# Evaluation of Herbicides for the Control of Littleseed Canarygrass in Wheat – 2004

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### *Abstract*

*Four herbicides and combinations of these herbicides with MCPA were evaluated for the control of Littleseed canarygrass in durum wheat. The currently registered herbicides, Achieve and Puma (not registered in Arizona) produced control levels of 80 to 95 percent with good crop safety. The new herbicides being developed, Osprey and Olympus produced higher and more consistent levels of control of 95 to 99 percent but caused slight to moderate crop injury. Combinations of Achieve and Puma with MCPA, a broadleaf herbicide, resulted in decreased control. When Osprey was tank mixed with MCPA, crop injury was increased.*

## Introduction

Littleseed canarygrass (Phalaris minor) is the most widespread and harmful grass weed in grain grown in the low deserts of Arizona. The distribution and infestation levels of this weed can be tied directly to the herbicides available to control it. Prior to the mid 1980's Carbyne (barban) a carbamate, was the primary herbicide used in Arizona to control grassy weeds. This herbicide was effective on canarygrass but occasionally caused serious crop injury. It was no longer manufactured after about 1990. Hoelon (Diclofop) was registered in the late 1980's and was the standard for grassy weed control for the next ten years. Hoelon produces moderate and inconsistent control of canarygrass and this weed proliferated during that period. Hoelon is a Lipid biosynthesis inhibitor similar to other grass specific herbicides such as Poast, Fusilade, and Select, which were introduced in mid 1980's. Another lipid biosynthesis inhibitor, Achieve, was registered in 1999 in Arizona. Achieve has produced good control of canarygrass and has replaced Hoelon as the standard herbicide used for the control of grass weeds in wheat grown in Arizona. A third class of herbicides, the sulfonylureas, are being developed for the control of grasses in wheat. Two of these herbicides have been in our tests in recent years. These are Olympus (formerly MKH6561) and Osprey (formerly F130060). Both of these herbicides have produced superior and more consistent control of canarygrass. The registration of Osprey in Arizona is expected within the next couple of years. A trial was conducted this season to evaluate this and other herbicides to help establish use rates and tank mix options.

## Procedure

A test was conducted to evaluate Achieve, Puma, Osprey and combinations of these four with MCPA for canarygrass control in wheat. The standard use rate of each of these herbicides was used for a total of 8 treatments and an untreated check. The test was conducted in Tacna, AZ. approximately 45 miles east of Yuma. The soil type at this location was a silty loam. The treatments were applied on 2-11-04 when durum wheat was 5-6 leaf and the canarygrass was 1-3 leaf. A $CO^2$ backpack sprayer was used and

calibrated to apply 20 gallons per acre. Plot size was 14ft by 25ft. replicated three times in a complete block design. Visual evaluations of weed control and crop injury were made on 4-23-04.

## Results

The results of this test appear in table 1. Both Osprey and Olympus produced excellent and consistent levels of canarygrass control. Achieve and Puma also produced very good to excellent levels of control. An average of 10% phytotoxicity was observed from both Osprey and Olympus. This was in the form of stunting and delayed maturity.

MCPA is a growth regulator used to control broadleaf weeds in wheat. It has a similar mode of action to 2,4-D and dicambia. When Achieve and Puma were tank mixed with MCPA, significant reductions in canarygrass occurred. MCPA mixed with Osprey did not reduce weed control but resulted in increased crop injury in the form of delayed maturity and stunting.

## Conclusions

Achieve was registered in Arizona in 1999 and has been used successfully by Arizona growers to keep Littleseed canarygrass in check. Control has ranged from 80 to 95 percent in most cases. Osprey is being developed for use on wheat in Arizona and is expected to be registered within the next 2 or 3 years. Weed control with this herbicide has been superior and more consistent than either Achieve or Puma. Puma is registered in California but not Arizona. Crop injury, especially when mixed with a growth regulator to control broadleaf weeds, may be a cause of concern with Osprey.

## Acknowledgements

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**Table 1. Evaluation of 8 herbicide treatments for the control of littleseed canarygrass in durum wheat.**

| Herbicide | Rate (A) | Adjuvant(s) | Rate (A) | Phytotoxicity%* | Control%* |
|---|---|---|---|---|---|
| Achieve | 9.2 oz. | Supercharge + Conditioner | 0.5% + 1.8 oz. | 0 | 92 a |
| Puma | 0.6 pt. | -- | -- | 0 | 83 a |
| Osprey | 4.8 oz. | Destiny + UAN | 1.3 pt. + 4 pts. | 10 | 96 a |
| Olympus | 0.9 oz. | Destiny + UAN | 1.3 pt. + 4 pts. | 10 | 96 a |
| Achieve + MCPA 4E | 9.2 oz. + 2 pts. | Supercharge + Conditioner | 0.5% + 1.8 oz. | 0 | 78 a |
| Puma + MCPA 4E | 0.6 pt. + 2 pts. | -- | -- | 0 | 47 b |
| Osprey + MCPA 4E | 4.8 oz + 2 pts. | Destiny + UAN | 1.3 pt. + 4 pts. | 17 | 93 a |
| Olympus + MCPA 4E | 0.9 oz. + 2 pts. | Destiny + UAN | 1.3 pt. + 4 pts. | 0 | 95 a |
| Untreated | -- | -- | -- | -- | -- c |

LSD (0.05) = 16.400

*Average of 3 replications