

The Effect of Potash Fertility on Orchardgrass (*Dactylis glomerata*) Forage Yields in Maryland



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Need, Justification & Hypothesis

- Orchardgrass (*Dactylis glomerata*) is a popular cool-season forage species in the Mid-Atlantic Region for its high yield potential and forage quality.
- Orchardgrass requires relatively high fertility levels to maintain production, especially in a hay or forage system where plant material is exported.
- Field research needed to demonstrate the impact of potash fertility in orchardgrass production. **Hypothesis:** higher potash fertility will increase yields.

Field Research Methods

Research Design

- Replicated plots (6'x20') established at the Western Maryland Research and Education Center (WMREC) in Keedysville, MD.
- Treatments included 0 lbs/A (low), 45 lbs/A (medium), and 200 lbs/A (high) potash across three orchardgrass varieties.



Figure 1. Planting plots with a drop spreader.

Methods

- Soil samples collected and field preparation began in summer 2021.
- Phosphate (P) was incorporated to bring soil P levels into sufficient range.
- Three varieties of orchardgrass were seeded with a drop spreader then cultipacked on Sept. 27, 2021 at the rate of 22 lbs pure live seed per acre (Fig. 1).
- Four applications of urea were split applied to all plots to total 200 lbs/A/year.
- Potash (0-0-62) was applied once in the medium potash plots and split across 3 applications for high potash plots.
- Plots were harvested with a small plot forage harvester (Fig. 2). Three cuttings were made in 2022 and two in 2023 (final cutting was skipped due to insufficient rainfall).



Figure 2. Harvesting plots with small-plot harvester.

Results & Impact

- Across both years, plots receiving 200 lbs/A potash averaged 200 lbs/A more dry matter yield per cutting compared to 45 and 0 lbs/A plots ($p=0.0547$).
- Variety 'Potomac' established quicker and yielded significantly more in 2022 ($p=0.0247$). 'Olathe' was top-yielding in 2023. No difference between varieties when combined across years ($p=0.1571$).
- There was no interaction between variety and potash fertility level, meaning that variety did not play a role in yield response to potash fertility ($p=0.9855$).
- Data from this project has been published in UMD Extension reports and presented to over 120 producers in Maryland.

