

days, with an abundance of sunshine and an absence of an excess of moisture; or, in other words, the conditions which would cause rapid, though normal, ripening of the grain. Wheat that has ripened slowly, or that is over-ripe, is usually somewhat low in protein, and, consequently, in gluten, and rich in starch. Chemical investigations seem to show that at the time of blossoming the plant has taken up nearly all the nitrogen and ash constituents that it will have in the matured plant, while it continues to take up carbon as long as the plant is green. This means that the longer the time from blossoming to maturity the greater the opportunity for the plant to take up carbon and convert it into starch and store it in the grain. Consequently, slowly matured grain will be plump. The amount of protein, or gluten, is determined by the amount of nitrogen taken into the plant in the early stages of growth, and the completeness with which this is transferred to the seed.

A comparatively high temperature, long, bright days, an absence of an excess of moisture, are the conditions which prevail throughout our Western Provinces, and these are, doubtless, some of the conditions that account for the high quality of wheat produced there.

The researches of Laws and Gilbert at the Rothamsted Institution, in England, and of the Central Experimental Farm at Ottawa, show that manures have very little influence on the composition of the wheat. Recent investigations by F. T. Shutt, Central Experimental Farm, Ottawa, show that the amount of moisture in the soil is a greater factor than the amount of nitrogen available to the plant. These investigations indicate that when wheat is grown on two different soils, one of which contains more moisture than the other, the moist soil will produce grain with low gluten and high starch content. This is probably due to the fact that in this case maturity is retarded. It will thus be seen that the wheat from the same localities and of the same variety may be quite different in composition and in milling qualities. Furthermore, it is well known that the wheat from some localities in our own Province is very much superior to the same variety of wheat grown in another locality. Thus, without going too deeply into the point, it will be seen that wheat is not of a constant composition, but it varies from season to season and in different localities. The composition also varies very widely with different varieties.

VARIETIES OF WHEAT.

Wheats are commonly divided into two great classes—those sown in the autumn and harvested the next summer, known as fall or winter wheats, and those sown in the spring and reaped the same season, known as spring wheats. As a rule, the spring wheats are harder, and make a superior flour for breadmaking purposes. There are a great number of varieties of these two different classes of wheats, which vary very much, not only in the yield of grain and straw per acre, but also in milling and baking qualities.