



# Tractor trends at Trangie

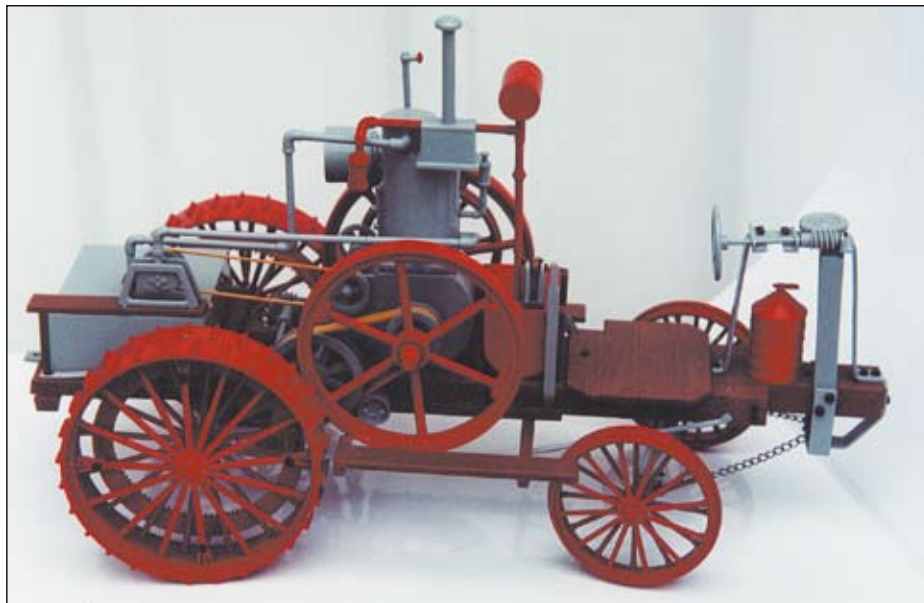
By Ian M. Johnston

**T**ractor historians are generally comfortable with the theory that John Froelich of Iowa, USA was the original inventor of the agricultural tractor. (I have evidence which disproves this assumption — but that is for another time). Certainly, in 1892 he built a contraption that was propelled by an internal combustion engine, as distinct from steam power.

Froelich's tractor weighed around seven tons. It was capable of hauling a trailed machine or implement and, importantly for the period, could power an item of farm machinery by means of an endless belt.

The engine had staggering proportions! Made by the Van Duzen Gas Engine Co. of Cincinnati, it was a single cylinder unit with a bore and stroke of no less than 14 inches and a cubic capacity of a whopping 2155 cu. inches or 35.31 litres.

Wow! That is the equivalent of around the total capacity of nine Ford Falcon ...60▷



The Froelich was powered by a massive 35.31 litre single cylinder Van Duzen petrol engine. The kinetic momentum from its 14 inch piston was so great that the cylinder had to be placed vertically. The transmission was "borrowed" from a Robinson traction engine.

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An archival photo of a 1922 Fordson Model F being driven by a Mr Lemon. Note the dangerously exposed wheel grips. Mudguards were considered an unnecessary optional extra and their absence was a good incentive for the tractorman to keep alert and not nod off on the job! Farmers around the world purchased more Fordsons than any other tractor, despite the Fordson's dangerous tendency to rear over backwards if the drawn implement encountered an immovable object such as a stump. The Fordson was the least expensive at Trangie.



Pictured is a 1923 Cletrac, part of a superb collection of rare tractors held in perpetuity by The Booleroo Steam and Traction Preservation Society of South Australia. This 12-20 Cletrac originally worked on the edge of the Nullarbor Plains, until it was discovered and restored by Ferg Innes. In the Trangie trials the Cletrac proved to be the most economical tractor.

**TABLE 1: The tractors submitted were as follows (the hp figures and costs were those stated on the day)**

<b>FORDSON 20 hp</b> with a McKay Sunshine four furrow stump-jump disc plough having an eight inch cut per disc
<b>CLETRAC 20 hp</b> crawler with a McKay Sunshine six furrow stump-jump disk plough having an eight inch cut per disc
<b>RENAULT 22 hp</b> crawler with two McKay sunshine five furrow stump-jump disc ploughs having an eight inch cut per disc
<b>JELBART 8 hp</b> with two McKay Sunshine six furrow stump-jump disc ploughs each having an eight inch cut per disc
<b>FIAT 25 hp</b> with a McKay Sunshine six furrow stump-jump disc plough having an eight inch cut per disc
<b>INTERNATONAL TITAN 10 hp</b> with a five furrow International disc plough having an eight inch cut per disc
<b>A SIX HORSE TEAM</b> with an unidentified four furrow disc plough having a six inch cut per disc

