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PRODUCT MGR. NO. _____

PRODUCT NAME(S) Hoelan 3 EC Herbicide

COMPANY NAME American Hoechst Corp.

SUBMISSION PURPOSE to evaluate efficacy data of Carbyne-
Hoelan Tank mix on wheat and barley.

CHEMICAL & FORMULATION Diclofop-methyl, 35.49% liquid
(3 lbs active/gal)

Efficacy Review

200.0 Introduction

200.1 Use: wild oat control in wheat and barley

200.2 Background: This review was undertaken to assess the efficacy of the Carbyne/Hoelon tank mixture currently registered by Velsicol.

American Hoechst contends that the tank mixture does not provide adequate control and that crop injury has been reported for the mixture by consumers. Extensive data were submitted by Velsicol. Six tests were submitted by American Hoechst, three of which were included in the data from Velsicol.

In general, the data indicate that Hoelon is superior to Carbyne. Wild oat control is better and yields are generally higher for Hoelon than for Carbyne. Hoelon would also appear to be the herbicide of choice over either Carbyne or the tank mixtures.

Velsicol states that the mixture would offer an economic advantage since Carbyne is cheaper. It is doubtful that the decreased cost of the chemicals would compensate for the lower yields or poorer weed control. Recommended rates for the tank mix are normal rates for Carbyne with $\frac{1}{3}$ - $\frac{1}{2}$ the recommended rate for Hoelon. The data do not indicate that crop injury is great. Some reports do give crop injury ratings but these effects seem to be few and do not appear to be significant. There may be an

indication of antagonism between the two chemicals. In some cases where equal rates of Hoelon were used alone and in the tank mixture, the yields from the tank mixture were lower. There were not a sufficient number of tests where this occurred to be conclusive but antagonism must be considered a possibility.

Approval of tank mixtures has generally been limited to those that can show a benefit over either chemical used alone. This does not appear to be the case with this mix.

The denial of registration of the tank mix would essentially eliminate Carbyne from the market. Carbyne cannot successfully compete against Hoelon alone. The use of the tank mix would allow Carbyne to retain at least a portion of the market (at the expense of Hoelon).

201.0 Data Summary

In direct comparisons of yields, in 37 tests Hoelon yields surpassed those for Carbyne in 26. Yields for the tank mixtures were better than the single chemicals in only 16 tests. This figure is misleading since several tests did not contain both single chemicals and in others the tank mix rates were not those registered. Comparing Hoelon alone with the tank mixes at the registered rates, the tank mixes yielded better in 10 of 32 tests. A similar

comparison of Carbyne with the tank mixes indicated that yields were increased by tank mixes in 27 of 41 tests.

There was little uniformity of effects between rates of the tank mixes. No single rate was superior throughout the tests. In some cases highest rates yielded better, in others the low or intermediate rates had the highest yields. The data submitted did not indicate that a consistent benefit could be attained by use of the tank mixtures. Based on yield, it appears that the use of Hoelon alone would be the best treatment. The addition of Hoelon to Carbyne improves yields that can be expected from Carbyne alone.

There is some indication that there may be some antagonism between the two chemicals since in some cases where Carbyne was added to Hoelon, there was a decreased yield over the same rate of Hoelon alone. This was not consistent but it does indicate the possibility of antagonism.

For wild oat control, Hoelon was definitely superior. Control was better with Hoelon alone in 49 of 57 comparisons with Carbyne alone. Hoelon gave better control than the tank mixes in 31 of 45 comparisons. Control was improved by tank mixes over Carbyne alone in 42 of 49

comparisons. Comparisons included only the registered rates. As with yield response, wild oat control was variable, but in general higher rates were more effective.

Injury ratings, where reported, did not appear to be any greater for the tank mixtures than for the single chemicals in the majority of cases. None of the ratings were sufficient to indicate an unacceptable level of phytotoxicity. Some tests (3) indicated that there was some stunting of the crop but this did not appear to show much effect on yield. In one test, early crop damage as severe tip burn was reported. Yield was not reported for this test.

202.0 Conclusions and Recommendations

Recommend that the labeling for the tank mixture of Carbyne and Hoelon be rescinded since benefit is derived for one product at the expense of the other.

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E 3/22/84

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RD (TS-767C)