

Kura Clover

– A pasture legume, cover crop, and Seed Crop for California?

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Introduction. Kura Clover (*Trifolium ambiguum* L.) is a low-growing, spreading perennial pasture legume. It's also called Caucasian, Pellett's or honey clover. Its primary potential use is as a pasture crop, but the first cutting in the spring might be taken as a hay or silage crop. It is unknown how widely adapted Kura might be in California.



Promises. Kura has a range of other characteristics which are quite positive and interesting. Once established it is very persistent, and can contribute to a pasture even under intense grazing—persistence is likely superior to red or alsike clover, and likely superior to alfalfa. IT works well in mixtures with grasses such as orchardgrass and reed canarygrass, but not timothy. Additionally, it produces a high quality forage and is very attractive to bees. Its yields are not likely to be superior to alfalfa, but are quite high compared with other clover species. Kura clover produces a lot on N through biological N₂ fixation. Kura also has the potential to contribute to innovative cropping systems, such as perma-seeding (corn with low-growing legume), organic systems, or soil cover for vineyards or orchard to contribute both biologically-fixed Nitrogen as well as a stable soil and below-ground biomass for carbon sequestration.

Limitations. Kura clover is VERY slow to develop and become established. Therefore, weed management is a challenge. It is highly prostrate and high in moisture, so it is not well suited as a hay crop (although occasional cuttings could be hayed). Kura is very frost tolerant, but production declines under hot temperatures (though we have produced kura under Central Valley Conditions). One of the main limitations nationwide is the ability to produce seed which limits the ability to envision a wider role for kura clover in Midwestern or world-wide cropping systems. California is well-suited to determine whether seed can be produced here and whether it has a fit for our environments.

Experiments. Therefore these trials were instituted to determine forage potential of kura clover, and the possibility of producing seed in California. Trials were established at Davis, CA, El Centro, CA, and Tulelake, CA. We are working with clover breeders at the University of Minnesota to test their advanced lines and determine:

1. **The forage potential of Kura clover in three environments in California.**
2. **The potential for seed production.**
3. **The potential for Kura clover to be adapted to irrigated pasture in California, as well as a cover crop in orchards, vineyards, etc.**

Davis Kura	FORAGE										SEED												
B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
B	2	6	4	7	8	9	5	3	1	B	B	3	4	7	2	6	8	5	1	B	B	B	
B	4	5	12	13	20	21	28	29	36	B	B	4	5	12	13	20	21	28	29	B	B	B	
B	7	2	6	1	3	8	9	5	4	B	B	3	2	4	5	7	1	6	8	B	B	B	
B	3	6	11	14	19	22	27	30	35	B	B	3	6	11	14	19	22	27	30	B	B	B	
B	6	5	8	7	3	2	4	1	9	B	B	1	3	7	4	6	8	2	5	B	B	B	
B	2	7	10	15	18	23	26	31	34	B	B	2	7	10	15	18	23	26	31	B	B	B	
B	9	8	3	5	4	1	7	2	6	B	B	7	1	4	3	8	5	6	2	B	B	B	
B	1	8	9	16	17	24	25	32	33	B	B	1	8	9	16	17	24	25	32	B	B	B	
B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
←-----80----->																							
No.	Variety																						
1	Cossack Kura																						
2	MSP 3761 Non-Flowering Kura																						
3	MSP 3970 Golf Kura																						
4	MSP 3751 LP Kura																						
5	MSP 3759 Flowering Kura																						
6	MSP 3811 Erect Bunch Kura																						
7	MSP 3793 Erect Spreader Kura																						
8	MSP 3517 NF-93 Kura																						
9	Alfalfa																						

A FEW MORE INTERESTING FACTS:

- Kura clover is a persistent, winter-hardy, grazing tolerant quality forage legume.
- Kura clover seedlings germinate, emerge and develop the first three true leaves at about the same rate as other legumes, but then leaf development slows and energy from photosynthesis is used for root and rhizome development.
- Its short stature makes it extremely susceptible to shading from weeds or existing grass in the field during the first year.
- Although stand density and forage production in the seeding year will be low, because kura clover produces rhizomes and individual plants can spread from six to 12 inches per year after successful establishment, initial thin stands have the potential to improve with time.

- Seed size of kura is about the same as alfalfa but, because the plant spreads by rhizomes, a lower sowing rate can be used. Excellent stands of kura clover can be obtained with 8 pounds of seed per acre or as low as 5 pounds per acre. However, seed supply is limited.
- Shallow sowing of kura clover is important about, 1/4 inch.
- Spring and late summer are the best times for conventional kura clover sowing.
- Late summer (July 15 to October) sowing may help avoid competition from annual grass and broadleaf weeds.
- Several existing herbicides may be effective in Kura clover – however, many are not registered.



Kura Clover has been proposed for a 'perma-crop' system with annuals such as corn, since it is so persistent and a vigorous N₂ fixer (obtains significant nitrogen from biological N₂ fixation), as seen in these Wisconsin trials.



Kura Clover could also be used as a cover crop in grapes. It produces a significant below-ground biomass (Ken Albright, UW, above), and spreads through rhizomes. Kura produces very leafy, high quality forage, but is not bloat resistant. It is not known how widely adapted Kura clover is to California. It is difficult to establish, but once established, is quite competitive with weeds. Varieties have been developed by the University of Minnesota, but seed production is limited.