

Evaluation of Zidua in Celery and Onion

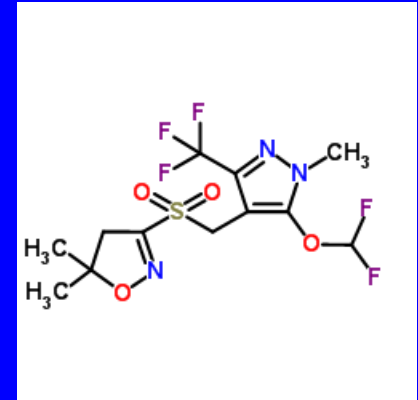
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Zidua herbicide

❖ Pyroxasulfone



- ❖ Very long fatty acid inhibitor (group 15)
- ❖ Kumiai Chemical is evaluating in vegetables together with IR-4
- ❖ Not volatile, soil persistence similar to Dual Magnum

Zidua environmental fate

Adsorption/desorption soil	Koc 57-114 moderate
Soil dissipation	16-26 day half life
Aquatic dissipation	<1 day in water
Hydrolysis	stable
Photolysis	minimal

Zidua tests - 2015

- ❖ **Green onion**
- ❖ **Bulb onion**
- ❖ **Celery**
- ❖ **Garlic (planned)**
- ❖ **Strawberry (planned)**

Zidua - celery

- ❖ **May to June 2015**
- ❖ **Zidua rates 2 & 3 oz ai/A**
- ❖ **Applied post transplant**
 - ❖ **1 day**
 - ❖ **2 weeks**
 - ❖ **4 weeks**
- ❖ **Replicated 4 X**
- ❖ **Caparol 3.2 pints/A 2 w post transplant - standard**

Zidua evaluation in celery – % weed control

Herbicide	Rate/A	Time	Nettle	Purslane
Zidua	2 oz	1 day	63 bc	87 bcde
Zidua	3 oz	1 day	74 c	89 cde
Zidua	2 oz	2 weeks	45 b	57 bc
Zidua	3 oz	2 weeks	41 b	50 b
Caparol	3.2 pts	2 weeks	98 d	100 e
Control	0	NA	0 a	0 a

Zidua evaluation in celery – % injury, height

Herbicide	Rate/A	Time	Injury %	Height in.
Zidua	2 oz	1 day	14 abc	21.4 a
Zidua	3 oz	1 day	19 ab	20.5 a
Zidua	2 oz	2 weeks	3 cde	21.0 a
Zidua	3 oz	2 weeks	11 abcde	21.1 a
Caparol	3.2 pts	2 weeks	1 de	21.4 a
Control	0	--	0 e	20.4 a

Zidua evaluation in celery – marketable yield per acre

Herbicide	Rate/A	Time	1,000 stalks/A	1,000 Lbs./A
Zidua	2 oz	1 day	23.5 a	64.7 a
Zidua	3 oz	1 day	22.2 a	54.0 a
Zidua	2 oz	2 weeks	21.5 a	56.0 a
Zidua	3 oz	2 weeks	21.9 a	54.3 a
Caparol	3.2 pts	2 weeks	22.2 a	55.2 a
Control	0	--	18.0 a	46.8 a

Celery summary

- ❖ **Control of nettle and purslane with Zidua were less than Caparol**
- ❖ **Zidua injury to celery was marginal at one day after transplanting but did not reduce yields**
- ❖ **Zidua applied 2 weeks after transplanting caused less injury than at 1 day but provided less weed control**

Zidua – green onion

- ❖ February 23 to May 19, 2015
- ❖ Zidua rates 0.5, 1 & 2 oz ai/A
- ❖ Applied post transplant
 - ❖ Preemergence (PRE)
 - ❖ PRE + 4-6 leaf
- ❖ Replicated 4 X
- ❖ Dacthal 8 pints/A PRE- standard

Zidua evaluation in green onion – % weed control

Herbicide	Rate/A	Time	Purslane	Total
Zidua	0.5 oz	PRE	93 b	73 bc
Zidua	1 oz	PRE	100 b	85 c
Zidua	2 oz	PRE	98 b	81 bc
Zidua	15 fb 15 oz	PRE fb 4 lf	96 b	67 b
Zidua	30 fb 30 oz	PRE fb 4 lf	96 b	80 bc
Dacthal	8 pts	PRE	100 b	80 bc
Control	0	NA	0 a	0 a

Zidua evaluation in green onion – injury & height

Herbicide	Rate/A	Time	Injury %	Height (in)
Zidua	0.5 oz	PRE	16 b	11.7 a
Zidua	1 oz	PRE	44 a	11.6 ab
Zidua	2 oz	PRE	56 a	8.1 bc
Zidua	0.5 fb 0.5 oz	PRE fb 4 lf	15 b	12.0 a
Zidua	1 fb 1 oz	PRE fb 4 lf	60 a	7.8 c
Dacthal	8 pts	PRE	15 b	12.6 a
Control	0	NA	0 b	12.6 a

Zidua evaluation in green onion – yield

Herbicide	Rate/A	Time	Number 1,000/A	1,000 Lbs/A
Zidua	0.5 oz	PRE	1054 a	12.3 a
Zidua	1 oz	PRE	906 a	7.3 ab
Zidua	2 oz	PRE	876 a	5.9 b
Zidua	0.5 fb 0.5 oz	PRE fb 4 lf	932 a	12.0 a
Zidua	1 fb 1 oz	PRE fb 4 lf	836 a	5.6 b
Dacthal	8 pts	PRE	841 a	12.8 a
Control	0	NA	928 a	11.8 a

