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WELD, or WOLD, *reseda luteola* of Linnæus, a plant used by the dyers to give a yellow colour; and for this reason called, in Latin, *luteola*, of *luteus*, yellow. For the characters, see RESEDA.

When the plants are pulled, they may be set up in small handfuls to dry in the field, and when dry enough, tied up in bundles and housed dry; care being taken to house them loosely, that the air may pass between them to prevent their fermenting. That which is left for seeds should be pulled as soon as the seeds are ripe, and set up to dry, and then beat out for use; for if the plants are left too long, the seeds will scatter. Mortimer and Miller.

Weld is much cultivated in Kent, for the use of the London dyers.

Mr. Hellot observes, in his *Art de Teindre*, that for dyeing with weld, the best proportions of alum and tartar for the preparatory liquor are four parts of alum, and one of tartar, to sixteen of the wool; the quantity of the tartar being determined by the greater or less brightness of colour proposed; and that the wool, thus prepared, is to be boiled again with three or four parts of weld to one of wool, but often much less: that for light shades, it is customary to diminish the alum, and omit the tartar; and that, in this case,

WELD.

case, the colour is more slowly imbibed, and proves less durable.

With a view to economy, the weaker shades of colour are dyed in the same bath, after the stronger are finished. A golden yellow, more or less orange, is given by a weak madder bath, after the welding.

Silk is dyed of a golden-yellow, generally with weld alone, according to the following process: the stuff is first boiled in soap-water, alumed and washed, then passed twice through a weld bath, in which, the second time, some alkali is dissolved, which gives a rich golden hue to the natural yellow of the weld. The colour is further deepened by a little annatto. The solutions of lime with weld give to silk a bright clear yellow. In order to dye cotton yellow, Berthollet directs first to cleanse it with wood ashes and water, to rinse, alum, and dry without further rinsing, and then to pass it through a yellow bath, in which the weld is somewhat more than the weight of the cotton. When the colour has sufficiently taken, the cotton is thrown into a bath of sulphate of copper and water, and kept there for an hour; after which it is boiled with white soap-water, and, lastly, washed and dried. In order to obtain a deeper jonquil-yellow, the aluming is omitted, and, instead of this operation, a little verdigrise is added to the weld bath, and the cotton finished with soda.

Weld is particularly preferred to all other substances in giving the lively green lemon-yellow. It is, however, expensive; and it is also found to degrade and interfere with madder colours more than other yellows. We may here add, that the fine delicate yellow, obtained from weld, is much used by the London paper-stainers, and sold in the form of hard lumps, consisting chiefly of chalk saturated with the colouring matter. Messrs. Collard and Frazer have given the following improved process:—Dissolve any quantity of fine whiting in boiling water; add to it one ounce of alum for every pound of whiting, which will occasion a brisk effervescence, and stir these materials well together till the gas is wholly disengaged. On the other hand, boil in a separate vessel some weld with water just sufficient to cover it, for fifteen minutes, filter the yellow decoction, and then mix it with the whiting and alumine in such proportions, that the earths may appear to be saturated with the colouring matter. Then let the mixture remain a day at rest, and at the bottom will be the precipitated earth firmly united with the colour, and of a fine yellow tinge, which may be conveniently dried on chalk-stones.

The weld yellow is a water colour, and is never mixed with oil.

WELD, in *Agriculture*, is a plant which is not unfrequently cultivated in the field by the farmer as a crop, for the purpose of giving and affording a bright yellow and lemon colour to woollens, silks, cotton, and thread, as well as for its use in the manufacture of check and fustian, and in some other intentions. It is for the flower-stems that it is principally grown, as being useful in the process of dyeing these several articles. It is often known by the names of *would* and *dyer's weed*.

It may be noticed, that in the growth and culture of this plant, the soils most suitable are those of the fertile mellow kinds, whether of the loamy, sandy, or gravelly sorts; but it may be grown with success on such as are of a poorer quality; but in the former, the plants will rise to a much greater height, and produce much larger leaves and stems, than in the latter description of lands.

It has, however, been stated, that the soil most suitable to it, in Essex, is the strong stiff loam moderately moist,

but not wet. A soil rather moist, but mellow, seems the most suitable and proper for it.

It is necessary, in the preparation of the ground, that there should be a tolerable degree of fineness produced in the mould of the soil, which may be effected by repeated ploughings given in the more early spring months, and suitable harrowings. The surface of the land in the seed furrow should be left as level as possible, that the seed may be dispersed more evenly over it, and with greater regularity and exactness.

