

CAIRN

AN ERCA RESEARCH NETWORK

2009-10 Planning Workshop
Sunday, December 6 & Monday, December 7, 2009
Rundlestone Lodge
Banff, AB

2009 Planning Workshop Agenda

The workshop is being held at Rundlestone Lodge (Bakers Hall) located at 537 Banff Avenue

Sunday, December 6th

- 1:00 – 1:05 pm Introduction and opening remarks (Richard Gray) – CAIRN matrix
- 1:05 – 1:20 pm Roundtable Introductions
- 1:20 – 1:30 pm Funded student research proposals
- 1:30 – 3:00 pm Innovation Analysis Panel Session
Panelists: Murray Fulton, Peter Phillips, Andréanne Léger, Richard Gray
- 3:00 – 3:30 pm Coffee break
- 3:30 – 5:00 pm Regulatory Analysis Session
Jim Vercammen and invited panelists Jill Hobbs, Ryan Cardwell and Peter Phillips
- 5:00 pm Adjourn for the day
- 6:30 pm Dinner (*Earl's Restaurant 299 Banff Avenue*)

Monday, December 7th

- 7:30 – 8:30 am Hot Breakfast
- 8:30 – 10:00 am Coordination & Commercialization Panel Session
Panelists: Richard Gray, Peter Phillips, Greg Graff
- 10:00 – 10:30 am Coffee Break
- 10:30 am – noon Impact & Measurement Panel Session
Panelists: Julian Alston, John Cranfield
- 12:00 pm Lunch
- 1:00 – 2:30 pm Breakout Session
Discuss research plans & areas for collaboration
- 2:30 – 3:00 pm Coffee Break
- 3:00 – 4:00 pm Business Matters – *member selection, student membership, future workshop themes, communications strategy*
- 4:00 pm Workshop Adjourned
- 5:30 pm Catch 2-hour shuttle back/car pool to Calgary Airport

CAIRN MEMBERS

(Based on information provided by members attending the Planning Workshop.)
(Powerpoint slides are scaled down versions of these one-pagers.)

JULIAN ALSTON

New Member

DEPARTMENT OF AGRICULTURAL AND RESOURCE ECONOMICS,
UNIVERSITY OF CALIFORNIA-DAVIS



I am currently a professor in the Department of Agricultural and Resource Economics of the University of California at Davis, Associate Director for Science and Technology for the University of California Agricultural Issues Center, and Director of the Robert Mondavi Institute Center for Wine Economics.

Prior to beginning in my current position in 1988, I was the Chief Economist in the Department of Agriculture and Rural Affairs in Victoria, Australia, where I had been employed in various capacities since 1975. As Chief Economist I was directly involved in development of research priorities and research policy in a large scientific organization. That experience shaped my interest in policy issues related to agricultural innovation. My present roles, especially as Director of the Center for Wine Economics, have contributed to the emphasis of recent research projects and future research directions.

I have ongoing and recently completed projects related to:

- Documenting and describing agricultural research institutions and investments around the world, including applications to developing countries or developed countries (I have a book project in process as an element of a broader line of work)
- Modeling and measuring the payoff to public agricultural research investments, including (a) a recently completed book, and publications that will be developed from that book related to the findings and the methods developed therein, (b) a current project on the benefits from biotech crops, and (c) a current project on the global payoffs to varietal innovations in rice and wheat production
- Designing research policies both in the broad (e.g., the policies entailed in the U.S. Farm Bill) and related to particular situations (e.g., priorities for funding in the Pierce's Disease control program)
- Mechanisms for funding agricultural R&D (e.g., check-off programs with matching grants) and for allocating the resources (e.g., competitive versus block grants)
- The implications of climate change for the wine industry— in particular the implications for the development and adoption of innovations to mitigate the impacts of climate change, taking into account the global market interactions

These projects will engender ideas for new work.

DEREK BREWIN

Executive

DEPARTMENT OF AGRIBUSINESS AND AGRICULTURAL ECONOMICS,
UNIVERSITY OF MANITOBA

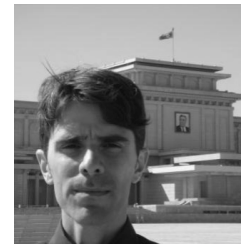


Some of my recent work includes a project on Regional Income Growth and Human Capital Stocks. This project is in collaboration with Goetz and Shields (US - in review) and Young (Canada). I am also involved with a project on firm level innovation in food processing with D. Monchuk, V. Omidvar and M. Partridge; we have an article published on this work in the CJAE in 2009.

