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Tractor Power Requirement of No-Tillage Seeder under Different Cover Crop Residue Management

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Abstract

No-tillage with cover crop has great potential to improve soil quality, however, it is still not clear what no-tillage seeding technique should be used under cover crop residue mulch in upland crop production. In this research, to identify the optimum no-tillage seeding management, no-tillage seeder performance and power requirement were measured in relation to different cover crop residue management.

The tractor power required for the no-tillage seeder was higher with rye cover crop than hairy vetch and a mixture of rye and hairy vetch. Cover crop residue also showed a significant difference in the power required by the no-tillage seeder. Mowing the cover crop significantly reduced the power requirement compared with bush cutting. Termination of cover crop growth was another factor that significantly affected the power required. Late April growth termination of cover crop showed a lower power requirement than early May growth termination. As the amount of cover crop residue increased, the power requirement also increased, although the rye and hairy vetch mixture showed relatively lower power requirement. These results suggest that rye and hairy vetch mixture and mowing treatment are appropriate for using a no-tillage seeder under cover crop residue mulch.

Key words

[Cover crops](#), [No-tillage seeder](#), [Power requirement](#), [Rye](#), [Hairy vetch](#)

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