66 It really is that important we hit these soils at the correct time. 🤊 🤊

# **Tractors tuned to** Machinery On Farm Opinion Slovakia's soils

**Just two Case IH Quadtracs** are relied on to pull out the stubble across FirstFarms' vast Eastern European arable concern. CPM gets an insight into Slovakian farming and sees the new CVT option in action.

**By Rob Jones** 

With a total of 9326ha under its control. the Slovakian business of Danish farm management firm FirstFarms is a sizeable operation. But perhaps even more remarkable is the fact this involves more than 10,000 landlords. This provides some indication of the challenges brought to the business by Slovakia's communist history and the legacy of pre-WWII small-scale mass land-ownership.

The Slovakian business is part of an operation that spans a total of 16,400ha across Slovakia, Hungary and Romania. FirstFarms was founded in 2005, when eight Danish investors joined forces to invest in, operate and develop agricultural enterprises in Eastern Europe. Its first acquisition was Slovakian agricultural company Agra M, while the following year it purchased another -Mast Stupava. Subsequently, FirstFarms listed on the NASDAQ OMX stock exchange in

Copenhagen, attracting over 2,600 shareholders. In 2007, it purchased a third Slovakian business, Mlyn Zahorie A/S.

#### **Favourable factors**

With its operations across the eastern bloc, the company employs 250 staff, working across the day-to-day farm management and machinery operation, livestock husbandry, agronomy and financial management. The rationale behind the business' location is that Eastern European countries continue to offer favourable cost, production and market factors compared with those in the West. In addition to a return on invested shareholders' capital, FirstFarms says it expects, over time, to realise significant capital gains for its shareholders in the form of increases in the value of land and tangible assets.

The company's investment in Slovakia is one of the largest ever by a Danish agricultural business in Eastern Europe, with three farming operations located 20-30km north of the capital, Bratislava. Of the total 9326ha, though, only 600ha is owned, the rest being leased from around 10,000 landowners who, following the fall of the Berlin Wall, were traced as the original pre-communist era deed holders.

The enterprise is particularly diversified in its cropping, making full use of local and export market demands. Combinable cropping for the 2017-18 season will include 2443ha of winter wheat, 912ha of grain maize, 888ha of oilseed rape, 815ha of rye,

251ha of winter barley and 217ha of triticale. In addition, there are 1270ha of forage crops, 530ha of sugar beet, 366ha of pumpkins for oil and 1296ha of permanent and ley grass, fallow and woodland. Despite the scale of the operation, though, and a 14-strong 160-400hp conventional tractor fleet, primary tillage is carried out with just two main tractors.

Timeliness of operations is dictated not only by the scale of the business but also by the challenges posed by the silty clay black loess soils, which have high yield potential but have a high selenium content and can be difficult to manage, explains Soren



Timeliness of operations is key, says Soren Nielsen, which is dictated not only by the scale of the business but also by the challenges posed by the loess soils.

## **On Farm Opinion**



The black loess soils that cover much of Slovakia can be difficult to manage if not worked at the right time.

► Nielsen, FirstFarms' chief operating officer for field operations — essentially the business's day-to-day farm manager.

"Through focused production investments and successfully implementing Danish-style agricultural management techniques we've been able to achieve significant economies of scale, greater efficiency and increased production," he explains.

"But improved timeliness of operations is also critical to this. We need to work the ground when moisture levels are just right, and if that means we have to move machines 20-30km between blocks because conditions are better at one site than another, then that's what we do. It really is that important we hit these soils at the correct time to ensure we get the best possible seedbeds."

The majority of the land is worked twice — the second time to destroy the weed flush immediately ahead of drilling — using a 6m Köckerling Vector tine/press cultivator at 15-20cm, or a little deeper for deep-rooting crops such as OSR. A Simba SLD is also used every four years for deeper loosening



### The best start your crops can get.

#### PÖTTINGER TERRASEM Mulch seed drills

- Universal seed drills for reduced fillage drilling and conventional sowing
- Precision seed placement Quick & even germination
- Adaptive ground hugging Consistent seed depth
- Working width: 3 m 9 m

PDT19x228 Provide a statistic to a server cardo one dialect (m. terma accidential) denta apart requests was PDT19x0484 (m. 12) 1. 015H 272223, info.449x449x474 gens Accid, A. was appropriate to a Advanced and required (b). The Science Acting and artistic action repeard of agreements regulated by the Science acting and a 1074



ahead of OSR. Both implements are used behind Case IH Quadtracs, the business's main tractor of choice since its foundation in 2005.

