

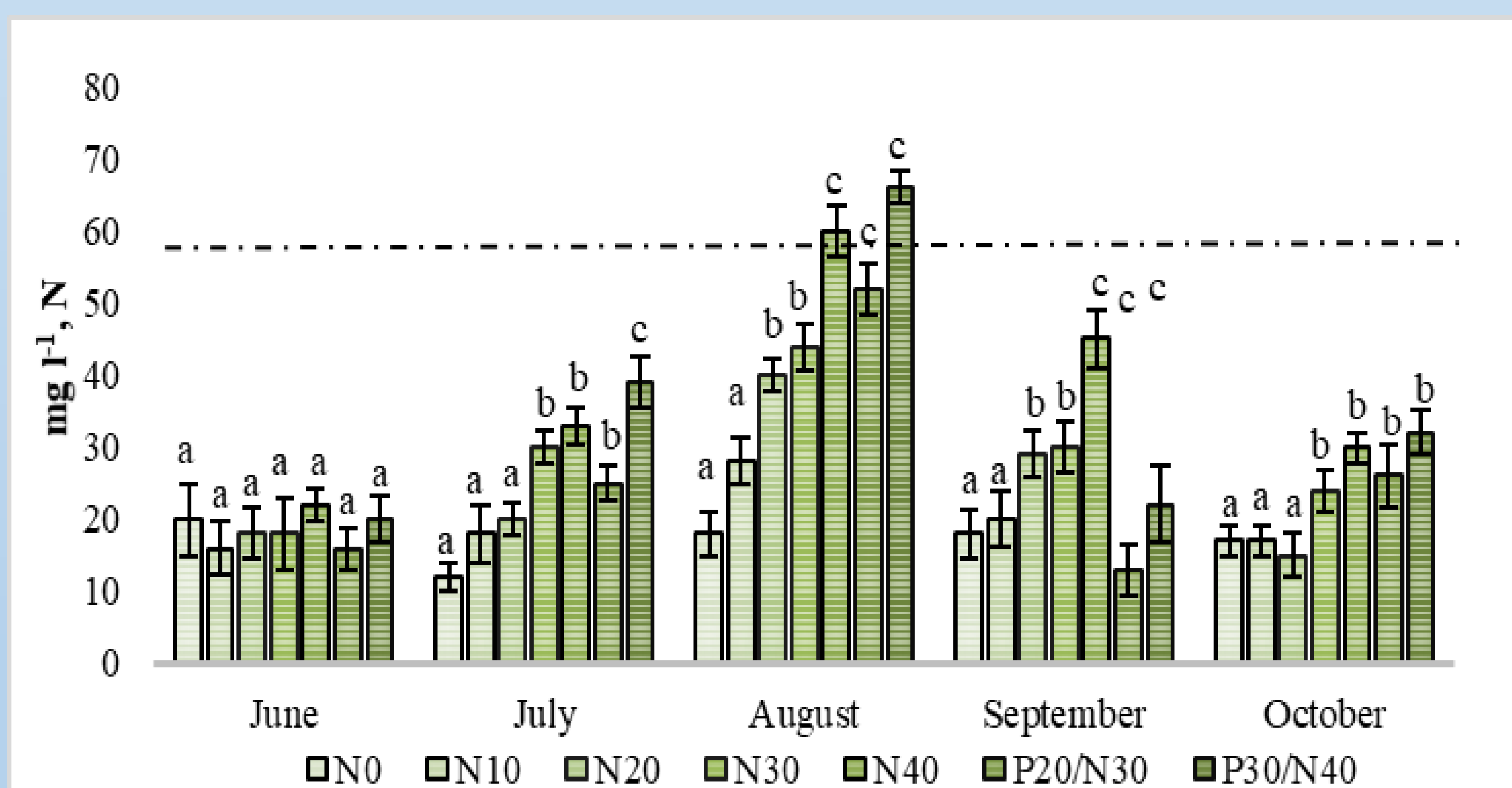
Nitrogen and phosphorus effect on American cranberry growth, yield and mineral element composition

