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VII-4. FIELD EVALUATION: MORTALITY OF MALLARDS FEEDING IN AREAS TREATED WITH METHYL ANTHRANILATE

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INTRODUCTION

In 1992 a study was conducted to determine MA effectiveness in reducing the mortality of exposed mallards. The mortality of ducks continuously exposed to WP-contaminated sediment in a treated MA and control pen was equal at 24 hours but increased in the control pen through the conclusion of the test. Subsequently mallard mortality was reduced 60% in the MA-treated pen. However, modification in the MA bead formulation and replicated testing were needed.

The purpose of this test was to determine the mortality of mallards feeding in pens treated with a modified MA formulation, JR930725.

METHODS

In 1992, test pens 7 x 20 m were constructed in Area C of ERF. Sediment samples taken from the test pens indicated varying degrees of WP contamination; however, contamination levels were all high enough to cause mortality to feeding waterfowl if ingested. In 1993 five samples from each pen were collected to verify that WP contamination still existed before conducting further tests.

Mallards were captured and cared for following procedures in previous studies (Clark et al. 1993). Mallard mortality was determined both in June with MA formulation JR930413 (15%) and in August with JR930725 (46%). In June, 1993, three pens were randomly selected to have the substrate treated, and the remaining three pens were used as controls. In August the same pens were treated or used as controls. Supplemental food on a floating platform was placed in each pen. Food was replaced every other day or before if needed. Prior to the introduction of mallards into pens, each pen was treated with MA formulation

JR930413 or JR930725 at a rate of 21.7 kg/ha. Six mallards grouped by weight were placed in each pen following treatment. Ducks were checked every 2 or 3 hours between 0600 and 1800 within the first 48 hours. Dead ducks were recorded, collected and frozen for residue analysis. Following this period, ducks were checked at 0600 and 1600 each day until the conclusion of the test, 144–196 hours post-treatment.

RESULTS AND DISCUSSION

The mortality of ducks continuously exposed to WP-contaminated sediment was 60% lower in pens treated with MA JR930725 than in pens treated with JR930413 within 24 hours post-treatment (Fig. VII-4-1). In JR930725-treated pens, feeding activity was also reduced where consumption of supplemental food increased. The results were similar to laboratory trials; immediately following the treatment, duck activity between the treated and control areas was not significant. However, the MA formulation JR930725 caused sufficient avoidance of the treated pen to reduce the overall mortality by 50%. Indications are that ducks encountering the MA initially responded positively on subsequent treatment days. Also, MA formulation JR930725 indicates that there were residual effects because ducks exhibited some learned avoidance behavior following the treatment.

Ducks were restricted to feeding in confined areas: 7 × 20 m pens. Since pens were highly contaminated and duck movements and feeding were restricted, it placed ducks at an abnormally higher risk, suggesting that MA would actually perform better in an open field situation. Thus, we anticipate that the relative risk of poisoning in MA-treated areas would decrease if the ducks were allowed to leave the area. During August and September, telemetry data indicated that turnover of waterfowl using ERF was low. Therefore, each duck had a higher risk of encountering WP. But if MA exposure translates to learned avoidance, then the low turnover should equivocate to overall lower mortality.

LITERATURE CITED

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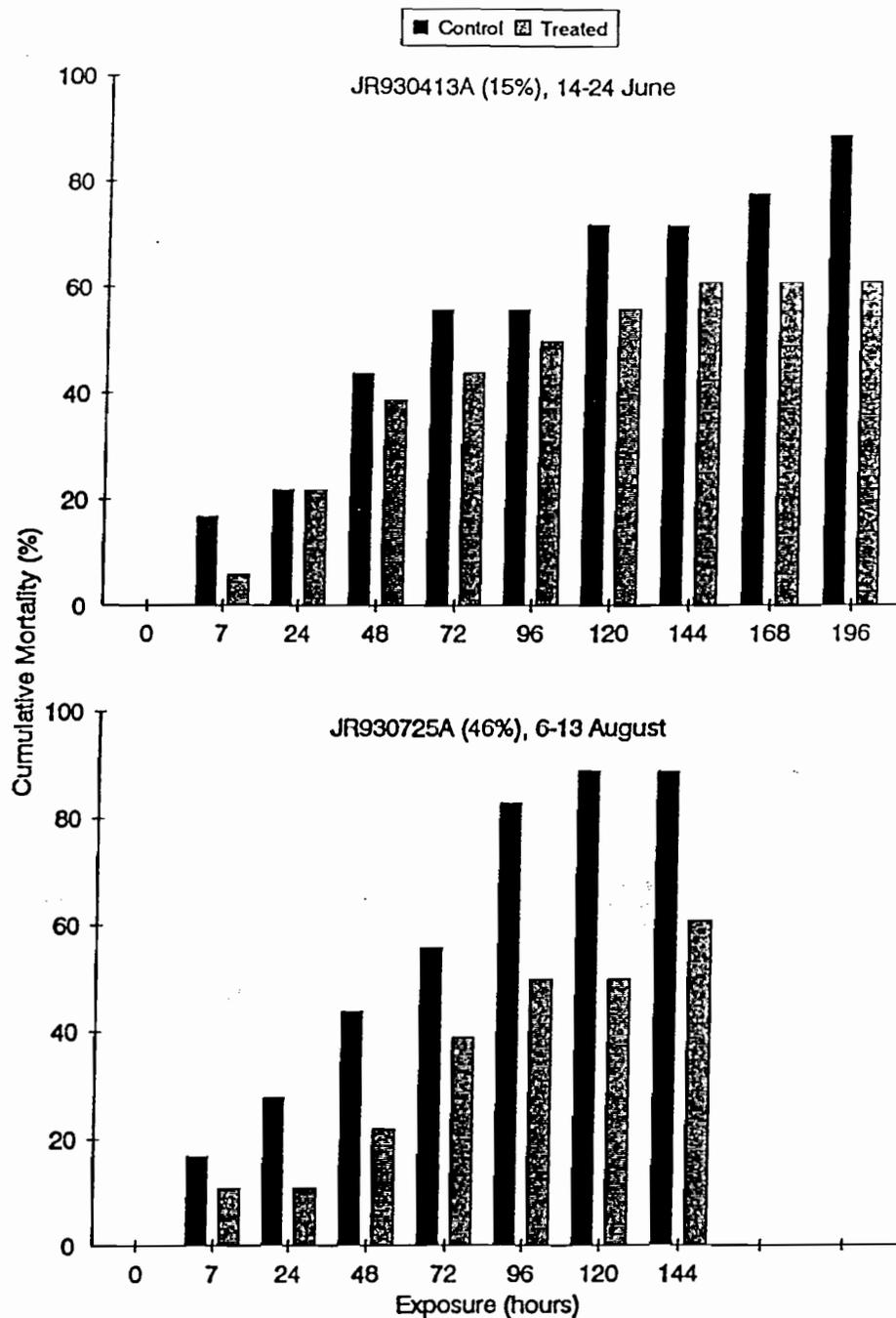


Figure VII-4-1. Methyl anthranilate mortality test (six mallards per treatment, three replications) of two formulations applied at 21.7 kg/ha, 14-24 June and 6-13 August 1993, Eagle River Flats.

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