

## SEC. IV.—GRAINS.

73. *AVENA sativa*. COMMON OATS.—A grain very commonly known, of which we have a number of varieties, from the thin old Black Oats to the fine Poland variety and the celebrated Potatoe-Oats.

These give the farmer at all times the advantage of a change of seeds, a measure allowed on all hands to be essential to good husbandry. The culture is various; thin soils growing the black kind in preference, which is remarkably hardy, where the finer sorts affecting a better soil will not succeed. It is applicable both to the drill and broad-cast. The seed is from six pecks to four bushels per acre, and the crop from seven to fourteen quarters.

74. *CARUM Carui*. CARAWAY SEEDS.—The seeds of this are in demand both by druggists and confectioners. It is cultivated in Kent and Essex; where it, being a biennial plant, is sown with a crop of spring corn, and left with the stubble during the succeeding winter, and after clearing the land in the spring is left to go to seed. It requires a good hot dry soil; but although the crop is often of great value, it so much exhausts the land as to be hazardous culture in many light soils where the dunghill is not handy.

The seed is about ten pounds per acre, and the crop often five or six sacks.

75. *CORIANDRUM sativum*. CORIANDER.—Is grown in the stiff lands in Essex, and is an annual of easy but not of general culture. The seeds are used by druggists and rectifiers of spirits, and form many of the cordial drinks.

The quantity of seed and produce are similar to those of Caraway.

76. *ERVUM Lens*. LENTILS.—Once cultivated here for the seeds, which are used for soups; but it is furnished principally from Spain, and can at all times be purchased for less than it can be grown for.

77. *HORDEUM distichon*. COMMON TWO-ROWED BARLEY.—A grain now in very general cultivation, and supposed to be the best kind grown for malting. The season for sowing barley is in the spring, and the crop varies according to soil and culture; it is sown either broad-cast, drilled, or dibbled. The quantity of seed sown is from three pecks to three bushels per acre, and the produce from three to eleven quarters.

As the process of malting may not be generally understood by that class of readers for which this work is mostly intended, I shall give a short sketch of it.—It is a natural principle of vegetation, that every seed undergoes a change before it is formed into the young plant. The substance of the cotyledons, which when ground forms the nutritious flower of which bread is made, changes into two particular substances,

*i. e.* sugar and mucilage; and whilst mankind form from it the principal staff of life as an edible commodity, the same parts of the seed in barley are by certain means made into malt, which is only another term for the sugar of that grain. To effect this, the barley is steeped in water, and afterwards laid in heaps, in which state it vegetates in a few days, and the saccharine fermentation is by that means carried on to a certain pitch, when it is put on a kila to which a fire is applied, and it is by that means dried. It is then perfect malt, and fit for the purpose of brewing.

Pearl and Scotch Barley, used for soup and medicinal purposes, are made from the grain by being put into a mill, which merely grinds off the husk. The Pearl barley is mostly prepared in Holland, but the Scotch is made near Edinburgh in considerable quantities. A description of an improved Mill for this purpose is to be seen in the Edinburgh Encyclopædia, p. 283.

78. *HORDEUM vulgare*. BERE, BIG, or WINTER BARLEY.—This is a coarser grain than the Two-rowed Barley, and hence it is not so well adapted to the purpose of malting. It is grown on cold thin soils, being much hardier than the former.

It is now often sown in October, and in the month of May or June following it is mown and taken off the land for green fodder. The plants will notwithstanding this produce in August a very abundant crop of grain. Hence this is a valuable mode of culture for the farmer.

The other varieties of Barley are,

79. *HORDEUM hexastichon*. SIX-ROWED BARLEY.—This is also a coarse grain; and although it was once in cultivation here, it has been altogether superseded by the Bere, which is a better kind.

80. *HORDEUM zeocriton*. BATTLEDORE BARLEY.—This is a fine grain, but very tender, and not now in cultivation in this country.

NAKED BARLEY. The two first species sometimes produce a variety which thrashes out of the husks similar to wheat: these are very heavy and fine grain, but they are not in cultivation: for what reason I know not.

81. *PANICUM miliaceum*. MILLET.—Millet is of two kinds, the brown and yellow. They are sometimes sown in this country for feeding poultry, and also for dressing; *i. e.* it is divested of the husk by being passed through a mill, when it is equal to rice for the use of the pastrycook. The seed used is from one to two bushels per acre. This is more commonly grown in Italy, and on the shores of the Mediterranean sea, from which large quantities are annually exported to the more northern countries.

82. *PAPAVER somniferum*. MAW-SEED.—The large white Opium Poppy is grown for seed for feeding birds, and also for pressing the oil,

which is used by painters. The heads are also used by the apothecaries; which see under the head *Medicinal Plants*. About two pounds of seed to the acre.

