

therefore seldom injured from that cause in early sowing—the only striking difference between early and late sown crops is that the chilly temperature of spring produces a low plant, with thick, rough bark, whilst in the rapidly growing temperature of summer, the late crop shoots up to a greater height with a thinner and softer bark. In good crops the yield in either case will be about the same, the time of ripening varying not more than one week even though the difference in sowing may have equalled six weeks.

One maxim which experience rigidly requires the hemp grower to observe, is, *never to commit his seed to land not in "good heart,"* a phrase which implies not only moderate fertility, but also a presence in the soil and an incorporation with it, at the time of sowing, of a fair proportion of vegetable matter, in order to ensure a proper degree of friability—a condition without which no tap-rooted plant can thrive. A neglect of this maxim is the most pregnant source of disappointment known in the history of Hemp Culture, and is generally followed by one or the other of two diseases, or rather casualties to the young crop, that is to say by "baking" or "firing," either of which maladies generally has power to arrest entirely the growth of the plant, or to hold it in check until surface grasses and weeds overpower the crop. It may therefore be well to consider in detail the nature and symptoms of both "baking" and "firing." The first results from a want of vegetable matter in the soil cultivated, as will readily be seen by attending to the symptoms. The vegetable mould or humus of a soil, is but carbonaceous matter accumulated by slow combustion for centuries, which, although but slightly soluble in water at any one time, is continually washing away under the action of the laws of decomposition, being reconverted into its original gases, to fly off in air, or to be reabsorbed by plants. Any soil may, therefore, by washing rains, bad tillage, and hard cropping, be deprived of most of its vegetable mould; and such a soil may, after having been pulverised to the depth of six or ten inches, receive on its bosom the seeds of a hemp crop. Such a soil, so prepared, may moreover, yield a fair crop, provided the rains of the season fall in light showers, and with great frequency, but such a succession of favorable circumstances seldom happens; and a far more usual occurrence is the coming of a heavy rain, during which the mass of loose earth becomes saturated, and the moment after water begins to accumulate on the hard clay below, rising up towards the surface. If, then, the pulverised soil is defective in insoluble vegetable matter, well incorporated with the whole mass, to act as a sort of frame work in keeping asunder the particles of clay, the whole

soon runs together in a state of solidity, whilst the water rising above it, carries in solution carbonates and other salts, and lighter particles, which as the water subsides, leaves a marl-like coating upon the embedded clay, rendering it impervious to water or air in a very high degree. This is called "baking," and those who have sometimes experienced its effects, in their anxiety to avoid it, not unfrequently pass into the opposite extreme, which is "firing" the plants, by attempting to grow the hemp crop with too much vegetable matter present in the soil, or with vegetable matter not in a condition to nourish and sustain vegetable life.

The symptoms above ground, indicating the presence of this malady, are a suspension of growth, a loss of color and vigor in the plants, and a parching up of the margin of the lower leaves; below ground the plants will be found to have only a tap-root the lower part of which is sometimes decayed, whilst in other cases, sections of the root will be found perfectly rotten, with sound portions above and below such section, while at the same time the vegetable matter under the surface will generally be covered with a white mould. To avoid a catastrophe so pregnant with mischief, the farmer should know the nature of the disease in order to be qualified to judge of the fitness of any means of escape. I incline to adopt the theory of Liebig on this subject, which is at least, very plausible, if not true. He thinks that in such a case, the covered vegetable matter is undergoing putrefaction, a state of decay in which it not only is unfit to feed vegetables, but has power to rob all bodies in contiguity, of oxygen, in order to carry on this decay, thus even destroying or "firing" the roots of living plants. What renders his theory more plausible is, that a habit of early ploughing, which allows such matter full time to decay into a brittle mass will generally overcome this danger. By a parity of reasoning—if this fall ploughing shall have been neglected—the better practice in such a soil would be to cross-plough occasionally in the course of the hemp-sowing period, not committing the seed until the latest allowable moment.

The seed being good, the ground well prepared, and the crop having passed the dangers of "baking" and "firing,"—that is, having attained a height of six to ten inches, scarcely anything but a hail-storm can disappoint the grower's hopes of a crop, the harvesting of which will be his next concern. This operation consists in cutting, curing, binding and stacking the crop,—all, if possible, without rain; for it will be found that the lint, by every process of preparation, is better when the plants are not allowed to grow dark by exposure to rain, dews and hot sun; whilst for complete success in the white or in the water rot, a fair staple is indis-

pensable. Cutting is generally performed by hand, using a straight knife of fine steel, some fifteen inches long which in operating should dip with the horizon at about the same angle as a mower's scythe. The handle attached is about two feet long, making with the edge of the knife an angle of about 100 degrees. In about four days after the cutting, the plants, in fair weather, are gathered and tied into bundles, and if possible on the same day put into stacks containing the yield of two acres each, of a fair crop. Keep all the branches—cutting, binding, and stacking—as near together as curing or drying the plants will allow. This practice guards against the loss of labor and injury to the crop sometimes experienced when the plants are bound into bundles, and left standing over the field in small shocks. Hemp thus left in shocks, sometimes get so wet as to require being spread again upon the field before stacking. It is the work of one active man to cut, bind and stack one acre in five days.

(To be continued.)

THE BUNCH GRASS OF BRITISH COLUMBIA (*ELYMUS CONDENSATUS*, PRESL).

Some time since we pointed out the difference between this and several other grasses of Western North America, to which the name of Bunch Grass has been applied, accompanied with quotations, descriptive of its appearance and feeding qualities, from the writings of several who were thoroughly acquainted with its native growth and usefulness; prominent among whom was Colonel Moodie, R.E., who introduced the Tus-ac Grass from the Falkland Islands, and by whose assistance our much-valued correspondent, Mr. Robert Brown, who was then collector for the British Columbian Botanical Association of Edinburgh, was enabled, in 1863, to send home a supply of its seeds, and thus first introduced it to Britain. To most of the members of this Association grass seeds, however, presented little or no attraction; and, with the exception of what fell to the shares of the Edinburgh Royal Botanic Gardens and I. Anderson Henry, Esq., of Woodend, together with a few plants in our own collection, the Bunch Grass of British Columbia was so utterly neglected that it might have been lost to the country, notwithstanding that its merits, both as an early forage and an abundantly productive hay grass, are likely yet to secure for it a highly prominent place among the cultivated agricultural plants of Britain. With us the *Elymus condensatus* has gone on increasing annually in stature; and although grown in the past dry-summer on rather poor unmanured soil, a plant was 8 ft. 3 in. in height. Of this, several seed-