IMPHAL MACHINES

IMPHAL MACHINES OPC PVT. LTD.

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A FEW WORDS FROM THE EDITORIAL DESK

Imphal Machines was built after a long thought and hard work. Idea of Imphal Machines was sprouted from a small office room of Intellisome Consulting at Porompat, Imphal East. It took lots of twist and turns to finally come to its shape. Imphal Machines was originally planned to be named Intellisome Technology. However, we felt that name should be able to be grasped by common people easily. So, the name finally boiled down to **Imphal Machines**. It was finally incorporated as OPC Pvt. Ltd. company on 20th December, 2019 under Ministry of Corporate Affairs, Govt. of India.

Idea and vision of Imphal Machines is to solve the staggering problems faced by agriculturist and food processors from engineering perspective. It caters various services like fabrication, installation and supply of agricultural and food processing machineries.

Technological companies rely more on idea, talent and ingenuity. So do we. We are committed to nurture local talents. Building on this, we are continuously designing and fabrication food processing machineries. Vegetable slicer is in final stage. Many are in pipeline. Pineapple processing equipment, *bori* making machine, etc. are but few examples which are at different stages.

Imphal Machines envisions becoming a leader in technological sphere. With the blessing of almighty, we can even aim higher. We need to see what's in store for us.

The purpose of this newsletter is to connect people with similar interest while giving technical information in a clear and crisp manner. We believe that it will convey our messages and updates from time to time which would be of high value to stakeholders.

We will distribute the copies free of cost either in soft or hard form. Please drop us a message if anyone of your friend is interested in our newsletter. We will ensure it is reached.

How is Wheat flour (Maida) made?

Flour, finely ground cereal grains or other starchy portions of plants, used in various food products and as a basic ingredient of baked goods. These include barley, buckwheat, corn, lima beans, oats, peanuts, potatoes, soybeans, rice, and rye. Flour made from wheat grains containing (8-11% protein) is the most satisfactory type for baked products that require spongy structure. In modern usage, the word flour alone usually refers to wheat flour, the major type in Western countries.

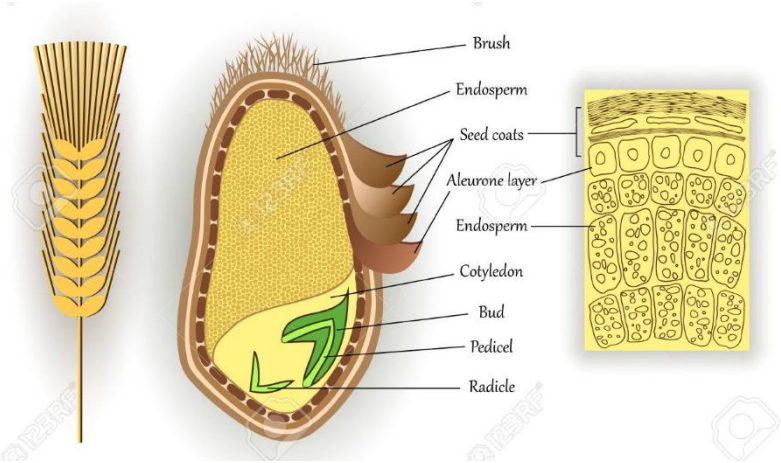

Fig. 1. Structure of Wheat Kernel

Wheat grains, or kernels, are composed of the starchy endosperm, or food-storage portion, constituting about 85 percent; several outer layers that make up the bran, constituting about 13 percent; and the oily germ, or embryo plant, approximately 2 percent. In the production of refined flour, the purpose of the milling process is to separate the endosperm from the other kernel portions. In the production of whole wheat flour, all parts of the kernel are used.

1. **Cleaning and purifying:** The graded wheat is cleaned and purified using different machines such as separator, aspirator, disk separator, magnets or color sorting machines based on their weight density, shape size etc. to make the wheat free of foreign materials.

2. **Washing and Conditioning of wheat:** The purified wheat is washed in warm water and put in a centrifuge to be spun dry and remove and remaining foreign materials. The moisture content of the wheat must now be controlled to allow the outer layer of the barn to be removed efficiently during grinding. Conditioning of the wheat grain is of two types; cold conditioning and hot conditioning. Cold conditioning involves soaking of wheat grain in water for 2-3 days and drying. Hot conditioning involves soaking of wheat grain in hot water (60 °C) for 60-90 minutes and drying for one day.

3. Crushing or Breaking: The objectives at this stage are twofold viz. a) Separate as much bran and germ as possible from the endosperm & b) Maximize the flour from the resulting endosperm.

Household grain mills create flour in one step — grain in one end, flour out the other — but the commercial mill breaks the grain down in a succession of very gradual steps, ensuring that little bran and germ are mixed with any endosperm.

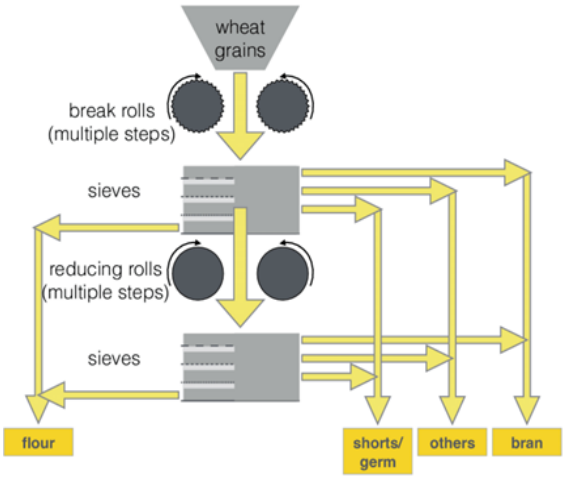

Fig. 2. Milling process

Although the process is referred to as crushing, flour mills crack rather than crush the wheat with large steel rollers. The rollers at the beginning of the milling system are corrugated and break the wheat into coarse particles. The grain passes through screens of increasing fineness. Air currents draw off impurities from the middlings. Middlings is the name given to coarse fragments of endosperm, somewhere between the size of semolina and flour. Middlings occur after the "break" of the grain.

Bran and germ are sifted out, and the coarse particles are rolled, sifted, and purified again. This separation of germ and bran from the endosperm is an important goal of the miller. It is done to improve dough-making characteristics and colour. As well, the germ contains oil and can affect keeping qualities of the flour.

4. Reduction: In the reduction stage, the coarser particles go through a series of fine rollers and sieves. After the first crushing, the wheat is separated into five or six streams. This is accomplished by means of machines called plansifters that contain sieves, stacked vertically, with meshes of various sizes. The finest mesh is as fine as the finished flour, and some flour is created at an early stage of reduction.

Next, each of the divisions or streams passes through cleaning machines, known as purifiers, a series of sieves arranged horizontally and slightly angled. An upcurrent draught of air assists in eliminating dust. The product is crushed a little more, and each of the resulting streams is again divided into numerous portions by means of sifting. The final crushings are made by perfectly smooth steel rollers that reduce the middlings into flour. The flour is then bleached and put into bulk storage. From bulk storage, the flour is enriched (thiamine, niacin, riboflavin, and iron are added), and either bagged for home and bakery use or made ready for bulk delivery.

Looking back @Imphal Machines

Delivery of Bakery equipments at Moreh, Tengnoupal on 18/ 4/ 2021

Delivery of Hammer Mill for turmeric grinding at Awangkhul, Noney on 15/ 04/ 2021

Getting ready to upload PUF Panels for transportation to Imphal, Manipur from Faridabad, Haryana on 30/ 04/ 2021