Zidua green onion trial

Zidua



Dacthal



Green onion summary

- ❖ Zidua provided good control of purslane at 0.5 oz/a PRE
- ❖ Zidua PRE was safe at 0.5 oz/A
- ❖ Zidua PRE at 2 oz/A reduced onion yield

Zidua – bulb onion

- ❖ February 23 to August, 2015
- ❖ Zidua rates 0.5, 1 & 2 oz ai/A
- ❖ Applied post transplant
 - ❖ Preemergence (PRE)
 - ❖ PRE + 4-6 leaf
- ❖ Replicated 4 X
- ❖ Dacthal 8 pts/A PRE, GoalTender & Buctril POST
0.5+1.5 pts/A- standard

Zidua evaluation in bulb onion – % weed control

Herbicide	Rate/A	Time	Clover	Total
Zidua	2 oz	PRE	10 abc	69 c
Zidua	3 oz	PRE	62 de	80 c
Zidua	2 oz	2-3 lf	5 ab	9 ab
Zidua	3 oz	2-3 lf	38 bcde	45 abc
Zidua	1.5 fb 1.5 oz	2-3 fb 4-6 lf	71 e	56 c
Dacthal	8 pts	PRE	57 de	83 c
GoalTend	0.5 pts	2-3 lf		
Buctril	1.5 pts	2-3 lf		
Control	0	NA	0 ab	0 e

Zidua evaluation in bulb onion – injury and height

Herbicide	Rate/A	Time	Injury %	Height (in)
Zidua	2 oz	PRE	7.0 ab	13.6 b
Zidua	3 oz	PRE	9.0 a	8.6 c
Zidua	2 oz	2-3 lf	2.5 cd	17.1 ab
Zidua	3 oz	2-3 lf	5.6 bc	15.1 ab
Zidua	1.5 fb 1.5 oz	2-3 fb 4-6 lf	2.5 cd	18.6 a
Dacthal	8 pts	PRE	0.3 d	18.9 a
GoalTend	0.5 pts	2-3 lf		
Buctril	1.5 pts	2-3 lf		
Control	0	NA	0.0 d	17.9 a

Zidua evaluation in bulb onion – total yield

Herbicide	Rate/A	Time	No. 1,000/A	1,000 lb/A
Zidua	2 oz	PRE	26 ef	33 ef
Zidua	3 oz	PRE	17 f	21f
Zidua	2 oz	2-3 lf	47 abc	60 abc
Zidua	3 oz	2-3 lf	36 de	46 cde
Zidua	1.5 fb 1.5 oz	2-3 fb 4-6 lf	43 bcd	51 abcd
Dacthal	8 pts	PRE	46 abcd	60 abc
GoalTender	0.5 pts	2-3 lf		
Buctril	1.5 pts	2-3 lf		
Control	0	NA	56 a	66 a

Bulb onion summary

- ❖ Zidua must be applied after emergence at rates 2 oz or less
- ❖ Probably the best way to use Zidua is as a sequential treatment following Dacthal

Satellite – transplanted lettuce

- ❖ Two trials in 2015
- ❖ Satellite (pendimethalin) rates 1.5, 2.1 & 4.2 pints/A
- ❖ Applied PRE and POST transplant
- ❖ Replicated 4 X
- ❖ Balan 2 lbs product/A PRE standard
- ❖ Prefar 5 qts/A PRE and POST standard

Satellite evaluation in transplanted lettuce— % weed control

Herbicide	Rate/A	Time	Nettle	Purslane
Balan	2 lb prod	PRE	50 a	78 a
Satellite	1.5 pts	PRE	62 a	75 a
Satellite	2.1 pts	PRE	59 a	83 a
Satellite	4.2 pts	PRE	55 a	82 a
Prefar	5 qts	PRE	63 a	80 a
Control	0	NA	0 b	0 b

Satellite evaluation in transplanted lettuce– crop injury 10 DAT

Herbicide	Rate/A	Time	Trial 1	Trial 2
Balan	2 lb prod	PRE	0.0 d	0.3 bcd
Satellite	1.5 pts	PRE	0.0 d	0.1 cd
Satellite	2.1 pts	PRE	0.0 d	0.0 d
Satellite	4.2 pts	PRE	0.1 d	0.0 d
Prefar	5 qts	PRE	0.0 d	0.4 bcd
Control	0	NA	0.0 d	0.0 d

Satellite evaluation in transplanted lettuce– marketable yield 1,000 lbs/A

Herbicide	Rate/A	Time	Trial 1	Trial 2
Balan	2 lb prod	PRE	33.9 a	28.4 a
Satellite	1.5 pts	PRE	32.5 a	20.7 a
Satellite	2.1 pts	PRE	35.4 a	25.9 a
Satellite	4.2 pts	PRE	32.8 a	22.1 a
Prefar	5 qts	PRE	32.8 a	21.8 a
Control	0	NA	34.2 a	22.0 a

Satellite transplanted lettuce

Satellite



Prefar



Satellite – summary

- ❖ **Satellite is safe to transplanted lettuce**
- ❖ **Control of nightshade and groundsel is better than Prefar**
- ❖ **Control of nettle and purslane are similar to Balan and Prefar**
- ❖ **Awaiting decision by UPI to see if they will label the product.**
- ❖ **Do not use on seeded lettuce!**