

# **Western Canadian Producer Associations: Check-offs and Matching Grants**

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# Producer-Funded R&D

- Increased producer involvement in agricultural R&D has become a priority issue:
  - Declining growth rates in productivity
  - Declining share of R&D surplus accruing to producers due to innovation shift from public to private sector
  - Emerging bio-fuel and specialty food sectors, which opens up many new innovation opportunities
- Policy makers must make informed choices when designing agricultural R&D policy, including the system of matching grants for producer-funded R&D

# Purpose of this Talk

- Discuss some general reasons why producers are expected to under-invest in agricultural R&D
- Provide a broad overview of select agricultural producer associations, which operate in western Canada
- Briefly describe the results of my theoretical research, which examines the efficiency properties of matching grants for producer-funded R&D

# Producer Returns from R&D Investment

- Agricultural R&D may have a high social rate of return, but producers' share of surplus may be low
- Reasons:
  - Monopoly & Monopsony pricing in the supply chain
  - R&D Spillovers
  - Weak IPRs
  - Technology-induced price reductions for agricultural commodities
  - Agency problems and transaction costs in the R&D contracting process

## Evidence of High Returns for Producers

- Despite a potentially low share of R&D surplus, it appears that R&D investment is profitable for many producers (Gray and Scott 2003)
- G&S estimated that Saskatchewan Pulse growers historically received an average industry return of \$31.1 million for every \$1 million of R&D investment
- In the long-term, pulse growers receive \$15.60 back for every \$1.00 of their R&D costs

# Producer Underinvestment in R&D

- High industry returns → producer under-investment in R&D
- Producer-funded R&D is mostly financed through producer association check-off schemes
- Raising the check-off levy is the obvious way to increase producer-funded R&D
- Raising the check-off levy is not easy for association managers because a consensus of producers must agree and regulatory agencies must approve
- Producers may be reluctant due to lack of information, lack of trust and free-riding incentives

# Public Good & Free-Rider Problem

- Innovation that results from R&D is a classic public good
- Voluntary individual investment in public goods largely fails because of the free-rider problem (Olson 1982)
- Reducing the free-rider problem is costly for an organization due to producer heterogeneity, the horizon problem, transaction costs, enforcement and dissemination of information
- Gov't policy that results in stronger producer associations and less free-riding has high social value

# Matching Grants

- National and provincial governments make extensive use of matching R&D grants for producer-funded R&D
- The level of matching varies, but it is often in the 40% - 50% range
- Matching grants are widely believed to be a highly effective tool for increasing producer contributions to R&D
- Matching grant programs designed to increase R&D for bio-fuels are rapidly emerging (e.g., Biofuels Opportunities for Producers Initiative)



# Theoretical Research Questions

- How effective are matching grants as a tool for increasing producer-funded R&D? Do matching grants “crowd out” private R&D investment?
- Should stronger producer associations optimally receive larger or smaller matching grants?
- Do matching grants help in the formation of strong producer associations with low free-riding problems?
- Is gov't policy for matching grants time consistent, or is there a temptation to revise matching grant policy after association by-laws are passed?

# Overview of Select Producer Associations in BC and Saskatchewan

- Institutional Structure
- Saskatchewan Data (1999-2004)
  - Unit Levies
  - Levy Revenue
  - Levy Revenue spent on Research
  - Rates of Levy Refunds
- Levy as a % of Unit Production Costs (BC)

# Institutional Structure of Producer Associations

- Producer associations are typically organized under provincial law
- Significant differences across provinces
- Umbrella agencies often provide regulatory consistency across associations
- Check-offs are a mix of mandatory, voluntary and refundable
- Producer majority is generally needed to form an association and to implement key decisions

# BC Producer Associations: Regulated

- Commodity boards are regulated by the BC Farm Industry Review Board
- These include supply-managed marketing boards and commissions for regulated industries
- Commissions include:
  - BC Cranberry Marketing Commission
  - BC Hog Marketing Commission
  - BC Vegetable Marketing Commission
- Participation and check-off payments are mandatory

# BC, Regulated, Cont'n

- BC Vegetable Marketing Commission
  - BC Greenhouse Growers Association
  - BC Potato and Vegetable Growers Association
  - Fraser Valley Strawberry Growers Association
  - Others
- BCVMC collects fees for associations
- Associations request funds from BCVMC and (typically) matching funds from the Investment Agriculture Fund to finance R&D

