



University of Kentucky  
UKnowledge

---

International Grassland Congress Proceedings

XXI International Grassland Congress / VIII  
International Rangeland Congress

---

## Study on Quality of 22 Alfalfa Varieties in Hebei Lowland Plain

Yuan Li

*Hebei Academy of Agricultural and Forestry Sciences, China*

Haiming Zhao

*Hebei Academy of Agricultural and Forestry Sciences, China*

Nan Xie

*Hebei Academy of Agricultural and Forestry Sciences, China*

Guibo Liu

*Hebei Academy of Agricultural and Forestry Sciences, 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/21/13-2/33>

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](mailto:UKnowledge@lsv.uky.edu).

## Study on quality of 22 alfalfa varieties in Hebei lowland plain

LI Yuan, ZHAO Hai-ming, XIE Nan, LIU Gui-bo\* (Dryland Farming Institute of Hebei Academy of Agricultural and Forestry Sciences, Hengshui 053000, China; \* corresponding Author, E-mail :lgb2884@yahoo.com.cn)

**Key words :** alfalfa cultivars , quality , plant height , crude protein , leaf-stem ratio

**Introduction** Alfalfa (*Medicago sativa* L.) is one of the leading perennial legume forage extensively planted in China, also known as "the king of forage" because of its good palatability and quality. In order to estimate the qualities of different varieties, 22 varieties were introduced into Hebei lowland plain and used in this experiment from 2004 to 2006.

**Materials and methods** Experiment was carried out at the Dry-Land Farming and Water Saving Station of Hebei Academy of Agricultural and Forestry Sciences (37°44' N, 115°42' E), and randomized block design was used. Each variety was planted in a plot of 10m<sup>2</sup> (2×5) with 3 repetitions. Grass yield (GY), plant height (PH), leaf-stem ratio (LSR) and crude protein content (CPC) were tested. SAS<sup>TM</sup> software was used for statistical analysis.

### Results and analysis

#### 1. Analysis for GY

GY was divided into 2 parts, i.e. dry yield (DY) and fresh one (FY). In the first year of 2004 the DY of Zhongmu 1, Baoding, LMF5 were higher than others, and Pondus, Farmer treasure, Apex, FD3 were lowest remarkably. In 2005, the dry-grass yield of different cultivars were significant ( $p < 0.05$ ), the Zhongmu 1 was the highest one (22.8 kg/10m<sup>2</sup>) and Algonquin was the lowest. In 2006 Baoding was the highest (3.6 kg/10m<sup>2</sup>), Zhongmu 1 was in second (3.4 kg/10m<sup>2</sup>) and Algonquin was the lowest one in all varieties (2.2 kg/10m<sup>2</sup>). For the fresh grass yield Baoding was the highest (83.9 kg/10m<sup>2</sup>) and Pondus was the lowest (52.8 kg/10m<sup>2</sup>) in all the accessions. There were no significant difference among other 17 varieties ( $p < 0.05$ ).

#### 2. Analysis for PH

There were no significant differences of PH among varieties in this experiment ( $p < 0.05$ ), same with varied cuttings. No correlation characteristic was found between PH and yield in all varieties in this experiment.

#### 3. Analysis for LSR

The LSR among different varieties were significantly ( $p < 0.05$ ), Affinity, Speedy and AmeriStand201+Z were higher than others. Results showed 3 of them performed more leaves and gave good quality. The LSR of FD3, Farmer Treasure were lowest in the tested cultivars as they all had less leaves and lower quality.

#### 4. Analysis for CPC

The CPC among varieties were different remarkably ( $p < 0.05$ ). The order of former 5 which had higher crude protein content were: Baoding > Zhongmu 1 > AmeriStand 201+Z > Affinity > Chuangxin, Pondus, Sitel and Speedy were lower.

**Conclusions** The total grass yield of 3 years results showed Zhongmu 1 demonstrated the best one from both yield and quality point of view, whose FY was about 216.05 kg/10m<sup>2</sup> and the DY was about 55.7 kg/10m<sup>2</sup>, the CPC of Baoding, Zhongmu 1, WL323ML were higher than others noticeably; the LSR of most varieties were more than 1, the PH were not difference remarkably among varieties and there was no significant correlation between it with yield; though there were some flexible among varieties as the increasing of growth ages. Results from this experiment only provide a valuable data for Alfalfa research and utilization in livestock.

### Reference

Dong K H, Sheng Y X. 2003. Forage production science[M]. Beijing: China Agricultural press (in Chinese).