

Sphagnum peat fields ready for harvest in Cromwell, Minnesota

IN THE LAND OF PEAT & WHISKEY

Minnesota is rich in peat and distilleries.
So when will a Minnesota peated
whiskey become a reality?

By Ellen Burkhardt

Freshly plucked sphagnum moss

The ground beneath me gives way slightly as I place my full weight on my foot. I wholly expect to be staging a rescue mission of my shoe at any moment and wait for it to be swallowed by the shaggy carpet of tangled greenery. But the spongy surface holds, with just a couple centimeters of water emerging to lap at my Keds.

The bog I'm standing on in Cromwell, Minnesota, is covered in a 14-year-old blanket of sphagnum moss and other fen flora. It's an impressive example of wetland restoration, but it's what's underneath this living layer that I've come to learn about from professional soil scientist Kurt Johnson—peat.

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Johnson is a peat expert and restoration consultant to Premier Tech Horticulture, the Quebec-based company that's been vacuum-harvesting sphagnum peat, a highly acidic, fibrous material composed of partially decomposed organic matter, here since 1983. At the bog's base is the catotelm layer, made up of mucky "dead" peat that dates back 6,700 years when the original bog first began to form following the end of the last glacial period. The catotelm is commercially worthless compared to the 4- to 6-foot-thick carpet of fibrous, partially decomposed "living" peat (the acrotelm layer) that rests atop it. That's the stuff sought after by companies like Premier Tech Horticulture.

"Four to six feet is what you look at as a harvestable resource—if it's less than that you wouldn't start," says Johnson.

While Premier Tech Horticulture's focus is on getting the most out of sphagnum peat for horticultural purposes, that's just one use for this organic prodigy. Environmentalists prize peat bogs for

their carbon-storing superpowers (one acre of healthy peat bog can store upwards of 724,728 pounds of carbon). Cities in the Pacific Northwest employ granulated reed sedge peat as a water purifier to keep zinc away from their salmon populations.

And then there's the most familiar use for the millennia-old partially decomposed plant matter: peated single malt whiskey.



"Peat is known as one of the most powerful flavors in the world," says Simon Brooking, master ambassador for Laphroaig. "Being compressed local vegetation, peat will produce different-flavored smoke depending on the region. For example, peat from the Highlands is more decomposed pine trees, whereas peat from the islands is more decomposed seaweed. It's like the difference between sitting around a campfire in the forest versus sitting around a bonfire on the beach."

With more than seven million acres of known peatland, Minnesota has more peatlands than any other state

besides Alaska and over two million more acres than Scotland—the poster child for peated whiskey. Of the approximately 11,000 acres of peat commercially extracted in Scotland annually, less than 6% of it is used for whisky production. In comparison, as of April 2018 in Minnesota only about 8,176 acres of peat were being harvested—about 1% of the state's total. And currently none of it is going toward whiskey production. Yet.

The abundance of peat in Minnesota was first called into the spotlight in the early 1980s when then-Governor Rudy Perpich proposed it as the solution to the state's suffering taconite mining industry, announcing a plan to "transform Minnesota into the Saudi Arabia of peat."

Perpich's idea didn't play out—a study concluded that burning peat to generate electricity would deplete the state's supply within 27 years—but the significance of the state's natural resource wasn't lost on companies like Premier Tech Horticulture or American Peat Technology (APT).

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Two-head peat vacuum harvesters used by Premier Horticulture Tech

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Located in Aitkin, Minnesota, APT harvests reed sedge peat—a less acidic variety made of partially decomposed vascular plants like cattails and grasses. Here, former swampland-turned-unsuccessful farmland is drained and harvested during winter months, when the frozen ground can support the several-ton machinery used to scoop it up and pile it into massive mounds of black dirt that will eventually be turned into a slurry, dried, chopped up, dried again, and packaged into powder, granules, or BB-like spheres for agricultural and water purification purposes.

After explaining the history and products of APT, Peggy Jones, the company's vice president of sales and research, drives me out into the harvesting plots. The dense, soggy soil is surrounded by standing water; the in-progress restoration

looks like your average swamp. It's almost impossible to marry this landscape with peated whiskey. And yet APT is currently collaborating with three Minnesota distilleries—Cantilever Distillery, 11 Wells, and Brother Justus Whiskey Company—to help them make precisely that.



Of the 29 distilleries currently in operation or in planning in Minnesota, at least six are actively pursuing an all-local peated whiskey; in addition to the three working with APT, Far North Spirits, Vikre Distillery, and Loon Liquors all confirmed being in some stage of research or experimentation.

