

Seven 100 series tractors put to the test

TOP AGRAR
TRACTOR
TEST



100-series tractors are compact, affordable and available in many versions, just like our seven test tractors. The companies were free to choose the extra features they fitted; our only requirement was a total cost of no more than EUR 75,000.

The minimum required features are a front loader, 4WD, and 100 hp. The price limit is EUR 75,000 net. Everything else was left for the manufacturers themselves to decide. When we came up with the idea behind this year's tractor test, we had in mind a family-run livestock holding, which was looking to buy a front loader tractor and could not exceed this budget. The main questions we asked related to the number of extra features offered within this budget, and how the tractors compared to one another.

It was a different approach to our normal tests, where we simply specify a performance class, as well as a transmission sometimes, and ask the companies to Maschinen möglichst komplett bring their tractors to the starting line with as

many features as possible, so that we can get a good idea of their technical potential. Customers can then trim down the specs to their own requirements. What this means, however, is that the price differences between the individual tractors can sometimes be huge, with the cheapest competing against models which may cost up to EUR 20,000 more.

This time we decided it was time for a change — all of the tractors cost roughly the same. Seven companies took part:

- Case IH Farmall 95 U Pro
- Deutz-Fahr 5100 C
- John Deere 6090 RC
- Kubota M 9960
- McCormick X 5.30



Photograph: Hbner

Our test series



- **This issue:**
all the test results and scores; test reports for Case IH and Deutz-Fahr
- Issue 1/2015:
Transport trips and test reports for John Deere, Kubota, McCormick, New Holland and Valtra
- Issue 2/2015:
Front loaders: all the test results and our first-hand impressions

- New Holland T5.95 DualCommand
- Valtra N 93

Claas, MF and Fendt chose not to take part, either because they don't offer a suitable model or because the price constraints were too onerous. We didn't stipulate any

requirements in terms of the front loader, apart from hydraulic device control. As you'd expect, the manufacturers favoured their in-house brands, and so three Stoll loaders (on the Case IH, Deutz-Fahr and New Holland tractors) competed against Alö, John Deere, Kubota and Manip.

An August start: We were keen to see which extras features would be fitted on the seven models when our test kicked off in August. The differences were quite pronounced; in some cases, EUR 75,000 only gets you an almost bare tractor with no air conditioning. Other manufacturers managed to supply fully equipped models. Overview 1 summarises the test configurations of the tractors.

Two factors are relevant in this regard: firstly, what can the manufacturer offer and for how much? Secondly, how well has the product manager managed the budget? This is a true-to-life situation, since some dealers are good at piecing together the perfect configuration and pushing a customer's money to the very limit, while others go to less effort.

Our test scores were therefore based not only on technical capability (engine, consumption, hydraulics etc.), but also on the tractors' features and how they performed during our practical tests.



Find out more at www.topagrar.com/hunderter, where you can watch a video, read all the test results, examine the engine plans and view plenty of detailed images for each of the tractors.

Agricultural technology

Some of our manufacturers therefore took a strategic approach to fitting out their tractors, preferring to do without an air-conditioning system in order to install a more convenient transmission.

Net list prices are quoted for September 2014; the market prices of the tractors would probably be between 15 and 30% cheaper, i.e. between EUR 52,500 and 64,000 (excl. VAT). We ignored any air braking systems installed on the tractors, since plenty of 100 series machines are still sold without them in view of the price sensitivity of this performance class. They normally attract an additional charge of between EUR 3000 and EUR 3500.

This year we carried out all the measurements ourselves. In some cases, we decided on reading points that differed from the OECD standard so that we were better able to compare the tractors within the group.

An expert from Deula Westfalen-Lippe was on hand to help us measure performance, torque and consumption, as well as a Maha-manufactured PTO dynamometer. Overview 2 summarises the key results.

The practical tests with a Lemken 4-furrow plough and cultivator and a Lely rotary harrow were carried out in late August/early September on a farm in Nordwalde, Germany, owned by the Sanderink family. We carried out the road tests








at the same time, covering a circular route of 50 twice with a loaded Fliegl push-off spreader (weighing around 11 t).

