

Appendix B

Home Breadmaking Equipment

21st Century Maidservants

One of the blessings of living in our modern world is the many labor and time saving devices that we have been blessed with. There was a time in ancient days where the grinding of wheat and the baking of bread would take up a good part of one's life. Without it, however, one didn't have a very long life, so there was little choice! In today's world, we not only have the choice, we have numerous appliances to make the choice of healthy eating easier than ever. In this appendix, I'll review some of the more popular mills and breadkneaders available on the market. If you are aware of others, please let me know so that I can include the info in the next edition.

Home Flour Mills

Historically, flour was milled using stone mills; crushing and grinding the grains between heavy stones. Today's mills fall into three categories: 1) stones, 2) cone and burr and 3) micronizing.

Stone Mills

Stone mills, which have been used for centuries, have some marked disadvantages along with many attractive features. They tend to be slow and leave grit or stone particles in the flour. They can "glaze over" with some grains which can require extensive cleaning. Stone mills tend to be more expensive than other mills and, as the name implies, tend to be very heavy.

The advantages of a stone mill are also worth noting. They are heavy-duty, simple and clean. The **Retsel Mil-Rite**, recommended by Rich & Sue Gregg, works with a 1/4 horsepower, internal fan-cooled industrial ball bearing electric motor and sealed reduction gear drive. It has two five inch fluted stones which attach to the gear unit by a single adjustment knob. Grain is dropped through a funnel and is fed to the milling stones by a short auger. You can adjust the texture of the final product by simply adjusting the knob by hand (no tools required), which can be done at any time. You can grind grains from very fine to very coarse or for cracked grains. It is very quiet, as opposed to most micronizing mills. It is very slow, (1/2 cup fine flour per minute, 1 cup coarse flour per minute), but mills at low temperature, preserving the nutrients. It is advertised as "self-cleaning" and designed to minimize the danger of leaving rancid or stale flour in the milling chamber. With the burr attachment, this mill can handle oily soybeans and damp grains. This mill can be run 24 hours a day (not that you need that feature, but it gives you an idea of its durability). Manufactured in the U.S.A., the Retsel boasts all metal, heavy duty construction. It's over 35 lbs, so if you choose this mill, it's best to have a dedicated counter space for it. Another nice feature: it is easily convertible to hand operation by attaching a hand crank. The Retsel Mil-Rite only operates at 60 rpm, so it can be turned by hand at full production speed. The Gregg's of Eating Better Cookbooks highly recommend this mill, but in all honesty, I've heard some complaints too. It's really a matter of personal preference, so do your research. Contact Retsel directly at 208-254-3737 or go to www.retsel.com.

There are other stone mills available, but the ones I have seen have exceeded \$500 in cost. While they may very well be outstanding products, there are many excellent alternatives for a fraction of that price. If you're set on a stone mill, or want one that can be used with or without electricity, consider ordering my booklet, *Grains & Grinders* (\$5 ppd) or check out www.Lehmans.com for additional info.

Micronizing Mills

The most recent technology in milling is the micronizing electric mill. These mills, with their micro milling heads, operate using a unique high speed impact principle in which the grains impact stainless steel milling teeth traveling concentrically at high speed, causing the grain or bean to literally explode into a fine flour. This process is very fast and accomplished without high temperatures that can damage nutrients.

The two leaders on the market for many years were the **Magic Mill III Plus** and the **K-tec Kitchen Mill**. I have owned, used and sold both these products and find them both to be excellent mills. Their common drawback is the noise. As the wife of a former Air Force pilot, I'm accustomed to the sound of jet engines, but not everyone cares for this feature! Fortunately, the mills are so fast that they only need be run for a couple of minutes. Since I am highly sensitive to noise levels (so God gives me 6 children and a small house!), I used to set my mill on a towel to help absorb the sound and run it in my laundry room adjacent to the kitchen. The Magic Mill III Plus is no longer available and, at this writing, no plans have been announced to revive it. At this time, the WonderMill GrainMill (which appears to be a remodel of the GrainMaster WhisperMill) seems to have replaced other electric mills as the leaders--and it is significantly quieter.