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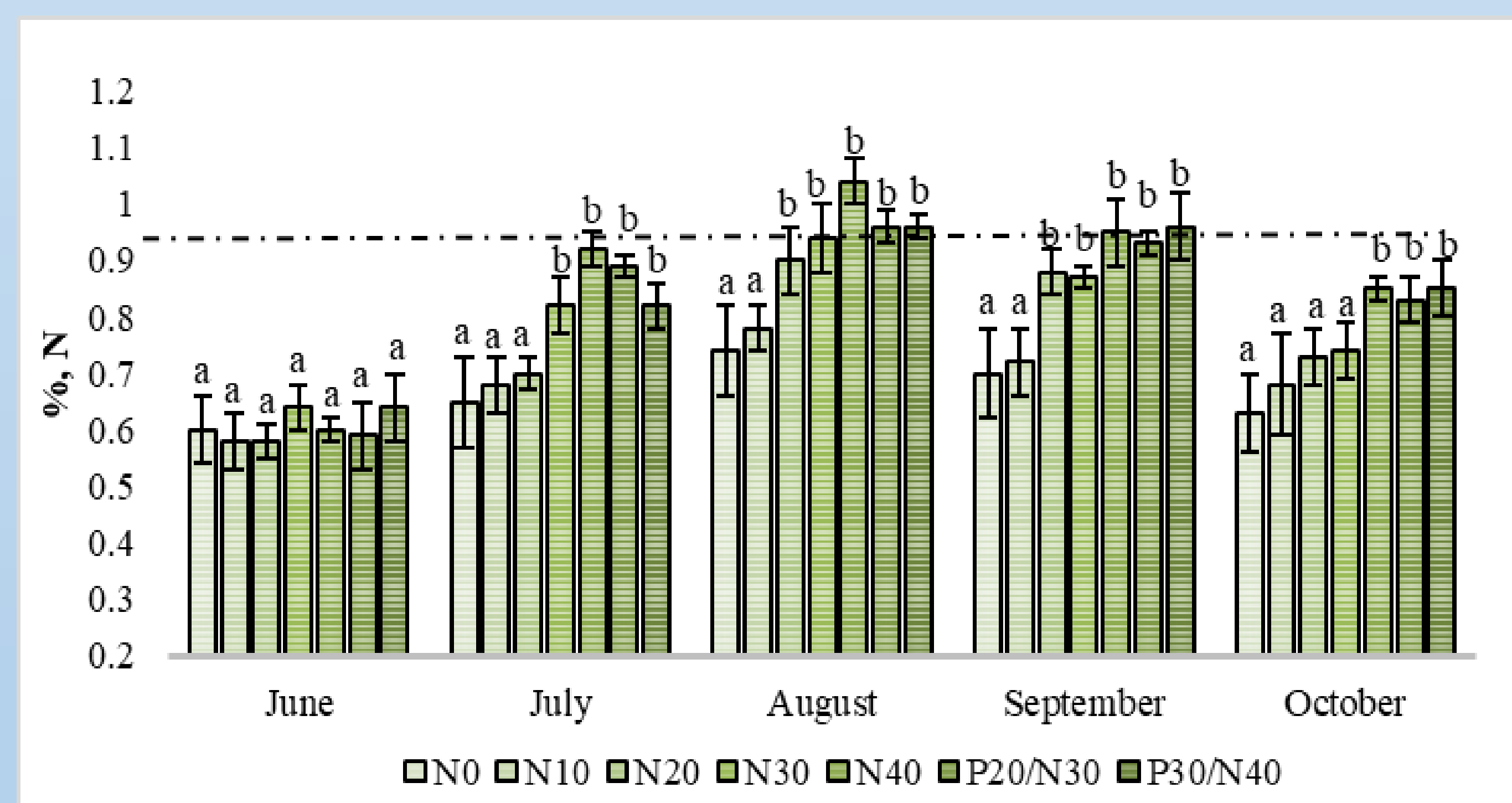
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The industrial cultivation of cranberries in Latvia was started during last 20 years with total plantings of more than 130 ha today. As a native wetland plant, commonly cranberry grows on poor, acid soils and are characterized as nutrients low requiring crop, however, to realize the full potential of cranberries as crop, balanced plant nutrition is vitally important to ensure adequate vegetative growth and yield production. Previous results obtained by authors from different cranberry producing plantings in Latvia frequently showed inadequate cranberry tissue supply with N and P. To examine the impact of N and P fertilizer rates on cranberry yield, fruit quality, physiological factors, and mineral element supply field trial were established.

