

Mechanical WEED CONTROL IN PASTURES

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Abstract

Maintaining a quality pastures is an essential part of all forage production systems because unwanted weeds compete for nutrients, water and sunlight needed for optimum growth. Forage growth in Ohio pastures is a critical part of farm production because grazing livestock are present on more than 36 percent of Ohio farms. Weeds can lower forage crop quality and productivity if left uncontrolled. Mechanically mowing pastures is one method producers can use if they do not want to spray herbicides. The purpose of this study is to determine if weed populations in pastured forages could be changed or reduced by varying the timing of mowing throughout the late spring and summer growing period without the use of herbicides. Treatments in this study consist of: (1) Control (no mowing), (2) June only mowing, (3) July only mowing, (4) August only mowing, (5) September only mowing, (6) June and August mowing, (7) July and September mowing, and (8) mown each month; June-July-August-September. The overall weed dry matter (DM) pounds/acre (lb/ac) shows that mowing in June or June/August were higher than all other treatments except for the July only. The June treatment also yielded the most forages of 8152.0 lbs/ac on a DM basis. Mowing pastures in June, July, August and September resulted in the lowest quantity of forages of 4878.0 lbs/ac DM.

2020 Monthly Rainfall (inches)

May	June	July	August	September
5.04	3.86	4.1	2.42	1.94



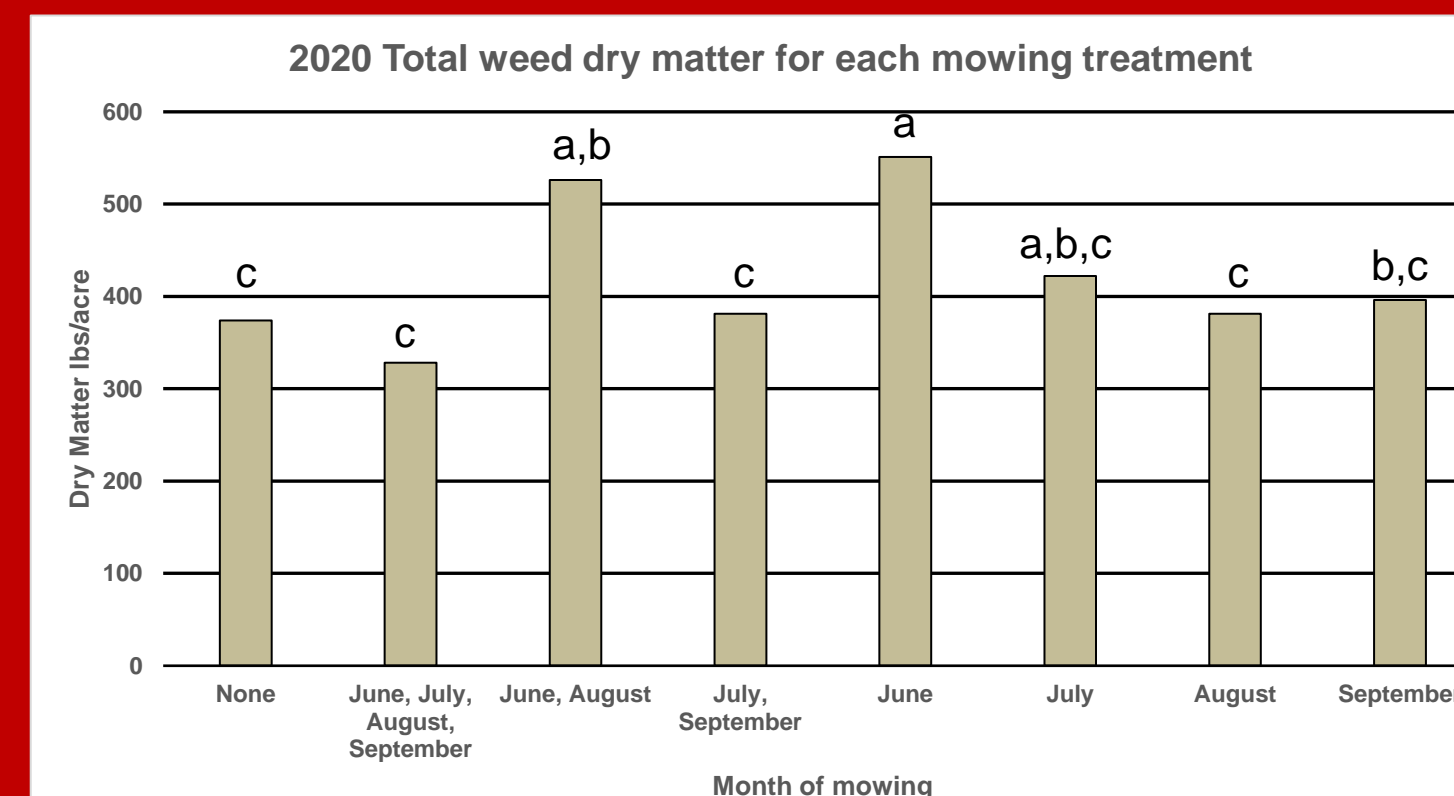
Educators collecting data from plots



Variety of weeds & forage in pasture plots

Background

- Many acres of pasture land (1.4 million acres) are used for grazing livestock in Ohio.
- Weed growth in pastures may reduce quality of the forage, quantity of useable forage or cause livestock mortality if poisonous weeds are present and consumed.
- The purpose of this trial was to determine if weed populations in pastured forages could be changed or reduced by varying the timing of mowing throughout the late spring and summer growing period without the use of herbicides.
- Reducing weed pressure by mowing at the appropriate time reduces the need for herbicide applications so that herbicide use may be reduced or eliminated.
- If mowing multiple times a year, legume plants may thrive better and become a higher percentage of the sward.
- These factors could have a positive effect on forage quality in the plots for the future.



Treatment means with the same letter are not significantly different LSD (0.10)

