

INTRODUCTION

Areas with short growing seasons and early frosts are limited in their ability to establish cover crops. Cover crops aid in the management practices of reducing erosion, providing competition for weeds, and maintaining soil moisture and nutrients. While there may be time between the harvest of a grain crop and the first frost to plant a cover crop, the cover crops are rarely established enough to survive the winter. One practice that has been tried as a method to provide a healthy cover crop is to seed the grain crop and cover crop at the same time. The interseeding of these crops would allow the grain crop to grow to harvest and then the suppressed, but present, cover crop would have ample time to establish and be able to survive the winter: providing its intended management practice. This study examined the viability of interseeding a barley grain crop and red clover cover crop.

Objectives

- Examine if interseeded red clover can establish a sufficient stand to act as a practical cover crop

MATERIALS AND METHODS

- Cover crop was red clover (*Trifolium pretense*). Planted May 2014 at 17 kg ha⁻¹
- Grain crop was barley (*Hordeum vulgare*). Planted May 2014 at 112 kg ha⁻¹
- This experiment was designed to include ten treatments with three replications in a split plot factorial design (Tables 1)
- The two factors were red clover interseeded into barley and a barley control, and increasing N rate from 0 kg ha⁻¹, 45 kg ha⁻¹, 90 kg ha⁻¹, 135 kg ha⁻¹, and 180 kg ha⁻¹ using ASN fertilizer (Table 1)
- Crop and weed density counts were taken 31 May 2014 and 30 June 2014
- Barley was harvested 28 August 2014
- Barley seeds were cleaned and weighed 1 October 2014
- Clover stands were counted 2 October 2014
- A one-way ANOVA was performed on the plant population data

RESULTS AND DISCUSSION

Effects Interseeded Red Clover on Barley Yields

- The clover stand was suppressed by the barley (Figure 1)
- Interseeding red clover did not decrease barley yield (Figure 2)

Effects of N application on barley and red clover Yields

- Barley yield was not effected by the N application rate (Figure 2)
- Red clover population was not affected by N application rate (Figure 3)

Effects of Interseeded Red Clover and Barley on Weed Suppression

- Weeds that were common to the area where this study was conducted were redroot pigweed (*Amaranthus retroflexus*), lamb's quarter (*Chenopodium album*), and volunteer grasses. These weeds as well as the barley and clover stands were counted by taking three random 1 ft² samples from each sub plot.

CONCLUSION

Interseeded red clover did not influence barley grain yield; however, the red clover did not persist as a cover crop.

TABLES AND FIGURES

Table 1. The N fertilizer treatments and seeding rates of the interseeded barley and red clover plot

Treatment	Red Clover	Barley	N Fertilizer Rate (lbs/acre)
1	15 lbs/acre	100 lbs/acre	0
2	15 lbs/acre	100 lbs/acre	40
3	15 lbs/acre	100 lbs/acre	80
4	15 lbs/acre	100 lbs/acre	120
5	15 lbs/acre	100 lbs/acre	160
6	0 lbs/acre	100 lbs/acre	0
7	0 lbs/acre	100 lbs/acre	40
8	0 lbs/acre	100 lbs/acre	80
9	0 lbs/acre	100 lbs/acre	120
10	0 lbs/acre	100 lbs/acre	160

