The Whole Grain Connection

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**Mills for local whole grain flour**

The *Zentrofan* mill is a small-medium sized mill that produces fine whole grain flours; it can be very useful in small-medium sized commercial kitchens, bakeries, useful to pasta makers and whoever would like a supply of freshly milled fine whole grain flour. A particular advantage is that the [Zentrofan-C75](https://r20.rs6.net/tn.jsp?f=001dDDRtCY2AwR7kVL0PNx59zdqjARDLK6UnMQsYAWDdngtFSI3Qhv3sngy_SMQbsobgPU_wUitLDUM21ESMEl1eHJ4gasqeadTKGjtxMt0kYaoVTVnSjvCSrj7fFW46p7FBJyLpgK6cMk0IuhTzhAQtGfcaqKyatNDxs7-Rcq2QAs1myrO1-RcJbPnrcSz4i87ryXwOX9-Cg0=&c=FE9Bd_-ZZGBrFujm3qiSC1m0Z_bx2Nt1_2DRr50Gfs3NDmhD71Tc_A==&ch=MWvGUkp_0fZFMQEXPFCuDrENXErfFX3uGm95RctRGTHUj2r5oQPLtw==) is a self-contained set-up that includes flour-dust abatement and flour collection. The footprint of the total set-up is relatively small. [Click here for an overview in English, of the Zentrofan mill,](https://r20.rs6.net/tn.jsp?f=001dDDRtCY2AwR7kVL0PNx59zdqjARDLK6UnMQsYAWDdngtFSI3Qhv3srDK7HqK0fNUCSiBOqiGpSiICKuxUFgy7BvT5oL9GzA20HJ9mGTgMMV3PV44Wk82-K7hNIxAGpFGrGfWF1NNiyd3XfoJ_Q4kv4aQWtfxaPt5t0dAI2k0bcI=&c=FE9Bd_-ZZGBrFujm3qiSC1m0Z_bx2Nt1_2DRr50Gfs3NDmhD71Tc_A==&ch=MWvGUkp_0fZFMQEXPFCuDrENXErfFX3uGm95RctRGTHUj2r5oQPLtw==)

In any case, wherever a mill is installed in a food production facility, a separate cool and well-ventilated mill room is needed to accommodate noise, and flour-dust-abatement equipment specifically designed for the mill. Consideration should also be given to grain storage, the maneuvers needed for the grain transfer into the mill, and movement of flour containers into bakery or kitchen.

