THE HANDLING AND STORAGE OF SPRING WHEAT.¹

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The greater part of the small-grain crop of commerce grown in the Great Plains area and the eastern part of the United States is handled in bulk. Certain factors involved in the successful handling and storage of grain vary, depending upon whether it is handled in bulk or in sacks. In the first place, there is less opportunity for change in the moisture content of bulk grain. Slight reductions in moisture content may result when relatively damp grain is handled on a hot day, while a slight increase may occur when very cold grain is exposed in a warm, humid atmosphere. In general, however, the moisture content of spring wheat is determined principally by the climatic conditions prevailing between harvesting and thrashing. If this period is warm and dry the grain will be well cured when it starts on its journey to the consumer; rain on the unthrashed bundles, particularly if exposed in the shock, results in damp, "tough" wheat that will cause difficulties in handling and storing.

The fact that wheat is a relatively poor conductor of heat introduces another variable in handling wheat in bulk as compared with handling in sacks. The heat which develops when damp wheat is stored does not pass off as rapidly from a large bulk as from a smaller one, such as exists when sacks are piled in narrow stacks. The more rapid the transfer of heat from a fermenting mass to a cooler surrounding medium (usually air) the less the likelihood of serious damage. This is assuming that the moisture content of the grain is sufficiently low to preclude germination.

Spring wheat is not biologically ripe at the time it is usually harvested. The post-harvesting process of ripening is attended by certain peculiar phenomena. If the bundles are in a stack they take on a moist condition. This process is commonly called "sweating," and is undoubtedly accompanied by biochemical changes resulting from enzymic activities within the kernel. If the sweating process occurs in normal wheat in the bin, a slight rise in temperature may result.

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