

Pursuing a Unifying Message

*Elevating Food, Agricultural and
Natural Resources Research as a National Priority*

A Scientific Society Perspective



Charles Valentine Riley
Memorial Foundation

IOWA STATE UNIVERSITY



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Charles Valentine Riley Memorial Foundation
Iowa State University

and

American Society of Plant Biologists

in a partnership with

Mississippi State University, Soil and Water Conservation Society,
Texas Tech University and Colorado State University

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The Charles Valentine Riley Memorial Foundation is committed to promoting a broader and more complete understanding of agriculture and to building upon Charles Valentine Riley's legacy as a "whole picture" person with a vision for enhancing agriculture through scientific knowledge.

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We thank each of the participants from the 23 scientific societies who participated in the roundtable. We appreciated how they made time in their busy schedules for this critically important topic, and we valued how each contributed their ideas and perspectives to the discussions. Special thanks to the four participants who, on short notice, shared brief and thoughtful presentations that significantly added to the day's program: Jean Steiner, President, American Society of Agronomy; Deb Hamernik, President-Elect, American Society of Animal Science; Erle Ellis, Vice Chair of the Human Ecology Section, Ecological Society of America; and Mary Ellen Camire, Past President, Institute of Food Technologists.

Twenty-six people attended the roundtable as observers, representing diverse organizations and stakeholders. We appreciate them spending the day with us and expressing continued interest in learning more about the Unifying Message process and following the evolution of the discussions.

Thank you to the co-chairs of the roundtable, Robert Easter and Crispin Taylor, for their leadership and commitment to making this meeting a reality. The members of the full steering committee for the roundtable are listed in the next section. Thank you for your service and commitment.

We also thank Maya Breitburg-Smith and Meg Perry of RESOLVE, Washington, D.C., for facilitating the roundtable and for their guidance in development and facilitation of the roundtable and in developing the content for this report. Our appreciation also goes to Iowa State University and the Soil and Water Conservation Society for their efforts in preparations and planning for the roundtable.

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Highlights

On December 9, 2015, the Charles Valentine Riley Memorial Foundation convened a group representing more than 23 scientific societies at the American Association for the Advancement of Science in Washington, D.C., to discuss the idea of pursuing a Unifying Message elevating food, agriculture and natural resources research as a national priority. Highlights from the roundtable discussion are listed below.

- **Inclusive Definition of Agricultural/Food systems.** An inclusive definition of agriculture is central to the approach of the Unifying Message effort and includes discovery research, agricultural production processes from raw materials to consumers, the ecology and sustainability of these processes, and their implications for human health and well-being.
- **Consistent Top-Line Ask.** Unifying Message communications should focus on a consistent and ambitious ask—a specific dollar amount in the billions invested in agricultural research at the national level — while speaking forcefully to top-line deliverables for an ambitious investment.
- **Emphasis on the Public Good.** The Unifying Message should emphasize the essential role of agricultural research in supporting and protecting the public good— including human health, environmental resiliency, community development, national security and economic competitiveness.
- **Emphasis on Long-Term Imperatives.** It will be important to emphasize that many of the innovations taking place in production agriculture now are built on fundamental discoveries made a decade or more ago.
- **Interconnectedness.** Consideration of the interconnectedness within agricultural systems, among aspects of the public good, and between agricultural research entities will be essential to successfully addressing the grand challenges facing agriculture.
- **Multiagency Approach.** The Unifying Message should emphasize expanding the total funding portfolio across multiple federal agencies, with particular focus on a core set of priority agencies, including USDA, selected based on coalition interest.
- **Target Congress.** Although communicating with the public and the Unifying Message coalition organizations is important, the Unifying Message should focus on Congress as the budgetary decision-makers.
- **Customized Messaging.** Communication of the Unifying Message should be tailored to focus on what is relevant to each audience, while still conveying the overarching ask. Use of polling by the coalition will inform and strengthen these customized messages.

Introduction

The scientific societies roundtable was the third event associated with an effort to pursue a unifying message on food, agricultural and natural resources research, organized by the Charles Valentine Riley Memorial Foundation (RMF) and its partners. The first event, held at the National Press Club in December 2014, provided the foundation for subsequent stakeholder events that would contribute to elevating agricultural research as a national priority. Agriculture is broadly defined in these efforts to include food, fiber, nutrition, energy, natural resources, environmental quality and more.

The second event, also hosted by the American Association for the Advancement of Science (AAAS), was held in April 2015 with a set of leaders from universities and university associations, focusing on the university perspective of a unifying message.

