

BUSINESS PLAN

Atlantic Poultry Research Institute (APRI)

Prepared by:

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FOREWORD

This report has been prepared by R. Gary Morton on a best-effort basis and reflects the conditions prevailing at the time of my analysis August - September 2013. The conclusions expressed in this report are to some degree based on assumptions and opinions, which are subject to variation due to the continuing evolution of the opportunity for the Atlantic Poultry Research Institute (APRI). Therefore, I cannot represent them as definite results, only as anticipated results if the opinions and assumptions evolve as anticipated and remain valid. In my opinion, the facts represent a fair and accurate assessment of the opportunity for the Atlantic Poultry Research Institute.

R. Gary Morton P.Ag.

Executive Summary

The Atlantic Poultry Research Institute (APRI) model was visionary and leading edge twenty five years ago at the time of its inception, and the model remains valid today. APRI has proven effective in uniting the poultry industry stakeholders around a unique cluster of modern research infrastructure and resources in Atlantic Canada. The model is envied in that it captures research priorities, facilitates industry driven research and then transfers the knowledge gained back to producers something most other agriculture sectors are still trying to achieve. Funding cuts, increased costs of research and general industry evolution require that APRI redefine and update its business model to be congruent with these changes.

APRI coordinates the majority of the poultry research activity conducted in Atlantic Canada. The Atlantic Poultry Research Institute is a stand-alone nonprofit society, which exists independent of the university and has no physical research resources of its own. It has a special symbiotic relationship with Dalhousie University. Dalhousie leverages most of its poultry research capacity through APRI, including industry priority identification, and access to industry funding for research projects. APRI's mandate is to ensure that stakeholders have a mechanism to influence the poultry research direction in Atlantic Canada, that poultry research resources are better utilized, and that research knowledge is transferred at the farm level.

The Institute has been dealt consecutive setbacks: the end to provincial program funding for administrative support, an unfilled poultry researcher position at Dalhousie University, and the elimination of poultry research funding support by Agriculture and Agri-Food Canada (AAFC), all of which are restricting APRI's ability to undertake new research projects and fulfill its mandate to the industry. APRI needs to refine the business model to best address these changes and to better position the organization for the future.

The change consists of the following recommendations:

- Reposition the Board CHAIR to come from the industry membership to present the Institute as an industry-led research organization versus the current perception of being researcher led. This reduces possible areas of conflict and strengthens discussions with Dalhousie University and AAFC, and should draw deeper engagement from industry into APRI activities.
- Redefine the CEO position. Replace it with two positions one responsible for research and the other for outreach and knowledge transfer. The research position would remain with Dalhousie and the outreach position can be a separate position or be developed with a partner organization. The reporting and accountability of the positions would need to be determined by the Board.
- The long-term relationships with AAFC, Dalhousie and the Atlantic Veterinary College (AVC) need to be better defined.
- Expand the poultry research cluster opportunity by establishing new relationships with research scientists at Dalhousie's other faculties and at other institutions.

- Take a stronger lobby role for research in the region at both a provincial and national level.
- Work to build stronger support within APRI from all sectors, in particular the meat and processing sectors and with all provinces.
- Implement a new communication strategy at all levels to promote APRI and educate the industry, government, etc., as to what APRI does, is doing and who are the Board members are.
- Define and promote the regions poultry research expertise to better compete for research projects at a national level. Identify areas of research opportunity, where APRI can become a leading force.
- Explore new funding mechanisms, options and possible tax credits for research.
- All industry sectors need to contribute research seed money to APRI and support the research activities of APRI. A relatively small pool of industry seed investment can be multiplied into a significant amount of research activity in support of a strong and progressive Atlantic poultry industry and sustainable future for APRI.

APRI is a unique model that has been successful for 25 years at organizing the poultry industry stakeholders to focus on the research priorities for the region. The challenges that APRI faces are also an opportunity to enhance the APRI model and better position the organization for the future and to attract new researchers, new research projects and new research funding to the region.

Background

The poultry industry is one of the most dynamic of all the livestock industries in modern agriculture. The Canadian poultry industry is a strong and viable industry, but one experiencing continual transition and change. The attitudes and preferences of consumers have been influential in changing the industry and as a result have had a great influence on the focus, direction and scope of poultry research in Canada. The poultry industry has long recognized the value of both discovery and directed research in the development a strong, progressive, innovative and competitive industry. Change brings with it new opportunity and challenges, and research is a necessary resource to assist the industry in adapting to and benefiting from change. Poultry research in Canada is conducted primarily at universities, government institutions and also at some private agri-business facilities. The Canadian Poultry Research Council (CPRC) is the organization that facilitates the establishment of national poultry research priorities and coordinates funding in support of those research projects. *“A recent review of CPRC funded research projects showed that all parts of the poultry value chain benefit from the research discoveries, including producers, feed suppliers, animal health care companies and professionals, processors, distributors and consumers”*.¹ Regionally, research activities are coordinated through universities, governments, or organizations such as the Atlantic Poultry Research Institute (APRI) in Atlantic Canada. Poultry research is funded through the investments of producers, agri-business, industry organizations, universities and government programs. *“The most successful and effective research funding models are those where the research activity is industry driven and closely linked to their identified research priorities. Governments are increasingly looking to industry funding to show a strong commitment to research and ensure that funds are allocated to address industry priorities”*.² While the need for discovery research continues, government research investment is shifting towards commercialization, innovation and economic development.

APRI coordinates the majority of the poultry research activity conducted in Atlantic Canada. While the organization has no physical research resources and assets, APRI is a central hub for the regions cluster of poultry research resources and works to align them closely with the industry’s research priorities. The Institute is currently facing both funding and human resource (scientific researcher and support staff) challenges that are seriously jeopardizing its ability to facilitate research projects in Atlantic Canada. In recent years, APRI has been dealt consecutive setbacks: the end to provincial program funding for Institute administrative support, an unfilled poultry researcher position at Dalhousie University, and the elimination of poultry research funding support by Agriculture and Agri-Food Canada: all of which increasingly limit APRI’s ability to undertake new research projects and fulfill its mandate to the industry. This business case has been prepared to examine and address these changes in funding support for APRI’s poultry research activities in Atlantic Canada.

¹ CPM September 20, 2013

² CPM September 20, 2013

³ 2013 Dr. Bruce Rathgeber, APRI Backgrounder

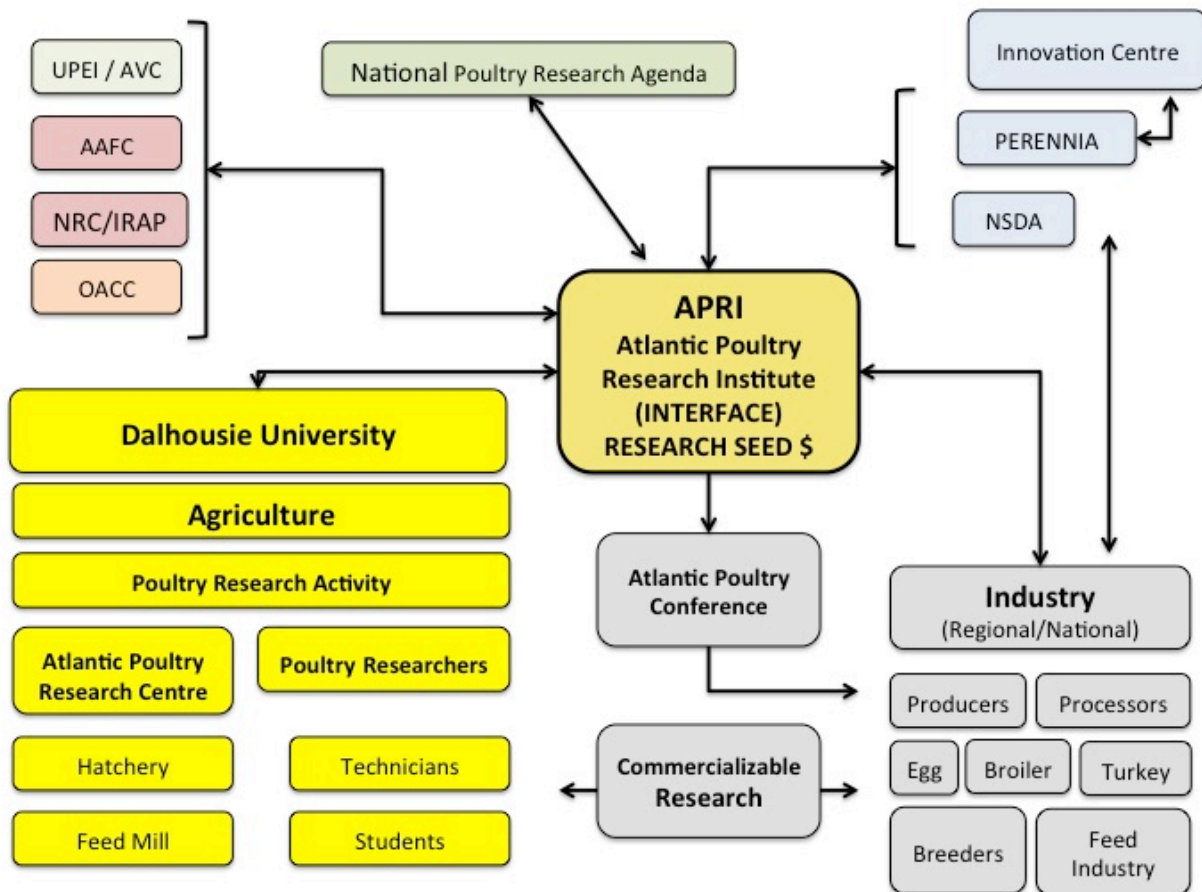
APRI

The Atlantic Poultry Research Institute (APRI) is a non-profit society that was established in 1988 for the purpose of uniting all stakeholders together under one common umbrella to achieve the following objectives:

- furthering scientific research as it relates to poultry production,
- to prioritize the research needs,
- solicit funding for research projects and
- to transfer research knowledge to the industry in Atlantic Canada.

