Evaluation and Comparison of Different Potato Crop Sprayer in North of Khuzestan

E. Tayari, A.R. Jamshidi and E. Hesammi

Young Researchers and Elite Club, Shoushtar Branch, Islamic Azad University, Shoushtar, Iran.

INTRODUCTION

Using advance methods for planting wheat will cause a balance in spreading seeds on the surface of field will lead to save seeds and decrease most of the problems beyond planting such as competition for using of water supplies and soil nutrients. According Jamshidi applied for more than one-third of the toxin solution, poured on the soil and immediately disappears [5]. Sam loss of coarse droplets resulting from the pollution of soil and waste into droplets due to the winds servitude will lead to environmental pollution. He knew that the optimum droplet size, droplet effective adiabatic toxin target coverage and minimize environmental pollution environment provides .Today, applying spray droplet size and uniformity of the spray volume is less attention. Reduction of solution used per hectare in many parts of the world increased labor costs and lack of access to water. According Spill man in their research on the effects of pesticides on the volume and size of the droplets was concluded that the efficiency drops hit by flying insects, when the diameter is less than 40 micron significantly decreased [6].

Brunskill as the product of the inverse function of the surface tension of the droplet spraying pesticide solution, volume of solution, the droplet diameter and the angle of their approach. Course description expressed their results to the non-uniform distribution of droplets increases the volume of the solution is consumed will have a favorable effect on the coating surface [3]. If the machine is used for spraying is a set of special nozzles and Volume consumed increases, the maximum amount of pesticide on parts of plants that are available over the parts that are hidden will lower the amount of toxin. Most solutions have been used behind the tractor sprayer And then the electrostatic sprayer In places the water is low due to low storage capacity without electrostatic sprayer Atomizer a head and fillet many times and will require less water usage And these small differences can be concluded And its application in shallow water areas will be difficult [4,7].

MATERIALS AND METHODS

The year field study was conducted from 2010-2011 in the northern of Ahvaz. Statistical design used in this study was a randomized complete block design with five treatments and four replications Treatments included 1 - sprayer motor dorsal Otto Maize, 2 - sprayer motor back Lance equipped with the nozzle cone, 3 - sprayer, motorized backpack equipped with warheads micro Nair (4 - sprayer motor back electrostatic. The experiments
were repeated three times. When spraying with the visits daily basis and determine pest activity was determined. Regular visits per day, so that way, when the numbers of weeds around the potato plants were sprayed with the average wage was 10. Based spraying every ten days and a replacement needs to toxin) to prevent pest resistance) through repeated alternate. Repeat spraying because the larvae and eggs of insects by spraying are not destroyed after several days to become adult is inevitable. Select the required pesticides, according to the expert advice in this project was to plant pests and diseases, systemic herbicide yards Busoni Mahan 70% (Sankur) with a concentration in grams per 1000 ml was used. In each round of spraying, sprayer used on the grounds that there are equal amount of pesticide sprayed in each plot were carefully calibrated. Sprayed in the days of wind speed and relative humidity was appropriate to do it was done. The parameters studied in this phase of the project consist of weed control effects on potato yield is the amount of soluble and toxic. To calculate the percentage of the comparative effectiveness of weed control sprayers Potato Formula Henderson - Tiltun used [1, 2].

\[
\left(1 - \frac{T_a}{C_a} \times \frac{C_k}{T_b}\right) \times 100
\]

In the above equation:
- Examples of weeds after herbicide treatment: Ta
- The number of treated weeds before spraying: Tb
- The number of weed control samples after spraying : Ca
- The number of weed control samples before spraying: Cb

To determine the amount of soluble toxic, tested sprayer filled with a precise amount of soluble toxic sprayer after completing the work, the remaining solution was measured. Data analysis using the SPSS software was performed and MSTATC. The normality test was performed by SPSS software.

**RESULTS AND DISCUSSION**

1 - Effect of sprayer to control weeds in potato: After the data collection, data on the impact parameter of the sprayer to control weeds in potato were analyzed. To evaluate the results of the simultaneous application of three times a year and appropriate agronomic treatments on these parameters, the average of data from three experiments were analyzed, and again. The results of this analysis in Table 1 are summarized.

<table>
<thead>
<tr>
<th>(S.O.V)</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block</td>
<td>2</td>
<td>27/56</td>
<td>9/85</td>
<td>0/95ns</td>
</tr>
<tr>
<td>Treatment</td>
<td>2</td>
<td>459/98</td>
<td>132/58</td>
<td>17/52</td>
</tr>
<tr>
<td>Error</td>
<td>4</td>
<td>135/47</td>
<td>17/2</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>209/81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CV</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Duncan test was used to compare treatment means that the results in Table 2 is obtained.

<table>
<thead>
<tr>
<th>Sprayer type</th>
<th>Result Duncan experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td>sprayer dorsal motor Otto Maize</td>
<td>B</td>
</tr>
<tr>
<td>motorized backpack sprayer lance</td>
<td>B</td>
</tr>
<tr>
<td>motorized backpack sprayer equipped with micro</td>
<td>AB</td>
</tr>
<tr>
<td>motorized backpack sprayers Electrostatic</td>
<td>A</td>
</tr>
</tbody>
</table>

**Conclusions:**

Table 1 show that the difference between treatments based on the percentage effect on weed control in potatoes% probability level was significant but non-significant effect on these parameters is blocked. Also shown in Table 2 treatments 3 and 4 in a joint team analyzed and significant difference was not the case according to Figure 1, treatment 3 showed better results than others, ensured that. Because it can fine the mist of venom sprayed better distribution of pesticides in the sprayer micro communication.
Fig. 1: Comparison of different sprayer for weed control in terms of its effect on potato

REFERENCES