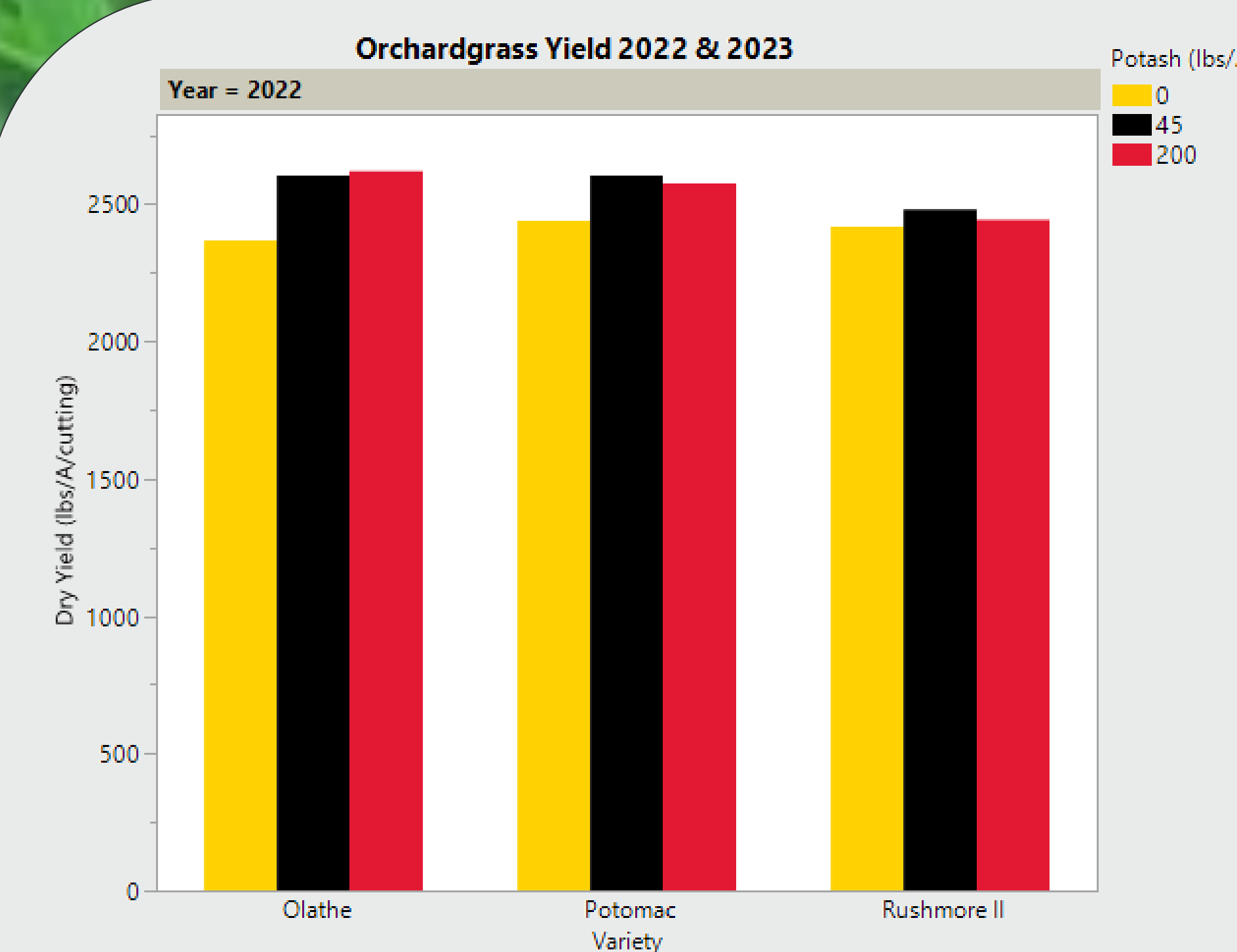


Figure 3. Orchardgrass yields by variety, 2022 and 2023.

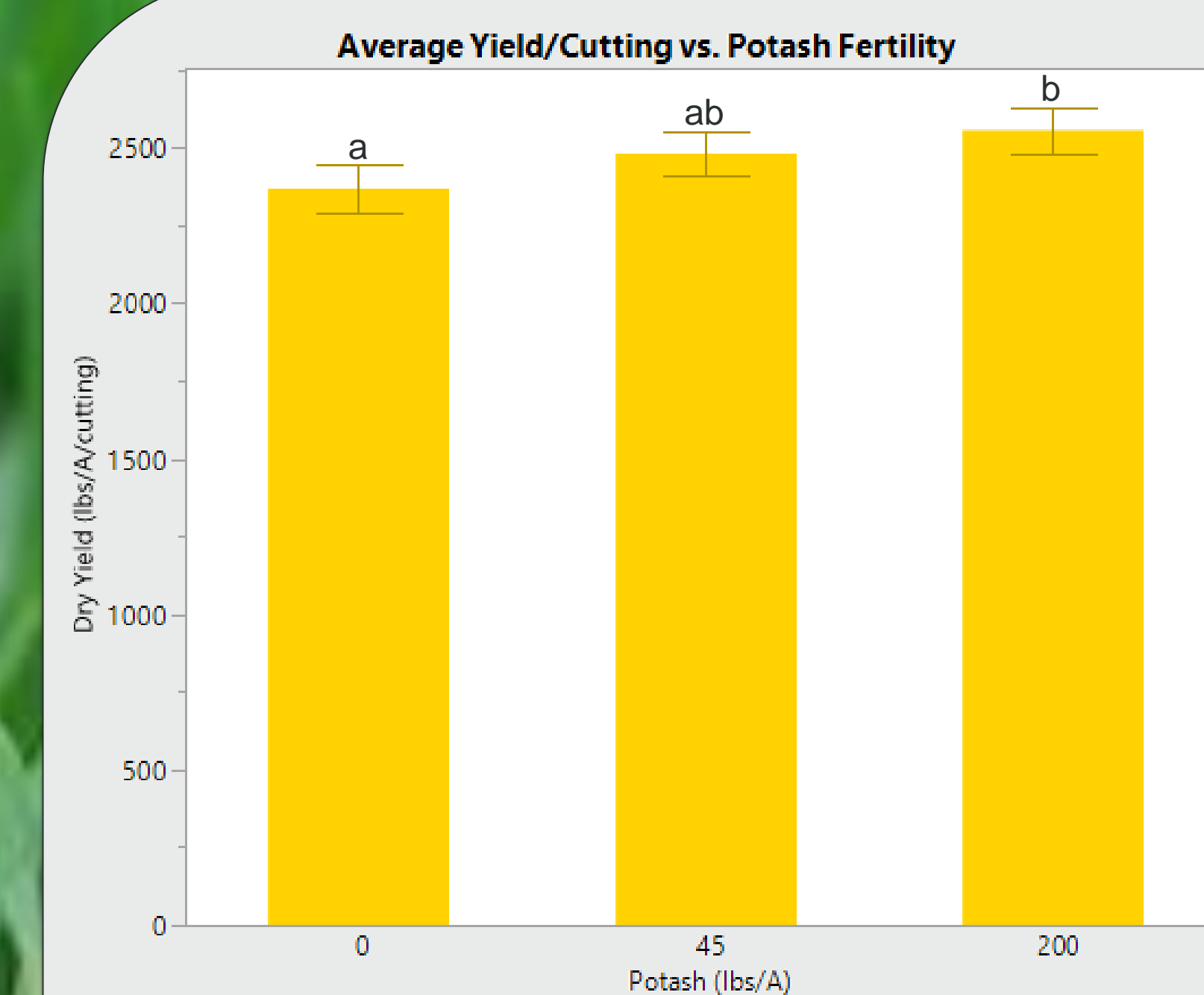


Figure 4. Average yield per cutting 2022-2023 combined ($\alpha=0.10$).

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