

Evaluating The Affect Of Reduced 2,4-DB Rates On Forage Yield And Weed Efficacy

Purpose:

There is a belief that current labeled rates of 2,4-DB when applied to new seedling alfalfa stands are too injurious and that reducing the rate by half, although won't control weeds as well, will be safer to the crop. Field experiments were initiated in 2008 and 2009 to examine the affect of 2,4-DB rate on forage yield and weed control.

Methods:

Three rates of 2,4-DB were applied to direct seeded alfalfa that was between the 1st and 3rd trifoliolate stage of development. Crop tolerance, weed efficacy and forage yield data were collected.

Results:

Table 1. Alfalfa injury (%), yield (% of highest yield) and weed control associated with 3 different rates of 2,4-DB applied to 1-2 trifoliolate alfalfa at Elora, ON in 2009

2,4-DB Rate/acre	Alfalfa Injury (%)	Forage Yield (% of highest yield)	Weed Control (%)
0 mL/ac	0	48	0
450 mL/ac	7	61	85
900 mL/ac	4	100	90
1800 mL/ac	5	92	94

Notes:

Broadleaf Weed Density: 60 plants/m²; Broadleaf Weed Stage at Application: Ranged from cotyledon to 8-leaf stage; Alfalfa Stage at Application: 1-2 trifoliolate stage; Temperature at Application: 21 °C; Relative Humidity at Application: 64%

Table 2. Alfalfa injury (%), yield (% of highest yield) and weed control associated with 3 different rates of 2,4-DB applied to 1-2 trifoliolate alfalfa at Elora, ON in 2008

2,4-DB Rate/acre	Alfalfa Injury (%)	Forage Yield (% of highest yield)	Weed Control (%)
0 mL/ac	0	82	0
450 mL/ac	3	100	52
900 mL/ac	15	94	52
1800 mL/ac	22	94	82

Notes:

Broadleaf Weed Density: 35 plants/m²; Broadleaf Weed Stage at Application: Ranged from the 4 to 10-leaf stage; Alfalfa Stage at Application: 2-3 trifoliolate stage; Temperature at Application: 27 °C; Relative Humidity at Application: 69%

Summary:

During the two years of this field study, the practice of applying reduced rates of 2,4D-B for the control of broadleaf weeds in seedling alfalfa resulted in a higher risk of decreased weed control and reduced forage yields due to increased competition from weeds. The labeled rate of 2,4-DB (900 mL/ac) provided the highest numeric forage yields although not statistically different from alfalfa yields treated with the 450 mL/ac and 1800 mL/ac rate of 2,4-DB. Although in 2008 the 450 mL/ac rate of 2,4-DB caused significantly less crop injury than the higher rates of 2,4-DB, it did result in significantly higher forage yields.

Next Steps:

To evaluate the impact on alfalfa crop injury and yield when applying MCPA with 2,4-DB to control mustard species compared to 2,4-DB alone as well as newer active ingredients that appear to have promise.

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Location of Project Final Report:

www.ontarioforagecouncil.com