The benefits of the micronizing mills are numerous. Because of the "impact" process as opposed to "grinding," the infrastructure of the grain is protected. You control the coarseness of the finished product via a milling texture dial. This dial, seated on top of both the Magic Mill and the K-tec and on the side of the WonderMill, offers several coarseness settings ranging from coarse for bread, graham and other high textured flours to fine settings for pastry flours up to 10% finer than store bought flour. After milling and taking the top off the pan, you can see a separation of the heavier bran and finer flour. This is a nice feature as you can easily sift or scoop out the bran for muffins, use the pastry flour for a delicious angel food cake, or mix them together for fragrant loaves of REAL 100% whole wheat bread. With no surfaces to cause friction, your valuable nutrients are preserved and the fine flour gets no warmer than 120 degrees F.

The **K-tec Kitchen Mill** feeds the grain into a milling chamber where stainless steel blades are traveling concentrically at 25,000 rpm (a technique borrowed from the pharmaceutical industry). This literally explodes the grain into fine flour at low temperature. The K-tec can hold up to 15 cups of flour and works very quickly. The 120 volt motor peaks at 1 3/4 horsepower and the milling chamber is self-cleaning and permanently lubricated. It comes with a five year warranty on parts, plus a LIFETIME warranty on the milling heads. Another nice feature is storage--the flour pan inverts over the mill for compact storage. Weighing only 8 pounds and taking up 10"x8"x6" of space. This mill is no longer manufactured that I'm aware of, but may be found used on sites like ebay from time to time. Same with the Magic Mill Plus and its' variations.

In my home I now use the **GrainMaster Whisper Mill (which is now sold as the WonderMill GrainMill)** and am quite happy with it. It is very quiet (especially compared to the Magic Mill and K-tec.) It is

simple to use and requires almost no cleaning. According to the manufacturer, this mill has all the advantages of the old stone mills, but none of their problems. There's no gumming, jamming or glazing (though you should never turn it off DURING milling or it could jam. This is easily fixable, but more easily preventable). The Whisper Mill will not overheat and uses a 1 3/4 peak horsepower, 120 volt motor. It is permanently lubricated and never needs maintenance. It "will give you a lifetime of trouble free service" according to the manufacturer. It takes only about 3 or 4 minutes to mill enough flour to make 4 large loaves of bread (8 cups of grain which equals about 12 1/2 cups of flour). Does a great job with dried beans and legumes! The WonderMill GrainMill runs around \$250-\$275. Another mill that has gained popularity and works on the same principles (for the same money) is the Nutrimill Grain Mill.

Vita-Mix. The Vita-Mix is probably the world's greatest blender, but it is **not**, in my opinion, the world's greatest home flour mill. I own a VitaMix and love it as a multi-purpose and powerful blender. I would not recommend it as a flour mill-it makes an awful noise while using it in this manner and doesn't do the quantities I need. While it's a great blender, if you want a flour mill, buy a flour mill.

Mill Attachments to breadkneaders/mixers: DON'T DO IT! A number of breadkneaders/mixers on the market offer a mill "attachment" that affixes to the machine and mills grain as it is run through. I have heard nothing but horror stories about these. They are messy and put a heavy heavy load on the machines--potentially shortening the life of the kneader/mixer. In the past, (when I retailed breadmaking equipment) I sold mills to several people who tried this option first and wished they'd saved their money.

Breadkneaders

There are numerous options available for breadkneaders. Many of my friends and customers started with what they had at home; whether a K-mart type mixer with "dough hooks" or a more powerful Kitchen-Aid. The important thing is to get started! If you can only invest in one appliance to start with, go with the flour mill so that you have the nutrients in the grains at your disposal. While a person can always knead bread by hand, milling by hand is so time consuming and messy it realistically won't happen.

Kitchen-Aid. Having talked to Kitchen-Aid users all over the country, it appears that the older machines are much sturdier and better able to do breadkneading than the newer. It could be that Kitchen-Aid has gone the way of so many small kitchen appliance manufacturers and replaced the old stainless steel gearing systems with "new and improved" nylon (which is not nearly as durable). However, if you have a Kitchen-Aid, you are ready to get started! (It appears KitchenAid has introduced some heavier duty machines over the last few years, so if you have one of these beasts, by all means, give it a try (my daughter got one as a wedding gift and it does a good job, though her bread is heavier than mine.). A couple of cautions, however: Do no more than 2 loaves at a time and let your machine "rest" 45 minutes between batches or you may shorten the life of your machine. I DO NOT recommend the flour mill attachment on the Kitchen-Aid--I've heard only negative reports on it from those who have bought and tried them. It's very hard on the machine and makes a mess, from what I'm told.

