



United States Department of Agriculture

Soil Conservation Service

Program Aid Number 1335

'Tropic Sun' sunn hemp



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'Tropic Sun' sunn hemp is recommended as a rapid-growing green manure crop to be included in rotation with vegetable, ornamental, and other plants to add nitrogen and organic matter, to suppress weeds, to control erosion, and to reduce root-knot nematodes. It was released in 1982 by the Soil Conservation Service (SCS) and the Hawaii Institute of Tropical Agriculture and Human Resources, University of Hawaii.

Tropic Sun can produce over 145 pounds of actual nitrogen per acre at 60 days of growth. It can produce organic matter yields of as much as 3 tons per acre of air-dry weight within 60 days if growing conditions are favorable. In addition, it is resistant to root-knot nematodes (*Meloidogyne* spp.)

Description

Tropic Sun (*Crotalaria juncea* L.) is an erect, branching annual legume. It is a rapid, vigorous grower, achieving a height of over 4 feet in 60 days, when grown under favorable conditions, and a height of over 6 feet in about 90 days.

The plants are generally unbranched from the ground to approximately 2 feet. Above this height, many branches develop if plants are not crowded. Branching begins higher and fewer branches develop in a thick stand such as a green manure crop.

The simple, elliptical leaves are 2 ½ to 5 inches long, and ½ to 1 inch wide. The flowers are bright yellow and, typically, 18 to 20 develop on terminal racemes. The papery, inflated seed pods are cylindrical, 1 inch to 1 ¼ inches long, and ¼ to ½ inch wide.

Seeds are dark slate green and about ¼ inch long. There are about 15,000 seeds per pound of clean seed. Seeds and forage are nontoxic.

Adaptation

Tropic Sun's full range of adaptation is not yet known, since most of the testing has been limited to Hawaii. In Hawaii, Tropic Sun can be grown year round up to an elevation of 1,000 feet and can be grown in summer up to 2,000 feet. It is not recommended for use above 2,000 feet in Hawaii.

Guam and Puerto Rico should be able to use Tropic Sun.

In the continental United States, it should be particularly adapted to spring and summer planting in the South and Southwest. (See map.) It should be suitable as a green manure crop as far north as Maryland, but it may not seed well in areas north of 30 degrees latitude.

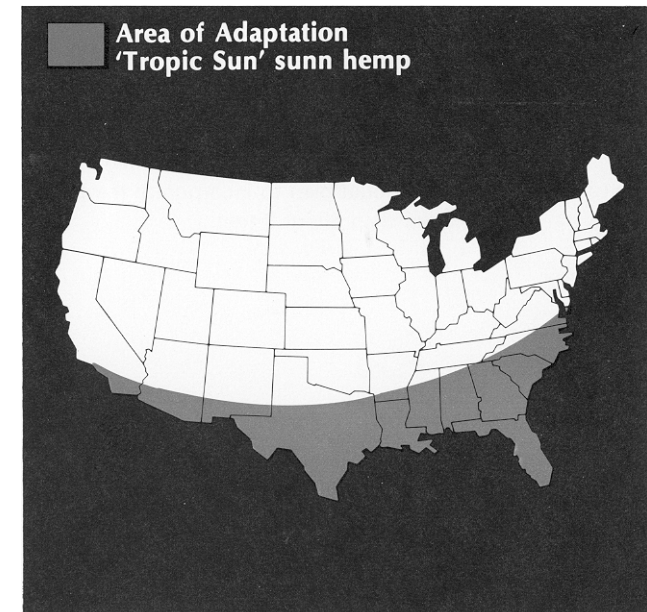
Tropic Sun is adapted to well-drained soils that range from coarse to fine in texture, but not dense clay. It will grow in infertile as well as fertile soils with a pH from 5 to 7.5.

Establishment

Tropic Sun seed should be broadcast and covered or drilled about ½ to 1 inch deep in a well-prepared, weed-free seedbed. A soil test should be taken, and fertilizer and other soil amendments applied as recommended. In lieu of a soil test, 100 to 150 pounds per acre of P₂O₅ can be applied as superphosphate, 0-20-20 fertilizer or the equivalent. Calcium carbonate, to adjust pH to at least 6.0, and phosphorus are needed for maximum production of organic matter and nitrogen. The phosphorus can also be used by the succeeding cash crop.



Rototilling in a crop of Tropic Sun at about 50 days



If broadcast, Tropic Sun should be seeded at the rate of 40 to 60 pounds of pure live seed (PLS) per acre. If drilled, it should be seeded at a rate of 30 to 50 pounds PLS per acre in 6-inch rows. The higher seeding rates should be used if the crop is to be turned under in less than 60 days (30 to 45 days) or if severe weed competition is expected. High plant populations also tend to enhance stem succulence for easier incorporation. The seed should be inoculated with cowpea-type legume inoculant to ensure effective nodulation, as some soils may not contain the correct *Rhizobium* strain.

Management

Irrigation may be needed for rapid germination and growth. Although Tropic Sun is drought tolerant, it should receive a minimum of 1 inch of moisture per week for maximum growth.

Tropic Sun should be plowed under at bud or early-bloom stage, which normally is about 60 days or less after planting. At this growth stage, nitrogen content is high and decomposition rapid. If allowed to grow too tall or become overmature, Tropic Sun becomes fibrous and will be difficult to turn under.

If soil moisture is at the correct level and the plants are succulent, Tropic Sun can be plowed (a single plow will usually do a better job than multiple plows), rototilled with a rear-mounted tiller, or disked with a heavy disk. Mowing before turning under may be beneficial, especially if the crop is tall (over 4 feet). Home gardeners and farmers with light tillage equipment should plan to incorporate the plants when they are no taller than about 3 feet.

Commercial Seed Production

Tropic Sun seed can be produced by following the directions for establishment, except that 30- to 42-inch rows and seeding rates of 7 to 12 pounds per acre are normally used. The plants should be irrigated if needed until about 75 percent are flowering, then they should be allowed to mature seed and dry. The seed crop should mature during the dry season. It may be necessary to dry the plants with a chemical desiccant if rains cause them to remain green at harvest. About 5 months are required for the plants to fully develop and produce ripe seed.

Tropic Sun seed can be harvested by direct combining and cleaned using standard seed cleaning procedures.

Availability

For more information on where to buy Tropic Sun and how to use and plant it, contact your local SCS office. It is listed in your telephone directory under U.S. Government, Department of Agriculture, Soil Conservation Service. Assistance is available without regard to race, creed, color, sex, age, or national origin.