Although the interest for a peated Minnesota single malt is clearly present, before local distillers can nerd out on developing techniques to get their desired

level of peatiness, they first need to figure out how to reliably (and legally) get their hands on peat—and, more importantly, how to use it once they do.

At Minneapolis' Brother Justus, founder and CEO Phil Steger has been thinking about distilling a single malt that showcases the flavors of Minnesota peat for longer than he's had a distillery—in fact, it was what drove him to start Brother Justus. Without providing too many specifics (there's a patent application pending), Steger shares a few details about his pet peat project.

He's been working with APT for all four of the years he's been experimenting with peated whiskey, and hopes to release his peated single malt by late autumn 2020—but anyone who's curious can try the experimental spirit at the tasting room; just ask for "Recipe X."

Steger says he's confident that this spirit is going to taste very different from the peated Scotch whiskeys drinkers are familiar with. "Dark chocolate, grassy floral flavors, mushroomy, umami depth, and layers of spice with a bit of tannin at the end" is Steger's attempt at forming tasting notes for it. "It's hard to describe," he admits. "It's really not like anything out there."

These unique flavor qualities imparted by northern Minnesota peat have the potential to significantly rock the whiskey world and make Minnesota peated single malt as coveted a spirit as a smoky Islay Scotch. So then why aren't we closer to having one on the shelves?

Part of the reason is that the peat destined for whiskey needs to be of a certain quality. The composition of that peat should, among other things, contain bromophenol, the compound that imparts the salty, ocean-air, iodine-like flavors to such Scotches as Laphroaig and Lagavulin; display the ideal carbohydrate-to-lignin ratios (aka, be decomposed enough but not too much); and possess a high quantity of phenol parts per million—the class of chemical compounds that give peated whiskey its smokiness.

Just as wine grapes derive flavor from the soil in which they are grown, the peat used to smoke barley for whiskey also carries with it flavor characteristics particular to its geographic location. According to a 2017 study conducted by Saint Mary's University grad student Tucker Robeson, 0.24% of accessible

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Peat fire for smoking malt (Laphroaig Distillery, Islay)

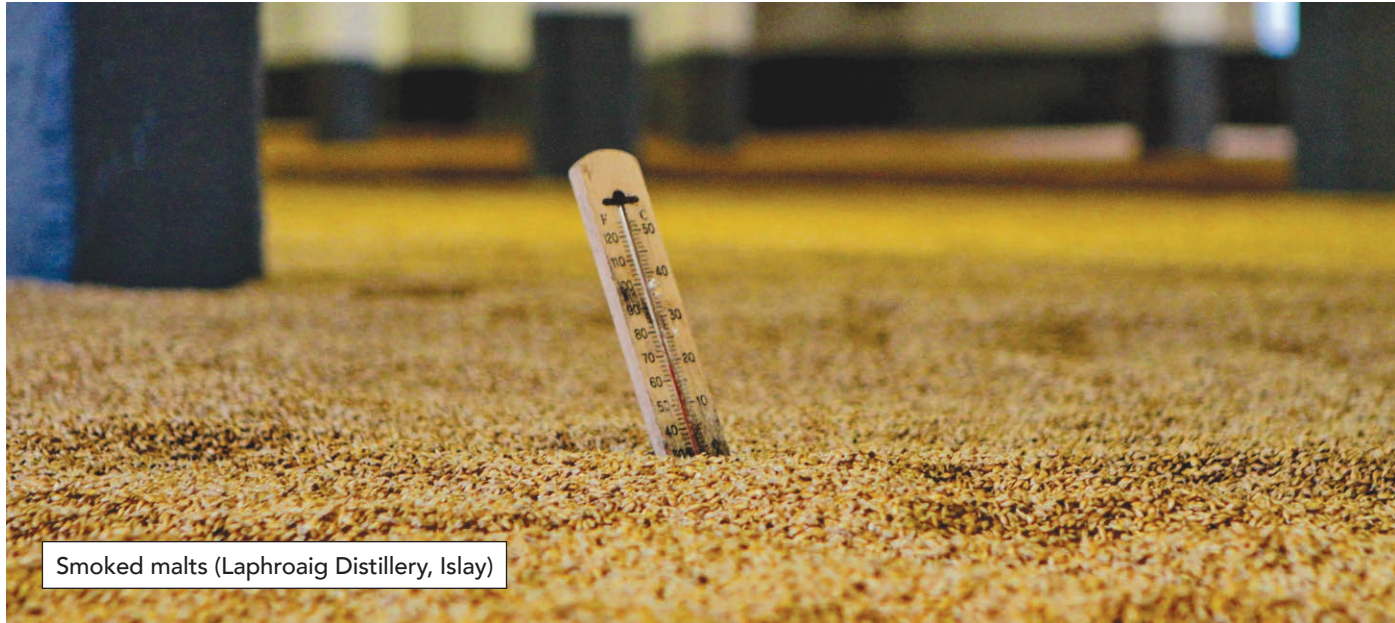
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Smoked malts (Laphroaig Distillery, Islay)

