Applying Herbicides Prior to Extreme Cold Weather for Buttercup Control Demonstration

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Need/Goal

Winter weeds are a common problem in Faulkner County warm season pastures and hay fields every year. Winter weeds can grow very rapidly during the dormant season of the warm season grasses causing issues when green up starts in the early spring. If not controlled these weeds can shade and take up valuable space for warm season grasses to grow. There are many common winter weeds but the one most asked about by Faulkner County producers is buttercup. This weed starts out as a small plant but by spring the common yellow flower is seen all over the county. The plant is edible to most livestock, but once the flower blooms the animals will avoid it. As soon as buttercup emerges, they can be sprayed with a herbicide and controlled. Some producers will spray in the fall, but most of the applications go out in the late winter months of February, March and April. Sometimes warm spells in January and February get producers out and ready to spray but these days are usually followed by more cold days. This demonstration was established to evaluate the effectiveness of buttercup and winter weed herbicides when applied during warm days when cold weather is predicted to follow. If the herbicides are ineffective after extreme cold temperatures this will save producers money to save that application until after the temperatures warm up again. But on the other side, if the herbicides do work and producers have an opportunity to apply a herbicide they need to take advantage of it because you never know when you will get another chance with Arkansas weather.

Treatments

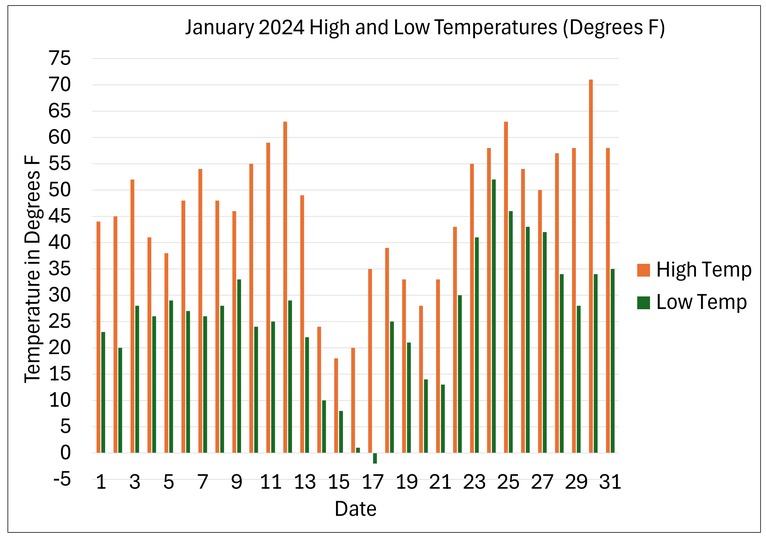
The herbicides were evaluated for control of buttercup, but observations were made on some other winter weeds such as little barley, fescue, and poa annua. The three most used herbicides by producers in Faulkner County for buttercup were chosen for this demonstration and are listed below in Table 1. Treatments included using each individual herbicide and then one treatment with a combination of all three. The herbicides were applied on January 11, 2024. Plots were 10 feet by 40 feet long and the herbicide was applied with a backpack sprayer at 15 gallons per acre with a 10-foot boom and TeeJet AIXR nozzles.

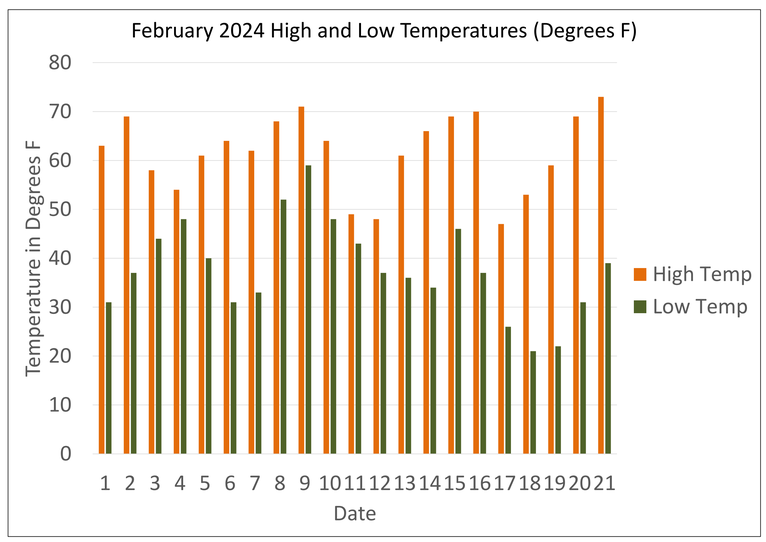
Table 1. Herbicide List Used in Demonstration

