) Committee

For presentation to the ASABE Foundation President

January 10, 2020 - First draft; Submitted for the Committee review
January 20, 2020 - Penultimate draft; Submitted to the Foundation President
February 3, 2020 – submitted to the Foundation for balloting
February 12, 2020 – approved by the Foundation
April 17, 2020 – accepted by the Society Board of Trustees

______________________________

Committee Members

Appointed Members
Paul F. Burkner
Darrin J. Drollinger
Jane R. Frankenberger
Maynard M. Herron
Bryan M. Jenkins
James W. Jones
Sue E. Nokes
Allen R. Rider
Mark R. Riley
Maury V. Salz
Sylvia L. Schonauer
Brahm P. Verma, Chair

Ex-officio Member
Lalit R. Verma, ASABE Foundation President

ASABE Headquarters Staff
Mark Crossley
Joann McQuone
# ASABE Foundation
## Mission and Vision Statements Committee Report

### Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. The Charge</td>
<td>3</td>
</tr>
<tr>
<td>ii. List of Committee Members</td>
<td>3</td>
</tr>
<tr>
<td>iii. Executive Summary</td>
<td>4</td>
</tr>
<tr>
<td>I. Introduction</td>
<td>6</td>
</tr>
<tr>
<td>II. Why is the Profession Needed?</td>
<td>7</td>
</tr>
<tr>
<td>III. New Opportunities for the Profession and ASABE</td>
<td>8</td>
</tr>
<tr>
<td>IV. The Foundation – Purpose and Accomplishments</td>
<td>11</td>
</tr>
<tr>
<td>V. The Foundation – Looking Forward</td>
<td>12</td>
</tr>
<tr>
<td>VI. The Foundation - A Culture of Philanthropy</td>
<td>14</td>
</tr>
<tr>
<td>VII. ASABE Foundation Mission and Vision Statements</td>
<td>15</td>
</tr>
<tr>
<td>VIII. Suggestions, Next Steps and Resource Needs</td>
<td>17</td>
</tr>
</tbody>
</table>

### APPENDICES

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. List of Committee Members and their Affiliations</td>
<td>19</td>
</tr>
<tr>
<td>B. Annual Contributions to the Foundation</td>
<td>21</td>
</tr>
<tr>
<td>between 2014 and 2018</td>
<td></td>
</tr>
<tr>
<td>C. The Process</td>
<td>22</td>
</tr>
<tr>
<td>D. Description of the ASABE Foundation and</td>
<td>25</td>
</tr>
<tr>
<td>Purposes Stated in the Bylaws</td>
<td></td>
</tr>
<tr>
<td>E. Description of ASABE, and Mission and Vision Statements</td>
<td>26</td>
</tr>
<tr>
<td>F. Example List of Foundations, Organizations, Agencies and</td>
<td>27</td>
</tr>
<tr>
<td>Industries Associated with Food and Agricultural Systems</td>
<td></td>
</tr>
<tr>
<td>G. Suggested Readings</td>
<td>29</td>
</tr>
</tbody>
</table>
i - The Charge

The ASABE Foundation Mission and Vision Committee, hereafter referred to as the FMVS Committee, was appointed by ASABE Foundation President Lalit Verma on December 11, 2018 with the charge “to develop a ‘messaging document’ to include the mission and vision statements for the ASABE Foundation” as was recommended at the Foundation Board meeting in Chicago on November 12, 2018. President L. Verma further stated that this document will be used to communicate with external constituents and agencies not familiar with ASABE, the purpose, vision and mission of the ASABE Foundation.

The timelines for providing the Committee reports were:

April 22, 2019   Draft report of the Committee at the Foundation Board conference call
July 10, 2019    Final report of the Committee for the Board approval at the 2019 AIM Foundation Board meeting

[Due to an unexpected event, date of the final report was delayed by six months. The new final date is January 10, 2020]

ii - List of Committee Members

Appointed Members
1. Darrin J. Drollinger <drollinger@asabe.org>
2. Maynard M. Herron <Maynard.Herron@agcocorp.com>
3. Bryan M. Jenkins <bjenkins@ucdavis.edu>
4. James W. Jones <jimj@ufl.edu>
5. Allen R. Rider <rideracg@aol.com>
6. Sylvia L. Schonauer <sylvias@valkyrie.net>
7. Mark R. Riley <mriley3@unl.edu>
8. Brahmp P. Verma <bverma@engr.uga.edu> [Chair]

ASABE Board of Trustees Representatives
9. Sue E. Nokes <sue.nokes@uky.edu>
10. Maury V. Salz <Maury.Salz@claas.com>  Joined: March 5, 2019
11. Paul F. Burkner <pburkner@AGindustrialmfg.com> Joined: April 1, 2019
12. Jane R. Frankenberger <frankenb@purdue.edu> Joined: April 1, 2019

Ex-officio Member
13. Lalit R. Verma <iverma@uark.edu>

ASABE Headquarters Staff
14. Mark Crossley <crossley@asabe.org>  Resigned: July 10, 2019
15. Joann McQuone <mcquone@asabe.org>  Joined: July 10, 2019
Executive Summary

I give because I feel connected to the cause and want to make a difference

...what a donor would say.

The American Society of Agricultural and Biological Engineers (ASABE) Foundation was established for supporting ASABE or purposes which are consistent with the purposes, goals and objectives of the ASABE. ASABE’s stated mission is to Promote engineering in food, water, energy, fiber and environment.

Since 1986, the ASABE Foundation has been successful by building a donor pool largely made of ASABE members and managing funds that have supported activities internal to the Society’s needs. However, breakthrough advances, particularly in life and information sciences, have expanded the base of contributors to agriculture beyond agricultural and biological engineers. Innovators, entrepreneurs, and professionals from other professional backgrounds and experiences are increasingly making important innovations for food, bioproducts, and environmental systems. Many of these contributors are potential donors who are neither aware of our profession nor connected with the ASABE Foundation. Concerted efforts are required to develop partnerships with the new contributors and to recruit them to engage with our profession to achieve mutual goals.

In December 2018 ASABE Foundation President Lalit Verma appointed a committee to develop a messaging document to include mission and vision statements to enhance internal communication with ASABE members and provide content that will be effective with individuals and entities not currently associated with ASABE for building resources for advancing the purposes of ASABE. The committee, hereafter referred to as the Foundation Mission and Vision Statement (FMVS) Committee, was composed of thought leaders representing ASABE membership, Foundation Board of Trustees (FBOT), the Society Board of Trustees (BOT), and ASABE and Foundation past presidents.

The FMVS Committee methodically pursued its work during eight video-conferences and deliberated extensively for nearly a year on what the Foundation must do to build on past successes, enhance the future with a larger and more diversified donor pool, and substantially increase financial capacity to support ASABE for fulfilling its mission. The final committee meeting was a four-hour in-person brainstorming session held in Chicago on November 21, 2019 to identify building block words for the mission and vision statements. For the mission statement, the following words emerged independently from several members, and received strong consensus with the recommendation that they should be included in the statements.