APRI has a mandate to coordinate poultry research activities in the Atlantic region between Dalhousie, AAFC and AVC. The stakeholders of APRI represent all sectors of the Atlantic Canadian Poultry Industry (egg, chicken, turkey, hatchery, processing, breeding, feed supply), Dalhousie University, the University of PEI/AVC, all four provincial governments and Agriculture and Agri-food Canada.

The diagram below illustrates the important role APRI plays as an interface connecting the different poultry research stakeholders, resources and activities in Atlantic Canada.



APRI exists to coordinate, align and facilitate the region's research resources in a manner that best supports the research priorities of the industry and to disseminate the research results in a manner showing application at the farm and agri-business level. Uniquely, APRI has no research facilities, research resources or research scientists of its own; it has only one research associate position. It operates by facilitating and managing the resources of industry, universities and governments to undertake the necessary poultry research activities to achieve its mandate. The APRI model has succeeded in assembling a unique *cluster group* of poultry industry research resources focused on addressing the industry identified research priorities of Atlantic Canada.

The activities of APRI include the following:

- Serving as a vehicle for consultation among all stakeholders in the Atlantic Canadian poultry industry regarding research and development needs.
- Encouraging joint participation by industry and research centres in setting poultry research priorities.
- Integrating the regional poultry research and development activities of Agriculture and Agri-Food Canada, Dalhousie University and the UEPI Island, Atlantic Veterinary College, and provincial governments into one strong program.
- Raising and securing funding for poultry research and development.
- Transferring research knowledge and benefits to the industry.

For 25 years the APRI model has proven to be an effective interface between research and industry and the results achieved have been much greater than any one stakeholder organization could have on their own. APRI manages many hundreds of thousands of dollars of poultry research projects and activity each year; of which the benefits accrue directly back to the stakeholders. The university benefits from the ongoing research project activity that utilizes research facilities, leverages research resources, attracts industry funding, supports student learning and aligns researchers with industry priorities. Governments are better able to fulfill their mandates to help grow, develop and educate the poultry industry, and producer groups benefit from having access to world-class research facilities to address the poultry research needs of the region.

As a nonprofit society at arms length from government and the university, APRI has been a successful mechanism to access and leverage both industry investment and government funding that would not otherwise have been available to researchers. The research activity created by APRI is primarily undertaken at Dalhousie University through the Atlantic Poultry Research Centre located at the Agricultural Campus in Bible Hill. A significant poultry research capacity also exists at UPEI/AVC that has from time to time has used APRI to support poultry research activities. In recent years, three research scientists, a research associate, and two research technicians have undertaken the APRI led research projects. One research scientist and the two technician positions were funded by Agriculture and Agri-Food Canada and Dalhousie contributed the other two research scientists. APRI's research project activity funds the APRI research associate position as well as some of the other required technical support provided by students. Due to AAFC funding cutbacks and an unfilled researcher position at Dalhousie, APRI currently has access to only a portion of

one researchers time (Prof. Derek Anderson) and one fulltime research associate (Janice MacIsaac) to manage research projects. APRI's ability to carry out poultry research has been severely set back by these funding cuts and the lack of researcher resources, which make it difficult to attract new research investment and projects. The APRI staff is also heavily involved in a number of non-research activities such as the Atlantic Poultry Conference, the Poultry Short Course and teaching activities that benefit both Dalhousie University and the Atlantic Poultry Industry. While these are important and valuable activities, they strain APRI's limited resources that by mandate should be directed to research projects.

SWOT

Through the examination of the (S) strengths, (W) weaknesses, (O) opportunities and (T) threats associated with the Atlantic Poultry Research Institute, strategies can be formulated to minimize APRI's threats and weaknesses and to build upon its strengths and opportunities. The SWOT information is a consolidated summary of the interviews results with industry stakeholders.

Strengths

APRI exhibits strengths in the following areas:

- It is the only poultry focused research organization in Atlantic Canada.
- Unites all poultry industry stakeholders (industry, university and government) around research priorities.
- Successfully has organized a cluster of poultry research resources, research scientists, lab equipment, the Atlantic Poultry Research Centre, Chute Animal Nutrition Centre, and the (NSAC) hatchery unit all in one location.
- The poultry expertise of the APRI supported research scientists is industry known.
- APRI has significant experience conducting research and a proven track record.
- Research is possible from farm production levels to value added consumer products.
- The APRC facility is built to federally inspected standards for slaughter and processing.
- The APRI model is designed to facilitate communication with all stakeholders.
- The diversity of Dalhousie University's research interests and capabilities expands the scope of poultry research possibilities in the future.
- The poultry research and education initiatives expand the knowledge base in the poultry industry.
- APRI gives the collective Atlantic Poultry Industry a research presence and prestige.
- APRI promotes the results of scientific activity to all commodity groups and to all four Atlantic Provinces.
- Synergies created by APRI are beyond what is achievable by any one single institution.
- The APRI nutritional expertise has addressed gaps in other national poultry nutrition research programs.

- APRI has organized research expertise for the Atlantic Region in the areas of (1) nutrition, (2) products, (3) poultry science, and (4) animal behaviour and welfare.

Weaknesses

APRI has weakness in the following areas:

- General confusion between APRI, APRC and Dalhousie's poultry research program.
- Reduced government funding and increasing costs reduces APRI research capability.
- There is only one remaining poultry researcher at Dalhousie, Prof. Derek Anderson and he is retiring within two years.
- The primary poultry researcher position at Dalhousie has remained unfilled for over a year. The poultry research focus of this position has been poorly directed in the past.
- AAFC has cut funding for one researcher (Dr. Bruce Rathgeber) and two technician positions. (GL & EG)
- The APRI Board is currently researcher driven, not industry driven and this is not congruent with the research funding models governments want to support.
- Dalhousie's undefined commitment to the poultry industry, APRI and the APRC has put research activity in a holding pattern.
- The limited pool of industry seed capital available to APRI.
- APRI does not have the necessary administration support resources. With no consistent funding base for basic operation, APRI spends too much time chasing funding dollars.
- The industry sets research priorities, but the outcomes are not always well defined.
- It is difficult to attract researchers and research positions to the region without assurances of long-term funding.
- Many researchers prefer to be associated with larger more prestigious centres that are able to attract more funding, resources and industry chair positions.
- Other researchers in the region do not know how to collaborate with APRI.
- Research timelines are typically long-term and industry is looking for quick results.
- The processing research line at APRC has been very underutilized by the processing sector in the region.
- The New Brunswick chicken sector is located in Northern NB, closer to Quebec, and as a result looks to Quebec not APRI for poultry research.
- APRI does not have a strong collective and unified support from all stakeholders, there is variation in support from province to province and within the different industry sectors.
- Promoting and communicating what APRI does at all levels.
- The outreach to industry with research results is slow.
- Director's dissemination of Board information to other province's is inconsistent.

Threats

- The stakeholders not giving APRI the resources that it needs to be successful.

- If research positions are not supported, APRI cannot attract new research projects.
- If all stakeholders cannot be convinced to continue to invest in poultry research in Atlantic Canada, the following may result,
 - The poultry research program could become less of a priority to Dalhousie University.
 - Research apathy developing within the industry, not seeing research as a priority.
 - AAFC not investing in the regions poultry research programs.
- The stakeholders losing interest in APRI if there is no research activity and return benefit to the farm.
- Cannot find ongoing funding and support for administration.
- Research being done elsewhere may diminish the value of APRI, there is a lot of research activity in Canada and US that the industry can tap into.
- Not addressing the changing social interest and consumer expectations of poultry production and animal welfare.
- Seen by funders as being researcher-led versus an industry led research organization.
- Not building on the existing APRI model so that it can be more in the future.
- Current researchers and future researchers redirecting their research focus away from poultry.

