Wheat, Rice, Corn, Oat, Barley and Sorghum Processing Handbook (Cereal Food Technology)

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Cereal grains play an important role in meeting the nutrient needs of the human population. Like any food, they are good to excellent sources of some nutrients and low or void in other nutrients. The vitamins content varies from one part of grain to another. The quality of cereal products is determined by a variety of characteristics which may be assigned different significance depending on the desired and use or type of product. Wheat, through the centuries, has been intimately associated with food uses for man. The usual conversion of wheat to a food product results in some proportion of kernel becoming an animal feed. The wheat milling industry produces bran, red dog, germ, and shorts and these secondary fractions amount to approximately 25% of the whole grain. Rice is one of the leading food crops of the world and is produced in all continents. It is generally considered to be a tropical crop; yields are higher in temperate areas than in the tropics. Rice is comparatively high in caloric value, N free extract, and rice protein has a fairly good balance of the essential amino acids. Rice variety is divided by grain size and shape into three types, known as short, medium and long grain rice. Historically and now through planned breeding, each grain type is associated with specific milling, cooking and processing characteristics. There are number of rice varieties of each grain type in commercial production and new ones are continually in the process of being developed and released. Barley is a crop with worldwide distribution; it is preeminent plant for the use in experimental genetic studies. Barley has a high degree of self fertilization, but is easily hybridized. Barley grain is rich in starch and sugars, relatively poor in protein and very low in fat. Corn kernels are flat seeds due to pressure during growth from adjacent kernels on the cob. They are botanically classified as a caryopsis (dry, indehiscent, single seeded fruit) and are attached to the cob by the pedicle. Corn and corn products are generally the most cost effective feeds or feed supplements available. Popcorn is undoubtedly the oldest snack food and has been consumed for centuries. The grasses known collectively as millets are a set of highly variable small seeded plant species indigenous to many areas of the world. Millets are of value especially in semiarid regions because of their short growing season and higher productivity under heat and drought conditions. Pearl millet is the most widely grown millet and is a very important crop in India. The common oat (Avena sativa) is a species of cereal grain grown for its seed, which is known by the same name (usually in the plural, unlike other grains). While oats are suitable for human consumption as oatmeal and rolled oats, one of the most common uses is as livestock feed. Oats make up a part of the daily diet of horses, about 20% of daily intake or smaller, and
are regularly fed to cattle as well. Oats are also used in some brands of dog food and chickenfeed. Oat seeds are commonly marketed as cat grass to cat enthusiasts, since cats readily harvest and eat tender young oat, wheat, and some other grass sprouts. Sorghum is a genus of numerous species of grasses, one of which is raised for grain and many of which are used as fodder plants either cultivated or as part of pasture. The plants are cultivated in warmer climates worldwide. Maize, wheat and rice together accounted for 87% of all grain production worldwide, and 43% of all food calories, while the production of oats and rye have drastically fallen from their previous levels.

Some of the fundamentals of the book are origin of wheat classification of wheat, endeavours to find industrial uses for wheat, criteria of wheat quality, botanical criteria of quality, milling principles, extraction rate and its effect on flour composition, grain structure as affecting grinding, definition of flour extraction stone milling: yields of products, roller milling: flour extraction rates, rice production and utilization, origin of rice, comparison of rice with other cereal grains, composition of rice and cereal, breeding rice varieties with specific, industrial uses for rice and rice by products, caryopsis and composition of rice, gross structure of the rice caryopsis and its milling fractions etc.

The present book contains processing of various cereals like wheat, rice, corn, oat, barley and sorghum with latest techniques. This is very useful book of entrepreneurs, agriculturists, researchers and professionals.

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