- For Action: Connect resources
- For Target: Systems [food system, bioproducts systems, environmental systems, …]
- For Service: Engineering/Engineer
Based on the above recommendations we propose the following mission statement for the ASABE Foundation:

**MISSION:** Connect resources for engineering sustainable systems of food, bioproducts and the environment.

**Tag line:** Engineering sustainable systems of food, bioproducts and the environment

The ASABE Foundation aspires to build its financial resources by connecting with diverse donors to form an extensive network that supports a wide-range of activities for engineering sustainable systems of food and bioproducts (e.g., energy, feed, and fiber) for meeting needs of the growing population and ensuring the availability of fresh water and a healthy environment.

Building a diverse donor pool requires connecting resources, that is, building bonds with individuals and entities that share similar aspirations and have resources to contribute to the Foundation’s goals. These resources could be money; scientific and technical expertise; collaborations with sister foundations and professional societies in joint projects receiving federal grants and forming connections with agencies; leadership of studies (such as from the National Academies) affecting policy and future funding; collaborations with industries for innovations; and partnering with organizations devoted to such causes as human hunger, clean water, renewable energy, climate adaptation, and a sustainable environment. The Foundation aims to connect resources, broadly defined, to diversify its donor pool and facilitate the ASABE’s visibility, influence, and impact in the world.

The Committee reflected on visioning the desired end-state of the Foundation or what it saw in the future of the Foundation and concluded that the ASABE Foundation will achieve the state where it leads the world in supporting a wide-range of projects and activities for engineering sustainable systems for food, bioproducts and the environment. To capture these thoughts, we propose the following vision statement for the ASABE Foundation:

**VISION:** A world leader in connecting resources for engineering sustainable systems of food, bioproducts and the environment.

**Tag line:** Connected to engineer sustainable systems of food, bioproducts and the environment.
I – Introduction
What is the problem, what are the current approaches, what are new possibilities and what is presented?

I give because I feel connected to the cause and want to make a difference
…what a donor would say.

The annual giving to the American Society of Agricultural and Biological Engineers (ASABE) Foundation appears to have plateaued at nearly $150,000 per year from the primary donor base made largely of its members,¹ which is about $22.00 per member. Over the past several years, the Foundation’s Development Committee engaged the Foundation Board of Trustees (FBOT) in discussions on how the Foundation can grow its fund-raising capacity. The goal is to enhance its ability to support ASABE and projects which are consistent with the goals, purpose and objectives of ASABE. Two critical observations emerged:

1. The Foundation has done a good job building a donor pool largely made of ASABE members and managing funds that have supported activities internal to the Society’s needs. However, breakthrough advances, particularly in life and information sciences, have widened potential contributors beyond agricultural and biological engineers, and others are increasingly making important innovations for food, energy, and environmental systems. Most of these potential donors are neither engaged nor aware of ASABE and our profession. They are potential collaborators and sources of new funds for projects that would increase our profession’s stature and visibility.
2. Descriptions of the Foundation and its purpose and goals which appear in various promotional materials are not consistent. The messages in these materials are largely prepared for an internal audience of ASABE members. The materials do not effectively communicate with practitioners not already familiar ASABE or the public at-large.

The Foundation President Lalit Verma appointed a Committee to develop the Foundation mission and vision statements (FMVS) that would convey consistent messages about the purpose of the Foundation and its goals. The statements should be crafted for marketing the Foundation, for raising funds to support projects, and for enhancing the visibility and stature of ASABE and the profession.

In this report, Section II addresses the Committee’s discussion on Why is our profession needed? It presents the state of the world and its future needs for food, fiber, and energy and briefly identifies the important role our profession plays in addressing these basic human needs. Section III addresses the issue: What are new opportunities for the profession and ASABE? It identifies new players making meaningful contributions to engineering for food and agriculture systems and future opportunities for our profession. Section IV reviews the question - What is the purpose of the Foundation and what has it accomplished? - and reviews briefly the description of the Foundation and its past accomplishment and impact on ASABE and the profession.

¹ The average yearly contributions of the last five years, from 2014 and 2018, has been $152,267 with the high of $177,166 in 2015 and low of $130,627 in 2014. With nearly 7000 members, the average giving to the Foundation is about $22.00 per member. For details, see Appendix B.
Section V envisions the future of the Foundation, working with the ASABE Board of Trustees (BOT), to develop strategic target projects for raising funds from internal and external donors to support a broader range of activities that bring new players into the fold of ASABE. Reflections are presented in Section VI to share how the Foundation may modify its culture such that, in its thinking, includes the potential of non-ASABE members in fulfilling the Foundation’s and the ASABE’s purpose, goals and objectives. Sections VII present the Foundation mission and vision statements and VIII list suggestions for follow-up actions and resources required for implementing activities to significantly increase the Foundation’s support for ASABE and the impact and visibility of the profession. Appendices provide supporting information, description of the process and some reference materials. A supplementary document includes records of meetings and relevant email messages that informed the mission and vision statements.

II – Why is the Profession Needed?
State of the world and its future needs for food, fiber, and energy, and the important role of the ABE to address them

Regenerative biological materials are the sustainable natural resources for meeting basic human needs – food, fiber, energy, shelter and beyond. The success of reproducing regenerative biological materials is tied to the health and availability of natural systems. For over a century, agricultural and biological engineers in partnership with agricultural scientists have created systems that enabled producers to make available abundant food at rates faster than the increase in population and nearly alleviate world famine. And at the same time significant efforts for reducing soil loss and degradation and improving efficiency of water use have preserved the health and availability of natural resources.

To date we have averted the 1798 Malthus’ prophecy lamenting our catastrophic fate: a future of inevitable famines, wars and pestilence. American Society of Agricultural and Biological Engineers (ASABE) and its members have played a central role in this success story.

But, can we cheat Malthus prophecy once again? Here are some facts.

- The world population is projected to increase from an estimated 7.7 billion people in 2019 to nearly 10 billion people in 2050.
- The statistics that over 50% of the population live in urban areas today is expected to grow to nearly 70% of the population living in urban areas in 2050.
- The population growth and demographic shifts along with rising incomes will lead to dietary changes and demand for higher caloric nutritious foods. It is expected that agricultural production would have to increase somewhere between 70 to 95% to meet the 2050 food demand.
- Agriculture uses over one-third of the earth’s 13.3 billion hectares of arable landmass (excluding Antarctica) and accounts for the use of 70% of the estimated 3,862 cubic kilometer of available fresh water from rivers, lakes and aquifers. Available land per capita is decreasing and the increasing competition for fresh water for non-agriculture uses is reducing water availability for agriculture.
- A fourth of the global greenhouse gas (GHG) emissions is attributed to agriculture.
• Effects of climate change is not clear, but it is generally believed that climate change will negatively impact agricultural production. This is expected to have devastating effects on smallholder farmers and major impacts on low-income countries.
• Competitive demands of regenerative biological materials for bioenergy and other uses would seriously affect the gap between demand and supply of food.
• Heretofore approaches on making incremental progress in agricultural production for food will not be sufficient to meet the projected demands.