Opportunities

- To better define the future relationship between APRI, APRC and Dalhousie University.
- Leverage the opportunity to collaborate with Dalhousie researchers in other research disciplines creating an expanded research collaboration cluster.
- To define APRI's role (unique sales proposition) at the national level.
- Promote and communicate on a regular basis what APRI does at all levels; internal and external.
- Develop partnerships to expand and leverage APRI's outreach and knowledge transfer opportunities with the industry.
- Explore funding opportunities with non-traditional stakeholders, explore creating research foundations, and the possibility of research tax credits for producers.
- Explore options for research or expanded research in the following areas:
 - The turkey industry has many areas in need of research.
 - Solving processing issues.
 - Transportation of birds and animal welfare.
 - Value adding to poultry products.
 - Energy savings and technology application.
 - Building, structure and cage design.
 - Organic production is a growing component of agriculture and the poultry industry in Canada. This is an area where APRI has an opportunity to become a leader particularly with the Organic Agriculture Centre of Canada office located on the Dalhousie Agriculture Campus.

- Specialty poultry and birds.
- Producers want to reduce the high production input costs in Atlantic Canada.
- Use technology to improve Board communications and better promote research project activity and results.
- For APRI and APRC to become a more internationally recognized poultry research centre.
- Establish APRI as a crucial source of expertise and as a poultry information repository.
- To better define and promote the advantages of APRI to other research facilities and national organizations.
- Research done at other centres can be taken to the next level using outreach applications at the farm level to complete the intermediary steps to full commercialization of research.
- To expand on the current APRI nutrition focused research initiatives as this addresses the major feed cost of production issues that face the Atlantic Canada Poultry Industry.

APRI Stakeholders

There are many stakeholders that make up APRI including the poultry producers, processors, industry suppliers, universities and governments. A Board of Directors consisting of 14 representatives from these stakeholder groups governs APRI.

Dalhousie University Agricultural Campus

The Dalhousie University Agricultural Campus has a mission mandate to serve the poultry industry in Atlantic Canada. APRI is a vehicle that has historically helped the university to achieve and fulfill this mandate. The Atlantic Poultry Research Institute is a stand-alone nonprofit society, which exists independent of the university. However, the relationship between APRI and Dalhousie while separate, is close and one of mutual benefit. The following dives deeper into the relationship between APRI and Dalhousie University.

The Atlantic Poultry Research Institute:

- is a client of Dalhousie University and the Atlantic Poultry Research Centre;
- develops and plays a management role in most of the poultry research projects undertaken at APRC and Dalhousie University;
- assists Dalhousie research scientists in identifying the poultry industry research priorities by connecting the university with the industry and stakeholders;
- finds funding and prepares research project proposals;
- helps to expand the opportunity and scope of poultry research projects;
- supplies staff through research project activity that assist in the operation of the Atlantic Poultry Research Centre (APRC);
- contributes research support staff for poultry research projects;

- supports Dalhousie University in the publishing of research papers and industry fact sheets;
- assists with undergraduate and postgraduate student research projects;
- offers teaching support to Dalhousie University that contributes to the education and development of students enhancing the future strength of both the university animal science program and the poultry industry.
- annually leverages \$30,000- \$40,000 of industry research seed money into many hundreds of thousands of dollars of research activity.

Dalhousie University:

- dedicates researchers' time to the APRI Board, operations, research projects;
- supplies office space, computers and communications for APRI staff;
- does not charge APRI overhead costs for use of facilities for research projects;
- manages APRI research contract agreements and financials;
- maintains and makes available the APCR for poultry research activities;
- operates facilities to mix formulated diets for research trials;
- maintains the new hatchery facility;
- offers programs that attract students to poultry research.

The APRI relationship has not been defined or redefined since the transition of the Nova Scotia Agricultural College to Dalhousie University. One Dalhousie poultry researcher position remains unfilled, and the university's commitment to adequately service the technical staff requirements of the APCR is not clear at this time. There is some apprehension within the poultry industry as to what future commitment Dalhousie intends to make to both APRI and the poultry industry.

Dalhousie could undertake poultry research without the assistance or engagement of APRI, however the benefits of a continued association with APRI are weighted in Dalhousie's favour. APRI leverages Dalhousie's research resources, finds industry seed money, connects the university with the industry research priorities, helps to manage research project activity, supports student education and most important is the mechanism that proves to research funders that APRI research activity is industry driven. It is unlikely that a university led organization would garner the same industry support that APRI has managed to achieve for the past 25 years.

Dalhousie being a multifaceted university with diverse research interests brings to the table yet unexplored new research resources, capabilities and opportunities to expand the scope of the existing poultry scientific research cluster that has been created by APRI. These areas of new research collaboration could include but are not limited to: the faculties of medicine, law, engineering, food science and technology, energy, environment, business, and computer science.

Atlantic Poultry Research Centre

The Atlantic Poultry Research Centre (APRC) located at Dalhousie University's Agricultural Campus is one of the most modern poultry research facilities in Canada. The APRC facility has research capabilities and resources that extend from basic production research through animal slaughter, value-added processing and onto the development of new poultry based value-added products. While the production research facilities are well utilized, the (federal inspection capable) poultry processing facilities are not. In association with the APRC is also the new Chute Animal Nutrition Centre (feed mill) for precise mixing of research poultry rations and the new isolated hatchery unit located at the AgriTECH Park, which is also underutilized. These collective modern resources allow APRI to undertake its research projects. *The APRC research facilities are the result of an investment by industry and governments over the last six years of approximately \$13 million.*³

Atlantic Poultry Industry

The Poultry Industry in Atlantic Canada includes egg, chicken, and turkey producers as well as hatchery, breeding, processing businesses, and the feed industry; all of which are significant contributors to the development and sustainability of the Atlantic Canadian rural economy. The 2010 Atlantic Canada farm gate sales of chicken, turkey and eggs exceeded \$227 million. This number is significantly larger when the value-added economic impact of the regions poultry-processing, poultry value-adding and supply sectors are taken into consideration.

The Atlantic Poultry Industry

2010	Turkey	Chicken	Egg	Total
NS	\$6,365,000	\$70,459,000	\$31,955,000	\$108,779,000
NB	\$6,432,000	\$56,023,000	\$34,526,000	\$96,981,000
PE	*	*	\$4,825,000	\$4,825,000
NFL	*	*	\$16,730,000	\$16,730,000
Total	\$12,797,000	\$126,482,000	\$88,036,000	\$227,315,000

Source: <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/prim55a-eng.htm>

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Note: * The 2010 tables were the most recent available from Statistics Canada with detailed numbers for Atlantic Canada. Numbers for PEI and NFL were not available from Statistics Canada due to the size of the industries and for competitive reasons.

The industry support and engagement for APRI over the years has not been equal from all sectors or provinces. The egg production sector has been a strong and consistent APRI supporter. This is somewhat a result of regional geography, the location of the egg industry, and a strong recognition of the value of research. The poultry industry in Nova Scotia is centralized in two areas and as a result can have a closer connection with APRI,

³ 2013 Dr. Bruce Rathgeber, APRI Backgrounder

APRC and the agricultural campus at Dalhousie University. Much of the chicken industry in New Brunswick is located in the northern areas of the province and producers look to Quebec for poultry information. The poultry industries in PEI and NFL are still quite small in comparison to Nova Scotia and New Brunswick and distance is an issue for them.

The chicken and turkey sectors send a check-off levy to their national organizations of which a portion is directed to national research projects,

however only a small portion of these if any come back for poultry research in the region. The chicken sector support for APRI research has been inconsistent from year to year both financially and in offering letters of support for research projects. The NS chicken sector contributes to APRI poultry research on a project-by-project basis. The NB chicken sector has historically not been an investor in APRI poultry research projects.

The existing Atlantic Region poultry research capacity is the result of a partnership between industry, the universities, and government. All stakeholders in the region are fully aware of the capabilities of the modern poultry research facilities in the Atlantic Region and what it takes to make these resources fully functional and sustainable. APRI has been effective at asking industry for research priorities and some sectors have been good at identifying their research priorities, but the priorities are often at a high level and expected outcomes are not always well defined.

The annual industry cash contribution to APRI research is \$30,000 to \$40,000 with the egg sector contributing the bulk of the funding dollars. APRI combines this seed money with in-kind contributions to leverage many hundreds of thousands of dollars of research projects each year. This relatively small annual research investment by the industry is very important since the funding of all research activity requires an industry contribution. It also reduces the amount of time APRI spends chasing funding for new projects, time that is better spent on research activities. If all poultry sectors were to engage in better defining their research priorities and outcomes, and all poultry sectors and provinces made contributions in proportion to their industry values, APRI would have the necessary seed for project activities, be more efficient as an organization and be better able to deliver on the research priorities of the industry. APRI can do much more for the industry with the proper funding resources.

Economic Contribution of the Atlantic Provinces Poultry and Egg Industries

- \$286 million in farm cash receipts
- 236 farmers
- 66 processors/egg graders
- 3,219 direct jobs
- 7,157 total jobs
- \$510 million to Canada's GDP
- \$96 million in taxes

Source: Chicken Farmers of Canada, Informetrica Limited, The Economic Impact of the Poultry and Egg Industries in Canada, December 2011.