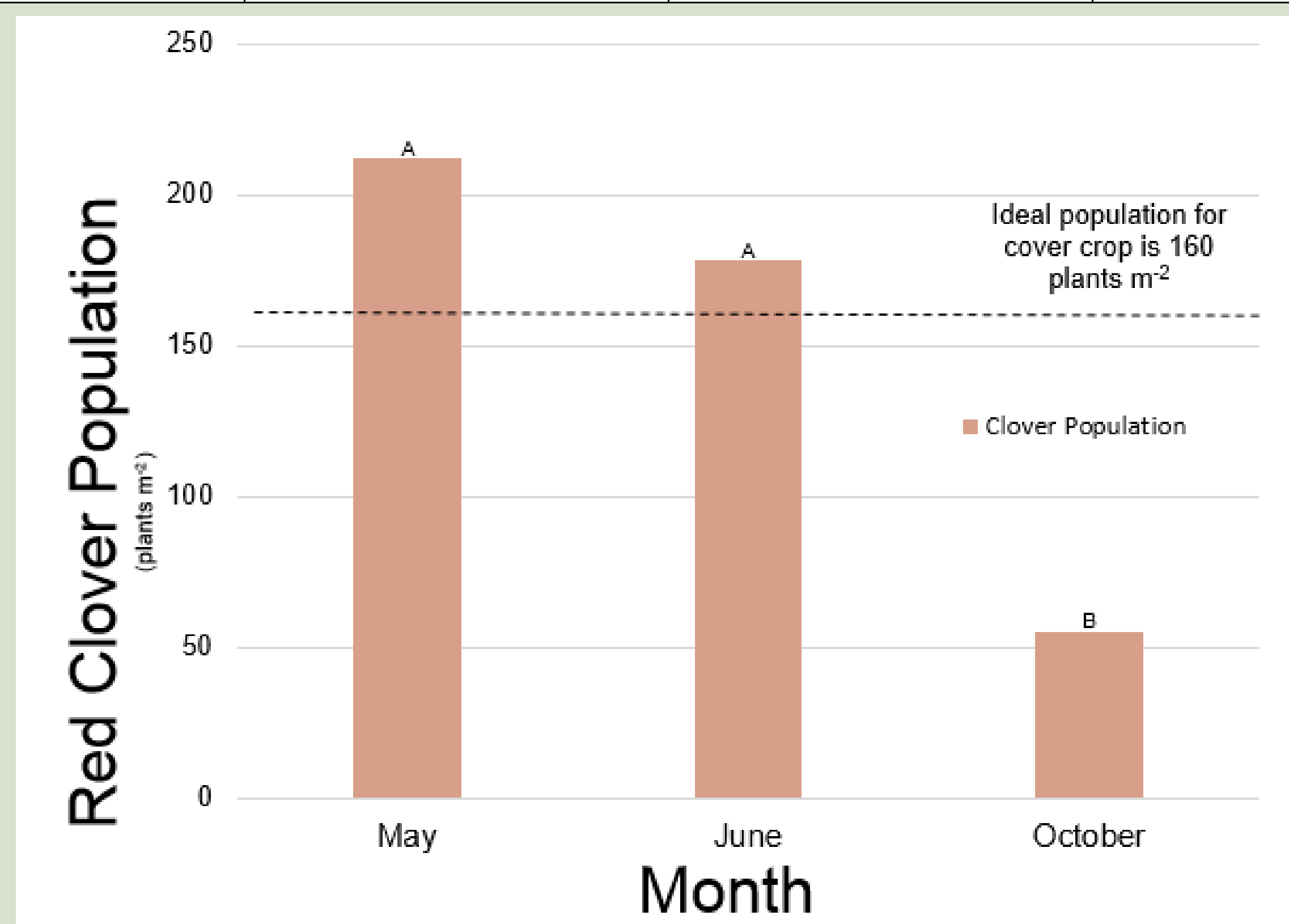


Figure 1. Interseeded red clover population from establishment to one month after barley grain harvest in 2014.

