# Valtra Team

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# Editorial

With the addition of Direct and Versu models to the N and T Series, Valtra is entering another exciting period. Valtra transmissions have an excellent reputation and now our in-house team of development engineers have taken them one step further. Versu is a five speed powershift which has been given the thumbs up by several technical journalists and many full time drivers and operators. Smooth – simple – easily – programmable – much like a luxury car – fantastic for haulage work – make the firm's N- and T-series tractors worthy contenders in the all-important 130 hp to 200 hp all-rounder bracket. These are just some of their comments. We feel we can add reliable as both Versu and Direct are descendants of transmissions that have stood the test of time and hard use.

Direct is Valtra's own constantly variable transmission. Yes, we know it's been a long time coming but that has been for good reasons: Customers have detailed the failings of other systems and then there were failings we had found ourselves during development. Rather than accept these, we worked to remove them and now believe that with Direct we have covered all eventualities. Like Versu, Direct is simple to use; indeed, they have many common components. Direct is smooth in operation, even when cold; and that was one of the major stumbling blocks during the development period. All constantly variable transmissions have a hydraulic, hydrostatic element. Oil viscosity increases when cold and in very cold conditions getting the system to function properly can be problematical. Valtra tractors are operated in some very cold places including Scandinavia. Remember, the north of Scotland is on a level with Norway and Sweden and it gets much colder up there than in Cornwall so, even for UK customers, the wait will have been worthwhile.

One significant feature of Direct is the complete disengagement of the transmission during engine start-up but there are other important improvements: Transmission and hydraulic oil are now separated so that pollutants do not reach the transmission. How often do you ensure both the male and female halves of the hydraulic coupling are scrupulously clean?

Both Versu and Direct tractors also introduce further improvements to the range. Want to find out more? Contact your local Valtra dealer and arrange a demonstration on your farm – we're convinced you won't be disappointed – so now convince your self.

Mark Broom

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Farming, Food & The Environment

# Hand in Hand

***Next to the Spey near Grantown-On-Spey in the splendour of the Cairngorm National Park, Balliefurth Farm is home to the MacLennan family. Alastair MacLennan runs the farm's 420 acres almost single handed (wife Ann works as a physiotherapist three days a week), having taken over from his father in 1989. In '99 Alastair and Ann then purchased the freehold. "It was at that time we sat down and took a hard look at all the farm's assets and possible future. There wasn't – still isn't – any guarantee subsidies will continue and with the investments involved in first taking over the tenancy and then the freehold we wanted to be as confident as possible in the future of the farm."***

***As a LEAF demonstration farm visitors to Balliefurth are a common event.***


***Alastair & Ann's Farmers Market stall adds value to farm produce and is another important occasion for farmers to meet their customers.***

Ten years on, Alastair and Ann MacLennan are convinced a holistic way of managing their land, its natural assets and those of the surrounding area is the way forward. Today the farm supports a herd of 75 Shorthorn cross suckler cows, 180 Highland Mule ewes, grows 35 acres of feed barley, 250 acres of rotational grass and 35 acres of permanent and rough grazing. There is also 90 acres of managed pine woodland. Importantly, all are coupled to environmental and eco-friendly production techniques. Adding value to the livestock has also proved a profitable way to boost farm income and increasing quantities of lamb and beef are being butchered locally for retail sale. Forestry, the natural environment and tourism in the form of self catering and B&B accommodation, also form an important segment in the farm's management structure and income.

Alastair and Ann's commitment to the environment have resulted in Balliefurth being managed to LEAF standards and it is now a LEAF demonstration farm playing host to increasing numbers of visitors each year. Alastair explains, "The River Spey floods regularly, inundating low lying parts of Balliefurth. As a result we are home to Scotland's largest non-coastal population of wading birds: Lapwing, Curlew, Snipe, Oyster Catcher and Redshank."

### Passionate about the wild life

Alastair also grows an area of crops including linseed specifically for birds and this provides winter feed for considerable populations of birds; some quite rare. Visitors include Goldfinch, Twite, Linnet and Brambling. While Alastair is obviously passionate about the wild life on his farm he also recognises the financial advantages of the LEAF scheme on land that is difficult to farm productively. The same pragmatic view applies to the improvement of

the 90 acres of pine woodland. "We've removed exotic species and now manage the pines for timber production – we will replant – replace harvested trees with native species and avoid clear felling as far as is possible." While the Spey forms one boundary of the farm (Baile phuirt in Gaelic means homestead of the ferry, a ferry which ran for centuries across the Spey to the clan Grant's rallying place) it is also bisected by a disused railway line. Useful as a hard track for farm management purposes it also forms a section of the Speyside Way footpath which, mostly fenced on both sides conveniently and safely separates walkers from livestock. Alastair has placed information boards along the path explaining to visitors the farm and crop features, their uses and their benefits to wildlife; a facility walkers appreciate. Balliefurth's 75 Shorthorn cross suckler cows; Alastair uses Shorthorn and Limousin bulls, mostly calve in spring. Some heifers are kept as replacements or sold as breeding stock while of the remaining young stock some are sold as stores, around 25 are finished off grass, slaughtered and butchered locally with the meat sold via an internet site ***www.balliefurth.com***, direct to local customers from the farm or through farmers markets.

### An increasing market in lambing

The Highland Mule flock is put to a Texel ram and follows a similar regime producing over 350 prime lambs annually; a lambing average just under 200 %. Lambing is outside in April meaning finished lambs are available from late July onwards with some held back and weaned onto silage ground to provide a continuity of supply for the retail market which at the moment hovers around 50 carcases. "Like the beef this is an increasing market – the public likes the idea of traceability – which is good."

Cropping is simple; several years rotational grass followed by undersown barley. "Producing high quality beef can be an expensive operation as we have to feed for around seven months," Alastair explains. "Our home grown barley is all undersown with grass. The barley is crimped for feed to help finish fattening stock over the winter while the straw/grass mixture is baled and wrapped for feeding in the run up to Christmas." Alastair handles most of the baled silage operation himself – "we plan for a single cut for silage – anything else is a bonus." Only wrapping is put out to a contractor and not all bales are individually wrapped. Since the mid 1980s Alastair has found that stacking bales tightly undercover then sealing them carefully under a plastic sheet can achieve excellent results. "We get less waste this way compared with conventionally wrapped bales and the cost is considerably lower." In fact Alastair gets around 600 bales undercover at a cost of around 30p per bale – wrapping by a contractor costs in the region of £4.75 per bale. Balliefurth's cattle spend winter until late February in the woodland and are fed silage on concrete or natural rock hard standings. Once the finches have cleared the bird seed strips, the herd is moved onto the remaining stems. "What the cattle don't eat they mulch down adding to soil structure and fertility – they are also fed silage in round feeders which are moved daily. Interestingly the cattle seem to make more food available for birds and shortly after the cattle arrive, bird populations increase." In late March cows are moved indoors to calve.