National Poultry

Nationally, the poultry sector is an important and successful component of the agriculture industry. Industry production check-offs and levies typically go from producers to their national organizations of which a portion is allocated to the Canadian Poultry Research Council (CPRC) and to other research agencies to support the development of and focus on the national poultry research priorities. APRI competes with other researchers, universities and institutes for funding from CPRC. Without a full research resource capacity the Institute has difficulty competing with the well-funded poultry research centres of central and western Canada. While APRI has been successful at attracting cluster research funding the improved promotion of its research expertise at the national level would be beneficial in attracting new funding. While the mandate of APRI is to advance poultry research for the benefit of the Atlantic Region this does not preclude the undertaking of projects or contracts of national priority. A large factor with any research proposal is the expertise of the research team and the resources available to undertake the projects. Without researchers it is difficult to win new research contracts especially national ones where the competition is strong and to compete against well staffed research centres.

National research activities do not or cannot always address the regional research needs of the different poultry sectors. Each region of the country has unique poultry production characteristics, e.g.: different weights of birds to market, different varieties of birds, available feed sources, climate, production costs and production systems. These factors all make a case for having a regional poultry industry research capacity to address regional poultry issues, needs and priorities.

AAFC

Agriculture and Agri-Food Canada historically has been a supporter and funder of research for both the Canadian and Atlantic Poultry Industry. In the spring of 2013, AAFC announced that it would make cuts to poultry research positions, support personnel and the funding to AAFC research programs across Canada. Three of those positions cut have direct impact on APRI, Researcher Dr. Bruce Rathgeber and two technical support positions were eliminated effective September 6, 2013. This loss has significantly reduced the research capability of APRI, as Dr. Bruce Rathgeber's position was responsible for conducting and managing approximately 60 percent of the APRI facilitated research projects. The poultry industry invested in the development of the APRC with an understanding that AAFC would continue to support the ongoing poultry research activities at the centre.

Provincial Governments

Each province has a provincial government extension program with expertise available to the poultry industry. In Nova Scotia, Perennia a provincial crown corporation delivers the poultry extension program. Provincial governments have research funding available through programs like Growing Forward 2 that historically have supported poultry research projects. The characteristics of funding programs vary by province and from year

to year. The loss of provincial funding support for administration has been a difficult blow for APRI as it is an important research supporting function that must be done.

Perennia

Perennia provides poultry extension services to Nova Scotia producers under contract with the Nova Scotia Department of Agriculture. The organization has historically represented the province of Nova Scotia on the Board of APRI. Perennia has poultry production extension resources that are also available to other provinces including food safety expertise and a new Innovation Centre facility that supports the commercialization of primary agriculture products to marketable, higher value products. Perennia has offered to play an extended outreach role as well as create industry fact sheets from the APRI research results. The Perennia association with APRI potentially could expand in the areas of research outreach, knowledge transfer and with on farm research trials that support further commercialization of research.

University of PEI (Atlantic Veterinary College)

APRI has an established relationship with the University of Prince Edward Island to conduct research and collaborate on research initiatives for the Atlantic Poultry sector. The college offers complementary expertise in the areas of animal health, pathology, immunology, epidemiology, animal welfare, animal transportation and slaughter. A representative from UPEI/AVC sits on the board of APRI. The opportunity exists to expand research collaborations with more scientists at the AVC as the scientists have expertise complementary to the capacity at Dalhousie University.

Feed Industry

The feed industry in Canada has research facilities and carries out their own poultry research trials. These companies often work directly with farms to conduct on-farm trials. The feed industry research is directed to an economic opportunity, which does not necessarily align with the poultry research needs and priorities of Atlantic Canada. The feed industry recognizes the value of APRI and a representative sits on the Board.

Competitive Environment

Poultry research is undertaken at many universities and research facilities around the world. There is an abundance of research information available to anyone with access to the Internet. However, producers still need an interpretation of the research information, as well as a regional perspective of how the information can be applied at the farm level. There is risk in counting on the research capacity from other regions and jurisdictions as research resources can be redirected away from poultry or reduced in these areas as well. There is no guarantee that poultry research will remain a priority in these regions or that the Atlantic Region's issues will get addressed from this level of research. The structure of

poultry research is different at each centre some have established centres or institutes, while others are part of the normal livestock research activity within the university. Not all have a capability or infrastructure for the further commercialization of research or are able to undertake multiple farm scale research trials and replications. There is also potential to further advance the research done by other research centres to complete the intermediary steps towards full commercialization. APRI is positioned with the facilities and infrastructure to do this quite well and to speed up the transfer of research knowledge to the farm level. The CPRC National Strategy states; *“The Canadian poultry industry can achieve the most immediate and significant increase in returns to its research investment by improving the efficiency and effectiveness of the speed with which discoveries move along the research value chain to the end user”*.⁴

The poultry research activity promoted by a university does not always equate to the current capacity of its facilities or current researcher resources. Research priorities can change and at many institutions researchers are typically not totally dedicated to poultry research and have other duties with other livestock sectors.

The following is a brief overview of the main poultry research facilities and centres in Canada.

<p>University of Alberta http://www.poultry.ales.ualberta.ca/en/</p>
<p>The majority of poultry research at the University of Alberta is conducted at The Poultry Research Centre (PRC), which was formed in 1986. The PRC is a partnership between the University of Alberta, Alberta Agriculture, Food and Rural Development, and the poultry industry. Research conducted is aimed at benefiting egg and poultry producers, food processors and manufacturers, functional food and nutraceutical industries. ⁵ Industry maintains a relationship with The Poultry Research Centre through an Advisory Board. Poultry research facilities include a federally inspected hatchery, grow out facilities for broilers and turkeys, housing for broiler breeders and a registered slaughter facility.</p>
<p>Research Areas of Output: Research activity areas at the U of A include; poultry nutrition, layer & broiler bone health, welfare and behavior, broiler breeder management, processing meat quality, meat science, nutrition and protein chemistry, poultry systems modeling, reproductive efficiency, marketing, food sensory and consumer science.</p>

⁴ 2012 Aug/ CPRC, The National Research Strategy for Canada’s Poultry Industry

⁵ <http://www.poultry.ales.ualberta.ca/en/AboutUs.aspx>

University of Saskatchewan

<http://agbio.usask.ca/research/centres-facilities/poultry-centre.php>

The Poultry Centre was opened in 1985⁶ and is comprised of several buildings: a hatchery, brooding and rearing barns, a barn for conducting turkey research, and a building where research is conducted on the digestive tract of the animals and the effect on production. The facility is part of the Department of Animal and Poultry Science at the University, and is used as the base for teaching and research at the Department.⁷ The centre was built using funds from the university and the poultry industry.

Research Areas of Output: Known for its nutrition research program, light source research and for feed mill research at the North Battleford feed mill facility. Other research activity includes: investigative use of enzymes for nutrient utilization, animal welfare, linear acceleration, gut microbe interaction with nutrients, broiler transportation, monogastric nutrition, poultry disease, welfare research, photoperiod management, poultry production and developing novel vaccines against avian influenza.

University of Manitoba

http://www.umanitoba.ca/afs/animal_science/facilities/poultry_unit_updated.htm

The Poultry Research Unit was built in 1976 and is operated by the University's Department of Animal Science. The University and Manitoba Egg Farmers provide financial support. The Unit is comprised of two buildings, one for research on broilers and the other for laying hens and a small breeding facility that provides fertile eggs for research.⁸ Winnipeg is home of the nation's Level 4 bio containment facility where CFIA researchers are conducting research on avian influenza.

Research Areas of Output: Alternative housing, designer eggs, poultry nutrition, enzyme additives to feed, nutrition calcium metabolism, avian influenza - adaptation of the virus.

University of Guelph

<http://poultrywelfarecentre.ca/>

The University of Guelph conducts poultry research through both the Ontario Agricultural College (OAC) and Ontario Veterinary College. OAC research includes nutrition, environmental impacts, and agricultural engineering and poultry welfare. Poultry welfare research and training are conducted within the Poultry Welfare Centre (PWC). PWC's website states that the Centre is "the home of poultry welfare research in Canada".⁹ Centre research is based on welfare of the animals. Research is conducted on general poultry, broilers, and broiler breeders, laying hens, turkeys, ducks and geese.¹⁰ PWC was established in 2009 under an agreement between University of Guelph, Agriculture and Agri-Food Canada, Poultry Industry Council and Canadian Poultry Research Council. They provide input to PWC activities through an Advisory Board.

Research Areas of Output: Animal welfare chair, processing, hatchery, heritage birds, immunology research, gut immunity, immunization against necrotic enteritis, molecular

⁶ http://news.usask.ca/archived_ocn/Mar12-99/news4.html

⁷ <http://agbio.usask.ca/research/centres-facilities/poultry-centre.php>

⁸ http://umanitoba.ca/afs/animal_science/facilities/poultry_unit_updated.htm

⁹ <http://poultrywelfarecentre.ca/>

¹⁰ http://poultrywelfarecentre.ca/current_research/

epidemiology, surveillance of antimicrobial resistant bacteria, application of poultry manure, Ca and P flows in layers, airborne pollutants, gut bacteria, immunotherapeutic, transmission of avian influenza, developing novel vaccines against avian influenza.

