

A Grower's Guide

St. John's Wort

Hypericum perforatum

The species name “perforatum” comes from the translucent dots on the leaves that look like holes when they are held up to the light. There are about 370 species of *Hypericum*, but *H. perforatum* is easy to identify. Native to Europe and Asia, it has naturalized in North America and is considered a weed in western rangeland. For many years the USDA imported insects to biologically control this plant. The common name of the plant originates from the Knights of St. John of Jerusalem, who used it to treat wounds on Crusade battlefields.



Family: *Hypericaceae*

Life cycle: Herbaceous perennial
(Zone 3)

Native: Europe, western Asia, and northern Africa, naturalized in North America, especially western states.

Height: 2 to 4 feet

Sun: Full sun optimal, tolerates partial shade

Soil: Does best on well-drained soil, but tolerates some wet soils. Can be grown with low fertility, but does better with compost and/or mulch.

Water: Low to moderate

Flowers: Bright-yellow flowers, five-petaled, about $\frac{3}{4}$ inch across that bloom in mid- to late summer. Flower petals have small black dots on margins.

Propagation: Seeds should be stratified for three to four weeks to improve germination. Germination occurs in about two weeks, and is approximately 70 percent.

Sow directly outdoors or in seedling flats for transplants. Seed is extremely small, so controlling the seeding rate would be difficult outdoors. Seed germination is light dependent, so cover the seed very lightly. Transplants are tough to kill. Plant spreads via short rhizomes, so larger plants can be propagated with root divisions in the spring or fall of the second or third year. Seed can be saved from your own plants if some flowers are left to seed. Space plants about 12 inches in the row, with 2 to 3 feet between rows.

Pests: No major pests observed in our field trials. The Klamath Beetle (*Chrysolina* spp.), introduced into California by the USDA in 1944, continues to be a problem for growers west of the Rockies.

Harvesting: The flowering tops are clipped when in full flower. For the best quality, individual blossoms are picked the day they open, but this option would only be used if you are making oil or tincture for yourself. Sold fresh or dried.

Parts used: Flowering tops in peak flower. Check with buyer about how much plant material may be included with flowering tops.

Used as: Infusion, tincture, herb powder, liquid, wash, cream, infused oil

Medicinal benefits: Clinical studies have shown St. John's wort is an effective anti-depressant, sedative and anti-anxiety treatment. Oil-based *Hypericum* preparations have an anti-inflammatory effect, though no antiviral properties of the herb have been proven. It does have antibacterial effects, including against penicillin-resistant Staph. In Europe, St. John's wort has been approved for use by physicians in treating anxiety, depression, inflammation of the skin, blunt injuries, wounds and burns.

The herb can cause increased skin sensitivity to the sun when taken internally. For many years, manufactured products from St. John's wort were standardized to the hypericin content of the herb. However, it

was later found that the efficacy of this herb is due to synergy of several compounds, so now hypericin is simply considered an “indicator” compound that may or may not actually be linked to how effective the product might be.

Market potential: High. However, most St. John’s wort currently is wild crafted in California and other western states. Can be hand harvested, but some mechanization is possible. This herb has received a lot of publicity as an alternative treatment for mild depression. It also has value for skin healing and other medicinal uses, so future demand for this herb should be

good. In Europe, St. John’s wort is prescribed 20 times more often for depression than Prozac®. Prices for tops with flowers range from \$4.50 to \$25.75 per pound (lb) dry weight.

Summary of field trial data: Overall, St. John’s wort seems to be one of the better adapted plants evaluated in test plots. Transplants held up well under stress and mature plants had few insect or disease pests. Our results agree with the recommendations of Sturdivant and Blakley (1999), who suggest that second-year plants yield more than third-year plants.

Our stands also declined in year three, but this was partly due to a drought in 2002, and fall harvest, which was not the best time for maximum biomass. The best time to harvest would have been June or July.

If a good price can be obtained for fresh or dried material, this may be a crop to try in Kansas. Because buyers are willing to accept some green matter in with the flowers (8 to 12 inches) this crop could be partially mechanized with a hedge trimmer or a tractor-mounted tool. The tops still need to be dried carefully or shipped immediately as a fresh product.

K-State Field Trial Data 2000-2002 *Hypericum perforatum*

				Average	Comments
Age of plants in years	1	2	3		
Number of test sites¹	4	2	2		
Survival rate (%)	86.3	72.5	96.0	84.9	The higher survival in year 3 as compared to year 2 is due to clumps spreading, and being overcounted in year 3.
Vigor rating²	4.0	4.5	4.7	4.4	High vigor ratings overall.
Height (cm)	30.8	69.5	83.0	61.1	
Dry weight herb (grams/plant)	41.0	428.5	60.5	—	Lower biomass yields in year 3 due to decline of stand, drought in 2002, and late harvest relative to bloom time. The same sets of plots were evaluated in years 2 and 3.
Dry weight root (g/plant)	13.8	299.2	32.3	—	
Maturity rating³	2.8	5.0	5.3	4.4	Plants flowered prior to fall harvest in years 2 and 3. Harvest for maximum floral bloom would occur in June or July.
Insect damage rating⁴	0.0	0.5	0.3	0.3	Little or no insect or disease damage observed.
Disease rating⁵	0.1	0.7	0.3	0.3	
Estimated planting density (number of plants/A)	21,780	21,780	21,780	—	1- by 2-ft. plant spacing assumed.
Plant density⁶	18,796	15,791	20,909	—	
kg/A dry weight (g/plant x plant number) – tops	77	677	126	—	Assume that 10 percent of the top dry weight will be harvested with flowers.
Estimated marketable yield (dry weight lbs/A) – tops	170	1,490	279	—	The second year dw estimate is not too far off Blakely’s estimate of 1,250 lbs/A dry weight.
Yield x ½ of low price¹	\$383	\$3,353	\$627	—	
Yield x ½ of high price¹	\$2,190	\$19,191	\$3,594	—	

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

Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned.

Publications from Kansas State University are available on the World Wide Web at: <http://www.oznet.ksu.edu>

Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. In each case, credit Rhonda Janke, *Farming a Few Acres of Herbs: St. John's Wort*, Kansas State University, May 2004.