

"By the use of a little smoke from decayed wood, the largest and most fiery colony may at once be brought into complete subjugation."

– L.L. Langstroth

More than anything else, a smoker is probably the most iconic item associated with beekeeping. Smoke has been used for thousands of years to calm bees – it is a central feature of cave paintings depicting prehistoric honey robbers – and nothing has been shown to do a better job. When misguided beekeepers try to argue against using any smoke, I remind them that smoke saves bees lives by inhibiting stinging (you may remember from Bee School that worker bees die when they sting people). Why not use it? Of course, just like anything else, there is potential for misuse (underuse, overuse and unwarranted use are bad for most things in life), but the proper application of smoke is a magical thing.

More than 100 years ago, Dr. C.C. Miller (inventor of the Miller feeder and many other nifty gadgets) succinctly described good smoking practice:

*"A single puff at the entrance if the smoker is going well, or two or three puffs if it is yet scarcely under headway, notifies the guards that they needn't bother to come out if they feel a little jar.... As soon as the cover is raised, a little smoke is blown across the tops of the frames, not down into the hive. While it is bad to use too much smoke, it is also bad to use too little, for if the bees are once thoroughly aroused it takes more smoke to subdue them than it does to keep them under in the first place."*¹

So what's in your smoker? Turning to Dr. Miller once more for advice, he said:
"It is a matter of much importance to have plenty of the right fuel and lighting material. Time is precious during the busy season, and it is



Dried meadow muffins make good smoker fuel but the smoke has a distinctive smell.

*trying on the temper to have to spend much time getting a smoker started, or relighting it when it has gone out. There are a great many different things that can be used for fuel, and it is largely a matter of convenience as to what is best for each one. Pine needles, rotten wood, sound wood, excelsior rammed down hard, planer shavings, greasy cotton-waste thrown away along the railroad, peat, rags, corn-cobs, old bags—in fact almost anything that will burn may be used in a smoker. Whatever is used, however, there should be a good stock of it on hand thoroughly dry, with no chance for the rain to reach it."*²

In my mind, the "right" fuel for a smoker must meet the following criteria:

- 1) It must produce a thick, cool smoke
- 2) It shouldn't leave too much of a resinous residue
- 3) It should light easily
- 4) It should simmer and smoke for a long time
- 5) It must be cheap or free
- 6) It must not produce a noxious or otherwise harmful smoke (so no plastic, poison ivy, etc.)

Most beekeepers I know rely on pine straw for smoker fuel. It usually satisfies #5 on my list of criteria (cheap or free). Even though I don't have hardly any pine trees on my property, I can always buy a bale of pine straw at the local

¹ C.C. Miller, Fifty Years Among the Bees
The A. I. Root Company, Medina, Ohio (1911) p. 75

² Ibid pp 88-89.



Cedar or pine shavings, easy to obtain as animal bedding, make a thick, cool smoke.

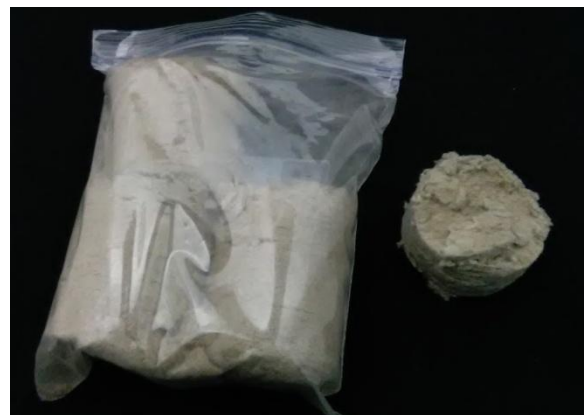
Big Box Store for somewhere between \$4 and \$6. However, in my opinion, pine straw burns “medium hot,” so it isn’t the absolute best in terms of criteria #1 (cool smoke). It does meet all of the other criteria so is a good eclectic choice, but perhaps we can do better.

Some other fuels I have experimented with or heard about include:

- 1) Cotton lint. This can be purchased from beekeeping supply houses in the form of compressed blocks. The smoke is long lasting and thick.
- 2) Old shirts/sheets/jeans (100% cotton only). These are in my list of go-to favorites. They are free and complement my feel-good goal of “reduce/reuse/recycle.” They have the same properties as cotton lint. Make sure that you remove elastic and plastic buttons so that you don’t violate criteria #6.
- 3) Meadow muffins, aka horse poop. These must be well dried for them to burn. Horse owners know that Trigger Trash is essentially nothing more than second-hand, pelleted grass. It does produce thick, cool smoke but it has a distinctive odor. The first time I used it, the smell made me think my hive must’ve had a terrible brood disease. When I realized it was from the smoker fuel, I decided my experiment was over.
- 4) Pine cones. Since pine straw is a good fuel, pine cones should be good too, right? Yes they are, except when I’ve used them they have produced a thick resinous residue,

quickly gunking up my smoker. Otherwise they are as good as pine straw, maybe even more so because they are easier to handle.