Agricultural and biological engineers (ABEs) are best known for the mechanization of farm labor reducing human drudgery and improving work safety. Mechanization also drastically improved efficiency and crop yields over the last century. Although they are lesser known for stewardship of natural resources, ABE’s innovations directly resulted in practices used for conserving soil and fresh water, reducing environmental pollution, and safe handling and storage of food. The exceptional contributions by ASABE for developing standards that provide specifications and procedures for reliability are used to develop and manufacture products. ASABE Standards have enabled growth of agricultural and food industries.

The historic evolution of ABE and its academic departments, largely being a part of colleges of agriculture with closer collaborations with applied sciences for agriculture and lesser engagement with natural sciences and other engineering disciplines, contributed to the profession’s worldview. Producing disrupting innovations that make a step change to meet food demands under the challenging circumstances listed above will require enhancement of systems thinking and expanding a worldview that reaches out externally to develop partnerships and collaborations for integrating advances in nanoscience, life and chemical sciences, data and information sciences, and bringing industry partners to scale up regeneration of biological materials and its distribution for food, fiber, energy and beyond.

Engineers and ASABE will have a greater pivotal role in enabling producers to make food available for new world demands.

But at this time ABE will need to explore integrative solutions by reaching out beyond traditional food and agricultural disciplines. For this, ASABE should look to become a home for best science and engineering expertise and leading industries, including non-traditional food industries, providing innovative and transformative ideas for commercial opportunities.

III – New Opportunities for the Profession and ASABE

Discuss things that are going on outside of ASABE that are future opportunities for ABE and ASABE.

To develop a consensus understanding of the core purpose of the Agricultural and Biological Engineering (ABE) profession that distinguishes it from sister professions, the Committee was asked to respond to several key questions. Unlike any other engineering professions, agricultural and biological engineers are dedicated to the understanding of all components of the vast, complex and interconnected crop and animal production systems for the purpose of developing technical solutions that improve the overall system efficiency (increase output per
unit input), while assuring the health of the Earth’s resources. From the responses, the following unique attributes and contributions of ABEs were identified by the Committee.

- Employ systems approaches for solving problems of holistic systems, not always in a controlled setting, for producing, handling, and processing living biological (plant and animal) materials.
- Seek system-level solutions for using and managing natural resources (soil and water) for production and processing of living biological materials that sustain resource availability for future use.
- Innovate methods for managing the environment, e.g., develop systems to reduce wind- and water-borne soil loss, and reduce degradation of the environment by precise application and placement of pesticides.
- Contribute to reducing global poverty (that has reached to its lowest level in recorded history) and making available affordable and safe food to more people than ever before.
- Integrate knowledge, discoveries, and technologies from multiple disciplines (convergence) in research and development that would lead a resilient food production and improve sustainability of natural resources.
- ABE’s work is of fundamental value to assure supply of food to all, positively impact sustainability of natural resources and quality of the environment, and improve economic state and the quality of life in rural areas, globally.

In summary, agricultural and biological engineers are professionals who devote their work to the integration of discoveries and technological advances from multiple fields to develop solutions in the context of the agricultural and food systems. Systems thinking of ABE members is a central attribute and a critical value of the profession. Without ABEs, the work they currently do would be distributed to multiple disciplines with varying perspectives and without the context of the whole systems. Under such conditions, innovations valuable for sub-systems would often be non-cohesive, disjointed and lead to incompatible solutions for enhancing overall systems performance. (From Q. 2 of the first inquiry)

The unique attributes of ABEs have led to advances that have resulted in remarkable improvement in the productivity of agricultural and food systems. To a great degree the profession had been self-sufficient and the need to reach out beyond its boundary was not imperative. Furthermore, agricultural and food systems were not of much interest to other professions. The projected 100% increase in food demand by 2050 has returned the importance of agricultural and food systems not witnessed for the last several decades, which is inviting new players to address the problem.

Now, there are growing numbers of scientists and engineers from other disciplines who are making breakthrough advances in knowledge and technologies that directly contribute to engineering in agricultural, food, and biological systems and ASABE’s mission. Some examples are groups working in fields of synthetic biology, synthetic biofuels, alternate meat, algal biofuel, GM-food/fiber, controlled environment agriculture, omics technologies, and data science. However, to a large degree, neither ABEs nor these new players are meaningfully engaged in mutually beneficial development. Based on the advances made by the so-called “non-ABEs”, new industries are emerging that are regenerating biological materials similar to those produced conventionally, which are emerging as viable alternatives for human food, fiber, energy and more. These new regenerative systems for biological materials are disruptive to the
current ways; they are highly sophisticated where precision, quality control and automation of regenerative processes nearly mimics flexibility and control capabilities of manufacturing plants.

There is a growing appreciation that solutions for non-reducible, complex systems (such as agricultural and biological systems) will require transdisciplinary science (convergence) and systems thinking. With the increasing complexity of problems of systems that produce biomaterials in natural systems comes an increasing level of interdisciplinarity. The majority of future R&D, manufacturing, testing and implementation will have to be done by interdisciplinary teams. Engineers inherently seek solutions in the context of systems by the synthesis of scientific knowledge and practical experiences.

The ASABE is a society with the mission of facilitating the exchange of technical information and promoting the science and art of engineering in agricultural, food, and biological systems. It is the primary home of agricultural and biological engineering professionals. ASABE is clearly an organization positioned to become a leader for meeting the formidable challenges by proactively taking actions to entice non-traditional scientists, engineers and industries engaged in food and agriculture sector contributing to the production of biomaterials for food, fiber, energy, and more. Furthermore, recruiting innovators of engineering education for preparing the next generation of complex systems problem-solvers is another goal ASABE should be prepared to address.

It is apparent that in recent years those contributing to engineering solutions for agricultural and food systems have dramatically increased with many entering the field from different science and engineering backgrounds. They are exploring new ideas and taking novel problem-solving approaches, thereby raising the potential for finding the needed disruptive innovations. There is a huge potential for increasing impacts and visibility of our profession by bringing them into the folds of agricultural and biological engineering and having them engage in ASABE activities.

Whereas the contributions of agricultural and biological engineers are well-known and supported by United State Department of Agriculture (USDA), other agencies (e.g., NSF, NIH, DOE, and NASEM) and organizations seldom think of inviting ABEs or ASABE during their planning and decision-making processes, even when the matter includes agricultural, food and natural resources systems. However, there are few exceptions, such as the Board on Agriculture and Natural Resources (BANR) of the NASEM and an increasing inclusion of agriculturally-oriented programs in NSF. Similarly, there are industries currently not seeking our graduates or engaging with ASABE members, who are important contributors to agricultural and food systems and would benefit from closer affiliation and partnership.

