Leaf spurge – Control by glyphosate using three application techniques

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An experiment to evaluate leafy spurge control by glyphosate applied by three techniques was established near Walcott, ND on August 1, 1980. The leafy spurge was 18 to 20 inches tall and had begun new fall growth. The temperature was 83º F, 66% relative humidity, the sky was overcast, and the soil temperature at 1 inch was 81º F. Glyphosate was applied with a tractor-mounted sprayer that delivered 8.5 gpa at 35 psi, a controlled droplet applicator (CDA) which delivered approximately 0.85 gpa, and with a pipe wick applicator which delivered approximately 2.25 gpa depending upon stand density. The plots were 10 by 30 feet in a randomized complete block design with three replications. Evaluations were based on stand reduction as compared to the control.

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<tbody>
<tr>
<td>Broadcast</td>
<td>1:11</td>
<td>(2.0)</td>
<td>98</td>
<td>88</td>
</tr>
<tr>
<td>Broadcast</td>
<td>1:23</td>
<td>(1.0)</td>
<td>98</td>
<td>83</td>
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<tr>
<td>Broadcast</td>
<td>1:31</td>
<td>(0.75)</td>
<td>95</td>
<td>78</td>
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<tr>
<td>CDA</td>
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<td>(0.2)</td>
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<td>55</td>
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<td>CDA</td>
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<td>(0.1)</td>
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<tr>
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<td>(0.075)</td>
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<tr>
<td>Wick</td>
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<td>(0-5)</td>
<td>85</td>
<td>79</td>
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<td>(0.25)</td>
<td>80</td>
<td>40</td>
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<td>Wick</td>
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<td>(0.125)</td>
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<tr>
<td>LSD (0.05)</td>
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<td>33</td>
<td>38</td>
</tr>
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*aGlyphosate (Roundup):water (v:v)*

Glyphosate at 0.75, 1.0 and 2.0 lb/A broadcast applied provided 95, 98, and 98%, leafy spurge control, respectively, when evaluated on May 22, 1981. The perennial plants in these plots had been killed and a thick mat of leafy spurge seedlings had germinated. Most of the seedlings died by August 19, but enough seedlings survived so that the overall control declined 10 to 17%.

Glyphosate provided better leafy spurge control when broadcast than CDA or wick applied. However, the grass in these plots was not severely damaged and provided competition for emerging seedlings. Although the glyphosate rate actually applied had been reduced approximately 90 and 25% with the CDA and wick applicators, respectively, leafy spurge control was not decreased by a similar magnitude. A follow-up treatment is needed to control leafy spurge seedlings regardless of the glyphosate application technique.