In this issue, you can view the key results and read summaries of our test findings — keep reading for test reports on the first two tractors.

In our next issue, we'll present the results of our transport tests as well as the remaining five test reports. In the 02/2015 issue, you'll be able to find out how the tractors handled the front loading tasks.

Guido Höner

Overview 1: All of the test configurations and front loaders at a glance

Manufacturer Test candidate	Case IH Farmall 95 U Pro	Deutz-Fahr 5100 C	John Deere 6090RC PowrQuad	Kubota M9960	McCormick X5.30 PowerPlus	New Holland T 5.95 Dual- Command	Valtra N93 HiTech 5
							
Rated power in kW/hp	73/99	70/95	74/100	78/106	75/102	73/99	70/95
Gear ratios F/R	32/32	30/30	24/24	36/36	36/12	24/24	20/20
Powershift levels	4	3	4	2	3 (forward only)	2	5
Automatic gearshifts	Yes	–	–	–	–	–	Yes
Forward/reverse power shuttle	Electric	Electric	Electric	Hydraulic	Electric	Electric	Electric
Number of PTO ratios	540/540E/ 1000/1000E	540/540E/ 1000/1000E	540/1000	540/540E	540/540E/ 1000	540/540E/ 1000	540/1000
Hydraulic pump	Tooth gear	Tooth gear	Axial piston	Tooth gear	Tooth gear	Tooth gear	Tooth gear
Hydraulic pump nominal power Litre/min.	60	55	80	65	63	84	90
Number of additional rear control boxes	2	3	2	3	2	2	2
Electronic hitch control	Yes	Yes	Yes	Mechanical	Yes	Yes	Yes
Automatic hitch hook	–	Yes	Yes	Yes	Yes	Yes	Yes
Front hydraulics	–	Yes	–	–	–	–	–
Air conditioning	–	–	–	Yes	Yes	Yes	Yes
Passenger seat	Yes	–	–	–	Yes	Yes	Yes
Glass roof hatch	Yes	Yes	Yes	–	Yes	Yes	–
Front tyres	480/65 R 24	380/70 R 28	380/85 R 24	360/70 R 24	440/65 R 24	420/70 R 24	380/85 R 24
Rear tyres	540/65 R 38	480/70 R 38	460/85 R 38	480/70 R 34	540/65 R 34	520/70 R 34	460/85 R 34
Tyre manufacturer	Continental	Trelleborg	Firestone	Kleber	Michelin	Trelleborg	Continental
Front loader configuration							
Loader manufacturer	Stoll	Stoll	John Deere	Kubota	Manip	Stoll	Alö
Parallel guide	Mechanical	Mechanical	Mechanical	Hydraulic	Mechanical	Mechanical	Mechanical
Hydraulic quick-release coupler	Yes	–	–	Yes	Yes	Yes	–
Hydraulic vibration damping	Yes	–	–	Yes	Yes	Yes	Yes
Hydraulic attachment locking	–	–	–	–	Yes	–	–
Third function (changeover valve)	Yes	–	Yes	Yes	Yes	–	Yes
Joystick	Mechanical	Mechanical	Mechanical	Mechanical	Mechanical	Electronic	Mechanical
Special functions/added extras (tractor or front loader)	Device memory	Rapid steering	Fixed K80 ball	–	–	–	–
List price for test configuration, in EUR*	74,776	75,050	74,347	62,063	70,331	75,082	75,144

*Manufacturer's details according to price list, incl. front loader, without air braking system, excl. VAT.

The overview summarises the key configuration features and list prices of the different models.

Huge differences in consumption

We asked manufacturers to supply tractors with a rated power of 100 hp to be tested, and we wanted to know how much of that power reaches the PTO dynamometer.



Photograph: Höbner

The Maha PTO dynamometer gave us the figures we needed for torque, power and consumption, with an expert from Deula Westfalen Lippe providing a helping hand.