For more than 100 years, professional scientific societies in plant, animal, agricultural, food and natural resources sciences have taken leadership roles in defining best practices in the scientific endeavor, helping the United States prioritize the nation's agricultural research agenda, and helping to decide the funding priorities within public agencies and private philanthropies. The journals they publish, either alone or in conjunction with other publishers, are a primary source of definitive information on fundamental and applied findings — driving discovery and advancing research and development of novel products and practices. Members of these societies are frequently called upon to provide scientific expertise and input as Congress determines priorities for federal spending in support of research. Given their central role as representatives of the major scientific disciplines, the societies help define both visionary and narrow priorities for U.S. agricultural research. Because of the broad reach of their memberships and their presence in Washington, D.C., scientific societies are essential players in helping to develop a unifying message in support of agricultural research (see list of Selected Discipline-Oriented Scientific Organizations in Appendix A).

For these reasons, RMF, Iowa State University, the American Society of Plant Biologists and their partners organized a scientific societies roundtable as an essential component of pursuing a unifying message. This report summarizes key themes discussed and input received during the roundtable held on December 9, 2015, and hosted by AAAS.

Setting the stage for the roundtable discussion, co-chairs Robert Easter and Crispin Taylor highlighted the global need for increased funding for research, stating: “There is virtually universal consensus that the global food supply must increase by 70 to 100 percent by 2050 through increased production and improved stewardship. Moreover, the resources necessary to achieve these objectives must be deployed in a sustainable manner. Adequate food for the world cannot be achieved unless public investment in the necessary research is increased significantly.”

They emphasized that it was not that members of the research community for food, agricultural and natural resources have failed to advocate. Rather, in the face of increased fiscal pressures, the community must consider a united front to ensure that all relevant disciplinary areas and sectors of the agricultural research enterprise are appropriately funded and supported to rigorously address the challenges before us.

In her introductory remarks, RMF President Wendy Wintersteen stated that agriculture and natural resources were at the crossroads of the society's most critical challenges. The immensity of the challenges need to be addressed with the most robust research enterprise possible. She indicated the support for food, agricultural

and natural resources research was fragmented, with no advocacy in support of the “big picture.” Coordinated medical research advocacy was shared as one example of a broad coalition able to influence Congress to double NIH funding between 1993 and 2003. Although, in more recent years, sequestration and tight federal budgets have impacted federal medical research funding, it was noted that a \$2 billion increase for NIH was currently working its way through Congressional committees. It further demonstrates the vital importance of consistent, coherent messaging and advocacy.

In view of the critical need to invest significantly more in food, agriculture and natural resources research, Wintersteen believes this is a pivotal moment in time to move forward and create a new, broad coalition of stakeholders; to engage leaders with a broad and futuristic vision; and to develop a common purpose and common message with a focus on the public good. In closing remarks to the roundtable, Wintersteen charged representatives of scientific societies to continue to involve themselves in the process; to think bolder; and to come together to launch a renewed and heightened effort to ensure a safe, healthy and sustainable future.

Scope. In the initial unifying message report the role of many federal agencies in funding agricultural research was recognized, and examples were provided where the U.S. Department of Agriculture’s (USDA) Agricultural Research Service (ARS) collaborates with at least 10 different federal agencies:

- Food and Drug Administration (FDA)
- National Institutes of Health (NIH)
- Environmental Protection Agency (EPA)
- Department of Defense (DoD)
- Department of Energy (DOE)
- National Science Foundation (NSF)
- U. S. Geological Survey USGS)
- Department of Energy (DOE)
- Centers for Disease Control and Prevention (CDC)
- National Aeronautics and Space Administration (NASA)

Given the broad scope of collaboration, recognition of the involvement of all of the federal agencies that contribute to agricultural research is important when agriculture is broadly defined. However, when seeking additional support from Congress, dealing with all of the relevant committees and sub-committees involved may not be feasible or effective. There appears to be agreement among stakeholders that the unifying message should emphasize expanding the total funding portfolio across multiple federal agencies, with particular focus on a core set of priority agencies that includes USDA.

Budget considerations. R&D budgets for various federal agencies and countries were included in the first unifying message report, and detailed updated data for U.S. agencies are available through the AAAS Budget and Policy Program webpage. Agricultural research funding through USDA in real dollars has been flat or, in some areas, in decline for more than two decades. Other research areas have experienced increased funding and, in some cases, dramatic increases, such as in medical research. In addition, data provided by USDA’s Economic Research Service indicate that China and India are greatly increasing investments in agricultural research compared to waning support in the U.S. Consequently, agricultural productivity rates in China are increasing rapidly while U.S. rates are slowing; U.S. leadership and competitiveness on a global scale are at stake. Awareness is growing that U.S. agriculture is unprepared to meet looming challenges facing the nation and world, and increased federal funding will be required to meet those challenges.

