

work on ploughing for the harvest of 1919. However, in practice, the 1919 programme was abandoned by the government, due mainly to a defeat in the House of Lords on the enabling legislation. The FPD began to sell off its tractor stock, beginning on 1 June 1918, when 1,000 tractors were released from the county agricultural executive committees (CAECs, or ECs for short) for sale to the public. The ECs took the opportunity to rationalise the number of tractor types they used, reducing the types to six: Titan, Overtime, Clayton & Shuttleworth (caterpillar), Saunderson, 25 hp Mogul, and the Fordson.

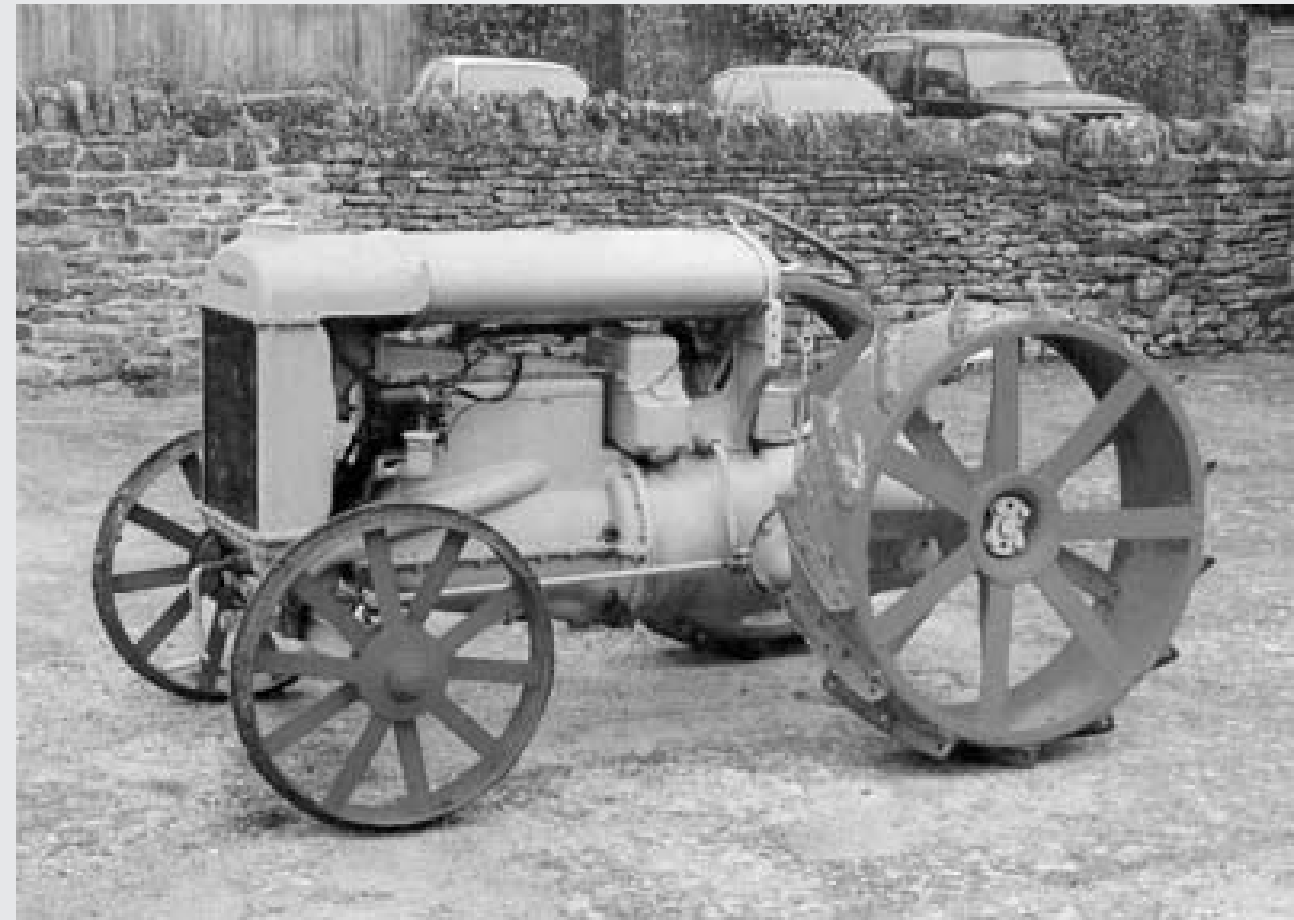
Fordson Model F tractor, 1917

The first Fordson tractor, the Model F, was a truly revolutionary design. Ford's mass production techniques, helped to make the Fordson the cheapest and best value tractor in the world when it was launched in 1917. Henry Ford wanted a small tractor which could do most farm tasks, and still be within the financial reach of the small farmer. The Fordson weighed only 2,700 lbs (1.7 tons), stood less than 5 feet high, had a wheelbase of only 63 inches, and could turn in a 21-foot circle. In a typically Ford move, the tractor was made short enough to fit sideways on a rail wagon, to minimise transport costs.

