



The machinery revolution

If the farmer's job is to produce food, then the machinery manufacturer's job is to produce the equipment that helps to make this job more efficient, more productive, more environmentally friendly – and more profitable!

Machines, and the diesel engine that powers many of them, have revolutionised the way we produce food, whether it's crops, milk or meat. Over 100 years ago a large farm would employ around 100 men with 50 horses for food production, whereas today the same work could be done by two men and two tractors.

This information leaflet illustrates some of the key machines that power our farms and produce our food. Use it, and the website sources listed overleaf, to help put the message across to your Open Farm Sunday visitors that farming is a modern, highly mechanised and technologically advanced industry, employing and supported by highly trained and motivated people.

Everywhere you look on a farm today, there's a machine doing something. At the heart of most farm work is the tractor – every farm will have one, of whatever size.

An idea for your event:

Most of your visitors will have come by car – get a question and answer session going by comparing their car with your tractor. Explain how both replaced the horse, one as a means of transport, the other as a source of power (hence the use of the term horsepower to measure engine performance, originally invented by 18th century engineer James Watt to compare horses with steam engines, and still used today) – 100 years ago, one person and a horse could plough just 1 acre in a day; today, one person and a tractor can do 40 acres or more in the same time.

FEATURES	CAR	TRACTOR
Transmission	4 to 6 gears, manual or automatic	Anything from 16 to 48 gears, manual or automatic
Air conditioning & heating	Yes	Yes
Music system & touchscreen displays	Yes	Yes
Wheels	4, 2-wheel drive as standard	4 or 8, 4-wheel drive as standard, option of low ground-pressure tracks
Satellite navigation	Yes	Yes, with option of automatic hands-free steering and turning
Towing capacity	Up to 1.5 tonnes (ie about its own weight)	Up to 18 tonnes (ie up to 4 times its own weight)



Talk about technology

Modern machinery uses a number of different and highly advanced 'intelligent' technologies.

Space satellites are used to send GPS navigation signals to keep the tractor or other self-propelled machines driving dead straight, to ensure there are no wasteful overlaps or missed areas when planting, spreading, spraying and harvesting – this saves on time, fuel and inputs.

- Many John Deere machines are delivered ex-factory equipped with ISOBUS controls, GreenStar precision farming components or AutoTrac (automatic steering) ready, so that guidance, documentation and yield mapping as well as machine and implement steering and control systems can be easily installed and set up in the field.

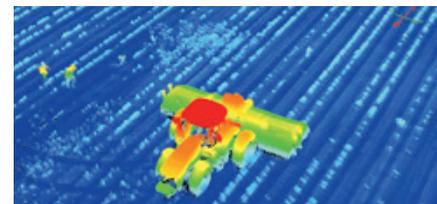
Engines are controlled electronically to ensure they operate at maximum efficiency, keeping fuel consumption as low as possible and reducing harmful emissions to the atmosphere.

John Deere's new DirectDrive transmission has introduced Formula 1 technology to the agricultural machinery industry, setting new standards in terms of shifting speed and operator comfort.

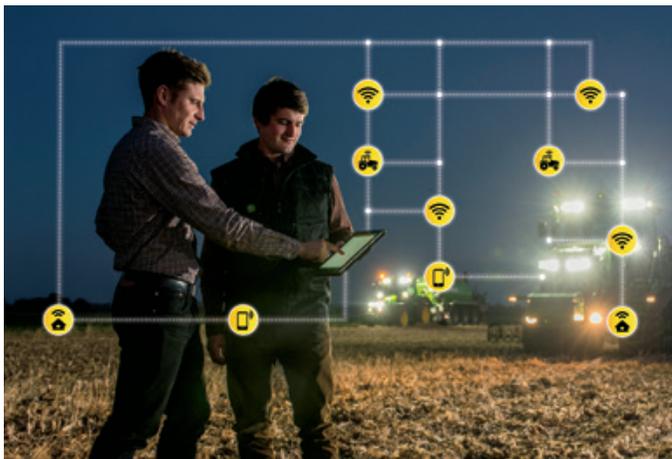
In-cab controls and full colour touchscreen displays tell the driver not just the speed the machine is travelling, but also the area it is covering, how much fertiliser or spray is being applied and which parts of the field might need more or less of each, and whether a crop is at the right stage to be harvested. All this information can be fed back automatically to the farm office using Wireless Data Transfer.

The latest systems help speed up baler operations, for example, by telling the tractor driver when the bale is ready,

stopping the tractor automatically, opening the rear door of the baler and ejecting the bale; or a sprayer will sense how far the spray boom is from the crop it is treating, and automatically keep it at exactly the right height above the crop, while also switching off sections of the boom when it is travelling over areas of the field that have already been sprayed, or which need to avoid being sprayed for environmental reasons. A John Deere owned company in the US, Blue River Technology, is also already using computer vision, robotics and machine learning to help smart machines detect, identify and make management decisions about every single plant in a field.



Just as important are the skilled service technicians that are employed by the manufacturer's dealers, who sell and support the machines that farmers and contractors use. They are highly trained and qualified engineers who use state of the art diagnostic tools to keep machines properly maintained and serviced all year round. Using new FarmSight precision farming



technology, they can even provide remote diagnosis and assistance from the dealership via the tractor, combine, self-propelled sprayer or forager's in-cab display.

For more educational information and resource materials on farming, food and the countryside visit the following websites:

www.visitmyfarm.org
www.leafuk.org/education
www.leafuk.org/facetimeafarmer
www.countrysideclassroom.org.uk
www.farmsunday.org

For more information on John Deere, visit www.deere.co.uk