WHITE LUPINE

Lupinus albus Fabaceae

ECHO® 植株信息表

描述

It is believed that lupines have been cultivated for 2,000 years, beginning in Egypt. Until recently, nearly all of the 300 lupinus species were considered bitter (high-alkaloid).

用途

With its high protein content (32-38%), White Lupine has proved useful as forage for lactating cattle, calves, lambs, swine, and turkey. As a legume, it is also widely planted as a nitrogen fixing cover crop. White Lupine is a good honey plant and an attractive annual ornamental. A small niche market has developed in the United States for lupine food products, primarily as additives for flour, pasta and dietary supplements.

通用名称

- 英语
  - White Lupine
  - Sweet Lupine

栽培

- Elevation: 1500-3000 m (5,000-10,000 ft)
- Rainfall: 400–1000 mm (16-40 in) during the growing period is optimal for yield. Lupin species are drought-tolerant due to their deep roots, but are sensitive to moisture deficiency during the reproductive period.
- Temperature: mean monthly temperatures during the growing season of 15º – 25° C (60º - 75° F). Higher temperatures and moisture stress hinder flowering and pod setting. White lupin is cold-tolerant, but temperatures of -6º to -8° C (17º - 21° F) are harmful at germination, temperatures of -3º to - 5°C (23º - 26° F) at flowering.
- Soil: prefers disturbed sites and poor soils, where there is less competition from other species. Growth is hampered on heavy clay and waterlogged soils, The planting date is a most important factor in lupine production. As a cool season crop, White Lupine can withstand early spring frosts; however, a reduction in vegetation occurs if seeds are sown too early. High temperatures in late summer can be very detrimental to pod production therefore; the growing season for White Lupine should be within the coolest period of spring. It prefers well-drained, coarse, fertile soil with a pH of neutral to slightly acid.

Narrow row spacing (15 cm) has significantly increased yield, as weeds are shaded out. White Lupine responds well to irrigation on sandy soils. Narrow-leaf lupine is successfully grown in Australia under low moisture conditions. In Ethiopia White Lupine is grown on soils too poor for a good faba bean crop.

收获和种子生产

Under good conditions, seed production can be 1900-2200 kg/ha. White Lupines were shown to fix 157 to 196 kg N/ha from the atmosphere. Nitrogen fertilizer is not required to maximize yield as inoculation significantly improves seed protein compared with non-inoculated plots, even when nitrogen fertilizer was applied.

病虫害

Results of experiments indicate that most of the commonly observed insects on White Lupine are of little economic importance. The seed corn maggot has caused stand losses to the extent that yields have sometimes been decreased but in trials, insecticide treatments were not justified. The foliar insects, such as potato leafhopper have been observed feeding on lupine foliage, but don't appear to be of concern. Blossom feeders are not important in moist areas but have been a problem in drier environments. No insecticides are currently labeled for use on White Lupine, but this does not seem to be a severe limitation at this time. *Colletotrichum gloeosporioides* causes anthracnose on several species of white lupine. This disease has the potential to cause substantial crop loss in severely infected fields.

烹饪与营养

Before consumption, seeds are first soaked for 1–3 days in running water to remove the bitter, toxic alkaloids, then cooked and eaten as a pulse or pickled in brine and served as a snack. In general, consumption of white lupin seeds is restricted to low-income classes and to times of drought, because of their bitter taste. Since white lupine seeds are high in protein (32 to 38%) and oil (10 to 11%) and do not contain anti-nutritional compounds, such as trypsin inhibitors, they have been fed directly to a wide variety of livestock. White lupine fed to livestock should have an alkaloid content of less than 0.02%. Palatability may still be an important factor with swine, even with seemingly "sweet" lupine types.

参考文献

Heuzé V., Thiollet H., Tran G., Nozière P., Lessire M., Lebas F., 2019. *White lupin (Lupinus albus) seeds*. Feedipedia, a programme by INRA, CIRAD, AFZ and FAO. https://www.feedipedia.org/node/279 *Last updated on April 29, 2019, 11:37*

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