McGill University MacDonald Campus

<http://www.mcgill.ca/macdonaldfarm/rhwcentre/poultry/>

The Donald McQueen Shaver Poultry Complex, which is a joint venture with McGill University and l'Université de Montréal, is on the Macdonald Campus of McGill University. It is part of the larger R. Howard Webster Centre for Teaching and Research in Animal and Poultry Science, and was inaugurated in 2005.¹¹

Research Areas of Output: Molecular biology, prebiotics, agricultural runoff from poultry manure.

University of Montreal

<http://www.cripa.umontreal.ca/en/home>

The Swine and Poultry Infectious Disease Research Centre (CRIPA), is located in the Université de Montréal Faculty of Veterinary Medicine (in St. Hyacinthe). CRIPA provides an environment where scientists at six universities and four government institutions who are involved in basic and applied research can interact. The Centre also seeks to stimulate communication among researchers and the veterinarians and producers who use the results of the research. CRIPA is funded by Fonds québécois de la recherche sur la nature et les technologies.¹² (Quebec Fund for Research on Nature and Technology).

Research Areas of Output: Only Level 2 bio-containment facility for poultry in Canada, Salmonella enteritidis vaccine, biosecurity – emergency measures.

University of Laval

Egg farmers of Canada Chair, poultry economics.

Research Areas of Output – Economic evaluation of egg production

University of PEI

<http://awc.upei.ca/>

There are no poultry production facilities at UPEI. Researchers in the departments of Pathology and Microbiology and Health Management in the Atlantic Veterinary College conduct research on select issues related to the poultry industry. The Sir James Dunn Animal Welfare Centre was launched at the Atlantic Veterinary College, University of Prince Edward Island in 2000. The work conducted at the Centre is to improve the welfare of animals through service, research, and education.¹³

Research Areas of Output: Broiler transport, immunology.

¹¹ <http://www.mcgill.ca/macdonaldfarm/category/tags/macdonald-campus-farm>

¹² <http://www.cripa.umontreal.ca/en/home>

¹³ <http://awc.upei.ca/>

Dalhousie University

<http://www.dal.ca/faculty/agriculture.html>

Dalhousie University has newly acquired poultry research facilities including rearing space for laying hens, broilers and turkeys. Both egg and meat research have access to controlled environment rooms that are self contained units for conducting research with precise control of temperature, RH and lighting. An off-site federally inspected hatchery and provincially inspected slaughter facility are part of the research facilities. Additionally, the campus feed mill was replaced recently and has capabilities for small batch mixing and pelleting of large volumes of feed.

Research Areas of Output: Nutritional activities include digestibility of nutrients, novel feed ingredients including sources of calcium in studies for all three major poultry commodities. Alternatives to antibiotics are regularly evaluated in broilers and turkeys. Other areas include digestive tract microbiology, carcass quality and microbiological safety, designer egg research, vaccination studies, incubation research including management of chick health early in production.

Regional Research Need

The CPRC 2012 National Research Strategy for Canada's Poultry Industry noted that, "Modern research requires modern facilities including laboratories, equipment and buildings that can be adapted to a variety of research investigation. Much of our present equipment and facilities are old and need to be upgraded or replaced, while others are idle because of funding shortfalls."¹⁴ APRI through the APRC, Dalhousie University and the UPEI/AVC has access to one of the most modern and comprehensive clusters of poultry research facilities and resources in Canada.

While the large research centres and clusters in western and central Canada can only manage a certain volume of research based on the capacity of their facilities and the skills of the research staff. There is always an opportunity to collaborate with other researchers and research centres. APRI can move quickly to react to research needs, fill identified research gaps, fulfill specialty contract needs and address the needs and priorities of the regions. All research needs cannot be met by the larger central research facilities and they cannot address most regional poultry research needs and priorities.

¹⁴ 2012 Aug/ CPRC, The National Research Strategy for Canada's Poultry Industry

The Issues

The Atlantic Poultry Research Institute is currently facing a number of difficult issues and challenges that must be addressed for the organization to be sustainable in the future.

The main challenges facing APRI are in regards to:

1. Governance Model
2. Administrative Support
3. Human Resources for Research
4. National Profile
5. Communications & Promotion
6. Funding for Research

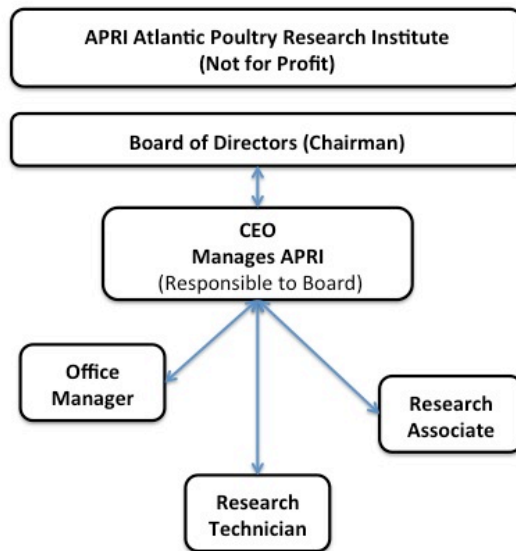
Governance Model

APRI is governed by a Board of Directors made up of representatives of the Atlantic Canada poultry production sectors (egg, chicken and turkey), hatcheries, processing and feed industries, Dalhousie University, AAFC, AVC and the Atlantic provincial government extension. The Board of Directors, which consists of fourteen (14) directors in total, four (4) from: Poultry Professor, Dalhousie University: Agricultural Campus; Poultry Scientist, Agriculture and Agri-Food Canada; Representative, University of Prince Edward Island (Atlantic Veterinary College); NSDA/DAL-AC Representative, Head or Designate, Plant & Animal Science Department of Dalhousie University: Agricultural Campus. Four (4) directors representing poultry extension in the four Atlantic Provinces: Perennia - Nova Scotia Poultry Extension; New Brunswick Government Poultry Extension; Newfoundland & Labrador Government Poultry Extension; and Prince Edward Island Government Poultry Extension. Six (6) directors are appointed by industry sector, representatives from: chicken, egg, turkey, hatchery, feed and processing sectors.

APRI does not pay stipends or fees to Board members; expenses for attending Board meetings are covered by the directors associated organizations. The Board of Directors elects a Chair and Vice-chair. The role of a Chair is to be the voice for the Board outside of the Board and is the Board's connection with the Chief Executive Officer (CEO). As a governance Board, the focus should be on managing the organizations strategic vision, mission, future direction, key objects and goals, and to empower the CEO with the necessary resources to succeed with daily operations. This would include defining the research priorities both short and long term.

The APRI-CEO position has a large mandate primarily related to research activities. The CEO is directly responsible to the Board for generating funds for research, developing enough research project activity, communicating with industry representatives, the

APRI Governance Model



delivery of research results in layman terms, coordination of the research efforts of APRI and to oversee the APRI staff. Prof. Derek Anderson is the present chair of the APRI Board, the Chief Executive Officer (CEO), as well as the senior and currently the only scientific researcher with APRI. The Board Vice Chair is Dr. Bruce Rathgeber with AAFC and the Board secretary is Janice MacIsaac. The Board leadership is currently heavily weighted in favour of research, which gives research funders an unfavorable impression that APRI is researcher (Dalhousie) directed versus a more desirable industry directed profile.

Quoting an interviewed industry representative, "The industry has to direct APRI more than we currently do." The industry engagement at the APRI Board level is currently more of participation than full engagement and industry leadership. The role of the commodity directors is to engage the regional parts of their sectors and bring this information to the APRI Board and disseminate information back to the commodities and the regions. This is not consistently done by all sectors. For example: the chicken sector board representative changes frequently, which makes it difficult to build a strong bond and knowledge base of APRI activities.

A large amount of time, money and resources have been invested by the poultry industry into the development of a modern poultry research infrastructure and capacity for Atlantic Canada. The industry's full interest and engagement in APRI activities helps to protect the regions poultry research resource investment. The entire board collective has a fiduciary responsibility and accountability to its stakeholders to act in their best interest and to ensure the success of APRI.

APRI would benefit from an industry member chair, when pushing the Board's agenda with funders, Dalhousie University, AAFC, governments as well as with producers and processors. The Board needs to take an aggressive role in obtaining industry input and to more clearly define both the short-term and long-term poultry research priorities outcomes for the region. With government research funding priorities moving in the direction of industry directed research, APRI needs to project a strong industry led image.

