Kleinschlepper finden nicht nur auf einem Pferdebetrieb universelle Einsatzmöglichkeiten.

Iseki, John Deere, Kioti, Kubota, New Holland und Sonalika:

Six small ones in a big comparison

The power range around 50 hp plays a major role in the annual registration figures. We compared six models in this power class.

There is a wide range of small power units around 50 hp.
Not only farmers, but also, for example, horse owners and hobby invest in this technology. Mostly equipped with a front loader, the little rascals have to be able to do everything on the farm. The test results of the front loaders and the details of the individual models will be presented in the next issue. For now, we will look at the performance data of the small platform tractors.

Exhaust stage V without AdBlue

All tractors were equipped according to the current exhaust emission standard and comply with exhaust emission stage V with diesel particle filter. Iseki, John Deere and Kubota use four-cylinder engines. Kioti, New Holland and Sonalika equip the small tractors with three-cylinder engines. With 3 litres, the Solis 50 has the largest displacement. It should be said that the Solis does not fit perfectly into the test group. Although the tractor also has 50 hp, it has an own engine.

GOOD TO KNOW

The engines differ only slightly in terms of performance, yet consumption in practice is very different.

When it comes to the transmission, some offer a choice: hydrostat or shifter.

The oil production of the small tugs are considerable.

With a weight of 3290 kg, it is almost twice as heavy as the Boomer 50 from New Holland, which only weighs 1860 kg. That is why we have given the Solis' figures in grey instead of black in the table on page 18.
With the smallest displacement of 1.83 l the Kioti DK5020-HS gets by. Compared to the heavier Solis, however, the Kioti is much livelier and more agile at the throttle.
The John Deere 4052M has a capacity of around 2 litres.
4052M with a Yanmar engine. New Holland has the Boomer 50 manufactured in South Korea. It has a 1.88 l engine from LS.
The Kubota and Iseki use factory-built engines with 2.43 l displacement.
Of course, we wanted to know what the small power packs can do and had the Deula Warendorf measure the power take-off (box: "This is how we measured").
We have summarised all the results in the table "Comparison of technical data, measured values and prices" and in the graphs "Comparison of maximum power", "Comparison of torque" and "Comparison of diesel consumption".

Close together

According to the manufacturer, the engine power at rated speed ranged from 50 hp for the Solis to 55 hp for the Iseki. The Solis 50 was able to deliver the highest power at the brake with a maximum of 34.7 kW/48 hp, followed by Kioti and New Holland with 32.5 kW/44.5 hp.
John Deere brings up the rear with 30.6 kW/42 hp, but is hardly inferior to Solis despite 6 hp less. In practice, it is not only the last horsepower that counts with these tractors, but also the handling and engine/gearbox tuning.
- more about that later.
The Solis and the Kioti are the most economical models at full power. Kubota and New Holland are in the middle, while John Deere's Yanmar engine is the thirstiest, especially at low revs.
rev range.
With up to 56 | diesel, the John Deere has a large tank, which unfortunately only has an indicator directly on the fuel filler cap. Only 40 | fit into the tank of the New Holland, while the Solis can even fill up with 72 litres.
The measured values are one thing, practice is another. Despite its good performance data, the Solis seems rather sluggish. This is certainly due to its high weight. In addition, the engine runs very hard compared to the other models.
The test candidates from Kioti and John Deere seem much livelier, and with 139 and 122% respectively, they also have the highest starting torques. Kubota also offers
In practice, the four-cylinder engine runs very smoothly, just like the one in the Iseki (but with only 111% starting torque).
starting torque) runs very smoothly.

SO WE HAVE MEASURED

Richard Poppen-borg from Deula Warendorf carried out the PTO and consumption measurements with the ZW 500 eddy current brake.
and the AIC Fuel Flow Master flow meter from Maha. Lifting forces, oil flow rates, weights and sound levels were determined by the profi editorial team using our own measuring equipment.

