

DEMONSTRATION OF FLAX-PULLING MACHINES.

PUBLIC trials of flax-pulling machines were arranged by the Irish Department of Agriculture and Technical Instruction to take place at Ballyveasey, Carnmoney, Belfast, on 26th July, 1921. Only two machines took part in these trials:—

- (a) The Crawford-Bennett Machine made by the York Street Flax Spinning Co., Belfast.
- (b) The Fibre Corporation Machine made by Messrs. Marshall, Sons & Co., Ltd., of Gainsborough.

The Crawford-Bennett Machine is self-propelled, and consists essentially of a polygonal drum of about 5 ft. in diameter hung at the back of a motor chassis so that its lowest portion is about 6 or 8 inches above the ground. At intervals of about 45 degrees, rows of teeth extend across the width of the drum and project about 5 inches beyond its circumference. When the car is driven on its reverse gear the drum is rotated by suitable gearing in the opposite direction to the ground wheels and caused to advance towards the flax to be pulled at a slow speed. The pulling is effected by the projecting combs referred to, which pass up the flax stems until they encounter the seed heads, when the upward movement of the combs causes the plant roots to give way. The flax is carried over the circumference of the drum and delivered at the top, where it is forced from the teeth by a longitudinal metal lath, operated by a cam, which presses upwards from the base of the teeth. When at the top of the drum and freed from the uplifting teeth, the pulled flax is engaged by a further set of combs mounted on endless chains, which bring the flax forward and deliver it on to a travelling canvas, which carries it in a sideways direction for delivery on to the ground clear of the path of the machine, either in loose bundles, or in bundles automatically tied.

The Fibre Corporation Machine is built to attach to a motor tractor and consists of endless chains passing over fore and aft cogs carrying a number of combs at equal intervals. This mechanism is mounted on a suitable carriage which is attached to a tractor and made to travel in the same direction as the ground wheels. A similar action is employed for pulling as in the Crawford-Bennett Machine, combs being caused to engage the heads of the standing flax, but, in this case, the combs are caused to enter the crop from above in advance of the travelling machine. The engaged flax is drawn underneath the pulling mechanism at the slow rate of the difference



FIG. 1.—The Crawford-Bennett Flax Pulling Machine.



FIG. 2.—The Fibre Corporation Flax Pulling Machine.

between the speed of the advancing ground wheels and the backward speed of the revolving combs. This feature is a very important one as it enables the ground speed of the machine to be greater than the pulling speed of the combs. The pulled flax is delivered on the ground at the rear of the machine, being freed from the engaging pulling combs on the underside of the machine. In this case the pulled flax is left in the track of the machine, in swathes which have to be tied up and removed before the machine returns.

No injury to the flax stems could be detected after pulling by these machines, but it was noticed in each case, although more particularly with the Fibre Corporation Machine, that the flax heads were very much tangled, a fact which must render "rippling" difficult if not impossible. In both cases the heads were brought evenly together so that, depending upon the evenness in length of the straw pulled, the root ends were left at various distances in the bundle, and owing to the tangled condition of the heads it was difficult to even-up the root ends when making up into bundles.

While the trials were in progress the Crawford-Bennett Machine, by virtue of the elevation to which the pulled flax is brought, allowed the pulled straws to be tossed about in the breeze a good deal, causing a confusion of the straws in the bundle of pulled flax ultimately discharged. On the other hand, although not affected by wind disturbance, the Fibre Corporation Machine was found to be depositing the swathes of pulled straws upon flax which had not been pulled by the combs, making it difficult to lift and tie up the pulled swathes.

Generally, with the exception of the unpulled flax beneath the swathes of pulled flax already referred to in the case of the performance of the Fibre Corporation Machine, the quantity of flax left unpulled by these machines under the ideal condition of the trial was scarcely significant, being for the most part, short stems which usually fail to survive the operations culminating in scutched fibre. It is doubtful whether either machine would be able to deal with any crop if "laid" at all.

In the performance of these two machines there appears to be a very big advance towards solving the flax pulling problem, and with the prospect of further improvements before next season, one may reasonably hope that the machine pulling of flax crops will be commercially possible at no distant date.

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