is less active and the starch and other food in the grain is less rapidly changed into liquid form.

DEVELOPMENT OF THE YOUNG PLANT.

The temperature at which germination and the early growth of the young plant takes place materially influences the development of the plant. A continued low temperature during early growth is said to retard the development of new buds which form within the leafy sheath and around the base of the first stem. In checking the formation of new buds, nature aims to make sure that the plant of wheat, oats or barley will reproduce its kind by putting forth all its energies in an endeavour to mature seed in a lesser number or in one single head. The process of developing additional buds producing stools appreciably prolongs the time required by the plant to reach maturity, which is of much importance to the economy of the plant in climates where the season for growth is short. Because of prolonged cold weather during the early growing season, the stand of plants in the grain crops may be comparatively thin, even from fairly thick seeding. Nature, however, abhors a vacuum, and if the conditions for early growth be favourable several stems and heads of grain may be formed from a single seed to enable the plant to make the best use of all the space provided, unless all of the space be at first taken up because of thick seeding. If only a moderate amount of seed be used and the process of stooling be checked on account of excessive cold, poor seed or late seeding, the waste space is usually occupied by a later growth of weeds and other hardy indigenous plants. It will be seen then that if good strong seed be early sown on a well cultivated and fertile soil, a limited amount of seed will suffice and a thick stand of plants and a heavy crop may be had from very thin seeding, provided that the conditions for early growth be favourable. One bushel and a half per acre of 'No. 1 hard' Red Fife wheat would provide about 44 seeds per square foot of land. If two bushels per acre be sown, each square foot of land should receive on an average 54 grains.

PROPORTION OF SOUND AND PLUMP SEED TO SHRUNKEN SEED IN VARIOUS STANDARD GRADES.

For the purpose of comparing the relative proportions of sound plump seed, representative samples of wheat, from standard grade lots of 'No. 1 Northern,' 'No. 3 Northern,' 'No. 4' and 'Feed' were obtained from the Chief Inspector of Grain at Winnipeg through the courtesy of Mr. David Horn. Each of these standard samples were uniformly separated into two parts, (*a*) sound and plump grains, and (*b*) shrunken grains. The following table shows the per cent by weight and also by number of the sound, plump grains and also of the shrunken grains in each lot:—

	Weight of sound and plump grains.	Weight of shrunken grains.	Number of sound and plump grains.	Number of shrunken grains.
	Per cent.	Per cent.	Per cent.	Per cent.
No. 1 Northern	92	8	83	17
No. 3 Northern	60	40	49	51
No. 4	39½	60½	30½	69½
Feed	38	62	28½	71½

The shrunken grains, although much lighter in weight, are fed through a grain seeder in operation in only a slightly greater proportion by number. A seeder gauged