Areas for future research include measuring innovation impacts (human capital) and flexibility effects on innovation.

RYAN CARDWELL

DEPARTMENT OF AGRIBUSINESS AND AGRICULTURAL ECONOMICS,
UNIVERSITY OF MANITOBA



Current Research Projects

- Food Aid and Biofuel Policies: Deconstructing the Effects on Procurement and Delivery
- Has the TRIPS Agreement Fostered Stronger Protection of Intellectual Property Rights?
- Predictability in International Poultry Trade: The Implications of the Doha Development Agenda WTO Negotiations on the Canadian Chicken Industry
- Multilateral Trade Liberalisation and FDI: The Implications on Trading Blocs

Research Interests

- Fields: Development economics, international trade policy, food policy
- Topics: food aid, evaluation of the effects of trade agreements, international protection of intellectual property rights, food security
- CAIRN Matrix: Area 3 (biofuels) and Area B (regulatory systems analysis)

Future Research Related to CAIRN

- Do trading relationships affect international protection of IPRs?
 - The role of IPR in food-processing FDI decisions
-

RICHARD CAREW

AGRICULTURE AND AGRI-FOOD CANADA, SUMMERLAND BC



Research Interests

Over the last few years my research interests have included estimating hedonic models to value the attributes of tree fruit s (apples) and wine products. Apart from hedonic model analysis, I have also employed production function analysis to examine the contribution of intellectual property rights (Plant Breeders' Rights or PBR), fertilizer inputs and environmental factors to productivity enhancements in wheat, potato and hybrid canola.

Current Areas of Research

My current areas of research focus on looking at the contribution of innovation, business organizational changes and market deregulation on the performance of BC wine industry. A comparative study looking at the contribution of innovation changes on the BC and Ontario wine industries will be done in the coming year. These two provinces are recognized for producing superior quality wines. My wine research work is in collaboration with Dr. Florkowski of the University of Georgia, USA.

Another strand of my current research employs production function analysis to measure the contribution of biodiversity, weather effects, fertilizer inputs and PBR varieties on barley productivity.

Future Ideas for Research

How do we measure the success of technology transfer and commercialization research projects? Agriculture Canada initiated the Matching Investment Initiative (MII) Program in the mid-1990s but little empirical analysis has been conducted to ascertain the effects of the MII program.

STEPHEN CLARK

DEPARTMENT OF BUSINESS AND SOCIAL SCIENCES,
NOVA SCOTIA AGRICULTURAL COLLEGE



Research interests

- Econometrics, Time series analysis, Non-stationary econometrics
- Structural change and trade models, gravity models and market integration. Central European market integration. The law of one price. Simultaneous equation estimation of primal and dual models. Permanent and transitory effects of economic shocks.
- Political economy. The economics of government payments to agriculture. Moral hazard. Compensation from disease outbreaks in agriculture.
- Consumer demand. Fat taxes. Quality versus quantity in consumer demand. Hedonic functions. Aggregation and separability.
- Environmental economics, the economics of crop rotations. The economics of climate change.
- Energy economics. Cost and input distance functions and energy substitution. Revenue and output distance functions and production possibility functions.

JOHN CRANFIELD

DEPARTMENT OF AGRICULTURAL ECONOMICS AND AGRIBUSINESS,
UNIVERSITY OF GUELPH (CURRENTLY ON SABBATICAL)



My research interests relate to: traditional agricultural market analysis; consumer behaviour and demand analysis at the individual, household and market level, largely in relation to demand for food and food products differentiated by their production based attributes (e.g. functional foods, organic foods, locally produced foods); innovation and commercialization related to agri-food products; and

anthropometric and economic history.

Specific to CAIRN, my innovation related research has included analysis of:

- The drivers of innovative activity/capacity amongst biotechnology, functional food and nutraceutical and bio-product producing firms in Canada
- The factors influencing the demand for capital amongst functional food and nutraceutical producing firms in Canada
- The impact of human capital, financial and regulatory barriers on the performance of functional food and nutraceutical producing firms in Canada

In addition, I have three on-going projects related to innovation/R&D:

- An investigation of the critical success factors and obstacles underlying functional food and natural health product producing firm's ability to create and capture value from the market for health enhancing products
- The role and impact of alternative intellectual protection modalities on functional food and natural health product producing firm performance and innovativeness
- Evaluating the effectiveness of and return to Canadian cattle producer investment in marketing and R&D activities