83. *PHALARIS canariensis*. CANARY-SEED.—This is grown mostly in the Isle of Thanet, and sent to London &c. for feeding canary and other song-birds, and considered a very profitable crop to the farmer. It is sown in April, and the quantity of seed is about one bushel and a half per acre.

84. *PISUM sativum*\*. THE PEA.—The Gray Hog-pea used to be the only one considered sufficiently hardy for culture in the fields; but since the improvement in our agriculture we have all the finer varieties cultivated in large quantities. The seed used is about two bushels and a half per acre, and the produce varies from three to ten quarters.

The varieties of Peas are many, but the principal ones used in agriculture are the Early Charlton Pea; the Dwarf Marrow; the Prussian Blue. All these are dwarf kinds; and as the demand for this article in time of war is great for the navy and army, if the farmer's land will suit, and produce such as will boil, they will fetch a considerably greater price in proportion.

The varieties that are found to boil are either used whole, or split, which is done by steeping them in water till the cotyledons swell, after which they are dried on a kiln and passed through a mill; which just breaking the husk, the two cotyledons fall apart.

85. *POLYGONUM Fagopyrum*. BUCK-WHEAT.—This is usually sown in places where pheasants are bred, as the seed is the best food for those birds; it is also useful for poultry and hogs. I have eaten bread and cakes made of the flower, which are also very palatable. Two bushels are usually sown per acre. The season is May; and it is often sown on foul land in the summer, as it grows very thick on the land, and helps to clean it by smothering all the weeds. The crop does not stand on the ground more than ten or twelve weeks.

86. *SECALE cereale*. RYE.—This is often grown for a spring crop of

\* At the request of Sir John Sinclair I made an experiment, from directions given by a French emigrant, of mixing Pease with urine in which had been steeped a considerable quantity of pigeon's dung. In the course of twenty-four hours they had swoln very much, when they were put into the ground. An equal quantity were steeped in water; and the same quantity also that had not been steeped, were sown in three adjoining spots of land. There was a difference in the coming up of the crops, of some days in each; but that with the above preparation took the lead, and was by far the best crop on the ground. This is an experiment worth attending to. It is usual to prepare wheat in a similar way, but no other grain that I have ever heard of.

green food, by sowing it early in the autumn, as it is very hardy and is not affected by frost. It grows fast in the spring months, and affords a very luxuriant crop of green fodder. Tares and Rye are frequently sown mixed together for the same purpose, and the Tares find a support in the stalks of the Rye, by which means they produce a larger crop than they make by themselves. The grain is the next in estimation to Wheat, and is frequently used for making bread. The quantity sown per acre is the same as Wheat.

87. *SINAPIS nigra*. BLACK MUSTARD.—This is grown in Essex in great quantities for the seeds, which are sold to the manufacturers of flower of mustard, and is considered better flavoured, stronger, and capable of keeping better, than the white kind for such purpose. It is also in use for various medicinal preparations; which see. About two bushels of seed sown broad-cast are sufficient for an acre.

This plant affords another striking instance of the care of Providence in preserving the species of the vegetable kingdom, it being noticed in the Isle of Ely and other places, that wherever new ditches are thrown out, or the earth dug to any unusual depth, the seeds of Black Mustard immediately throw up a crop. In some places it has been proved to have lain thus embalmed for ages.

Flower of mustard, which is now become so common at our tables, and which is an article of very considerable trade, is but a new manufacture. A respectable seedsman who lived in Pall-Mall was the first who prepared it in this state for sale. The seeds of the white sort had been used to be bruised in a mortar and eaten sometimes as a condiment, but only in small quantities.

When used fresh it is weak, and has an unpleasant taste; but after standing a few hours the essential oil unites with the water which is used, and it then becomes considerably stronger, and the flavour is improved. It is prepared by drying the seeds on a kiln and grinding them to a powder. As this article is become of considerable importance from the demand, it has occasioned persons to speculate in its adulteration, which is now I believe often practised. Real flower of mustard will bear the addition of an equal quantity of salt without its appearing too much in the taste. In an old work, *Hartman's Treasure of Health*, I find it to have been practised by a noble lady of that time to make mustard for keeping, with sherry wine with the addition of a little sugar, and sometimes a little vinegar. Query, Is this, with the substitution of a cheaper wine, the secret of what is called Patent Mustard?

