

## **Phytotoxicity of ethofumesate on couchgrass**

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### **Introduction**

Chemical control of *Poa annua* in couchgrass (*Cynodon dactylon* and hybrids) is quite simple, using products such as the sulfonylureas or older products such as triazines or pronamide. Similarly, control of *Poa* in perennial ryegrass (*Lolium perenne*) is reasonably straightforward, based on ethofumesate as a pre-emergent and early post-emergent herbicide, or other chemicals such as bispyribac, pendimethalin or more recent chemicals such as mesotrione or amicarbazone.

Problems arise, however, when attempting to control *Poa annua* in couchgrass oversown for the winter with perennial ryegrass. New herbicides such as methiozolin and amicarbazone might provide a future solution (Perry, 2011), but at present the herbicide selection seems limited to ethofumesate. Bispyribac would appear to be useful and is labelled for this task in the US, but has potential problems with injury to ryegrass and lack of winter activity (McElroy et al, 2011). Ethofumesate, too, can injure couchgrass. When this herbicide was first released in the 1970s it was labelled as safe to use on couch (and nearly all other turf species) for *Poa* control, but couch was removed from the label in the 1980s due to phytotoxicity problems. The phytotoxicity was variety, time and rate dependant, and appeared limited to an early onset of dormancy when applied in the autumn or a delay in spring green-up when applied in the spring. In addition, repeated summer applications were found to suppress couchgrass growth, which has been exploited as a means of controlling couch encroachment into ryegrass and bentgrass surfaces (Johnson, undated).

With the more widespread practice of oversowing couchgrass football fields with perennial ryegrass, *Poa annua* invasion is becoming a more obvious problem. *Poa* is undesirable due to its thatchiness, poor root depth, pale colour and rampant seedhead production. It is particularly unsightly in dark ryegrass cultivars. In some cases, ground managers have considered not oversowing in some winters, to maintain pure couch and allow effective *Poa* control. This is not ideal, however, as the playing quality, visual quality and groundcover retention of a pure couch football field is greatly inferior to one oversown with ryegrass (Ford & Hull, 2014). Unfortunately, the use of pre-emergent herbicides to prevent autumn *Poa* germination can damage perennial ryegrass establishment unless the herbicide has been applied many weeks prior to oversowing, and this hasn't proved an acceptable solution.

So until better herbicides for this task reach the market, ethofumesate appears the best bet if turf managers are legally able to use it (i.e. off-label). But there is still the problem of how much damage it might do to the couchgrass. A trial was initiated at the PGG Wrightson research farm at Leigh Creek, near Ballarat, during 2014 to test the phytotoxicity of various rates of ethofumesate on four couchgrass cultivars.

Trial work: Well established plots of four couchgrass cultivars (Santa Ana hybrid couch and the seeded cultivars SWI1070, SWI1057 and PSG-9BAN) were treated on 16<sup>th</sup> April with 1 metre wide strips of ethofumesate at rates of 0.43, 0.85 and 1.7 kg ai/ha (0.85, 1.7 and 2.55 L/ha of a 500EC product). Treatments were applied with a pedestrian boom spray in a water volume of 450 L/ha, without surfactant. Untreated strips were left between the treated strips as controls. All four couchgrass cultivars were green at the time of application, although their activity had slowed and they were in the early stage of dormancy. Herbicide treatments were repeated after 27 days (13<sup>th</sup> May). The plots were observed for visible phytotoxicity through the autumn, winter and into spring.

**Results:** By late May, two weeks after the second herbicide application, the medium and high rates of ethofumesate had caused a barely discernible discolouration of the couchgrass. By this time all plots, treated and untreated, were rapidly losing colour with the onset of winter dormancy. From mid-June and through the winter, and at spring green-up in October there was no visible difference between the treated and untreated plots. The photos over the page were taken on 23<sup>rd</sup> October and show the couch appearance on the low, medium and high herbicide rates on each cultivar.

**Conclusion:** Although there might still be unusual susceptibility of some couchgrass cultivars not used in this trial, the four cultivars treated here had minimal phytotoxicity from the chemical, even at relatively high rates. It is well known that perennial ryegrass is highly tolerant to ethofumesate, so until better herbicides come onto the market for this task (Poa control in couchgrass oversown with perennial ryegrass), turf managers who are legally able to use this chemical can be confident that couchgrass will not be unduly damaged by ethofumesate.

## References:

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PSG-9BAN

0.85 L/ha

1.7 L/ha

2.55 L/ha



SWI1070

0.85 L/ha

1.7 L/ha

2.55 L/ha



SWI1057

0.85 L/ha

1.7 L/ha

2.55 L/ha



Santa Ana

0.85 L/ha

1.7 L/ha

2.55 L/ha