***Brambling Flock – Brambling taking flight. Just one of many species of bird that overwinter on the farm.***

***Crops grown specifically to support wild life are a feature of Balliefurth Farm as information boards explain.***

***Alastair MacLennan's single suckler herd of Shorthorn cross cattle.***

The undersown barley is an important part of the rotational system and all swards on the higher parts of the farm are rich in clovers. The wet lower lying areas require a somewhat less conventional approach and Alastair has devised a seed mixture and management routine that maintains a reasonable level of grazing while remaining acceptable to the wading birds.

The farm's main tractor, purchased three years ago, is a Valtra N101HiTech with an MX loader. "With front suspension it's comfortable to drive – I've a back problem – and we've a number of excellent dealers in this part of Scotland so support is not a problem." Alongside normal farming operations: ploughing, planting, mowing, baling etc., the tractor also hauls the farmers' market trailer to site. With the majority of farm work to manage one could be forgiven for thinking Alastair had plenty to keep him busy however, such is his commitment to his local environment he is also a Cairngorms National Park board member, is at the forefront of the LEAF initiative and sits on the National Access Forum. Alastair is also Chairman of the Cairngorms Farmers Market Association and involved in several other rural organisations confirming his and Ann's commitment the countryside that is their home. They are convinced that if more farmers took time to help educate the public and took more interest in the natural environment their lives as farmers would become a lot easier.

■ **Roger Thomas**

# VALTRA – Multitalented in grassland

## Grass silage efficiently from the field to the

### MOWING

Valtra's TwinTrac reverse-drive system is ideal for mowing. A 10-metre-wide triple butterfly mower can be attached to the rear of a T Series tractor, but just as well a single 3-metre mower can be attached behind an N Series tractor. In both cases the advantages over driving forwards are the same: faster and more precise mowing, lower fuel consumption and better ergonomics. Depending on the model the weight distribution is a balanced 40/60 or 45/55, which is easy on the grass. Factory-fitted wide tyres also protect the ground. The rotating LH LINK front linkage makes turning easy, especially on small or tricky fields. The U-Pilot headland management system in turn reduces the amount of tasks that the driver has to handle when preparing for another run up the field.

### TEDDERING AND WINDROWING

The total weight of Valtra tractors is light compared to the amount of horsepower. As a result, the grass is not crushed into the tracks, dirt does not mix with the silage, and fuel consumption is low. The programmable 4WD automation always engages four-wheel-drive momentarily when moving off from rest or when changing direction. This prevents wheel spin and any subsequent soil damage, which also prevents dirt from mixing with the silage and the accumulation of butyric acid spores in the raw milk. In other words, silage made with good machinery has a positive impact on the quality of the milk and thus also the farmer's business. Furthermore, purchasing redundant machinery is not sensible. Valtra therefore offers a range of options for windrowing and other tasks, from the 74-horsepower A Series to the 360-horsepower S Series, and from the base Classic models to the most technologically advanced Direct models.

### HARVESTING SILAGE

Valtra's Sigma Power innovation generates extra power for PTO work, which is ideal when producing silage. When required for PTO work, Sigma Power automatically produces extra power. Compared with other machinery, Valtra's PTO offers extremely stable speeds, which improves the quality of the silage, enhances comfort and reduces fuel consumption. These advantages are reinforced by the excellent torque and power of the AGCO Sisu Power engines. An extra heavy duty PTO 1000 is available for especially demanding work. The high ground clearance and the flat bottom of Valtra tractors makes it possible to manage even high windrows.

# feeding table

***The Nordic tractor brand Valtra has traditionally been an expert in grassland farming. These strong properties have been further developed year after year to the point that the productivity of Valtra tractors is close to that of self-propelled vehicles. While productivity has increased, the traditional strengths of tractors have not been sacrificed, such as flexibility, versatility and low life-time costs.***

## BALING AND LOADING

Valtra's AutoTraction system, automatic differential lock and other programmable powertrain features can be fully appreciated when baling and pulling a self-loading trailer. It is even possible for the driver to bale without ever having to use the clutch pedal. The stepless Direct transmission is ideally suited to mowing, harvesting and baling, as the speed of the tractor and the engine are not dependent on each other. The availability of external hydraulics is, of course, essential for efficiently handling these tasks. The load-sensing hydraulics on Valtra's Direct and Versu models offer 161 litres per minute of output, and five hydraulic couplings plus two on/off power beyond couplings are available at the rear. Valtra's ISOBUS communication system also makes it easy to control modern self-loading trailers.

## TRANSPORTATION

Valtra is recognised as one of the best tractors for transporting loads. The long wheelbase of the T Series enhances stability on the road, and a 50-km/h transmission is available in all markets where they are permitted for tractors. Valtra's transport boost function also provides additional power when driving on roads. The engines in Valtra's EcoPower models operate at 20 percent lower rpm than standard engines and thus conserve fuel, as do Valtra's EcoSpeed transmissions. When loading or unloading, tractors are often left with their engines on. Fuel consumption and noise are automatically reduced by lowering the engine idle speed to 650 rpm. The output of the hydraulic oil is easily sufficient to tip even the biggest trailers.

## HANDLING BALES AND WORKING INSIDE SILOS

Valtra's unique turbine clutch and factory-fitted front loaders allow for precise and easy loader work. Usability is unsurpassed thanks to the ergonomically designed armrest, which controls the front loader and other functions. The programmable shuttle and Valtra's famous orange lever behind the steering wheel turn front loader work into child's play. A wide range of factory-fitted tyres are available for finding the ideal model and brand for compacting the silage. Valtra's SVC cab also offers enhanced side visibility, which facilitates operating the tractor inside silos and other farm buildings.

# Valmet DRIVER gets a lift

The Northcott family farm in North Cornwall extends to 150 acres; insufficient to support the father and son team Les and Ian Northcott and their families. As a result Les and Ian have developed a contracting business specialising in wrapped, baled silage alongside their beef enterprise. Les also hauls silage trailers for another contractor. Ian, a qualified engineer, works as a maintenance engineer for a local plant hire business.

Some time ago, due to medical problems, Les Northcott found climbing into tractor cabs increasingly difficult. As a result Ian set about designing and building a lift on the farm's 1997 Valmet 6400. "We've had the tractor for several years and it's been highly reliable averaging 1000 hr annually without problems." What, at first sight seemed a simple design and build job turned out to be much more complicated. "The theory was simple enough however, getting around the practicalities was not quite so easy. For instance the front axle pivots which means the wheels move up and down and, for steering, from left to right. Then there are questions to answer – do we want to be able to fit over-size tyres at a later date? And sight lines from the seat; we didn't want to restrict driver vision. Just some of the problems," explained Ian.

Ian designed the lift to be self contained with the frame bolting to the loader mounting points. "There's a hook on top of the mast top so the lift can be attached or removed as a complete unit quite easily." The mast is located next to the cab front pillar. To this is attached a double acting hydraulic ram with 42 inch of travel. A foot plate is attached to the bottom of the ram. Hydraulic power is supplied by a small electric pump, similar to those used to power tipping trailers used behind light vans. The pump and hydraulic reservoir are housed in a sealed locker which is also mounted to the frame. A wire connects to the tractor battery via an isolator switch and a pair of simple up/down buttons completing the controls. Les has simply to stand on the platform and press the up button to be delivered to the cab. A safety latch prevents the platform accidentally dropping, becoming damaged and marooning the Les in the cab. The return trip to terra firma is equally simple and if the tractor is to be used by fully able drivers it's a simple matter to position the lift plate at the half way point, fit a locking pin and then use the platform as a conventional step.