The deliberations in the Committee identified the following important objectives for expanding ASABE’s reach, which would be excellent target projects for the Foundation.

- Sustained efforts to communicate, educate and engage with Policy and decision makers Leading national science organizations Non-profit organizations and foundations
Potential employees/employers
General public
K-12 students

- Projects that lead to opportunities for serving on national boards, agencies, and organizations
- Create new, innovative communication materials
  Social-media, documentaries, public events
- Build partnership with sister engineering and science organizations and think-tanks
- Engage in translational research using data science, genomics, and other cutting-edge advances to explore development of unconventional food production systems, e.g., space and marine environments, vertical farming, urban food systems, etc.
- Attract entrepreneurs, especially in start-up efforts, and venture capitalists to engage with and to participate in ASABE meetings

In summary, there are huge opportunities, so far untapped, for ASABE and the profession to grow by attracting and connecting with those directly contributing in areas of great value to our profession. ASABE could be a conductor in the symphony of many players by integrating advances made in individual components into high performing biological materials production systems. ASABE can be a leader guiding the direction of future advances; it is far from serving this role now.

For this to happen, ASABE has to reach out and form active partnerships with sister organizations, and the Foundation has to provide support for the enabling programs/projects. To support new activities the Foundation will need additional resources. The Foundation has to develop effective solicitation activities that reaches beyond ASABE members to new potential external donors. In addition to soliciting funds for providing support for new projects, connections the Foundation builds with new donors will advance ASABE’s goals. In this sense, the Foundation will truly serve as an important catalyst for advancing ASABE’s purpose.

IV – The Foundation - Purpose and Accomplishments
A brief description of the Foundation’s past accomplishment and impact on the profession.

The American Society of Agricultural and Biological Engineers (ASABE) Foundation was established in 1986 for the purpose to enhance the effectiveness of the ASABE and to provide funds for purposes which are consistent with the purposes, goals, and objectives of the ASABE.

The Foundation has been successful in soliciting funds internally from ASABE members for supporting awards and projects serving needs of its members. The Foundation has an exemplary record of investing and managing its portfolio.

Noteworthy works of the Foundation have been developing and managing funds for awards and recognitions, development of educational materials, supporting preprofessional (student)

2 Includes physical sciences, life sciences, agricultural sciences, and economic and social sciences
activities and participation in ASABE, supporting the standards program, underwriting expenses for a distinguished lecture series, and assisting K-12 education and youth career development activities. The Foundation also supports special projects to address critical and long-term opportunities to enhance the services of the Society.

The most visible impact of the Foundation has been its support for awards. While, the Foundation has supported several important projects to improve ASABE member value, many of these efforts, including digitization of publications, are not widely known.

There is the potential for the Foundation to expand its support and impact on ASABE beyond its current members and reach out to connect with the large community of those who are contributing to engineering in agricultural and food systems. As described in the previous section, this includes individuals from various disciplines of science and fields of engineering, entrepreneurs leading start-ups with potentially disruptive technologies, a range of industries engaged in agricultural and food related enterprises currently not associated with ASABE, agencies, foundations, NGOs, policy-makers and venture capitalists, to name a few. In fact, the list of potential partners who have goals that align with those of ASABE is quite long and efforts to connect with them will need additional financial resources.

The Foundation can be an instrument for connecting these groups with ASABE by soliciting and expending funds for projects to capture new opportunities. Engaging with ASABE will provide them access to its services and expertise of its members valuable to their own work.

For this we need an effective messaging and ‘advertising’ strategy. Currently the Foundation does not have a clear and consistent message and its effectiveness beyond ASABE members, i.e., those not familiar with agricultural and biological engineering and ASABE, is limited at best. The Foundation needs to have succinct and inspiring mission and vision statements that provide a picture of the indispensable impact ASABE makes on society, for which one would feel compelled to support and contribute.

V – The Foundation - Looking Forward

Identify the role the Foundation can play in working with the BOT to strategically develop targeted projects for solicitation and support.

It has become clear that the next 30 years will see an unprecedented increase in production/regeneration of biological materials to meet demands for food, fiber, and energy. Scientific breakthroughs and technological advances of the past three decades have changed the landscape of our profession – engineering of agricultural and food systems. Independently from agricultural and biological engineers, the work of those in life sciences, data sciences and physical sciences, to name a few, along with engineers with expertise in other fields are receiving support from agencies and industries to directly contribute solutions for agricultural and food systems. For example, synthetic biologists are designing “living machines”, electrical and electronics engineers are heavily involved with creating “smart” sensors and controls, civil and environmental engineers are creating new ways to protect the environment and treat water
for different reuse purposes, and chemical engineers are involved in converting agricultural and food waste into useful products and in creating new processes for biological systems. Companies like IBM are advertising their investments in using big data and analytics for farm management decisions. Additionally, ASABE must connect with the National Academy of Science, Engineering and Medicine (NASEM) that routinely conduct studies and reports on contemporary issue impacting society; agriculture, food and natural resources that have been received much attention lately. Similarly, ASABE should be engaged with agencies (NSF, NIH, etc. to benefit from their funding decisions), sister societies, foundations, and others who contribute to food and agricultural systems.

There was a strong consensus in the Committee that the Foundation should create a multifaceted outreach program to build partnership with important groups and solicit funds from external groups mentioned that will build the Foundation’s capacity to support projects/activities important for serving purposes and goals of ASABE. Several ideas (not a comprehensive list) suggested for the Foundation’s proposed outreach program to increase marketing and solicitation effectiveness are listed below.

- Develop and distribute marketing materials designed specifically for each of the following target audiences. The materials should extol the contributions of the profession conveying its impact on affordable, safe food supply and environmental benefits.
  - The general public - impact on affordable, safe food supply and environmental benefits
  - K-12 students and school counselors - educational materials conveying ABE as a desirable career option
  - Industries - focus on the benefits of Standards and ROI
  - High potential donors - Senior ASABE members, ASABE Leaders, etc.
  - Campaigns - Periodically target well-defined purpose or groups
  - Develop excellent annual reports that are also promotional and solicitation tools

- Organize donor records and communication strategy for future solicitations
  - Maintain current roster of potential donors
  - Create a subset of donors with high-potential and develop a process for stewarding them
  - Maintain roster of potential volunteers/catalysts
  - Create a robust tracking system
  - Create a system of following up and regular communication especially with high-potential donor groups
  - Contact and invite successful graduates of ABE programs to contribute and support ASABE projects

- Make concerted efforts to create partnerships with sister societies (e.g., AIChe, ASME, IEEE, ASA, SSSA, CSSA, and Systems Biology) and where appropriate have a MoU on how to jointly participate in activities that helps develop funds for important projects.
• Partner with sister Foundations\(^3\) (e.g., Food Foundation) to implement joint programs/activities affecting future food and agricultural systems.