Future ideas/interest include

- The impact of regulation on food-firm performance
- The location and extent of innovation in trans-national in supply chains
- Optimal matching rules for public-private research/innovation partnering
- Integrating elements of neoclassical economics and the strategic management literature into innovation performance analysis

MURRAY FULTON

Executive

JOHNSON-SHOYAMA GRADUATE SCHOOL OF PUBLIC POLICY,
UNIVERSITY OF SASKATCHEWAN



Current Innovation-Related Research

- Impact of member heterogeneity on research levy decisions by producer groups (with Julian Alston)
- Market failure in moving to new market equilibria (with Jim Vercaemmen)
- Over optimism and firm behaviour (with Kathy Larson)
- Property rights in the development of zero-tillage (Lana Awada, PhD student)
- Socio-cultural factors in the adoption of zero-tillage (Lana Awada, PhD student)
- Mechanisms for encouraging co-operation and coordination in business systems (Nicoleta Uzea, PhD student)

Research Interests to Pursue

- Development and adoption of zero-tillage, pulse crops and canola from an innovation systems perspective
 - Co-operation and coordination in innovation systems
-

GREG GRAFF

New Member

DEPARTMENT OF AGRICULTURAL AND RESOURCE ECONOMICS,
COLORADO STATE UNIVERSITY



Research Interests

How policy interventions (including research funding, intellectual property rights, technology transfer, environmental and product regulations, etc) encourage and discourage processes of innovation and entrepreneurship in agriculture and the life sciences.

Including:

- **Industry-wide innovation structures and trends:** By tracking patterns of IP or other R&D outcomes over an entire industry we can gain insights into the industry's innovation process and how it may be influenced by policy, industry organization, firm strategy, or emergence of new technologies.

Publications:

Graff, et al (2003) "Public-Private Structure of IP Ownership in Agricultural Biotechnology," *Nature Biotech*, Vol. 21, No. 9, pp. 989-995

Bergman and Graff (2007) "Global Stem Cell Patent Landscape: Implications for Efficient Technology Transfer and Commercial Development," *Nature Biotech*, Vol. 25, No. 4, pp. 419-425.

Current projects on this theme: (1) The IP landscape of biofuels (with Wright, partially funded by CSU and EBI); (2) The global landscape of gene patents and IP policies (with Pardey, Wright, Koo, & Nottenberg, funded by NIH)

- **Public sector technology transfer:** Policies and practices of moving technologies from publicly funded research institutions into private R&D programs and on to the marketplace.

Publications:

Graff, Heiman, and Zilberman (2002) "University Research and Offices of Technology Transfer," *California Management Review*, Vol. 45, No. 1, pp. 89-115

Graff, "Echoes of Bayh-Dole: A Survey of Intellectual Property and Technology Transfer Policies in Emerging and Developing Economies" in Krattiger et al, Eds., *Intellectual Property Management in Health and Agricultural Innovation: A Handbook of Best Practices*. (MIHR and PIPRA: 2007), pp. 169-196.

Current projects on this theme: (1) A book on "the four models of commercializing university knowledge" (with Lundquist, Petrussen, Etzkowitz, & Hersey, funded by Vinnova); (2) a report to NRC on U.S. legal landscape for university tech transfer (with O'Connor and Winickoff, funded by NAS); (3) a detailed analysis of Colorado State's historical tech transfer data with an eye to expanding to include multiple universities (not yet funded, talking to AUTM).

- **Efficiency of technology markets:** A number of market failures plague markets for technology, including both tragedies of the commons and the anticommons, information asymmetries, search costs, and risk. Policy and institutional mechanisms can be designed to overcome some of these.

Publications:

Graff and Zilberman (2001) "An Intellectual Property Clearinghouse for Agricultural Biotechnology," *Nature Biotech*, Vol. 19, 1179-80

Winickoff, Saha, and Graff (2009) "Opening Stem Cell Research: A Policy Proposal for the Management of Data, Intellectual Property, and Ethics" *Yale Journal of Health Law, Policy, and Ethics*, IX, 1, 52-127.

Current projects on this theme: mechanisms for access to genetic/genomic IP (with Pardey, Wright, Koo, & Nottenberg, funded by NIH)

- **Political economy of innovation policies:** As Schumpeter noted there are winners and losers from innovation. Such winners and losers can be expected to influence the policy process to steer innovation in ways that favor their respective interests.

