

Industrial Hemp Fiber Farming Equipment Guide

Quick Reference for Alaska Growers

Industrial hemp fiber production uses mostly standard row-crop and hay equipment with a few modifications for hemp's tall, fibrous stalks. This guide covers the essential equipment needed from soil prep through baled fiber ready for processing.

Soil Preparation Equipment

Hemp requires a firm, fine seedbed similar to small grains.

- **Tractor:** 40–100+ HP depending on implement size and field conditions
 - **Primary tillage:** Moldboard plow or chisel plow to loosen soil 6–8 inches deep (skip if no-till)
 - **Secondary tillage:** Disc harrow or field cultivator to break clods and create fine seedbed
 - **Finishing tools:** Land leveler, drag, or cultipacker to firm and smooth seedbed before planting
 - **Soil testing kit:** Laboratory analysis or field test kit for pH and nutrient management
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Planting Equipment

Fiber hemp is direct-seeded at high density (typically 30–60 lbs/acre) to produce tall, thin stalks with minimal branching.

- **Grain drill or air seeder:** Standard small-grain equipment works well; look for models with adjustable depth control and even seed distribution
- **Seed boxes:** Small-seed boxes with good agitation to prevent bridging
- **Packer wheels:** Ensure good seed-to-soil contact for uniform emergence
- **GPS guidance (optional):** Helpful for straight rows and efficient field coverage on larger acreage

Note: Most conventional grain drills work without modification. Purpose-built hemp planters are available but not essential for fiber production.

In-Season Management Equipment

Hemp is generally low-maintenance once established, but these tools support optimal growth.

- **Sprayer:** Tractor-mounted or pull-type boom sprayer for pre-emergent herbicides or foliar nutrients
 - **Fertilizer spreader:** Broadcast or banded application equipment for nitrogen, phosphorus, and potassium
 - **Irrigation system (optional):** Sprinkler, pivot, or drip systems improve yield consistency in drier regions; many Alaska growers rely on natural rainfall
 - **Mowing equipment:** Standard rotary mower for headlands, field edges, and volunteer management
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Harvest Equipment

Hemp stalks are long, fibrous, and tough—equipment must handle them without plugging.

Cutting Equipment

- **Sickle-bar mower, disc mower, or discbine:** Standard hay equipment works with careful setup; heavier knife guards and slower ground speed reduce plugging
- **Multi-height fiber cutters (optional):** Specialized equipment (e.g., FiberCut-style mowers) can cut tops and bottoms separately, optimizing fiber quality and processing efficiency
- **Modifications:** Reinforce guards, use thicker blades, increase clearance to handle 6–12 foot tall stalks

Timing: Harvest fiber hemp when plants begin flowering but before full seed set (typically 70–100 days after planting).

Field Retting and Handling

After cutting, hemp stalks are left in windrows to ret (natural decomposition of pectin) for 2–4 weeks.

- **Rake or tedder:** Turn windrows 1–2 times during retting to ensure uniform drying and microbial action
- **Moisture monitoring:** Field moisture meter to confirm stalks are below 15% moisture before baling

Baling Equipment

- **Round baler or large square baler:** Standard hay balers work once stalks are properly retted and dried
- **Bale wrapping (optional):** Plastic wrap or net wrap for weather protection during transport and storage

- **Bale handling:** Front-end loader, bale spear, or telehandler for moving and stacking bales

Target: Bales ready for transport to decortication facility (e.g., GreenBuild Composites in Mat-Su Valley).

Storage and Transport

- **Covered storage:** Barn, shed, or tarp coverage to protect bales from moisture until processing
- **Flatbed trailer or truck:** Standard farm transport for moving bales to processor
- **Loading equipment:** Tractor with loader or telehandler for efficient bale movement

Equipment by Farm Scale

Scale	Minimum Core Equipment	Recommended Additions
5–50 acres	40–60 HP tractor, basic tillage (plow, disc), grain drill, sickle-bar or disc mower, rake, access to baler	On-farm baler, modified mower guards, moisture meter, covered bale storage
50–200 acres	75–100 HP tractor, full tillage set, your own grain drill and baler, disc mower or discbine, power rake	Multi-height fiber cutter, high-capacity baler, GPS guidance, dedicated fiber trailer, climate-controlled storage
200+ acres	Multiple tractors (100+ HP), wide drills, high-capacity mowers and balers, dedicated harvest crew	Purpose-built hemp headers, automated bale handling, fleet management systems, direct processor contracts

Table 1: Equipment recommendations by acreage

Alaska-Specific Considerations

- **Short growing season:** Choose fast-maturing fiber varieties (90–110 days); planting mid-May to early June typically allows August–September harvest
- **Extended daylight:** Alaska's long summer days accelerate vegetative growth, producing excellent fiber yields

- **Wet conditions:** Prioritize good field drainage and plan retting periods carefully; wet falls may require indoor or covered retting areas
 - **Equipment winterization:** Properly store and maintain equipment through harsh winters
 - **Freight costs:** Coordinate with local processors (e.g., GreenBuild Composites, Sacred Seeds Foundation network) to minimize transport distance
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Cost Planning Notes

- **Used equipment:** Many Alaska farmers use existing hay and small-grain equipment with minor modifications, reducing upfront costs
 - **Custom hire:** Consider contracting planting, mowing, or baling services in early years before purchasing specialized equipment
 - **Shared ownership:** Cooperative equipment purchases through AKFB Hemp Program or local grower networks reduce individual capital requirements
 - **Grants and financing:** USDA, REAP, and Alaska-specific agricultural development programs may provide equipment financing or cost-share opportunities
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Next Steps

For tailored equipment recommendations based on your specific acreage, existing equipment, soil type, and market goals, contact:

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This guide supports Alaska's growing industrial hemp fiber industry and connects growers with processing infrastructure including GreenBuild Composites and the AKFB Hemp Program network.



Sacred Seeds Foundation is sowing seeds and healing nations with dedicated advocacy and support of industrial hemp, food sovereignty and plant based Healthcare for all Alaskans.

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