• Support educating and courting agricultural and food industries that do not currently engage with ASABE for soliciting funds to support projects of their interest. Pay closer attention to industries and start-ups using new biotech approaches for creating products for food and agricultural systems.

• Support activities that position ASABE in a leadership position nationally. For example, be a lead supporter of studies by the National Academies with ASABE member participation. This will open doors for providing input to policy makers and decision makers in agencies.

• Support a group of thought leaders (membership not restricted to only FBOT and BOT) who provide strategic recommendations based on the future trends/needs benefitting ASABE and the Foundation. These recommendations would be for supporting foresight projects to enhance the leadership position of ASABE and strengthen connections with potential partners and donors. The enhanced profile of our profession and ASABE will bring greater recognition by policy and decision makers, donors, scientific and engineering communities and the general public.

• Support cooperative fundraising activities with ABE academic departments.

VI - The Foundation - A Culture of Philanthropy

*Explain the mindset of the FBOT and environment in the foundation*

The culture of a group is what influences virtually every aspect of conscious and subconscious behavior and decisions. The current ASABE Foundation culture of philanthropy is set by a pattern of behavior where fund raising activities and expenditure decisions, almost exclusively, focus on internal resources and needs. In this regard, it is well documented that the Foundation has provided excellent support to ASABE internal projects. The list of donors and projects supported will support this conclusion.

Now we are reaching a consensus that the Foundation’s culture needs to evolve in ways that would include efforts to solicit funds and decisions to support wider-range projects *which are consistent with the purposes, goals and objectives of the ASABE*. It has been clearly identified that many ASABE non-members are valuable contributors to engineering in agricultural and food systems, and more often than not, our profession is *not included* in critical national policy and funding decisions. The Foundation has to think beyond ASABE and connect with such philanthropic foundations and organizations (see some examples listed in Appendix F) that focus on hunger and poverty and the quality of life issues.

---

\(^3\) List of several foundations associated with food and agricultural systems are listed in the appendix.
An important reason for the proposed changes in the Foundation culture is to realize that there are many disciplines of sciences, fields of engineering, agencies, foundations, and more who directly contribute to engineering in agricultural and food systems and they are neither connected to or nor aware of ASABE or our profession. Secondarily, our profession and ASABE have much to contribute to non-members in their efforts, of which they are currently unaware.

To seize these potential opportunities, the Foundation should create a culture of philanthropy that proactively engages with the ASABE Board of Trustees (BOT) where it,

- seeks ways to connect with practitioners who are not ASABE members, i.e., non-ASABEers,
- thinks about individuals and all possible groups (beyond ASABE members) who are engaged in agricultural and food systems to identify potential partners and donors,
- increases the capacity to support projects that utilize ASABE member’s expertise which can be leveraged into leadership roles for the profession, and
- regularly and widely publicizes the critical role of ABE for doubling global production of biological materials by 2050 for food and fiber with lesser available land, water and other resources.

### VII - ASABE Foundation Mission and Vision Statements

#### Mission Statement

**What is a Mission Statement?**

*Mission (Purpose) is a succinct, inspirational statement giving the reason an organization exists and the need it is meeting in the community. Mission answers the following questions:*

1. What is the purpose of the organization?
2. Why does it exist?
3. What does it do?

*An effective mission statement is short and inspiring that speaks of how the organization contributes.*

**OBJECTIVE:** Write one-sentence statement describing the reason the Foundation exists

- CLEAR: Simple language, 8-10th grade reading level
- CONCISE: No fluff. Aim for 5-14 words (20 max)

Mission informs others of what you do; focuses and motivates your team; and guides strategic planning & decisions

---

*I give because I feel connected to the cause and want to make a difference*  
...what a donor would say.

After nearly a year-long deliberation on what the Foundation must do to build on past successes, enhance the future with a larger and more diversified donor pool, and substantially increase financial capacity to support ASABE fulfilling its mission, the Committee in a four-hour in-person brainstorming session in Chicago on November 21, 2019 reached a consensus on the following building block words for the mission statement.

- For Action: Connect resources
- For Target: Systems [food system, bioproducts systems, environmental systems, …]
- For Service: Engineering/Engineer
We recommend the following Mission statement for the ASABE Foundation:

**MISSION:** Connect resources for engineering sustainable systems of food, bioproducts and the environment.

**Tag line:** Engineering sustainable systems of food, bioproducts and the environment

The ASABE Foundation aspires to build its financial resources by connecting with diverse donors to form an extensive network that supports a wide-range of activities for engineering sustainable systems of food and bioproducts (e.g., energy, feed, and fiber) for meeting needs of the growing population and ensuring the availability of fresh water and a healthy environment.

Building a diverse donor pool requires connecting resources, that is, building bonds with individuals and entities that share similar aspirations and have resources to contribute to the Foundation’s goals. These resources could be money; scientific and technical expertise; collaborations with sister foundations and professional societies in joint projects receiving federal grants and forming connections with agencies; leadership of studies (such as from the National Academies) affecting policy and future funding; collaborations with industries for innovations; and partnering with organizations devoted to such causes as human hunger, clean water, renewable energy, climate adaptation, and sustainable environment. The Foundation aims to connect resources, broadly defined, to diversify its donor pool and facilitate the ASABE’s visibility, influence, and impact in the world.

**Vision Statement**

What is a Vision Statement?

Vision = Desired End-State or What you see in the future for your community

*Vision* is expressed in a one-sentence statement describing the clear and inspirational long-term desired change resulting from an organization’s work. It guides the long-term thinking. Vision statement answers the following questions:

1. What does success look like? What are your measures?
2. What will the Foundation be best at? What is something no one else will be doing or What the Foundation will be doing better than anyone else?
3. What is it the Foundation wishes the community it serves to become?

The best visions are inspirational, clear, memorable and concise - only 10 to 15 words long.

The ASABE Foundation aspires to lead the world in supporting a wide range of projects and activities for engineering sustainable systems for food, bioproducts and the environment. We propose the following Vision statement for the ASABE Foundation:

**VISION:** A world leader in connecting resources for engineering sustainable systems of food, bioproducts and the environment.

**Tag line:** Connected to engineer sustainable systems of food, bioproducts and the environment.
VIII – Suggestions, Next Steps and Resource Needs
List ideas that emerged during the Committee’s deliberation useful for developing action strategy and implementation plans.

There are vast opportunities for ASABE to connect with new (neither connected with ASABE nor aware of our profession) professionals, organizations, industries and foundations that are making increasingly valuable contributions to the advancement of food and agricultural systems. The expanded contributor base beyond agricultural and biological engineers also includes new innovators and entrepreneurs. The Foundation may become more proactively engaged with the Society’s BOT to monitor new development and opportunities.