- 5) Pine/cedar animal bedding (wood shavings). My daughter had ferrets for many years, and when old age eventually sent them all to Ferret Heaven, I inherited their huge bag of bedding. You can get one from any discount store for \$4 or so. This stuff makes great smoker fuel – the smoke is as thick as whipped cream and very cool. The only drawback is that it can be a bit sparky, sending out a small shower of embers with each puff. I mitigate that problem by capping my smoker off with a handful of green grass, which not only cools the smoke and adds to its thickness but also filters out the sparks.
- 6) Rotten wood. The hurricanes we’ve enjoyed over the past 20 years have blessed me with many downed trees in the woods and fields surrounding my house. They rot over time, leaving me with a large supply of dry, crumbly wood that makes what I think is among the absolute best smoker fuels. It satisfies all six of my criteria.
- 7) Corn cobs. I used to feed my backyard squirrels with ears of corn on a bungee string, giving them an alternative to my bird feeder seed, and also providing me with lots of entertainment. The leftover corn cobs went into my smoker. These smoke well and last long, but burn a little bit hot.



Compressed cotton fibers can be purchased at beekeeper supply stores.

- 8) Excelsior. My mail-order chick supplier puts excelsior in the chick boxes for shipment. It lights quickly, making it a terrific starter fuel even when enhanced by a little bit of chick waste.
- 9) Cardboard rolls. Want to know what to do with all of that left-over Christmas packaging? (Why does Amazon insist on shipping a box within a box?) Cut unwanted cardboard into strips and tightly roll them into smoker-sized cylinders. Make sure the corrugated channels face up and down to allow good air flow. You can put cotton cloth, burlap etc. on the cardboard before rolling it up to create a layered, ready-to-go fuel stick.
- 10) Tobacco leaves. When it is time for tobacco to go to market, a few leaves always escape from the farmers' trailers and end up alongside the highway. I retrieve and hang them in my garage to dry fully. They end up a little dirty and moldy but make a wonderfully fragrant addition to my smoker.
- 11) Burlap. Discarded burlap bags used to be everywhere – potato sacks, etc. – but these days they seem to be used mostly in crafts or landscaping. If you can find discarded burlap (old and rotten is best), it makes a great smoker fuel.
- 12) Baling twine. Same as burlap.
- 13) Peat moss. I haven't tried it, but it has a reputation for a long, slow burn.
- 14) Good wood. This makes a nice fuel, especially in the form of wood stove pellets or something similar.
- 15) Newspaper and leaves. Contrary to what you would think, in my experience these are lousy smoker fuels. They burn too quickly and aren't as easy to light as the other things I've mentioned.

I encourage you to experiment with a variety of fuel materials. You'll find that some make excellent starter fuel but may not be all that great as a "maintenance" fuel, or vice versa. You don't have to be loyal to a particular one; I often burn a smorgasbord of materials in



Making cardboard smoker rolls is a great wintertime project.

Below: Old jeans or any other suitable material can be cut into long strips and incorporated into the roll.



The final product is a fit-for-purpose smoker fuel that is easy to store and handle.

the same can, finding that a harmony of types can provide a really nice, long-lasting smoke.

Well, you may ask, this list of stuff to burn is all well and good, but how do you keep your smoker lit? I teach my bee school students a few essential steps that work well for me:

- 1) Clean out the smoker; a pile of ash on the bottom will impede good air flow.
- 2) Make sure the raised grate is properly placed at the bottom of the can. This vital piece of equipment enables air to come in from the bellows to fan the fire and helps prevent hot ash from falling out the vent hole.
- 3) Light a small bit of combustible material and shove it into the can (pine needles are a great choice for this).
- 4) Pump the bellows so that the starter material becomes a raging inferno, heating the can.
- 5) Once the fire is fully embroiled, add more fuel. Get that fully lit as well.
- 6) Keep adding fuel in a stepwise fashion until the can is full.
- 7) Top off the can with some green grass if the fuel is a bit hot or sparky.
- 8) If the fire goes out, never bother trying to restart the fuel from the top. It won't last. Always empty the can and restart the fire using the same procedure that you used to begin with.
- 9) If the smoke lags after burning for a while, shake the can in a firm up-and-down motion to refresh the action.

I hope all of this has inspired you to go set fire to something! And if you come across a smoker fuel that I haven't mentioned that you particularly like, please let me know.

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