

OMAFRA – U of G  
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## Table of Contents

|   |   |
|---|---|
| <b>Rozita Dara</b> - Enhanced Variety Selection and Crop Management through Information Technology .....  | 2 |
| <b>Todd Duffield</b> - Development of smartphone apps for implementation of dairy health management research by producers and advisors (i-Ketone) .....               | 2 |
| <b>Todd Duffield</b> - Taking the pain out of disbudding in dairy calves for dairy producers .....  | 3 |
| <b>Alison Duncan</b> - Bridging the gaps in Ontario agriculture, food, nutrition and health to create healthy aging strategies .....                                  | 3 |
| <b>Allan Lauzon</b> - Creating, Translating, and Transferring Knowledge for Rural Innovation: Assessing the Potential for a Rural Knowledge Network for Ontario ..... | 4 |
| <b>Maria Spinato</b> - Distance support for on-farm investigation of adult small ruminant mortalities .....   | 4 |

## Successful Projects Winter 2014

### Rozita Dara - Enhanced Variety Selection and Crop Management through Information Technology

#### **Executive Summary:**

Variety selection is one of the most critical decisions that influence farmers' profitability. Statistics suggest in the public corn performance trials, for example, there is a 30% difference in yield between the top and bottom hybrids. Providing easy access to such information will enable farmers to make better decisions at the right time.

A huge number of data sources exist in the marketplace. There are the publicly funded performance trials and then each variety/hybrid manufacturer will publish their own trials on their websites. It would be a tremendous advantage for a farmer wanting to compare all data on particular varieties/hybrids so that they can select the best for their farm. However, given the current situation (i.e. distributed crop data that are in different formats), there is no easy way for growers to find out basic information about a variety/hybrid that is needed to make agronomic decisions.

Our goal, in this project, is to provide farmers with: 1. a data management system that can collect, format and store data from different sources and 2. mobile and web-based applications to get access, in a user-friendly manner, to aggregated crop data, data models & visualization, and recommendations in real-time. A team of highly skilled professionals from the School of Computer Science and OMAF/MRA will work together to develop and make this tool available to the farmers, University of Guelph researchers, and industry partners.

### Todd Duffield - Development of smartphone apps for implementation of dairy health management research by producers and advisors (i-Ketone)

#### **Executive Summary:**

Although much research has been conducted in the past 15 years on the risk factors for, prevention of, diagnosis/monitoring for, and treatment of ketosis the average incidence in Ontario is well over 40%. While some of this persistence of the problem might be related to the challenges of managing a continued increased milk yield, lack of adoption of research may be a contributing factor. Researchers do an excellent job of extending their research through traditional media (presentations at meetings, producer articles, newsletters, etc.), there may be still a lack of taking the knowledge from the presentation or the article into actual practice on farm. The idea behind this proposal is to build much of the research knowledge our team and others have generated in the past into a handheld or tablet application. The pull for the use of this technology will be for managing data from ketosis monitoring programs. The application will include treatment recommendations based on research for ketosis positive cows and flags for rising herd incidence, including suggestions for areas of management to investigate. The app will also include a hotlink to our dairy team website for further resources and information.

This KTT project supports OMAF priorities for Production Systems Animals - dairy cow health. After the product has been beta-tested in the field, it will be launched for both i-Phones and Androids. Evaluation

of success will be conducted with a launch and follow-up survey and a focus-group assessment of the app after approximately six months of use.

## Todd Duffield - Taking the pain out of disbudding in dairy calves for dairy producers

### **Executive Summary:**

The current Canadian code of practice for the care and handling of farm animals for dairy (2009) specifies that calves must receive pain control when disbudding or dehorning. It further suggests that the best management practices for this procedure includes disbudding calves less than three weeks of age using a combination of sedatives, local anesthetics, and analgesics. Currently, the majority of dairy calves in Ontario are disbudded with the hot iron method at approximately 8 to 12 weeks of age and less than 10% of producers utilize caustic paste. In addition, less than 35% of producers utilize a lidocaine cornual nerve block. One of the barriers to minimizing pain at disbudding is the technical skill and time required to conduct the procedure with limited pain. A practical solution is needed for elimination of the horn bud. The overall objective of this research is to develop practical guidelines for producers to minimize pain at disbudding. We would recommend to producers today, based on current research, to disbud dairy heifers with a small butane hot iron device after calves received a cornual nerve block, and to consider additional pain relief with an injection of a nonsteroidal anti-inflammatory drug (NSAID). The problem with this method is that few producers can administer a proper cornual nerve block. Although, it is not difficult, in order to be effective, it is a technical skill that requires training and supervision from an experienced veterinarian or veterinary technician.