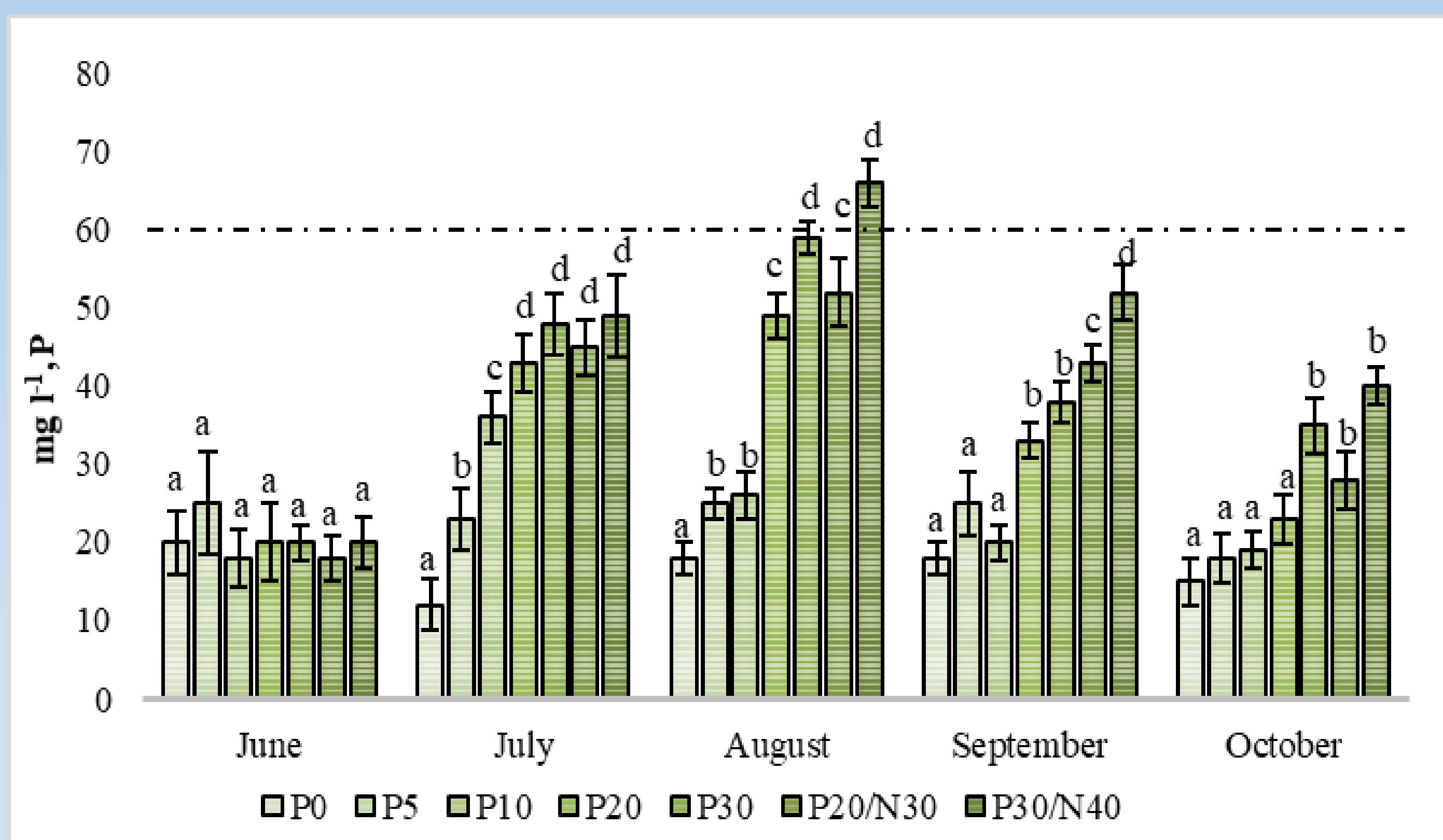
Field experiments on cranberry ‘Bergman’ were conducted during 2019 cropping season in a commercial plantation established on an excavated peat bog in Latvia. The cranberries received five levels of N (0 to 40 kg N ha⁻¹) and P (0 to 30 kg P ha⁻¹) as well as N/P treatment combinations applied in spring. Cranberry leaf analyses and soil (peat) testing were used as a diagnostics tool to reveal nutrient (N, P, K, Ca, Mg, S, Fe, Mn, Zn, Cu, Mo, B), soil pH and EC status.