There's a huge number of different ways to measure power in practice, and so we decided to use the value given in the vehicle registration documents, with tolerances set at around ± 5 hp.

None of the tractors we tested this time used AdBlue, unlike the larger tractors in our previous tests. All of the models featured EGR and DOC systems, and in some cases a diesel particulate filter, in order to meet the relevant requirements. It's worth noting that overall consumption is not noticeably affected by filter regeneration according to tests carried out by DLG.

Common rails all round: The engines of all the tractors were fairly similar in design, featuring a common rail system, turbocharger and intercooler. The three-cylinder Agco-Power engine fitted in the Valtra was the only non-four-cylinder model. Engine displacement figures ranged from 3.3 l (Valtra) to 4.5 l (John Deere). The Case IH and New Holland FPT engines featured the same hardware, and the McCormick engine, which was the result of a collaboration between Perkins and FPT, was also pretty much identical. The other tractors took to the starting line with a variety of engines.

The Maha PTO dynamometer told us everything we needed to know about torque, speed and consumption. Power can be simply stated in kW and hp (the latter being used more often in practice), but consumption is somewhat trickier,

and so the first figure we give for specific consumption is in g/kWh and describes the engine efficiency.

We didn't carry out the normal OECD tests for rated speed at the PTO, because they are irrelevant in most practical situations — many rated speeds now lie outside the scope of everyday use, not least because of the new exhaust standards. We were only interested in the tractors' maximum power and specific consumption — the similarity between the test candidates was astonishing in this respect. The John Deere performed best at 67 kW/91 hp, but the Deutz-Fahr—the "baby" of the test—achieved a score of only 4 kW/5 hp less.

All of the tractors achieved their maximum power at speeds of between 1800 and 1900 rpm, with the exception of the Kubota (almost 2400 rpm). This is directly reflected in the consumption figures, with the Kubota consuming 293 g/kWh at max power, which is almost 8% more than the average of 272 g/kWh.

We were particularly surprised to see that the three-cylinder Valtra consumed 3 g/kWh more than the Kubota at maximum power, even though it should really be more economical than the others, as it has one less cylinder.

The McCormick, New Holland, and Case IH FPT engines proved least fuel-hungry. As our top performer, the New Holland consumed 6% less than average at maximum power and over 14% less than the most fuel-hungry tractor.

We were also keen to identify the optimum consumption for the different engines, in order to find out whether it's still true that lower speeds are more economical, and how much power you have left over to play with at these speeds.

Revving it down: The McCormick delivered the most efficient consumption figure of 242 g/kWh at the very low speed of 1150 rpm, with only 44 kW/59 hp left of its maximum power of 67 kW/91 hp. The Case IH engine does a slightly better job in this respect, with an optimum consumption of 247 g/kWh delivered at 1570 rpm and 62 kW/84 hp by the St. Valentin-manufactured tractor.

The Valtra drops to a speed of below 1100 rpm at peak consumption, but consumes a massive 10% more than the average for this class. Kubota drivers would be well-advised to forget everything they've learned previously about low speeds — the tractor reached its peak efficiency (which was still 8.5% higher than the group average) at a speed of over 1900 rpm.

The John Deere and McCormick tractors were the only ones with a boost feature; we initially carried out all the measurements with the boost switched on, but also repeated them in boost-off mode for the sake of comparison. The non-boost values are shown in brackets in Overview 2. The difference between the two was relatively small; John Deere's "IPM" boost feature only added 6 kW to the dynamometer readings, and the McCormick boost added only 2 kW.

We accelerated the tractors to four partial load points with the dynamometer attached:

- Approx. 80% maximum power, 80–90% rated speed
- Approx. 40% maximum power, 80–90% rated speed
- Approx. 40% maximum power, half speed
- Approx. 60% maximum power, half speed

Taken alongside the maximum power scores, these partial load points give an idea of the tractor's average consumption, which is more representative of day-to-day operations than its performance at full power. The FPT engines carried the day yet again:

FPT engines: The McCormick was most economical (267 g/kWh, 8% below average), closely followed by the New Holland and the Case IH. The Kubota proved less keen on partial load tasks at low speeds, with an average specific consumption that was 19% higher than the other tractors.