Other mills suitable for food service kitchens and bakeries, are the stone mills in various sizes by [Jansen Grist Mills,](https://r20.rs6.net/tn.jsp?f=001dDDRtCY2AwR7kVL0PNx59zdqjARDLK6UnMQsYAWDdngtFSI3Qhv3sngy_SMQbsobIfh9jAmilm6fUsPP7dFyvjHnkALLTFhUT9qRX__Se4osNj8msxkuak1p7eeG1ulGVaxvLbPMWY8D2iqXGDxgN5vTq4Amzn_vhD24UTeS5umqTegwAzrq9QI_8nXwFpJ0&c=FE9Bd_-ZZGBrFujm3qiSC1m0Z_bx2Nt1_2DRr50Gfs3NDmhD71Tc_A==&ch=MWvGUkp_0fZFMQEXPFCuDrENXErfFX3uGm95RctRGTHUj2r5oQPLtw==) [New American Mills,](https://r20.rs6.net/tn.jsp?f=001dDDRtCY2AwR7kVL0PNx59zdqjARDLK6UnMQsYAWDdngtFSI3Qhv3sngy_SMQbsobTrxJGRg4XtYK3DQ140UJG9O-HWamWu48Jdfjp-gHQUmvjgwpDNuOR3garNlTTTvDqwratU7IJvCJeJMAoCcBQLYJAvd3RVIKbS242YKR-cw=&c=FE9Bd_-ZZGBrFujm3qiSC1m0Z_bx2Nt1_2DRr50Gfs3NDmhD71Tc_A==&ch=MWvGUkp_0fZFMQEXPFCuDrENXErfFX3uGm95RctRGTHUj2r5oQPLtw==) [Meadows Mills](https://r20.rs6.net/tn.jsp?f=001dDDRtCY2AwR7kVL0PNx59zdqjARDLK6UnMQsYAWDdngtFSI3Qhv3sngy_SMQbsob2KFkhj56jAa3eQ6OQjeenZOIVFTxEWOj0M2D2G0bWiojTAx-BMtS5N3KOjwgAFq3vp7KfibpuxPtPYN9FQTfgg==&c=FE9Bd_-ZZGBrFujm3qiSC1m0Z_bx2Nt1_2DRr50Gfs3NDmhD71Tc_A==&ch=MWvGUkp_0fZFMQEXPFCuDrENXErfFX3uGm95RctRGTHUj2r5oQPLtw==).Other larger air swept impact mills, similar to the *Zentrofan* in function, are made by [Reynolds Engineering](https://r20.rs6.net/tn.jsp?f=001dDDRtCY2AwR7kVL0PNx59zdqjARDLK6UnMQsYAWDdngtFSI3Qhv3sqezoKqDB1Uz_eG7tYe3feGXfKvQ53UwU1Hn--tesGJNEfQK8SAG2OecX4Viweoh6O93FWAN-1Aiom3L3xadEcAagyZBF6qSdv2K94XUNSqGzbol6bq9iy2ih5N8NGzSdw==&c=FE9Bd_-ZZGBrFujm3qiSC1m0Z_bx2Nt1_2DRr50Gfs3NDmhD71Tc_A==&ch=MWvGUkp_0fZFMQEXPFCuDrENXErfFX3uGm95RctRGTHUj2r5oQPLtw==)(pulverizer)and made for [Unifine](https://r20.rs6.net/tn.jsp?f=001dDDRtCY2AwR7kVL0PNx59zdqjARDLK6UnMQsYAWDdngtFSI3Qhv3sngy_SMQbsobHzjtkaKoOiRMTdn5ez9f0ftyyaOFJMcnSl_fCJg_i1Ln1VOx6aw1XrsMxTB95Q4Bd1_C9NrAq7vf21Tks4d3b5vBmN0sbeze&c=FE9Bd_-ZZGBrFujm3qiSC1m0Z_bx2Nt1_2DRr50Gfs3NDmhD71Tc_A==&ch=MWvGUkp_0fZFMQEXPFCuDrENXErfFX3uGm95RctRGTHUj2r5oQPLtw==" \t "_blank)by [*AW Machine Works*](https://r20.rs6.net/tn.jsp?f=001dDDRtCY2AwR7kVL0PNx59zdqjARDLK6UnMQsYAWDdngtFSI3Qhv3sqezoKqDB1UzZCjRN0piVFJXvqSyJdnx5oIDsdYyL2D5-gTG-Pt28A9-P21f_OdMqxsSlksWXpaveArtNIpYni0uaWNpHsHYEw==&c=FE9Bd_-ZZGBrFujm3qiSC1m0Z_bx2Nt1_2DRr50Gfs3NDmhD71Tc_A==&ch=MWvGUkp_0fZFMQEXPFCuDrENXErfFX3uGm95RctRGTHUj2r5oQPLtw==); these could be installed in larger bakeries and restaurant chain central facilities.

*Hosokawa* also makes an air swept impact mill, but with the difference that it is fitted with an extra part: an air classifier. Hence the name [Mikro ACM.](https://r20.rs6.net/tn.jsp?f=001dDDRtCY2AwR7kVL0PNx59zdqjARDLK6UnMQsYAWDdngtFSI3Qhv3sngy_SMQbsobpZDsj046OssF75-OsPQy5mMrwr5E_QTqH6pNbEJXUE8T75rJakjiGgPrmHJs313BVVWa4BsrboioP3UEWbXHoXak0sQSHrYVYpb4-MLPwhRB2NF5jyWWFYWH9v8C9ewUdWcHZqg1nROo_PJvuSlrORGniVMsP2-O&c=FE9Bd_-ZZGBrFujm3qiSC1m0Z_bx2Nt1_2DRr50Gfs3NDmhD71Tc_A==&ch=MWvGUkp_0fZFMQEXPFCuDrENXErfFX3uGm95RctRGTHUj2r5oQPLtw==" \t "_blank) The air classifier sends particles of bran and germ that are larger than a chosen size, say 250 microns, back down into the mill for further size reduction. The result is a tighter particle size range than is achieved with the simple air swept mill mechanism. *Hosokawa’s D97* mill produces 97% of particles less than 250 microns, but at a much greater price than other air swept impact mills. This is the mill suggested for installation in a regional mill rather than on-farm or in commercial bakeries and kitchens.

