

Weed Evaluations of the CultiClean Soil Heating Implement for Vegetable Production

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Methods: The CultiClean implement is manufactured by Hoaf and Struik Companies, Netherlands. It utilizes two power rotivators that pulverize the soil. The soil is then flung into the air and heated with propane burners to kill weed seed and disease organisms. The implement is set up to work individual 80 inch wide vegetable beds prior to planting. Evaluations of this implement were conducted by Sutton Ag in the summer of 2013 with cooperating growers in the Salinas and adjoining valleys. Trials consisted of strips treated with the CultiClean and untreated strips. Strips were one or more beds wide by the length of the field; the strips were not replicated. Three trials were evaluated by the University of California to determine the efficacy of the treatment in controlling weeds. Weeds in each strip were evaluated by counting several 0.5 meter quadrates in four to five sections of the strips. The number and type of the dominant weeds were recorded and counted. **Trial 1:** conducted in San Lucas on Greenfield fine sandy loam soil; the treatments were applied in early July and the field planted to Swiss chard. Weed counts were made on July 25. **Trial 2:** conducted in Hollister on Pacheco loam soil; the CultiClean was run in late September and the beds were left fallow, but were irrigated to stimulate a flush of weeds. The beds had good moisture when the CultiClean was run. Weed counts were made on October 29. **Trial 3:** conducted on the same ranch and soil type as trial 2, however the soil was drier than trial 2 at the time the CultiClean was run. Weed counts were made on October 29.

Results: The results of weed counts are shown in Table 1. No differences are observable between the treatments in trials 1 & 2. However, in trial 3 the CultiClean treatment has fewer weeds than the untreated; purslane was the main weed at this site and its numbers were greatly reduced (see photo 1). The results indicate that soil conditions and possibly other factors such as the duration of the heat treatment may account for the differences between the treatments at these farming operations.

Table 1. Number of weeds per square meter in each treatment

Treatment	Purslane	Sow Thistle	Malva	Other Weeds	Total Weeds
<i>Trial 1</i>					
Untreated	2.83	1.50	----	2.67	6.17
CultiClean	0.83	3.00	----	1.83	5.67
<i>Trial 2</i>					
Untreated	33.14	----	9.47	2.15	44.76
CultiClean	40.89	----	5.60	1.29	47.77
<i>Trial 3</i>					
Untreated	134.28	----	3.87	8.18	146.34
CultiClean	38.74	----	2.15	5.60	46.48



Photo 1. The middle two beds were treated with the CultiClean