

# Canadian Poultry Research

## Strengths and Weaknesses

Workshop May 11 and 12, 2005

OTTAWA



### **Executive Summary**

In May 2005, the Canadian Poultry Research Council (CPRC) and Agriculture and Agri-Food Canada (AAFC) hosted a workshop entitled “Canadian Poultry Research - Strengths and Weaknesses”. Over 80 participants representing academe, industry and government met to discuss and establish strategic research priorities for the Canadian poultry industry. The purpose of the meeting was to update Canada’s poultry research priorities, and to provide participants with the opportunity to present recommendations for advancing poultry research in Canada. The workshop was a follow-up to a 2002 CPRC symposium on poultry research priorities and was held at the request of AAFC to aid in planning their future role in supporting Canadian poultry research.

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### **Major Recommendations and Observations**

- 1) The major poultry research priority areas identified were:
  - **Food Safety**
  - **Animal Welfare**
  - **Poultry Health and Disease**
  - **Antibiotic Replacement**
  - **Environmental Concerns**
  - **Product Development/Value Added Products**
- 2) Agriculture and Agri-Food Canada, on behalf of the Federal Government, should become a major contributor to Canadian poultry research.
- 3) The CPRC should coordinate Canadian poultry research and future poultry industry networking and extension events.

### **Other Recommendations and Observations**

- The CPRC, the Natural Sciences and Engineering Research Council (NSERC), the Poultry Industry Council (PIC) and Canada’s Faculties of Agriculture and Veterinary Medicine (CFAVM) should continue to support poultry research.
- A national database for poultry research should be maintained.
- The poultry research currently conducted in Canada is of high quality.
- There is a need to improve the level of communication between researchers and industry.
- It is important to both attract and keep high quality poultry researchers in Canada.
- Canada’s poultry sector must entice the very brightest and best of Canada’s students to choose careers in this important area.
- Workshop participants were unable to make recommendations as to who should do what, where and who should pay for specific activities.

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### Introduction

In May 2005, the Canadian Poultry Research Council (CPRC) and Agriculture and Agri-Food Canada (AAFC) hosted a workshop entitled "Canadian Poultry Research - Strengths and Weaknesses". Over 80 participants representing academe, industry and government met to discuss and establish strategic research priorities for the Canadian poultry industry. The purpose of the meeting was to update Canada's poultry research priorities, and to provide participants with the opportunity to present recommendations for advancing poultry research in Canada. The workshop was a follow-up to a 2002 CPRC symposium on poultry research priorities and was held at the request of AAFC to aid in planning their future role in supporting Canadian poultry research.

The program for the workshop is in appendix A. Methodology is in appendix D.

## 1 Workshop Results

### 1.1 Major Recommendations

#### 1.1.1 Research priorities

Overall, 17 different research priorities were identified as listed in Appendix B. The following were identified as the top six:

- **Food Safety**
- **Animal Welfare**
- **Poultry Health and Disease**
- **Antibiotic Replacement**
- **Environmental Concerns**
- **Product Development/Value Added Products**

Although not identical, rankings for these 6 priorities were similar among the 5 commodity sectors (layer, broiler, broiler breeder, turkey, processor), and for the feather industry as a whole. (Table 1).

As described in the Methodology (appendix D), two methods were employed to establish the research program priorities (table group ranking and dotmocracy or individual voting).

**Food safety** was ranked as the top priority by the participants. It was ranked the first or second research priority for processors, layers, broilers and turkeys, fourth for broiler breeders and fifth for the feather industry as a whole. Workshop participants expressed a need for science-based approaches to assess food safety. It was also noted that the consumer has an important role to play in decreasing the risk of food-borne illness. A high level of food safety is necessary to maintain consumer confidence in poultry products and to protect consumers from risk. Food safety was the highest (Level 1) poultry research priority identified in the 2002 symposium.

**Animal welfare** was identified, in many cases but not everywhere, as the second key priority for poultry research. It was ranked the number one issue of the egg sector and second by the feather industry and processor sector. Animal welfare is among the top five concerns of broiler producers. Housing, handling, transportation and slaughter are common areas of focus. Science-based, humane practices need to be found/proven to counter the more

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**Table 1 Ranking of poultry research program priorities**

Top Research Priorities	Feather Industry	Layer	Broiler	Broiler Breeder	Turkey	Processor
Environment	1	4			5	4
Welfare	2	1	5			2
Health / Disease	3	5	3	5	1	5
Antibiotic replacement	4		1		3	
Food Safety	5	2	2	4	2	1
Spent Fowl				2		
Product Development / Value Added Products		3	4		4	3
Management and Production Efficiencies				1		
Genetics				3		
Total number of priorities identified	17	7	5	8	7	6

emotional claims of extremists. Animal welfare seems to have increased in importance since 2002 when it was identified as a Level 3 priority.