# BC Producer Associations: non-Regulated

- Development councils have capacity to collect refundable levies for funding R&D
  - BC Blueberry Council
  - BC Raspberry Industry Development Fund
- BC Fruit Growers Association
  - Formerly a commission; now collects voluntary levies for funding R&D
- BC Wine Grape Council
  - Mandatory check-off for wine grape producers to fund R&D
- BC Grain Producers Association (Peace River)

# Saskatchewan Producer Associations

- Operate under Saskatchewan Agri-Food Council
- Development commissions and Development boards
  - Typically initiated by producers with 60% support (commission) or 80% support (board)
  - Promotion and development activities to support production and marketing
- Marketing boards
  - Have the additional role of facilitating regulated marketing

# Saskatchewan, Cont'n

- Activities supported by producer check-offs
  - Refundable for development commission
  - Non-refundable for development board and marketing board
- Regulations specify operating structure, and orders specify the details (e.g., size of levy)
- An increase in the levy requires producer support and Agri-food Council approval



# Sask. Development Commissions

- Saskatchewan Alfalfa Seed Producers Development Commission
- Canaryseed Development Commission of Saskatchewan
- Saskatchewan Canola Development Commission
- Saskatchewan Flax Development Commission
- Saskatchewan Forage Seed Development Commission
- Saskatchewan Mustard Development Commission
- Saskatchewan Oat Development Commission
- Saskatchewan Winter Cereals Development Commission

# Sask. Development Boards

- Sask Pork
- Saskatchewan Pulse Growers
- Saskatchewan Sheep Development Board

# Western Grains Research Council

- Built on a \$9 million 1981 endowment
  - Generated \$17.5 million in R&D funding since its inception
- Wheat and barley check-off added in 1994
- Comprised of 18 diverse western Canadian producer associations
- Check-offs are \$.30/tonne for wheat and \$.50/tonne for barley
- Annual research funding is \$4-5 million plus matching grants

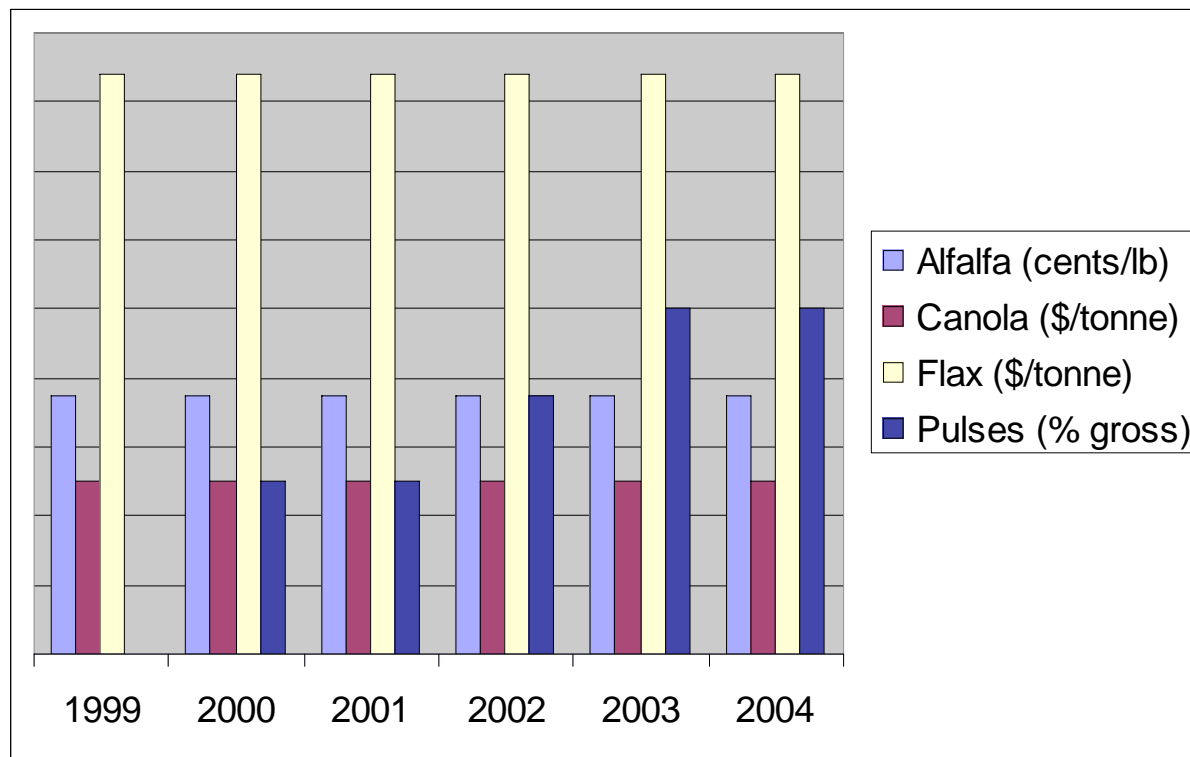
# Is Producer-Funded R&D Trending Up in Saskatchewan?

