

A Grower's Guide

Sheep Sorrel

Rumex acetosella

Sheep sorrel leaves have a tangy, lemon flavor and are sometimes used in salad, though high tannin and oxalic acid content limit its use in large quantities. This is a cousin to yellow dock, *R. crispus*, another naturalized European plant in North America. Sheep sorrel is best known as an ingredient in Essiac, an herbal formula often used as a therapy for cancer patients. Related culinary species include French sorrel, *R. scutatus*, and garden sorrel, *R. acetosa*, which are known for their use in soup.



Family: *Polygonaceae*

Life cycle: Herbaceous perennial
(Zone 3)

Native: Europe. Now found throughout North America, especially in acidic soils.

Height: 4 to 12 inches

Sun: Full sun

Soil: Any soil. Does well in wetter, acidic soils.

Water: Light to moderate

Flowers: Flowers are reddish-purple and bloom from mid- to late summer.

Propagation: Sow seeds indoors and transplant outside in mid- to late spring or sow directly outdoors. No treatment required. Germination in seven to 10 days at a rate of 70 percent. Plant 12 inches apart to allow for spreading.

Pests: No major pests.

Harvesting: Harvest aerial parts with scissors in the early summer.

Parts used: Aerial parts, fresh or dried, and roots

Used as: Infusion (tea), tincture

Medicinal benefits: Benefits the immune and lymphatic systems. Caution: may cause poisoning in large doses due to high levels of oxalic acid and tannin. Leaf tea used for fevers, inflammations and scurvy. Fresh leaves are considered a cooling diuretic. Root tea used for diarrhea and excessive menstrual bleeding. Sheep sorrel is rich in cancer-preventative vitamins and includes four antimutagenic and antioxidant compounds.

Market potential: Moderate. Prices for herb range from \$6.30 to \$33 per pound (lb) dry weight. Is a main ingredient in the well-known Essiac cancer-treatment formula.

Summary of field trial data: This plant had very good survival from transplants in replicated plots in Olathe, Wichita, Colby and Hays. First year yield of the above-

ground portion was small, but individual plants had spread by the second year and aboveground biomass was estimated at more than 2 tons per acre. This may be an underestimate because approximately 1 square foot was harvested to estimate the in-row per plant yield, while most plants had spread to 2 to 3 square feet. Harvesting this crop will be difficult because the plant is low growing and hand harvesting with scissors or mechanically harvesting and then washing the entire plant may be necessary.

The survival rate goes up instead of down the second year because the plants are spreading and filling in gaps. This is not a good companion crop because it can become weedy. We don't know yet if tillage will kill this plant. By the third year, the plants had grown well out of their original rows, and had invaded neighboring plots.

K-State Field Trial Data 2000-2002 *Rumex acetosella*

				Average	Comments
Age of plants in years	1	2	3		
Number of test sites¹	4	3	0		
Survival rate (%)	85.8	99.0	—	92.4	
Vigor rating²	3.5	4.3	—	3.9	
Height (cm)	14.5	22.7	—	18.6	
Dry weight herb (g/plant)	11.8	66.1	—	—	
Dry weight root (g/plant)	6.9	38.5	—	—	
Maturity rating³	1.0	2.0	—	1.5	
Insect damage rating⁴	0.4	0.0	—	0.2	
Disease rating⁵	0.4	0.2	—	0.3	
Estimated planting density (number of plants/A)	29,040	29,040	—	—	1- by 1.5-ft. plant spacing assumed.
Plant density⁶	24,916	28,750	—	—	
kg/A dry weight (g/plant x plant number) – tops	294	1,900	—	—	
Estimated marketable yield (dry weight lbs/A) – tops	648	4,186	—	—	
Yield x ½ of low price¹	\$2,041	\$13,129	—	—	
Yield x ½ of high price¹	\$10,692	\$69,069	—	—	

¹ See "How Data Were Collected," on page 3.

² Vigor rating (1=very poor, 3=slightly above average, 5=very good, well adapted)

³ Maturity rating (1=vegetative, 2=early bud, 3=early flower, 4=full flower, 5=seed production, 6=senescence)

⁴ Insect damage rating (scale of 0 to 5; 0=no damage and 5=severe damage)

⁵ Disease rating (scale of 0 to 5 with 0=no damage and 5=severe damage)

⁶ Calculated as starting plant density x survival rate.

How Data Were Collected

The plants described in this fact sheet were grown in K-State test plots in Hays, Colby, Wichita, or Olathe, Kan. Generally, four replications of each species were included at a site. Not all species were screened at each site or each year. The number of locations is noted in the table. Depending on the location and year, either five or 10 plants per plot were established in each of the replications. Details can be found at www.oznet.ksu.edu/ksherbs. Plants were grown from seed in the greenhouse and transplanted in the field in May or June.

All plants at each location were used to determine survival percentage, vigor rating, insect damage rating, and disease rating as described above. Three plants per plot were measured for height, and only one plant per plot was harvested to measure yield each year. Cultivating four plots allowed us to estimate yield from four plants at each location per year.

Plants were dried, and top and root weights recorded in grams. Grams per plant were converted to kilograms per acre (kg/A) and pounds per acre (lb/A) to estimate field-scale yield. The population density used to calculate field yields was the optimal population density (determined by the average size of the plants) times the actual percentage survival as measured in the field. There was generally some loss due to transplant shock and, for some species, significant winter loss as well.

Plant spacing recommendations on each fact sheet are for spacing within a row. Distance between rows will depend on the particular farming operation and equipment used. The minimum row spacing will be the same as the plant spacing recommendation. For example, if the recommendation is to set plants 12 inches apart, rows should be a minimum of 12 inches apart as well. However, if cultivator or root-harvesting equipment is on 5-foot centers, plant rows 5 feet apart to facilitate cultivating and harvesting. Adjust estimated plant density per acre on the worksheets to estimate gross yield and net income.

Prices were taken from Appendix B of K-State Research and Extension publication S-144 *Farming a Few Acres of Herbs: An Herb Growers Handbook*. To calculate a rough gross income potential for each herb, estimated yield was multiplied by the lowest and the highest retail price, divided by two. This is a rough estimate of wholesale price. Actual prices would be determined based on a contract obtained from a buyer.

Rhonda Janke, sustainable cropping systems specialist
Jeanie DeArmond, extension assistant

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