

## FLAX CULTURE.

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At the suggestion of friends interested in flax culture I propose to give a brief statement from my long experience for the guidance of American agriculturists who are unacquainted with this invaluable farm product. In so doing, my object is to arouse farmers to a sense of their duty and interest, many of whom are skeptical and wedded to their old prejudices, unwilling to experiment with anything new and useful, or to take counsel from their more practical or enterprising neighbors. The time has come, or soon will, when landholders will vie with each other in cultivating the greatest possible breadth of flax. As it is equally profitable with any root or cereal crop that land will produce, without taking into consideration the national benefit derived from its cultivation, it is to be hoped that the government will encourage flax-growing throughout the loyal States, at least until farmers come to know its value as an annual crop in the farm rotation.

### SOIL.

Flax thrives in rich silicious soil, a moist strong loam or good upland on which cleaning crops were grown the previous season, such as carrots, turnips, mangel wurtzel, or corn. Flax will not thrive in close proximity to obnoxious weeds; on dirty land it will prove a failure, or will treble the expense of harvesting, which would be a great drawback on the profits of the crop. As manufacturers would not wish to buy flax mixed up with weeds, it is indispensable to have clean land. Such farmers as intend trying the experiment next spring should select a suitable patch of ground this season, and keep it clear of weeds by continual hoeing.

### PLOUGHING.

All land intended for flax should be ploughed deep early in November—not flat, but ribbed, at an angle of forty-five degrees, for the purpose of having it sweetened and pulverized by the influence of the weather through the winter months. It should be cross-ploughed by the beginning or middle of April.

## SEED-SOWING.

Should the weather prove favorable from the middle of April up to the 12th of May, no time should be lost in preparing the ground for the reception of the seed, by rolling and harrowing until made very fine; after which, the field or patch should again be gone over with a light wooden roller, for the purpose of seeing with the naked eye if the seed be evenly sown. The seed-sower should have an attendant, who is to put up sights at nine feet apart in straight lines, beginning on the breadth or length of the land according as the wind may favor. Two rows of poles or switches should be put up before the sower commences, and, as he progresses, the attendant must keep close in his wake, removing the first line of switches nine feet to the right, and so continue to the end. Then, with a bush-harrow, the field should be gone over, and finally rolled with a light turnip roller which a small boy could readily draw, and get over two acres in a day with. The latter process need not be resorted to if the flax is to be hand-pulled. Should good fibre be desirable, it will be necessary to sow two and a half bushels of seed to the acre; one bushel will be sufficient if a large amount of seed be desired. The seed selected for sowing should be plump, of a light brown color, and glossy in appearance.

## PULLING.

About the 16th of July, probably a week earlier or later, the bolls begin to ripen and the seed turns to a brown color; the flax stems having lost their leaves, will appear yellow. The pulling or cutting, as the case may be, should at once be attended to. (I am for pulling, as it will more than pay the extra labor.) If the weather threatens rain, the flax should be tied into small sheaves, put in stacks, and hooded like wheat, lest the seed bolls should burst, and be injured by dampness. If the weather be dry and sunny, it would be much better to let the flax lie flat on the ground for a day or two in order to strengthen the fibre and ripen the seed, then tied and treated as above stated. After a few days drying it may be carted from the field, housed, or stacked, if not previously sold.

