

Ferrari Tractor CIE

"Appropriate Technology for Agriculture"

P. O. Box 1045
Gridley, CA 95948

(530) 846-6401
CELL (530) 632-4384
www.ferrari-tractors.com

Grain Harvesting 2014

Whole grains are in vogue now. Rice, wheat, barley, and oats are seen in natural food stores often in 2 lb. bags and at farmers' markets all over the USA. Recently I have had many inquiries from people who want to grow one to ten acres or more. These people want to cut and thresh their grain and are looking for an inexpensive way to do it. They are shocked at the cost of new equipment. Because grain is sold at such low prices, it is hard to justify the cost of machines.

In order to feed themselves, their families, and their livestock non GMO contaminated grain, they want to grow their own. For the smallest producers there were never cheap machines, so a sickle could cut by hand and threshing was done with a flail club by hand or by trampling of donkeys, etc. if you had more. Growers of say 50 plus acres could buy a pull type combine from Allis Chalmers before 1962. But remember, even these were expensive when they were new. Today a few remain, but they often need to be overhauled/refurbished, an often major job. The 5, 5.5, or 6 ft. machines can only be shipped by removing reels and tongues and being put on a trailer sideways to stay within highway legal width. The still narrower 4 ft. cut version is older yet and hard to find in workable condition. Nobody has built small combines in the USA because so few people wanted them before.

Japan used to produce a walk behind combine but in 2013 quit making it, replacing it with a riding version that costs twice as much as the old one, today \$49,300.⁰⁰. In much of other Asian countries and in Africa and the Mideast there are plenty of people to do grain by hand. When change comes, the more modern combine is what is turned to.

In the USA prior to the introduction of small pull behind combines, you had the itinerant thresher that moved from farm to farm. Even here, they were large, expensive machines powered by steam locomotives. They had to go where there was enough grain to justify the many men and horses used. Grain was cut by hand and tied into bundles that made up shocks. The shocks were picked up by special wagons pulled by teams of horses. The wagons would bring the grain to a stationary thresher. Many men had to be paid and many horses cared for, so this was not a small scale operation.

The first successful combine was made by the Holt Brothers in Stockton, California and used on the west side of the Sacramento Valley. Grain was planted in the fall. Rains brought it up during the winter and it was harvested in June and July of the following year. Bags were put on boats on the Sacramento River and delivered to sailing ships in San Francisco for export to Russia and beyond. These early combines were pulled by 20 horses or mules.

Once the tractor came into use, a small scale combine followed. Even here, it took at least two people; one to drive the tractor and one to ride the combine to sew the bags when they filled up. This was usually someone strong enough to put 100 lb. bags on the ground. Later they replaced the bag sewer with a bulk bin and you finally had a one man operation. Allis Chalmers quit building these machines in 1962, and no one has since. I have looked all over the world, as have

others. The Chinese have a light 3 wheel model, they say, but they cannot sell it in California because it does not meet pollution rules. Once the weight and the price of the engine are subtracted, it seems very light. The Chinese tractors that do come into California are too flimsy to be taken seriously, in my estimation.

So smaller growers are back to doing grain processing in two steps: cutting and binding and then threshing stalks to free grain kernels. Cutting and binding can be done three ways. You can use a scythe or sickle to cut and wrap with twine or a Mitsubishi walking binder or a 3 pt. mounted MLP 140. The walk behind machine has a gas engine and cuts one or two rows and ties the grain into a bundle and ejects it as you go. It costs \$15,000.⁰⁰ or \$19,000.⁰⁰ depending on which you choose. The MLP 140 is driven by the tractor's PTO. It cuts a wide swathe and ties the grain into a bundle and drops it on the ground to the right of the tractor. It costs \$12,500.⁰⁰ at a US port.

In each choice, you thresh with a Trexia thresher, either a self-powered one or a tractor 3 pt. mounted and PTO driven model. The latter costs \$12,500.⁰⁰ at a US port. This machine has a built in seed cleaner.

Because grain still has a low value, it is hard to justify buying a machine that has not been subsidized by an old buyer. Because old machines are hard to find in working order now, you may have to choose another way. Consider cooperative ownership. This might take two forms. One is to own one machine and trade its use with another person who owns the other. Or, share ownership with one or more others of both a reaper/binder and a thresher. Grain crops are unique in that they can stand ripe for a while without loss, allowing for sharing of equipment.

I believe this is a way to reduce costs of new machines. New machines are not going to come down in price and grain is unlikely to raise in price much. So you must harvest grain by using the old labor intensive method or by sharing use of machines.

Beans

Red Kidney beans, Pinto beans, Black beans, Cannellini beans etc. are planted 2 rows to a bed, less than 2 inches apart, and more than 2 inches deep. Once they are grown and are ripe, a sickle bar mower cuts them off at ground level. Vine and beans lay on the growing bed until they are completely dry. They are then threshed. Commercial growers use a special pick up reel on a pulled threshing machine. This is too expensive for a small grower, so some other option must be used. Again, I believe a co-op is appropriate. Once cut the bean vines and seed pods can be left almost any amount of time, making the threshing machine well suited to joint ownership.

You might also consider growing lentils, garbanzos, millet, gyp corn, or soybeans for making Edamame.

Eugene F. Canales
Ferrari Tractor CIE