**RESULTS**

Tractor	Price	Total time	Time per acre	All up cost per acre
<b>Fordson</b>	£283	59 hours & 50 mins.	1.116 acres per hour	5 shillings & 3 pennies.
<b>Cletrac</b>	£591	54 hours & 7 mins.	1.264 acres per hour	5 shillings & 1 penny.
<b>Renault</b>	£972	53 hours & 57 mins.	1.253 acres per hour	8 shillings & 8 pennies.
<b>Jelbart</b>	£687	54 hours & 1 min.	0.973 acres per hour	5 shillings & 1 penny.
<b>Fiat</b>	£583	65 hours & 25 mins	0.888 acres per hour	9 shillings & 2 pennies.
<b>Inter. Titan</b>	£465	61 hours & 56 mins	1.069 acres per hour.	6 shillings & 9 pennies.
<b>6 horse team*</b>	£180	41 hours & 30 mins	0.807 acres per hour	4 shillings & 11 pennies

\*Only half the area worked by tractors.

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six cylinder engines. Yet the Van Duzen only developed 16 bhp or 12 kw. (The nine four litre Ford engines in total would produce around 1665 kw) Indeed in soft ground the big tractor had problems propelling **itself**, without the added burden of a trailed machine.

So if we make a 30 year mental meta-physical leap from Froelich's 1892 to 1922, we have an excellent opportunity of evaluating the efficiency of the farm tractor following three decades of development. For on September 5, 1922, a comparative demonstration of farm tractors took place at the Trangie Experimental Farm, run by the NSW Department of Agriculture.

**Trangie in 1922**

In 1922 the Western Plains district of Trangie was more noted for its pastoral activities rather than any claim to fame for its arable farming. It seems likely therefore that the purpose of the trials was to explore the possible future of broadacre grain farming in areas of relatively low rainfall.

The horse still reigned supreme on Australian farms and would continue to do so until the 1940s. But in 1922 the number of farmers investing in these early clanking tractors was increasing.

They were prepared to wear the continuing frustrations of temperamental engines, shoulder-wrenching steering and ear shattering noise, in favour of the long hours and drudgery of operating a team of horses .

At the end of the job the tractor merely



The Renault GP/HI crawler was the most expensive tractor at Trangie. Derived from a World War One tank, this French crawler was a very capable unit with a drawbar pull well in excess of what might be expected with regard to its size. Notice from the text that at Trangie it pulled two ploughs in tandem. This example is part of the Victorian Redhill Museum collection.



The Jelbart was the sole Australian tractor to be put through its paces at Trangie and the only single cylinder tractor to compete. It was described as being of eight horse power, which was possibly correct, being dependant on the governed rpm. Remarkably it ploughed the most acres per hour. The Jelbart pictured was seen at the 1997 Ausplough, and is part of the Cunnington collection.



The big Fiat ploughed the least acres of any tractor at Trangie and was the most expensive to operate. It experienced considerable wheel slippage in the dry sandy section, which is surprising considering its weight advantage (under the circumstances) and the fact that the driving wheels were fitted with special angled soft soil grips. Bob Lukins is the proud owner of this excellent example.



This International Titan 10-20 was photographed at "Plough and Be Counted 2". Although costing half as much again as the Fordson, its performance at Trangie, in 1922 could not match that of the cheaper machine. During the test the two cylinder Titan went through 310 gallons of cooling water in 61 hours and 56 minutes!

had to be parked in the shed and forgotten, whilst the horses required feeding and looking after — 365 days a year. (Admittedly a tractor could not reproduce itself!)

Following a season of little rain, the land around Trangie in 1922 was unyielding and presented a challenge to any manufacturer bold enough to submit a working tractor to the scrutiny of a public display.

The nature of the soil at the experimental farm varied in texture, so in the interest of fairness two blocks were set aside. Each of the six tractors had to plough 66 acres of each block and lots were drawn for positions. A half size area was allotted to a six horse team so that comparisons could be drawn (Table 1).

It is interesting to contemplate how these 1922 tractors compared with Froelich's contraption, following a period of 30

years of tractor evolution. It could justifiably be argued that by 1922 the development of the farm tractor had nearly reached the half way mark.

By 1962 (another 40 years down the evolutionary track) tractors had become of

age and differed only marginally from today's modern machines.

Certainly the record of the Trangie Trials presents us with a fascinating glimpse into the performance of these 1922 tractors.

## IAN'S MYSTERY TRACTOR QUIZ

**QUESTION:** Can you identify this ultra rare tractor?

**CLUE:** It is a "Colonial" tractor, none of which ever came to Oz. Note the wooden frame!

**DEGREE OF DIFFICULTY:** Perhaps not as hard as you may first think, as it represented a tractor evolutionary milestone for its country of origin and as such, is well known to tractor historians.

**ANSWER:** See page 64.

