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The Agricultural Sector and Adaptation to Climate Change



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Twelve Years of Research into Agricultural Adaptation and Climate Change in Quebec

- The research teams have involved:

Professors:

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Project Officer:

Serge Des Roches

Graduate (current) Student Researchers:

**Marylène Savoie, Kénel Delusca, Elsa Da Costa,
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Twelve Years of Research into Agricultural Adaptation and Climate Change in Quebec

- **Climate change modelling**
- **The human agency factor & capacity for adaptation**
- **Understanding farmers' perceptions of CC & CV**
- **Role of CC & CV in farmers' decision making**
- **The implications for policy**

The Information Base

Early 1990s

- Climate scenarios & historical climate data
- Farmer interviews
- Workshops with:
 - Farmers
 - Other professionals

Late 1990s & 2000+

- All of the above plus insurance claims data & farm level modelling

Farmer Perceptions of CC & CV

- Little awareness in early 1990s
- But interested in how they would fare compared to others
- Now more aware, but until 2003 at least tend to see CC & CV as secondary (to other concerns)
- But some signs of change
- Our current research is now moving into the field again – time to check again!

Farmers' Risk Management Strategies (RMS)

- **The existing tool-bag to deal with extremes in climatic conditions and other concerns:**
 - **Water management, crop choice, diversification**
 - **Crop insurance**
 - **Income stabilisation**

Why Do CC & CV Appear to Be of Secondary Concern?

- **Decision-making environment is multi-faceted**
- **Other sources of stress more pressing**
- **Decisions often taken in shorter term perspective**
- **Crop insurance as an intervening variable**

Current Research

- *Research team:* U de M, McGill; & Steering Committee involves OURANOS, La Financière, MAPAQ, UPA, Agriculture Canada
- *Direct financing:* CCIAD; Ouranos

Current Research cntd.

Focus:

- Farmers' RMS & CV (over the past 30 years)
- How adapting or not adapting to variability (CV) may affect yields
- Integration of data on returns, costs, losses, agro-climatic indicators and farm-level modelling
- Moving from aggregate, to regional, to locality scale
- And FARMERS

Current Research cntd.

Tasks

Task 1: Setting up Advisory Committee

Task 2: For Quebec, temporal analysis of climatic and crop loss information

Selection of crops and regions

Task 3 : For target regions, intraregional analysis of climate conditions and claims. Identify 'hot spots' for more detailed farm-level analysis