Plot Number	Treatment	Rate per acre	Active Ingredient
101	41% Generic Glyphosate	1 qt	Glyphosate
102	Patriot	0.5 ounces	Metsulfuron
103	2,4-D	1 pt	2,4-D Amine
104	41% Generic Glyphosate + Patriot + 2,4-D	1 qt 0.3 ounces 1 pt	Glyphosate Metsulfuron 2,4-D Amine
105	Untreated Check	--	--

Weather

The temperatures from January 1 through January 11 were an average high of 48 degrees, average low of 26 degrees with an average of 38 degrees. The next 10 days after the herbicides were applied (January 12 – 21) were average high of 34 degrees, average low of 14 degrees with an average of 24 degrees. Between January 14 and 17 the temperature never got above freezing with lows of 10, 8, 0, and -2, respectively. Also, during this time there was some frozen precipitation. From January 22 – February 21 temperatures were an average high of 60 degrees, average low of 38 degrees with an average temperature of 49 degrees.





Results

Each plot was rated 41 days after treatment (DAT). The treatments were visually rated for buttercup control. The glyphosate plot and the combination plot were easy to see immediately. They stood out from the rest of the plots. Looking closely at the glyphosate alone plot there was 80% control of the buttercup. Patriot usually takes a little longer to work on weeds but there was good control of buttercup in that plot at 80%. The 2,4-D did not do as good as the other two treatments with only 50% control. Usually 2,4-D has better control than that and it is not known if the low amount of control was from only using a pint of herbicide or if it was from the extreme cold weather that the plot went through, but the control was not as good. The combination plot was by far the best. There was 100% control of buttercup in that plot.

Good weed control can be achieved by early herbicide applications even if extreme cold weather occurs soon after application. The lack of control from 2,4-D could have been attributed to cold weather, but it also could have been from only using a pint of product. A better test with different rates is needed to make that determination.

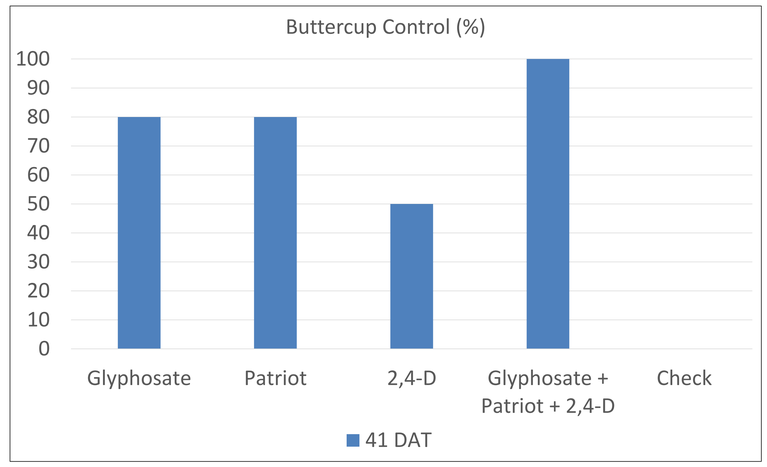


Figure 1. Untreated Check

Figure 2. 1 qt Generic Glyphosate

Figure 3. 0.5 oz Patriot

Figure 4. 1 pt 2,4-D

Figure 5. 1 qt Generic Glyphosate + 0.3 oz Patriot + 1 pt 2,4-D