

HERBICIDE RESIDUES —broadcast vs. banding

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Broadcast applications of herbicides on several crops generally produced fewer residual effects than herbicides banded in the Panoche clay loam soil of the San Joaquin Valley test sites.

FIVE HERBICIDES of importance to commercial agriculture were applied to a test plot in Panoche clay soil in the San Joaquin Valley on April 1, 1970. The materials were broadcast and disced in, in 12 inch bands, and incorporated by power tiller. The crops grown most often with these herbicides were then planted on 30 inch beds. Sugar beets were planted on February 5, 1970. Safflower and cotton were planted April 2, 1970. All crops were irrigated up by furrow irrigation.

The crops were grown to maturity. Sugar beets were harvested August 28, 1970; safflower on November 16, 1970; and the cotton on August 17, 1970.

On March 1, 1971 the cropped areas were disced, bedded and planted with barley, wheat, canary grass, broccoli, safflower, lettuce, onions and sugar beets. Phytotoxicity ratings of these crops were made on April 1, 1971.

Yields of the three initially planted crops treated with specific herbicides showed no reduction due to herbicide treatment.

There was, however, residual effects on some sensitive crops planted 11 months after herbicide application. RH315 (Kerb) was most persistent when banded for weed control in safflower. Shallow incorporation appeared to cause more injury especially to barley, wheat, and canary grass than flat application with discing.

Pyrazon plus dalapon appeared to leave more residues when banded, however, the differences were not significant. Neither DCPA nor nitralin caused residual effects when crops were planted 11 months after application.

Trifluralin showed considerably greater residual effects on sugar

beets than nitralin. The amount of residual herbicide activity when applications were broadcast and disc-incorporated was negligible; however, when herbicides were banded and incorporated by a straight-toothed power tiller, the injury to sugar beets was apparent.

Carry-over

The carry-over of herbicides in this panoche clay loam soil has repeatedly been observed in field experiments conducted over several years. This carry-over, is more than is found generally through other San Joaquin Valley soils, at the rates studied in this trial, and tend to give a somewhat conservative picture of this overall problem. These results also confirmed earlier small-plot work in this soil type.

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HERBICIDE APPLICATION EFFECTS ON TEST CROPS IN PANOCHÉ CLAY LOAM*, SHOWING RESIDUAL ACTIVITY INJURY EVALUATION AFTER 11 MONTHS, FOR BROADCAST AND BANDING APPLICATION AT DIFFERENT RATES, AND YIELD DATA FROM ORIGINAL CROP, WESTSIDE FIELD STATION, 1970-71

Herbicides	Application Rate lb ai/A	Method of Application	Yield data		Test Crop Injury Evaluation [†] after 11 months							
			Crop	Yield/A tons	Barley	Wheat	Canary Grass	Broccoli	Safflower	Lettuce	Onion	Sugar Beets
Pyrazon & Dalapon	4.0 & 2.0	Broadcast [‡]	S. Beet	32.3	0.0	0.0	1.0	2.2	1.9	1.2	.8	0.0
Pyrazon & Dalapon	4.0 & 2.0	12" band	S. Beet	32.3	0.0	0.0	2.5	1.2	2.7	1.5	1.2	0.0
Untreated	5%	—	S. Beet	32.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RH315	1.5	Broadcast	Safflower	2,690	1.5	0.5	1.8	0.0	0.0	0.5	0.8	0.5
RH315	1.5	12" band	Safflower	2,550	3.2	2.2	4.5	0.0	1.3	0.8	1.7	0.0
Untreated	-	—	Safflower	2,650	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DCPA	8.0	Broadcast	Cotton	1,930	0.7	0.0	1.8	0.6	0.0	0.7	0.0	1.3
DCPA	8.0	12" band	Cotton	1,910	1.0	0.5	1.0	1.7	0.0	1.7	0.0	0.0
Untreated	-	—	Cotton	1,910	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nitralin	.75	Broadcast	Cotton	2,130	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Nitralin	.75	12" band	Cotton	2,130	0.0	0.0	0.0	0.0	0.0	0.7	0.0	1.8
Untreated	-	—	Cotton	2,210	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trifluralin	.75	Broadcast	Cotton	2,250	0.2	0.0	0.8	0.0	0.0	0.0	0.0	0.5
Trifluralin	.75	12" band	Cotton	2,330	1.2	2.0	1.5	0.0	0.0	1.3	0.3	4.2
Untreated	-	—	Cotton	2,420	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

* Organic matter 1.0%, sand 24%, silt 44% and clay 32%

[†] Preplant 12" band treatment: listing, the herbicide was applied in a band and incorporated to a depth of 2 1/2 inches with a power-driven rotary tiller. With sugar beets, the herbicide was applied postemergence when the beets were in their 2-4 true leaf stage of growth.

[‡] Evaluation based on a 0-10 scale. 0 - no injury, 10 - death of plant. Values given are minus the untreated (each plot replicated 3 times).[†]

[§] Preplant broadcast treatment: Herbicide applied on flat area. Following herbicide application, the area was disced and listed on 30" centers.