Methods

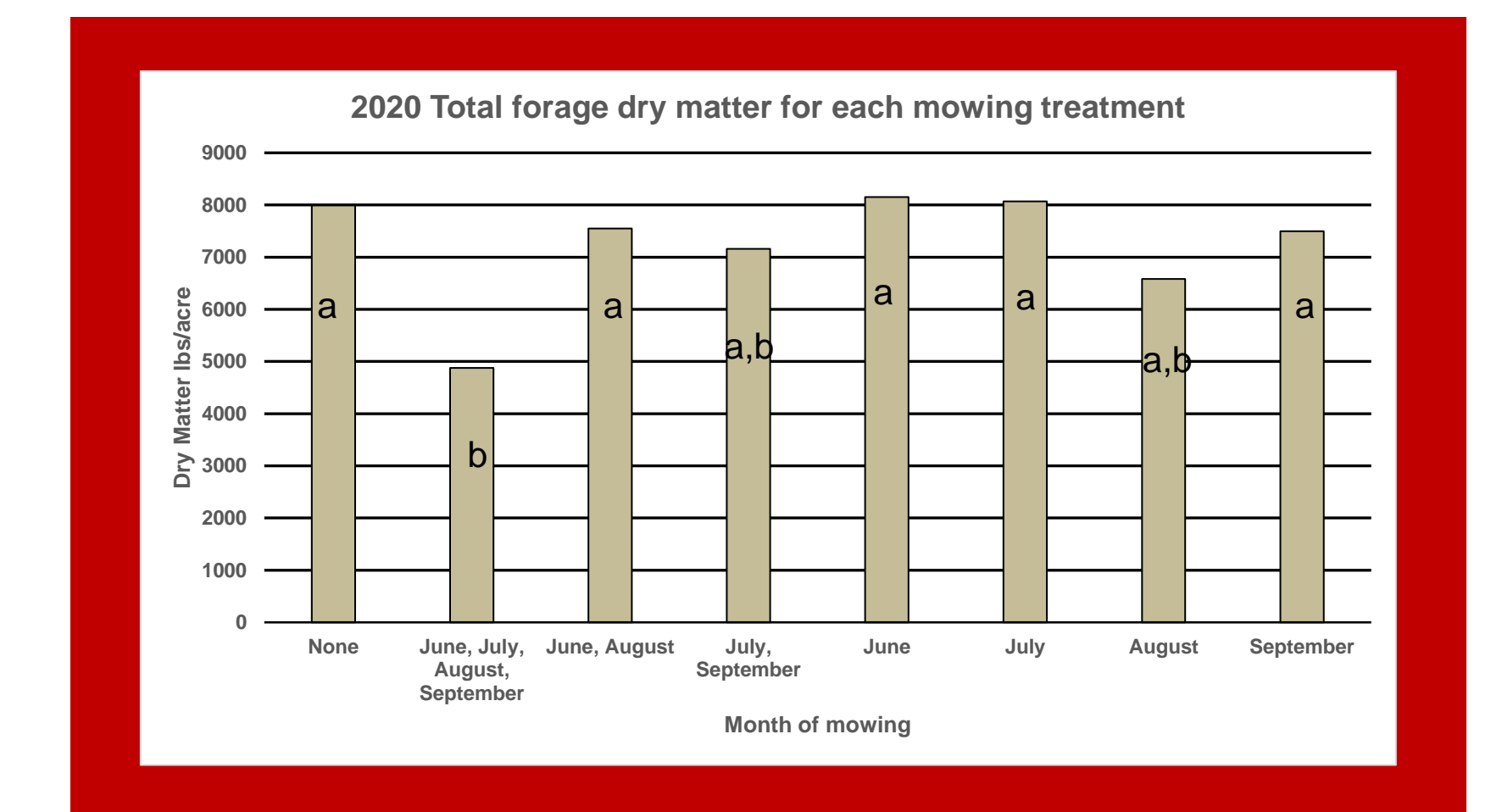
- A randomized complete block design was used with eight (8) treatments (including a control) and four (4) replications of each treatment. Each plot was fifteen feet wide by twenty feet long with an additional one-foot border along each side to allow mechanical mowing equipment to be able to pass between marker posts. The site is a predominately tall fescue and mixed grass pasture field. Forage and weed samples were taken near the beginning of June, July, August and September each year.
- Forage samples two feet by two feet (4ft²) were hand harvested from each plot and broadleaf weed species were separated from forages. Total fresh weight of each sample was recorded. From each of the 32 forage and weed samples a sub-sample was removed to calculate dry matter. All samples were placed in the forage dryer at 46 degrees Celsius and remained there until dry. All dry weights were recorded and calculations were subsequently made from each sample to determine dry matter per acre.
- Each month, after harvesting samples, cow/calf pairs grazed the paddock, where the plots were laid out, until the desired amount of residual forage remained. Cattle were then removed until the next month. After each grazing, treatment plots were cut with a rotary mower according to the plan design, making one pass over the plot and cutting to a height of approximately four inches above the soil surface.
- Treatments consisted of: (1) Control (no mowing), (2) June only mowing, (3) July only mowing, (4) August only mowing, (5) September only mowing, (6) June and August mowing, (7) July and September mowing, and (8) mown each month; June-July-August-September



15' Rotary mower used to cut plots

Results

The overall weed dry matter (DM) pounds/acre (lb/ac) shows that mowing monthly throughout the summer did reduce weed pressure. Additionally, this reduced forages significantly compared to the other treatments except for August and July/September treatments. Mowing in June or June and August resulted in the highest quantities of weeds. While each growing season is different, rainfall amounts were recorded and taken into consideration.



Treatment means with the same letter are not significantly different LSD (0.10)

CONCLUSIONS

Perennial, biennial and annual broadleaf weeds can affect livestock production. This trial is a fourth year of a five-year educational experiment to help landowners determine the best time, or times, to mow pastures. The goal of using these treatments was to help reduce broadleaf weed pressure or potentially increase forages. Data included for this report is from the 2020 study. Plots mowed in June resulted in the greatest pounds of forages and weeds. This might suggest that mowing in June was too early and opened up the canopy promoting weed growth. Contrast to mowing every month which did reduce the amount of weeds, but also reduced forage production.

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