Increased funding for food, agricultural and natural resources research can help prevent the further spread of food and water scarcity around the world and in the U.S. The research resulting from increased funding should be designed to impact on the lives of everyone, resulting in safe and nutritious food that is sustainably produced, healthy families, quality environment, renewable energy, increased economic opportunities for a growing economy, fair and competitive markets, and equitable food and agricultural strategies and systems.

Parallel efforts. A wide range of organizations actively support agricultural research. Of more than 100 non-governmental organizations that have interests in food, agriculture and natural resources, there are many fewer which have a major focus on increasing agricultural research funding. Examples of those with a major focus in this area include the National Coalition for Food and Agriculture Research (NC-FAR), Supporters of Agricultural Research (SoAR) Foundation, AGree, the Agriculture and Food Research Initiative (AFRI) Coalition, the Foundation for Food and Agricultural Research and RMF. In terms of a unifying message, the engagement of many universities, including land-grant, non-land-grant and private, will be critical in moving forward, including university associations: the Association of Public and Land-grant Universities (APLU), and in particular APLU's Board on Agricultural Assembly (BAA); the Association of American Universities (AAU); and the Non-land-grant Agriculture and Renewable Resources Universities (NARRU).

Discussion

During the roundtable discussion on Dec. 9, meeting participants provided input on the following points: awareness of and support for the unifying message effort; process for developing, communicating, and sustaining a unifying message; and elements of a unifying message considered to be important by scientific societies. Feedback from participants regarding agency advocacy targets, target audiences, elements of a communications strategy, and components of a unifying message is summarized below.

Agency Targets

Participant survey results. In a survey administered to meeting participants, the 19 respondents indicated interest in all nine potential agency funding targets included in the survey (see **Table 1**, below). Respondents were most interested in USDA, but NSF, EPA, NIH, and USGS were also highly ranked. A full report of the survey is included in Appendix B.

Multiagency approach. While a call for increased funding focused only on USDA would be more targeted, a strategy with USDA at the core of a multiagency ask is more consistent with the advancement of an inclusive definition of food, agricultural and natural resources research and the broad-based coalition that RMF seeks to build. Researchers receive funding from a wide variety of agencies and institutions, so at its core the unifying message must have a “lift all boats” rationale. While there are tradeoffs to taking a broader approach, stakeholders seemed comfortable with the unifying message targeting multiple agencies, with particular focus on a core set of priority agencies (including USDA), selected based on coalition interest. In support of this approach, participants emphasized the desire to increase the total availability of funding for agricultural research across agencies, rather than merely reappropriating existing funds; the need to advance a definition of agriculture that encompasses the food, agricultural and natural resources system as a whole; and the importance of increasing collaboration to meet the challenges of agricultural activity for the future.

TABLE 1. Potential target agencies for agricultural research funding, ranked by mean interest score (2 = “Very Interested” 1 = “Somewhat Interested” 0 = “Neutral” -1 = “Somewhat disinterested” and -2 = “Not Interested”). n = 19

Agency	Interest Score	Rank
U.S. Department of Agriculture (USDA)	1.9	1
National Science Foundation (NSF)	1.6	2
Environmental Protection Agency (EPA)	1.3	3
National Institutes of Health (NIH)	1.3	3
U.S. Geological Survey (USGS)	1.0	4
Department of Energy (DOE)	0.9	5
National Aeronautics and Space Administration (NASA)	0.9	5
Health and Human Services (HHS)	0.7	6
Department of Defense (DoD)	0.6	7

Components of a Unifying Message

Inclusive definition of agricultural/food systems. A broad definition of agriculture is central to the approach of the unifying message effort. In addition to crop and animal production in farming landscapes, an inclusive definition of agriculture encompasses agricultural production processes from raw materials to consumers, as well as the ecology and sustainability of these processes, and their implications for human health and well-being.

Interconnectedness. The premise of interconnectedness applies to many aspects of this effort, and will be essential to successfully addressing the grand challenges facing agriculture. It includes the interconnectedness of the agricultural system: soils, ecosystems, crops, animals, growers, consumers, industries, civil society, and government. The aspects of the public good impacted by agricultural research, such as ecology, human health, economic stability and opportunity, national security, and social well-being, are also interconnected. A significant public good impact also is found in continuing the wealth of science-based information and education delivered through extension and outreach programs. Finally, the interconnectedness of the system of agencies, stakeholders, and research programs that work together to further agricultural research will need to be carefully considered in order for the unifying message to be successful.