Most bakers are thrilled with the very fine endosperm flour and fine bran and germ in whole wheat flour from the air swept impact mills. It will be the pasta-makers making their whole wheat product by extrusion, who will most want to have flour produced in an air swept impact mill with a built-in air classifier. Imagine whole wheat vermicelli, made without worrying that the extruder will be blocked by bran particles!

**The installation of these in-house mills has gained greater importance than ever. Here's why:**

I have seen at first hand that the goodwill for larger scale local whole grain flour milling is just not there among those who could implement it. A competitive grant application by the *Whole Grain Connection*to *California Department of Food and Agriculture (CDFA)*on behalf of a group of Yolo county farmers and endusers, for a service whole grain mill was recently refused! In my view the competitive nature of the grant was just an excuse for the refusal. This is a scandal, given the extreme need.

Those of us who have honestly looked at the history of our grain systems and have re-discovered the amazing nutritional value in grain foods that are presented in the whole grain form, are the winners here. We have demonstrated in hard times like the covid lockdown that our smaller localized whole grain mill network in bakeries and independently, can absolutely keep up with the provision of nutritious whole grain flour for local people. This is our way forward, currently, with no further need to waste effort calling on those in charge of government spending, but apparently no goodwill towards providing healthy whole grain foods for all. However, we need to keep up the effort to inform exactly these people that the current system is inequitable. We need to be ready when grant opportunities arise for improving our grain food system.

That this lack of goodwill and attention towards whole grains for people, exists at the highest levels where government money is distributed, was recently seen in a poster attributed to the *National Organic Program*and the *Organic Trade Association:*“Grain-Based diets” are listed as “Not Organic”. [The poster is presented on page 8 of the California Certified Organic Farmers (CCOF) Roadmap to an Organic California Policy Report 2020](https://r20.rs6.net/tn.jsp?f=001dDDRtCY2AwR7kVL0PNx59zdqjARDLK6UnMQsYAWDdngtFSI3Qhv3sngy_SMQbsob8vlAcT6DJVpfsnkfxcZ3z0tXNF-gkeuy_Vyn6aATQX4xx2tGq3R2hNc1YfN2lSLKXzU8V7JTu4nNVcAhXNgdMWNaZFpTdjCujxbOyfOoeDKbIEdjKonG-dZ_qP2A5FadcHvZjx4r2_E=&c=FE9Bd_-ZZGBrFujm3qiSC1m0Z_bx2Nt1_2DRr50Gfs3NDmhD71Tc_A==&ch=MWvGUkp_0fZFMQEXPFCuDrENXErfFX3uGm95RctRGTHUj2r5oQPLtw==)

The phrase was disowned by the *Organic Trade Association* when I wrote to them, and when I asked a co-author of the California roadmap, they brought things back in perspective by completing the phrase "*grain-based diets for animals are not considered to be organic"*. However, this also illustrates the skewed emphasis on the production of organic meat rather than the production of whole grain foods for people.

The same [Organic Trade Association](https://r20.rs6.net/tn.jsp?f=001dDDRtCY2AwR7kVL0PNx59zdqjARDLK6UnMQsYAWDdngtFSI3Qhv3sngy_SMQbsob5AVh20VSk2iIy24BDhF5pKOy10gdllbAeg03eP4hZ_cDr-fOKyhdc5xpwgL94HK0w9WRCzCEJKEtg6_cPShHGFJAiFGo0AjJmx2p99RfXKtHKFw2uFF0lA==&c=FE9Bd_-ZZGBrFujm3qiSC1m0Z_bx2Nt1_2DRr50Gfs3NDmhD71Tc_A==&ch=MWvGUkp_0fZFMQEXPFCuDrENXErfFX3uGm95RctRGTHUj2r5oQPLtw==) bemoans the fact that the supply of organic grains in the USA is so low that most are imported! The uses mentioned were for [Annie’s](https://r20.rs6.net/tn.jsp?f=001dDDRtCY2AwR7kVL0PNx59zdqjARDLK6UnMQsYAWDdngtFSI3Qhv3sngy_SMQbsobd3mM64SMGMQh4ZHLHoybR3iIcjNzjis4D-h1Lj1FOrhbvLgxDsxv185RRWcn7o3Xm6xmfx_iZZY=&c=FE9Bd_-ZZGBrFujm3qiSC1m0Z_bx2Nt1_2DRr50Gfs3NDmhD71Tc_A==&ch=MWvGUkp_0fZFMQEXPFCuDrENXErfFX3uGm95RctRGTHUj2r5oQPLtw==)(organic refined wheat flour in pasta) and for organic animal feed. This is truly an ambiguous quest by the *Organic Trade Association*.