*Going up!!!*

*The lift may be locked with a pin at halfway and used as a conventional step.*

*Driver Les and designer Ian Northcott.*

Since manufacturing the lift, Ian has purchased a second Valmet 6400. A '94 model with 10,000 hours on the clock this second tractor still operates reliably with no sign of a reduction in engine power. "We switched the lift to this tractor at the beginning of the year without a hitch," reports Ian.

With a happy father and several years faultless operation in the bag, Ian was recently persuaded by his wife to enter the lift in the Farmers Weekly Inventions Competition where it made runner up.

■ **Roger Thomas**

## Front linkage and loader on every third tractor

# Red is the most popular colour

***From year to year red is the most popular colour for new Valtra tractors. Last year half of all customers chose traditional red from the range of colour options. Metallic red was selected by 14 percent of buyers. The remaining colours accounted for less than 10 percent each: silver was chosen by 9 percent of customers, metallic green by 8 percent and metallic blue by 6 percent.***

Valtra updated the range of colour options in 2008. Traditional green and blue were replaced by metallic black and orange, which are not available on the A Series. Consequently, the popularity of these four colours appears marginal, as they have only been offered for less than a year. After its first full year on the market, metallic black looks like it will match or surpass metallic blue and green in terms of popularity. The orange and yellow options have their loyal customers among municipal contractors.

The popularity of different colours is also interesting to compare from year to year. For example, in 1992 almost 80 percent of the tractors manufactured in Suolahti were red. Since then the popularity of red has slowly declined, partly due to the increasing range of other colour options.

### One third of tractors specified with a front linkage or loader

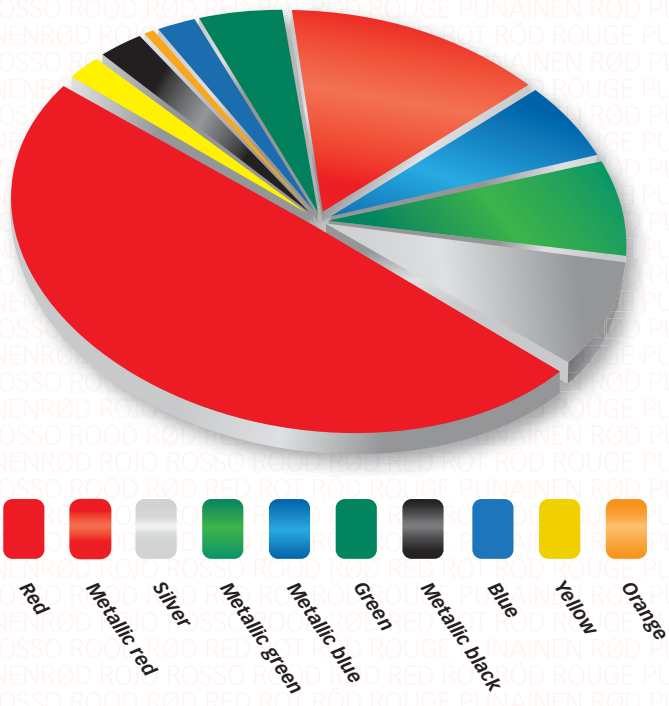
Front loaders and especially front linkages have grown enormously in popularity in recent years. The Suolahti factory is apparently the only tractor plant in the world where front loaders are fitted to new tractors already on the production line. Naturally, front linkages and front PTOs are also fitted directly on the production line. As a result the customer can be assured that the equipment is properly fitted and painted.

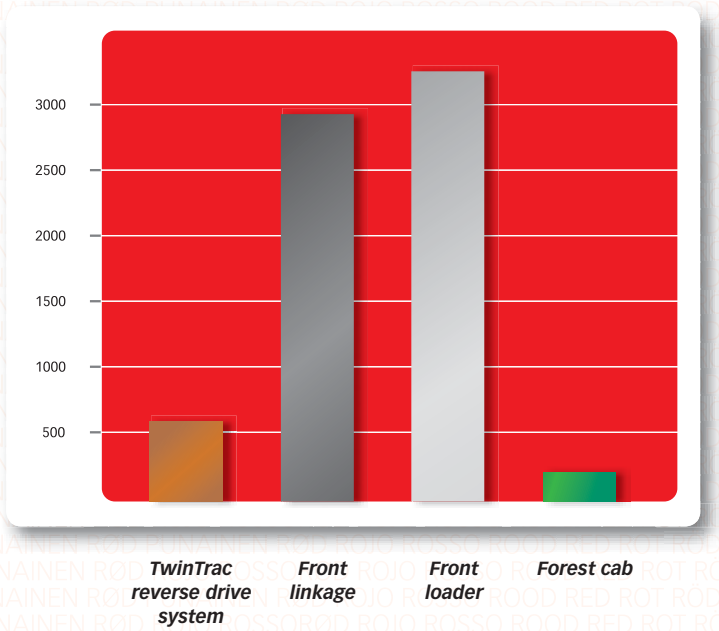
At the factory 31 percent of new Valtra tractors were fitted with front loaders last year. In addition, some loaders are retrofitted by the customer or dealer, so over a third of all new Valtra tractors have a front loader.

Last year 29 percent of Valtra customers specified a front linkage. This figure has increased significantly in recent years.

Valtra's TwinTrac reverse drive system was selected by 6 percent of customers and the special forest cab by 2 percent. This figure includes forest cabs for the N and T Series but not for the A Series. TwinTrac is available only on N and T Series tractors.

■ **Tommi Pitenius**



Harvesting peat for energy and environmental applications

# Peat could even be used to produce

***Finland is rich in natural resources. In relation to the small population, the amount of wood and peat is practically limitless. Forest covers 72 percent of the land, and one third is bog. A considerable portion of the land is both forest and bog. The precise figures are 34 million hectares of land, 23 million hectares of forest, 9 million hectares of bog and just 2.3 million hectares of fields.***

***Outside of Finland, Valtra tractors are also widely used to harvest sod peat in the Baltics and Sweden. Maximum power is taken from the PTO.***

The energy content of Finland's peat resources is as much as 7 times that of our forest resources and 2 to 3 times that of the North Sea's oil resources.

**Renewable peat**

Peat is formed continuously when the undergrowth decays in the autumn and sinks into the bog. Each year around 40 million square metres of new peat is formed each year in Finland, compared to an annual harvest of 20 to 30 million square metres. The cool climate accelerates the formation of peat and bogs. Unfortunately, the Intergovernmental Panel on Climate Change (IPCC) does not classify peat as a renewable energy source. Instead, peat is classified separately between renewable and fossil fuels.