However, these values don't tell us all that much about the engine power, since the Kubota turned out to be a real trooper in all the different disciplines.

Overview 2 also includes extrapolated marks for standard tasks carried out with the same power in order to lend some meaning to the otherwise abstract specific consumption values. This wasn't too difficult, because the test tractors we compared had very similar engine performances.

It's likely that the test scores for "Ploughing" and "Transport" would be higher in practice, however, since we based them on our PTO measurements instead of actual traction. The scope of our tests did not cover direct comparisons of the various transmissions in terms of their efficiency, but it's a safe bet that they're reasonably similar.

Purchase decisions in this class of tractors are not driven solely by consumption, which is much more of a factor when it comes to large tractors expected to handle heavy workloads. Nevertheless, our calculations revealed that the difference in diesel consumption between the most and least fuel-hungry tractors was approximately EUR 2.50 per hour, which would add up to EUR 1250 per year if the tractor put in 500 hours of work.

Our test panel

As usual, top agrar cooperated with three other European industry journals to carry out the tests: La France Agricole (France), Farmers Weekly (United Kingdom) and Boerderij (the Netherlands). We're also grateful for the assistance provided by Dr Norbert Upenkamp, the North Rhine-Westphalia Chamber of Agriculture and Georg Budde (Farmer).

All of our testers have an agricultural background, either as contractors or farm staff. Engine measurements were supervised by Sebastian Maimann, a qualified agricultural mechanic from Deula Westfalen Lippe.

Better gears for a better drive

All of the tractors which took to the starting line had a powershift power shuttle, which, in our opinion, is indispensable for front loader tasks.



Photographs: Höner

We tested the transmissions out on the field, on the 50-km road circuit and during the front loader tasks.

The Kubota was the only tractor we tested with a direct hydraulic power shuttle (instead of an electrohydraulic reversing lever like the others). There didn't seem to be any significant disadvantages to the Kubota approach during our practical trials — both methods allowed the driver to remain firmly in control while accelerating the tractor in the opposite direction. The good thing about electrohydraulic systems is that (in some cases) they allow the aggression of the power shuttle to be adjusted, and the Deutz-Fahr and McCormick tractors offered highly functional solutions in this respect.

Each transmission we tested featured powershift levels, ranging from two in the Kubota and New Holland right the way up to five in the Valtra. Case IH and Valtra even managed to squeeze an auto mode into the test budget (for four and five powershift levels respectively), but we don't think it's a must-have. However, what we learned out on the field, particularly during the front loader tasks, was that three or more powershift levels are a great asset.

Tractors in this performance class often have to handle PTO tasks, although the requirements of these tasks can vary a great deal (e.g. rotary harrow, tedder or fertiliser spreader). That's why at least one economy PTO (540 E) should be fitted. The Case IH and the Deutz-Fahr feature four PTO speeds

as standard, whereas the Valtra and the Kubota are limited to a maximum of two.

It goes without saying that driver comfort also came in for close scrutiny during the tests; we were particularly interested in how easy it was to get in and out of these tractors given that the tractors are likely to perform a large number of different tasks around the farm. We were also looking for doors that did not project too far when open: The McCormick swung out a massive 70 cm compared to a mere 38 cm in the case of the John Deere. This had nothing to do with space, since the narrowest point of entry was the same for both (46 cm).

A great view: Good all-round visibility is vital when using a front loader. All of the tractors bar the Kubota and the Valtra featured a glass roof hatch. When paired with a high windscreen design and a narrow cross member, this ensures an optimum view of the raised loader.

Case IH, Deutz-Fahr and John Deere decided to do without the optional air conditioning system due to budget constraints — a choice that might make sense if we were talking about a simple farmyard tractor, but a huge disadvantage in an all-rounder. The large glass windows mean that air conditioning is quite simply a must, particularly if the tractor is regularly used for ploughing or forage harvesting tasks.

