



*From the Scottish Farmer.*

### ON THE FIRST PRINCIPLES OF AGRICULTURE.

As every trade and profession must now-a-days have its axioms, postulates, or first principles, in order to give it scientific dress among other crafts, it is highly reasonable that the art of Agriculture, which is now almost completely reduced to a science, should also be permitted to assume its first principles. Without the knowledge of first principles, nothing can be expected from any of the practitioners of Agriculture worthy of attention—their practice being merely a copy from that already established, if not some gross deviation, perhaps, from the beaten track, by means of some erroneous idea of their own conceiving. Men acquainted with first principles will never deviate from them, while they find them correct; perhaps they may try some experiment consistent with them, and succeed. This, then, is the foundation from which we are to expect a rational system of Agriculture, adapted to all the varieties of soil, climate, and seasons, with which it must ever be connected.

It is true that by means of great attention to, and a careful and judicious imitation of, good Farmers, a man of mean talents is sometimes known to make a tolerable figure in this line. He may raise good crops; and good crops are no bad criterion of good farming. Indeed, a man, otherwise a blockhead (at least one who has no notion of first principles), often excels those who adhere to them with scrupulous exactness; but this must be only where the knowing man wants the talent of strict application. This talent is an essential requisite for a Farmer: indeed, it is indispensable in every occupation where success is desired.

The general principles upon which the success of Agriculture depends are—

1. Without draining wet land, no improvement.
2. Unless land thus drained is properly cleaned, the object of draining is frustrated, and that in proportion as this operation is executed.
3. Manures will always fail in producing the desired effect, in proportion as draining and cleaning are neglected.
4. Early sowing always produces shorter and stiffer straw than late sowing, and that in exact proportion to the times, when not affected by extraneous circumstances.
5. The various species of seed-corn are adapted to various soils, situations, seasons, and other circumstances.

6. Picking and propagating the best heads of the most approved kinds of grain and seeds is the surest method of preserving them undegenerate.

**Draining.**—This article has been amply discussed by able hands, and Elkington's and Smith of Deanston's systems of draining are universally known. Almost every field has its own peculiar circumstances; but as it is not our design in this place to enter into the minutiae of draining, but to introduce it as a first principle in farming, we shall say no more about it.

**Without draining, no improvement.**—Without it, no other operation can be effectual to the end proposed. When land is gorged with water, it cannot be cleaned. No labour is sufficient to do it, except in a very uncommon drought—in some soils not even then; and when land is not clean, it is impossible to suppose that dung, lime, or any other kind of manure, can have its full effect. Dung will promote the natural grasses more than any kind of grain which may be sown; and these, although the land is sown with artificial grass seed, will still thrive, and render the ground completely fit for a fallow crop, or, if on stiff clays, a summer fallow immediately after dirty lea oats.

**Cleaning.**—This department requires the Farmer's constant attention, and by this alone can be rendered effectual. Early ploughing is of much importance; and it is impossible to be too early at summer fallows, or in preparing the land for turnips or potatoes, when spring sowing is over. As we at present speak chiefly of land in the second stage of improvement, it must not be considered so clean as in future it may be expected. We shall suppose the land of a free nature, but extremely dirty by means of its late moist state previous to draining. Every Farmer may plough to his own mind, according to the nature of the soil, and the grass he has to destroy; but, in general, light ploughing is sufficient to kill grass, which generally runs near the surface—and then, before the manure is applied, a strong furrow is of much use, to mix new earth with the dung. At same time, some soils will not admit of a strong furrow, unless in the spring, before the moisture is exhausted. In such situations, harrowing, rolling, and gathering grass roots frequently after every ploughing, is essentially necessary; but it is not our design to teach either ploughing or harrowing.

**Manures.**—Neither is it our design to treat of the nature and properties of manures, and how they operate upon land,

so as to produce better crops; whether by communicating to the soil the vegetable food which they contain—whether by enabling it to attract nourishment from the atmosphere—or by enlarging the vegetable pasture which it contains—or by dissolving that which the soil already contains, so as to prepare it for entering the roots of plants. These are philosophical inquiries, not essentially connected with the present business. Upon this subject there are various theories—some of which are extremely rational, and others extremely absurd.

**Early sowing produces less straw than late sowing, and that in exact proportion to the times (ceteris paribus).**—The knowledge of this principle, which was not discovered, at least not attended to, till the close of the last century, is of much importance to the Farmer. Before it was known and practised, the hazard of sowing land in a very high state of cultivation was very great. Oats or barley sown in such condition at the usual period of seed-time as formerly—viz., oats late in March, and barley about the term of Whitsunday—would have been often entirely ruined by being too strong. English barley (commonly from Lincolnshire), and Dutch, and many other early kinds of oats, were adopted without changing the time of sowing; and as these have a tendency to produce shorter straw, they were found of much advantage in securing a full crop without lodging. But it is found that any of our oats sown early produce a shorter and stiffer straw, which has the same effect. Early oats, however, are still much in vogue. The Lincoln barley is almost out of repute: it is well known to some Farmers that the common Scotch barley is the best substitute for it—as, when sown early, its straw becomes shorter, much stiffer, and less apt to lodge. Potatoe oats are a comparatively new species, and are said to be natives of South America. It appears they were first imported into some of our midland counties of Scotland, in a quantity extremely small; and that they obtained their name from the circumstance of their arriving in a package of potatoes. This is a valuable kind of oats in point of meal, yielding two or three pecks per boll more than the Angus, which, in every other respect, we reckon our best oats. They appear to be again losing ground in the estimation of some people: they are more apt than any other kind to keep the soil, like wild oats, and thereby to annoy the succeeding crops. It seems to be apprehended that were they to be frequently shaken and