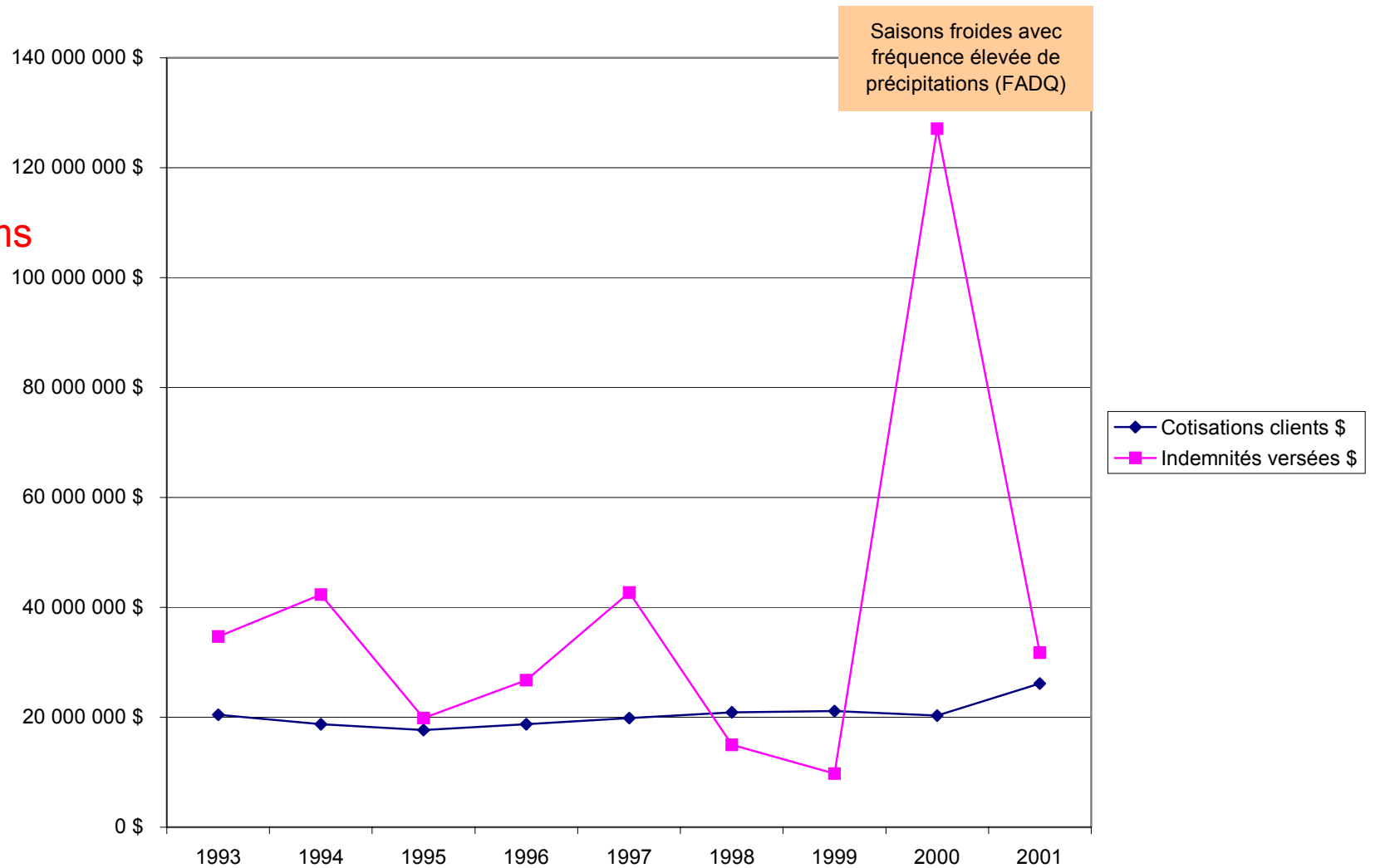
Task 4: Focus groups (professionals and farmers) to assess strategies adopted in relation to specific climatic events

Analysis of farm models with or without adaptation

Task 5: Assessment of vulnerability at farm, sector and region levels

The Reality of CV & Costs to Farming

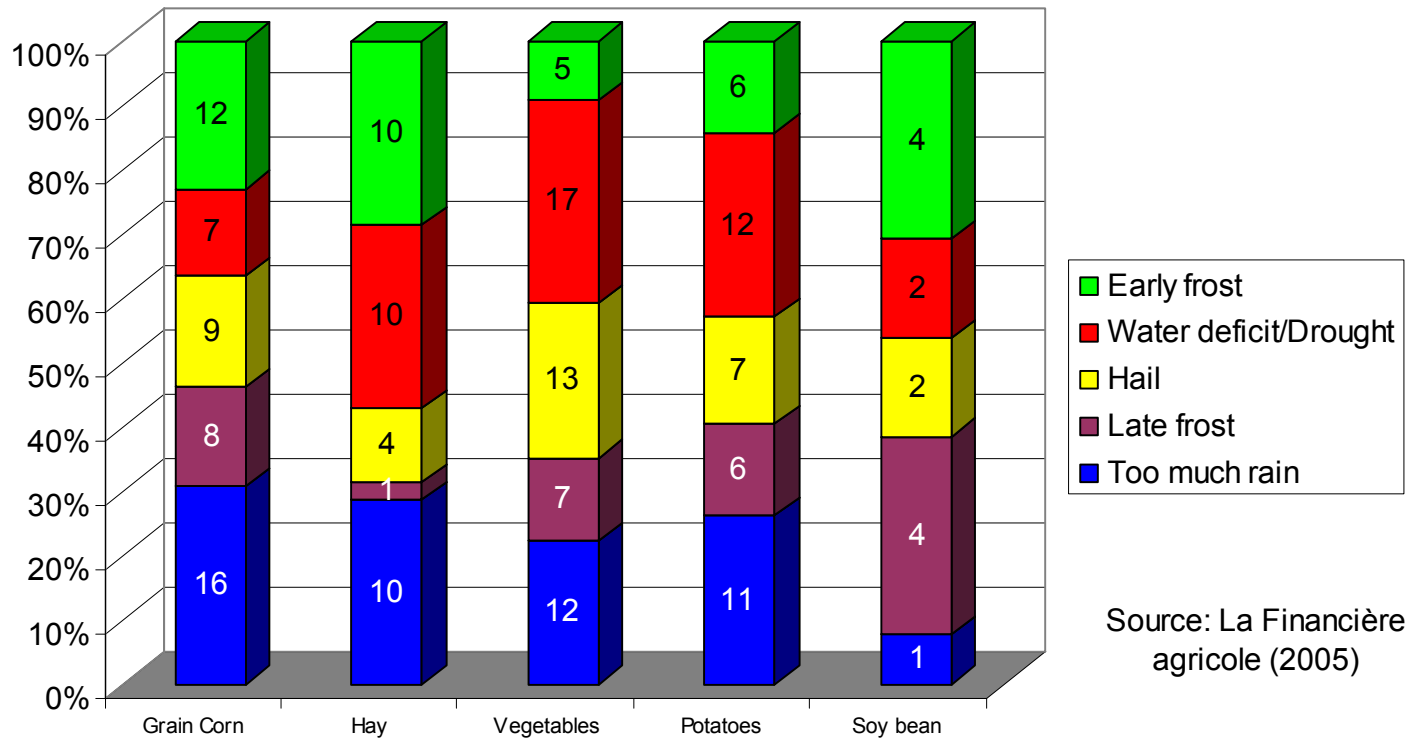
Évolution des cotisations des clients et des indemnités versées (1993-2001)