88. *TRITICUM æstivum*. SPRING WHEAT.—Wheat is a grain well known in most countries in Europe. It has been in cultivation for many ages. This species was introduced some years ago from the Barbary coast, and has been found very beneficial for sowing in the spring, when it often produces a large crop. It takes a shorter time to come to maturity than the other sorts; and as it is a more pro-

fitable crop to the farmer on good soils than Barley, it is frequently sown after Turnips are over. This has, perhaps, been one of the best improvements in Grain husbandry that was ever introduced, as it gives the grower great advantages which he could not have under the common culture of Wheat at the usual seed-time. This is little different in appearance from the Common White Wheat. But there was a small variety of it with rounder grains sent to the Board of Agriculture from the Cape of Good Hope about the year 1801, of which I saved a small quantity of seeds which was distributed among the members; and I have lately seen a sample of it in the hands of a gentleman in Devonshire, who speaks very highly of it as producing a large crop in a short time, and that the flower was so much esteemed, that the millers gave him a higher price for it than the finest samples at market of the other kinds would sell for. I believe this variety is very scarce. It is now twelve years since I grew it, from which what I saw, and all other in cultivation, if any there are, have sprung.

89. *TRITICUM compositum*. EGYPTIAN WHEAT.—This is a species with branched ears, and commonly having as many as three and four divisions. It is much cultivated in the eastern countries, but has not been found to answer so well in this country as the common cultivated species.

90. *TRITICUM hybernum*. COMMON WHEAT.—Of this grain we have a number of varieties, which are grown according to the fashion of countries, differing in the colour of the ear and also of the grain. The most esteemed sorts are the Hertfordshire White and the Essex Red Wheat, which are both much cultivated and equally esteemed. The season for growing these kinds is usually September and October. The drill, dibble, and broad-cast modes are all used, as the land and convenience of the farmer happen to suit, and the produce varies accordingly; as does also the quantity of seed sown. From two pecks to two bushels and a half are sown on an acre.

Wheat is liable to the ravages of many terrestrious insects which attack its roots; and also to some very curious diseases. One of these has been very clearly elucidated by our munificent patron of science, Sir Joseph Banks, in the investigation\* of a parasitical plant which destroys the blood of the stalk and leaves, renders the grain thin, and in some cases quite destroys the crop, which has done that gentleman's penetration great credit. An equally extraordinary disease is the Smut, which converts the farinaceous parts of the grain to a black powder resembling smut: a circumstance too well known to many farmers. Those who wish to consult the remedies recommended against this, may refer to *The Annals of Agriculture*, and most other books on the subject. It is usual with farmers to mix the Wheat with stale urine or brine, and to dry it by sifting it with slaked lime, which has the effect

\* Sir Joseph Banks *On the Blight in Corn.*

of causing it to vegetate quickly, and to prevent the attacks of many insects when the seed is first put into the ground. This is considered as productive of great benefit to the crop; but it is also to be remarked, that it is almost the only grain that is ever prepared with this mixture, although it might be applied with equal propriety to all others. See article *Pisum sativum*.

91. *TRITICUM turgidum*. CONE WHEAT.—This a fine grain, and cultivated much in the strong land in the Vale of Evesham, where it is found to answer better than any other sorts. It is distinguished by the square and thick spike, and having a very long arista or beard.

The following sorts of Wheat are mentioned as being in cultivation. But I have not seen them, neither do I think any of them equal to the sorts enumerated above:

*Triticum nigrum*. Black-grained Wheat.

*Triticum polonicum*. Polish Wheat.

*Triticum monococcon*. One-grained Wheat.

*Triticum Spelta*. Spelt Wheat.

Besides the use of Wheat for bread and other domestic purposes, large quantities are every season consumed in making starch, which is the pure fecula of the grain obtained by steeping it in water and beating it in coarse hempen bags, by which means the fecula is thus caused to exude and diffuse through the water. This, from being mixed with the saccharine matter of the grain, soon runs into the acetous fermentation, and the weak acid thus formed by digesting on the fecula renders it white. After settling, the precipitate is washed several times, and put by in square cakes and dried on kilns. These in drying part into flakes, which gives the form to the starch of the shops.

Starch is soluble in hot water, and becomes of the nature of gum. It is however insoluble in cold water, and on this account when pulverized it makes most excellent hair-powder.

92. *Vicia Faba*. THE BEAN.—Several kinds of Beans are cultivated by farmers. The principal are the Horse-Bean or Tick-Bean; the Early Mazagan; and the Long-pods. Beans grow best in stiff clayey soils, and in such they are the most convenient crop. The season for planting is either the winter or spring month, as the weather affords opportunity. They are either drilled, broad-cast sown, or put in by the dibble, which is considered not only the most eligible mode but in general affording the best crops. The seed is from one to three bushels per acre.

93. *ZEA Mays*. INDIAN CORN, or MAIZE. In warmer climates, as the South of France, and the East and West Indies, this is one of the most useful plants; the seeds forming good provender for poultry, hogs and cattle, and the green tops excellent fodder for cattle in general. I once saw a small early variety, that produced a very good crop, near Uxbridge; but I believe it is not in cultivation.