Publications:

Graff and Zilberman, "The Political Economy of Intellectual Property" in Kesan, Ed., *Seeds of Change: Intellectual Property Protection for Agricultural Biotechnologies*, (Wallingford, UK: CABI Press, 2007)

Graff, Hochman, and Zilberman (2009), "The Political Economy of Agricultural Biotechnology Policy," *AgBioForum*, 12(1), pp. 34-46.

Current projects on this theme: global political economy of agbiotech (with Hochman and Zilberman, funding pending)

- **Development through social entrepreneurship and innovation:** Technical change is never unbiased: this suggests, however, that processes of innovation and entrepreneurship can be intentionally biased in ways to favor the poor or the environment.

Publications:

de Janvry, Graff, Sadoulet, and Zilberman, "Technological Change in Agriculture and Poverty Reduction: The Potential Role of Biotechnology" in Cooper et al, Eds., *Agricultural Biodiversity and Biotechnology in Economic Development*, (New York: Springer, 2005), pp 387-404

Graff, Roland-Holst, and Zilberman (2006) "Biotechnology and Poverty Reduction in Low-Income Countries," *World Development*, Vol. 34, No. 8, pp. 1430-1445.

Current projects on this theme: (1) developing courses/programs at CSU to encourage grad student engagement in social entrepreneurship, (2) building sustainability principles into incentives for innovation in biofuels (several pending collaborators/funding sources)

RICHARD GRAY

Network Lead/Executive

DEPARTMENT OF BIORESOURCE POLICY, BUSINESS AND ECONOMICS, UNIVERSITY OF SASKATCHEWAN



I'm a Professor of Agricultural Economics in the Department of Bioresource Policy, Business and Economics at the University of Saskatchewan. I have led CAIRN since its inception in 2004 and have long had an interest in agricultural innovation, in part due to my close connection to the family grain farm. Past research includes several aspects of canola research including the innovation story, research spillovers and health impacts and have also been involved in several Canadian rate of return studies. I have worked with producer research groups and government in policy formation.

I am currently involved three projects that reflect my immediate research interest:

- Innovation systems for agricultural research, including the role of the public research corporate research and the producer directed levy funded research. In 2010/11, I will be examining the innovations systems in France and Australia during a sabbatical leave. I'll be working with a Ph.D. student Katrazyna Bolek, and Simon Wesseen who are interested in how the management of intellectual property can reduce adverse impacts of market power and anti-commons issues. We hope to use the knowledge gained from these projects to work with government and industry groups in the future refinement of the Canadian innovation system
- Institutional barriers to levy funded crop research in Canada. I'm working with Eric Froystad, a M.Sc. student, who is interviewing industry participants in an attempt to understand why the levy rates remain chronically low across a wide range of commodities.
- The development and economic impact of zero tillage cropping production systems. I'm currently involved in smaller project examining the rate of return to zero tillage research in Western Canada, as well as a larger project documenting the evolution of this important innovation.

As for my future research plans I would like to begin to formalize of the anti-commons theory as it relates to innovation systems. This will require addition development of a theoretical model and may eventually lead to an empirical model to evaluate property right regimes.

JILL HOBBS

DEPARTMENT OF BIORESOURCE POLICY, BUSINESS AND ECONOMICS, UNIVERSITY OF SASKATCHEWAN



Current Research Projects:

"The Traceability and Authenticity of Foods From Analytical and Consumer Perspectives" Advanced Food and Materials Network, with N. Low (U of S, Food & Bioproduct Sciences), A. Boecker and R. Hanner (U of Guelph)

"Governance Implications for the Development of New Markets". Project in the Economics and Policy Group, Feed Opportunities in the Biofuel Industry (FOBI) network, Agricultural Bioproducts Innovation Program (ABIP), with S. Smyth and W. A Kerr.

“Supply Chain Economics: An Assessment of Bilateral Dependencies for Ethanol Plants”. Project in the Economics and Policy Group, Feed Opportunities in the Biofuel Sector (FOBI) Network, Agricultural Bioproducts Innovation Program (ABIP), with S. Weseen, J. Nolan, W.A. Kerr.

Research Interests:

Supply chain economics; consumer responses to food innovations; labelling and regulatory environment for agri-food innovations, public & private standards.

Issues to research:

- Interface between regulation and private standards and the potential role for ‘co-regulation’.
- Traceability & authenticity technologies and implications for industry coordination
- Potential research integration with Consumer & Market Demand network: food innovations and consumer acceptance, balancing the twin goals of consumer protection with a regulatory environment that facilitates innovation.