Personally, I consider the word "organic" to be appropriate for WHOLE foods, especially whole grains, produced using organic agricultural practices.

On further considering the affront of such an ambiguous comment, I ask: Are rice, corn, and wheat suddenly not the basic staple food for practically the entire world population? Is teff suddenly not the basic grain food in Ethiopia? Are drought tolerant sorghum and millet not suitable in the diets of Africans? Are rice, corn, and wheat suddenly incapable of being grown in and contributing soil building carbon sequestration with their roots, in an organic rotation system?

Instead, it would have been reasonable to say that "REFINED-grain-based diets" should not be considered organic, or simply and meaningfully "refined grains" should not be presented as organic. The logic that I am using here is that the presentation of grain foods that are refined does not satisfy the nutritional needs for people, that would be expected from the whole grains. REFINED grains indeed cannot be regarded as a base to the diet precisely for this reason.

The assumption by those who have promulgated refined grains since the beginning in 1880, has always been that we have access to such a wide range of foods that the removal of bran and germ from flour doesn’t matter, because we can find nutrients elsewhere in the diet. However, time and taxpayer-supported research has shown many times over, that it is the bran and germ of grain that contains unique nutrients that are necessary for good health, including grain fiber and antioxidants, as well as B-vitamins, vitamin E and minerals.

**Herein lies one of the most fundamental inequities in our society: the grain foods presented to the disadvantaged are refined.** Indeed, most of our grain foods are presented in the refined form. [Black and Hispanic Americans suffer most in the biggest US decline in life expectancy since World War II.](https://r20.rs6.net/tn.jsp?f=001dDDRtCY2AwR7kVL0PNx59zdqjARDLK6UnMQsYAWDdngtFSI3Qhv3sngy_SMQbsobfH4QOnunN40KguXqV18KDE9i2hJ9fPsQTZ6sPA4-yH72sg2hpyYaflTdNVoGw_gGWl9ueCoBy4gIFU7hMen0HJHqTrvcZpqNeXxqqnsyk1fQg8E__JoC92B_9HBK2pLc7Y6hvEqq5lmz78NVyKMl8A1yxHXESb5lR-AmZreTcIg=&c=FE9Bd_-ZZGBrFujm3qiSC1m0Z_bx2Nt1_2DRr50Gfs3NDmhD71Tc_A==&ch=MWvGUkp_0fZFMQEXPFCuDrENXErfFX3uGm95RctRGTHUj2r5oQPLtw==) Only the educated and thinking affluent seek out whole grain foods or buy a home mill and grains to make their own whole grain foods and can indeed pay for their nutritional needs, by purchasing a wide range of other foods and vitamin supplements.

**Our path forward towards full access to organic whole grain flours for everyone, is to store our grains locally and to mill them at home, in bakeries, in restaurants, in school kitchens, in every place where fresh whole grain flours are used. We cannot wait another 140 years for the commodity system to provide us with the needed whole grain flour and foods. And yes, the whole grains need to be organic since the bran and germ would retain pesticides if grown and processed conventionally. And yes, everyone eating organic whole grain foods is the market for organic grains that farmers grow.**

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**Pure Heritage Wheat seed for 2022**

For at least 20 years more than a dozen heritage (non-proprietary) landrace varieties of wheat have been in the hands of California organic farmers. Some farmers have mastered the art and science of managing to keep each variety pure and using part of each year's crop to seed the following year. However, there are many who have by now allowed themselves to use an impure seed mix, produced because they were trying out several varieties at a time on their farm and failed to clean out equipment between use for each variety. In some cases, the farmer has continued to describe their crop-mixture with the original single name and in other cases the farmer gleefully sells a mixture. Believe me! It is the baker or pasta-maker who wants to be able to produce a particularly proportioned mixture or even more importantly to present a specific variety of wheat as the ingredient. The market for heritage (non-proprietary) wheat will disappear if we do not make sure that the seed is pure and can guarantee a pure named crop to the customer. To help with all of this we need more certified seed suppliers to maintain heritage seed in farmer quantities.