Pumping and lifting

When it came to the hydraulics, we were interested in the volume of oil delivered at one connection and the lift capacity.

The John Deere was the only model with an axial piston pump, and it showed: We measured up to 97 l of oil per minute through the connection, which placed it top of the group. The Case IH had not been fitted with the optional load sensing pump, which was a shame as it only costs an extra EUR 285.

The Deutz-Fahr took bottom place with a figure of 60 l/min. We only measured the flow of oil at one connection, with the engine running at top speed, in order to reflect real-life conditions as accurately as possible.

We were keen to compare the lift capacity of all the tractors we tested on a level playing field, and so we set all the lower links to a uniform height of 30 cm and identified the tractor with the lowest lift

We set all the tractors to work for several hours with the Lemken 4-furrow plough.



height (Kubota). Our three measurement points (which were the same for all of the tractors tested) were then located at the bottom/middle/top of this lifting range. Rather than the more scientifically correct daN, the results given in the table are in tonnes (1 t = approx. 1000 daN) since this is more common in practice.

The lift capacity is meant to increase in the upper range, since the power lift needs to pull the attachment up above the upper links. The winner in this respect was the

Valtra, delivering 5.2 t (average = 4.7) over almost the entire range. At 4.4 t, the Kubota lifts 600 kg less than the average, but the compact Japanese model was more than equal to the challenge of pulling the 4-furrow plough we used in the test.

Where the Kubota really excels is its 3.3-t payload, which is due to a relatively low unladen weight. The Case IH's permitted payload falls far short of this figure, at only 2.6 t — the lowest of all the tractors we compared.

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Predecessors and series specs of our test tractors



Case IH Farmall 95 U Pro: The Farmall U series is generally very similar to the New Holland T5, which we also

tested. With the exception of the FPT engines and the cab frame, however, the St. Valentin-manufactured U Pro series was very different: The transmission and the rear axle are supplied by ZF and the hydraulics by Bosch, although the Steyr multicontroller is almost identical. The direct predecessor of the series is the CS Pro — the last tractor to be manufactured in St. Valentin with a Sisu engine.

The specs for the three models in the series range from 73 kW/99 hp to 84 kW/114 hp, with four powershift levels, four PTO speeds and a multicontroller fitted as standard. There are also extensive customisation options.



Deutz-Fahr 5100C: The 5 series is particularly extensive. The entry models 5D and 5G with SDF engines are

intended as replacements for the Agroplus and Agrofarm. As well as the 5C compact-cab tractor we tested, the 5TTV with CVT and 5P with a larger cab are also available (since mid-2014). All of the tractors in the 5 series from the 5C model onwards have Deutz engines.

The 5C models are manufactured in Treviglio, Italy, and correspond to the Same Virtus J or the Lamborghini Nitro R, with four models ranging from 65 kW/89 hp to 87 kW/118 hp (maximum power).

Four PTO speeds are fitted as standard. Three power shuttle options are available: zero, two or three powershift levels (we tested the latter). Speed matching and automatic gear shifts are only available in the more expensive P-series models.



John Deere 6090RC: These tractors are a cross between the previous 5R series and the smaller 6030 models. The 6MC and 6RC configurations both have the cabs of the 5 series and the chassis of the 6030 series. Both feature three models ranging from 66 kW/90 hp to 81 kW/110 hp.

The RC configurations have more added features than the MCs.

John Deere provides PowrQuad Plus power shuttles with either 16/16 or 24/24 gears (as tested) for both series.

The RC can also be fitted with optional AutoQuad Plus auto powershifts, and load-sensing hydraulics are fitted as standard. Three PTO speeds and a suspended front axle are also available.



