Jam and Jelly Setting Guide

Welcome to our Homemade Jam and Jelly Setting Troubleshooting Guide

Learning how to make homemade jam and jelly without store bought pectin and low sugar is a bit different if you're used to relying on commercial pectin and recipes.

Traditionally jam and jelly making is much more frugal and self-sufficient, not to mention healthier without loads of sugar or processed packets.

In order to troubleshoot, you need to know how jam and jelly sets in the first place, aka gels.

For jam or jelly to set it's a **trinity of three things, the amount of sugar, pectin, and acid working together to create the gelling point.**

1. Sugar

Fruit naturally has sugar in it, but not enough to reach the setting point on its own. However, it will set without the tons of sugar many recipes call for, can I get an amen! Start by adding the amount called for in the recipe (my book, The Made-from-Scratch Life) has some of our family favorites.

Types of Sugar

You can use regular white sugar, evaporated cane juice, organic sugar, brown sugar, and honey with success.

2. Pectin

Our great-grandparents and the pioneers before us didn't have shiny packets or liquid pouches of pectin to make their jam and jelly. And you don't need it either.

Pectin is naturally found in fruits. (See chart on page 4) You can choose a fruit high in pectin or mix a low pectin fruit with a high pectin. For medium to low level pectin containing fruits, the zest of 2 limes or lemons, or a large green apple (grated with the peel) or some crab apples, will provide you with natural pectin.

3. Acid.

We need acid to help not only with our set and gel, but also in order stay safe with canning. The addition of a ¼ cup of lemon or lime juice helps create acidity as well as a wonderful flavor profile.

Safety Note: High acidic foods that are either 4.6 or lower on the ph scale are safe for canning. This means no bananas, melons, dates, or figs in canning recipes. (See chart on page 4)

How to Reach the Gelling Point

Not only do we have to have the correct amount of the three main ingredients, but they must reach the correct temperature in order to set.

Jam and jelly set at a temperature of 220° Farenheit (104 °C)

The easiest way to gauge this is to use a candy thermometer. I use mine all the time from making yogurt, candy making (shocker there, right?) and when making jams, jellies, syrups, and fruit spreads.

Altitude note: It's important to note that if you're at high altitude, 1,000 feet above sea level, then you need to subtract 2° for every 1,000 feet above sea level.

If you don't have a candy thermometer you can test it with the Sheet Test below.

How to Test if Your Jam or Jelly is Gelled or Set

The sheet test is the one I use most often. Take a large metal spoon and put it in the fridge or freezer when you begin making your jam. Dip the spoon into the boiling jam and hold it up so that the spoon is sideways and the jam can drip off the side/edge of the spoon.

If it just runs off, it's not ready. Large drops mean you're almost there, and the sheeting is when the jelly/jam drips off the spoon in one sheet, instead of individual drops, hence the name "sheet test."

What to do if Jam or Jelly Isn't Reaching the Correct Temperature or Setting?

Option 1:

Let it cook longer. Let it cook for 5 minutes and test it again. I generally have to let my no store bought pectin recipes cook for 20 minutes, but start testing at 10 minutes of simmering time to avoid going over the gel or set point.

Option 2:

Add more sugar. If you've let your jam cook for 15 minutes and it's not showing signs of gelling, I would suggest adding a 1/4 cup more sugar.

Cook for another 3 to 5 minutes, if it's still not gelling, I'd add another 1/2 cup of sugar. This is especially true with the lower sugar recipes I stick with.

Option 3:

Add more acid or pectin source. First I try adding 1 more Tablespoons of lemon or lime juice.

Cook for another 3 minutes and check for the gel or set.

I use the above options in their numbered order. Most of the time the addition of the sugar in option 2 will get the recipe to the gelling point.

Wait, once cooled my jam and jelly is too runny

If you thought your jam/jelly had set, but upon cooling realize it's not really "set" you have two options.

Option 1:

Go ahead and can it up as syrup.

Option 2:

Put it back in the pot, bring it to a boil, and add a 1/2 cup more sugar or more of a natural pectin source, such as more grated citrus peel or grated up green apple.