"Since first taking on these farms we've gradually replaced a fleet of old eastern European tractors with more productive western machines, and back then our first Quadtrac was an STX535 model," explains Soren.

"We chose not to replace our old wheeled articulated tractors with similar new machines as the Quadtrac offered greater traction and easier road transport. Smooth headland turning without scuffing was the main reason for choosing the Quadtrac's four-track design over a twin-track alternative, so that we could improve the yields from our headlands. But performance on slopes and traction in wet field corners were also concerns with the twin-track design, while a sub-3m travel width was also a significant advantage of the Quadtrac, meaning we don't need to provide an escort when travelling on the road."

FirstFarms currently runs two Quadtrac 620 tractors, which replaced two Quadtrac 600s operated previously. They're run on two-year operating leases, with one tractor replaced each year, and each has two drivers who operate in 12-hour shifts at peak times, supported by service trucks and fuel bowsers. Each machine tends to complete 1500 hours in its first year and, when relegated to the secondary role in its second year, adds 1000 hours to its clock before being replaced.

"While the machines themselves have made our field operations significantly more productive, this has been enhanced by auto-steering, having used AFS AccuGuide since purchasing our second Quadtrac in 2012. In the large fields in which we mostly operate, an OmniStar XP signal giving an accuracy level of +/-10cm is sufficient for cultivation work. Manual steering would give us only around 80% efficiency, but even at +/-10cm accuracy, this brings us much closer



In order to cover a significant area, a diverse range of cropping and some hard-to-manage soils, the cultivations tractors work immediately behind the combines.

## **On Farm Opinion**



A Köckerling Vector tine cultivator is used to loosen stubbles, lugged by one of two Quadtrac 620s.

to 100%. Simplicity of use and reduced driver fatigue are also significant advantages in situations where drivers are working long hours and are sometimes inexperienced.

#### **Farming efficiently**

"These tractors and their steering systems are a key reason why today we're able to farm 9300ha with the same number of employees that we had in 2006 on 3800ha. By farming more efficiently, we've been able to significantly reduce our production costs and, at the same time, improve yields through more timely operation. And when combined, those factors obviously increase our profitability. Milling wheat yields are now averaging 7t/ha for winter crops, while we've increased winter OSR yield averages to 3.4t/ha and sugar beet yields to 65t/ha," says Soren.

Wheat yields have benefited from a switch from locally bred varieties to German milling types, capable of producing 2t/ha more than the typical Slovakian varieties. "Over the past five years, our milling average has been 6.5t/ha, although this spring's drought cut 2017 yields back to 5.2t/ha. That may not sound high, but we're not in a high rainfall region. What's more, we prefer to contain our growing costs and benefit from that by using a relatively low-input approach, using low rates of fungicides at both T1 and T2. Crop yields generally have also gained from the organic matter boost given over time to the silty clay soil by rotational applications of manure from our herd of 2500 dairy cattle and youngstock."

The amount of land to cover. and the need to turn it around quickly before the silty clay dries out and caps, means the two Quadtracs are responsible for cultivations alone, and a smaller 400hp tractor follows up with a 9m Köckerling Ultima tine coulter drill. The majority of the crop care duties are overseen with a pair of Lendl 36m trailed sprayers, but in peak season these are supported by a contractor, while a Bredal trailed spreader applies 2500t/year of material, covering most requirements.

FirstFarms, which also operates two 12m combines, each supported by a Hawe chaser bin to ferry grain to trucks for transport to store, employs 54 staff across the Slovakian arable ►



Auto-steering has enhanced field productivity, with an OmniStar XP signal giving an accuracy level of +/-10cm.



the alternative to self-propelled



- Fully mounted spraying combination with 3,500 litre capacity
- Lightweight aluminium booms
- Simple user-friendly operation
- NSTS compliant



be strong, be KUHN

📑 🏏 🛐 You 🗰

www.kuhn.co.uk

## **On Farm Opinion**



Pumpkins are grown for oil, while sorghum is cut for silage for FirstFarms' dairy enterprise.

► and dairy business, including 35 machinery operators. Most machinery maintenance is done in-house, with the business employing seven mechanics, while the company also operates its own agronomy and financial management teams. Co-ordinating the farm's arable staff has been made easier by the relatively recent adoption of a telemetry system, says Soren.