Administrative Support

The lack of administration support is a big weakness area for APRI. The position has remained unfilled due to the lack of funding, especially provincial funding for administration and the duties have fallen back on research associate Janice MacIsaac, which adds significantly to her workload. The administrative position is not a full time position; it involves accounting (Accounts Payable, Accounts Receivable), payroll, management of contracts with Dalhousie and other funders, and tracking of project expenses. A detailed paper trail is necessary for audits, research project management and claims. It jeopardizes the quality of the research, research funding and is a distraction from the research activities of APRI. This position is a necessary function for APRI but it has proven to be a difficult resource to fund, as many programs do not cover overhead expenses. Administration is a cost of doing business and should be treated as such. This position needs to be funded outright through research activity or stakeholders need to step up to the plate with creative in-kind offers, options and alternatives to ensure this important research support function can be done.

Human Resources for Research

Without scientific researchers and supporting technical resources it is difficult to attract new research projects, as there is little appetite at any level to invest in research resources that are unable to undertake and complete research projects. APRI has historically had research scientist resources available through Dalhousie (NSAC) and AAFC. This gave APRI 2 (+) positions allocated to poultry research; (1) AAFC researcher and (1.3 +/-) Dalhousie poultry researchers. With the loss of the AAFC funding for one researcher position and 2 technical positions both APRI and Dalhousie have lost access to essential research resources. One Dalhousie poultry researcher position has been left unfilled for over a year and with the remaining researcher Prof. Derek Anderson is planning on retiring in the near future. Dalhousie needs to define its poultry industry research strategy as soon as possible. From an original 2000 AAFC – NSAC Memorandum of Understanding (M.O.U.) an AAFC researcher position was dedicated to the NSAC poultry program which in-turn undertook APRI research. The AAFC unilateral cut to Dr. Rathgeber's researcher position was actually a direct loss to the Dalhousie poultry research program and indirectly to APRI. Without researchers and research technical support, APRI cannot stimulate, facilitate or undertake research projects. The choices to replace researcher resources are limited: (1) Dalhousie fills the vacant researcher scientist and technician position(s), (2) lobby AAFC to replace the lost resources, (3) develop a new project that will fund the necessary research resources, or (4) expand the collaborative (cluster) scope of research to attract more researchers from other organizations to work on APRI projects.

National Profile

APRI needs to increase the organization's profile at the national level. As a regional poultry research institute APRI must compete with the high profile well funded research facilities in central and western Canada for research projects. APRI has many competitive advantages: modern well equipped facilities, research capacities from egg to consumer products, expertise in nutrition and genomics, and much flexibility to address the particular needs of clients. To stand out in the national research arena, APRI needs to better define, promote and highlight its areas of expertise, as well as its close connection with the industry. People need to know the collaboration opportunities exist and that the researcher resources are available through APRI to undertake and complete research projects.

Communications and Promotions

While APRI has succeeded in gathering stakeholders under one common umbrella there is still a communication gap or disconnect that exists at a number of levels and in particular with some poultry sectors as well as at the provincial level. The APRI communication resources are limited, researchers do attend meetings and give updates but they have limited resources to maintain ongoing connections with producers and processors. Communication needs to be improved in a number of areas: with the national organizations and CPRC, researchers to other researchers, with commodity and industry groups, with stakeholders, and in the area of outreach and the knowledge transfer of

research result to the industry. Improved communication should help to improve support for APRI and attract new investment to the research program.

Improved communications would address:

- Confusion around the connection between APRI and APRC. Many believe that the Centre and the Institute are one and the same.
- Understanding of exactly what APRI does and who are on the APRI board.
- Regular (quarterly/bi-annual) communication updates or research activity updates to help to keep everyone in the loop of what research is being conducted.
- Need for the speedy creation of fact sheets that demonstrate the benefits and application of research to the industry.
- Strengthen links within commodity groups and help to improve the connections with the meat industry and processing sectors.
- Communicating and promoting nationally what APRI can do.
- Proactive communication of research needs to APRI from the Industry.
- Develop closer links with Canadian Poultry Research Council and with other national organizations and research centres.
- Reporting on research milestones achieved.
- Promotion of opportunities to other scientists to collaborate with APRI. APRI could make an annual call for research proposals (RFP).
- Bilingual publications to attract more New Brunswick industry support.
- APRI needs to build an image of APRI as a partner, as a driving force in industry, as something that is a presence.
- The website needs regular attention and upgrades. Use technology to better connect with the stakeholders. (This is a needed administration staff function.)

Funding for Research

One of the most important roles APRI plays is in collecting industry seed funding dollars for research. Most research funders require a 25 percent contribution from the industry, which typically can be a combination of in-kind (10 percent) and cash (15 percent) contributions. This seed investment can be leveraged multiple times depending on the project and available funding. APRI has been collecting \$30,000 to \$40,000 annually from the Atlantic Poultry Industry and leveraging it into research activity of many hundreds of thousands of dollars. The egg, turkey and processing sectors make regular annual investments that fund APRI research projects. The chicken sector is less consistent as they tend to invest research dollars on a project-by-project basis.

Funding is available from numerous sources, industry, provincial government, universities, federal governments and AAFC. There is a general shift occurring in research funding support from governments that is moving away from the traditional discovery research model in favour of industry directed research and economic development. APRI research projects historically have been 95 percent industry directed. Various funding programs are available each year such as, Growing Forward 2 (federal/provincial cost shared), the Agri-Innovation Program, the CPRC RFP process, private contracts and other government

programs. This funding availability can and does vary from year to year. One of APRI's main and time consuming roles is finding funding for research projects.

APRI Research Project Activity (2011-2013)

The APRI research activity varies from year to year and total research activity is highly dependent on industry supplied seed money and in-kind support.

	2011	2012	2013
Research Value \$	\$712,052	\$843,084	\$495,032

Leveraging Sector Contributions

The following table illustrates the effect of industry seed money contributions and the potential leveraging of those dollars into APRI research activity. Most funding programs expect to see 25 percent industry contribution, 15 percent cash and 10 percent in-kind. The table below shows how the 2013 industry cash contributions to APRI when match with in-kind contributions can leverage research dollars 5 to 10 times: \$32,900 of industry cash can leverage between \$274,166 and \$548,333 of research activity. If in 2014 the chicken industry were to match the egg contribution, the turkey industry contributed \$3,000, the processors doubled their contribution and the provinces each offered \$1000 the seed pool would quickly increase to \$72,800 in cash and this could fund between \$606,667 and \$1.2 million in research activity. This would allow APRI to reduce time looking for project money, allow more supporting costs to be covered from research activity and would result in a lot of activity at the APRC facility. This model illustrates the importance of all sectors contributions to the research programs success and long-term sustainability.

Sector	2013	2014	Industry	Industry	Industry	Research	Research
	Contrib.	Proposed	Seed\$	In-kind	Total	Multiplier	Activity
Egg	\$29,150	\$29,150					
Chicken	\$0	\$29,150	\$32,900	\$21,933	\$54,833	5	\$274,166
Turkey	\$0	\$3,000				6	\$329,000
Processors	\$3,750	\$7,500				7	\$383,833
Prov. Gov'ts	\$0	\$4,000				8	\$438,667
Other	\$0	\$0				9	\$493,500
	\$32,900	\$72,800				10	\$548,333
			Industry	Industry	Industry	Research	Research
			Seed\$	In-kind	Total	Multiplier	Activity
			\$72,800	\$48,533	\$121,333	5	\$606,667
						6	\$728,000
						7	\$849,333
						8	\$970,667
						9	\$1,092,000
						10	\$1,213,333

Other sources of research funding that should be explored in the future are:

- The Agri Innovation Program (AIP) is still open and has a research and outreach-funding component that the right project could be developed around.
- Research contracts with feed, drug and genetic companies.
- Research tax credit options that would flow directly to producers.
- Create a check-off to collect funds in support of a specific area of research. Possibly a check-off system, to generate funds for operating costs.
- Expand APRI's research scope to attract non-traditional sources of research funding both within and outside the region.
- Contact projects with processing companies.

Conclusions & Recommendations

The Atlantic Poultry Industry has much to lose if APRI were to not exist. The APRI model has succeeded in uniting the industry and connecting poultry industry stakeholders (producers, processors, suppliers, researchers, universities and government) around the regions poultry research priorities better than most other agricultural sectors. Researchers comment on how much easier it is to connect with the poultry industry through APRI compared to other agricultural sectors. The APRI model is an effective means of capturing industry research priorities, industry seed money and it enables the utilization of the regions modern poultry research infrastructure. Dalhousie gains from its association with APRI: particularly connecting the researcher closer with industry need, in attracting industry research seed money; by leveraging Dalhousie's research activity and resources; accessing research funds otherwise not available and it also brings much benefit to student education. APRI helps governments achieve their mandates with the poultry industry in Atlantic Canada.

The APRI governance model was designed to give industry a strong input and voice within the organization. However, the industry has not taken a strong APRI leadership role, it has been left to the university researchers. The recent cuts to AAFC poultry resources in Atlantic Canada have placed APRI in a difficult position, as it is dependent on the resources of others to deliver on its mandate to the Atlantic Poultry Industry. Without an active research program, industry will not continue to invest, and without scientists new research projects will not be attracted by APRI to the region.