- The unit levy in Sask. was flat between 1999 and 2004 for most associations
- Only for the Saskatchewan Pulse Board did the unit levy increase
- Levy revenue is highly variable for some organizations (canola)
- Levy revenue is growing strongly for the Saskatchewan Pulse Board, but flat for others

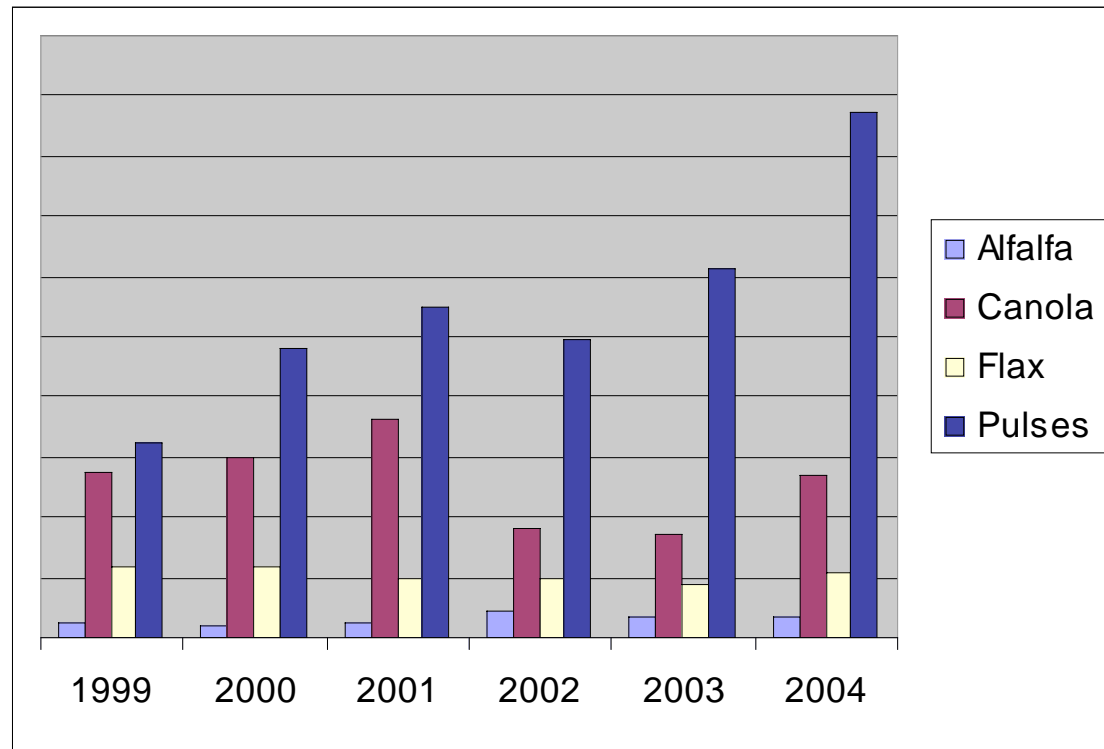
# Select Crop Levies in Saskatchewan (current)

- Alfalfa: 0.75 cents/pound
- Canola: \$0.75/tonne
- Flax: \$1.18/tonne (seed) and \$0.50/tonne (straw)
- Pulse: 1% of sales