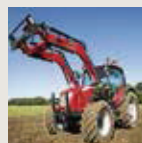
Kubota M9960:

The M60 series was launched in 2012, and includes four models ranging from 49 kW/66 hp

to 78 kW/106 hp. The tractors are fitted with four-cylinder Kubota engines with an engine displacement of 3.8 l. Our test tractor is the largest model in the series. Kubota wanted to send along its larger M 110 GX, but its rated power of 85 kW/116 hp exceeded our 100 hp limit.

Relatively few extra features are available, and the only transmission on offer has three groups, six gears, and only two powershift levels. Customers also have no choice when it comes to the hydraulic power shuttle and the mechanical hitch regulation.

Kubota is well known for its product depth, and most of the components are produced in-house. The test configuration came in EUR 13,000 below our price limit.



McCormick X5.30 PowerPlus:

The tractor we tested was a pre-production model, intended to replace the

predecessor T-Max and X50 models. Just like Landini, McCormick belongs to the Argo Group, and the 5 series tractor we tested resembled a Landini painted blue.

The X5 series encompasses four models ranging from 63 kW/85 hp to 83 kW/113 hp. The 3.4-l Perkins four-cylinder has been jointly developed with FPT, and Argo manufactures the power shuttle itself. Various configurations are available; the top-of-the-range version that we tested has three groups, four gears, and three powershift levels, in forwards gears. Two or (optionally) three PTO speeds are available (540/540E/1000). A Bosch EHR system is fitted as standard.



New Holland T5.95 DualCommand: The T5 was launched in 2012 as the successor to the TL-A and T5000 series.

Only the engine and the cab frame are the same as the Case IH we tested; the two tractors were very different in most other respects. New Holland offers three T5 models ranging between 73 kW/99 hp and 84 kW/114 hp. The T5.95 is the smallest model. New Holland also offers the T4.95 and TD5.95 in this performance class, with various configuration options.

There are three versions of the T5.95 transmission: Powershuttle with hydraulic power shuttle (12/12), the DualCommand with two powershift levels (24/24) that we tested and the ElectroCommand with four powershift levels (16/16).



Valtra N93 HiTech 5: The second of the numbers in this tractor's name reveals that it represents the third

generation of Valtra's N-series. The N93 was launched in 2012, with a three-cylinder engine manufactured by Agco Power (previously Sisu). Its wheelbase is around 15 cm shorter than the four-cylinder N-tractors, which, together with the short bonnet, makes for a manoeuvrable tractor with a clear, functional design. Different axles are used in the three and four-cylinder models.

Valtra offers two transmission versions for its three-cylinder engines: the HiTech 3 with three groups, four gears, and three powershift levels (36/36) or the HiTech 5 which we tested, with four electrohydraulic gears and five powershift levels (20/20) plus auto mode. The optional TwinTrac reverse drive unit can be factory-fitted, as is the case for all Valtras from the N series onwards.

On the next double page, we summarise our findings and the test scores, followed by the first two test reports.

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L	080363
XL	080364

Navy	
Size	Item number
XS	080365
S	080366
M	080367
L	080368
XL	080369



Men's hoodie

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All of the test results at a glance

Read on for a summary of our scores and the test results.

- **Case IH Farmall U 95 Pro:** Great engine, convenient transmission and interesting extras such as LED headlights. A few points were lost due to the lack of air conditioning and low payload, but these were more than balanced out by features such as four powershifts, four PTO gear ratios including an auto mode, speed presets and auto 4WD/diff. lock, all of which made it one of our test winners.

Final score: 2.23

- **Deutz-Fahr 5100 C:** A well-designed tractor with a sound engine and transmission (three powershifts), but no air conditioning in the model supplied for our test. We found the drive line somewhat sluggish. The 5100 C boasts some attractive features, such as rapid steering, four PTO gear ratios, and the front hydraulics, all of which were included in the budget. It scored better than average in most of our measurements.

Final mark: 2.60

- **John Deere 6090 RC PowrQuad:** A powerful tractor with impressive craftsmanship and a time-tested transmission with four powershifts. The test budget didn't allow for many extras — not even air conditioning. Tall drivers will notice the lack of leg room. The engine measurements were rather better than average, and the hydraulics system



Photograph: Höner

All seven tractors had to prove their mettle both in the field and on the road.

delivered an impressive performance. An honest and solid tractor, with no hidden surprises.