This challenge is also an opportunity to enhance the APRI model and better position the organization for the future, to attract new researchers, new research projects and new research funding. There is much opportunity to expand the scope of poultry research in Atlantic Canada and to better utilize the existing resources at the APRC. As governments change their funding models, organizations like APRI must also be willing to adjust to remain congruent.

The following recommendations have been formulated as a result of the project research, interviews and findings with stakeholders.

Recommendations

1. **Separate Chair and CEO** – The APRI chair and the CEO should not be the same person. APRI needs to be seen as an industry driven research organization to its funding agencies, and this can best be achieved if the Chair is an industry member. Currently the perception projected is that APRI is being driven by the researchers agenda and not the industry. The Chair of the Board also needs to have an unencumbered ability to move between all stakeholder groups and to push stakeholders, in particular Dalhousie, governments, and AAFC for funding and support. A Chair from the industry sends a message that the industry is fully engaged in the future of APRI. The Chair would focus on APRI's strategic vision for the future, defining research priorities, and on building strong relationships, with stakeholder sectors, national organizations, other research centres, the cluster group and nationally with the CPRC.
2. **Redefine the CEO Position** – The management needs for APRI are diverse and the research activity would benefit from separating the research activities from outreach knowledge transfer activity. This does not necessarily mean the creation of two separate positions as one person could potentially manage both functions, or a researcher could manage research activity and another part-time position would manage the outreach program and report to the researcher. The Board will need to determine how this role could best function. The new AAFC-AIP program has provision to support and fund the development of research knowledge transfer systems. (See note below.) This approach allows researchers to focus on research/education/project management, finding new research projects and publishing research papers. The outreach manager position would focus on developing industry connections (all sectors), identifying and defining research priorities, on-farm research trials, and the adaptation and the transfer of research knowledge to the industry. The outreach position could be developed in partnership with an outside partner group or by tapping into new funding sources.

(Note: The Agri-Innovation Program supports Industry-led Research and Development: It supports pre-commercialization research, development and knowledge transfer leading to innovative agriculture, agri-food and agri-based practices, processes and products. This stream may provide non-repayable contributions to approved applicants, and/or access to Agriculture and Agri-Food Canada (AAFC) research scientists and experts for knowledge transfer.)

3. **Engage Board Members** – Board members need to become more engaged, possibly through committee activity to address the issues that APRI faces as an organization. Increased engagement would tighten up and unify the voice of the Board stakeholder groups, strengthening relationships in all industry sectors, with processors, with suppliers, and provide strong communication to the various sectors. All Board members should be unified in a common voice and in their support for APRI both within and

outside of the industry. All sectors need to become more pro-active at offering and defining research priorities and outcomes.

4. **Hire Administration Support** - Create an administration part-time position. APRI cannot continue to operate without a part-time administration position. This position could be funded outright by stakeholders, or through some form of contribution agreement with partner organizations, Dalhousie, association offices or through government funding.
5. **Lobby for Research Resources** - Lobby AAFC and Dalhousie for more researcher resources and technical support in the APRC and labs. These two organizations historically have supplied research resources that have allowed APRI to be effective as a research facilitator.
6. **Long Term/Short Term Research Strategy** – The Board needs to focus on strategy and outline a long-term vision to empower the APRI managers to achieve their goals and objectives. Both short and long term research strategies for the region need to be created and managed.
7. **Define APRI Role/Relationship With Dalhousie** – Develop a long-term M.O.U. agreement between APRI and Dalhousie outlining the roles, facilities arrangements, shared responsibilities and researcher resources.
8. **Define APRI Role/Relationship With AAFC** – Develop a M.O.U. with AAFC to assist in the development of the outreach position and cluster development costs, in connection with national research centres and in regards to researchers and technician support.
9. **Define APRI Role/Relationship With UPEI/AVC** – Develop a M.O.U. with UPEI/AVC to facilitate an effective relationship to conduct research, collaborate with the research initiatives and provide a framework for effective research related to the specific needs of the Atlantic Poultry sector.
10. **Intermediary Research** - Explore the potential options to take research from other institutions and play an intermediary research role in the commercialization process that would include outreach activity, on farm research applications and better utilization of the regions resources.
11. **Expand the APRI Research Cluster Scope** - Inform other scientists at Dalhousie and in the region as to what APRI does and the opportunities for research collaboration within the poultry industry. Host an annual poultry industry think tank inviting all industry stakeholders and interested researchers in the region to become part of the APRI research cluster.
12. **Build Support with Meat Bird and Processing Sectors** – The Board needs to work to build stronger relationships within APRI in particular with the meat bird producers and

processors. Meet with processors to identify processing research needs and challenge them to find ways to better utilize the APRC grow out and processing resources.

13. **Improve Communication at All Levels** – APRI will benefit from improved communications at all levels. The website needs to be expanded and updated on a regular basis. There should be a database available to APRI of all stakeholders, producers and processors in the region to enable regular communications. The industry is looking for regular communications such as a newsletter highlighting APRI activity, and how it impacts them on the farm. Fact sheets showing the economic benefits at the farm level need to go out quickly. APRI needs to tell its story.
14. **Expand Outreach and Knowledge Transfer** – Outreach and knowledge transfer are the best end result of APRI research project activity. It shows the benefits of research to the industry and engages them in research projects. Many farms indicate that they would be willing to undertake on-farm trials but have never had an opportunity. APRI could facilitate more training programs for the poultry industry.
15. **Specialty** – APRI’s “area of expertise or a specialty” has historically been in the areas of nutrition and production management. Research expertise comes from the researchers and APRI’s research expertise is dependent upon the available researchers. APRI is in a position to influence the future and redefine the researcher skills best required to undertake the research activities needed by the industry. This is also a time to explore the opportunities or gaps in poultry research where APRI could take a leadership research role in the future. Some of the possible areas are:
 - a. The turkey industry has many research needs that are not being addressed.
 - b. There are issues around the transport of animals and humane handling of animals at issue for the processors sector.
 - c. Cage and animal housing design.
 - d. Food safety issues at all levels.
 - e. New product development, functional food and value adding.
 - f. Energy savings and technology application on-farm and in processing.
 - g. Poultry well being.
 - h. Environment, manure management.
 - i. Poultry feedstuffs and local replacement.
 - j. Knowledge transfer to the farm level.
 - k. Organic production is a growing component of the Poultry Industry in Canada.
16. **Explore New Research Funding Options** – There are various ways that organizations fund research and these should be explored. Tax credits and SR&ED should be explored for potential tax credit back to poultry farmers. Creating research funds, endowment funds, insurance policies, and donations.
17. **Seed Money Contributions** – APRI research activity and its long-term success is heavily dependent upon accessing industry seed money for research. All industry sectors know the value of APRI to the region, and it is important that all sectors

contribute to and support the research activities of APRI. The relatively small pool of industry seed money investment can be multiplied into a significant amount of research activity in support of a strong and progressive Atlantic Poultry Industry.

Financials

Dalhousie, AAFC and APRI have historically had a unique relationship, which at the time of this report is being redefined. Those agreements will have an impact on this plan. APRI plays both a facilitation and an enabler role, gathering industry stakeholders support, defining industry research priorities, developing research projects, finding funding and supplying associate research resources, assisting with education, and helping in the research knowledge transfer to the farm level. APRI is a mechanism that can ensure poultry research in the region is industry led. Dalhousie and AAFC through association with APRI have been able to build closer relationships with the industry, better utilize research resources (APRC) and leverage the research activities possible for the Poultry Industry. The new APRI model includes a new Research/Outreach Manager(s) position(s), the reallocation of research resources and the creation of new research partnerships that will open up new funding opportunity and the expansion of research activity, services, and knowledge transfer to the industry.

The financial projections are based on the following assumption:

Dalhousie will continue to offer APRI:

- Scientific Researchers
- Office space, computers, Internet and phone
- Contract management support
- Financial management support
- APRC facilities at no overhead charge
- Access to the hatchery and feed mill
- Technical support staff

APRI:

- Board of Directors will not be paid stipends by APRI for attending meetings
- Travel expenses to Board meetings are paid by members organizations
- The associate researcher salary is paid by research project activity
- Administration support is necessary
- Operational costs are \$30,000 (+) per year

Overhead Fees

There is a cost recovery mechanism in place utilized by Dalhousie University to recover, some research overhead costs, which is a standard practice in research. Research overhead fees are charged to research projects 15 percent – 50 percent, depending on the project criteria and what can be negotiated in the contracts. The typical fee charged is 15-

20 percent, however it can reach 50 percent in some cases with specialty contracts. For example in 2012 the research projects totalled \$843,084 of which a 15 percent overhead charge would have equaled a \$126,462 fee. This overhead fee money goes to Dalhousie not APRI.

