

## Evaluation of Pyroxasulfone in Cool-Season Vegetables on the Central Coast.

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Pyroxasulfone (Zidua) was evaluated in green bunching and bulb onion, as well as celery during 2015 at Salinas, CA. Green bunching onion 'White Spear' and bulb onion 'Wala Wala' were direct-seeded February 23, 2015. Celery 'White Spear' was transplanted May 12, 2015. **Green onion** treatments were: Zidua at 0.5, 1.0 and 2.0 oz. ai/A PRE and DCPA (Dacthal) at 8 pts/A PRE and split treatments of Zidua PRE followed by (fb) POST were: 0.5 fb 0.5 and 1.0 fb 1.0 oz. ai/A. **Bulb onion** treatments were: Zidua at 2.0 and 3.0 oz. ai/A PRE, and POST on 1<sup>st</sup> leaf, 2-3 leaf and 4-6 leaf stage; and Dacthal PRE at 8 pts fb bromoxynil (Buctril) at 1.5 pts/A + oxyfluorfen (GoalTender) at 0.5 pts POST on 2-3 leaf onion. Zidua was applied as a split treatment on bulb onion at 1.5 fb 1.5 oz. ai/A POST on 2-3 fb 4-6 leaf stage. **Celery** treatments were: Zidua at 2.0 and 3.0 oz. ai/A, 1-day, 2 weeks and 4 weeks POST and prometryn (Caparol 4F) at 3.2 pt./A, 2-weeks POST. Zidua was also applied at 2.0 fb 2.0 oz. ai/A, at 1-day fb 2-weeks POST, and at 2-weeks fb 4-weeks POST. Treatments were spray applied at 40 GPA using a single nozzle CO<sub>2</sub> backpack sprayer. Treatments were replicated four times and arranged in a randomized complete block design. Data collected were weed densities, crop injury estimates, 0 = safe, 10 = dead, crop height and yield. Green onion was harvested May 19, 2015 and celery was harvested August 12, 2015. Bulb onions were harvested August 20, 2015 and field cured for a week. The onions were graded: prepack (<2¼" diameter), medium (2¼-3"), jumbo (3-3¾"), colossal (3¾-4¼"), super colossal (>4¼") and culls. Data were subjected to analysis of variance, and mean separation was performed using LSD's (P=0.05).

**Green onion results.** None of the Zidua treatments controlled bur clover but did control purslane and hairy nightshade. Zidua at 0.5 oz. ai/A PRE is safe on green onion; causing only minor injury and no significant yield loss. Zidua at 0.5 fb 0.5 oz. ai/A PRE fb POST was safe on green onion; having caused slight injury which the crop outgrew and there was no significant yield loss. All other Zidua treatments caused moderate to severe injury and yield loss.

**Bulb onion results.** Primary weeds were bur clover (*Medicago polymorpha*) and hairy nightshade (*Solanum physalifolium*). Zidua PRE and 1<sup>st</sup> leaf POST provided the best weed control. Zidua POST at the 4-6 leaf onion stage provided poor weed control. However, Zidua POST applications to 4-6 leaf bulb onions were the only Zidua treatments that were safe to onion. All other Zidua treatments caused moderate to severe leaf stunting, twisting and distortion. The discussion on yield will focus on the super colossal grade which we assume is the most sensitive to herbicide injury. All Zidua treatments produced super colossal bulb weights and individual bulb weights equal to the Dacthal PRE fb GoalTender + Buctril POST treatment or the nontreated. Zidua at 3 oz./A appears to be too injurious to onion at the early growth stages. Consider use of lower rates of Zidua such as 1 to 1.5 oz. Onion tolerates Zidua best at late growth stages e.g. 4-6 leaf POST, but the weeds are too large to wait this late. Sequential applications of a PRE or early POST material fb Zidua at the 4-6 leaf stage should be considered.

**Celery results.** Weeds present were burning nettle (*Urtica urens*) common purslane (*Portulaca oleracea*), little mallow (*Malva parvaflora*), and shepherd's-purse (*Capsella bursa-pastoris*). All

Zidua treatments partially controlled burning nettle; however, Caparol provided excellent control of burning nettle. Zidua at 2.0 and 3.0 oz. ai/A 1 day POST and 2.0 fb 2.0 oz. ai/A 1 day POST fb 2 weeks POST controlled purslane at levels similar to Caparol. Zidua applied 4 weeks POST did not control purslane. Zidua applied at 2.0 fb 2.0 oz. ai/A at 1 day fb 2 weeks POST and Caparol reduced mallow compared to the nontreated. Zidua applied at 2.0 and 3.0 oz. ai/A 1 day POST and at 2.0 fb 2.0 oz. ai/A at 1 day fb 2 weeks POST caused minor injury to celery that it later outgrew. All other Zidua treatments were safe on transplanted celery, and all Zidua treatments produced celery yields similar to Caparol.