Emphasis on the public good. The impacts of agricultural processes on society are easily overlooked, yet the grand challenges of agriculture for the future are not only business or academic challenges, but challenges for society and humanity as a whole. As such, the unifying message should emphasize the essential role of agricultural research in supporting and protecting the public good—including human health, environmental resiliency, community development, national security and economic competitiveness. The public stands to benefit greatly from advancing integrated research in agriculture. The unifying message should state these benefits clearly, as well as pointing out the risks to public good associated with underfunding research.

Emphasis on long-term imperatives. Increased funding for agricultural research represents an essential investment in solving long-term challenges and improving efficiency, sustainability, environmental quality and health and well-being at all stages of the human life cycle. As part of communicating the long-term nature of this investment, it will be important to emphasize that many of the innovations taking place in food, agriculture and natural resources now are built on fundamental discoveries made a decade or more ago. So, although the ultimate goals are applied, curiosity-driven research is also a vital component of the public research investment. Participants identified advancement in data science and workforce development as shared long-term interests of the scientific societies.

Target Audiences

Congressional representatives. Congress, as the budgetary decision makers, should be the primary target for the unifying message. Ideally, messaging to Congress would take place in collaboration with a few congressional champions who could help advocate for and raise the profile of the effort.

Voters and the public. While congressional representatives should be the focus of messaging efforts, voters and the general public should also play an essential role in shaping and promulgating the message to Congress. Polling is a promising tool to help gauge public opinion and frame the message in terms that are relevant to voters.

Scientific societies' members. It will be important to gauge the opinions of coalition organizations' membership and clearly communicate the unifying message and its impacts to them as the effort proceeds. Their support as influencers and promulgators of the message is significant. In particular, it will be important to emphasize the connections between all aspects of agricultural research and the things they care about (e.g. What impact does soils research have on improving nutrition? What impact will rural sociological studies have on animal science? How will better understanding of the human microbiome help maintain ecosystem integrity?).

Industry lobbying organizations. Establishing research as one of the top priorities in partnership with these organizations would raise the profile of agricultural research as whole. For example, keeping farmers and ranchers and their organizations, businesses engaged in input supply, manufacturing and processing, distribution, and marketing, and financial institutions among others, informed and engaged in the dissemination of the unifying message will be important. They are generally supportive and can play an important advocacy role through their own networks and lobbying efforts.

Elements of a Communications Strategy

Multifaceted approach. There are many different audiences that need to hear and understand the unifying message in order for the effort to succeed. A multifaceted approach that tailors communication to specific audiences can enhance the relevance of the message to each audience and increase the impact of messaging.

Polling. Use of internal and external polling by the coalition will inform and strengthen the message. This could include a consumer survey to gauge public opinion and emphasize with voters the need for agricultural research funding. A survey of coalition organizations' membership could also benefit the effort by building cohesion among the coalition's constituents and informing refinement of the message in light of members' interests and needs. Polls could also be used to understand what resonates for Congress and congressional staffers.

Relevant messaging. Communication should be tailored to focus on what is relevant to each audience, while still conveying the overarching ask. A key will be highlighting highly successful and meaningful research results. Communication emphasizing the salient aspects of the message for each audience and containing compelling wording and specific numbers aligned with their interests and needs will likely be most successful.

"Lift all boats" approach. The unifying message should focus on expanding funding for agricultural research across the board. The strategy should supplement, not replace, coalition members' own lobbying efforts and cohere with ongoing collaborative advocacy efforts on behalf of target agency programs and budgets. The aim is to increase the resources available to everyone.

Consistent top-line ask. Similar to the approach of the coalition that advocated in support of a doubling of the NIH budget, unifying message communications should focus on a consistent and ambitious ask—a specific dollar amount in the billions invested in agricultural research at the national level. It also should speak forcefully to what will be the top-line deliverables for an ambitious investment. This strategy would allow the broad coalition to speak consistently with one voice on the overarching question of agricultural research funding, while still targeting more customized messages to specific audiences. The unifying message would not take the place of coalition members' own lobbying and fundraising efforts.

Further Steps

RMF plans for 2016. The Riley Memorial Foundation plans to organize a third stakeholder event for leaders in food, nutrition and health research in 2016 and secure additional endorsements from key leaders and stakeholder organizations over the course of the year. Other stakeholder events may also be organized. The 2016 AAAS Riley Memorial Lecture will be held in May, and is expected to address or highlight the pursuit of a unifying message. RMF plans to develop a final, integrated report on the unifying message, tentatively expected for release in early 2017.