For the performance and consumption measurements, the Deula Warendorf braked the small tractors with an eddy current brake. Photos: Tovornik, Bensing

ISEKI TLE 4550 AL

Well made, few bells and whistles, only one PTO speed.

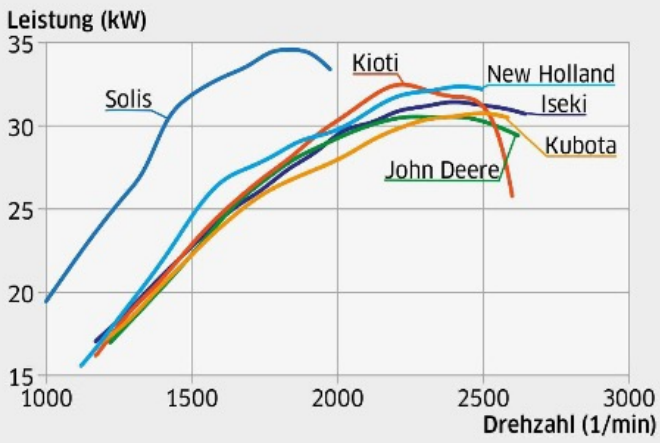
JOHN DEERE 4052M

Maximum comfort, best workmanship, but comparatively thirstiest engine.

KIOTI DK5020-HS

Lightweight Korean with only little payload, but agile engine and great transmission.

MAXIMUM POWER IN COMPARISON



Bis auf die Kurve vom Solis, liegen die Leistungskurven dicht beieinander. New Holland kann im mittleren Drehzahlbereich punkten. Grafiken: Tovornik

Hydrostatic or manual?

From engine to transmission: Iseki and Solis only offer manual transmissions for their models. With the other manufacturers, the customer has the choice between a hydrostatic or fully mechanical drive. To answer this question in more detail, Kioti provided a DK5020-HS as well as a DK5020-HST as hydrostat. In an additional article in one of the upcoming profi issues, we will explain the advantages and disadvantages of both types of linkage in more detail.

Hydrostatic tractors are the 4052M from John Deere and the Boomer 50 from New Holland. The hydrostatic transmission is very suitable for front loader work. The driving direction is selected with two pedals and the tractor drives in the desired direction. In both cases, the driveline is geared with three groups.

Nevertheless, the tractive force differs: while the Boomer 50 from New Holland has a tractive force of only 628 daN in the highest gear ratio (0 to 26 km/h), the John Deere manages 903 daN. In the second stage (0 to around 13 km/h), the tractive force almost doubles to 1903 daN on the John Deere and 1275 daN on the New Holland tractor. And in the lowest reduction (0 to 7 km/h), the wheels spin on both tractors, even when ballasted.

The engine speed is automatically adjusted on the hydrostatic models. The current speed can also be "frozen" by pressing a button. John Deere controls the engine speed and the swing of the hydro pump electronically. In addition, the electronics on the 4052M allow custom strategies: For example, there is a LoadMatch function in which the engine cannot be stalled by the transmission - great.

We did not like the variant at New Holland. On the one hand, the "linked pedal" function (the automatic speed increase) has to be reactivated after each braking. On the other hand, the force required to pedal the Boomer in our test was too high. And: When you take your foot off the pedal, the tractor should at best slowly decelerate or brake. The New Holland's coasting behaviour takes a lot of getting used to, because the pedal does not move back to the zero position via the hydrostatic system, e.g. when driving downhill or with a loaded trailer. According to the manufacturer, this problem will be solved.

Pulling and transporting

Manual transmissions show their advantages in pulling or transporting work. Here, the manufacturers offer twelve (Iseki, Solis) or even
16 gears (Kioti, Kubota). On an 18 km course with 240 metres of altitude and a loaded Fliegl tipper, the Kioti and Kubota shifters were the most economical and fastest.
While the Kubota parked at the petrol pump again after 42 minutes and used only
3.9 ' of diesel, the New
Holland with hydrostatic drive not only took 10 minutes longer to cover the same distance, but also 2.4 litres of diesel more. 1.5 l
more diesel was needed by the John Deere with hydrostatic drive on the road.
44 minutes, the 4052M was back at the
back at the starting point.
The small shifters in this league do not yet offer a powershift. Nevertheless, the Kioti can change direction with feeling without using the clutch. The gearshift is somewhat

KUBOTA L2-522

Solid Japanese with good workmanship and easy operation.