Source: La Financière agricole du Québec

The Reality of CV & Costs to Farming

Frequencies of Mentions of Causes (Causes / Regions) 1982-2003

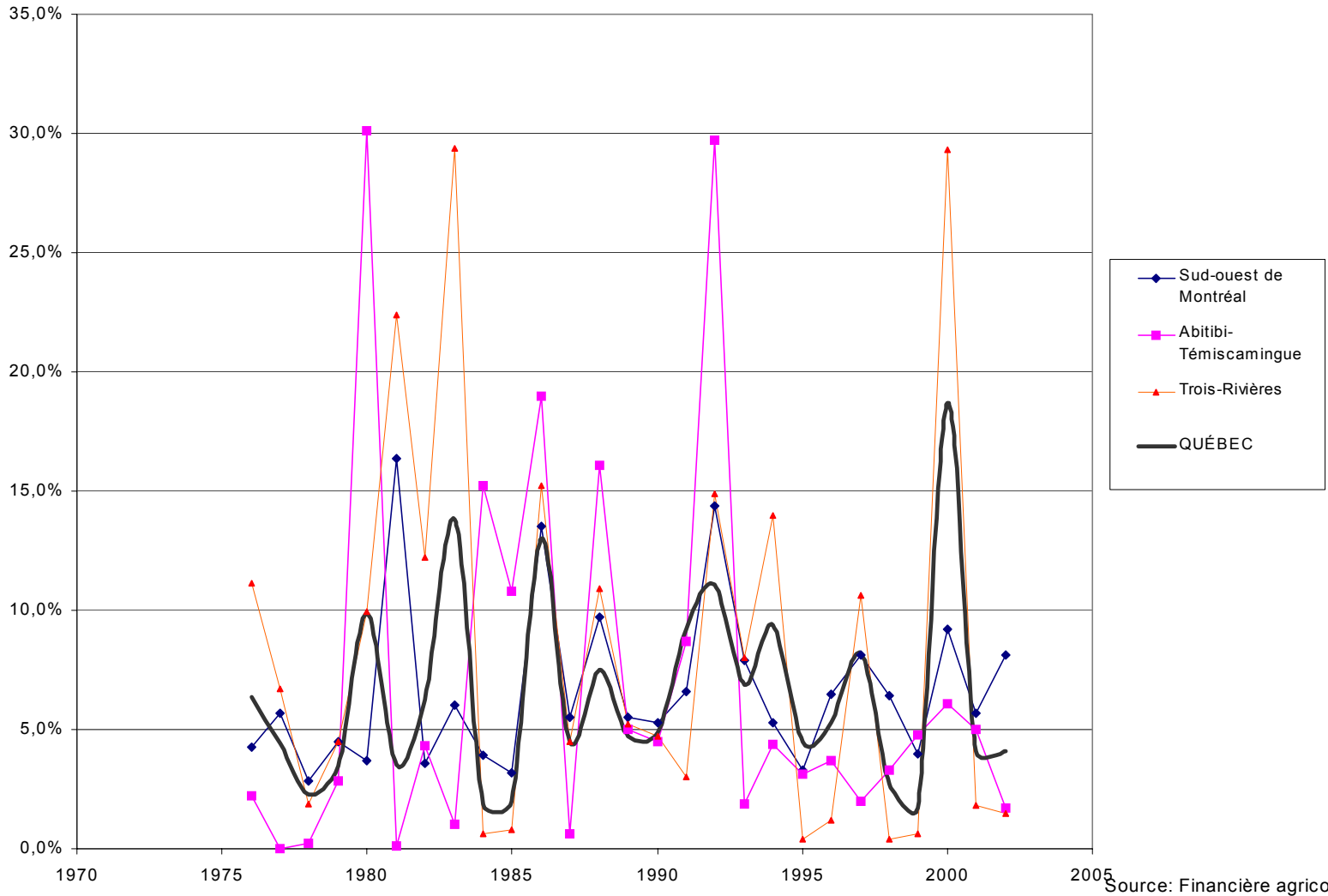