A number of ideas emerged on how the Foundation’s mission and vision can be employed to inspire ASABE members and attract new groups to support the Foundation and advance the profession.

Whereas the Committee did not focus on preparing a list of recommendations for future actions; however, during the process of developing the mission and vision statements a number of ideas for future actions emerged. They are listed below for consideration.

SUGGESTIONS

- Jointly, the FBOT and BOT may create a strategic group of thought leaders who are extensively connected with the food and agricultural research, industry and policy infrastructure to periodically recommend new opportunities that enhance the visibility of our profession and translate into building a greater donor pool for supporting ABE work.

- This report presents the mission and vision statements and broadly identifies the vast untapped donor pool currently not associated with ASABE. It also presents messaging content that would be useful for connecting with new groups and enhancing ties with ASABE members.

- The report does not provide “how”, that is, an implementation process and strategy. The Foundation Development Committee would be a logical group to charge with the responsibility to develop implementation process and strategy (with tasks, timelines and responsible persons), necessary professional quality messaging documents, and “personalized” communication methods. This would be needed for both internal and new groups. The Development Committee may form a strategic group (made of Trustees and as well thought leaders with extensive contacts) that can help in identifying potential new opportunities and candidate donors.

- The Development Committee will need help from a staff person preferably with professional fundraising experiences. Without this help, the future actions will be grossly unrealized.
NEXT STEPS

The Foundation president may without delay charge a committee to develop process and progress towards an action strategy, and provide support to implement actions.

RESOURCE NEEDS

The Committee often commented on the first and foremost resource need of having a “development officer” located in the ASABE headquarters to provide administrative support for all aspects of the Foundation’s work. A person with prior fund-raising efforts will be of great value to the Foundation. This person will be the lynchpin between the FBOT and development actions.

The individual may have the following responsibilities:

- Maintain excellent records and routinely perform reoccurring tasks
- Work closely with the Foundation BOTs responsible for development decisions
- Facilitate strategic planning and leadership of its implementation,
- Educate Foundation Board members in the best practices for fundraising,
- Be responsible preparing professional quality messaging, promotional materials and using various communications media for solicitation
- Oversee the use of funds in projects approved by the FBOT
- Represent ASABE in meetings and forums where potential donor may be present
- Help launch and follow progress of targeted campaign

---

4 It is acknowledged that a new “development officer” at the ASABE headquarters, Susan Lane, has been already hired and is on duty as of January 1, 2020.
### APPENDICES

**APPENDIX - A**

**List of Committee Members and Their Affiliations**

<table>
<thead>
<tr>
<th>Appointed Members</th>
<th>Maynard M. Herron</th>
</tr>
</thead>
<tbody>
<tr>
<td>Darrin Drollinger</td>
<td>Past-President of ASABE</td>
</tr>
<tr>
<td>Executive Director</td>
<td>Engineering Manager</td>
</tr>
<tr>
<td>Am. Soc. of Agricultural and Biological Engr.</td>
<td>AGCO Corporation</td>
</tr>
<tr>
<td>St. Joseph, MI</td>
<td><a href="mailto:Maynard.Herron@agcocorp.com">Maynard.Herron@agcocorp.com</a></td>
</tr>
<tr>
<td><a href="mailto:drollinger@asabe.org">drollinger@asabe.org</a></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bryan M. Jenkins</th>
<th>James W. Jones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distinguished Professor and Chair</td>
<td>Distinguished Professor Emeritus</td>
</tr>
<tr>
<td>Biological and Agricultural Engineering Department</td>
<td>Agricultural &amp; Biological Engineering Dept. and Florida Climate Institute</td>
</tr>
<tr>
<td>University of California</td>
<td>University of Florida</td>
</tr>
<tr>
<td>Davis, CA</td>
<td>Gainesville, FL 32611</td>
</tr>
<tr>
<td><a href="mailto:bmjenkins@ucdavis.edu">bmjenkins@ucdavis.edu</a></td>
<td><a href="mailto:jimj@ufl.edu">jimj@ufl.edu</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Allen Rider</th>
<th>Sylvia Schonauer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retd. President of New Holland North America; Past President of ASABE; and Past President of the ASABE Foundation</td>
<td>The ASABE Foundation Board of Trustees Chair, Development Committee</td>
</tr>
<tr>
<td>Allen Rider</td>
<td>Retd. Engineer, Kellogg</td>
</tr>
<tr>
<td><a href="mailto:rideracg@aol.com">rideracg@aol.com</a></td>
<td><a href="mailto:sylvias@valkyrie.net">sylvias@valkyrie.net</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mark Riley</th>
<th>Brahm Verma - Chair of the Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>The ASABE Foundation Board of Trustees Chair, Development Committee Associate Dean of Research College of Engineering University of Nebraska Lincoln, NE</td>
<td>The ASABE Foundation Board of Trustees Professor and Associate Director Emeritus Biological and Agricultural Engineering Dept. &amp; College of Engineering The University of Georgia Athens, GA. 30606</td>
</tr>
<tr>
<td><a href="mailto:mriley3@unl.edu">mriley3@unl.edu</a></td>
<td><a href="mailto:bverma@engr.uga.edu">bverma@engr.uga.edu</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ASABE Board of Trustee Representatives</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sue Nokes</td>
<td>Maury Salz</td>
</tr>
<tr>
<td>ASABE President, 2019-2020</td>
<td>ASABE President, 2018-2019</td>
</tr>
<tr>
<td>Professor of Agricultural and Biological Engr. University of Kentucky Lexington, KY. 40506</td>
<td>President of CLAAS Omaha, USA Omaha, NE</td>
</tr>
<tr>
<td><a href="mailto:sue.nokes@uky.edu">sue.nokes@uky.edu</a></td>
<td><a href="mailto:Maury.Salz@claas.com">Maury.Salz@claas.com</a></td>
</tr>
<tr>
<td>Name</td>
<td>Position</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Paul Burkner</td>
<td>Member, ASABE Board of Trustees</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Jane Frankenberger</td>
<td>Member, ASABE Board of Trustees</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Lalit Verma</td>
<td>Ex-Officio Member</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Mark Crossley</td>
<td>ASABE Headquarters Staff</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Joann McQuone</td>
<td>Executive Assistant</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX - B

Annual Contributions to the Foundation between 2014 and 2018

The high in the year 2013 is because a single donor made a large contribution.

These slides are from the PowerPoint presentations made at the 2015 and 2019 ASABE Annual Business meetings
APPENDIX - C.

The Process

In a successful organization mission and vision statements capture member consensus on its “winning idea” and “distinctive work”, and are effective messaging tools to convey the organization’s unique selling proposition. In the best scenario all members are invested, and are inspired to communicate with stakeholders the consistent and effective message for promoting the organization’s work.