**Poultry health and disease** ranked third overall. This research program area was in top spot for the turkey sector, ranked third by the broiler sector and fifth for the processing, broiler breeder and layer sectors. An issue of concern was the epidemiology of foreign and domestic pathogens such as avian influenza, *E. coli* and salmonella. The impact of avian influenza on the British Columbia poultry industry was noted. At least one table group recognized that this issue emphasized a need to go beyond the traditional poultry research community to obtain the appropriate human and physical resources. This was a high (Level 1) priority in 2002.

**Gut microbiology and antibiotic replacement** was identified as the fourth priority. This issue could be combined with either food safety, due to heightened consumer (and science-based) concerns about antibiotic residues, and/or with bird health, disease and gut microbiology since resistance to antibiotics is an epidemiological concern. The broiler sector ranks it as the number one issue, the turkey sector as its third priority and the feather industry as a fourth priority. CPRC's AviMicroNet is already attempting to address antibiotic replacement and avian gut microbiology.

**Environment** was ranked as the fifth research priority area. This broad research area was ranked first for the feather industry, while all sectors (except broiler) identified environmental concerns within the top eight

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of their priorities, with the egg and processing sectors listing it fourth, turkey fifth and broiler breeder eighth. On-farm concerns relate to manure disposal (phosphorus & nitrogen loading) and air quality for animals and people in barns. Processors are concerned about sludge and waste product disposal. The environment was ranked as a Level I research priority in 2002. An Environmental Program has been established by CPRC to address key environmental issues.

**Product development and/or value added products** was identified as the sixth research priority. This priority was ranked third by the layer and processing sectors and fourth by the broiler and turkey sectors. To enhance consumption, increase returns, open markets & assure sustainability are reasons cited for pursuing research in this area. The layer industry is particularly interested in the potential for producing novel proteins in eggs. The utilization of dark meat is relevant to the broiler and processor sectors, and the increased penetration of markets is of concern to the turkey sector. Niche markets and product development were also priorities in 2002.

### Similarities to the 2002 Symposium Results

Many of the priorities identified during this workshop were similar to those established in 2002, which are listed below:

- Food Safety (antimicrobials, HACCP and on-farm bio-security)
- Poultry Health (gut microbiology, surveillance to detect disease/monitor trends and bio-security awareness)
- Environment (nutrient management, regulatory process and water use by

producers and processors)

- Niche Market or Product Development (functional foods, non-food products and value-added uses of dark meat)

Of significance is the extent to which animal welfare concerns have moved into a priority position over the last three years.

### 1.1.2 Agriculture and Agri-Food Canada should become a major contributor to Canadian poultry research.

Workshop participants expressed concerns over the significant reduction in AAFC's support of poultry research, in terms of both human and physical resources. Although the livestock and poultry sectors account for over 50% of Canada's farm gate receipts, research support is disproportionately low compared to that given to the plant sector. Furthermore, within the funding for livestock and poultry research by AAFC, the level of funding for poultry research is unjustifiably low in relation to the importance of Canada's feather industry.

A number of universities have developed excellent facilities through the Canada Foundation for Innovation (CFI) program, provincial and regional funding, and industry support. AAFC should contribute to poultry research in Canada by partnering with these institutions and making use of their facilities, rather than building new ones. CFAMV have expressed a willingness to do this. AAFC is strongly encouraged to significantly increase its human resources available for poultry research.

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### 1.1.3 The CPRC should coordinate Canadian poultry research and future poultry industry networking and extension events.

Workshop attendees expressed a strong preference that CPRC take the lead in coordinating Canadian poultry research. They expect CPRC to further determine the next level of research priorities, from the program priorities identified at the workshop. It was recommended that the CPRC continue to host or co-host similar poultry workshops in the future to serve as a means to revisit Canada's poultry research priorities and to provide an opportunity for the Canadian poultry industry, researchers and others to network and exchange information. Such workshops would provide opportunities for enhanced coordination of Canada's poultry research effort. Participants expect CPRC to fill the leadership void in Canadian poultry research and become the spokesperson to further Canadian poultry research.

## 1.2 Other Recommendations and Observations

### 1.2.1 Poultry research support

The envisioned roles of the CPRC, NSERC, PIC and CFAVM in funding poultry research are presented in appendix C and are summarized in brief below.

The CPRC will operate a peer reviewed matching fund granting program to support priority poultry research programs. NSERC and AAFC [through the NSERC/AAFC program and the Matching Investment Initiative (MII) funding] are the CPRC's partners of first choice for matching funds, but

other partners will be considered.

