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**SESSION 2009**

# **BREVET DE TECHNICIEN SUPERIEUR AGRO-EQUIPEMENT**

## **LANGUE VIVANTE ETRANGERE EPREUVE D'ANGLAIS**

**DUREE : 3 HEURES  
COEFFICIENT : 1**

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Dès que le sujet vous est remis, assurez-vous qu'il soit complet.  
Le sujet comporte 3 pages, numérotées de 1 à 3.

<b>BREVET DE TECHNICIEN SUPERIEUR – AGRO-EQUIPEMENT</b>	Session 2009
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# GPS takes over from the driver

Adapted from *Farmers Weekly* 23 May 2005 by Andrew Watts

It wasn't so long ago that the idea of a driverless tractor was science fiction. But with the latest developments in GPS navigation, many of the jobs that used to be done by the tractor driver are now being handled by electronics.

Take the Deere I-Tec Pro system being trialled by Lincolnshire farmer Willie Strawson from Low Risby, near Brigg, for the past year. This is based on the sort of auto-steer systems offered by many manufacturers, but involves unprecedented levels of integration between tractor and implement.

Whereas earlier systems required the operator to engage or disengage the implement once they started turning on the headland, this latest equipment performs these tasks automatically. All the driver has to do is choose the type of turn to be performed and its direction before the tractor reaches the headland.

The tractor then changes gear, raises or disengages the machine from work, does a light bulb-style turn, re-engages the implement and returns to the pre-programmed working speed without any intervention from the driver.

And, like its predecessor, the I-Tec Pro can work to centimetre-accurate levels of precision to cut turning time and keep fuel-wasting overlaps to a minimum.

The system is only available on Deere's 8030 series tractors, but will soon be offered on the 9030 and 7030 series as well. It reduces working time, says the company, saves on seed, chemical and fertiliser and fuel use and helps the operator stay fresher for longer. In fact, with input prices going through the roof, it could well be the best way of cutting these burgeoning costs.

All this does mean a different type of working day for the driver. An on-board computer with a large screen allows him or her to record the details of multiple implements while a 256MB digital camera-style Compact Flash card slotted in the back records details of up to 900 fields.

## Integrated field management software package

At the end of the day this can be taken back to the farm office, where the details

are downloaded to an integrated field management software package developed in

conjunction with Farmade. Settings and application rates can be inputted in advance for future fieldwork tasks, so when the machine arrives at the field the driver simply engages the work mode and the computer takes over.

He reckons he is saving 20-30% in headland turning time as well as reducing the width of overlaps by 3-5%. As a result, the typical time spent working a 20-24ha (50-60-acre) field has dropped by 20%.

"The fuel savings alone justify the capital expenditure," he says. "At the end of the day you don't feel half as tired as you would normally and you've used less seed, applied your sprays more efficiently by reducing the water rate and saved a significant amount of fuel in the process."

## Driver needed

Although operator input is reduced, I-Tec Pro doesn't remove the need for a driver. Once field dimensions have been inputted - to record field sizes the tractor must be driven around the field boundary - and implement details, such as physical size, working width and application rate, the driver can sit back and enjoy a good book.

But to prevent users leaping from the cab and leaving the tractor to do the work by itself, a pressure sensor is fitted to the seat to detect operator absence.

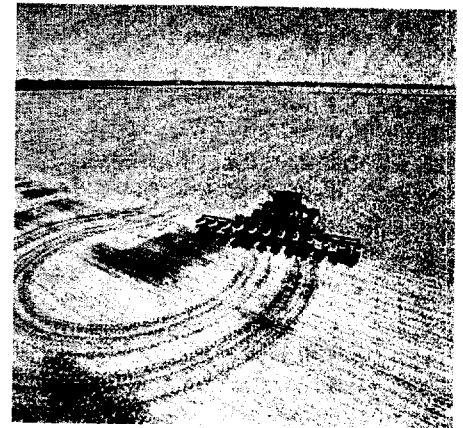
Those wondering if they could pop a sack of spuds on the seat are reminded that the machine cannot identify or avoid people or animals blocking its path. Nor indeed, the second tractor and trailer you might have left on the other side of the field that morning.

## Future

Where will the technology go from here? John Deere's technical product manager Harry Henderson says the next developments will identify the most efficient route to work the field, taking into account field shape and obstacles like pylons and spinneys.

## Costs

I-Tec Pro module costs £1400 on top of an existing Deere auto-steer system, which itself costs about £10,849.



*John Deere 8030 Series Tractors outfitted with AutoTrac iTEC Pro can automatically turn at the headlands.*

## Vocabulary:

overlaps: recouvrement  
spinneys: bosquets  
pop: put something quickly  
spuds: plant de pommes de terre

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## **I- COMPTE-RENDU : 12 points**

Rédigez en français un compte rendu de cet article. (350 mots +/- 10%)

## **II- EXPRESSION : 8 points**

Traitez en anglais les deux sujets suivants :

1°) Présentez les avantages et les éventuelles limites du système I-Tec de John Deere (50 mots ) **3 points**.

2°) Quelles autres technologies ou méthodes culturales préconisez-vous, qui puissent optimiser performance et rendement tout en respectant l'environnement ? (100 mots ) **5 points**

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