

*The main goal is the production of high-quality hemp seeds and high quality straw (stalks). To ensure smooth and efficient processing into fibre and shives (hurds), the stalks must be slender, uniformly coloured from beige to medium-brown and well-dried. The following guidelines are based on 20 years of experience in hemp farming by BAFA neu GmbH and its contract farmers.*

**Regulations:** Please comply with all current governmental regulations. Never destroy any documents and labels related to planting seeds.

**Soil preparation:** Soil compaction must be avoided or remedied to prevent stagnant moisture in the soils and stunted growth. Notably, heavy soils do not tolerate very fine seedbeds. They become muddy after heavy rains and show water logging. Hemp does not tolerate low oxygen levels in soil. Plants emerge irregularly and growth is stunted. Thus, soils rich in clay are not suitable for hemp farming. On fields that are sensitive to soil erosion consider planting a cover crop during the winter before the hemp crop and avoid deep tillage.

**Seeding:** A seeding density of 45 kg/ha yields a plant density of 250 plants per square meter, ideal for fibre hemp. The stem diameter should be 14 mm on average, with no more than 15% of plants having a diameter of up to 20 mm.

Set your seed drill to a seeding depth of 3-4 cm and seed into a reasonably dry and warm soil. The heavier the soil – the later you will be able to seed. Optimum timing for seeding will vary with weather and region, typically around late April, before the planting of the maize crop. A balanced nutrient supply, proper drainage and weather conditions during the main growth period are critical for plant strength. A warmer soil achieves a more rapid and even emergence, better weed suppression and fewer infestations by slugs. The use of rollers after seeding achieves better plant emergence.

**Fertilization:** Excessive application of mineral or organically-bound nitrogen does not improve yields. Instead, it produces tall and thin stalks that are prone to wind damage, difficult to harvest and produce a straw of low quality.

A dry-stalk yield of 5 – 8 metric tons (MT) per ha removes the following amounts of nutrients (kg/ha):

100	-	120	N
50	-	75	P <sub>2</sub> O <sub>5</sub>
200	-	300	K <sub>2</sub> O
150	-	200	CaO
40	-	60	MgO

Before fertilization, measure N-content to assess N demand. On light soils, a two-step N-fertilization is recommended. Apply the second dose when plants are 25-40 cm in height. Do not apply any fertilizer without proper dosage control. Notably, do not apply liquid fertilizer, such as ammonium sulphate using a manure tank with no proper dosage control.

**Soil Maintenance:** Do not apply herbicides. The rapid emergence and canopy closure of a hemp crop suppresses weeds. The use of pesticides and fungicides is also not required.

**Slugs:** Slugs are the only known relevant pest to hemp and must be controlled immediately upon their first appearance.

**Rotation:** There are no restrictions on the crops planted before and after hemp. As a deep-rooted crop hemp is a very valuable pre-crop in a rotation. After the harvest a hemp field is free of weeds.

**Time of Harvest:** When seeds are ripe (not more than 5% green seeds)  
To be determined by the contract harvester or the fibre processor.

**Mowing:** Hemp fields are mowed with a custom-made hemp harvester. It cuts the stalks into pieces 40-60 cm in length. This facilitates the remaining harvest and the processing of hemp stalks into fibre.

**Field Retting:** After mowing, the stalks are dried in the field. Occasional re-wetting by rain and dew is acceptable. UV light and microorganisms biodegrade the plant-based binders in the stalks' bast fibre and stalks assume a beige to medium brown colour. Light to dark coloured fungal stains do not impair fibre quality. Even several rainy days in a row are no cause for concern. They promote the "retting" process, which renders the stalks mürbe and helps separation of fibre and hurds during processing. Turn the stalks once or twice during retting. Depending on weather, the retting process may take two to four weeks. Simple swaths facilitate the turning and bale pressing and contribute to a more even retting. Hemp stalks should not be over retted and retted stalks should still be visibly intact.

**Bale pressing and storage:** The dried and retted stalks are ready for baling when the content of green matter falls below 10%. The fibre processing plant accepts exclusively square bales with dimensions of 0.6 – 0.9 m x 0.6 - 1.2 m x 2.4 m). To prevent fouling and fungal growth, the average moisture content in the bale must be below 16%, with a maximum moisture content of 18% in parts of a bale acceptable. A dry storage of hemp bales is critical. Also, bales must be protected from rain during transportation to the processing plant. Use of an enclosed vehicle or complete coverage by a tarpaulin is required to prevent rewetting of the straw by splash water.