## RIPLING.

In default of better convenience, any wheelwright or carpenter could construct a good ripple at a trifling cost by inserting twenty-four pins of  $\frac{3}{8}$  inch iron rod, a foot or fourteen inches long, in a hard piece of wood,  $\frac{3}{8}$  inch apart, with the angles opposite to each other. The piece of wood, with the pins perpendicular, should be firmly attached to a strong four-legged form, raised three feet from the ground by iron bolts, or strong wooden pins. In commencing the work it will be required to have three smart boys, whose business would be to loosen the sheaves, put the flax in handfuls crosswise to keep it from entangling, and to tie the sheaves according as they are rippled. Two men stand on opposite sides of the ripple, take the flax prepared by the boys, holding it firm, and with both hands cast it through the iron pins, which should be a little sharpened at top, then with a smart pull the bolls fall into a box placed underneath; a second pull, by turning the wrist, finishes the handful, which is cast aside, and another taken up, and so continue until the sheaf is finished, and another commenced. The rippled flax is taken and tied by one of the boys, and thrown aside until stacked or carted to the steep pond. The bolls, as occasion requires, should be emptied on a dry barn floor, where they can afterwards be crushed by a roller. This done, it can be fanned, put into bags or barrels, and stored up where no rats or mice could have recourse to it. Lastly, much of the seed will remain in what was cast out by the first fanning. All should be gathered up, carefully rolled again, and fanned as before. The last fanned seed will not be so good

for market as the former, yet will make good jelly to feed calves with, and could be converted to many other good purposes. A readier method would be to bush the flax straw with flails, after having it well dried in the stacks, which would save the expense of rippling. The latter process would not be so good, as one-third of the seed would be lost.

#### STEEPING.

Immediately after finishing the rippling or bushing, the flax straw should be carted to a pond previously prepared by cleaning and damming up. Four feet deep of water will be required. It is better to steep in soft or stagnant water than to run the risk of having the flax carried away by a sudden freshet if steeped in a creek or rivulet. A man provided with a long hay-fork commences, at either end of the pond, pitching the sheaves in a straight line across and as close to each other as he can put them; the root end of the next row to reach the band or tip of the first. Proceed so until all is disposed of, taking care that none of the flax shall appear over water, it being indispensable to have it equally fermented.

In seven or eight days after being put in steep it will require constant watching, lest it should get too much fermentation, which would leave the fibre nearly worthless. Bubbles will be seen rising on the water when fully steeped. This can be easily ascertained by taking a few straws from one of the sheaves, rubbing them between the finger and thumb; the woody core will drop from the fibre; should it then break off in the middle by a slow, strong pull, it will be a sure sign of its being too long in the water. If, on the other hand, it does not separate, no time should be lost in having it raised from the pond and thrown on the bank in a slanting position, in order to let the water drain off. In an hour or two afterwards it should be carted to the spread-field—a late-mowed meadow would answer best; the flax will shade the roots of the grass from the burning rays of the sun, the effect of which will bring on a quick after-math—the sheaves dropped in straight lines by the carter; men, women, or boys to open the sheaves and spread them quite thin, leaving three or four inches between the lines. In a few days (say twelve) the fibre will begin to separate from the woody core, at which time all should be gathered up—choosing a dry day for the purpose—tied in bundles, and carted to where it will receive no damp until such time as opportunity serves to have it sent to a flax mill to be broke and scutched.

#### *Cost of seed, labor, &c., of one acre of flax, unrotted.*

COST.		PROBABLE RETURN.	
First ploughing .....	\$1 60	2 tons of flax straw .....	\$50 00
Second ploughing in spring .....	1 00	26 bushels of seed, at \$3 50 .....	81 00
Harrowing and rolling .....	1 00		
2½ bushels of seed, at \$3 50 per bushel	8 75		131 00
Sowing, bushing, harrowing, and rolling .....	2 00	Deduct first cost .....	35 25
Weeding .....	2 00		95 75
Pulling .....	7 00		
Threshing seed and farming .....	5 00		
Carting from field .....	1 00		
Rent of land .....	6 00		
	<u>35 25</u>		

Assuming that I give full credit for all expenses, I presume the above margin will be considered a reasonable return of profit from an acre of unrotted flax. As a further inducement to flax-growers, I beg leave to state that a greater amount of profit would be obtained from an acre of steeped and rotted flax, if treated by a practical man. Thus :

COST.		PROBABLE RETURN.	
First cost, as above.....	\$35 25	36 stone of 14 lbs. each, say 504 lbs.,	
Add steeping and spreading .....	4 50	sold at the present price, 60 cents	
Raising and tying in bundles.....	1 00	per lb., would amount to .....	\$302 40
Breaking and scutching.....	8 00	Deduct first cost.....	48 75
	<u>48 75</u>		<u>253 65</u>

Should the latter margin be considered a lure in order to induce inexperienced farmers to grow flax on a large scale, let them not try it until such time as they are fully convinced of their error by the practical knowledge of their more enterprising neighbor.