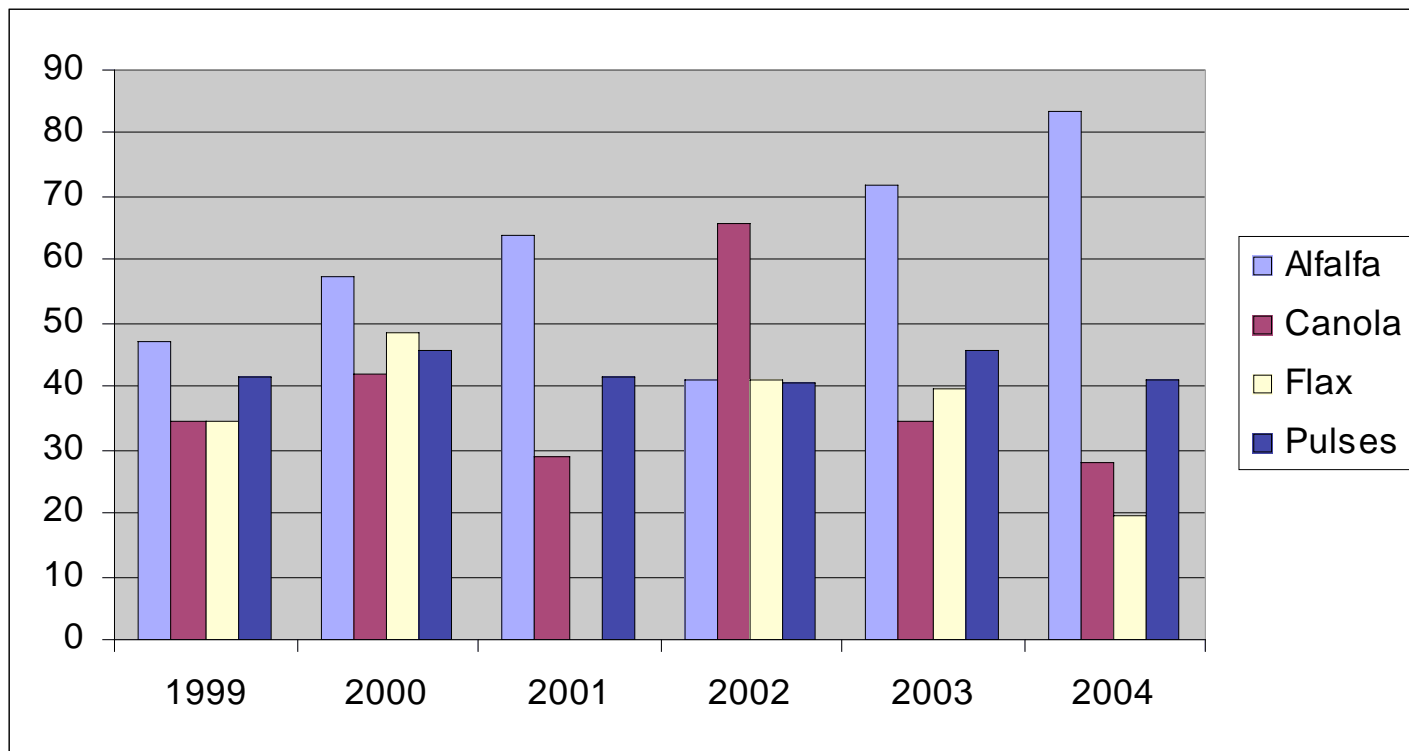
# Unit Check-off Levies (Saskatchewan)



