

Overseeding cereal rye and annual ryegrass into soyabean for forage as part of a multifunctional cropping system

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Introduction In the lower Midwest, the longest period of inadequate forage supply from pasture is from mid-December through mid-March (Matches & Burns, 1995). Livestock producers in this region are looking for high quality forage for winter grazing (Kallenbach *et al.*, 2003). Annual ryegrass (*Lolium multiflorum* Lam.) and cereal rye (*Secale cereale* L.) are two forages that Missouri's beef producers are interested in to extend the grazing season. The objective of this research was to determine how seeding date impacts the establishment, growth, and forage production of annual ryegrass and cereal rye when planted into soyabean fields as part of a multifunctional cropping system.

Materials and methods The experiment was conducted at Bradford Research and Extension Centre, near Columbia (38°57'N 92°20'W). 'Saddle Pro' annual ryegrass and 'Winter grazer 70' cereal rye were overseeded into standing soyabean (*Glycine max* L.) at 3 different stages of crop growth (Table 1). An unseeded control was included. The annual ryegrass was overseeded into the soyabean crop at 39 kg/ha of pure live seed, and cereal rye was overseeded at 140 kg/ha of pure live seed. Forage yield for each treatment was measured when the average height of the 5 replications was 20-25 cm. All forage was harvested using a sickle mower set to leave a 7.6 cm stubble. In the following late April, the annual ryegrass and cereal rye were terminated to allow for row crop planting.

Table 1 Annual ryegrass and cereal rye overseeding treatments based on soybean developmental stage

Species to be overseeded	Developmental stage of soyabean	Description of treatment
Annual ryegrass	R 5.5	2 weeks before leaf drop
Cereal rye	R 5.5	2 weeks before leaf drop
Annual ryegrass	R 6.5	At leaf drop
Cereal rye	R 6.5	At leaf drop
Annual ryegrass	R 8	At harvest
Cereal rye	R 8	At harvest
-	-	Control

Results Forage treatments did not alter soyabean yield. Figure 1 shows the cumulative forage yields for the treatments. Cereal rye seeded at R 5.5 and R 6.5 yielded equally (average of 4000 kg/ha), but the R 5.5 treatment produced 25% more than the cereal rye seeded at R 8. Annual ryegrass showed a similar trend with the R 5.5 and R 6.5 yielding equal amounts of forage (mean 3200 kg/ha), but the R 6.5 treatment yielded 20% more than the treatment seeded at R 8. When seeded at R 5.5, cereal rye yielded 30% more than the annual ryegrass.

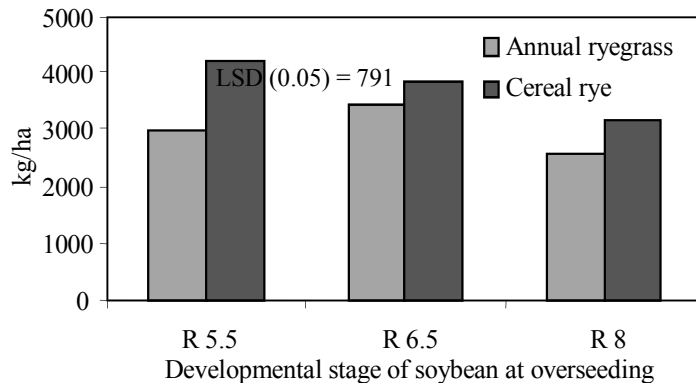


Figure 1 Total forage yield

Conclusion Livestock operations in the lower Midwest can use cereal rye and annual ryegrass overseeded into soyabean for winter grazing. Overseeding at R 5.5 cereal rye produced more forage than annual ryegrass and overseeding at R 6.5 or R 8 produced similar yields for both cereal rye and annual ryegrass. All treatments yielded >2500 kg/ha for the season, which would be an adequate source for winter forage.

References

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