Research Cost Breakdown Per \$100,000 of Research

Research Volume	\$100,000	
Research Overhead Fee	0.15	\$15,000
Student Stipend (Grad)	0.32	\$32,000
User fees (Feed mix, etc.)	0.0694	\$6,940
Consumables	0.1	\$10,000
Purchase Chicks	0.02	\$2,000
Janice Salary (1/5)	0.2	\$11,960
Lab, Measurements, etc.	0.221	\$22,100
Subtotal		\$100,000

This is a simplified example of the breakdown of the APRI research activity costs based on \$100,000 of research activity. These do not include researcher or researcher support technical staff, administration costs. Twenty percent of the associate researcher position salary cost is applied per \$100,000 of research activity.

Annual Funding for APRI

The following outlines the annual funding requirement for APRI.

PY	Description	Salary \$	15%	Total \$	Source of Funding
1.0	Researcher Dal (Research Manager)				Dalhousie
1.0	Research Associate	\$40,435	\$6,065	\$46,500	APRI Project Activity
1.0	Outreach Manager	\$50,000	\$7,500	\$57,500	Stakeholder & AIP Funding
1.0	Research Technician	\$36,000	\$5,400	\$41,400	APRI Project Activity
0.6	Administration Support	\$25,000	\$3,750	\$28,750	Stakeholder & AIP Funding
	Operating Funds	\$10,000	\$0	\$10,000	Stakeholder & AIP Funding
4.6	Total	\$161,435	\$16,656	\$184,150	

Replacement of Lost Research Capability

The following is the cost of replacing lost poultry research capacity.

PY	Description	Salary \$	15%	Total \$	Source of Funding
0.3	Researcher Dal (D. Anderson)				Dalhousie
1.0	Researcher Dal (Unfilled Position) Poultry				Dalhousie
1.0	Researcher Dal (AAFC) Poultry	\$90,000	\$13,500	\$103,500	Growing Forward 2 AAFC
1.0	Research Technician Lab (EG)	\$36,000	\$5,400	\$41,400	Growing Forward 2 AAFC
1.0	Research Technician (APRC) (GL)	\$31,480	\$4,720	\$36,200	Growing Forward 2 AAFC
	Operating Funds	\$45,000	\$0	\$45,000	Growing Forward 2 AAFC
4.3	Total	\$202,480	\$23,620	\$226,100	

5-Year Projections

Note: Cost projections are based on a 3 percent annual inflation rate.

Annual Funding for APRI (5 Year)

The following is the annual resource cost for APRI projected 5 years forward.

PY	Description	Salary\$	2013	2014	2015	2016	2017
1.0	Researcher Dal (Research Manager)	\$46,500	\$46,500	\$47,895	\$49,332	\$50,812	\$52,336
1.0	Research Associate	\$59,800	\$59,800	\$61,594	\$63,442	\$65,345	\$67,305
1.0	Outreach Manager	\$57,500	\$57,500	\$59,225	\$61,002	\$62,832	\$64,717
1.0	Research Technician	\$41,400	\$41,400	\$42,642	\$43,921	\$45,239	\$46,596
0.6	Administration Support	\$28,750	\$28,750	\$29,613	\$30,501	\$31,416	\$32,358
	Operating Funds	\$10,000	\$10,000	\$10,300	\$10,609	\$10,927	\$11,255
4.6	(A) Total	\$243,950	\$243,950	\$251,269	\$258,807	\$266,571	\$274,567

(Note: PY - Person Years)

Replacement of Lost Research Capability

The following is the cost of replacing lost poultry research capacity projected 5 years.

PY	Description	Salary\$	2013	2014	2015	2016	2017
0.3	Researcher Dal (D. Anderson)						
1.0	Researcher Dal (Unfilled Position) Poultry						
1.0	Researcher Dal (AAFC) Poultry	\$103,500	\$103,500	\$106,605	\$109,803	\$113,097	\$116,490
1.0	Research Technician Lab (EG)	\$41,400	\$41,400	\$42,642	\$43,921	\$45,239	\$46,596
1.0	Research Technician (APRC) (GL)	\$36,200	\$36,200	\$37,286	\$38,405	\$39,557	\$40,743
	Operating Funds	\$30,000	\$30,000	\$30,900	\$31,827	\$32,782	\$33,765
4.3	(B) Total	\$211,100	\$211,100	\$217,433	\$223,956	\$230,675	\$237,594

(A+B) Total \$474,237 \$474,237 \$488,464 \$503,117 \$518,212 \$533,756

APRC Support Staff

The following staff is required to operate the Atlantic Poultry Research Centre.

PY	Description	Cost/Salary\$	Benefits \$	Total \$	APRC %	Source of Funding
0.4	Mono gastric Coordinator (Mike McConkey)	\$60,000	\$9,000	\$69,000	\$27,600	Dalhousie (C)
1	Unit Manager (Ron Mekers)	\$55,000	\$8,250	\$63,250	\$63,250	Dalhousie (C)
1	Unit Staff (Sarah MacPherson)	\$42,000	\$6,300	\$48,300	\$48,300	Dalhousie (CFI)
0.5	Summer Student and Weekend	\$11,500	\$1,725	\$13,225	\$6,612	Dalhousie (C)
1	Unit Staff (AAFC - GL)	\$31,480	\$4,720	\$36,200	\$36,200	Research Funds to Replace AAFC
1	Unit Staff (APRI - GL)	\$31,480	\$4,720	\$36,200	\$36,200	APRI Projects
4.9	Total	\$231,460	\$34,715	\$266,175	\$218,162	

Notes:

- The facility is two bio-secure houses and needs staff one side or the other.
- For 1-PY in unit @ 70 hr. bi-weekly
- Requires .6-PY for remaining weekly requirement & holidays @ 42 hr. bi-weekly
- For meat wing need 1.6-PY regular staff + 0.7-PY of research staff = 2.3 Total
- For egg wing need 1.6-PY regular staff + 0.7-PY of research staff = 2.3 Total

Appendix

The following people were interviewed as background research for this project.

1	Michael Cockram	UPEI AVC
2	Juan Carlos Rodregz-Lacompte	UPEI AVC
3	Gerald Post	NSDA Program Manager
4	Alan Grant	NSDA Executive Director
5	Richard Donald	Dalhousie
6	Heather Hughes	Dalhousie
7	Steven Leech	CFC Research Coordinator
8	Phil Boyd	TFC
9	Colleen McElwain	TFC Research Coordinator
10	Peter Clark	EFC
11	Bruce Roberts	CPRC Executive
12	Ian Blenkarn	Eden Valley Poultry
13	Steve Eadie	APRI Director Turkey
14	Patti Wyllie	EFNS
15	Bruce Rathgeber	AAFC
16	Janice MacIsaac	APRI Associate Researcher
17	Derek Anderson	Dalhousie
18	Gerry Kenne	Hatchery Director
19	Eddie Doyle	Feed Industry Director
20	Karson Lewis	CPANS
21	Shelly Acker	EFNS
22	Alex Ordekirk	Perennia
23	Bill Thomas	Perennia
24	Dwight Balzer	NBDA
25	Henry Vissers	NSFA
26	April Sexsmith	NB Eggs
27	Michael Cumiskey	EFPEI
28	Ron Walsh	CFNFL
29	Gord Speksnijder	CPRC Research Coordinator
30	Andy Hammermeister	Organic Ag Centre of Canada

Resources

- Dalhousie University (<http://www.dal.ca/>)
- APRI Website (<http://www.dal.ca/faculty/agriculture/research/centres-and-labs/atlantic-poultry-research-institute.html>)
- Canadian Poultry Manager September 20, 2013
- Statistics Canada
 - <http://www.statcan.gc.ca/tables-tableaux/sum-som/101/cst01/prim55a-eng.htm>
 - <http://www.statcan.gc.ca/tables-tableaux/sum-som/101/cst01/prim53a-eng.htm>
- Canadian Poultry Research Council (<http://www.cp-rc.ca/>)
- Chicken Farmers of Canada (<http://chickenfarmers.ca/>)
- Turkey Farmers of Canada (<http://www.turkeyfarmersofcanada.ca/>)
- Egg Farmers of Canada (<http://eggfarmers.ca/>)
- www.mcgill.ca/macdonaldfarm/category/tags/macdonald-campus-farm
- <http://awc.upei.ca/>
- 2012 Aug/ CPRC, The National Research Strategy for Canada's Poultry Industry
- <http://www.crip.umontreal.ca/en/home>
- <http://poultrywelfarecentre.ca/>
- http://www.umanitoba.ca/afs/animal_science/facilities/poultry_unit_updated.htm
- <http://agbio.usask.ca/research/centres-facilities/poultry-centre.php>
- <http://www.poultry.ales.ualberta.ca/en/>
- <http://www.poultry.ales.ualberta.ca/en/AboutUs.aspx>
- http://news.usask.ca/archived_ocn/Mar12-99/news4.html
- <http://agbio.usask.ca/research/centres-facilities/poultry-centre.php>
- http://umanitoba.ca/afs/animal_science/facilities/poultry_unit_updated.htm
- <http://poultrywelfarecentre.ca/>
- http://poultrywelfarecentre.ca/current_research/
- Organic Agriculture Centre of Canada (http://www.organicagcentre.ca/index_e.asp)