# Levy Revenue (Saskatchewan)

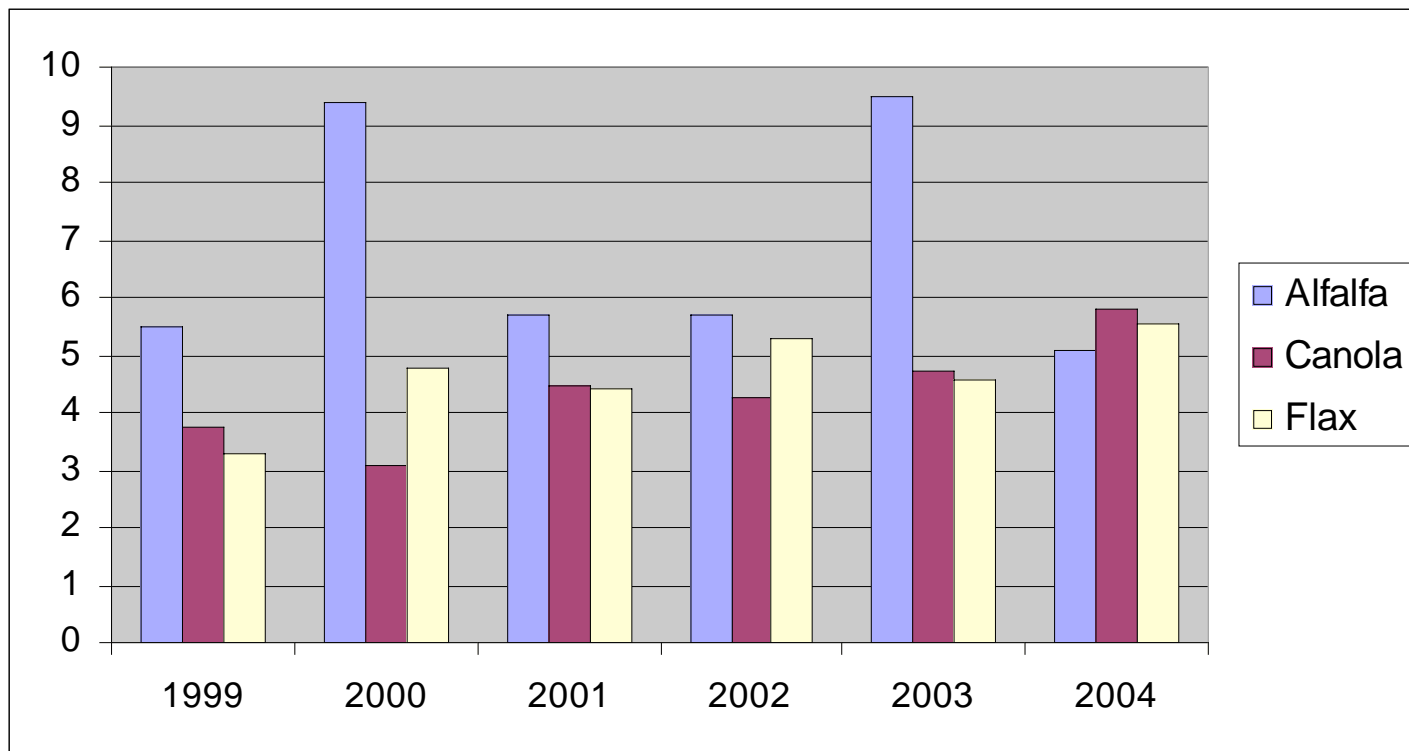


## R&D Expenditures as a % of Levy Revenue





# Refund Requests (%)



# Levy Expense as a Fraction of Unit Production Cost

## British Columbia

<b>Commodity</b>	<b>Unit</b>	<b>Expense</b>	<b>Levy</b>	<b>Percent</b>
BC Hothouse Cukes	Sq Meter	\$ 37.53	\$ 0.400	1.07%
BC Field Broccoli	Ton	\$ 560.00	\$ 3.500	0.63%
BC Raspberries	Pound	\$ 0.66	\$ 0.005	0.76%

- Levy/Cost Ratios are similar for Saskatchewan commodities

# Matching Grants

- Advancing Canadian Agriculture and Agri-Food (ACAAF) (Ag. and Agri-Food Canada) matches producer R&D funding at national and regional level
- Regional funds administered by BC's Investment Agriculture Foundation (IAF) and Saskatchewan Council for Community Development (SCCD)
- Additional matching funds are available through BC's IAF and Agri-Food Futures Fund
- Collaborative R&D opportunities are available for Saskatchewan Associations through the Ag. Development Fund

