

Field Retting Photo Guide

Laura Sullivan, UVM Extension Research Specialist



Figure 1. Time: 0: Immediately after cutting. After harvest, fiber hemp must undergo a retting process, which is akin to a controlled rot. During retting, stalks are colonized by microbial communities in the soil that feed on the pectin and lignin that bind the bast fiber (bark layer) to the hurd (inner woody core). Field retting, also called dew retting, commences as soon as plants are cut and left lying on the ground. Stalks should be laid out in an organized manner to ensure a more even process. They should all be aligned on the earth in a layer thin enough to expose some of the grass between them while still touching. Stalks should all be oriented the same way, with grain heads on one end and root ends on the other.



Figure 2. Time: 1: One week of field retting has elapsed. Because field retting is a microbial process, its speed and character will be dependent on moisture and temperature. After a week, stalks will begin to change color and dry down. Retting piles must be flipped roughly every six days to ensure an even retting process, and with greater frequency in the event of rain. This can be done by inserting the butt-end of a shovel or hoe under the grain-head end of the stalks and flipping them over without displacing the root end. If they are not turned, stalks in direct contact with the soil will retain their green color and risk molding, while those exposed to more sunlight risk drying out without retting.



Figure 3. Time: 2: Two weeks of field retting have elapsed. Field retting in the Northeast generally takes 16–28 days, but can be nearly complete after two weeks. To test if the stalks are well retted, take a stalk and snap it in a few places, starting at the root-end. If the hurd material releases and falls to the ground in small chips, the stalk is likely well-retted. The bast fiber should not break, but instead bend and drape in your hand. If the bast fiber snaps along with the hurd, the stalk may be over-retted. If the stalk snaps, but the bast and hurd must be peeled apart with fingers, it is not quite done. It is important to assess multiple stalks in this way before collecting the crop from the field. In a moist climate, field retted hemp stalks will develop black flecks during the retting process. This is normal, but white mold is not. If your pile develops fuzzy mold, consider flipping it and spreading the stalks out.



Figure 4. Time 3: Three weeks of field retting have elapsed. The dark color of the stalks suggests prolonged retting, likely under wet conditions. In the top left corner, bast fiber is beginning to separate from the hurd, indicating the stalks are ready for the “snap test,” which can be performed repeatedly throughout retting. Once stalks dry to 15% moisture, retting stops, and the crop can be baled and stored.



Figure 5. Time 4: Four weeks of field retting have elapsed. The fiber shown here has several breaks in the bast fiber, indicating that it is likely over-retted. Over-retted fiber will be weaker in tensile strength and shorter in staple length due to breakage. These fibers could still have value in certain industrial applications, but would not be well-suited for spinning fiber.



Figure 6. Stalks retting on the ground in a uniform orientation of root-ends and grain heads.



Figure 7. Bast fiber pulling away from the hurd.

More Information

For more information on field retting and UVM Extension hemp research, please visit www.uvm.edu/nwcrops or contact UVM Extension Hemp Research Specialist Laura Sullivan at laura.sullivan@uvm.edu.

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