Source: La Financière agricole (2005)

The Reality of CV & Costs to Farming

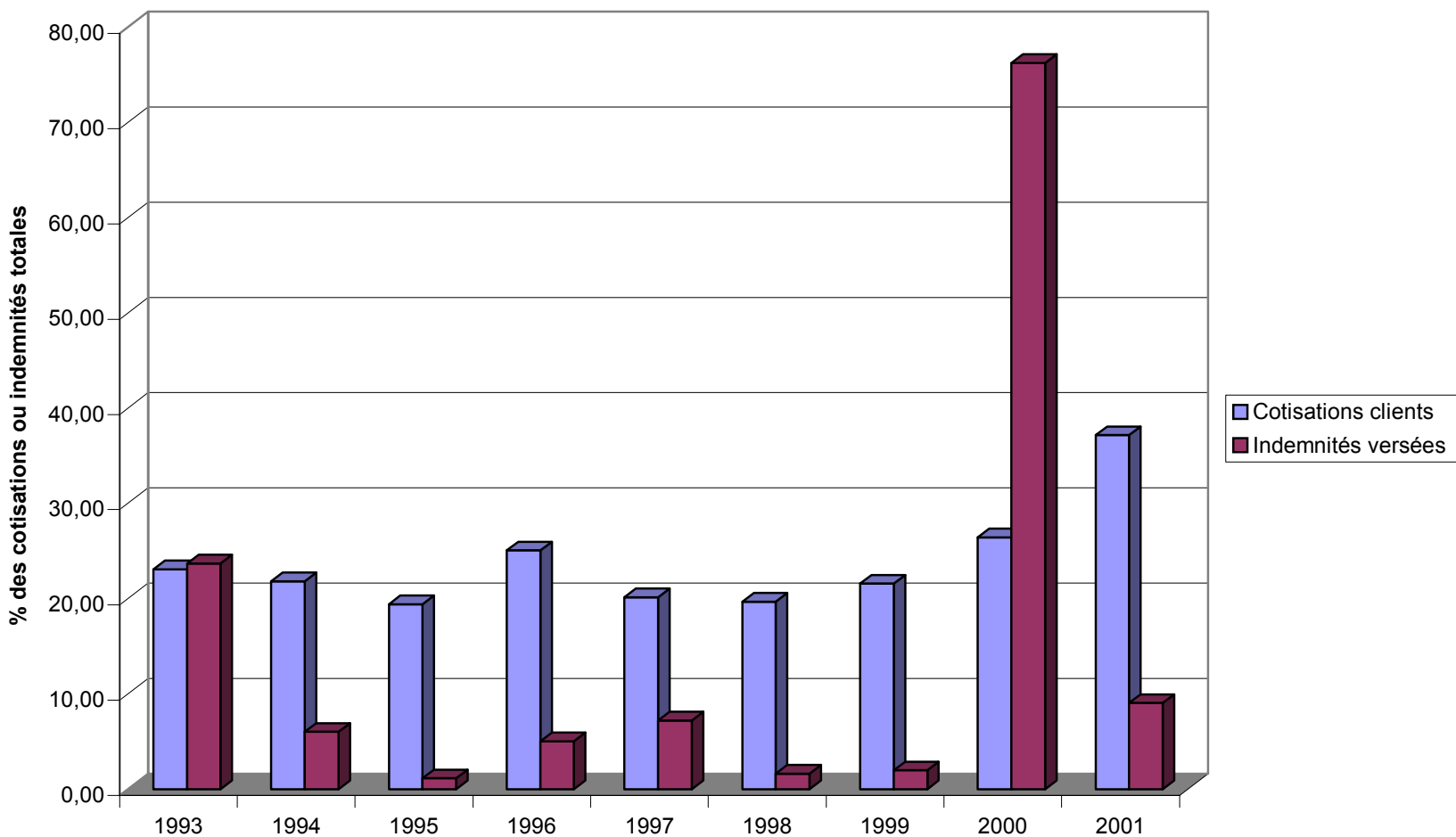
Indice des pertes dans les régions Sud-Ouest de Montréal, Trois-Rivières et Abitibi-Témiscamingue

