

A Grower's Guide

Skullcap

Scutellaria lateriflora

This herb is also known as mad-dog skullcap because the tea was once used as a remedy for rabies. The debate over the effectiveness of this plant has a long history. It was listed in the U.S. Pharmacopoeia from 1863 to 1916 and in the national formulary from 1916 to 1947, but the U.S. Dispensatory states that skullcap has no medicinal properties. There are eight species of skullcap found throughout the prairie states. The Mesquakies used the small skullcap *S. parvula* to treat diarrhea. This plant is enjoying renewed interest from herbalists as a tincture to treat nervous disorders, and contains scutellarin – a flavonoid compound with confirmed sedative and antispasmodic qualities.



Family: *Lamiaceae*

Life cycle: Herbaceous perennial (Zone 4)

Native: Native to North America, found in rich woods, moist thickets and along stream banks.

Height: 1 to 3 feet

Sun: Full sun or partial shade

Soil: Prefers moist, well-drained. Will respond to fertility.

Water: Moderate. Prefers moist sites in the wild, but survived in dryland non-irrigated field sites. Irrigation increases growth.

Flowers: Violet, blue, hooded, lipped flowers bloom from May through September. Before planting in a flower garden, remember that this plant spreads.

Propagation: Stratify seeds for at least one week before sowing. Sow indoors and look for germination in about two weeks.

Transplant outside after danger of frost. This herb grows in clumps. Space 12 inches apart in the row. Propagate with cuttings or root divisions. Plants spread once established in the field. Difficult to weed mechanically due to plant clumps.

Pests: No major pests

Harvesting: Harvest aerial parts when the herb is in full flower. Harvest 3 inches above the ground.

Parts used: Aerial parts

Used as: Tincture, tea, liniment

Medicinal benefits: Strong tea traditionally used as a sedative, nerve tonic and antispasmodic for nervous conditions including epilepsy, insomnia, anxiety and neuralgia.

Market potential: High. Prices range from \$16 to \$64 per pound (lb) dry weight. This herb has a high low-end price, because it isn't competing with imports from Asia or eastern Europe yet.

Summary of field trial data: Skullcap did well under field conditions and was tested in replicated plots in Wichita, Hays, Olathe and Colby. The average survival the first year was 88.5 percent, and the average vigor rating was 3.8. The lowest vigor rating was at Hays with a 3.0, which represented the harshest field conditions with dry weather, wind and no irrigation. The lowest biomass harvest was also from Hays. For a woodland, water-loving plant, this was an amazingly hardy field herb. Given the current high value in the market and ease of harvest (this is an above-ground herb), we recommend trying this as a field crop. Preliminary observations in year two indicate that winter survival was good and yields will be higher in year two than in year one. Only first-year data is presented here because this plant was not included in screening trials until 2002, and data from 2003 is being summarized.

K-State Field Trial Data 2002 *Scutellaria lateriflora*

				Average	Comments
Age of plants in years	1	2	3		
Number of test sites¹	4	0	0		
Survival rate (%)	88.5	—	—	88.5	
Vigor rating²	3.8	—	—	3.7	
Height (cm)	40.8	—	—	40.8	
Dry weight herb (g/plant)	52.5	—	—	—	
Dry weight root (g/plant)	11.1	—	—	—	
Maturity rating³	4.6	—	—	4.6	
Insect damage rating⁴	0.2	—	—	0.2	
Disease rating⁵	0.4	—	—	0.4	
Estimated planting density (number of plants/A)	21,780	—	—	—	1- by 2-ft. plant spacing assumed.
Plant density⁶	19,275	—	—	—	
kg/A dry weight (g/plant x plant number) – tops	1,012	—	—	—	
Estimated marketable yield (dry weight lbs/A) – tops	2,229	—	—	—	
Yield x ½ of low price¹	\$17,832	—	—	—	
Yield x ½ of high price¹	\$71,328	—	—	—	

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.

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