Finland is a global leader in peat expertise. Other important peat production countries include Ireland, Canada and Germany. By far the largest bog resources can be found in Russia and Canada. In Finland over 7000 persons are employed in the peat industry. Between 6 and 7 percent of Finland's electricity and one-fifth of its district heating is produced by burning peat.

Peat production falls into two categories: energy peat and environmental peat. Energy peat is harvested as separate cutter peat or sod peat. Forms of environmental peat include horticultural peat, bedding peat and oil absorption peat.

Production on a single bog can last from 25 to 30 years. After this there are many options. The bog can return to its natural state into a marsh or lake that will rapidly attracts birds. Alternatively, the bog can be transformed into forest or fields for cultivation. An ideal crop in these conditions is reed canary grass, which can also be used for energy production.

Using the FT gasification method, peat can be processed into a liquid fuel, even diesel. This research is continuing, and tests are being undertaken using both wood and peat together.

How exactly is peat harvested? A single peat production should ideally cover at least 100 hectares. Any trees, stumps and rocks have to be removed, after which the area is divided by ditches into 20-metre strips. Usually these ditches have to be cleared once a year, as drying is essential to the process. The run-off water is fed into precipitation and filtration pools.

# diesel

***Valtra is the undisputed leading tractor brand for peat production in Finland. Many important benefits, such as a strong transmission, ground speed PTO and excellent customer service, make Valtra tractors the number one choice for these demanding conditions. Here a Valtra T190 pulls an 80-cubic-metre tandem vacuum trailer.***

***Tractors also have to versatile and agile for working on peat bogs. Here a Valtra N tractor is stacking peat for storage. This model offers excellent ground clearance, good protection and filtering, and the benefits of the TwinTrac reverse-drive system.***

Cutter peat accounts for the majority of production. The top layer of peat, around one inch in thickness, is first turned over and dried using a cutter and turner. After this the dry peat is loaded onto a peat trailer by suction or mechanically.

The harvested peat is then transported by truck to a power plant, for example. Cutter peat is used to produce heat and electricity, usually mixed with woodchips or reed canary grass.

Between 250 and 1100 cubic metres of peat can be harvested from a single hectare in one summer, depending almost entirely on weather conditions. The average yield is 500 cubic metres.

### Valtra is the leading brand on Finnish peat bogs

The ideal tractors for peat production produce 120 to 180 horsepower – the most popular power class is between 140 and 150 horsepower. Altogether 1600 to 1700 tractors are used in Finland for harvesting peat in the summertime. All of these machines are owned by private contractors, who are paid per cubic metre. Quality, especially moisture content, also affects the price.

For many years Valtra has been the most popular tractor brand for peat production in Finland. The company entered this market in the early 1990s with the 8400 model. Currently two-thirds of the tractors used on Finnish peat bogs are Valtras. The location of the Suolahti factory in the heart of Finland is a considerable advantage. Customers can depend on the brand's spare parts availability and customer service, which is available 24-7 during the harvesting season.

■ **Juhani Rahkonen**

## Peat production team relies on a f eet of 26 Valtra tractors

# Choice of brand based entirely on positive experience

Each year PJ-Turve cultivates peat on 800 to 1000 hectares in Southeast Finland. This summer the company's peat team, led by **Petri Jussila**, had over 800 hectares in four different bogs at its disposal. Production usually begins at the start of May and ends in the last week of September.

PJ-Turve is the team record holder for peat production in one season. In summer 2006 the team harvested 1.15 million cubic metres of peat from approximately 1000 hectares. The majority of the peat is used for energy production, while the rest is used as horticultural or bedding peat for farms.

The company's production team is one of the biggest in Finland, consisting of 26 tractors – all of which are Valtras – and approximately 40 drivers who harvest the "brown gold" whenever the weather permits. For two weeks a year in late June and early July it is possible to work throughout the white nights thanks to the endless light and the lack of dew. When the darkness returns, the peat dust can hang in the air for a long time when it is dry and calm, making it too dangerous to work in the dark.

Why does the team rely so heavily on Valtra tractors? "It's a strong brand that offers a good tractor and reliable customer service – a knowledgeable team with fast service. Valtra's transmission is durable, and other brands do not offer such a reliable ground speed PTO," Petri Jussila explains.

Jussila does not require any further technological advances.

"For us the current HiTech range offers everything we need. On peat bogs the work is simple and hard. For agriculture and contracting other features might be needed, such as those provided by the Versu and Direct models, Jussila considers."

■ **Juhani Rahkonen**

***Petri Jussila is managing a 26 Valtra peat production team covering over 800 hectares. Passed summer in the area was not very favourable regarding weather conditions. A peat contractor is always looking forward to next better season.***


*The Valtra T202 comes in several different versions, along with optional equipment to meet customer needs.*

## First Direct Valtra T Series tractors take to the Danish fields

# New stepless Valtra Direct tractors on farms

***Four Danish farmers received their Valtra T202 Direct tractors in time for sowing the winter seeds in the fields.***

***– The first thing I really noticed was the low noise level in the cab, says Preben Jepsen from Bodum near Aabenraa.***

*Three customers for the new Valtra T202 Direct at Hans Holm Maskinforretning A/S in Tinglev. From left to right: Preben Jepsen, Niels Christian Bergmann and Bjarke Lassen.*

Mogens Hansen from Hesselager on Funen went for a tractor fitted with a lot of the optional equipment that can be used to customise Valtra tractors.

– I wanted a future-oriented tractor, and now I've got one, he says about his new Valtra T202 Direct.

– In addition to the CVT transmission, I selected the cab with AutoComfort air suspension, the Auto-Guide system and an air-conditioned Valtra Evolution seat.

### Long-standing Valtra customers

Niels Christian Bergmann from Hoejer was also pleased that Valtra now supplies CVT tractors.

– These are the kind of tractors we need on our livestock farm because the CVT transmission offers so many advantages in the field, he explains.

For Bjarke Lassen from Graasten, fuel savings were decisive in his choice of a CVT Valtra T202 Direct tractor.

– I transport a lot of hay on roads, so the amount of fuel needed to cover the 700 hours of annual driving is a big factor, Lassen says.

All four farmers have been satisfied Valtra owners in the past. They all agree that good service from their respective dealers has influenced their choice of brand.

*Mogens Hansen (left) and Morten Thueman next to the Auto-Guide ready CVT Valtra T202 Direct, which was delivered in early September.*

### A unique CVT tractor

Rather than fitting its T Direct Series with a known CVT transmission, Valtra has designed its own. The transmission in question boasts four driving ranges called A, B, C and D.

Range A is used for heavy-duty traction and operation on special crops where the working speed is very low at no more than 9 km/h. Range B is used for most types of field operations where the maximum speed is 18 km/h. Range C is used for high-speed operations, such as field transportation and road travel with heavy loads. Here, the maximum speed is 30 km/h. Range D is used for road transportation up to 40 or 50 km/h depending on country.

In all the ranges the tractor starts off at 0 km/h and increase its speed steplessly until it reach the designated maximum speed. The stepless transmission with four ranges offers much better efficiency than stepless transmission with only one or two ranges.