VARIOUS SUGGESTIONS.

When the crop is taken off, the land may be ploughed again and sown with buckwheat or rye. It could also, at the time of sowing the flaxseed, be laid down for pasture with mixed grass seeds, such as sheep fescue, timothy, fiorin, poa trivialis, perennial rye grass, and white hay seed. The leaves which fall from the flax stems, together with the clay stirred up by the pulling, will answer as a top dressing. By the latter end of August or beginning of September it will afford a good bite to sheep or cattle. These remarks look well on paper, yet they are not the less true. But flax-growing in this vast country has its drawbacks at the present time, but it is to be hoped this evil will soon be remedied. Firstly, a farmer lives thirty miles or upwards from where he could bring his flax to market; what is he to do in the event of his growing such a crop? Where is he to get it broke or scutched? Should he contract with a man coming along with his machine, who works for him, he must submit to his exorbitant charge, which perchance would take away half the profit of his crop. This is not all. Although his flax has got into small bulk by scutching, even if he has to send a great distance to market, he is still at the mercy of the buyer, who probably would tell him it got too much rotting, find some other fault, and finally say it would not suit him. The farmer gets bewildered, thinks of the long journey to his home, calculates his expenses, offers his flax at a reduced price sooner than bring it back, and, lastly, will sicken of flax-growing. As a cure for such sickness, let flax mills be erected, (one in every county would be sufficient,) and markets established at convenient places where farmers could have easy access. Buyers could select the flax which would suit them best, whether flax-cotton or long heckled stricks. Such mills as I speak of could be got up for about five hundred dollars alongside of any constant stream of water. They would pay the first cost in two years by renting them, and be a national benefit for years afterwards. Private individuals could not invest their money better than in the building of scutch mills; the government has its own business to attend to. Farmers and all others interested in agricultural pursuits should also attend to their business, independent of government's aid or advice. It is high time Americans should look to their own interest and grow their own flax, which may afford as much employment to the working class as cotton has done heretofore. The money paid for Irish linen would be kept in the country. As good flax can be grown in the United States of America as is grown in the old country. There are as good artisans, water-power, and machinery here as in Ireland or England. With all these advantages, it may naturally be asked, why not put a stop to this enormous drain of money which finds its way annually into the pockets of the Belfast Flax Society from this country in return for their dear-sold linen fabrics? John Bull has pushed his trade into America for the last half century, bought southern cotton cheap, sent it back to the northern States wrought into fabrics, where he got a good and ready market, thereby enabling him to support 4,000,000 of his

paupers for many years past, who are at the present time bordering on rebellion for want of cotton to keep them employed. An unlucky shot that, which reverberated across the wide Atlantic and paralyzed the cotton lords of England and their subordinates for the last four years.

What I have stated in the foregoing treatise is neither filched nor borrowed from the various and conflicting reports of other writers on the cultivation of flax, as heretofore published. What I have written on the subject is solely taken from my own experience of twenty-seven years in the best flax-growing country in the world—Ireland.

I beg leave to offer further practical suggestions as an inducement to such farmers as would wish to know if flax would be a paying crop preparatory to trying the experiment. I have already stated that no cereal crop would pay so well, proving this assertion. I am now fully convinced that two crops can be raised from the same land and brought to full perfection within five months; that is to say, from the eighth of May to the first of October. And it is more than probable the last crop may turn out the best, inasmuch as that the season of its mortal enemy will be past and gone before it is sown, and by adding the value of the latter to that of the former crop would, in my opinion, have a satisfactory margin to any man short of a miser. What I have here stated may be called theory. It is no such thing; it is sound practical information.

