

# Winter Retting

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Retting is the natural process of separating the bast fiber (outer layer) from the inner woody core of a bast fiber plant. This process can take many shapes, but the end goal is the same: loosen the fibers by removing the pectin, lignin, and natural glues that bind fiber to stalk. Retting is crucial to long fiber quality. Retting too little can result in stiff fiber contaminated with excess hurd material, while retting too much will reduce the integrity of the fiber, resulting in excessive breakage and loss.

## Winter Retting

Winter retting is a method of retting that involves leaving fiber plants standing in the field over winter to break down in the elements. With every freeze and thaw of the winter weather, the fiber bundles of the dead standing stalks loosen, fray, and soften in rigidity. Wind and snow exacerbate the unraveling process, while few remaining microbes slowly eat away at the binding agents within. Once the temperatures begin to rise consistently in spring, the process is accelerated. Enlivened by the return of warmth, microbes make quick work of the dead and weathered crop. Based on our findings, winter retting requires less water, labor, risk, and energy than other widely practiced natural retting techniques, making it a cleaner, and more sustainable alternative to dew or water retting.

## Color

Color will vary with climatic conditions and is not necessarily an indicator of retting degree. Bleaching white is instead an indication of sunshine exposure. Different varieties may have different relationships with fungal communities that result in more bleaching or discoloration of some varieties more than others. (Figure 2)



Figure 2: Examples of varying colors of winter retted hemp. Left: Harvested in February. Right: Harvested in April



Figure 1: Hemp Trial Winter retting in January, 8mo since planting



Figure 3: Hemp Winter retting in April, 11mo since planting

## Harvest

In the spring, the crop can be raked and baled once the humidity has dropped, and the plants have dried down to 15%. Before harvest, the stems should make a “snap” sound when broken, and the bast fiber should succumb to gravity and readily drape off the hurd. If the fiber remains stiff, it is under retted. Lodging is generally not a concern as long as the stalks are not flush with the ground. Dead standing winter retted plants will easily pull from the earth with a rake, and for this reason, the risk of plant material wrapping up inside equipment is vastly reduced. There is also no need to spend labor hours cutting, turning, or swathing the crop as in the case of field retting, because the plants will stand in the field from spring to spring with no other human interventions necessary.



Figure 4: Laura Sullivan and Shannon MacDonald gather winter retted hemp samples for data collection.



Figure 5: Laura Sullivan and Ivy Krezinski gather winter retted hemp samples in April for data collection, 11mo since planting.

## Considerations

Winter temperatures are required for winter retting. It is not recommended to attempt winter retting in a climate where temperatures will not drop below freezing. The retting process is largely contingent on temperature and moisture and observing the weather will provide more insight into retting degree than the predictability of the calendar date. It is also not advised to bale fiber before it is dry, as mold in storage can ruin a harvest.

## More Information

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

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