Final score: 2.55

- **Kubota M 9960:** Despite being the smallest of all the tractors we compared, the Kubota valiantly battled through all of the practical tasks. It's a shame that the engine is so fuel-hungry, and the hydraulic measurements were also below average. Its greatest plus point is its price: It came in at no less than EUR 13,000 under budget, despite being fitted out with almost all of the available extras! Together with the three-year manufacturer's warranty, this

makes it a very attractive option for small farms.

Final score: 3.43

- **McCormick X5.30 PowerPlus:** The McCormick's strengths lie in its highly efficient engine and clear, well-designed cab and controls. The transmission has three (forward-only) powershifts. Both the hydraulic performance and the PTO equipment were up to scratch, but the optional hydraulic features were somewhat limited. On balance — a good tractor, which held its own against the rest of the group.

Final score: 2.67

- **New Holland T5.95 DualCommand:** Its main plus point is its economical FPT engine. The transmission features 24/24 gears, but only two powershifts. The T5.95 is a robust and easy-to-handle tractor, but it lacks added features. It does, however, have an efficient air-conditioning system. We'd have preferred a more comfortable transmission to the rather unresponsive electrohydraulic front loader controls, but this is a good choice for mixed holdings.

Final score: 2.60

- **Valtra N93 HiTech 5:** Lots of tractor for your money! The Valtra appears bigger than it really is, mainly due to its spacious cab. The transmission is extremely comfortable, with five powershifts and an auto mode. The N93 also impressed us with its good hydraulic performance and comfortable driving conditions. Its main failing was the high consumption values clocked up by the lively three-cylinder engine — the Valtra would have been one of our winners otherwise.

Final score: 2.28

Overview 2: How the teams rated our test tractors

	Case IH Farmall 95 U Pro	Deutz-Fahr 5100C	John Deere 6090RC	Kubota M9960	McCormick X5.30	New Holland T 5.95 DualCom	Valtra N93	Factor
Craftsmanship	2.5	3	1.5	3	3	2.5	2.5	2
Cab/operating controls	2.5	2.5	3	3.5	3	2.5	2	4
Engine	1	2.5	2.5	3.5	1	1	3.5	3
Transmission/shuttle	2	3	2.5	3.5	3	3.5	1.5	3
Rear power lift	2.5	3	2.5	4	2	3	1.5	2
Hydraulics	3	3.5	2	3	3.5	2.5	2	3
PTO	1.5	2	3.5	4	3	2.5	3.5	2
4WD/diff. lock	2	3	3.5	4	3.5	3.5	2.5	1
Handling	2	2	2.5	3	3	3	2	4
Front loader operation	2.5	2	2.5	3.5	2	2.5	2.5	4
Driver comfort	3	3	2.5	3.5	3	3	2	2
Weighted total	2.23	2.60	2.55	3.43	2.67	2.60	2.28	

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Marks were awarded separately by the teams and then averaged.

