

DOWCO\* 290 - A NEW SELECTIVE HERBICIDE  
FOR CONTROLLING CANADA THISTLE IN RAPESEED

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LONTREL\* is the Dow Trademark for herbicide formulations containing Dowco\* 290. The chemical and the approved common name for Dowco\* 290 is 3,6-dichloropicolinic acid.

Dowco\* 290 has both a low acute oral toxicity ( $LD_{50}$  male rats 5000 mg/kg) and a low dermal toxicity ( $LD_{50}$  rabbits 2000 mg/kg). As an eye irritant it should be washed promptly from the eye on contact.

In 90 day chronic dietary studies no toxic effects in rats were seen at doses up to 150 mg/kg/day. Laboratory studies have shown that Dowco\* 290 is not mutagenic in rats or mice nor is it teratogenic in rabbit tests.

Under anticipated use and handling conditions 3,6-dichloropicolinic acid will not present any occupational health problems.

Crops tolerant to Lontrel\* herbicides include small grain cereals, maize, flax, grasses, sugar beets and members of the Brassicae such as rapeseed.

Herbicide formulations containing 3,6-dichloropicolinic acid have shown excellent post emergent activity against many broadleaf weeds including species from the following plant families: Compositae, Polygonaceae, Umbelliferae, and Leguminosae. This herbicide is absorbed by both the leaves and roots and rapidly translocated throughout the plant. Maximum response, including characteristic auxin type symptoms is obtained by treatments applied to actively growing plants.

Lontrel\* herbicides were first introduced in the U.K. in 1976 for broadleaf weed control in small grain cereals and rapeseed. In Canada, the product has been tested for several years in combination with phenoxy herbicides and has provided excellent broadleaf weed control in small grains. During the past two years Dowco\* 290, formulated as Lontrel\* 360 herbicide, has been extensively tested for Canada thistle control in rapeseed. Lontrel\* 360 herbicide contains 360 g/l (3.6 lb/gal) of 3,6-dichloropicolinic acid formulated as an alkanolamine salt.

In 1980, a series of grower trials on rapeseed were established across Western Canada. Both Polish and Argentine varieties were tested including Tower, Torch, Candle, Altex, and Regent. Applications of 0.2-0.3 kg/ha (2.8-4.2 oz/A) in 110 L water/ha (10 g/A) were applied under actual field operational conditions from the 2 leaf up to bolting or early bloom stage of the rapeseed. Tolerance to all varieties was good. Control of Canada thistle, perennial sow thistle (top growth), scentless chamomile and wild buckwheat was excellent while smartweed, tartary buckwheat, lambs' quarter and cocklebur were suppressed.

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In Alberta, in 1980, treated rapeseed plots outyielded untreated plots by an average of 55% over twelve sites (2). At eight of these sites statistically significant yield increases were realized. Each site was selected on the basis of a Canada thistle infestation and an area of 0.45 hectares (1 acre) was treated with rates of 0.2-0.3 kg/ha (2.8-4.2 oz/A). At each location, yields were taken from ten paired 1 metre square replicates (10.8 sq ft). Excellent control of Canada thistle was obtained and no regrowth was observed at harvest. Tolerance to Altex, Candle, Torch, and Tower rapeseed was good, although some leaf cupping was observed at two sites immediately following application. Occasionally with Regent rapeseed, a slight delay in flowering was observed, but this was not reflected in the yield data and likewise, small plot, weed free tolerance tests have not shown any yield differences (5).

In similar trials in 1979 an average yield increase (treated vs. untreated) of 49% was obtained over eight sites (1). At four of these locations a statistically significant yield increase over that of the check was obtained and trends to higher yields were documented at the other sites. Excellent Canada thistle control was obtained and tolerance to all rapeseed varieties was good.

Evaluations of Canada thistle regrowth were made in 1980 following application of 0.3 kg/ha (4.2 oz/A) to rapeseed in 1979. The decrease in the number of Canada thistle shoots per sq metre (shoots/10.8 sq ft) was statistically significant when the application was made to the 5 leaf stage of the rapeseed (3).

Lontrel\* 360 herbicide will pose no cropping restrictions in the year subsequent to applications at the recommended dose levels. The year following an application of 0.3 kg/ha (4.2 oz/A) sunflowers planted in the treated area did not exhibit any phytotoxic symptoms. A sunflower bioassay of the 0.3 kg/ha rate (4.2 oz/A) confirmed that at the level of sensitivity to sunflowers there was no detectable residue of 3,6-dichloropicolinic acid three months after application (4).

In summary, applications of Lontrel\* 360 herbicide at 0.2-0.3 kg/ha (2.8-4.2 oz/A) to the 4-6 leaf stage of Polish or Argentine varieties of rapeseed effectively controls Canada thistle into the year following treatment without damage to the crop.

#### References

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3. Kossatz, V.C. and O'Sullivan, P.A., 1980. Canada thistle regrowth in 1980 after application of Dowco\* 290 in rapeseed in 1979. Expert Committee on Weeds, Research Report, Western Canada. Vol. 3, Pg 68
4. Vanden Born, W.H. and Schraa, R.J., 1974. Persistence of Dowco\* 290 (M-3972) in Malmo Clay Loam Soil, University of Alberta, Not Published
5. Vanden Born, W.H. and Schraa, R.J., 1980. Tolerance of four rapeseed varieties to Dowco\* 290. Expert Committee on Weeds, Research Report, Western Canada Vol. 1, pg 177