

# Study on forage yield, quality and ensiling of black oat harvested on different days <sup>(1)</sup>

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## Abstract

To examine the effect of forage yield, quality and ensiling on different harvest days, this study was conducted to use black oat (*Avena strigosa* Schreb.) as winter forage, which was widely adapted to various climatic conditions. From boot stage, with longer harvest days comes higher dry matter content and yield of black oat, from 15.6% and 5.37 ton/ha increase to 45.5% and 10.54 ton/ha, respectively. However, forage quality became worse as longer harvest days. The content of crude protein (CP) and water soluble carbohydrates (WSC) from 20.8% and 6.7% decrease to 12.8% and 5.0%, respectively. Besides, the content of acid- and neutral- detergent fiber from 37.8% and 52.4% increase to 43.5% and 63.6%, respectively. The ensiling and silage quality of black oat were affected by DM and nutrient contents for different harvest days. Black oat with or without lactic acid bacteria (LAB) inoculation would both be good quality silage by harvest of 93 days after planting. However, higher DM and lower WSC content of black oat by harvest of 119 days after planting would inhibit lactic acid yield during silage fermentation, it needed LAB inoculation to become high quality silage. Under adequate DM and the same harvest date, with the longer wilting time, DM of black oat became higher, and the content of WSC fluctuated on different wilting time, but the content of CP and fiber were nearly no difference. With the longer wilting time, the content of lactic acid yield by silage fermentation became lower, but it could be good quality silage without LAB inoculation. Besides, the content of silage lactic acid increased significantly with LAB inoculation, and all of the inoculated silage on different wilting time could attain to excellent quality.

Key words: Oat, Harvest date, Forage quality, Silage.

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