



University of Kentucky
UKnowledge

International Grassland Congress Proceedings

21st International Grassland Congress / 8th
International Rangeland Congress

Kura Clover (*Trifolium ambiguum*) in Pastures for Western Canada

Jane R. King
University of Alberta, Canada

Jennifer A. Walker
University of Alberta, Canada

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/21/1-2/7>

The 21st International Grassland Congress / 8th 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.

Kura clover (*Trifolium ambiguum*) in pastures for western Canada

Jane R. King and Jennifer A. Walker

Department of Agricultural, Food and Nutritional Sciences, University of Alberta, Edmonton, Alberta, Canada T6G 2P5, E-mail: jane.king@ualberta.ca

Key words : clover, binary-mixtures, establishment, species composition

Introduction Kura clover (*Trifolium ambiguum*) is a rhizomatous perennial clover native to the Caucasian region of Russia. Kura shows a greater range of tolerance to drought, soil type, pH, elevation and grazing intensity than other legumes commonly used in North America (Taylor and Smith, 1998). Western Canada currently lacks a persistent pasture legume species.

Materials and methods Tests occurred in Edmonton, Alberta, Canada from 1999 to 2005. Our objectives were to test (a) yield and quality of kura clover monocultures when harvested one-five times per growing season, (b) the productivity and persistence of kura when grown in binary mixtures with either meadow bromegrass (*Bromus biebersteinii*) K-MB; orchard grass (*Dactylis glomerata*) K-OG; timothy (*Phleum pratense*) K-T; or Kentucky bluegrass (*Poa pratensis*) K-KBG and (b) to examine the effects on species composition and forage yield of seeding meadow bromegrass into an establishing kura stand. Data were analysed using the general linear model procedure of SAS (2003) $p < 0.05$.

Results and discussion Kura monocultures yielded from 4,300 kg/ha dry matter to 13,000 kg/ha dry matter in the first production year. Yield did not significantly differ whether harvests occurred two, three, four or five times per season (Table 1). K-MB mixtures produced the greatest biomass, however, both meadow bromegrass and orchard grass severely out-competed the kura clover (Table 2). The highest percentage of kura clover (45%) occurred in the K-KBG mixtures (Table 2). Meadow bromegrass, seeded into establishing kura clover prior to the clover reaching the 1st and 3rd true leaf stage, achieved a good species balance in the second and third production years.

Table 1 Total annual yield and quality of kura clover at five harvest frequencies in the first and second production year for plots established in 1999 or 2000.

Harvest Frequency	Total annual production (kg/ha)			Forage Quality			
	First Production year (estab 1999)	First production year (estab 2000)	Second Production year	Harvest Frequency	Average Percentage (first production year, estab. 1999)		
					Crude Protein	NDF	ADF
1	4344.14 b	4344.13 c	3728.85 b	1			
2	10324.08 a	5941.35 b	7631.18 a	2	17.58 c	41.53 b	34.80 b
3	11288.57 a	7157.96 a	7129.62 a	3	19.52 b	33.97 ab	25.67 a
4	13093.56 a	8811.73 a	9830.24 a	4	22.36 a	33.01 a	24.33 a
5	10493.97 a	8384.27 a	8053.69 a	5	23.49 a	31.40 a	24.40 a

Table 2 Total annual dry matter yield (kg/ha) and species composition of mixtures of kura clover with Kentucky bluegrass (K-KBG), meadow bromegrass (K-MB), orchard grass (K-OG), or timothy (K-T) or kura in monoculture (K) in the first (2000) and second production years (2001).

Mixture	First production year				Second production year			
	Total annual yield (kg/ha)		Percentage clover		Total annual yield (kg/ha)		Percentage clover	
Kura	12,600	bc			6,940	b		
K - KBG	12,908	bc	45.0	a	6,828	b	47.0	a
K - MB	14,429	ab	7.0	cd	10,174	a	14.0	b
K - OG	12,901	bc	5.2	cd	5,760	c	24.1	a
K - T	11,427	cd	12.2	c	4,290	d	33.0	a

Conclusion Kura clover has considerable potential as a new pasture legume for western Canada.

Reference

Taylor, N.L. and Smith R.R., (1998). Kura clover (*Trifolium ambiguum* M.B.) breeding, culture, and utilization. *Advances in Agronomy*, 63, 153-178.