■ **Kim Pedersen**

Design Manager Kimmo Wihinen:

# Tractor design

## driven by ease-of-use

***Valtra has a long tradition of developing user friendly, ergonomic and comfortable tractors. The safety cab, synchronised transmission, gear levers on the right, hydrostatic steering, handbrake integrated with the shuttle and many other features that one takes for granted today were introduced to the tractor world by Valtra and its predecessors Valmet and Volvo BM. Valtra Design Manager Kimmon Wihinen is doing his part to ensure that this heritage is continued in Valtra's future tractor models.***

Developing a new tractor, or even a single part, is a long process – certainly much longer than most tractor owners would expect. The starting point can be either a customer wish, an idea created within R&D or new regulations.

"Often the inspiration for my own ideas comes from somewhere other than the agricultural machinery sector. For example, in design an idea can come from nature, from other vehicles or even from a shampoo bottle. Indeed, it is often said that a designer never takes a break since he is continuously checking out the things around him and finding ideas for his own work," Kimmo Wihinen remarks.

Industrial design always goes hand in hand with engineering. Both sides set conditions for each other. For example, the design of the engine cover seeks the best solution in terms of visibility, cooling, servicing, protection, production, long life and, of course, looks, along with countless other factors. It takes a lot of skill to combine all of these oftentimes contradictory demands into a harmonious design.

"Usually the work begins by finding out about customer wishes. For example, when we began brainstorming the driver's dream cab, we filmed a dozen or so farmers and contractors at work simultaneously with three video cameras. By combining these videos it was easy for us to follow from both from the outside and inside the cab how the tractor and driver worked in different situations," Wihinen describes.

Industrial design involves experimenting with lots of different alternatives, discarding the worst ones and further developing the better ones. Although some of the design work is done on the computer, full-scale models are essential, especially for initial usability research. Good old fashioned pen and paper are also still used for sketching ideas and presenting them to colleagues.

"In practice cab ergonomics and usability can only be tested using full-scale models. Even though there are plenty of good computer-based 3D programmes these days for planning ergonomics, it would be a mistake to think that an ergonomically good work environment and controls can be designed using software alone."

Crafting the armrest requires a lot of practical carpentry skills, a good idea and practical expertise in ergonomics, as the shape and usability are fine-tuned to a large extent using prototypes made from modelling wood.

Once the model has been shaped into a form that is pleasing for users, the next phase is to use special 3D scanning technology to transfer the dimensions and forms onto the computer. This work has to be very precise, as if the shape or location of a handle or switch is off by just a few millimetres, it can feel completely different than on the original model.

***The driver's armrest is a fine example of the industrial design process. There are around a dozen different versions, and the end product is completely different than the first models.***

***Design Manager Kimmo Wihinen.***

"Industrial design is not about applying stickers to the bodywork or shaping items after they have been produced. When the design process progresses in balance with both engineering and design, the end result is a tractor that is easy to use, safe, durable, efficient, good looking and easy to build."

**Engineering in Finland and design in Stanford**

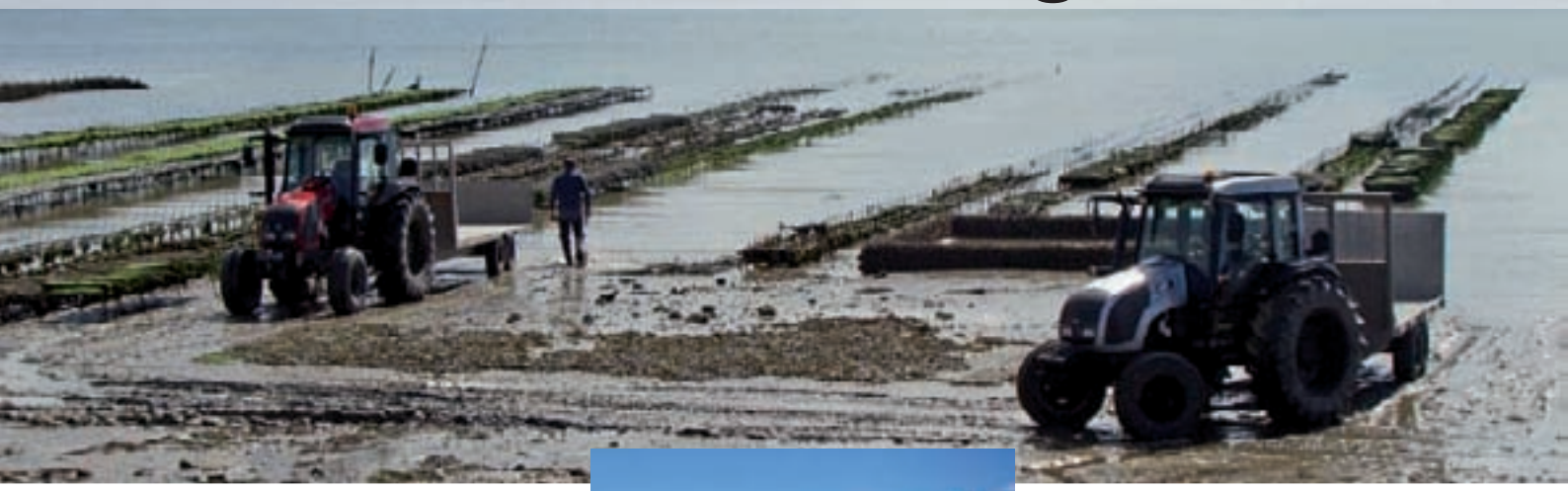
Kimmo Wihinen has a peculiar background for an industrial designer, as he originally studied mechanical engineering. He later earned a master's degree in industrial design from Helsinki and Stanford.

"My engineering background is a great advantage for working together with other designers and engineers. It also opens new opportunities for my actual design work, which involves a lot of co-operation both within Valtra and among suppliers and other partners, including design and engineering offices, test laboratories and select customers who test drive for us. It's important not only to be able to explain to them what you are doing, but also to listen to what others have to say and contribute. A good product is never created by one person alone; it requires seamless co-operation among experts in different fields," Wihinen emphasises.

Wihinen is currently working on several projects, one of which will stretch all the way to 2020. On the walls of his office and in his modelling workshop are wild visions of how land could be cultivated in the future, as well as more traditional details that can make today's tractors even more user friendly.

■ **Tommi Pitenius**

# Valtra at the water's edge!



Île de Ré, known as the Isle of Rhé in English, is a popular French tourism destination off the west coast of France near the city of La Rochelle. Each year several thousand tourists tour the coastal pathways around the island, especially by bicycle. Covering an area of approximately 85 square kilometres, Île de Ré has a population of approximately 18,000 in the off season and ten times this number during the summer. Outside of tourism, the economic activity of Île de Ré relies on its marina and its oyster culture. Two local oyster farmers and Valtra customers, Messieurs **Henry** and **Boyer**, invited us along to find out more about this fascinating business.

