



HGI
H E M P
G E N E T I C S
International

Industrial Hemp Production 101

Description

Hemp is a multi-purpose crop having unique characteristics specific to each variety. The three primary end uses of industrial hemp are grain, fiber and cannabinoids with a special interest in cannabidiol (CBD). Varietal differences include the plant reproduction system (monoecious vs. dioecious), height, days to maturity, CBD percent and seed size. A bushel of hemp weighs 44 lbs.

Field Selection

Hemp grows best on weed-free, fertile, medium textured soils in the absence of herbicide residues. When grown for grain, growers should select fields that were not preceded by wheat as the kernels will cause contamination. Organic hemp crops are best preceded by perennial alfalfa breaking with adequate phosphorous levels and/or a green manure/cover crop.

Seeding

Seed hemp between 0.5-1" into moisture after the soil temperature is consistently 10° C or 50° F. Hemp can tolerate some frost. Seeding dates for hemp in Canada vary from May 15 to June 15. Expect germination in 2 to 4 days and emergence within 4 to 7 days. Reduce airflow on air distribution seeder systems to prevent seed damage. Suggested seeding rates are 25 to 30 lbs/acre for grain production and 40 to 45 lbs/acre for fibre production. Government regulations require use of pedigreed seed.

Fertility Requirements

Hemp responds positively to increasing soil fertility, but is sensitive to seed placed fertilizer. Conventional producers should fertilize using rates similar to canola, adding 10-20% more N. Organic producers should work towards building soil fertility through a diverse crop rotation and supplemental manure/compost if available.

Grain yields are very dependent on fertility and generally range from 900 lbs/acre to over 2,500 lbs/acre under conventional production. Expect 60% yield of dryland canola. Organic hemp grain production yields generally vary between 500 to 1,500 lbs/acre.

Weed, Disease and Pest Management

Weeds are best controlled through proper field selection, a pre-seeding burn-off, adequate rates of fertility, and selecting the best-adapted hemp variety based on height and vigour. In Canada, hemp has few disease and pest problems, but is host to Sclerotinia and Botrytis during wetter years.

Registered herbicides in Canada for grain production are limited to Assure II and Edge. Other pesticide trials are ongoing through the Minor Use Program.

Harvest, Drying and Storage

Most producers prefer to straight combine hemp when the seed is higher moisture to minimize stalk fiber wrapping. Depending on variety and combine model, thresh from 10-17% moisture (safe storage considered at 9% seed moisture). Some minor fiber wrapping may occur depending on hemp variety and field conditions with 25-30 year old combines (JD 9600's and CIH 2199's), and very little or no wrapping with the newest combines (CIH 8 series and JD S series).

Dry hemp grain immediately off the combine to 9% moisture using aeration or supplemental heat aeration. Turn and/or aerate hemp grain at change of seasons (spring/summer) to reduce moisture migration/spoilage. Move and unload hemp keeping the auger full and reduce speed. Large diameter augers or belt conveyors are less damaging to hemp seed.

Licensing

Industrial hemp producers should be aware of local and national regulations related to hemp production.

In Canada, Health Canada Industrial Hemp License Applications are done online using Health Canada's Cannabis Tracking and Licensing System (CTLS) User Guide - <https://www.canada.ca/content/dam/hc-sc/documents/services/publications/drugs-health-products/industrial-hemp-licensing-application-guide/pub-eng.pdf>.