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Data Sources and Methods for the Household Use of Chemical Pesticides and Fertilizers Indicator

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1 Introduction

The Household Use of Chemical Pesticides and Fertilizers indicator is part of the Canadian Environmental Sustainability Indicators (CESI) program, which provides data and information to track Canada's performance on key environmental sustainability issues.

2 Description and rationale of the Use of Chemical Pesticides and Fertilizers indicator

2.1 Description

The Household Use of Chemical Pesticides and Fertilizers indicator reports on the percentage of Canadian households with lawns or gardens that reported using chemical fertilizer and pesticides in 2009. The data are broken down by province, and compared to similar data collected in 2005 and 2007 for chemical fertilizers and 1994 and 2007 for pesticides.

2.2 Rationale

Chemical pesticides, including herbicides, insecticides and fungicides, enhance the appearance of lawns and gardens by eliminating pests. However, chemical pesticides can have negative effects on human and environmental health by contaminating air, water, soil and food sources. For example, in addition to killing target insects, insecticides can also harm or kill other, non-target insects, soil microbes and insect-eating birds, thus disrupting the natural balance of the lawn or garden's ecosystem.

Chemical fertilizers are added to lawns and gardens to help them grow greener and thicker. However, if fertilizer is applied improperly or in excess, soluble nutrients can pollute drainage and stormwaters, which eventually reach lakes and rivers. Run off of nutrient-laden water readily occurs in urban environments because there are many hard surfaces. In addition, water in storm sewers is frequently not treated before it reaches lakes or rivers, thus contributing to excessive growth of aquatic plants and algae.

3 Data

3.1 Data source

Data for this measure come from Statistics Canada's 1994¹, 2006², 2007³ and 2009⁴ Households and the Environment Survey (HES).

3.2 Spatial coverage

This indicator covers all Canadian provinces. The territories are not included in this indicator.

3.3 Temporal coverage

Data for 1994 as compiled in the HES 2006 report are used in this indicator. The 1994 HES was conducted as a supplement to the May 1994 Labour Force Survey.

¹ Statistics Canada (1995) Households and the Environment Survey 1994. Catalogue no. 11-526-XPB.

² Statistics Canada (2008) Households and the Environment Survey 2006. Catalogue no. 11-526-X. Retrieved 11 July 2012. Available from: <http://www.statcan.gc.ca/pub/11-526-x/11-526-x2007001-eng.htm>.

³ Statistics Canada (2009) Households and the Environment Survey 2007. Catalogue no. 11-526-X. Retrieved 11 July 2012. Available from: <http://www.statcan.gc.ca/pub/11-526-x/11-526-x2009001-eng.htm>.

⁴ Statistics Canada (2011) Households and the Environment Survey 2009. Catalogue no. 11-526-X. Retrieved 11 July 2012. Available from: <http://www.statcan.gc.ca/pub/11-526-x/11-526-x2011001-eng.htm>.

The HES 2006 was conducted as a supplement to the Labour Force Survey from February 15 to April 15, 2006.

The HES 2007 was conducted from October 2007 to December 2007, as a follow-up survey to the Canadian Community Health Survey.

The HES 2009 was conducted from October 2009 to December 2009, as a follow-up survey to the Canadian Community Health Survey.

3.4 Data completeness

A representative sample of Canadian households from each province is surveyed in the HES. The 1994 HES surveyed 38 080 households and yielded an 83.1% response rate. The HES 2006 surveyed 36 431 households and yielded a 77.8% response rate. The HES 2007 surveyed 29 980 households and yielded a 72.3% response rate. The HES 2009 surveyed 20 000 households and yielded a 73.8% response rate.

3.5 Data timeliness

The most recent data available at the time this indicator was produced were from the 2009 HES.

4 Methods

The HES 1994 data collected for this measure were based on the following question:

- In the last 12 months, did anyone, including commercial operators, apply the following chemicals to the yard, lawn or garden: pesticides or fertilizers? (Yes, No, Don't know)

The data collected for this measure from the HES 2006 were based on the following questions:

- In 2005, were any chemical fertilizers applied to your lawn/garden? (Yes, No, Don't know/Refused)
- In 2005, were any weed killers, pesticides, or fungicides applied to your lawn/garden? Include fertilizer and pesticide mixes like "Weed and Feed." (Yes, No, Don't know/Refused)

The HES 2007 data collected for this measure were based on the following questions:

- In the last 12 months, were any chemical fertilizers applied to your lawn/garden/lawn or garden? (Yes, No, Don't know/Refused)
- In the last 12 months, were any chemical pesticides such as weed killers (herbicides), bug killers (insecticides), or fungicides applied to your lawn/garden/lawn or garden? Please include fertilizer and herbicide mixes such as "Weed and Feed". (Yes, No, Don't know/Refused)

The HES 2009 data collected for this measure were based on the following questions:

- In the past 12 months, were any chemical fertilizers applied to your lawn/garden/lawn or garden? (Yes, No, Don't know/Refused)
- In the past 12 months, were any chemical pesticides such as weed killers (herbicides), bug killers (insecticides), or fungicides applied to your lawn/garden/lawn or garden? (Please include fertilizer and herbicide mixes such as "Weed and Feed".) (Yes, No, Don't know/Refused)

Household estimates in the HES are produced using weights attached to each sampled household. The weight indicates the number of households in the population represented by the sampled unit.

5 Caveats and limitations

The coverage error for the Labour Force Survey, of which the HES 1994 and HES 2006 are a sub-sample, is estimated at less than 2%. Similarly, the coverage errors of the Canadian Community Health Survey 2007, of which the HES 2007 is a sub-sample, and the Canadian Community Health Survey 2009, of which the HES 2009 is a sub-sample, are estimated at less than 2%.

Households located in the Yukon, Northwest Territories and Nunavut, households located on First Nations reserves and military bases, and households consisting entirely of full-time members of the Canadian Armed Forces are excluded from this study.

Estimates not meeting an acceptable level of quality were either flagged for caution or suppressed. Estimated data were included in the calculation of this indicator.

6 References and further reading

Statistics Canada (1995) Households and the Environment Survey 1994. Catalogue no. 11-526-XPB.

Statistics Canada (2008) Households and the Environment Survey 2006. Catalogue no. 11-526-X. Retrieved 11 July 2012. Available from: <http://www.statcan.gc.ca/pub/11-526-x/11-526-x2007001-eng.htm>.

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