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peatlands in Minnesota have the characteristics desired by distillers—which doesn’t sound like much, but that equates to 109,246 acres of potentially viable whiskey-making peat. That’s enough to supply Scotland’s distilleries for around 30 years.

Where peat comes from and from what types of plant matter it’s made are just two elements that determine what flavors will ultimately be imparted to the end whiskey, though. Even on the small island of Islay—25 miles long, 15 miles wide, and home to eight active distilleries—the same peat used to smoke the same barley creates dramatically different results. That’s because much of the flavor compounds of peated whiskeys are determined not only by the peat used but also by the approach a distillery takes to finish its whisky, says David Blackmore, master brand ambassador for The Glenmorangie Company, owners of Glenmorangie and Ardbeg.

“Whether you’ve got wooden washbacks or stainless steel; whether you’re like Ardbeg, who has a purifier on its spirits still that massively cuts out a lot of the phenols”—Blackmore says it all makes an impact. For example, the malted barley sent from Port Ellen Maltings to Lagavulin and Caol Ila “is identical-spec barley,” he explains. “But when we see the end result, Caol Ila is so much softer than Lagavulin. That’s going way beyond the peat.”

At Laphroaig, 20% of the barley is malted in-house (the remainder is malted

at Port Ellen, along with the barley used by every other Islay distillery save for Bruichladdich) using hand-cut peat from Glenmachrie peat bog, which imparts “a particular mix of heather, lichen, and moss responsible for our smoky, iodine-like and medicinal profile,” says Brooking. For 17 hours, smoke from the smoldering peat permeates the drying barley. Then the grains are milled, mashed, fermented, and distilled through seven copper stills; diluted to 63.5% ABV; and transferred into oak casks to mature in a warehouse “until deemed ready.” In total, Laphroaig goes through 9,480 pounds of peat a week¹.



In tandem with discussions of broadening peat’s use in Minnesota to include whiskey must exist plans detailing how harvested peatlands will be restored. Restoration isn’t just a nice goal suggested to companies like Premier or APT by environmentalists—it’s a federal requirement. Concern for wetland conservation in the U.S. peaked in 1984 when scientists announced that 54% of all the nation’s wetlands had been drained and filled for

¹ Approximately 6,667 cubic feet annually (the distillery only harvests 46 weeks out of the year). For comparison, Premier Tech Horticulture harvests between 2 and 3 million cubic feet of sphagnum peat annually in Cromwell, and over 11 million cubic feet total across Canada and the U.S. every year.

development or agriculture. Responding to this, in 1989 President George H. W. Bush established the national “no-net loss of wetlands” policy, which requires the replacement of impacted wetlands with an ecosystem of the same size and plant matter that would, eventually, function and have the same environmental value as the wetland that had been destroyed.

It’s in figuring out how to abide by that law where experts like Kurt Johnson come in. “A lot of my work has been done on restoring these harvested peatlands,” he says, adding: “The peat industry likes to use the term ‘harvesting,’ but it can also be called mining. [...] It comes out of the ground and isn’t renewable on a human-lifetime scale. The goal of restoration is to at least get it back into the same vegetation and setting for peat to accumulate again.”

Stepping back onto the boardwalk, I follow along as Johnson points out and explains the vegetation growing in the teenage Cromwell bog: six types of sphagnum moss, cranberries, cotton grass, Labrador tea.

I’m handed a freshly plucked chunk of sphagnum. Rubbing the grippy, stringy green mass between my fingers, I try to picture the moss thousands of years from now—dark brown, deeply buried, holding several tons of carbon within its fibrous grasp. I smell it to see if it at all resembles the smoky Scotches its cousins have helped create; a noseful of slightly musky earthiness greets me instead. I toss the moss back into the bog and silently wish it luck on its long journey ahead. 🍷



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