The Kubota's left-hand gearshift gate, while the Solis' gears can be changed easily via the long gear levers. The Iseki also shifts well, but with a top speed of 24 km/h, which we measured, it is slower than the Kioti with 34 km/h, for example. However, the front axle of the Iseki is braked by the four-wheel drive.
Only New Holland offers three speeds for the power take-off shaft

NEW HOLLAND BOOMER 50

Strong engine, but weak transmission. The control system is to be revised.

(540/540E/1000). Two are available on Solis and Kioti (540/540E, optional 540/1000) and only the 540 speed is available on Iseki and John Deere. A directional PTO is standard only on the Sonalika from India.
Important manoeuvrability
The small big ones naturally have to be manoeuvrable on the farms and in the garden to play to their strengths. With portal axles, five of the six

SONALIKA SOLIS 50

Cheapest, strongest model with a below-average finish.

models too. The Solis with steering knuckle loses this competition with a turning circle of 9 m, compared to the 6.30 m small circle of the Kioti. Despite the smallest track width, even the New Holland turns on only 6.45 metres. That makes working with the front loader fun.
Speaking of the front loader: Note the payload. With a front loader attached, the permissible front axle load for the Solis is already exceeded without tools. At

TECHNISCHE DATEN, MESSWERTE UND PREISE IM VERGLEICH

HERSTELLER/TYP	ISEKI TLE 4550 AL	JOHN DEERE 4052M	KIOTI DK5020-HS	KUBOTA L2-522	NEW HOLLAND BOOMER 50	SONALIKA SOLIS 50[3]
MOTOR						
Zylinder/Hubraum	Iseki; 4/2,43 l	Yanmar; 4/2,1 l	Kioti; 3/1,83 l	Kubota; 4/2,43 l	LS; 3/1,88 l	ITL; 3/3,07 l
Nennleistung[1]	40 kW/54,8 PS	37,9 kW/50,8 PS	37,5 kW/51 PS	37,4 kW/50,8 PS	38,8 kW/52 PS	37,3 kW/50 PS
ZW-Leistung (Nenndz.)	30,8 kW	29,5 kW	25,7 kW	31,1 kW	32,4 kW	33,3 kW
ZW-Leistung (Maximal)	31,5 kW (2400 min^{-1})	30,6 kW (2245 min^{-1})	32,5 kW (2225 min^{-1})	31,4 kW (2505 min^{-1})	32,5 kW (2420 min^{-1})	34,7 kW (1840 min^{-1})
Max. Drehmoment	147 Nm (1605 min^{-1})	147 Nm (1675 min^{-1})	147 Nm (1640 min^{-1})	142 Nm (1620 min^{-1})	159 Nm (1590 min^{-1})	206 Nm (1440 Nm)
Dieseltank[1]	53 l	56 l	48 l	50 l	40 l	72 l
GETRIEBE						
Gangzahl	12/12	Hydrostat	16/16	16/16	Hydrostat	12/12
Schaltung	3 Gruppen, 4 Gänge,	3 Gruppen	4 Gruppen, 4 Gänge	4 Gruppen, 4 Gänge	3 Gruppen	3 Gruppen, 4 Gänge
