

# A Comparison of Balan, Kerb and Prefar on Thinning and Hand Weeding Time in Lettuce

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## Abstract

Two studies were conducted in the Salinas Valley, CA to compare the cost of weed control in lettuce using Balan, Kerb and Prefar as base herbicides. Kerb was found to be the most effective herbicide for areas where cool-season weeds are predominate. In areas dominated by warm-season weeds, Balan or Prefar were the most effective herbicides.

## Introduction

Current weed management systems used in California lettuce production include an effective combination of mechanical tillage, herbicides, cultivation and hand weeding. The cost of herbicide application, cultivation, and hand weeding represents a significant portion of the total cultural production cost per acre of lettuce (1). The provisions of the Food Quality Act (FQPA) of 1996 require the US Environmental Protection Agency (EPA) to reassess all pesticide tolerances by the year 2006 (2). During the first phase of the tolerance reassessment, the EPA plans to review the tolerances of pesticides classified as carcinogens including Kerb (pronamide) and organophosphorous compounds such as Prefar (bensulide). The potential loss of Kerb and Prefar would leave Balan (benfen) as the only soil-applied herbicide for lettuce. These studies compare Balan, Kerb, and Prefar in lettuce production.

## Materials and Methods

- Two studies were conducted in the Salinas Valley, CA during 1998, one at the Hartnell farm and a second at the Spence farm.
- Hartnell was planted with Salinas MT head lettuce (June 1, 1998) and Spence was planted with Medallion romaine lettuce (July 22, 1998).
- Each study contained 7 treatments (Table) arranged in a randomized complete block design with 4 replicates.
- Plots were 4 beds wide (40 inch beds) by 75 ft long. Two rows were planted per bed.
- A hoeing crew was timed while thinning and hand weeding.
- Data collected included thinning times (29 DAP at Hartnell and Spence), hand weeding times (44 DAP at Hartnell and 51 DAP at Spence), weed densities (18 DAP at Hartnell and 29 DAP at Spence) and biomasses (74 DAP at Hartnell and 76 DAP at Spence).
- Mean separation of the data was done using Fisher's project LSD ( $\alpha=0.05$ ).

- Cultural practices were typical for the Salinas Valley.

## Results

- Where cool-season weeds predominate such as chickweed, henbit, burning nettle and shepherds-purse, hand weeding is the most efficient with Kerb as the base herbicide (Figures 1 and 2).
- Where pigweed predominates, Balan or Prefar are acceptable base herbicides (Figures 3 and 4).

**Table. Balan, Kerb and Prefar base herbicide treatments for weed control in lettuce.**

Treatment	Rate <sup>a</sup>	Timing <sup>b</sup>	Spray width <sup>c</sup>
Balan 60W	1.0	PPI	22
Balan 60W	1.2	PPI	22
Kerb 50W	1.0	PRE	5
Kerb 50W	1.5	PRE	5
Prefar 4E	5.0	PRE	5
Prefar 4E	6.0	PRE	5
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<sup>a</sup> lbs. ai/acre

<sup>b</sup> PPI – Pre plant incorporated, PRE – pre plant

<sup>c</sup> inches

## Literature Cited

1. Schulbach, K. 1992. Sample costs to produce lettuce in Monterey County – 1992. Monterey County Cooperative Extension.
2. Goldman, L.R. 1997. Raw and processed food schedule for pesticide tolerance reassessment notice. Federal Register 67: 42019 – 42030.

## Acknowledgements

California Lettuce Research Board

**Figure 1. Weed density: Hartnell**

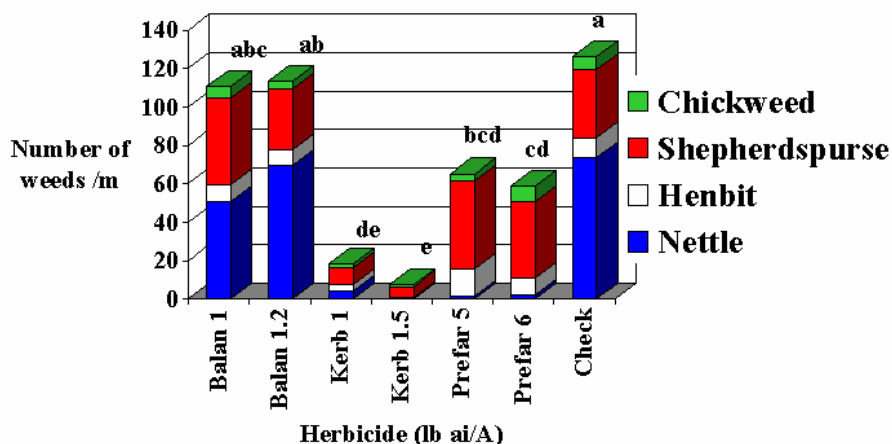


Figure 2. Hand weeding times: Hartnell

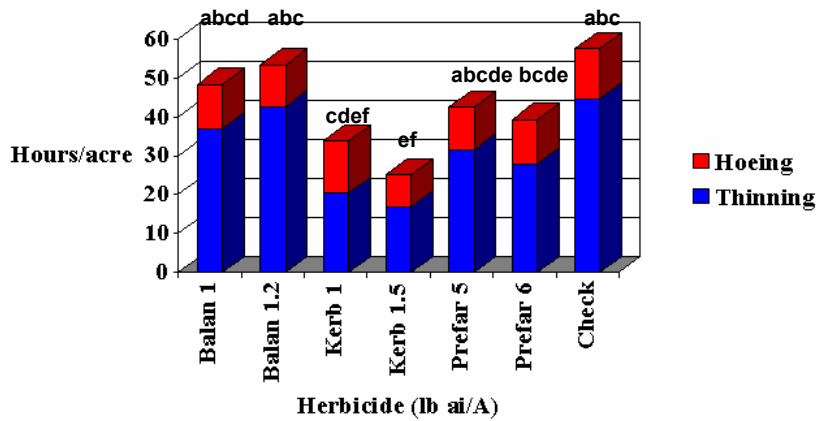


Figure 3. Weed density: Spence

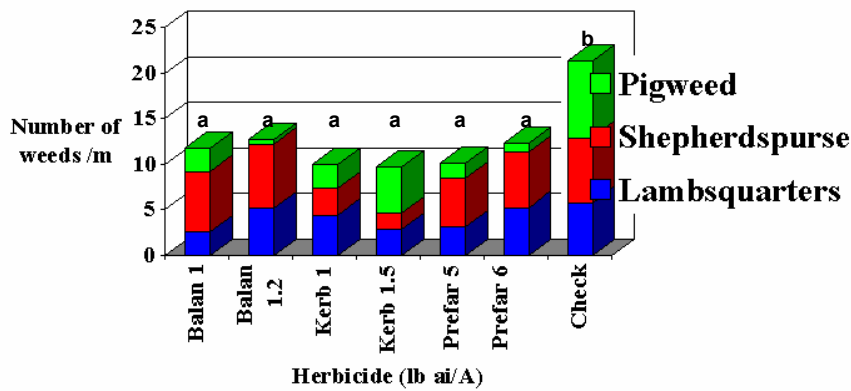


Figure 4. Hand weeding times: Spence

