

# A Grower's Guide

# White Sage

*Salvia apiana*

White sage has been overharvested for ceremonial products and is now on the United Plant Savers at-risk list. Growers are needed to ensure the survival of this herb. This sage is different than the common garden sage *Salvia officinalis*, which is known for its culinary and medicinal uses. White sage is often used in ceremonies, but rarely used internally. Bundles of sage are sometimes used with cedar to smudge or purify through exposure to smoke. Another plant with the common name white sage, *Artemisia ludoviciana*, was also used medicinally and ceremonially by Native Americans. This plant is more closely related to mugwort, or *Artemisia vulgaris*, than to garden sage.



**Family:** *Lamiaceae*

**Life cycle:** Tender herbaceous perennial (Zone 8)

**Native:** Southern California and northern Baja region

**Height:** 12 to 24 inches

**Sun:** Full sun

**Soil:** Well drained soil. Good tolerance for hot, dry weather.

**Water:** Low to moderate

**Flowers:** Pale blue/purple flowers bloom in late summer.

**Seeds:** Stratify seed for at least one week and then sow indoors. Nighttime temperature of 70°F and hot daytime temperatures between 80 and 90°F are necessary. Germination around 40 percent and will take two to three weeks to germinate. Keep moist until seedlings are up and then cut back watering. Do not overwater at this stage. Transplant in late spring. Space 12 inches apart.

**Pests:** No major pests

**Harvesting:** Harvest aerial parts in late summer.

**Parts used:** Aerial parts, fresh or dried

**Used as:** Tincture, insect repellent, smudge stick, incense

**Medicinal benefits:** Women's health, digestive tract conditions, respiratory illness, skin and throat conditions. Not listed in the *Physician's Desk Reference for Herbal Medicines* or many other herb books, so exercise caution before using medicinally.

**Market potential:** High. Prices range from \$7.85 to \$32 per pound (lb) dry weight.

**Summary of field trial data:** This plant did well the first year it was transplanted, with an 87-percent survival rating and vigor rating of 4.1 on a 5-point scale. Aboveground biomass was also high and yielded about 2 tons/A, though there was not much flowering in the test plots. Of

the three sites tested, the least successful was the drip-irrigated field in Colby, which suggests that this plant prefers dryland sites over the irrigated. Though white sage is a perennial, none of the plants overwintered in Kansas (hardiness zone 8 and up), so it would need to be treated as an annual crop here.

**K-State Field Trial Data 2000-2002 *Salvia apiana***

				Average	Comments
Age of plants in years	1	2	3		
Number of test sites <sup>1</sup>	3	3	0	—	
Survival rate (%)	86.7	0.0		—	
Vigor rating <sup>2</sup>	4.1	—	—	4.1	
Height (cm)	56.3	—	—	56.3	
Dry weight herb (g/plant)	99.5	—	—	—	
Dry weight root (g/plant)	21.4	—	—	—	
Maturity rating <sup>3</sup>	1.0	—	—	1.0	
Insect damage rating <sup>4</sup>	0.5	—	—	0.5	
Disease rating <sup>5</sup>	0.6	—	—	0.6	
Estimated planting density (number of plants/A)	21,780	—	—	—	Assume 1- by 2-ft. plant spacing.
Plant density <sup>6</sup>	18,883	—	—	—	
kg/A dry weight (g/plant x plant number) – tops	1,879	—	—	—	
Estimated marketable yield (dry weight lbs/A) – tops	4,139	—	—	—	
Yield x ½ of low price <sup>1</sup>	\$16,266	—	—	—	
Yield x ½ of high price <sup>1</sup>	\$66,224	—	—	—	

<sup>1</sup> See “How Data Were Collected,” below.

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

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

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

<sup>5</sup> Disease rating (scale of 0 to 5 with 0=no damage and 5=severe damage)

<sup>6</sup> 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/ks herbs](http://www.oznet.ksu.edu/ks herbs). 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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