An easy to use bread kneader, and the granddaddy of the electric breadkneaders for home use, is the **Bosch Universal**. I started with this machine and it makes beautiful bread. It's also an outstanding mixer and comes

with a powerful blender (powerful because it hooks to the base and utilizes the Bosch's motor). It's rated for up to 10 lbs of dough at a time (a 700 watt motor and internal transmission!). For the price (around \$400--and usually includes a blender, dough hook and wire whisks), it's an excellent machine and you can feel certain you'll get your money's worth. It's also attractive on the counter. The bowl is not as easy to clean as some of the other machines because it has a center "cone," but it is very very easy to use and does an excellent job. Frankly, with the Bosch, it's almost impossible NOT to make good bread. Even for the domestically challenged like me, the bread seems to ALWAYS work! Numerous attachments are available from flaker to meat grinder to food slicer/shredder making it a very complete home kitchen center. Comes with a three year motor warranty, one year on all other components.

I currently use a machine that used to be called the **DLX made by Electrolux of Sweden** (remember your mom's old vacuum that lasted 40 years? Same company). This machine is a workhorse! It now goes by the name "Verona" and is produced by Magic Mill & Electrolux. I've had mine since the early 1990's and work it HARD. I can do up to 15 lbs at a time with no difficulty. It utilizes an internal stainless steel worm gear as opposed to the transmission in the other machines, which accounts for the increase in power without the increase in wattage requirements (it has a 450 watt motor). It's been available in Europe for over 80 years and has been in the US for less than 30 years. UL and CSA certified, its powerful energy-efficient 450 watt motor has a speed sensor that automatically adjusts torque to load. It offers a lighted dial and variable speed control and 12 minute timer. Its stainless steel transmission and extended-hours belt drive provide commercial strength (though it is not warranted for commercial use). The machine stays stable on the counter and clean-up is a breeze with the seamless hand-polished 8-quart stainless steel bowl. I have absolutely loved my DLX! For larger families who eat lots of breads and grain products, this is a great machine to meet the knead (sorry, couldn't resist). Also quite easy to use, I had to adjust my technique slightly after having been a Bosch user for years, but I'm very happy with the finished product and I assume my family is too--we go through a LOT of bread! The downside of this machine is its cost--usually around \$700, and this doesn't include attachments. You just have to do the math and look at how much money you are spending now on bread products and how quickly the machine would pay for itself. This is truly a "lifetime" machine in terms of durability and quantity. Numerous attachments are available: Whisk Bowl, Blender, Flaker (which I use CONSTANTLY), Food Grater/Slicer, Meat Grinder, Pasta Discs, Berry Press, Nut Grater, Grain & Spice Mill and Citrus Juicer. Specs: height is 13.5", width is 10.5", weight is 24.7 lbs with voltage/cycles of 110VAC/60hz and a dough capacity up to 15 lbs. This is the machine for large quantities (*read "teenage boys"*) and heavy duty work.

When considering the costs of a mill and breadkneader, keep in mind that your cost per loaf to MAKE your own 100% whole grain bread with NO preservatives or chemicals and ALL the nutrients is about 25 cents a loaf. In other words, depending on the size of your family and the amount of bread and whole grain products you consume, this equipment will quickly pay for itself and then start paying YOU (not even taking into account the improvement in your family's health).

A note on Autobakeries. Autobakeries have been all the rage for the last several years. Their main difficulty has been with whole grain flours, however. They rarely are powerful enough to thoroughly knead the dough and develop the gluten sufficiently for a good loaf of 100% whole grain bread. Usually, when using an autobakery, it is necessary to add in some white flour, which defeats the purpose. As the technology improves, I expect this will be overcome. However, at this time, the only autobaker I can recommend for home use with

REAL whole grains is the Zojirushi. This is available in numerous stores or through mail order. Frankly, for the cost, it's better to save up a little longer and get a breadkneader that will "outlive" an autobakery, do larger quantities and not draw so much electricity--it needs to "pay its rent."