Certified seed suppliers such as the *Whole Grain Connection* sell heritage seed (in 25 -pound bags) that has been checked for purity. The WGC now also has some seed that has been third party quality assured\*, using the *California Crop Improvement Association (CCIA)* heritage grain program.

Note that the [Whole Grain Connection](https://r20.rs6.net/tn.jsp?f=001dDDRtCY2AwR7kVL0PNx59zdqjARDLK6UnMQsYAWDdngtFSI3Qhv3snfgoU3BbyK2YnWYGUtexrYq1OiMkwOSYyChRtuIQS5NC9mUSVroAYpcbEADtSmQqmLaJi1Iv2M1LiKU5cDActJ95c8mbnSKlvJoYBC3_PcWd0SXZW0AETXmvp6hNpcpwrSZKJSTKIBP4HtEHTM-kufKaF1jUFiZFHpb8r-E9lQTrPFMJOMHFBVut3Ah9nnmdqpkFVNUqONkBid76aa9Y8H4xuwqahlJSw==&c=FE9Bd_-ZZGBrFujm3qiSC1m0Z_bx2Nt1_2DRr50Gfs3NDmhD71Tc_A==&ch=MWvGUkp_0fZFMQEXPFCuDrENXErfFX3uGm95RctRGTHUj2r5oQPLtw==)continues to sell seed for the following varieties in 25 pound bags:*Sonora, Wit Wolkoring, India Jammu\*, Chiddam Blanc de Mars, Foisy\*, Blue Beard durum, Durum-Iraq, Ethiopian Blue Tinge durum, Maparcha, Akmolinka, Silanes (Spanish spelt), Stalden (Swiss spelt)*

The [CCIA heritage grain QA program](https://r20.rs6.net/tn.jsp?f=001dDDRtCY2AwR7kVL0PNx59zdqjARDLK6UnMQsYAWDdngtFSI3Qhv3sngy_SMQbsob6nrFR8-V9p1N_GDNq3zmr5TtGWAi9AlWeUaPWYnt4Z6CcVU7LrtLOy-25-6SEF5JXAZjH2QIQhxEiOO8SODreUk5_SMvhQqNnJa4Cl1_s0JgqEsn_JG6ERvKN7Ao6jh62atJgRIlayFyt_7_mNkzc3mjF0OWNp0BsssfqWcStHCHb2lgGsRITA==&c=FE9Bd_-ZZGBrFujm3qiSC1m0Z_bx2Nt1_2DRr50Gfs3NDmhD71Tc_A==&ch=MWvGUkp_0fZFMQEXPFCuDrENXErfFX3uGm95RctRGTHUj2r5oQPLtw==) can be used by farmers who are saving their own seed. Be ready to apply early to CCIA before planting for the 2022 season. For a farmer to start using this program, a fresh batch of known purity seed can be purchased, or the work can begin just before harvest: Collect enough selected heads of each variety to be able to seed a new plot or crop for the next season. Take great care to thresh, clean and store these seeds so that they can be used next season in the pure form. If stray types still appear in the grow-out plot the rogue heads are likely very few and can be taken out of the plot easily if walkways have been introduced and maintained. In this way the plot will be clean and ready for third party (CCIA) approval. If the process of harvesting, cleaning, and storing is again meticulous in the removal of all contaminating seed from equipment, the guarantee of a pure crop can be continued into perpetuity.

Another safeguard would be to decide on one, or just a very few particular varieties of grain for a farm, that are highly appropriate for the local climate, and also have a customer following. And of course, growing wheat only in areas where no other grain has been grown for the preceding 2-3 years. In an organic system this should be normal practice, with animal grazing, legume, and brassica crops for example, in the intervening years. This practice also reduces weed pressure and fungal disease, especially for the rusts. In the absence of any diseased wheat the spore level will fall to background levels in those 2-3 years.

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