Loss index: \$ claims paid out / \$ value insured



The Reality of CV & Costs to Farming

Évolution de la part des cotisations et des indemnités totales versées au producteurs de maïs-grain (régimes collectif et individuel)

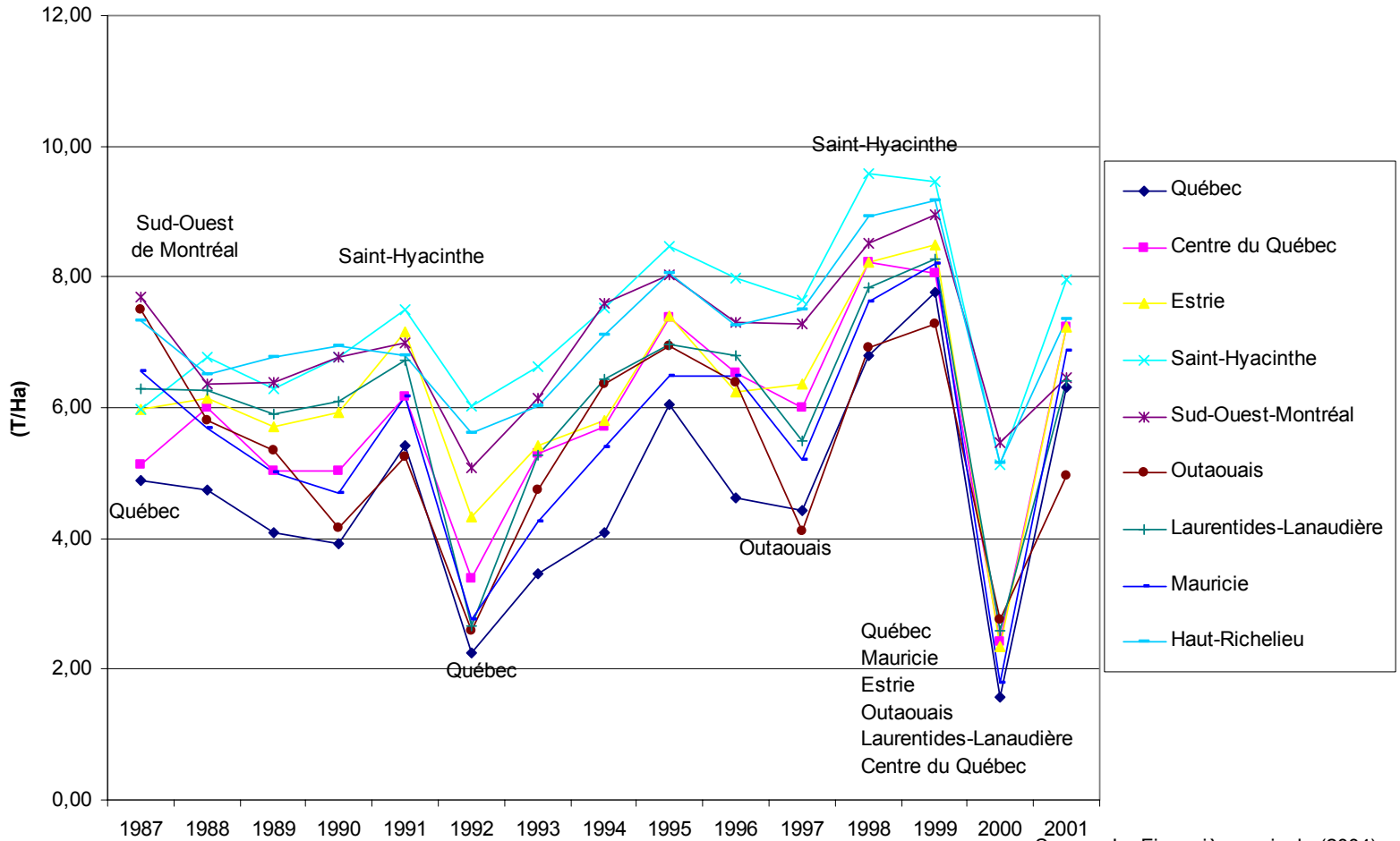