Höchstgeschwindigkeit	24 km/h (2400 min^{-1})	32 km/h (2600 min^{-1})	34 km/h (2800 min^{-1})	29 km/h (2600 min^{-1})	26 km/h (2400 min^{-1})	29 km/h (2000 min^{-1})
Zapfwelle	540	540	540/540E	540/540 E	540/540E/1000	540/540E
HYDRAULIK/HUBWERK						
Betriebsdruck	160 bar	210 bar	206 bar	170 bar	173 bar	187 bar
Fördermenge am Ventil	32,1 l/min	43 l/min	37,5 l/min	36,8 l/min	29,3 l/min	51 l/min
entnehmb. Ölmenge[1]	32 l	25 l	16 l	15 l	18 l	k.A
Hubweg Unterlenker	55 cm	63 cm	65 cm	57 cm	56 cm	59 cm
FAHRWERK/BEREIFUNG						
Länge/Breite/Höhe[2]	3,40/1,59/2,60 (1,80) m	3,31/1,90/2,66 (2,01) m	3,29/1,63/2,43 (1,50) m	3,41/1,70/2,60 (2,05) m	3,37/1,49/2,63 (1,90) m	3,83/1,80/2,69 (1,89) m
Wendekreis li/re	7,05/7,15 m	6,52/6,50 m	6,30/6,30 m	7,40/7,75 m	6,75/6,45 m	8,95/9,55 m
Bereifung vorne hinten	280/70 R 16 380/70 R 24	280/70 R 16 380/70 R 28	280/70 R 16 380/70 R 24	280/70 R 18 440/65 R 28	260/70 R 16 320/85 R 24	250/85 R 20 340/85 R 28
Radstand/ Bodenfreiheit	2,00/0,32 m	1,86/0,37 m	1,81/0,28 m	1,93/0,33 m	1,86/0,27 m	2,25/0,30 m
Spur vorne/hinten	1,19/1,26 m	1,49/1,52 m	1,26/1,31 m	1,25/1,36 m	1,17/1,23 m	1,44/1,55 m
GEWICHTE						
Zul. Ges.-Gewicht[1]	4000 kg	4000 kg	2885 kg	3780 kg	2887 kg	4130 kg
Leergewicht (m. Lader)	2060 (2330) kg	1940 (2290) kg	1900 (2210) kg	2140 (2400) kg	1860 (2070) kg	3290 (3670) kg
Nutzlast (m. Lader)	1940 (1670) kg	2060 (1710) kg	985 (675) kg	1840 (1380) kg	1027 (817) kg	840 (460) kg
Zul. Achslasten v/h[1]	1500/2500 kg	1500 /2500 kg	1750/1950 kg	1450/2710 kg	1300/2100 kg	1690/2440 kg
Achslasten v/h	900/1160 kg	780/1160 kg	870/1030 kg	920/1220 kg	830/1030 kg	1440/1850 kg
...mit Lader v/h	1210/1120 kg	1160/1130 kg	1310/900 kg	1270/1130 kg	1100/970 kg	1930/1740 kg
PREISE						
Grundpreis[1]	29264 €	38985 €	28463 €	28750 €	42309 €	24490 €
Testtraktor[1]	31450 €	42568 €	32005 €	33578 €	42309 €	25990 €
Frontlader[1]	5550 €	8675 €	5784 €	9390 €	8510 €	5040 €
Gesamtpreis[1]	36897 €	51225 €	37789 €	42968 €	50819 €	31030 €

überdurchschnittlich durchschnittlich unterdurchschnittlich

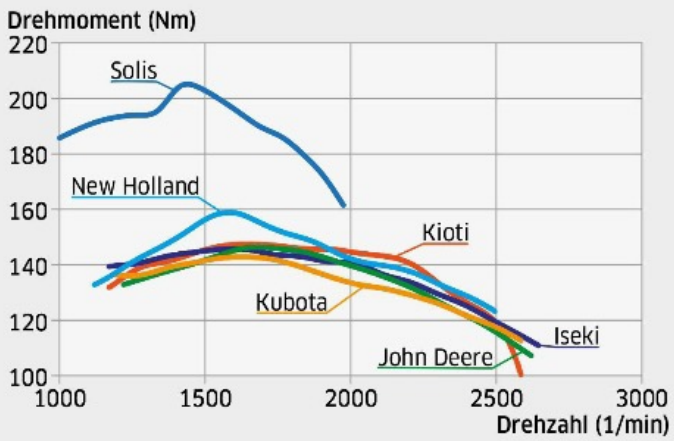
[1] Herstellerangaben; [2] Werte in Klammern mit abgeklapptem Überrollbügel; [3] Schlepper passt nicht optimal in die Testgruppe

a gross vehicle weight of 4130 kg, a total of only 460 kg of payload remains.
payload. The Iseki TLE 4550 or the John
Deere offer 1700 kg in comparison - great!