After several kilometres of cycling trail we make a detour to the small community of Rivedoux. Here at the edge of the ocean, just in front of the Pont de Ré bridge, Mr. Henry and Mr. Boyer, cultivate their oysters. Each year they harvest over 450 tonnes of oysters behind the wheel of their Valtra A Series tractors amidst a landscape that mixes ocean, salt marshes, meadows and villages.

The Valtra A Series tractors have proven their effectiveness in the face of very exacting working conditions over the past two years.

"I am very satisfied with my silver Valtra tractor. It is simple and reliable with its mechanical transmission. In addition, on the island, everybody is familiar with it. It is even pictured on the first pages of our tourist guide," Mr. Henry proudly points out.

The Valtra tractors are equipped with two-wheel drive, a necessary characteristic for moving with ease in a marine environment. Also, the high ground clearance of the Valtra


A gives it great manoeuvrability over rough terrain.

The work at the two oyster farms is not limited to the ocean, as almost half the time is spent on the road transporting the oysters. In these conditions, the 40-km/h transmission is ideal. Mr. Henry certainly does not regret the purchase of his Valtra A Series. "Since then, my neighbour bought the same model but in blue!"

### One of the leading oyster producers in the world

A traditional business born in France in about the year 1853, oyster culture expanded rapidly thanks to French consumption. The annual oyster culture production in France is over 120,000 tonnes divided over 7 principal production basins. This production places France among the top 10 largest producing countries alongside China, South Korea, the USA and Japan.

The only imperative is to regularly wash the tractor to avoid corrosion from the sea salt. In Mr. Henry's future there is likely to be a second Valtra tractor, only the colour may change.

■ **Gregory Fourmont**

### GC Distribution SAS

has been a Valtra dealer for a little over 3 years. This dealership is located at Mauze sur le Mignon on 4000 m² premises close to the A10 autoroute and serves the southern Deux Sèvres and all of Charente Maritime. A branch is also located at Melle. The company employs 27 people, including 5 sales representatives. Sales in 2008 amounted to 8 million euros. Each branch has a retail area specialised in agricultural parts and supplies.

The dealer's customer base is composed largely of farmers and local governments. Northern Charente Maritime is typically a grain producing region, while the southern part includes a relatively substantial wine producing area (Pineau and Cognac). Le Mellois is more diversified in mixed farming. Île de Ré, near the main branch, includes numerous oyster culture clients for both new and used tractors.

## Demand for agricultural products will grow in the future

# More eaters, less fields

***Agriculture is going through hard times right now, but in the long term the future for the industry looks excellent. Demand for agricultural products will certainly increase, but production will grow less rapidly or even decline.***

Demand for agricultural products will increase above all due to population growth. Each year the global population increases by approximately 77 million people, which is almost equal to the population of Germany. Ten years from now over eight billion people will inhabit our planet – and we all have to eat every day.

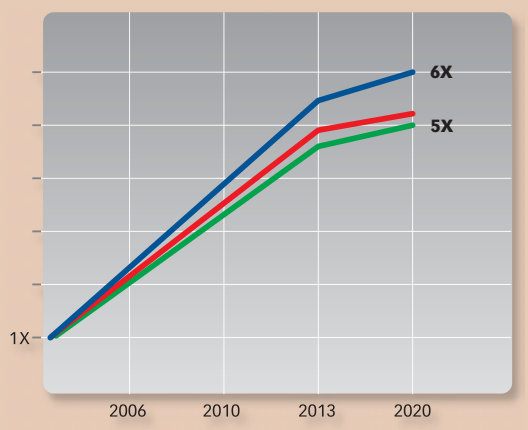
Another factor that is increasing demand, perhaps even more than population growth, is the changing eating habits in the developing nations. In China and India, for example, the increasingly prosperous population is eating more meat and dairy products at the expense of vegetables. An animal-based diet requires approximately seven times more land than a plant-based diet. Approximately two-thirds of the planet's fields are used for cultivating feed for animals.

Furthermore, an increasing share of agricultural production is used for energy production. Oil plants are cultivated to produce biodiesel, while grains and corn are distilled to produce ethanol that is mixed with gasoline. In addition, hay can be used to produce biogas, while straw, grains and woodchips can be burnt to produce electricity and heat. In Brazil around 40 percent of all the transportation fuel that is sold is bioethanol, up to 7000 litres of which can be produced per hectare from sugarcane.

The planet has around 13 billion hectares of land, of which approximately 1.5 billion hectares – or 11 percent – is fields. The amount of fields is expected to remain the same or to decrease slowly due to the spread of residential areas and deserts, as well as due to erosion, pollution and leaving fields fallow. At the same time forests are being cleared to make new fields. The amount of forest is decreasing faster than that of fields. In other words, each hectare of field must produce higher yields in the future in order to satisfy the dietary needs of the planet's growing population.

■ **Tommi Pitenius**

**Projected bio-fuel production**

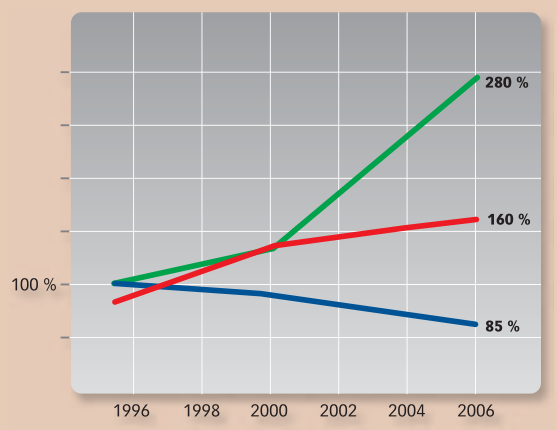



*6x Ethanol, USA*

*5x Biodiesel, Brazil*

*5x Biodiesel, EU*

**Growth in food consumption per person**




*Chicken consumption India*

*Beef consumption China*

*Rise consumption Asia*

# a life built on timber

*At home in Hillsborough, Northern Ireland, Jeremy Suffern enjoyed design and technology, particularly woodwork while at school so it came as no surprise when, eleven years ago, he started his own business designing and manufacturing bespoke furniture. Jeremy has a natural affinity with timber of all types and his enterprise has proved highly successful. Then, a couple of years ago his workshop required a new heating system and with a ready supply of hardwood on the farm Jeremy naturally investigated a wood fired unit, ultimately installing a wood fuelled gasification boiler just at the time oil prices went into orbit. Word of the system spread and neighbours with wood burning stoves enquired about purchasing supplies of logs from Jeremy.*

**Was this a second business opportunity?**

Twelve months on Jeremy and father Seymour, who also runs a pedigree Limousin herd, launched Homra Timber Services as a separate business to meet a growing market for seasoned fuel wood. As a matter of necessity the business required machinery and through 2008 and 09 they purchased several important pieces of plant: a tractor – a Valtra N101, a timber forwarding trailer, a firewood processor and a 30 ton horizontal splitter.