Source: La Financière agricole du Québec

The Reality of CV & Costs to Farming

Evolution of Grain Corn Yield (1987-2001)

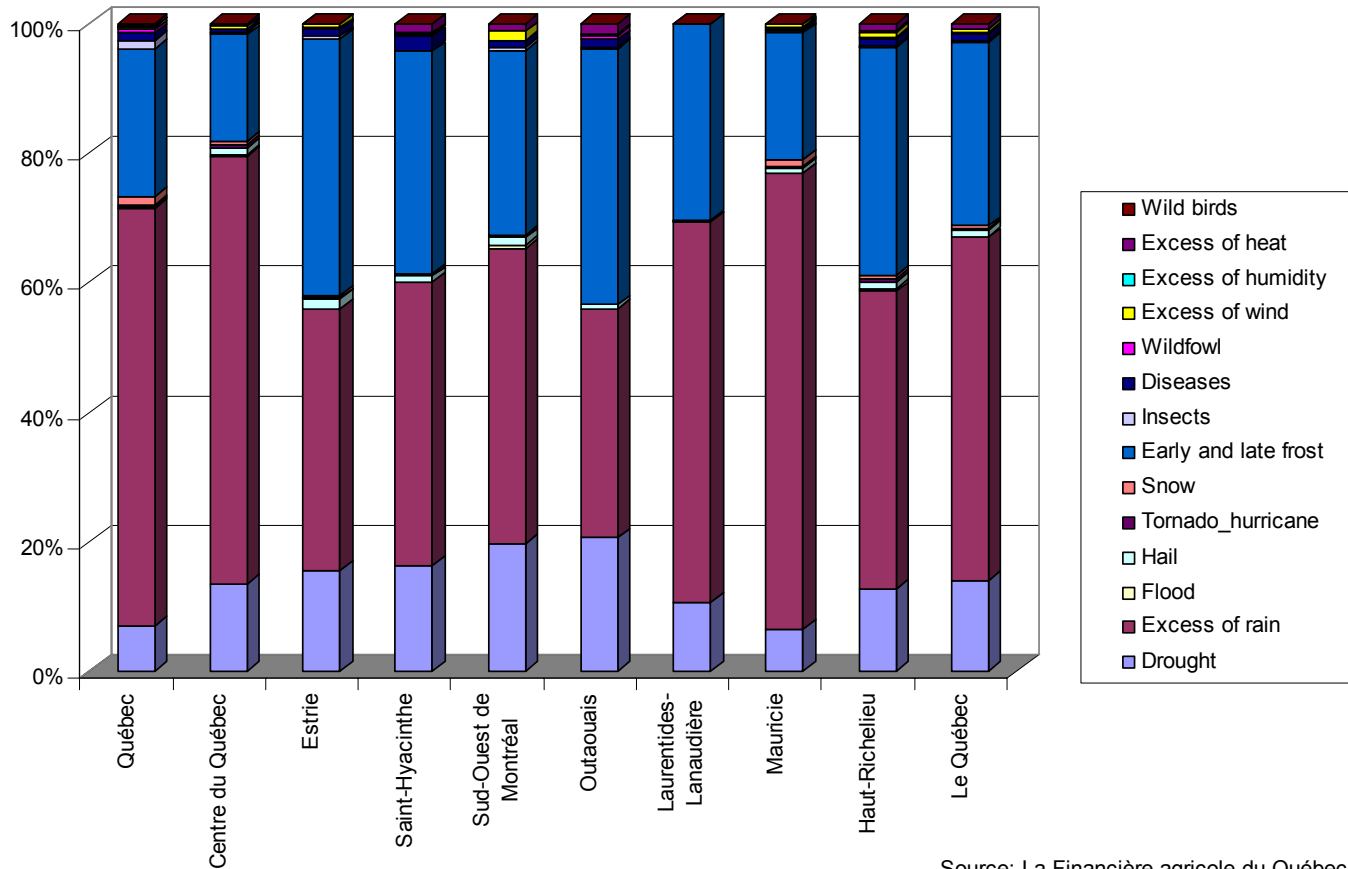
Grain
corn
yields
from
claims



Source: La Financière agricole (2004)

