

Creating An Ideal Environment For Dry Curing Sausage

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Note: This is how one sausage maker solved the problems of temperature and humidity!

I thought I would share with you my homemade solution for creating an ideal environment for dry curing sausage. Before I begin it is important to understand that there two atmospheric conditions that we must control which are critical to dry curing sausage.... temperature and humidity. Ideal temperature range for dry curing is between 40-55° F. while maintaining a relative humidity of about 70% (personally I maintain a temp of 46 ° F). In nature, it is difficult to find such constant conditions for the duration of time required for dry curing sausage (typically weeks to months).

First off I had to decide on a cabinet. I chose a freezer as my cabinet because I wanted to use the full capacity of the cooling unit rather than have a unit that is both a refrigerator and freezer because I only need the refrigerator capabilities for dry curing. So how does one make a freezer act like a refrigerator when the typical operating temperature of a freezer is around 0 ° F? By the way, conversely a refrigerator tends to operate mostly under or at the lowest end of the desired temperature of 40 ° F (which are set this way by the manufacturers to prevent you from spoiling your food). So either choice requires a modification to achieve the ideal temperatures.

Let's begin.....

My freezer modification first started with the need for an external control to prevent the freezer from going to zero degrees and cycle the freezer on when the temperature went above my desired temp range of 40-55 ° F (In my case 46 ° F). My solution was to use a line voltage thermostat which I picked up online from McMaster-Carr (www.mcmaster.com). The thermostat I ordered can be set to operate between -30 to +100 ° F and comes with a remote temperature probe. Remember the internal controller of the freezer is setup to drive the temperature down to around 0 ° F. By plugging the freezer power cord into the line voltage thermostat and dialing the temperature of the thermostat to the desired operating temperature you are essentially bypassing the internal temperature mechanisms by cutting power to the freezer when the set temperature is reached. Once temperature is reached the thermostat will then cycle on and off the power as needed to maintain the temperature setting. Now the one thing great about this is that when I am not dry curing sausage I can use the unit as either a refrigerator or a freezer....simply by change the temperature setting on the thermostat. Again this was another reason I chose to use a freezer instead of refrigerator, as a refrigerator is not capable of being anything but a refrigerator.

Now the second factor that needed to be controlled was humidity. Maintaining a relative humidity of about 70% is critical to prevent case hardening which would prevent internal moisture transfer. You will find that a refrigerator is a very dry place with typical humidity of around 30-40% which is much lower than what we

need to dry cure sausages. So how does one introduce humidity in a controlled fashion? It has been suggested that one could take a pound of salt and place it in a shallow pan with just enough water to cover it. Indeed this does create humidity but my evaluation of this method indicates inconsistent levels of humidity and not necessarily achieving the desired humidity of about 70%. Problem stems from the fact that it is not controlled humidity. So the challenge becomes how do we introduce controlled humidity? The answer is a humidifier and an in-line voltage humidistat (which senses relative humidity), operating on the same principles in which we controlled the temperature. The humidifier is plugged into the humidistat, which provides power to the humidifier until the preset relative humidity is reached. From there on in the humidistat will cycle on and off the humidifier as needed to maintain the humidity setting. There are many brands of humidistats on the market, Nutone makes one, Green Air also makes one (www.greenair.com). There are two types of humidifiers available at just about any department store of home improvement center; one generates warm moist air while the other generates cool moist air. You want a cool moist air unit as you do not want to be generating heat inside your cooler. Also you only need a very small humidifier. No need to buy one that will humidify 2000 square feet for our application. I would also highly recommend the use of distilled water in the humidifier.

One other thing you need to be aware of on frost-free units is the defroster will periodically cycle on (some units are timed so that the defroster cycles on for 30 minutes for every 12 hours of compressor time). This may work differently with different models and makes. Basically it is the job of the defroster to remove moisture which is what we are trying to maintain. I found that it was pretty simple to trace the wiring and disconnect the wiring to the defroster (typically you will find the defroster is a separate tube that runs underneath the cooling coils at which one end will have wires connected). However my observations are that the humidifier will also kick on during automatic defrost negating the effects of the defroster. Not a big deal if you can't figure out how to disconnect when using the humidifier method but I did find that the salt and water method does not generate humidity quick enough to stay ahead of the defroster. In this case, choice could be a non-frost free model (manual defrost) but I found less hanging flexibility because of the non-removable coiled shelves plus disadvantage of not having absolute control of humidity levels. The other thing I liked about the frost-free model is that a small fan comes on when compressor activates providing a little air circulation.

One other neat thing I found was a Cable-Free (wireless) thermo-hygrometer. Sensor is placed inside cooling unit and transmits temperature & relative humidity to a digital display you can mount on the outside of your cooler or up to 100 feet away. This is available at www.time-weather.com. It's a bell and whistle thing that eliminates having to open door to check humidity & temp. Actually saw similar unit at Target other day.....a simple thermometer & hygrometer placed inside unit will work fine too.

Lastly you will need to drill a few holes (remotes probes, power). Make sure unit is unplugged when you do this and make sure you know where the coils & other wiring are to prevent damage to the unit.



Sopressata

Smoked Cajun Sausage

Smoked Chicken Breast

Candian Bacon in brine