

ASSESSMENT OF THE ECONOMIC AND RELATED BENEFITS OF PHENOXY HERBICIDES TO CANADA. Larry E. Hammond* 2,4-D Task Force, Carmel, IN 46033. Eric Cowan, RIAS, Inc., Toronto, ON M4E-1G3.

Over the past 60 years, three phenoxy herbicides (2,4-D, MCPA, mecoprop-p) have become one of the most widely used crop protection products in Canadian agriculture. These three herbicides accounted for two-thirds of expenditures on post-emergent broadleaf herbicides for wheat and barley in the western provinces in 2005. The study objective was to identify and quantify values/benefits that accrue to Canadians from the use of the phenoxy herbicides. It examines the overall benefits provided to producers by this group of herbicides.

If all phenoxyes were removed or withdrawn in Canada this investigation estimates the economic agricultural, industrial and domestic impact. The investigation reviewed three areas of phenoxy use, wheat and barley production, lawn and turf and industrial vegetation uses. These uses made up 85% of phenoxy sales. A fourth use, weed resistance, was investigated but no quantitative value was determined.

Wheat and Barley production:

- Current phenoxy total treatment costs for wheat and barley production in Canada equals \$170 million (2005). If phenoxyes are removed or withdrawn, additional annual costs to wheat and barley production would amount to \$224 million – an increase of 131% for replacement herbicides.
- A key finding, no currently registered replacement herbicide(s) matched the phenoxyes' efficacy. Despite increases in treatment costs, producers believe weed control would decline. Therefore, lost revenue from yield decrease and/or grain quality degradation was estimated at \$114 million per year.
- The total additional cost to the wheat and barley producers would be \$338 million per year (\$224M + \$114M). The loss of the three phenoxy herbicides would increase annual costs to Canadian wheat and barley producers by a factor of 3 times current costs.

Managing Weed Resistance:

Phenoxy herbicides have the lowest risk of fostering the development of resistance. Because of this property, they are used on their own or in combination with other herbicides as part of a sound integrated pest management (IPM) to broaden the list of weed controlled and delay the onset of weed resistance to non-phenoxy herbicides. Economic benefits from the use of phenoxyes, especially 2,4-D, for weed resistance were not determined. The economic benefit for weed resistance practice could dwarf all other uses investigated. "Phenoxy herbicides are critical for proactive and reactive broadleaf weed resistance management." Dr. Beckie, AAFC Saskatoon.

Lawn and Turf:

The value study investigation determined that there are no alternative herbicides to phenoxyes for lawn and turf. Based on hand weeding and resodding there is an 8-fold increase in annual costs from \$3.2 million to \$26 million per year. Recent work done at Université Laval in Québec demonstrated a mean premium of 7.7% increase across all landscape attributes and all values of homes.

Non-crop Industrial:

Data was limited to prepare accurate estimates of additional costs for industrial and non-crop use, however, absence of 2,4-D would be most disruptive in this market. Loss of control over broadleaf weeds and noxious species would increase at least 150% from \$7 million to \$17.5 million annually.