Hydraulics in comparison

In addition to the inter-axle control units for the front loader, the manufacturers have fitted one (Iseki) to three (Solis) dw control units. Only on John Deere does one control unit have a real floating position.
All other tractors have to be switched off for coupling - that is annoying. The control levers on Kioti and New Holland are difficult to access. The gear pumps of the tractors deliver a flow of 29 l/min (New Holland) to 51 l/min (Solis).
On the John Deere we did not like the coupling of the hoses above the right rear wheel - despite good marking for the flow direction. On the one hand, the view over the right shoulder is severely restricted, and on the other hand, the hoses on the trailer have to stretch a lot in left-hand bends. In addition, the leachate drips onto the mudguard.
The lever mechanism of the Iseki and Solis is more practical. All tractors have a common transmission and hydraulic circuit. According to Iseki, as many as 33 | may be removed from the small TLE. Sonalika could not find any

TORQUE IN COMPARISON



The Solis has the highest torque under full load torque, followed by the New Holland. The other candidates are almost equal.

Give details of this value, although in the case of the Solia 50 the filling capacity is 47 |.

And the lifting gear?

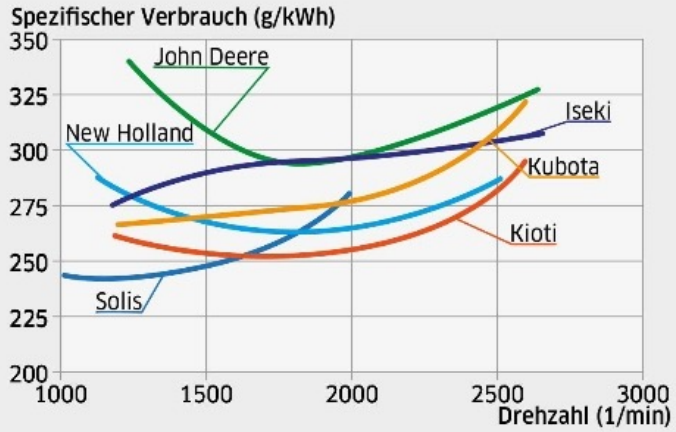
Except for the Solis, the tractors were equipped with a category | linkage. Kioti offers a category | linkage as an option. Here, too, the difference in the tractor size of the Solis with cat.-II linkage is great. With a good 2.5 t, it lifts considerably more than the comparison group (graphic "Lifting capacity in comparison*). The small Kioti lifts 1.6 t with the largest lift travel, while the Boomer from New Holland lifts no more than 1 t.

Kioti and Solis are equipped with a quick lift. On the Solis, however, the switch is very difficult to operate. Unfortunately, the lower links without quick-release hooks are no longer up to date, as is the case with the Iseki. On the Iseki, the linkage could be controlled in a controlled manner without quick-release, but with a large lever travel. There is no upper linkage control on the Iseki - but it is optional on the other participants, or comes as standard on Kioti and New Zealand.
in series with Kioti and New Holland.

Platform tractor

Does a platform tractor automatically offer enough space? The differences are big: Kioti offers the perfect access.

DIESEL CONSUMPTION IN COMPARISON



Der Solis 50 verbraucht bei viel Leistung wenig Diesel. Der Verbrauch des Yanmar-Motors im John Deere ist gerade bei geringen Drehzahlen vergleichsweise höher.