The Reality of CV & Costs to Farming

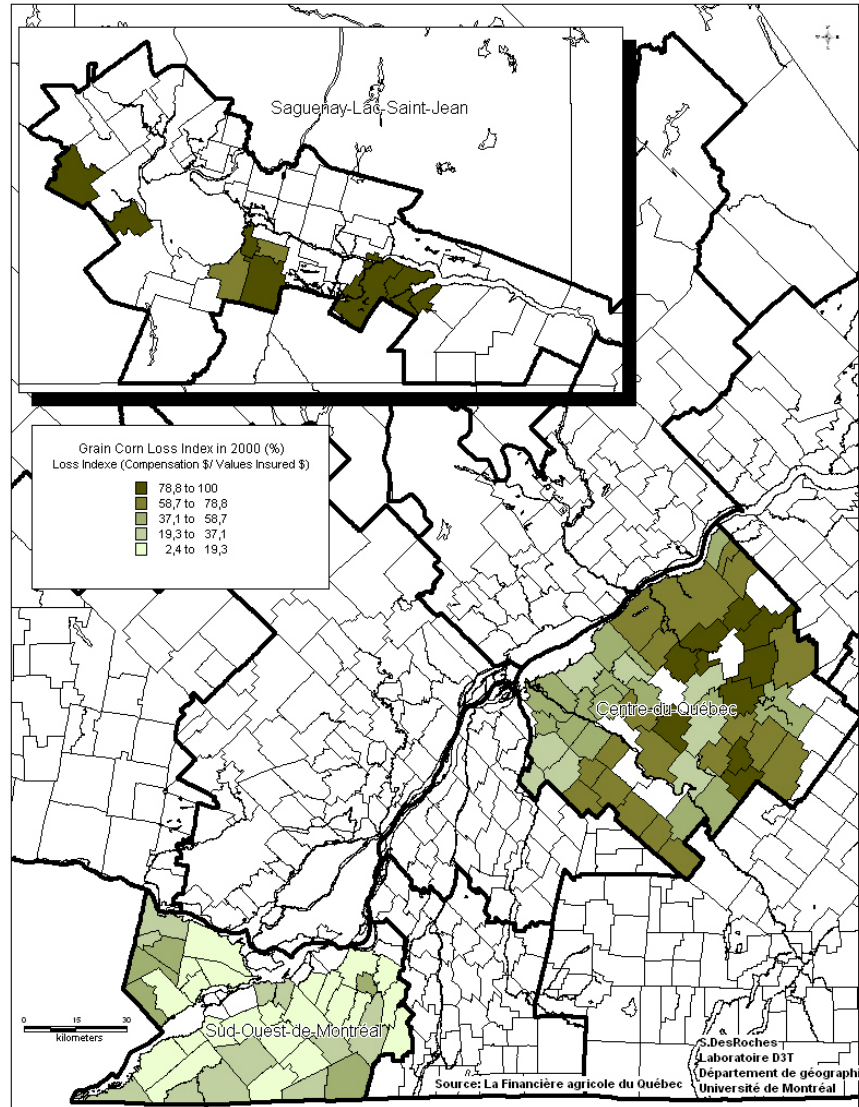
Causes of Claims for Grain Corn 1982-2003 -Individual Protection (proportion calculated on values of claims paid)



Source: La Financière agricole du Québec

The Reality of CV & Costs to Farming

Loss Index Grain
Corn 2000



Some Final Considerations

- **Note the non neutral nature of crop loss data**
- **Importance of vulnerability**
- **CC & CV becoming recognized as a significant source of stress**
- **Capacity to adapt as a focus of policy**

Conclusions

The reality of substantial spatial variations in interregional and intra regional patterns due to climatic extremes

Substantial variation in temporal patterns

What is the link between crop insurance & either adaptation or mal adaptation?

In Quebec, mal adaptation is probably discouraged because of:

'good practices' counselling (indirectly)

**interventions in farmers' strategies to reduce anticipated losses
the limits to coverage**