In this, as in many or indeed most other cases, the seed should be collected from the best plants, and those which have remained upon the stems till rendered perfectly ripe; as such only vegetates perfectly, and the plants in such cases should not be left stand too long, as the seed is liable to shed. It should be perfectly fresh when used, as old seed never comes up well, or in so regular a manner.

In regard to the proportion of seed which is necessary, it is commonly from about two quarts to a gallon the acre, according to circumstances, when sown alone: but when mixed with other crops, a little more may be required, which should be blended with a little sand, or some other such material, at the time of sowing it on the land, as rendering it capable of being sown more evenly.

It may be observed in respect to the time of sowing, that this sort of crop may be put into the ground either in the spring, as about the latter end of April or beginning of May; or in the latter end of summer, as the beginning of August; being mostly sown in conjunction with other crops in the first period; but when sown alone at the latter season, the produce is in general the best and most full. Some of the writers in the Essex Report on Agriculture speak of the culture of this sort of crop as simply that of transplanting from the seed-beds about Midsummer. The seed, in these cases, is sown in the beds in the early spring, for raising the plants. In the county of Norfolk, it is said, that they sow it in the month of April with barley, in the proportion of from a quarter to half a peck to the acre, in the manner of clover, and frequently with clover at the same time, to be mown or fed in the following year, after the weld is pulled.

It is mostly sown broad-cast, whether grown in mixture with other plants or alone; and as the seeds are of a very small size, it requires an expert seedman to perform the business with regularity and exactness, which is a matter of much importance to the success of the crop, as, where the plants stand too closely together, much unnecessary trouble and expence must be incurred in the thinning them out by the hoe afterwards; and where they stand too thinly upon the ground, there must be a great loss from the deficiency of plants. That the sowing may be executed with more regularity, it is the custom with some to blend other substances, such as the above, with the seed that has nearly the same weight, as by this means they suppose it may be effected with greater exactness, facility, and readiness.

It is stated that weld, when grown with other sorts of crops, such as barley, buck-wheat, beans, peas, clover, or grass-seeds, is usually put in after them; in some cases immediately, but in others not till some time has elapsed. With the first and second sorts, when sown so late as the beginning of May, it is mostly the practice to sow it directly afterwards, giving the land a slight harrowing with a very light close-tined harrow to cover it in. The barley being sown under furrow, the weld-seed with some is immediately sown over the surface, and lightly harrowed in, and then rolled. Where the barley seeding is performed so early as March,

WELD.

March, or the beginning of April, the sowing of the weld-feed is best deferred till May, when it may be dispersed over the land, and left in that manner to be washed in by the rains. With bean and pea crops, it is often sown before the last breaking or hoeing of the crops in the latter end of June, or beginning of July. In cultivating it with clover and grafs-seeds, it is often sown at the same time with them; but a better practice is, perhaps, to delay it till some time afterwards, as both these crops require to be sown at too early a period for this plant to rise safely. But in cases where no other sort of crop is grown with weld, which is probably the best method, it is usually sown evenly over the surface of the land, and covered in by harrowing with a light bush harrow, having afterwards recourse to the roller in light sorts of land.

Though it is common in cultivating crops of this sort, not to pay any attention to them after being sown; yet as the plants are of slow growth, and liable to be greatly injured in their progress by the rising of weeds, it must be of much benefit not only to keep them perfectly clean, but also to have the mould stirred about their roots. In about a month from the time of sowing, the plants are mostly in a state to be easily distinguished; a hoeing should be then given when the weather is dry, which may be performed in the same manner as for turnips only, using somewhat smaller hoes for the purpose. Some direct that the plants in this operation should be set out to the distance of three or four inches; but it is better to let them have more room, as six, seven, or eight inches; which not only lessens the expence of the business, but contributes to the advantage of the crop. In the spring, a second slight hoeing may be practised about March, in a dry time; and if any weeds rise afterwards, a third may be given in May. Where the land has been well prepared, one hoeing in autumn and another in the spring may be fully sufficient. Hand-weeding, though practised by some, is in general too expensive in these cases.

It may be observed, that the proper period for pulling this sort of crop is when the bloom has been produced the whole length of the stems, and the plants are just beginning to turn of a light or yellowish colour, as in the beginning or middle of July in the second year. The plants are usually from one to two feet and a half in height. It is thought by some advantageous to pull it rather early, without waiting for the ripening of the seeds, as by this means there will not only be the greatest proportion of dye, but the land will be left at liberty for the reception of a crop of wheat or turnips; but in this case, a small part must be left solely for the purpose of providing seed. In the execution of the work, the plants are drawn up by the roots in small handfuls, and set up to dry, after each handful has been tied up by one of the stalks, in the number of four together in a sort of erect position against each other, as is done in some other kinds of crops.