Wide, flat and plenty of space is the conclusion of our Tert riders. This is all the more important the more often you have to get on and off.
The John Deere's access is also pleasing, even if the exterior mirrors attached to the roll bar are a hindrance. The small gearbox tunnel is less of an issue here than on the New Holland.
Although the Solis also offers space, we didn't like the steps, they are too high and the second one is too close. The driver's legs are tighter on the platform of the New Holland and Iseki. On the Kubota, the actually good toolbox and the number plate holder unnecessarily restrict the view of the linkage. We liked the steering wheel, which is widely adjustable to make it easier to get on and off.

Comparison of prices

The range of manufacturers' list prices is huge. While the fully equipped Solis from India, including front loader, costs just 31030 Euros, John
Deere charges exactly 51225 Euros for the
4052M exactly 51225 Euros.
In our opinion, the Iseki with its high-quality workmanship and solid technology is absolutely worth the price for exactly
36897 Euros. The same applies to the Kubota
L2-522 at 42,968 euros. Another winner in numerous test criteria is the Kioti 5020 Shuttle, which is available for 37789 euros.

At least according to the list, the Boomer 50 from New Holland is expensive at 50819 euros. New Holland needs to rework the transmission control, and the little blue one can't keep up in terms of lifting power and hydraulic performance either.

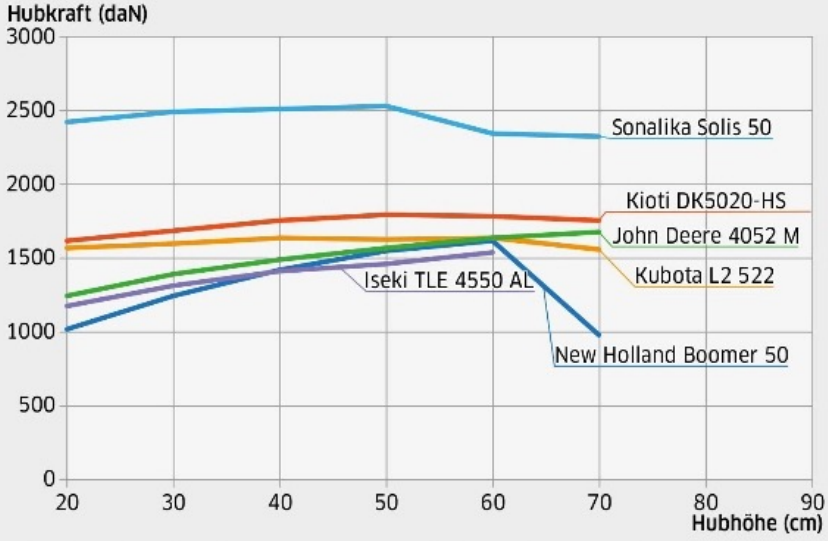
Conclusion

Sonalika from India offers a lot for little money. The tractor even offers a compressed air system, but the workmanship is mediocre - more on this in the second part.
The winner of our comparison, without taking the front loaders into account, is the Kioti,
which shines with a lively engine, high equipment and a tidy platform. The low payload spoils the result.
The Iseki is a cleanly manufactured four-cylinder from Japan without frills for a good price. The platform is comparatively cramped and there is only one PTO speed.
That's all John Deere offers, but the 4052M has the most comfortable ride, with the most adjustment options and a very finely controlled traction drive. The oil clutches on the right
mudguard are worthy of criticism.
Kubota delivers a solid tractor, which is also available with hydrostatic transmission. The smooth-running four-cylinder has a good starting torque, so that you rarely need the stiff group gearstick.
New Holland's Boomer 50 shines with a powerful, economical engine. In our test tractor, this advantage is diminished by the poorly controllable hydrostatic transmission.
Otherwise, the very compact blue tractor has a lot of equipment, good manoeuvrability and, unfortunately, little space.

Tobias Bensing

In the next issue we will report on the details of the tractor and its loader.

LIFTING CAPACITY IN COMPARISON



The Solis consistently lifts 1 t more than the Kioti. New Holland loses power in the upper lifting range, while the Iseki offers a small lifting travel.