**But why Valtra?**

"I have always liked Valtra tractors," is Jeremy's reply. After some research Jeremy had quickly learnt of the Sisu engine's excellent reputation. "Manufactured in Finland, Valtra are designed as much for forest work as for farming. The N101 is compact for a 110 hp tractor and has a tight turning circle. This suits our yard and tight racks of trees in the forest." Jeremy also appreciates the build quality and no fuss design of the interior. "The swivelling seat is a must – I use a forwarding trailer. Also when I had my first drive in the Valtra I found the cab was large, roomy and comfortable, this is ideal for longer journeys and when loading. Finally, the price was right and the local dealer T.H.Troughton of Poyntzpass run by Cecil and Betty Troughton has a good reputation."

To get off to a flying start Homra Timber Services initially cut and processed dead wood.

*Jeremy utilises timber from tree surgeons and forestry thinnings.*

*Logs are sold by volume with a premium for hardwood. The bags have open mesh on two sides to facilitate drying. Properly loaded they stack three and four high in safety.*

Jeremy does not fell but purchases trees at roadside or stump from private landowners. The timber is hauled back to base where, depending on size, it is split and cut into metre billets, air dried before cutting and further splitting as necessary. "I'm beginning to get to know my customers and their stoves. I then cut logs to suit. A seasoned log that fills the stove grate produces heat more efficiently and requires less attention than a number of smaller logs." Once cut to their final size logs are packed into metre bags for delivery – sales are made by volume rather than weight with a premium charged for hardwood over soft wood logs. While Jeremy is processing dead wood to meet immediate requirements he is also buying freshly felled timber, mostly thinnings. Again these are cut to metre lengths split as required and stacked to dry which, depending on the season in which the tree is felled, could be two years or more.

Interestingly, customers are not limited to the immediate geographical area. "We have developed a customer base in many parts of Ireland and have negotiated a flat rate contract with a haulier of £35 per cubic metre bag into the south of Ireland and £18 in Northern Ireland." Similar to big fertiliser bags those used by Jeremy are closely woven on two sides and have mesh on the others to facilitate air flow. When carefully filled they can be safely stacked four high and are easily moved and loaded onto trucks with a forklift. The haulage contractor has vehicles with forklifts piggy backed on the rear so final delivery is also simple.

*Cantilever Sideboard – An example of Jeremy Suffern's high quality bespoke furniture.*

*The N101 is highly manoeuvrable – important in both forest and around buildings.*

*Homra Timber services have invested in equipment to split and length timber.*

*Jeremy finds the swivelling seat comfortable for both loading and unloading and when negotiating forest rides.*

As a new enterprise, how did Jeremy and his father estimate initial sales?

"That was difficult. At 1,000 $m^3$ in the first year we are well above initial estimates and well on our way to what we think will be the optimum of 2,000 $m^3$."

How will he cope with his established furniture business and demands on his time by the wood fuel enterprise?

"Both have seasonal fluctuations and once we get over the initial setting up period father and I see them as being complementary – it is also nice to get outside into the fresh air occasionally so a bit of overtime in the woods won't hurt."

■ **Roger Thomas**

## Celebrating 30 years since the historic agreement between Volvo BM and Valmet

# *Valtra's Nordic roots*

***When the tractor market in Europe grew increasingly saturated at the end of 1970s, Swedish manufacturer Volvo BM took the strategic decision to concentrate on construction machinery. In March 1978, Per Gyllenhammar, Managing Director of AB Volvo, invited the Managing Director of Valmet, Jaakko Ihamuotila, for negotiations. A Letter of Intent was subsequently published on 14 November 1978, and the final agreement was signed on 1 October 1979. Valmet acquired Volvo BM tractor operations.***

The press release announced that, "The only Nordic manufacturers of farm tractors, Volvo BM in Sweden and Valmet Oy in Finland, have agreed to start negotiations aiming at co-operation regarding product planning, development, manufacturing and marketing of tractors. The planned co-operation will constitute a strong platform for the Nordic tractor business."

The following figures from 1978 illustrate the logic of co-operation: the net sales of AB Volvo were about 13 billion Finnish markka (approximately EUR 2.17 billion), while Valmet Oy's net sales were about FIM 4 billion. However, the net sales of the Volvo BM tractor operations were about FIM 300 million, while Valmet's tractor operations' net sales were FIM 900 million, including Valmet do Brasil's tractor operations. This co-operation agreement marked the biggest ever industrial deal between Sweden and Finland at the time.

The companies established the 50/50 joint venture Scantrac in Eskilstuna, Sweden. The company was in charge of marketing Volvo BM and Valmet tractors outside Finland. The next task was the development of a new "Nordic Tractor" together with Valmet engineers.

The deal was favourable to both parties. Volvo BM left the tractor business without image losses, because the parties made a long-term component delivery agreement. Volvo BM delivered cabs and transmission parts to Valmet, enabling a smooth structural change in production. Valmet entered new market areas, the most important being the Scandinavian countries, the Netherlands, France and some overseas markets. Valmet could increase its production volume at the Suolahti, Finland plant, and conditions were favourable for the Linnavuori engine plant (now AGCO Sisu Power).

Technically, Volvo BM had more experience with partial powershift transmissions, while Valmet was experienced in synchronised transmissions and 4WD solutions. Both were forerunners in safety cab technology, Volvo emphasising comfort, Valmet ergonomics.

The new jointly developed tractor, the Volvo BM Valmet, benefited from the best of both. All suppliers of Volvo BM and Valmet participated in the development. For example, the cab was developed in tight collaboration with the Volvo BM Hallsberg cab factory, the new Valmet engine D Series by Valmet Linnavuori works. The design was by Volvo Product Design in Gothenburg led by the legendary chief designer Jan Wilsgaard, who was in charge of Volvo vehicle design from the Volvo Amazon to the 700 Series. One can see how the Volvo BM Valmet tractor resembles the Volvo 700 passenger car, with its angular cab and wedge-shaped bonnet. The first Volvo BM Valmet tractors were introduced to the press at the Eskilstuna trotting track in May 1982.

The most important outcome of the co-operation was the process that joined two industrial cultures, the quality and safety values of Volvo combined with the innovativeness and precision manufacturing methods of Valmet. In marketing, the leading principles were Scandinavian quality, reliability, flexibility and respect for customers. Today's Valtra tractors are based on this historic agreement that was signed 30 years ago.

■ **Hannu Niskanen**

The following is a description of the philosophy behind the Nordic Tractor published in 1979. The same applies very much to Valtra tractors today.