Pectin and Fruit Acidity Level Chart

Fruit* assumption fruit is ripe	**PH**	**Pectin Level: High/Low**	**Pectin Level: Percent**
Apple	3.3-4	High (green)/Medium (ripe)	.71-.84
Apricot	3.3-4.8	Low	.71-1.32
Blackberry	3.85-4.5	High	.68-1.19

Blueberry	3.12-3.33	Low	
Fruit*	**PH**	**Pectin Level: High/Low**	**Pectin Level: %**
Cherry	3.2-4.54	Medium (sour)/Low (sweet)	.24-.54
Chokeberry, Black (aka Ariona)	3.3-3.7	Low	
Crab Apple		High	
Cranberry	2.3-2.5	High	
Currant	2.9	High	
Elderberry	3.8-4.5	Medium	
Fig	5.05-5.98	Low	
Gooseberry	2.8-3.1	High	
Grape	2.8-3.82	High (wild)/Medium (Concord)/Low (others)	.09-.28
Grapefruit	3.00-3.75	High (skins)/Low (flesh)	3.3-4.5
Kiwi, Hardy	3.61-3.75	Low	
Kumquat	3.64-4.25	Medium	
Lemon	2.2-2.4	High (skins)/Low (flesh)	2.8-2.99
Lime	2-2.8	High (skins)/Low (flesh)	

Lingonberry	2.95-3.18	High	
Loganberry	2.7-3.5	Medium	0.59
Lychee	4.7-5.01	Low	
Mango	3.4-4.8	Low	
Mulberry	5.6	Medium	
Nectarine	3.92-4.18	Low	
Orange	3.69-4.34	High (skins)/Low (flesh)	2.34-2.38
Papaya	5.2-6	High	
Peach	3.3-4.05	Low	
Pear	3.5-4.6	Low	
Persimmon	4.42-4.7	High	
Plum	2.8-4.3	High (most)/Low (Italian)	
Pomegranate	2.93-3.2	High	
Quince	3.12-3.4	High	
Raspberry	3.22-3.95	Low	0.97
Rhubarb	3.1-3.4	Medium	
Strawberry	3-3.9	Low	
Tangerine	3.32-4.48	High (skins)/Low (flesh)	

Filling your pantry with home canned goodies from items you've raised yourself is something I never grow tired of.

To learn more about stocking the larder like great-grandma did, but with up to date and modern tools, learn more about The Pioneering Today Academy here.

Sources:

http://foodsafety.wisc.edu/business_food/files/approximate_ph.pdf

http://www.pickyourown.org/ph_of_foods.htm

http://www.fda.gov/Food/FoodborneIllnessContaminants/CausesOfIllnessBadBugBook/ucm122561.htm

http://www.pickyourown.org/ph_of_fruits_and_vegetables_list.htm

https://extension.umaine.edu/agriculture/home/aronia/food-and-nutraceutical-uses/

https://www.ars.usda.gov/SP2UserFiles/person/37108/PDF/Leeelderpolyp.pdf

http://biozoojournals.ro/swjhbe/v1n2/08.swjhbe.v1n2.Fattahi.pdf

http://onlinelibrary.wiley.com/doi/10.1111/j.1745-4557.2000.tb00571.x/abstract

http://www.drugs.com/npp/white-mulberry.html

http://naldc.nal.usda.gov/download/22783/PDF

http://foodpreservation.about.com/od/Preserves/a/High-And-Low-Pectin-Fruit.htm

https://www.bakingmad.com/faqs/how-do-i-know-the-pectin-levels-of-the-fruit/

http://www.likeastrawberrymilk.com/2015/06/sugar-acid-and-pectin-content-of-fruits/

http://www.sbcanning.com/2011/06/doesnt-natural-pectin-in-my-fruit-make.html

http://www.portlandpreserve.com/all%20about%20pectin%20for%20jam%20makers.pdf

http://arnoldia.arboretum.harvard.edu/pdf/articles/2010-67-3-aronia-native-shrubs-with-untapped-potential.pdf

https://semiswede.com/2013/08/30/lingon-lingonberries-three-classic-ways/

file:///C:/Users/Micki/Desktop/Fruit%20Project/10-11-11-28dd2.pdf

https://en.wikipedia.org/wiki/Papaya

http://www.homepreservingbible.com/934-about-fruit-pectin-and-techniques-for-making-jam-without-pectin/