NSERC operates a Discovery granting program and a Partnership granting program, which has a number of sub-programs. These provide a variety of funding options to support poultry research in Canada.

The PIC receives its funding from the poultry industry of Ontario and supports poultry research projects across Canada.

Canada's Faculties of Agriculture and Veterinary Medicine are a vital component for a strong and vibrant poultry research program in Canada through their researchers, graduate students and research facilities. Dr. Craig Pearson, Chair of CFAVM, has assured the CPRC that they are willing and able to collaborate in enhancing poultry research in Canada.

Though no presentation was made on behalf of Canada's provincial governments, a number of examples were given as to how they work directly with several universities to support poultry research and infrastructure. All provincial governments are encouraged to continue and enhance this support.

Although no presentation was made by the Canada Foundation for Innovation (CFI), three universities reported how this program had resulted in a renewal of their research facilities. The CFI has also provided substantial start up funds to newly appointed poultry researchers at some universities. This source of funding should continue to be explored.

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### 1.2.2 A national database of poultry research should be maintained

A key observation from the participants was that there presently is not a complete inventory of Canadian poultry research. This is significant given that there are insufficient research dollars being applied to the poultry industry. The workshop participants felt it was paramount to avoid unnecessary duplication and that synergies be cultivated to leverage what investment is applied to poultry research. It was observed that Canadian Agri-Food Research Council (CARC) maintains a database [Inventory of Canadian Agri-Food Research (ICAR)], but that it is incomplete. The CPRC should coordinate with CARC to ensure all Canadian poultry research projects are included in ICAR. It was recommended that all funding agencies require research projects be registered with ICAR before funds are released.

### 1.2.3 Current research

Participants noted that there is currently very good poultry research underway. The workshop rejected the notion that some research in progress was not a good investment. Funding projects through the various review processes ensures that only the highest priority and best research is funded.

### 1.2.4 Communication

The participants felt that there is a need to improve the communication between researchers and industry. In this way, industry associations/agencies can better perform an extension function so producers/businesses can benefit from research findings. Offering more poultry industry

workshops (**Section 1.1.3**) in the future is one way to achieve the objective of technology transfer. These workshops would nurture synergies among researchers and between researchers and industry. In addition, all poultry research projects should require a final report in a format that can be forwarded to Canada's five national agencies/organizations so that they can distribute them to their members.

### 1.2.5 Attracting and keeping high quality poultry researchers in Canada

The international competition for top scientists is extremely keen. Canada's poultry research community, including its funding agencies, must take note of this and provide the very best possible environment for its poultry researchers if it wants to keep them and attract new ones.

### 1.2.6 Training highly qualified people

Canada's poultry sector must entice the very best of Canada's students to choose careers in Canada's poultry sector both in industry and as researchers. One approach is to provide top-up funding from CPRC to supplement NSERC scholarships.

### 1.2.7 Funding action plans

Participants attempted to identify where research might be undertaken and by whom. However, some participants felt that they did not have sufficient information to do this and that such suggestions may naturally be biased by researchers who might subsequently vie for particular projects. It was noted that funding from peer reviewed agencies will go to those who demonstrate excellence and capability.

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### Summary

The workshop was successful in identifying the top six Canadian poultry research priorities. It has been recommended that AAFC provide much greater resources for poultry research in Canada and that CPRC take a more active leadership role in coordinating Canadian poultry research. In addition, the workshop has provided seven other observations/recommendations that will strengthen the Canadian poultry research thrust and enhance the benefits from it. These items are listed in the Executive Summary and discussed in the body of this report. The details of all presentations that led to these outcomes are presented in Appendix C.



### Table of Abbreviations

AAFC .....	Agriculture and Agri-Food Canada
APRI .....	Alberta Poultry Research Institute
CARC .....	Canadian Agri-Food Research Council
CBHEMA .....	Canadian Broiler Hatching Egg Marketing Agency
CFAVM .....	Canadian Faculties of Agriculture and Veterinary Medicine
CEMA .....	Canadian Egg Marketing Agency
CFC .....	Chicken Farmers of Canada
CFI .....	Canadian Food Inspection Agency
CPEPC .....	Canadian Poultry and Egg Processing Council
CPRC .....	Canadian Poultry Research Council
CTMA .....	Canadian Turkey Marketing Agency
ICAR .....	Inventory of Canadian Agri-Food Research
MII .....	Matching Investment Initiative
NSERC .....	Natural Sciences and Engineering Research Council
PIC .....	Poultry Industry Council
VIDO .....	Vaccine and Infectious Disease Organization

***The CPRC would like to gratefully acknowledge the support of Agriculture and Agri-Food Canada for this event.***