For developing the mission and vision statements of the ASABE Foundation, a two-step process was followed. The objective of the first step was to identify and build a consensus among committee members (as a proxy for the members) the profession’s and the Foundation’s winning ideas and distinctive work, and to identify the wide range of potential stakeholders actively contributing to the advancement of food and agricultural systems. The first objective was to be achieved through carefully planned questionnaires and a series of video-conference meetings. The objective of the second step was for the committee members to identify and reach consensus on words, which would capture the distinguishing works of the Foundation, that could be used as “building-blocks” for the formulation of the mission and vision statements. This objective was to be achieved during an in-person deliberative session following an organized process. The following is the listing of events for achieving the two objectives.

a. December 18, 2018 – Questionnaire #1
   The objective: To survey the committee members to learn their initial thinking on the profession’s and the Foundation’s unique and distinctive work.
   Q. 1. What are three major impacts of agricultural and biological engineers and the profession?
   Q. 2. What one significant thing that would NOT happen if agricultural and biological engineers and the profession were not here?
   Q. 3. Other than the ASABE FBOT and ASABE BOT, list three (3) groups we should seek input from.

b. January 8, 2019 - Zoom Video-Conference meeting #1
   The objective of the meeting was to develop and agree to a process, set a timeline, review current mission and vision statements of the ASABE and the Foundation, identify current Foundation’s work and new opportunities for fund raising, and review responses to the Questionnaire #1.

c. February 1, 2019 - Zoom Video-Conference meeting #2
   Primary objective: To deliberate what role the Foundation should play in development activities and funding projects that are consistent with the purposes, goals, and objectives of the ASABE and promotes the ABE profession but may not have been solely determined by or originate from the ASABE BOT.

d. March 5, 2019 - Zoom Video-Conference meeting #3
**Primary objective:** To confirm the need for developing the future strategic direction of the Foundation, and to identify the composition and the method for forming a strategic group to lead the effort.

e. April 1, 2019 - Zoom Video-Conference meeting #4
   **Primary objective:** To identify external stakeholders who could be potential donor and supporters of the profession and the Foundation.

f. May 6, 2019 - Zoom Video-Conference meeting #5
   **Primary objective:** Brainstorming session responding to the following five questions on what is the scope/impact of the profession of agricultural and biological engineering?
   i. What do ABEs do that no one else does?
   ii. What unique contributions ABE make?
   iii. What are unique impacts of ABE, and on whom?
   iv. What ABE should be doing that they are not doing now?
   v. What new impact ABE can make, and on whom?

g. June 4, 2019 - Zoom Video-Conference meeting #6
   **Primary objective:** Brainstorming session responding to the following five questions on what is the scope/impact of the ASABE Foundation? And set agenda for the June 2019 meeting.
   i. What has the Foundation done that no other entity would have likely done?
   ii. What unique contributions the Foundation has made?
   iii. What aspects of the profession visibility and/or growth attributable to the Foundation?
   iv. What should the Foundation be doing that is not being done now?
   v. What new impact the Foundation could make, and on whom?

   This meeting was abbreviated due to the Chair’s taking ill. Lalit Verma substituted and instead of engaging in the planned brainstorming session assigned the members to respond to the five questions in writing and send it to him by July 1, 2019.

h. June 4, 2019 – Questionnaire #2.
   Please respond to the following question and send them to Lalit Verma by July 1, 2019.
   i. What has the Foundation done that no other entity would have likely done?
   ii. What unique contributions the Foundation has made?
   iii. What aspects of the profession visibility and/or growth attributable to the Foundation?
   iv. What should the Foundation be doing that is not being done now?
   v. What new impact the Foundation could make, and on whom?
   vi. What questions may be required for this impact to be realized?

   It should be noted that ALL members of the Committee responded to this questionnaire. All responses were compiled and were distributed before the next meeting.

   NOTE: President Lalit Verma also distributed Questionnaire #2 to academic department heads of North America. Only two department heads responded showing very limited knowledge about the Foundation and its purpose.

i. July 7, 2019 – In-person meeting at the Annual International Meeting in Boston, MA was postponed due to Chair’s indisposition. Instead the Committee was expected to respond to the questions listed in the June 4th agenda.

j. September 18, 2019 – Zoom Video-conference meeting
Primary objective: Review responses received in questionnaire #2, brainstorm and add new ideas and identify central concept/theme under each question. Identify goals for the in-person meeting on November 21, 2019 in Chicago

k. October 24, 2019 – Zoom Video-conference meeting
   Primary objective: Continue review responses received in questionnaire #2, brainstorm and add new ideas and identify central concept/theme under each question. And set agenda for the in-person meeting on November 21, 2019 in Chicago

l. November 21, 2019 – In-person meeting in DoubleTree in Rosemont near O’Hare Airport, Chicago, IL.
   Primary objective: This meeting was structured to follow a process for developing mission and vision statements. In a hands-on session, the committee members reached consensus “building block” words for the mission and vision statements. They were then used to formulate draft statements for the Committee review and approval.

m. December 8, 2019 – Draft mission and vision statements were distributed to the Committee for review and approval. Response requested by 12/19/2019
   The Committee Chair in consultation with few members crafted draft mission and vision statements, which were distributed for input and approval.

n. January 10, 2020 – Committee’s penultimate report was distributed to the FMVS Committee for approval
   The Chair distributed a draft report for the committee members to review and provide suggestions. The responses were requested by January 18, 2020.

o. January 20, 2020 – The FMVS approved the draft report submitted to the ASABE Foundation President Lalit Verma.

Suggested actions for the approval and adaptation of the mission and vision statements

p. January 25, 2020 - President Lalit Verma requests the Foundation Development Committee to review and endorse the FMVS Committee report by February 10, 2020.

q. February 11, 2020 - President Lalit Verma asks the FMVS Committee to incorporate suggested improvements recommended by the Development Committee

r. February 17, 2020 - The FMVS Committee submit the revised report to President Lalit Verma for approval by the FBOT and BOT.

s. April 2020 – Seek approval by the FBOT and ASABE BOT.
APPENDIX - D

Description of the ASABE Foundation and Purposes stated in the Bylaws

DESCRIPTIONS OF THE FOUNDATION IN VARIOUS PUBLICATIONS

The American Society of Agricultural and Biological Engineers (ASABE) Foundation’s mission/purpose/goal statements and other descriptions published in various outlets are listed below. They do not present a clear and consistent message, especially to non-ASABE members and stakeholders-at-large, the critical, lifesaving contributions that our profession makes by innovating, educating and informing advanced, environmentally responsible technical solution for systems producing natural biological materials for food, fiber, energy and more.