It is remarked, that sometimes they, however, become sufficiently dry by turning, without being set up. After they have remained till fully dry, which is mostly effected in the course of a week or two, they are bound up into larger bundles, that contain each sixty handfuls, and which are of the weight of fifty-six pounds each; sixty of these bundles constituting a load. These last are tied up by a string made for the purpose, and sold under the title of woold cord, in many places where this kind of crop is much grown and provided for the dyer and calico-printer.

On account of the weld plant being extremely uncertain in its growth, and the whole crop seldom becoming in a state

to be pulled at the same time, it is proper to have an experienced labourer to direct the business of pulling, in order that the pullers may not proceed at random, but take the different parts as the plants become ready, or in danger from the blight. In which last case, the greatest possible dispatch should be made, as the loss of weight in the produce will daily increase, and the grower be of course greatly injured in the quantity of it.

After the weld is become sufficiently dried, which is known by the crispness of the leaves, and the stems turning of a light colour, and when the plants are ripe, the seeds shelling out; according to some, it should be stacked up lightly in the barn, in order to prevent its taking on too much heat; while others advise, that it should be stacked up closely in the manner of wheat, being left to sweat in the same way as hay, as the more this takes place, the better; the quality of the weld being thereby increased, if there be no mouldiness. When the crop has stood till fully ripened, the seed may be taken before it is put into the barn, which may be easily procured by rubbing, or slightly beating each of the little handfuls against each other over a cloth, tub, or any other convenient receptacle, as, by threshing, the quantity of the weld would be much reduced in weight. The price of this sort of seed is mostly about ten or twelve shillings the bushel, which may be sold to the seedsmen in a ready manner.

It may be observed, that in crops of this kind the produce is in some degree uncertain, depending much upon the nature of the season; but from half a load to a load and a half is the quantity most commonly afforded, which is usually sold to the dyers at from five or six to ten or twelve pounds the load, and sometimes considerably more.

This is a sort of crop which is mostly disposed of to the dyers and calico-printers, as well as other manufacturers. The demand for it, however, is sometimes very little; while at other times it is so great, as to raise the price to a very high degree.

Weld is a crop which is particularly liable to be injured by the blight, which probably has induced the growers of it to raise it with those of other kinds, especially of the grafs sort; because, where the weld crop does not succeed, a portion of sheep feed may be afforded by the others, for winter and spring use. It is noticed, that the blight frequently comes on so suddenly, that crops which appeared healthy, and in a vigorous state of growth, during the whole of the winter and spring, promising a large produce, are about the month of May attacked by this vegetable disease, so as to be nearly destroyed. It is known to be present by the plants, especially about the lower parts of the stems of them, turning of a yellowish or pale reddish colour, while the upper parts remain green, and seem healthy. When it appears early in the month of May, there is always danger of the crop being destroyed; but when it comes on at a later period, or where the plants from other causes, as the dryness of the season, begin to change colour in the stalks, the only chance is that of having them pulled as expeditiously as the business can be performed, and in the readiest manner possible.

It may be remarked, that it would seem better and more convenient to cultivate this crop alone, or without any mixture of other plants; as, in the former way, it must be much injured and confined in its growth, on account of the closeness and shade produced by the plants of the other crops that surround it. It is the custom, too, when grown with other crops, especially those of the grafs kinds, to very commonly feed them down in the winter and spring seasons with

W E L

with sheep, or some other light sort of live-stock, under the notion that they will not touch the weld plants; but this is by no means the case, as they are found to feed upon them without any nicety, and must, of course, do very great injury to their growth and flowering. In cases where weld is sown among clover, as is not unfrequently the case, the best method is probably to pull it out when it has got to maturity, before the clover is cut. Where sown on summer fallowed land with rape and grass-seeds, towards the latter end of that season, in which case it often does extremely well, the crops are mostly fed by lambs in the course of a month or six weeks after the sowing, when little or no injury can be sustained by the cropping of the weld plants.

Weld, on account of the great consumption of vegetable food which it causes, without contributing any thing to the amelioration of the land, can only be introduced with propriety, probably, in situations where manure or substances of that kind can be easily obtained. However, in cases where the crops of this kind are cultivated with sufficient tillage, care, and attention, they may be a good preparation for wheat or turnips, in some instances.

It may sometimes, too, be grown with advantage in the neighbourhoods of large dyeing, printing, and other such manufactories, where the consumption, and consequently the demand for it, are very great. If this sort of produce cannot be disposed of soon after it is pulled and tied up, it may be preserved perfectly sound for several years, by being stacked either in the barn or on stands in the open air, taking care to prevent the attacks and ravages of rats, or other vermin.