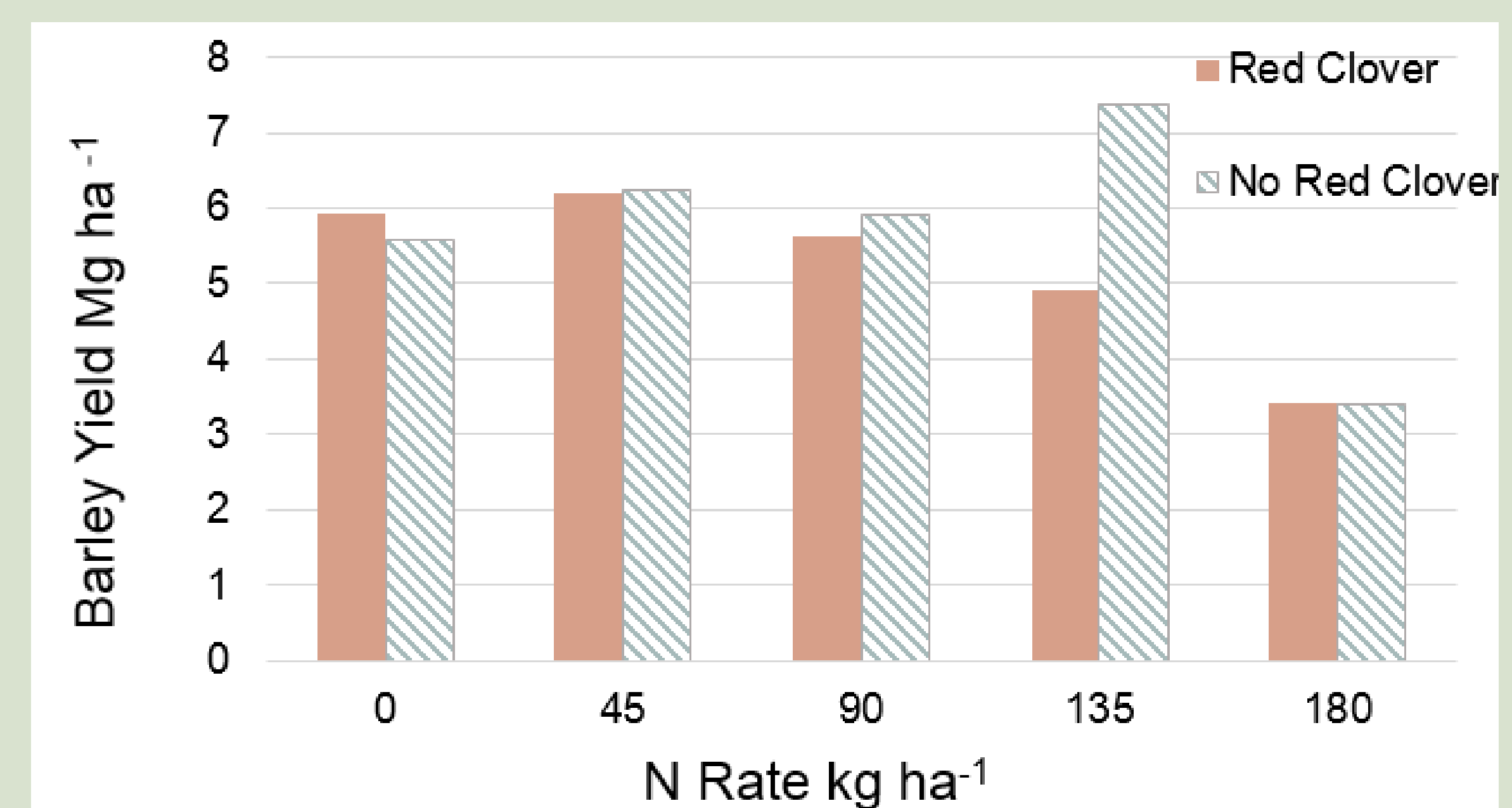


Figure 2. Comparison of barley grain yield with and without interseeded red clover at five nitrogen application rates.

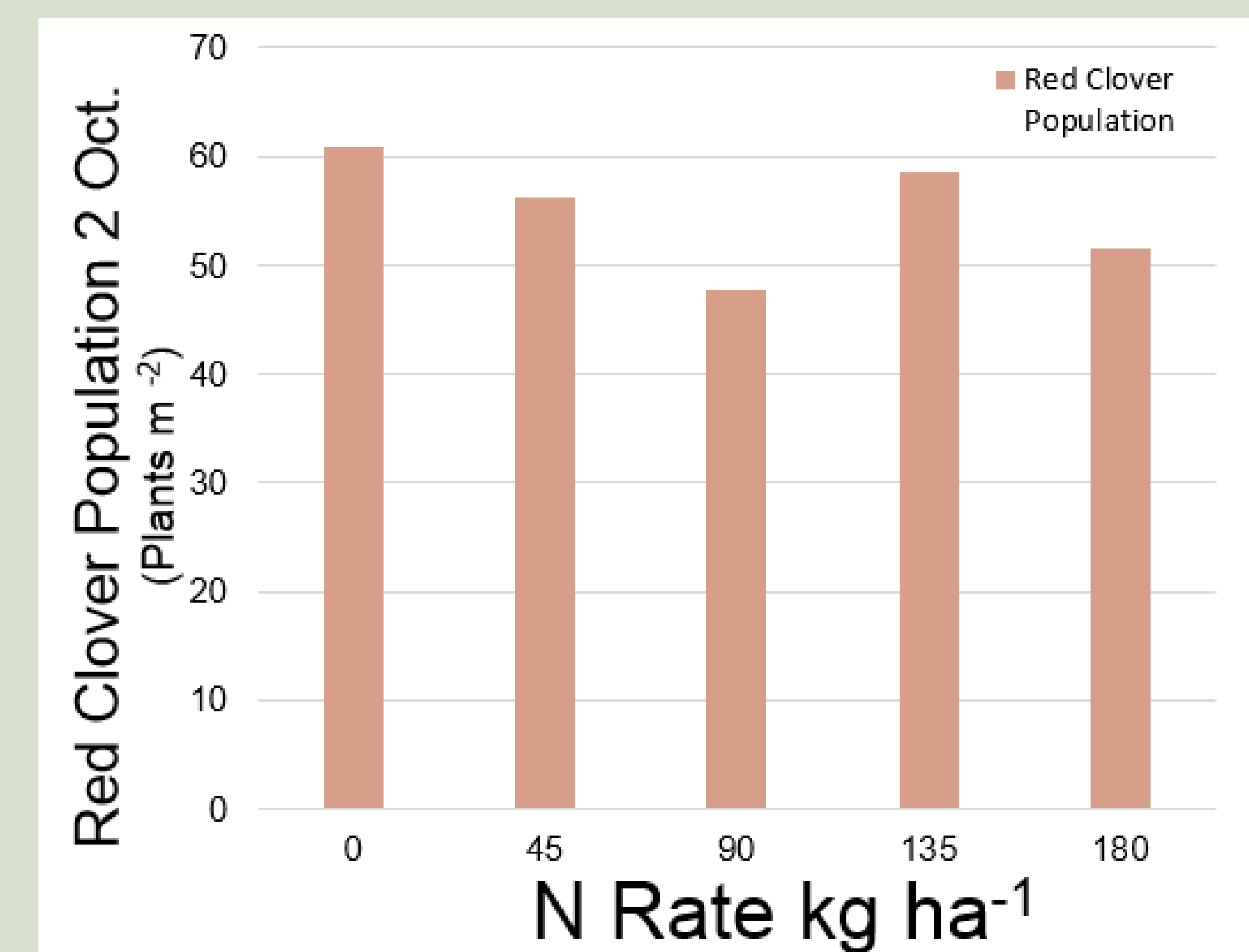


Figure 3. Comparison of red clover populations, post barley grain harvest, at five nitrogen application rates.