1. On the Foundation website

For more than 30 years, the Foundation has served as the charitable arm of ASABE, generating and awarding resources to aid the Society and its members to build a stronger future for the agricultural and biological engineering (ABE) profession. Funds administered by the Foundation are used for awards, scholarships, special projects, and to support ASABE programs. Each year, we recognize exemplary individuals within the field and offer opportunities for ABEs at all levels of their careers as they work to create a world with abundant food, water, energy, and a healthy environment.

2. On the Foundation website under Annual Report (accessible to FBOT only):

https://dnn9n7kh1.blob.core.windows.net/portals/0/Foundation%20Materials/FdnAR_digital_2018.pdf?sr=b&si=DNNFileManagerPolicy&sig=hzzfUEH3lHWgaNyafh6oNXVknX%2B1HP3OBZv3cHEKMD8%3D

ASABE FOUNDATION MISSION STATEMENT - The ASABE Foundation supports the agricultural and biological engineering profession through ASABE and its promotion of engineering in food, water, energy, fiber and the environment.

3. ALL IN Brochure and on the Foundation website:

https://www.asabe.org/Get-Involved/ASABE-Foundation

The goal of the Foundation is simple: Support the profession by funding awards, special initiatives and projects, professional development, and more. We’ve been doing it for more than 30 years.

4. In the “Case for Support” Brochure:

Agricultural and biological engineers improve lives and livelihoods.
The ASABE Foundation supports the work of ABEs

THE ASABE FOUNDATION BYLAWS: ARTICLE III - PURPOSES

The Corporation [Foundation] is formed for the following purposes:

1. To receive and administer funds for educational, scientific, and charitable purposes through gifts, devises, bequests, donations, memorials, gifts to perpetuate the memory of persons, and philanthropic funds;

2. To distribute funds to the ASABE or to expend funds for purposes which are consistent with the purposes, goals and objectives of the ASABE.

3. To develop and lead fund-raising activities to enhance the effectiveness of the ASABE.

APPENDIX - E

Description of ASABE and Mission and Vision Statements

ABOUT ASABE AND THE DEFINITION OF THE PROFESSION

The American Society of Agricultural and Biological Engineers (ASABE) is an organization of professionals dedicated to the advancement of engineering applicable to agricultural, food, and biological systems. The ASABE Board of Trustees (BOT) defined the profession as follows:

Agricultural and Biological Engineering is the discipline of engineering that applies engineering principles and the fundamental concepts of biology to agricultural and biological systems and tools, ranging in scale from molecular to ecosystem level, for the safe, efficient and environmentally sensitive production, processing, and management of agricultural, biological, food, and natural resources systems.

ASABE Mission Statement

Promote engineering in food, water, energy, fiber, and environment

ASABE Vision Statement

To be among the global leaders providing engineering and technology solutions ensuring a healthy environment and a sustainable world with ample food, water, fiber, and energy.
APPENDIX - F

Example list of foundations, organizations, agencies and industries associated with food and agricultural systems

FOUNDATIONS

- Bill and Melinda Gates Foundation
- Rockefeller Foundation
- Ford Foundation
- Foundation for Food and Agriculture Research
- AgDevCo, Registered in the UK in 2009
- Agricultural Technology Adoption Institute (ATAI):
  “… develop and test programs that help small-scale farmers in South Asia and Sub-Saharan Africa adopt and profitably use agtech.”
- The William and Flora Hewlett Foundation
  “… offers grants in a variety of sectors, including for agtech entrepreneurs and startups focusing on providing farmers with more sustainable tools to help feed our ever-increasing population, the Environment Program.”
- The AgroEcology Fund –
  “Founded in 2011 by a consortium of 4 foundations including Christensen Fund, New Field Foundation, and Swift Foundation. In 2017, we are comprised of 18 foundations.”
- The Feed Foundation
  “…dedicated to raising funds to support programs and organizations that are effectively working to fight hunger and eliminate malnutrition throughout the world.”

ORGANIZATIONS

- Crops and Soil Sciences Society of America
- American Society of Agronomy
- American Society of Horticulture
- Animal Society of Animal Sciences
- American Institute of Chemical Engineering (AIChe)
- IEEE

AGENCIES

- USDA, NIFA
- USAID
- NSF
- NIH
- National Academies of Science, Engineering and Medicine (NASEM)
• DOD
• NASA

INDUSTRIES

• AgDNA
• Deere and Co.
• AGCO
• Blue River Technology
• Autonomous Solutions, Inc. (ASI)
• Cargill
• DNA Plant Technologies
• Del Monte
• New Holland Machine Co.
• Perdue Farms
• Monsanto
• Sukup
• Tyson Foods

Promising Start-ups

• AERO Farms
  “vertical farming”
• AgCode
  “vineyard management company”
• Apeel Sciences
  “... for extending shelf life of produce”
• Bext360
  “blockchain software for tracking commodities”
• Bright Farms
  “indoor farming for local produce”
• CiBO Technologies
  Data analytics, statistical modeling and AI to simulate agricultural fields and ecosystems.”
• EIO Diagnostics
  “udder infection detection”
• Farmer’s Business Network
  “network of 6500 farms accessing seed prices, yields and marketing information.”
• Soft Robotics
  “robotic arms with soft gripper”
APPENDIX - G

Suggested Readings

*Science Breakthrough to Advance Food and Agricultural Research 2030*
National Academies of Science, Engineering, and Medicine. 2018
Washington, DC: The National Academy Press
doi: https://doi.org/10.17226/25059.

[Read on-line] *Retaking the Field: The Case for a Surge in Agricultural Research*
Supporters of Agricultural Research (SoAR) Foundation
https://supportagresearch.org/our-projects/retaking-the-field/retaking-the-field-volume-1
https://supportagresearch.org/our-projects/retaking-the-field/retaking-the-field-volume-4

[Read on-line] *New Report Identifies How to Supercharge Agriculture Science in the US*

[Read on-line] *CHAPTER 6. The Resources Outlook: By how much do land, water and crop yields need to increase by 2050?*
Jelle Bruinsma – Looking Ahead in World Food and Agriculture - FAO
http://www.fao.org/3/i2280e/i2280e06.pdf

[Read on-line] *Cities and Circular Economy for Food*
Ellen Macarthur Foundation

[Read on-line] *Legal Pathways to Carbon-Neutral Agriculture*
Peter Lehner and Nathan A. Rosenberg, Environmental Law Institute
Copyright © 2017 Environmental Law Institute®, Washington, DC.

[Read on-line] *Future food-production systems: vertical farming and controlled-environment agriculture*
Kurt Benke and Bruce Tomkins, Sustainability: Science Practice and Policy, 13:1, 13-26
https://doi.org/10.1080/15487733.2017.1394054

*The Rise of Vertical Farms*
Dickson Despommier, Scientific American, pp 80-89, November 2009

7 Predictions on the Future of Clean Meat in 2019
Davide Banis, Forbes, Dec 14, 2018

*Clean Meat – How growing meat without animals will revolutionize dinner and the world.* By Paul Shapiro