KURT KLEIN

DEPARTMENT OF ECONOMICS, UNIVERSITY OF LETHBRIDGE

I have been involved in research on agricultural innovation for more than thirty years. Most of my research has involved analyses of new technologies in the production of agricultural commodities in western Canada. My recent interests have included new technologies in production of biofuels and bio-products and best management practices in use of irrigation for cropping activities.



BON KOO

FACULTY OF MANAGEMENT SCIENCES, UNIVERSITY OF WATERLOO

My main area of research is the technology management, mainly in the area of the economics of R&D and intellectual property rights, the science and technology policy, licensing and contracting. My current researches related to innovation include:



- Patenting vs. secrecy: I am developing a dynamic model of R&D incentives under different protection regimes (patenting vs. secrecy). I hope this research will provide some insights on another interesting issue of open source innovation. The incentive structure under open source innovation can be very different from that under proprietary protection system, and it will be interesting to examine the issues under alternative systems of protection.
- Protection of plant-related innovations in the United States: This research, together with Phil Pardey at University of Minnesota, utilizes the database of plant-related protection (plant patents, plant variety protections, and utility patents) in the United States, and examines how the industry structure has been changing over the past few decades under complicated and changing environments.
- International assessment of patenting in genetics: This is a NIH-sponsored multiyear project, with Phil Pardey, Brian Wright, Greg Graff, Carol Nottenburg and Antony Taubman. It describes changes in the international patent landscapes using patent database,

international intellectual property right policy landscapes, and institutional design of IP sharing and access.

Within the CAIRN's research focuses, I am interesting in the innovation system analysis (A) and innovation impact measurement (D) in the bioenergy/bioproduct development and environmental stewardship.

ANDRÉANNE LÉGER

SCIENCE STRATEGY DEVELOPMENT UNIT, RESEARCH BRANCH,
AGRICULTURE & AGRI-FOOD CANADA

My position with Agriculture and Agri-Food Canada, Research Branch, in the Science Strategy Development Unit involves conducting "research" in support of management and policy decisions.

Current Research Projects:

- Developing a method for the allocation of resources across AAFC science priorities
 - Research Branch has identified 7 science priorities in its Science and Innovation Strategy. The scope of activities, and the economic importance of the priority for the sector vary across priorities. We are interested in identifying how these differences affect the allocation of resources to research projects.
 - This will be followed by an analysis of the desirable composition of project portfolios for each science priority

- Analysis of the Canadian agriculture and agri-food innovation system
 - Recent reports have reviewed the performance of the Canadian innovation system. Collaboration and coordination among different actors of the system, and issues related to commercialization have been identified as weaknesses of the system.
 - This project proposes an analysis of the agriculture and agri-food innovation system, its components and their relationships to identify areas of concern (e.g. gaps, weaknesses) and potential leverage points; and develop recommendations for interventions (initiatives, policies, programs)

- Comparative analysis of different research and innovation organisational models
 - Different ways of organising research and innovation delivery/ organisational models exist around the world, and their experiences may be instructive for Canada
 - In this project we review public research delivery models in selected industrialised countries to then analyse their feasibility and desirability for the Canadian situation, and eventually develop recommendations for pilots or new initiatives.

I am also involved in the development of appropriate indicators for the measurement of science results and impacts.

Future Research Areas:

Future projects will concentrate on follow up studies on the composition of research portfolios for each science priority; a closer look at the structure and performance of commercialization in Canada and in other countries.

PETER PHILLIPS

JOHNSON-SHOYAMA GRADUATE SCHOOL OF PUBLIC POLICY,
UNIVERSITY OF SASKATCHEWAN



Research Interests:

Governing transformative technological change; regulation and governance; IP management and tech transfer; innovation systems; innovation policy; complexity

Current Projects:

- Value Addition Through Genomics and GE³LS (PI, Co-Lead, VALGEN, \$5.4M, 2000-13)
- SSHRC MCRI on Innovation Systems Research Network II (PI, \$2.5M, 2006-11)
- Genome Canada Designing Oilseeds for Tomorrow's Markets Project (PI, \$17M, 2006-10)
- The Advanced Foods and Materials National Centre of Excellence (Collaborator, \$22M, 2006-11)
- AAFC Policy Research Networks on Trade and on Innovation (Member)
- Genome Canada GELS project on Translating Knowledge in Health Systems (PI, \$2.6, 2006-10).

