FAQ

1. What are the advantages of traditional milling over modern milling?

Ans: Because the grain is undermilled by traditional method, the vitamin B content is higher than machine- whitened rice. Thiamine deficiency is rare among eaters of undermilled rice.

2. Which force is responsible for husking of rice in Engleberg mill?

Ans: The paddy is husked and whitened in the huller by friction and pressure generated in the milling chamber. Both husking and whitening are done by the same machine. The milling can be carried out either in a single pass or in multipasses.

3. What are the advantages of using Engleberg paddy huller mill.

Ans: The Engleberg huller is the best known and most widely used smallscale rice mill. The initial investment and operating cost are small. It combines the two stages, dehulling and whitening in a single machine. One machine can process upto 500 kg paddy an hour. It is also easy to operate and repair.

4. Write short note on under- run disc sheller.

Ans: Under- run disk sheller consists of two grinding disks of equal diameter with surfaces partly covered with emery or carborandum. Two disks are mounted horizontally, the upper one remains stationary while the lower one rotates. Corresponding rings on the outer region of both disks clear each other by a small adjustable gap, through which the rough rice passes, having being fed in from a central hopper. Optimal hulling results from a clearance of slightly more than half the grain length. Such hullers lead to more breakage of grains than rubber roller type.

5. Why rubber roll huller is preferred than under- run disk sheller?

Ans: Rubber roll sheller is preffered because of

- Reduced breakage of milled kernels.
- High hulling efficiency.
- Bran also in higher quantities compared to disc huller.
- Very compact in comparison to disc huller.
- Less vibration

6. What are the advantages of using both the grinding and friction type whitening machines?

Ans: To remove bran layers from the husked rice, a combination of two different types of whitening machines, namely grinding type and friction type are employed. As the surface of husked rice is smooth and slippery, the grinding type of machine is used at the initial stage of whitening in order to shave and grind the bran layer into smaller particles and impart roughness to the grain surface as well by the thrust and frictional force of a revolving abrasive roll. The friction type machine is employed subsequently to peel off the remaining bran layer easily which gives uniform polish and surface finish to the rice. If the smooth husked rice kernels were directly whitened by the friction type machine only, it would require much higher pressure and power for whitening. The yield of brokens would also be more.

7. Differentiate between whitening and polishing?

Ans: The term whitening refers to the operation of removal of germ, pericarp, tegmen and aleurone layers from husked rice kernals. In the process of polishing the whitened rice, the bran particles still sticking to the surface of the rice are removed, and the surface of the rice is slightly polished to give it a shinier appearance. In conventional rice mills polishers are like whitening cones, but instead of abrasive coverings, the cone is covered with many leather strips. Polishing, therefore, always takes place after completion of the whitening process.

8. Polishing is an essential step in rice milling. Justify.

Ans: Polishing extends storage life of rice as the aleurone layer is removed, thus reducing the tendency for oxidative rancidity to occur in that high-oil tissue.

9. Write a short note on grading of rice?

Ans: After dehusking and whitening operations, the unbroken rice (head

rice) is still mixed with different sized broken rice (known as second hand, screenings, and brewer's rice), bran, and dust. Separation of these particles is termed as "grading". The degree of grading is determined by the rice market or consumer preference. Many rice markets do not require any grading; others require a sophisticated grading system that will produce clean, bran-free rice with no brokens. Most rice markets will accept a small percentage of brokens but demand clean and bran-free rice.

10.What are the different uses of husk?

Ans: Rice husk is a valuable domestic fuel for both parboiling and cooking. It is also used as a fertilizer and as a substrate for growing mushrooms. Rice husk is unique in its extremely high silica content which is used in glass and ceramics manufacture. Husk contains some fibre and is ground by millers to a powder for inclusion in feed for ruminants. Husk is also a useful addition to balanced rations low in roughage.

Rice bran is the most valuable by-product of rice milling industry.
Justify.

Ans: Rice bran consists of 12 % to 15% protein, 15% to 20% lipids, 40% to 50 % available carbohydrates, 7% to 11% crude fiber and 6% to 9% crude ash. It is also rich source of B- group vitamins. It is a potential source of vegetable oil. Because of its nutritional value, it

is being used as feed for poultry and live stock. More stable defatted bran containing higher percentage of protein, vitamins and minerals than full fatted bran is an excellent ingredient for both food and feed.

12. What is the main problem encountered during rice bran oil extraction? How to prevent this?

Ans: When the bran is produced in the mill, the lipase enzyme in the germ is released and starts to break down the oil into free fatty acids and oxidised fats, which are rancid. The bran must be stabilized as quickly as possible after production to prevent this. The standard method is to pass the bran through a screw conveyer equipped with a steam jacket. Recently, extrusion- cooking has proved very successful and cheaper.

13. What are the various steps used in refining of rice bran oil?

Ans: Generally the following steps are used:

- Preliminary dewaxing and degumming process to remove hard wax, gums, mucilages and some other impurities.
- 2) Neutralization process for the removal of free fatty acids.
- 3) Decolourizing process for the removal coloring matters.
- Deodorization process for the removal of odorous matters and unsaponifiable matters.

5) Winterization operation for the removal of soft wax.

14. Write down possible uses of rice brokens.

Ans: Milling of rice gives a high proportion of broken grains. These have been used for food, often merely by making gruel or porridge, plain or fermented. It can also be used in the manufacture of pasta, rice wine, vinegar and fermented products like idli, dosa and temph.

15. What is the main difference in the manufacture of pasta from rice and durum wheat?

Ans: The principle difference is that the rice contains no gluten, which in the case of pasta, acts as the binding agent when the dough is extruded. For rice pre gelatinized starch is used.