I finished my flax-sowing on the 11th of May last, and had it harvested on the 12th of July; by the 18th had the seed bushed out and sent to Philadelphia, sold it at three dollars and sixty-five cents per bushel, which amounted to seventy-three dollars, including three bushels I kept for seed. The straw I afterwards sold to Mr. Pusey, of Wilmington, for twenty-eight dollars and fifty cents. The cost of seed, rent, and labor, twenty-six dollars, deducted, left a balance of seventy-five dollars and fifty cents in my favor for the produce of one acre fifteen poles. Considering the short period of time it took to ripen the first crop, I concluded there was season enough to grow a second. Accordingly I prepared a small patch of the ground on which the first crop had been grown, sowed it with the same seed without using guano or phosphate, which might be necessary to give it a start. The latter crop ripened the seed and was fit to pull by the 2d of October. Apart from these, some seed dropped from the bolls when removing one of the stacks of the first crop on the 18th of July; it germinated and has grown two feet long. The only difference I can discover between what was covered with a rake and what had shed its seed on the dry ground is, that the former ripened its seed, whilst the latter produced little or no seed. My object in making mention of this latter self-producing flax in this report is to show that flax is not a tender plant; it is a rapid grower, requiring very little trouble or care to bring it to perfection. Had the land on which the first crop was grown been ploughed immediately after clearing off the crop, and prepared in the usual way, giving a top dressing of phosphates or guano, I have no doubt on my mind but there could be as good flax fibre produced from the late sowing as from the earlier, but not so good seed.

Should this be the case—I have the proofs by me—I hope and trust that farmers will turn their thoughts to flax-growing next season extensively; it will benefit themselves to do so. Of this they will be fully convinced when balancing their accounts after disposing of the crop.

In order to be certain what effect frost would have on late-sown flax, I left the greater part of what I sowed on the 18th of July on the ground as it stood until the 11th of January. On the 14th I brought these samples to Mr. Pusey, for the purpose of having it run through his machine, in order to test its quality previous to my sending the samples to the Agricultural Department. No. 1 sample, pulled October 2, pronounced by Mr. Pusey as being the best, and equally as good as the greater part of the first I sold him. No. 2

rather damp to run well through the machine; it flattened and retained much of the woody core, yet is strong, sound fibre; this sample was pulled about the 1st of November. No. 3, pulled January 11, spoiled by the frost, is only good tow or fit to make paper of. Mr. Pusey says if I had pulled the latter sample at the proper time, and dew-rotted it up to this time, it would be as good as either sample. I care nothing about the loss. I gained the information sought by trying the experiment.

It has been a matter of doubt, and a subject of great inquiry for some time past, whether or not flax fibre could by any mechanical process be converted into flax-cotton as a substitute for cotton, in order to meet the necessity of the manufacturers, who can at the present time obtain but a scanty supply of the staple from the southern States. On this subject further doubt is uncalled for. If no more improvement can be made in machinery than what is at present in working order, as much flax-cotton can be prepared as would keep all spindles in the States in operation. If improvement can be made in machinery, all the better.

There are at this writing immense piles of flax-cotton in Messrs. Pusey's mills, at Wilmington, Delaware, going through the different processes required previous to spinning. Some I have seen converted into yarn of superior quality, spooled. Some more I have seen ready for spinning, which he bleached by a chemical process in a short period of time. Several tons of flax-straw stand up ready for breaking; his machine for the purpose is the best I have seen, attended by a buffer and three boys only, and if he only had enough of flax to keep it working the year round he would need no more cotton.

A small insect, commonly called the flax flea, often attacks the flax plant in the beginning of May, whilst in the lobe leaves, and, if not guarded against, would in a short time destroy a whole crop. The best way to make this pest decamp is to dust the young braird early in the morning whilst the dew is on. Any dry clay beaten fine will do; ashes or powdered lime, if convenient, will be much better. It will be useless to dust the flax plants after sunrise, as the dust would be blown off by the wind. What would be done early in the morning would hold on the leaves if not washed off by rain. This simple remedy is applicable to turnips, squashes, cucumbers, or potatoes.

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