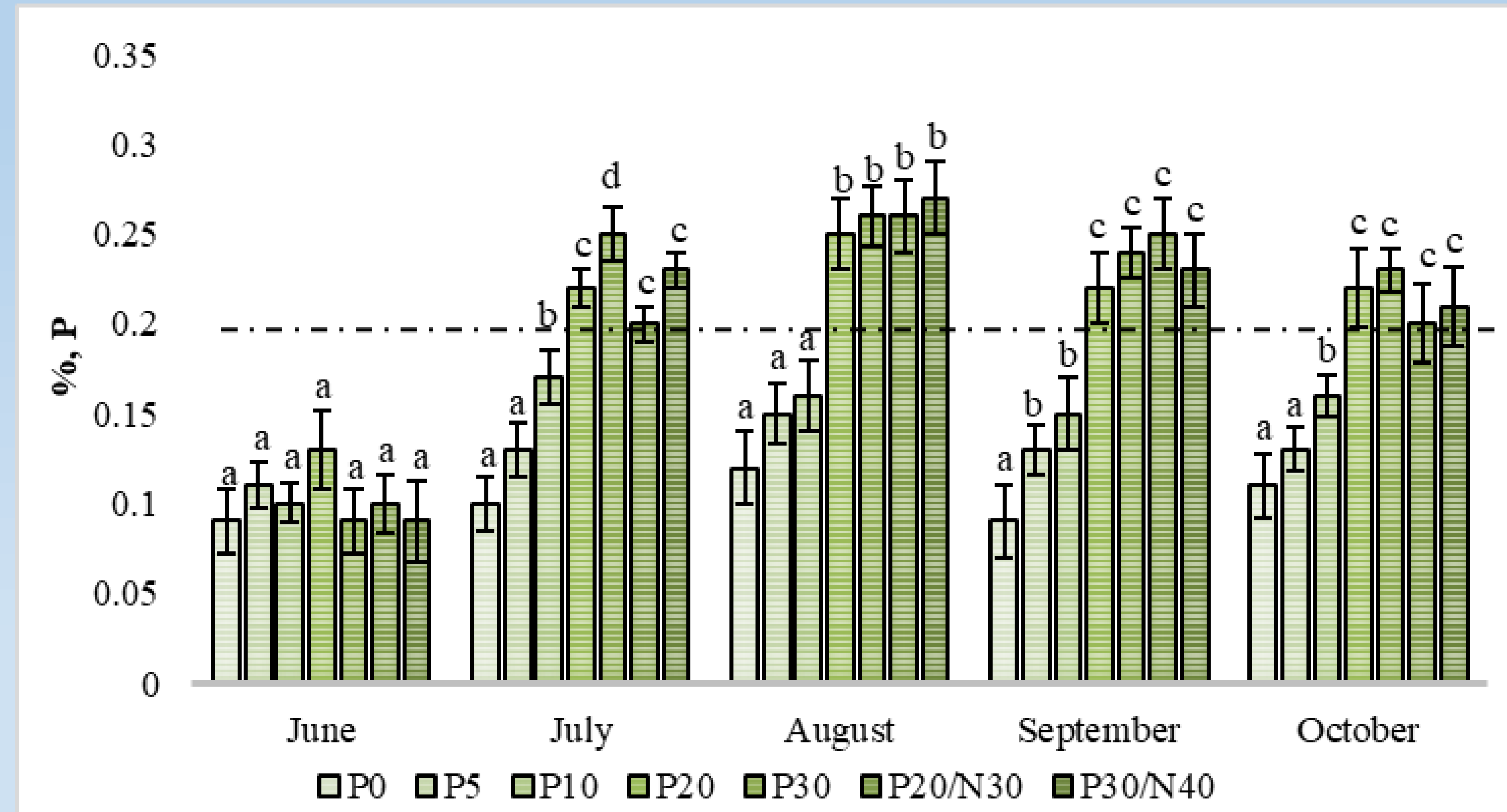
Concentration of N in American cranberry soil (mg l⁻¹).
Means with different letters for each month were significantly different (t-Test, p < 0.05).
Sufficiency level - - - - -



Concentration of N in American cranberry leaves (mg kg⁻¹).
Means with different letters for each month were significantly different (t-Test, p < 0.05).
Sufficiency level - - - - -



Concentration of P in American cranberry soil (mg l⁻¹).
Means with different letters for each month were significantly different (t-Test, p < 0.05).
Sufficiency level - - - - -



Concentration of P in American cranberry leaves (mg kg⁻¹).
Means with different letters for each month were significantly different (t-Test, p < 0.05).
Sufficiency level - - - - -

Treatment	N0	N10	N20	N30	N40	P0	P5	P10	P20	P30	P20/N30
Average yield from m ² (g)	310±47.3	345±29.6	376±28.7	405±10.7	425±58.0	330±35.6	326±24.3	560±52.7	450±23.9	483±55.6	756±25.5



CONCLUSION

Our study illustrates that low levels of N and P in cranberry peat and leaves could seriously limit cranberry yields in Latvia. In future researches, we should examine the yield and rot degree (field and storage) response to different N application doses. As well as differences in various cultivar responses to nitrogen and phosphorus management.