# Characteristics of the Nordic Tractor

**Farmers will be more professional and cost-conscious**

- Favourable ratio between second hand/new tractor value
- High reliability, long lifetime
- Designed for easy service and repairs

**The farming of the future will be based on higher knowledge of farming operations, leading to shorter and more intensive working periods**

- High efficiency and reliability
- Easy to drive
- Excellent working conditions
- Easy and fast daily inspection
- Large fuel tank

**Cost for service will increase**

- Basic design for easy service
- Possibility for "do-it-yourself" service

**Legislation will have a higher impact on the development of tractors**

- Co-operation with authorities to support their objectives
- Fulfilling the requirements and making commercial use of them

**In the Nordic countries tractors have many other uses outside field work, such as transport, forestry, cleaning snow, road maintenance and municipal services**

- High ground clearance
- Clean bottom and side lines of the chassis
- Good fixing surfaces and holes for loaders, cranes etc.
- High permitted axle loads and large tyres

**Soil compaction is a problem in Nordic countries**

- Low weight, high power in engines
- Four-wheel drive as standard
- Large wheels, easy mounting of double wheels
- Higher working speeds

**Summary**

- Reliable, uncomplicated basic design
- Low need for service
- Favourable 4WD with good weight distribution
- Large tyres
- Low weight, low centre of gravity, high ground clearance, clean chassis
- Safe and comfortable cab
- Large fuel tank
- Large selection of options and accessories
- High second-hand value

# Valtra dealership partner takes top business award

**Fiona McLaren** of McLaren Tractors Ltd, Dingwall has been awarded Business Woman of the year (Director/Self Employed) by the Highland Business Women's Club.

McLaren Tractors was founded by Fiona and husband **George** in 2003. George had many years experience in farm machinery sales and Fiona contributed her considerable marketing experience, gained while working for Visit Scotland. "The time seemed right for striking out on our own, it was hard work but we met all our business goals in that first year," recalls Fiona. October 2004 saw Valtra join the McLaren's range of products and sales have increased steadily over the past five years. Today, alongside George and Fiona, McLaren Tractors employs two engineers, an apprentice and a storeman and works closely with **Gordon Donn**, a sub-dealer based further north in Caithness.

The Highland Business Women's Club provides an opportunity for business women to network, share experiences and knowledge and as a result create a positive influence on the Highland business community. The award was made at the Club's annual dinner in the Drumossie Hotel, Inverness. Fiona dedicated her award to the McLaren Tractors hard working staff, insisting that it was only due to their efforts that she was there that evening.


# A bright future for farming

When trading becomes difficult it's easy to worry about today and forget the future; not tomorrow but several years hence. Not something of which Valtra dealers **Cecil** and **Betty Troughton** can be accused. T.H.Troughton of Poyntzpass has sponsored their local YFC, providing members with distinctive shirts with the club name – Bleary YFC – on the front alongside the Valtra logo. The club, which celebrates its 80th year in 2009 reciprocated when member **Suzanne Halliday** won the tractor handling competition at Lurgan Show – driving a Valtra N101.

By day Suzanne is a Herd Development Officer for United Dairies in Northern Ireland helping farmers improve milk yields, breeding programs and welfare by developing records, heat detection systems and service data. Interestingly, Suzanne's advice has a very practical background. Her working day at United Dairies over she sets too and milks 300 or so cows; a mixture of pedigree Shorthorns and Holsteins through a 30/60 rapid exit parlour. That done Suzanne frequently turns her hand to a variety of tractor work including making a pretty good fist of ploughing.

But Suzanne's day does not end there; an active member of Bleary YFC she's won the cup for Best Member, a pastime which included organising trips for club members in Northern Ireland to visit the Royal Highland Show.

***Suzanne Halliday with silverware for tractor handling at Lurgan Show, and for her hard work and commitment with Bleary YFC. Shirt courtesy of Valtra dealer T.H.Troughton of Poyntzpass. "We supplied the club members to give them a lift in the club's 80th year."***


***The Valmet 118-4 Alcool proved to be a popular model. The 118 was also Brazil's first four-wheel drive tractor model. The engine was a 5.9-litre six-cylinder MWM that produced 128 hp SAE/2300 rpm. The tractor featured a 12+4R synchronised transmission, and it weighed 5000 kilos without additional ballast. This model laid the foundation for Valtra's current dominance on large Brazilian plantations.***

# **Alcohol tractors** *in Brazil*

There is much talk these days about renewable energy resources. Over the decades Valtra has developed increasingly diverse solutions. For example, Valtra teamed up with Agrifood Research Finland (MTT) to develop a tractor that runs on carbon monoxide. We also studied the use of plant oils before the introduction of biodiesel and carried out research into using alcohol as a fuel. Subsequently, series production of Valmet tractors running on alcohol was introduced in Brazil as early as 1983.

The Proalcool Project began in Brazil in the 1970s in response to the energy crisis. Ethanol was distilled for use in petrol engines. Just as Valtra is today, Valmet was the market leader among sugarcane producers in Brazil's ethanol industry, so it was natural that its customers wanted to use their homegrown fuel. Valmet wanted to design an ethanol engine that worked on the diesel process. Engine supplier MWM (Motorenwerke Mannheim), which had carried out similar research with Fendt in Germany, was selected as the co-operation partner.

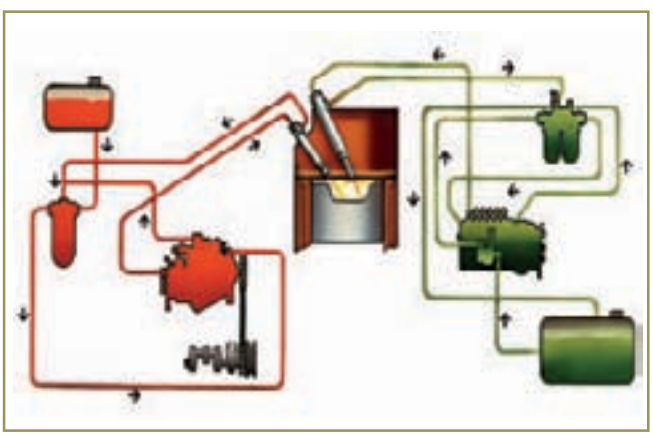
The result was an engine that ran on two types of fuel. Since alcohol does not combust under compression like diesel fuel does, the system used two fuel pumps. A distributor pump injected diesel into the cylinder in a quantity that corresponded with the engine's idle speed to act as the primer. Correspondingly, an in-line pump injected the right amount of ethanol for the required power output. At full output the consumption of diesel fuel was just 10 percent of the amount of alcohol consumed.

Applying the technology to tractors was not easy, however. Due to the effects of the ethanol, vulnerable parts and gaskets had to be chosen carefully. Small amounts of plant oil were added to the ethanol to lubricate the pump elements. The engine was made available on the four-cylinder Valmet 88 and the six-cylinder Valmet 118-4.

By 1986 the cost of diesel had come down to the extent that the bi-fuel system no longer offered cost savings, especially as the technology made the tractors more expensive. A total of 1700 tractors running on alcohol were nevertheless produced between 1983 and 1986.

History repeats itself. News has recently emerged from Brazil that alcohol engines operating on the diesel process are once again being developed for use by tractors on sugarcane plantations.

■ **Hannu Niskanen**



***Renewable forms of energy were studied already in the early 1980s. Bi-fuel diesel engines used a distributor pump to inject diesel into the cylinder in a quantity that corresponded with the engine's idle speed to act as the primer (red) while an in-line pump injected ethanol (green). Ethanol does not combust under compression like diesel fuel does. However, when the small amount of diesel combusted, the ethanol would also ignite.***

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