



University of Kentucky
UKnowledge

International Grassland Congress Proceedings

XXI International Grassland Congress / VIII
International Rangeland Congress

Dynamic Analysis of Nutrient Composition and Digestibility of *Cichorium intybus* in Hohhot

Bingzhe Fu

Inner Mongolia Agricultural University, China

Fugui Mi

Inner Mongolia Agricultural University, China

Risu Na

Inner Mongolia Agricultural University, China

Hongmei Ning

Inner Mongolia Agricultural University, China

Follow this and additional works at: <https://uknowledge.uky.edu/igc>



Part of the [Plant Sciences Commons](#), and the [Soil Science Commons](#)

This document is available at <https://uknowledge.uky.edu/igc/21/15-2/5>

The XXI International Grassland Congress / VIII International Rangeland Congress took place in Hohhot, China from June 29 through July 5, 2008.

Proceedings edited by Organizing Committee of 2008 IGC/IRC Conference

Published by Guangdong People's Publishing House

This Event is brought to you for free and open access by the Plant and Soil Sciences at UKnowledge. It has been accepted for inclusion in International Grassland Congress Proceedings by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.

Dynamic analysis of nutrient composition and digestibility of *Cichorium intybus* in Hohhot

Fu Bing-zhe Mi Fu-gui Na Ri-su Ning Hong-mei

College of Ecology and Environment , Inner Mongolia Agricultural University , Hohhot , 010018 , China . E-mail :fbzhe19@163 .com

Key words nutrient composition ,digestibility ,*Cichorium intybus* ,growth stage , crude protein

Introduction *Cichorium intybus* belongs to Compositae family ,Chicory genera perennial herb ,which is a cold-resistant , drought-resistant , high yielding and good-quality forage crop (N .VanStallen ,2005) . Nutrient contentt and digestibility of different growth stages of *Cichorium intybusv* cultivated in Hohhot have been studied in this paper . The objective was to provide evidences for reviewing the nutritive values and confirming the best utilization stage

Materials and methods The mixture of stems and leaves randomly collected from two-year-old *Cichorium intybus* in Hohhot , at five growth stages in turning green stage (TGS) , bolting stage (BOS) , bud stage (BUS) , flowering stage (FLS) , and seed setting stage (SSS) . We measured the crude protein content (CP , Kai's method) , crude fiber content (CF , Acid and Alkali lation method) , crude fat content (CRF , Ether extraction method) , adsorbed water content (ADW , Constant temperature dryness) , crude ash content (ASH , Ashing method) , digestibility (DIG , Enzymolysis method) , and nitrogen free extract content (NFE , Difference calculation method) (Na ri-su , 2006) .

Results CP , ASH and ADW linearly increased with the advance of growth . From BUS to FLS , CP rapidly decreased 4 .51% . ASH and ADW decreased 2 .27% and 3 .83% , respectively , from BOS to BUS . CF has a maximal rise of 7 .88% between BOS and BUS . The changes of CRF and NFE are not obvious during the growth period (Figure 1) .With the advancing of growth , DIG trended to decrease . There is no salient difference between BUS and FLS ,but significant differences ($P<0 .01$) occurred among the other growth stages . DIG decreased a maximum of 9 .55% from BOS to BUS (Figure 2) .

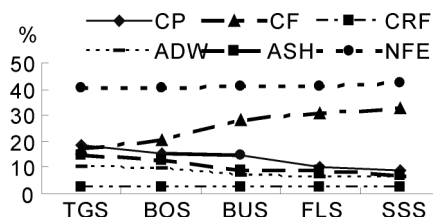


Figure 1 The nutrient composition of different growth stages .

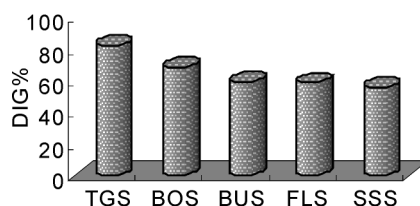


Figure 2 The digestibility of different growth stages .

Conclusions CP ,ADW ,ASH and DIG decreased with advancing growth . CF increased from TGS to SSS . With advancing growth of *Cichorium intybus* , nutritive value and digestibility declined , which has obvious changes between bolting stage and bud stage . Therefore , the bolting stage and bud stage are deemed to the best harvest stage of *Cichorium intybus* .

References

- N .VanStallen . QTL analysis of production and taste characteristics of chicory [J] . *Plant Breeding* . 124 , 59-62 , (2005) .
Na ri-su . Introduction , Culture and implication research of several silage Crops [D] . *Inner Mongolia Agricultural University master 's thesis* , 2006 .