Overview 3: The key scores for the tractors we tested

Manufacturer model tested		Case IH Farmall 95 U Pro	Deutz-Fahr 5100C	John Deere 6090RC	Kubota M9960	McCormick X5.30	New Holland T 5.95	Valtra N93	Average
Rated power	kW/hp	73/99	70/95	74/100	78/106	75/102	73/99	70/95	73/99
Engine displacement	l	3.4	3.6	4.5	3.8	3.4	3.4	3.3	3.6
PTO power and fuel consumption (measured with boost where available; figures in brackets show results without boost)									
Maximum power	kW/hp	66/89	63/85	67/91 (61/82)	66/90	67/91 (65/88)	65/89	66/90	89
Engine speed at max. power	rpm	1 849	1 774	1 865	2 379	1 920	1 912	1 865	1 938
Consumption at max. power	g/kWh	261	270	266 (275)	293	260 (257)	256	296	272
Most efficient consumption	g/kWh	247	251	255 (255)	279	242 (242)	245	283	257
Speed at most efficient consumption	rpm	1 571	1 378	1 178 (1275)	1 934	1 151 (1436)	1 336	1 077	1 375
Power at most efficient consumption	kW/hp	62/84	50/68	44/60 (47/64)	60/82	44/59 (55/75)	51/69	44/60	51/69
Average consumption across five different engine speeds, including partial load	g/kWh	270	282	287	346	267	272	313	291
Fuel consumption during everyday farm work									
At 70 hp (high power)	l/h	15.2	15.9	16.2	17.7	15.3	15.8	17.9	16.3
At 35 hp and high engine speed	l/h	9.1	9.7	10.1	12.8	9.0	9.3	10.9	10.1
At 35 hp and half throttle	l/h	8.4	8.6	8.8	11.8	8.1	8.2	9.6	9.1
At 52 hp and half throttle	l/h	11.1	11.7	11.9	14.3	11.0	11.3	12.6	12.0
Ploughing (70% heavy, 30% light)	l/h	13.1	13.7	14.0	15.9	13.2	13.5	15.4	14.1
Transport (60% heavy, 40% light; high speed)	l/h	12.7	13.4	13.7	15.7	12.8	13.2	15.1	13.8
Noise at top speed	dB	73.6	73.3	71.3	76.9	71.7	72.4	68.1	72.5
Noise with PTO running	dB	75.4	76.0	73.1	81.8	74.1	74.9	72.4	75.4
Hydraulics and hitch values									
Maximum oil flow at 1 control box	l/min	65	60	97	69	66	84	93	76
Return pressure	bar	12	12	27	14	21	20	32	20
Maximum oil pressure	bar	178	200	203	201	180	185	200	192
Removable oil volume	l	33	20 (25)	15 (25)	20	25	26	35	25
Lift capacity at bottom/middle/top position ¹⁾	t	4,3/4,6/4.7	3,9/4,7 / 5.3	3,8/5,1/ 5.4	4,6/4,5/ 4.2	4,3/4,9/ 5.1	5,0/4,8/ 4.4	5,3/5,3/ 5.1	4,5/4,8/ 4.9
Average lift capacity ¹⁾	t	4.6	4.6	4.8	4.4	4.7	4.8	5.2	4.7
Maximum lift height	cm	72	67	62	59	73	63	66	66
Weights and dimensions									
Total weight with front loader	kg	5 340	5 200	5 750	4 050	4 980	5 200	5 640	5 166
Front loader weight	kg	480	470	610	520	620	470	580	536
Weight without loader	kg	4 860	4 730	5 140	3 530	4 360	4 730	5 060	4 630
Permissible front axle load	kg	3 300	3 000	3 700	3 000	3 300	3 300	3 100	3 200
Permissible rear axle load	kg	5 000	5 000	6 000	5 460	4 500	4 600	6 000	5 223
Total permissible weight	kg	7 500	7 500	7 900	6 800	7 500	7 400	8 000	7 486
Payload	kg	2 640	2 770	2 760	3 270	3 140	2 670	2 940	2 884
Length/width/height ²⁾	cm	417/235/268	429/225/278	428/228/278	400/212/263	422/211/262	418/221/270	438/224/282	422/222/271
Ground clearance		40	44	45	44	43	43	42	43,00
Platform height	cm	115	110	120	106	106,5	115,5	111	112
Length x width of cab at shoulder height	cm	145 x 148	145 x 142	138 x 147	139 x 128	147 x 146	146 x 148	163 x 139	146 x 143
Projection of open door	cm	40	55	38	49	70	40	44	48
Wheelbase	cm	242	237	240	225	232	235	252	238
Turning circle, average right/left	m	10.6	10.6	10.5	8.8	10.8	10.0	10.2	10.2

1) Jacked up; uniform rear bore hole, coupling hook 30 cm above the ground; three (identical) readings Converted from daN to t

2) Overall, without loader or wing mirrors