

## Evaluation of Pesticide Compounds to Manage Bacterial Leaf Blight of Field Peas

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A research trial was conducted at the Langdon Research Extension Center with an objective to evaluate the performance of pesticide compounds to manage bacterial blight (BB) on field pea. The trial was planted on May 17, 2023 with the field pea variety 'Salamanca' in a randomized complete block design replicated four times. The trial followed state recommended practices for land preparation, fertilization, seeding rate, and weed control. The plot size was 5 ft. wide x 16 ft. long with a field pea border on either side of each plot. Pesticide compounds were applied at the V<sub>n</sub> stage (nth true leaf unfolded at nth node with tendrils present) using a CO<sub>2</sub>-pressurized backpack style sprayer with a three-nozzle boom (XR-8002) at 20 GPA. Prevailing weather conditions were dry during the crop growth period so the second spray at R-stage was not applied. The amount of BB infection obtained in the research plots was based on natural infections. A rating scale of 0 - 9 was adopted from Chaudhary 1996, where the severity of BB in a plot was recorded as the percentage of tissue area infected out of total leaf area examined. Fifty leaves from each plot were sampled and measured for the average percentage of lesion area. The rating scale was 0 = 0, 1 = 1-10 %, 3 = 11-30 %, 5 = 31-50 %, 7 = 51-75 %, and 9 = 76-100 %.

A disease index (DI) was calculated based on severity ratings using a formula:

$$DI = \frac{n(1) + n(3) + n(5) + n(7) + n(9)}{tn}$$

Where: n (1), n (3), n (5), n (7) and n (9) = number of leaves showing severity score of 1, 3, 5, 7 and 9. tn = total number of leaves scored.

**Results:** Significant differences were observed in bacterial blight control when sprayed with pesticide compounds compared to the non-treated check. There were no differences among the pesticide compounds evaluated. The bacterial blight incidence on various treatments on the field peas ranged from 27 to 60%, with a mean disease incidence of 32%. The severity of bacterial blight infections ranged from 5 to 34%, with a mean severity of 9%. The highest incidence and severity of bacterial blight was recorded in the non-treated check (Table 1). There were no significant differences found in the yield (at 13.5% moisture) and test weight (Table 1) among the pesticide compounds tested and the non-treated check (P-value non-significant).

**Table 1:** Efficacy of pesticide compounds in managing bacterial blight of field pea and their influence on yield and test weight.

Treatments	Rate	Field Pea Bacterial Blight		Yield (lbs/a)	Test wt. lbs/bu
		% Incidence	% Severity		
Kocide (Copper Hydroxide)	3-6 lbs/a	31	6	2280	66
Copper Sulfate	3-6 lbs/a	27	7	3060	67
Guarda 30/30	3.3 lts/A	34	7	2640	66
Zinc Oxide 400 mg	400mg	30	7	2520	66
Zinx Oxide 800 mg	800mg	34	6	2400	66
Surround WP	½ lb/gallon of water	25	6	2820	66
Resozurin Sodium Salt	10 mg/a	31	7	2160	66
Kanamycin	50 µg/ml	27	5	2400	66
Streptomycin sulfate	3-6 lbs/a	28	6	2400	66
Oxidate	1% V/V	27	6	2580	66
Non-Treated Check	Check	60	34	2580	66
	<b>Mean</b>	<b>32</b>	<b>9</b>	2520	66
	<b>CV%</b>	<b>23</b>	<b>43</b>	20	1.4
	<b>LSD</b>	<b>11</b>	<b>6</b>	NS	NS
	<b>P-Value (0.05)</b>	<b>0.00001*</b>	<b>0.00001*</b>	NS	NS

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