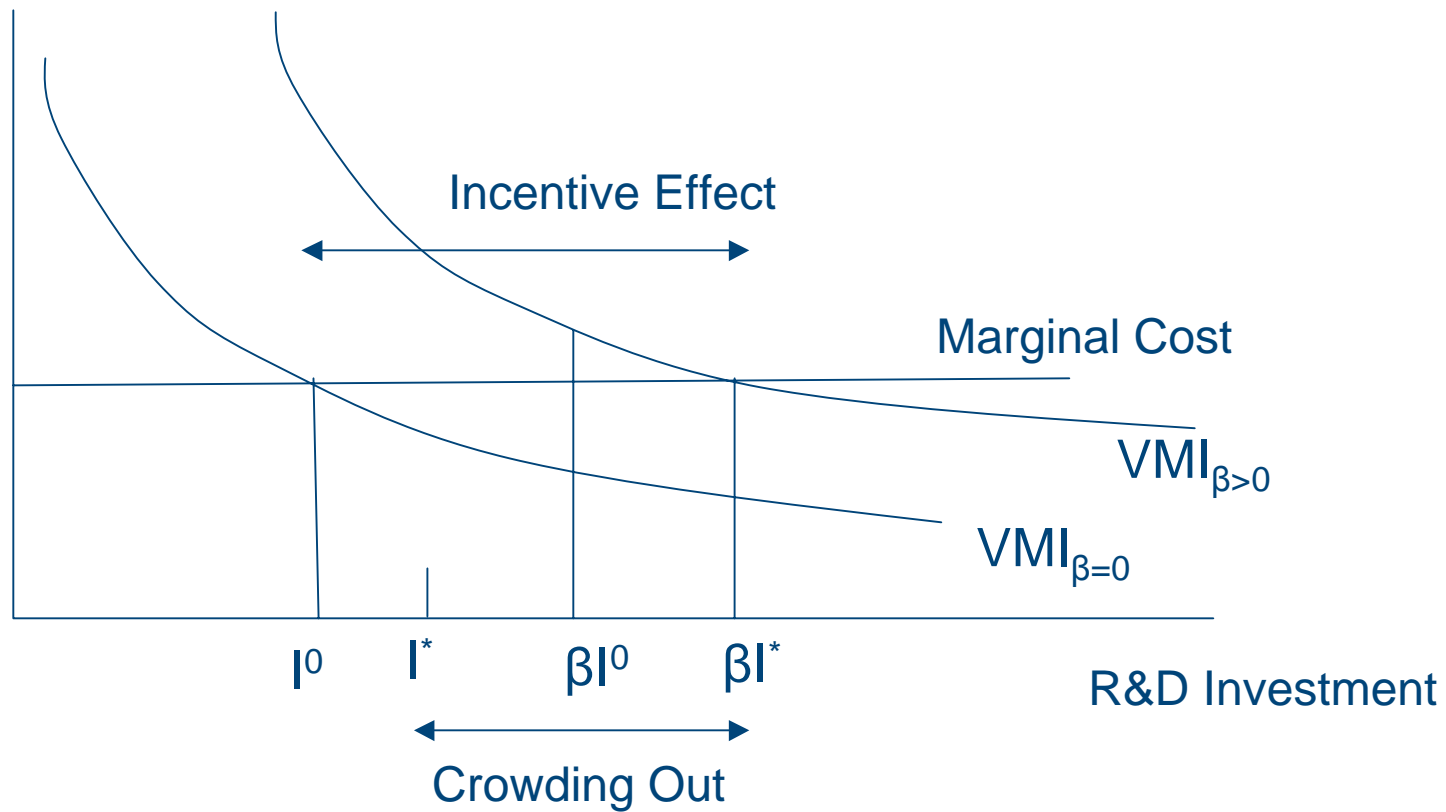
# Matching Grant Policy

- Matching grants are growing in importance as an R&D policy tool
- Independent public research projects benefit producers, but they tend to “crowd out” industry investment
- Matching grants have strong incentive properties, but they also may cause some “crowding out” of industry R&D

# Theoretical Queries

- To what extent do matching grants crowd out private R&D investment?
- Should stronger associations receive a higher level of matching grant?
- Do higher matching grants induce the creation of stronger associations?
- Are matching grants time consistent? That is, do policy makers revise grants after producer associations make key organizational decisions?

# Incentive and Crowding Out Effects



## Stronger Organizations: Larger or Smaller Matching Grants?

- Matching grant: marginal social gain equal to the marginal reduction in DWL due to free-riding
- Marginal DWL is decreasing with higher grant and is small (large) for a strong (weak) association
- Hence, optimal grant should be smaller for a stronger association

# Does Higher Matching Grant Result in Stronger Organizations?

- Producer associations should spend resources on reducing DWL due to free-riding
- Continue to reduce until marginal reduction in DWL is equal to marginal organizational cost
- The gain from reducing DWL is larger with larger matching grant
- Hence, association will expend more resources to reduce free-riding the larger the matching grant



## Is Matching Grant Time Consistent?

- Matching grant is not time consistent
- Planner will raise  $\beta$  by an additional amount to induce stronger producer associations
- Once organizational rules are set, planner has an incentive to lower  $\beta$  (commitment is difficult)
- Hence, the planner's choice of  $\beta$  is time inconsistent
- Association will anticipate a subsequent reduction in  $\beta$  and will thus build a relatively weak organization
- Outcome is inefficient due to time inconsistency
- These results are formally derived in a 3-stage game

# Conclusions

- Producer-funded R&D is highly diverse and exists within a rather complex regulatory framework
- Increasing producer-funded R&D is an appropriate policy goal for policy makers
- Matching grants are effective R&D boosters, but are still subject to crowding out losses
- Matching grants have the added benefit of inducing associations to strengthen
- Matching grants may not be time consistent; credible R&D policies must be established