"Originally it was an investment made as much for security reasons as for management, as misuse of farm fuel was proving a problem. As the system is connected to the business's diesel tanks as well as its key machines, we've been able to address this, and now we use telemetry primarily for management reasons. Across an operation of this size it's a useful tool in locatingmachines, tracking their progress and identifying their requirements." Drilling periods are broadly similar to the southern UK's, with OSR establishment commencing around 15 Aug, while wheat drilling begins around the third week of Sept. Its location in mid-Europe means Slovakia enjoys a short 'true' winter from late Dec to the end of Jan, and autumn-drilled crops grow on through the winter, making harvest early — most wheat is usually in the shed by late July, and most barley and OSR by the early part of that month.

"From that point on, though, we have to get a lot of ground prepared in a short time before it loses moisture, while the spread of crops we grow also means we have staff busy on all types of other harvest and associated jobs. That's why we run the two Quadtracs — by operating the largest models available and the largest of their type on the market — we know we're achieving the best possible workrates with the minimum of staff, and the rest of the team can focus on the remainder of harvest. And while there are alternatives now available, we know these machines have a longer track record behind them than others, which is reassuring." ■

#### **Farm facts**

FirstFarms, Malacky, Slovakia

- Farmed area: 9,326ha
- Soils: Black loess silty clay
- **Cropping:** 2443ha winter wheat, 912ha grain maize, 888ha OSR, 815ha rye, 251ha winter barley, 217ha triticale, 1270ha forage crops, 530ha sugar beet, 366ha pumpkins, 1296ha permanent and ley grass, fallow and woodland
- Dairy: 2500 dairy cows plus followers
- Staff: 54 including agronomists, machinery technicians, financial management
- **Tractors:** 2x Case IH 620 Quadtrac plus 14 others from 160-400hp
- Combines: 2x 13.5m Claas Lexion 780
  Cereal drills: 9m Köckerling Ultima;
- 6m Mistral
   Cultivation: 2x 6m Köckerling Vector tine/press cultivator, 6m Simba SLD plus six tined cultivators (4-12m)

#### Quadtrac now comes with CVT

Case IH has become the first tractor manufacturer to offer European farmers a high-horsepower tracked tractor with continuously variable transmission, with the launch of CVX versions of the Quadtrac 470, 500 and 540 tractors. Powershift transmissions remain available across those models and are the default option for the Quadtrac 580 and 620 tractors.

The new transmission offers the advantages of stepless travel from standstill up to 43km/h, and can be operated to work at a desired forward speed or engine speed, with Automatic Productivity Management software then able to adjust engine and transmission management accordingly. At 617 peak horsepower, the Quadtrac 540 CVX is reckoned to offer the highest available power of any CVT tractor on the market, claims Case IH. Comparable figures for the Quadtrac 500 CVX and Quadtrac 470 CVX are 558hp and 525hp.

Continuously variable transmissions have, until now, never been available in an articulated tracked tractor. The CVX transmission in the Quadtrac 470, 500 and 540 CVX models brings with it a number of claimed benefits, including ease of use — particularly for inexperienced operators — faster acceleration to field or road speed, reduced operator fatigue, full power availability at low ground speeds for special applications/implements, and full hydraulic flow availability at low ground speeds. Case IH says the result of this is increased productivity by way of faster cycle times and maximum fuel efficiency.

Providing stepless travel from 0-43km/h, and 0-17km/h in reverse, CVX allows the storing of three adjustable target speeds from 0km/h to 43km/h, adjustable via the thumb-wheel and buttons on the tractor's armrest-mounted Multicontroller joystick. The transmission incorporates a kick-down feature which ensures maximum acceleration, and 40km/h is achieved at 1440rpm. The transmission features four mechanical ranges with automated range changing, and the first time 100% mechanical power transfer takes place is below 10km/h, to match heavy draft application requirements.

In place of the foot throttle found on Quadtrac tractors with powershift transmission, Quadtrac



The CVT option for Quadtrac 470, 500 and 540 models brings full power and hydraulic availability at low ground speeds, and faster acceleration.

CVX models are fitted with a drive pedal. In automatic mode, this acts as a true drive pedal, controlling the tractor's ground speed, and maximum ground speed can be controlled with the thumbwheel and speed range buttons on the Multicontroller joystick. In manual mode, the foot pedal acts as a conventional foot throttle. Also new is a powershuttle switch on the Multicontroller joystick, which works in parallel with the column shuttle, and a dual hand throttle for the setting of minimum and maximum engine speeds.