Reducing airborne pollen concentrations and allergy symptoms in ragweed infested cities : A realistic operation

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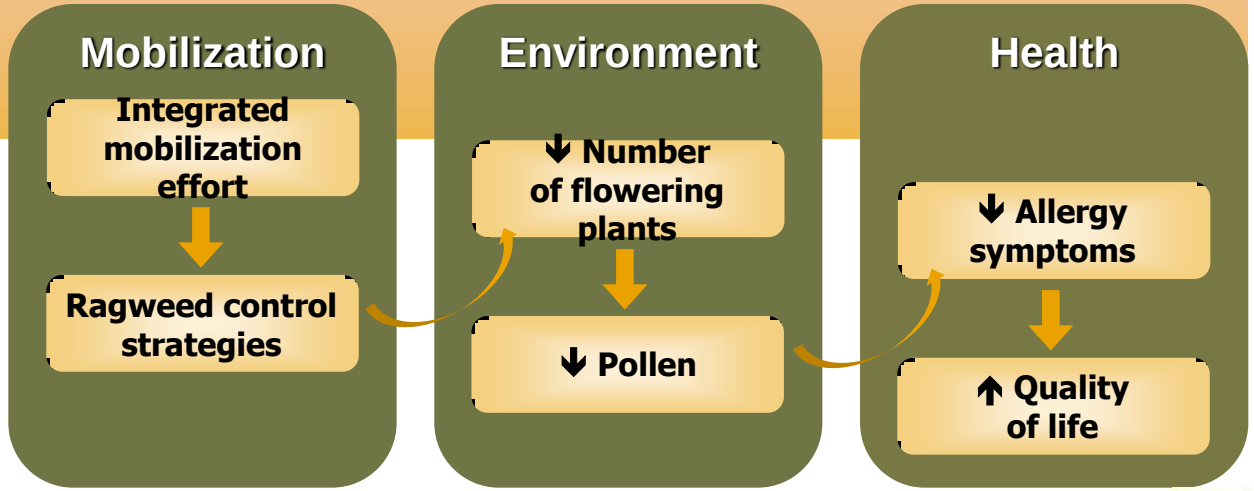
International Ragweed Society

Situation in the province of Québec, Canada

- 18% of the population suffers from allergic rhinitis in areas where ragweed (*Ambrosia artemisiifolia*) is abundant
- Efforts have been encouraged for the promotion of a collaborative action at the municipal scale
- Data regarding the impact of local ragweed control on pollen production as well as on allergic symptoms are currently missing

Hypothesis :



Intervention

- **Mobilization** : **Triennial Action Plan** (convincing all stakeholders to work together)

Methods

- **Two cities :** intervention city and control city (Southern Québec)
- **A 4-year project** : 2007, baseline (T0); 2008 to 2010 intervention (T1-T3)

Assessing the outcomes

Mobilization process : Evaluation with an historical perspective based on a framework adapted to the conditions for a successful concerted effort

Environmental : Quasi-experimental design with non-equivalent comparison groups

- Pre-intervention (T0) and post-intervention (T3) samplings in both cities :
  - **Ragweed density** : counted in quadrats in four habitats
  - **Pollen concentrations** : 15 Rotorod samplers/city measured daily during the ragweed flowering period

Health : Quasi-experimental design : time series with a non-equivalent comparison group

- **440 adults allergic** to ragweed pollen
- Nasal and ocular symptoms and quality of life (QoL) documented each year

❶ **Concertation** of local stakeholders can lead to community mobilization for ragweed control

- ❖ **416** mobilized
- ❖ **165** controlled ragweed

Most local organizations found that ragweed control to limit pollen dispersal is easy, efficient and inexpensive

❷ **Coordinated efforts** to control ragweed at the local level was sucessfull in **reducing ragweed and pollen concentration**

- ❖ **Significant reduction** in ragweed density (residential, industrial and disturbed areas)
- ❖ **Significantly lower** pollen concentrations at T3 in the intervention city compared to the control city

Mobilization and repeated mowing at specific ragweed stages had a significant effect on air quality

❸ **Symptoms and quality of life improved** in the city with **coordinated ragweed control**

46 % of participants in the experimental group experienced a clinically significant improvement of their nasal symptoms

Optimal level of ragweed control still not known: more information is needed

- Dose-response of pollen concentration vs severity of symptoms and quality of life
- Cost-effectiveness analysis

These studies are ongoing in Québec