Previous tractors had been usually built with the engine and transmission resting on large longitudinal steel girders or frames. This made them heavy and unwieldy. In addition, much of the transmission and drive mechanism was exposed, leading to severe wear and tear. The Fordson had a unit construction, in which the engine, gearbox, transmission and rear wheel differential were enclosed in hollow cast-iron units, which were bolted together to form a rigid structure. This gave the tractor lightness and great bodily strength. Use of heat-treated chrome carbon steel (thought superior to the vanadium steel of the Model T car) also made for strength, and an engine design which minimised the number of parts meant that maintenance costs were low. The unit design meant that the three main components – front wheels, engine/transmission, and the rear wheels – could be brought together in a simple final production technique similar to that of the Model T car assembly line, thus cutting production costs. The four-cylinder engine was not large (3.9 litres), and only gave 20 hp, but it was sufficient for the light weight of the tractor. There were three forward gears, all enclosed in an oil bath for protection. The Fordson fulfilled Ford's idea of making a simple, affordable tractor for the 6 million US farmers. It was the agricultural counterpart to the Model T car.

The Fordson did have disadvantages. It had poor fuel efficiency, and its light weight and short wheelbase led to a tendency to tip it backwards. The starting system, which entailed starting on petrol until the engine was warmed up, and then switching over to kerosene (paraffin) was temperamental. The final drive to the rear wheels was via a worm gear, which overheated (and overheated the driver's seat), and reduced the fuel efficiency. But it was cheap, simple and inexpensive to run and maintain, and was the model for every subsequent tractor. Ford's mass-production techniques meant that it could undercut every other tractor on the market. On its launch it cost \$795, when most other tractors cost over \$2,000, and when the tractor market collapsed after 1920, Ford cut the price relentlessly. At one time in the early 1920s the farmer could buy a new Fordson for \$230, a staggeringly low price.

The late delivery of Fordsons was the main check to the success of the import programme. The other problem was the failure of the Oliver plough. This was designed for horse work in US conditions, and its breast board was short and stubby, designed to break up the light soils of North America. It was unsuitable for tractor work, since tractors went faster than horses, scattering the soil widely and breaking up the furrow slice. Attempts to modify it were made, but they do not seem to have been on a large scale, and eventually an order was placed for 6,000 special ploughs



A 1917 Fordson Model F photographed at Lamport Hall Agricultural Museum, April 2005.
(Peter Dewey)



The first Fordson Model F arriving at Trafford Park, Manchester, 1917. (*Museum of English Rural Life*)

for the Fordsons. The recipients of this order are unknown; it may account for the sharp rise in Ransomes' output, but the company accounts are silent on this point.²⁹

The revival of cultivation in 1917–18 had mixed results for the industry in Britain. There were some clear beneficiaries – Saunderson and Fowler received orders, and Ransomes also did well. But the reliance on imported tractors and other equipment reduced its impact on the industry, which in most cases remained locked into munitions contracts. Apart from tractors and their equipment, steam ploughing sets and binders, the FPD ordered only a relatively modest amount of equipment – about £1.9 million in value. The plough programme of 1917–18 came too late to affect the fortunes of the industry except in a superficial and short-term way.

Fears for the future

The boom in the years immediately before the First World War was the best ever for the industry, with its highest output level yet seen. Profits were also respectable. The post-war enquiry into the industry by the Agricultural Engineers Association analysed the 1913 financial results of 27 companies. The report considered that the firms in the survey accounted for 90 per cent of the industry, in terms of capital invested

and manufacturing capacity. The value of output (of 26 of the companies) was £5,849,140. Deducting costs of £5,249,503 left a profit of £599,637. This was enough on average to pay the preference shareholders just over 5%, and ordinary shareholders just over 7.5%. Of 26 companies, ten paid dividends of over 8%, eight paid between 5% and 8%, and eight paid nothing – so not all firms were making (or at least not distributing) high profits. But overall it was a profitable industry, at a time when inflation was about 3 per cent a year (average of 1909–13), and the Bank of England's bank rate was varying between 3 and 5 per cent (in 1909–13).³⁰

Yet there was cause for concern. It cannot have escaped the notice of the leaders of the industry that their prosperity was based very largely on the export trade. Nor would they have been immune from the increasing talk of war in the years before 1914. This was common currency in the press and in imaginative literature – perhaps most famously enshrined in the gripping novel of German invasion preparations by Erskine Childers, *The Riddle of the Sands* (1903). In the event of a major war, British trade would certainly suffer badly. Also, a large part of the exports were to the Russian empire, which was chronically unstable. There had been a full-scale revolution in 1905, which had led to a degree of parliamentary democracy being conceded by the ruling family. The agricultural system had been reformed, so that former peasants could create their own discrete farms, apart from the communally held village lands. But this had not laid revolutionary agitation to rest, nor solved the problem of intermittent famines, which threatened public order.

Finally, by 1913 it was becoming clear that the industry's products had become seriously outdated. The rapidity of the growth of the motor vehicle industry had taken British industry by surprise. The Ford Motor Company had been formed in 1903; in 1906 it produced only 8,729 cars, but that was enough to make it the largest producer in the fledgling US industry. After several early models, the Model T was produced in 1908, the car being displayed at the British Motor Show at Olympia in November of that year. By 1913 output was a staggering 168,220 Model Ts. In this context, and given the growing interest in motor tractors, the industry must have felt increasingly vulnerable. Although the only major firm positively to set its face against the internal combustion engine was Fowlers, and some had by this time diversified into civil engineering, railways, oil engines or food processing, the remainder were dependent on a market with limited potential for growth, and considerable risk of trading conditions deteriorating at short notice.³¹

Considerations such as these must have been in the backs of the minds of the leaders of the firms who contemplated mergers before 1914. Merger proposals were in the air for some years before 1914, and these were revived when war broke out in 1914. Concerned at the loss of exports at the outbreak of war, Marshalls tried to merge jointly with Clayton & Shuttleworth and with Ruston, Proctor, but this was rejected