STUART SMYTH

New Member

DEPARTMENT OF BIORESOURCE POLICY, BUSINESS & ECONOMICS,
UNIVERSITY OF SASKATCHEWAN



Current Research:

Dr. Stuart Smyth is a Professional Research Associate with the Department of Bioresource Policy, Business and Economics in the College of Agriculture and Bioresources. The focus of my research is on the innovation of agricultural biotechnology. I'm part of a group of academics that recently received \$5.4 million in funding from Genome Canada to examine the genomic, economic, environmental, ethical, legal and social (GE³LS) issues pertaining to bioproducts and biofuels through a project titled Value Addition through Genomics and GE³LS (VALGEN). I'm the Director of Networking for VALGEN and an investigator under the theme of Intellectual Property and Technology Transfer. In addition to this, I also lead the GE³LS component on two other Genome Canada funded projects that have a combined value of \$22.5 million. Much of my recent research has focused on marketplace liabilities created by innovation that has been compiled in a forthcoming book titled, *Innovation and Liability in Biotechnology: Transnational and Comparative Perspectives*, published by Edward Elgar. This book will be available in March 2010.

Future Ideas:

I would like to explore how Canada will manage the commercialization of new industrial crops that will be dedicated for industrial useage. Questions of coexistence arise, especially if these new crops do not require food and feed approval from the CFIA. We have a good example of this with high erucic acid rapeseed, where it is produced through contract registration, but does not have food or feed approval. An in-depth assessment of this coexistence system would highlight the potential application of contract registration to a wider variety of crop types that may be used for industrial application. This research would involve greater understanding of the use of contracts in agriculture and how supply chains are able to horizontally and vertically integrate to manage the expected growth of coexistence.

DAVID SPARLING

RICHARD IVEY SCHOOL OF BUSINESS,
UNIVERSITY OF WESTERN ONTARIO

Executive



Current projects:

(Research team includes Brandon Schaufele and Pam Laughland)

- **Food and health case studies** – a study of four healthy food products, the development of the industry, the impact of media coverage and health related scientific research on industry performance. Current elements funded by AFMNET in partnership with CAPI (a proposal has been submitted to the Value Chain group). The project began recently and will be expanded into other areas in 2010.
- **Under-investment in Agricultural R&D by Producer Groups:** Exploring Alternative Explanations – this proposal has been funded for the current year to undertake an initial exploratory analysis

Future Project:

- **Bioproduct innovation** – this proposed, longer term research will examine the evolution of the bioproduct industry, which experienced a significant downsizing between 2003 and 2006, through a series of case studies. It will also study the determinants of innovation through an analysis of the 2009 Statistics Canada Bioproduct Development Survey. This research will be a partnership with John Cranfield and Fred Pries at the University of Guelph.
-

JIM VERCAMMEN

Executive

FOOD AND RESOURCE ECONOMICS AND SAUDER SCHOOL OF
BUSINESS, UNIVERSITY OF BRITISH COLUMBIA



Current Research Projects

- *Rebate versus Usage Tax: Efficient Policy for New Technology Adoption* (with Murray Fulton). This project models the entry and consumption decisions of consumers who purchase durable goods such as a hybrid car where both the cost of entry and the on-going usage cost are key determinants of technology adoption.
- *R&D Decisions with Endogenous Information Collection* This project models a innovating firm's simultaneous choice of information collection, R&D project selection and R&D intensity. Accounting for how firms adjust information collection in response to R&D policy variables is important for efficient policy design.
- *Holdup Versus Option Value as a Determinant of Investment Decisions in Vertical Supply Chains* This project examines the interaction of real option effects and hold-up effects as a determinant of when and why firms fail to invest in seemingly profitable projects such as subsidized green energy R&D
- *Private Returns on Investment in Small Scale Green Electricity Projects*
This project compares private rates of return for farm level investment in wind, solar and anaerobic digester technology under a wide range of parameter assumptions

CAIRN-Related Research Interests

I manage the new CAIRN area of regulation and innovation. I am currently gathering ideas for a research agenda in this area by reviewing the literature. Dominant themes which have emerged include the process of regulation, regulatory delay, unintended consequences of regulation, measurement of regulation's impact on innovation, private standards as the new regulation, regulation and adverse selection in innovation and efficient regulations for patents and technology licenses. I am particularly interested in the creation of case studies for agri-food.

Regulation as applied to innovation in the bioproducts sector is of particular interest.

