



Kura Clover for Kentucky

Norman L. Taylor, Don Henry, and John Vandevender

Kura clover (*Trifolium ambiguum*) is a recently introduced true clover from the Caucasian Region of the former USSR. It is an extremely long-lived perennial species, probably best adapted to pasture conditions. It closely resembles white clover but spreads by rhizomes rather than by stolons. Heads are white to pink and a little larger than white clover, but seeds are about as large as those of red clover. Kura clover blooms only once per season and only after being induced by low temperatures encountered in winter. Interest in the crop was stimulated by persistent stands that gradually thicken and by its high quality forage. It also is excellent for control of soil erosion.

The most serious disadvantages of kura clover are low seedling vigor making stand establishment difficult and low forage yields after the first growth has been removed. Since the crop is relatively new, not as much information is available as on the more widely grown clovers.

Sowing the Crop

Because of lack of seedling vigor, kura clover does not establish well when sown with a nurse crop. Establishment is best after preplanting incorporation of herbicide, such as Banlan or Treflan, to control weeds (see AGR 148, *Weed Control in Alfalfa and Other Forage Legume Crops*). Seedings are more successful in the spring, but later sowings have been successful when irrigated. Fertility levels should be similar to those for white clover. Sowing on well-drained soils, limed to a pH of 6.1 to 6.7 is recommended. A drill or culti-packer seeder has been satisfactory.

Seeds must be inoculated with the appropriate Rhizobium inoculum that is specific only for this crop. Other inoculum will not nodulate kura clover. Inoculum is available from commercial inoculant companies (*Trifolium* Spec. 3). Seed may be sown at 10-12 lb/acre without grasses. Rates of sowing probably may be reduced by about one-fourth when sown with bluegrass, orchard grass, tall fescue, or timothy.

Varieties

The only variety released in the United States is RHIZO, developed by the Natural Resource Conservation Service (NRCS) (formerly the Soil Conservation Service) in cooperation with the University of Kentucky. Norfarm Seeds, Inc. and Peterson Seed Company, Inc. have been granted exclusive rights for production of RHIZO seed. Breeders seed is currently maintained at the NRCS Plant Materials Center, Quicksand, KY, and will be maintained by the Kentucky Foundation Seed Project, Department of Agronomy, in Lexington, Kentucky. Small quantities of seed for testing (100 grams or less) may be obtained from the NRCS Plant Materials Specialist at P.O. Box 400, Beaver, WV 25813-0400.



Management

Kura clover stands slowly thicken with age, and not much production may be expected in the year of sowing. Only light grazing, if any, should be permitted in the first year. In the second year the crop should begin blooming somewhat earlier than red clover. Cattle grazing kura clover are subject to bloat, and for that reason mixtures with grasses are recommended, as well as the usual bloat precautions. The first crop may also be harvested for hay or silage but will be lower-yielding than alfalfa. Kura clover is of high quality similar to white clover, in part because of a high ratio of leaves to stems. The aftermath growth may be harvested by grazing because of low yields. Kura clover should not be intensively grazed after September 15 to allow replenishment of root reserves and maintenance of stands.

Seed Production

Since only one crop of blooms is produced yearly, the first growth produces the seed crop. Data are incomplete, but yields of 100 to 200 pounds of seed may be expected. Paraquat sprayed at a rate of 1 to 2 pt/acre might be useful in reducing weed competition at time of combining seed. The procedures used for harvesting seed of other clovers should be successful for kura clover. Kura clover is pollinated by both honeybees and bumblebees and is an excellent crop for honey production.

Forage Production

A trial comparing perennial forage species was sown in 1983 and irrigated to aid establishment (Table I). Seed of all species were inoculated with their appropriate inoculum. All species were harvested three times for hay in 1984 and either two or three times in 1985. The species harvested twice did not produce enough growth for a third harvest. Red clover, alfalfa, and crown vetch produced initial high yields; whereas, kura clover required a year or more to reach its maximum production. Stands of red clover, birdsfoot trefoil, zigzag clover, milk vetch, and crown

vetch declined by 1986; whereas, alfalfa maintained stand and RHIZO kura clover thickened. Kura clover was still in thick stand when the experiment was discontinued in 1987. These data indicate that kura clover, similar to white clover, probably should be used for long-term pastures.

Insects and Diseases

Kura clover has not been deleteriously affected by insects and diseases. However, experience shows that over time, newly introduced species develop their own set of insects and diseases that might or might not become serious.

Summary

1. Kura clover may be sown and managed similarly to white clover, except that only one flush of blooms occurs per year.
2. Management practices should be similar to those for white clover.
3. Fertility levels should be medium to high. Maintain pH levels at 6.1 to 6.7.
4. Stands, if not overgrazed, should last many years.

Table 1. Forage production and stands, 1984-86, of perennial legume species sown April 19, 1983, at Lexington, Kentucky.

Species	Variety	Dry Matter Yield (Tons/Acre)		Stand %		
		1984(1)	1985	5-84	10-85	10-86
Red Clover	Kenstar	6.67	5.73 (3)	99	80	6
Birdsfoot Trefoil	Fergus	4.43	6.80 (3)	75	91	49
Zigzag	Canadian	1.79	2.48 (2)	59	41	15
Alfalfa	Creeping	5.53	9.28 (3)	99	94	94
Crown Vetch	Commercial	5.07	6.74 (3)	59	94	54
Kura	Rhizo	2.31	3.54 (2)	87	88	93
Milk Vetch	Monarch	3.11	4.60 (2)	59	84	49

(1) 3 harvests in 1984; (2) 2 harvests in 1985; (3) 3 harvests in 1985