

## Appendix 6 – A Rice Mill Primer

**T**he rice industry in the Philippines has gone through various challenges and will benefit from EM technologies. Growing, harvesting and processing rice creates high volumes of waste that can be captured and converted back into fertilizer for the next crop. It is important to understand the various grades and different types of mills for rice. The waste from small mills is different than the waste from the larger mills. To keep costs down we want the best value for the money we are spending. We use different grades of rice mill by-products depending on the availability from the mill in our area. We never use the expensive grades for

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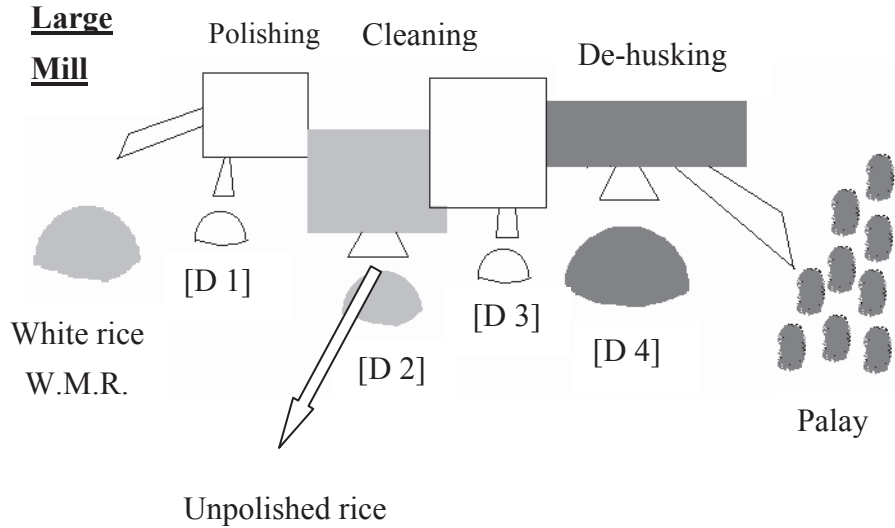
fertilizers. We always try to get the best grades; the higher protein will pay off in weight gain and genetic maximums.

### Rice Mill By-Products

<u>Grade</u>	<u>Common Name</u>	<u>Filipino</u>	<u>Waste Source</u>	<u>Carbon/Nitrogen</u>
[D4]	Rice Hull	Ipa, Labhang	From Dehusking	high carbon
[D3]	Crushed Rice Hull	Magaspang	from beltway	high carbon/ some nitrogen
[D2]	Rice Bran	Darak	from cleaning	lower carbon/ higher nitrogen
[D1]	Rice Bran	Tiki-Tiki	from polishing	low carbon/ high nitrogen

Notice that the names vary from region to region and country to country. If we use the grade ranking we will avoid much confusion. D4, rice hull, is excellent for making charcoal. This is a good soil conditioner and used in our bokashi also. The carbon bond is weakened in the charcoal process and will not tie up as much nitrogen when added to the soil. However, it makes a good home for the microbes. The charcoal works as a harboring agent for the beneficial microbes in the soil or in the intestines of livestock. That's right, we add charcoal at 0.5% to our formulated feed to enhance digestion and help the EM work as a pro-biotic.

We use the D3 as a bokashi ingredient. When it is not available we use D4 and extra nitrogen in the form of copra meal or manure. As a feed ingredient it will not help your goats grow or fatten your hogs. The crude protein is very low. However, it is inexpensive and makes for good fertilizer. On our island we have to be flexible and keep looking for alternatives.

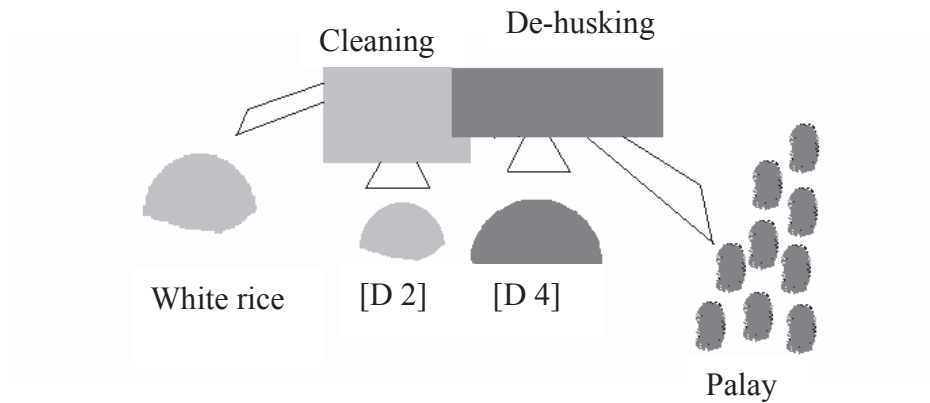


**The large rice mill gives you differing grades of rice bran. Don't use the D2 for fattening if you can get the D1. It is superior in quality and nutrients to [D3] darak.**

The advantage of the large mill is a greater variety of by-products. When rice is consumed unpolished the humans benefit from the vitamins, minerals and fiber. By and large, most Filipinos prefer white-well-milled-polished-rice. Which means we feed the best parts to livestock and suffer from various ailments due to the nutritional imbalance of our grains.

The main reason we succeeded in our programs is because we did our homework and secured good suppliers for the materials we needed to produce a high quality bokashi. You can waste a lot of time and money with poor quality feed or weak fertilizers. Take a tour of the mills in your area and try to understand the process so that you can find the best supplier for your needs.

**Small Mill**



The small mill is more prevalent, but it has its own challenges. It does not completely polish rice. Therefore, D1 is not available. Only D2 and D4 are separated in this type of mill. It prevents the buyer from benefiting from high protein feed stocks and inexpensive D3 fertilizer components. You must be aware of the shortcomings of this mill and compensate accordingly.

One way to make up for high carbon ingredients is by adding more nitrogen. For feed we use soy meal and copra meal. Fishmeal will taint the flavor of meat and does not command a high price. Our organic free-range meat and poultry products are priced 20%-40% more than the prevailing price because our feed makes the animals taste like wild goat, pig etc. The proper grade bran makes the difference between breaking even and earning high profits.

Remember to plan around the seasons, most large mills shut down when palay is scarce. They need hundreds of sacks of palay to process to make it worthwhile to run. They will run out of rice hull and rice bran for up to 3 months. Prepare for this eventuality by stockpiling for the future needs of your operation.