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APPENDIX A

Selected Discipline-Oriented Scientific Organizations: Food Agriculture and Natural Resources

Academy of Nutrition and Dietetics
American Association of Cereal Chemists
American Chemical Society
American Dairy Science Association
American Economic Association
American Fisheries Society
American Geographical Society
American Meteorological Society
American Phytopathological Society
American Society for Horticultural Sciences
American Society for Microbiology
American Society for Nutrition
American Society of Agricultural and
Biological Engineers
American Society of Agronomy
American Society of Animal Science
American Society of Mammalogists
American Society of Plant Biologists
American Society of Plant Taxonomists
American Sociological Association
American Veterinary Medical Association
American Water Resources Association
Animal Behavior Society
Association of American Geographers
Botanical Society of America
Consortium of Food, Agricultural and
Resource Economics
Crop Science Society of America
Ecological Society of America
Entomological Society of America
Genetics Society of America
Institute of Food Technologists
International Association for Food Protection
International Society for Molecular
Plant-Microbe Interactions
Mycological Society of America
National Aquaculture Association
National Association of Plant Breeders
National Association of University Fish and
Wildlife Programs
National Association of University Forestry
Resource Programs
National Ground Water Association
Poultry Science Association
Rural Sociological Society
Sea Grant Association – Sustainable Fisheries
and Aquaculture
Soil Science Society of America
Soil and Water Conservation Society
Society for Integrative and Comparative Biology
Society for In Vitro Biology
Society for Rangeland Management
Society of American Foresters
Society of Nematologists
Society of Systematic Biologists
Society of Toxicology
Water Resources Research Institutes
Weed Science Society of America

Results of Participant Survey

Online survey. Prior to the December 9, 2015, scientific societies roundtable, an online survey was sent to each confirmed representative, requesting information about funding agencies of key importance to each organization. Respondents indicated their organizations’ level of interest in targeting nine federal agencies for research support, and were asked to add other funding agencies if they were not listed.

Respondents. Nineteen survey responses were received from leaders representing:

- | | |
|--|---|
| Academy of Nutrition and Dietetics | American Veterinary Medical Association |
| American Association for Horticultural Science | Association of American Veterinary Medical Colleges |
| American Association of Plant Biologists | Botanical Society of America |
| American Dairy Science Association | Ecological Society of America |
| American Phytopathological Society | Institute of Food Technologists |
| American Society for Microbiology | National Association of Plant Breeders |
| American Society for Nutrition | Poultry Science Association |
| American Society of Agricultural and
Biological Engineers | Society of American Foresters |
| American Society of Agronomy | Soil and Water Conservation Society |
| | Weed Science Society of America |

Funding targets. Respondents indicated the strongest interest in targeting the U.S. Department of Agriculture (USDA), National Science Foundation (NSF), National Institutes of Health (NIH) and Environmental Protection Agency (EPA). The least interest was expressed for Department of Defense (DOD) and Health and Human Services (HHS) (**Figure 1**).

FIGURE 1. Pre-meeting survey respondents’ level of interest in each of nine agencies as potential funding targets for agricultural research (2 = “Very Interested” 1 = “Somewhat Interested” 0 = “Neutral” -1 = “Somewhat disinterested” and -2 = “Not Interested”). n = 19



Other agencies or organizations. The respondents also were asked to list other agencies or organizations that were targets of interest for their organizations in terms of research support. Their responses are listed below, with number of mentions in brackets.

- Federal agencies, including:
 - Centers for Disease Control (CDC) [3]
 - National Institute for Occupational Safety and Health (NIOSH)
 - Food and Drug Administration (FDA) [3]
 - Department of Transportation (DOT) [2]
 - U.S. Agency for International Development (USAID) [2]
 - U.S. Department of Education
 - U.S. Department of Interior
 - U.S. Fish and Wildlife Service
 - Bureau of Land Management (BLM)
 - Bureau of Indian Affairs
 - Bureau of Reclamation
 - National Park Service
 - National Invasive Species Council
 - Department of Homeland Security (DHS)
 - U.S. Army Corps of Engineers
 - Administration on Aging
 - Administration for Native Americans
 - Agency for Healthcare Research and Quality (AHRQ)
 - Department of Commerce
 - National Institute of Standards and Technology (NIST)
 - National Oceanic and Atmospheric Administration (NOAA)
 - National Marine Fisheries Service
 - Agencies represented on the Federal Interagency Committee for the Management of Noxious and Exotic Weeds
- Environmental NGOs, e.g., National Fish and Wildlife Foundation
- Foundations, e.g., Bill and Melinda Gates Foundation; Patient-Centered Outcomes Research Institute; Foundation for Food and Agriculture Research [3]
- State agencies

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