

3 The Milling Process

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It is beyond the scope of this book to describe the technical details of the milling process.

The following section only provides a brief summary of the general operations involved in the production of flour from wheat for readers who are not familiar with milling.

For more detailed information please refer to specialist books, e.g. Pomeranz (1988).

Milling is the process by which wheat is ground into flour. Separating the wheat grain into its constituents (bran, germ and endosperm) involves the following processes (Fig. 8).

3.1 Storing

As wheat arrives in the mill it is passed through a cleaning process to remove coarse impurities and is then stored according to its quality. This is mainly determined by the hardness, protein content and gluten quality of the wheat.

3.2 Cleaning

Cleaning begins with screening to remove coarse and fine materials and the grain is separated by size, shape and weight. The finished product, whole pure wheat, is then passed into conditioning bins.

3.3 Conditioning

Conditioning takes place before milling to produce a uniform moisture content throughout the grain. Moistening helps to prevent break-up of the bran (hard outer layer) during milling and improves separation from the floury endosperm (the mass that forms the white flour of the grain).

3.4 Gristing

After conditioning, different batches of wheat are blended together (gristed) to make a mix capable of producing the required flour quality.

3.5 Milling

Essentially this is the separation of the bran and germ from the endosperm and the reduction of the endosperm to a uniform particle size (flour). This is done by a sequence of breaking, grinding and separating operations.

The quality of the wheat going into the mill, e.g. protein content, will determine the types of flour to be produced. By blending together the many different flour streams produced by the mill, a miller can create further variations in features such as flour colour.

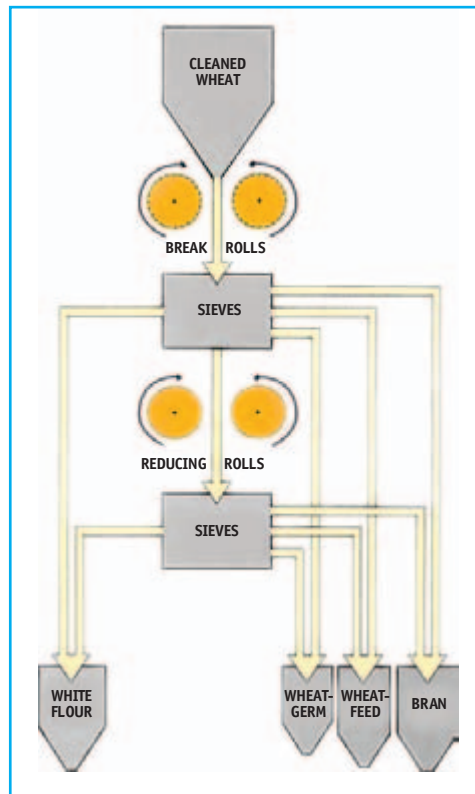
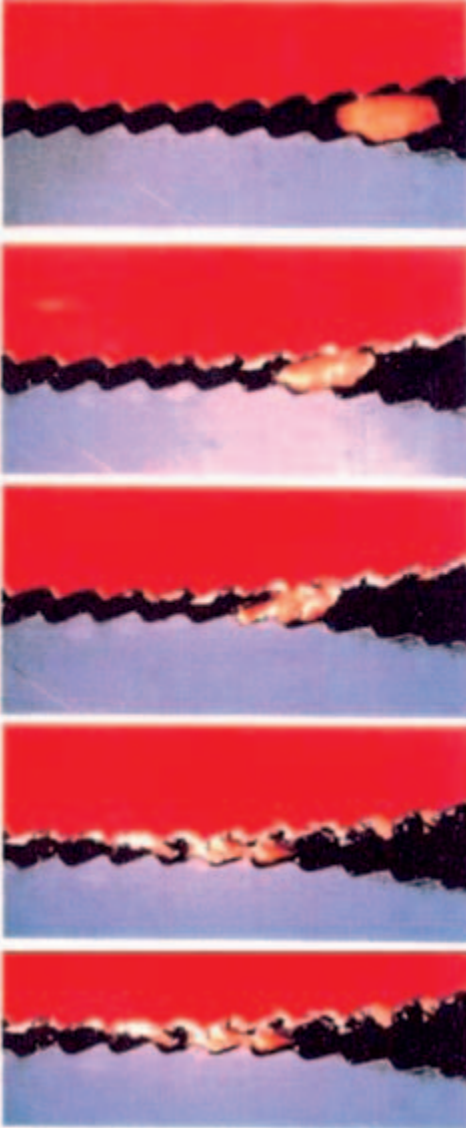


Fig. 8: Simplified diagram of the milling process (courtesy of AWB)



Milling a kernel (courtesy of Bühler AG, Uzwil)

For example, very white flours would come from the early streams only, while brown flours involve using most streams. Wholemeal flour is produced when all the streams, bran, germ and flours are blended back together with nothing removed.

3.6 References

- Pomeranz Y, 1988. *Wheat Chemistry and Technology. Vol. I and II.* AACC, St. Paul, MN, USA.