## Alison Duncan - Bridging the gaps in Ontario agriculture, food, nutrition and health to create healthy aging strategies

### **Executive Summary:**

Agri-food for Healthy Aging (A-HA) is a collaborative, multidisciplinary research and knowledge translation group that works together to realize opportunities for Ontario's agri-food and health sectors to improve the health and wellbeing of older adults through the innovative use of food. There continues to be great opportunity to engage Ontario's agri-food and health sectors, and aging consumers, to establish Ontario agri-foods as a "food-first" strategy to promote healthy aging. To realize this opportunity, A-HA aims to: (1) Share results of research in agri-food and nutrition, as they apply to healthy aging; (2) Increase collaborative research and knowledge translation opportunities that demonstrate linkages between agriculture, food, nutrition, and healthy aging, and; (3) Train highly qualified personnel. Project activities will include creation and dissemination of resources including a recipe booklet highlighting the health benefits of Ontario agri-foods for aging consumers, and a menu planning resource for long-term care/retirement homes to promote their use of Ontario agri-foods. An infographic will be developed to illustrate the connection between agriculture, food and healthy aging. Knowledge translation events, annual newsletters and the use of social media will support dissemination efforts and engagement with multiple stakeholders. Graduate and undergraduate students will be involved in all project activities including a course to build capacity in this innovative area of expertise. These efforts will collectively help stakeholders realize the connection between agriculture, nutrition and health and promote Ontario agri-foods as a "food-first" healthy aging strategy. Advancing knowledge in this area will contribute to thriving Ontario agriculture and food sectors.

## Allan Lauzon - Creating, Translating, and Transferring Knowledge for Rural Innovation: Assessing the Potential for a Rural Knowledge Network for Ontario

### **Executive Summary:**

The vibrancy of rural Ontario is contingent upon creation of new knowledge, its transfer, and its application. Central to the creation, transfer and application of new knowledge are relationships among stakeholders. These relationships among stakeholders can be best understood as a knowledge network. Simply stated, a knowledge network is a series of nodes (people, groups, communities, organizations) that are connected through social relationships which facilitate the flow of information and knowledge. The nature of the knowledge transferred and its application will be dependent upon the social relationships and levels of trust established. However, little empirical research exists that examines knowledge networks in the context of rural development. This proposed research intends to examine the potential for developing a knowledge network that would serve the stakeholders of rural Ontario. It begins by conducting a comprehensive review of the existing literature on knowledge networks, focusing on structure, function, implementation and outcomes/impacts. This is followed by a reporting on a jurisdictional scan of rural knowledge networks in developed economies that is focused on outcomes and impacts of rural knowledge networks. Twelve to fifteen key informant interviews will then be undertaken to identify the challenges and enablers of establishing and implementing rural knowledge networks that speaks specifically to the Canadian context. The fourth and fifth element will be to engage rural Ontario stakeholders to determine the structure, function and process for implementing a rural knowledge network in the province of Ontario. Recommendations will be made to develop a rural knowledge network in Ontario.

## Maria Spinato - Distance support for on-farm investigation of adult small ruminant mortalities

### **Executive Summary:**

To facilitate the translation and transfer of knowledge, a distance-support system will be developed to assist the small ruminant industries and their veterinarians in performing improved post-mortem investigation of causes of adult sheep and goat mortality. Unlike other livestock sectors, small ruminants dying on-farm are not removed by dead-stock companies and are rarely necropsied due to low individual animal worth. This increases the difficulty of determining the important causes of adult mortality - a significant impediment to the improvement of the health of those industries, as well as the relationship between producers and their veterinarians. Veterinary practitioners will be solicited to perform up to 100 on-farm postmortems of adult (older than 12 months) sheep and goats. Kits for sample procurement will be provided by the project and samples will be transported from the veterinary clinic to the AHL-Guelph. To facilitate the flow of information, on-line instructions, as well as forms for entry of information and upload of digital photographs will be provided to veterinarians – both for computers and smart phones or tablets. Samples will be submitted not only to test the diagnostic hypotheses relevant to the case but also to survey important production-limiting and zoonotic diseases. It is expected that this distance-support system will result in an improved rate of diagnosis, and improved knowledge transfer between veterinarians and producers with respect to the health management cycle. The process and outcomes will be evaluated using qualitative evaluation methods including focus group discussions with stakeholder groups.