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FARMING OPERATIONS.

FOR THE RECORD.

NEW ZEALAND FARMER WARREN DARLING BRINGS
IN WORLD RECORD HARVEST.

WARREN DARLING

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FOR THE RECORD.

NEW ZEALAND
FARMER WARREN
DARLING BRINGS IN
WORLD RECORD
HARVEST.

The Guinness Book of Records was originally created by Guinness Breweries as a way to settle debates that frequently arise in pubs over a few pints of beer. So it's only fitting that one of the more than 40,000 achievements it chronicles concerns the primary ingredient of Guinness Stout, barley.

Up until this year the world record for the highest barley yield was 12.2 tonnes a hectare (226.94 bus/acre), a record that had stood since 1989. But in 2014, New Zealand farmer Warren Darling had a spectacular harvest that came in just shy of that record at 11.5 tonnes a hectare (213.92 bus/acre), and that started him thinking.

"We knew there was a record for wheat because it is held by a New Zealand farmer," said Warren Darling from his farm just outside the port

Continued



FOR THE RECORD.

city of Timaru on New Zealand's South Island. "So we looked in the Guinness World Records to see if there was one for barley and saw how close we were. That's when we decided to give it a crack and see if we could beat it."

Darling's 1,112 acre (450 ha) Poplar Grove Farm is located just south of Timaru, and runs about 1.9 miles (3 km.) along the coast and 1 mile (1.6 km) inland. Here he grows barley, wheat and rapeseed (canola) on land that is fairly rolling with a good clay base.

"We have a UK breeder here, Blackman Agriculture, that develops wheat and barley varieties for our growing conditions. So we were lucky to get on board with one of his new varieties that perform very, very well under our conditions."

Darling says that the extra help allowed him to monitor the crop more closely and be more accurate with his inputs. That extra attention to detail, plus a perfect growing and harvest season was enough to gain him the record.

world at growing barley, especially with all of this media attention we are now receiving."

By coincidence, the previous record holder, Scottish farmer Gordon Rennie, was in New Zealand a few weeks after the news broke and he took time to visit Darling to express his compliments.

"He was quite humble in defeat, and more than happy to just find out how we had done it. His record did stand for 25 years so he had done pretty well for it to last that long."

So what does one use to harvest the heaviest barley crop in history?

In Darling's case it was a CLAAS Lexion 770 combine mounted with a 30' (9.1 m) MacDon® FD75 FlexDraper® header. Now in his second year with the duo, Darling says he had switched the standard header that the 770 came with in favour of the FD75 to better suit the min-till farming practices that he had recently adopted.

"There's probably a similarity to the growing conditions of Western Europe to what we experience here on the South Island. Most of the new wheat and barley varieties we use come from the UK, so we started following their min-till farming practices that they use over there."

Darling says that his switch to min-till was also hastened by growing local pressure against the farming practice of burning off crop residues. With Timaru so close and the island's main highway running through his property, tolerance for the smoke this practice caused was rapidly waning.

In the end, Darling says that min-till has been a boon for his farm, and not only for its contribution to his world record, but in that his land now retains moisture better.

"Before we were burning off and multi-passing with our cultivation equipment, and the cost was

"CEREALS SUCH AS WHEAT AND BARLEY GROW ESPECIALLY WELL HERE. THERE'S USUALLY ENOUGH RAIN IN THE WINTER TO CARRY US THROUGH THE SUMMER..."

"Cereals such as wheat and barley grow especially well here. There's usually enough rain in the winter to carry us through the summer, and we don't get the extremes like real hot temperatures in the summer or real cold temperatures in the winter."

But Darling, who relies on only himself and his wife Joy to manage his farm, knew that if he was going to go for the record, good land and favourable conditions weren't going to be enough. He was going to need a little help.

"Once we were registered with Guinness and found out what their guidelines were, we then set out to get the best advice we could to grow the crop."

For his world record attempt Darling assembled a team of the best agricultural minds available to him representing companies such as Bayer CropScience, CLAAS, Agronomy Solutions and Ballance Agri-Nutrients. He also gained access to a new barley variety developed specifically for the New Zealand market.

"There was really no secret recipe to the success of it all. It was just getting the best advice that we could so that we could be more precise with everything we did to our crop. We also had a great winter that set the crop up with good moisture in the ground, and then our minimum tillage cultivation practice allowed the soil to hold all that moisture through the growing season. Finally, we had a great growing season followed by ideal harvest weather. It was really the perfect storm of everything coming together as we needed."

The result was a January harvest that came in at 13.8 metric tonnes per hectare (256.7 bus/acre), shattering the old record by more than 13%. After having the harvest validated by a local Justice of the Peace, Darling then submitted it to Guinness and an anxious three-month wait for the official word.

"I was on holidays in Australia when I found out the record had been ratified. To be honest, it was more of a relief when I heard. Only now it is starting to sink in that we are the best in the

horrendous compared to what we are doing today in fuel and equipment costs. Now we are a one-pass operation and spend only 25 minutes cultivating, and 1.8 imperial gallons per acre (20 litres of fuel/hectare)."

Now with two seasons using his FD75, Darling confirms that his switch to MacDon's FlexDraper® brand header was the right move.

"We had trialed a FlexDraper® the year before and had seen how well it cut all of our crops, so once we decided we needed a flex head, all we wanted was a MacDon®. Because of our min-till system we have to combine no more than four (10.16 cm) and six inches (15.2 cm) off the ground to keep our stubble even. The FD75 follows our contours beautifully, even in a gully that runs through our property where cutting at the bottom can be difficult with a standard head. Now, we no longer have issues with uneven cutting."

Darling reports that his FD75 performed very well in this year's record breaking barley harvest and was able to cut at about the same speed as his old combine (around 4 km/h or 2.5 mph) even though he was taking in a much higher volume of crop.

"The combine was actually the limiting factor. We couldn't really go any faster because of the volume of straw that the combine had to process. But the feed into the combine was even, and I think that the combine performed better because of the even feed."

Beyond its harvesting performance, Darling says that he has also been impressed with the build and durability of his FD75.

"The whole thing is so simple in both its operation and its maintenance. You hook it up and release the spring and it floats so easily. As far as maintenance we've had no issues whatsoever. We've now completed two seasons and haven't had to replace a single knife section or finger yet.



Warren Darling watching his barley crop from the combine.

That's pretty incredible because with our old headers we would have to replace several sections and fingers every year. That tells me that the header is following the contours nicely."

his world record harvest because he might like to take another run at the record in a few years.

"ONCE WE DECIDED WE NEEDED A FLEX HEAD, ALL WE WANTED WAS A MACDON®."

For a world record holder like Darling, performance like that is important because he is always looking for any advantage to improve his operation.

"We're kind of putting ourselves out there, so we're always trying to use the best information, equipment and techniques we can, wherever it comes from. We are learning all the time, always trying to improve our methods and our efficiency."

And while Darling is always willing to share what he learns with his neighbors, he says that he might not share everything he learned from

"We'll sit on the record for two or three years to see if anyone beats us, before we have another crack at it. I think that it will be pretty hard to beat given that we had perfect weather and the top people in the industry behind us. But you never know with new varieties and new technologies coming out every year."



BREATHE EASY.

COLLECTING POLLEN FOR ALK HELPS ALLERGY SUFFERERS WORLDWIDE.

As Local Collection Supervisor for ALK, an international pharmaceutical company based in Denmark, Julian Helmke oversees ALK's Source Materials operation near Plummer, Idaho. The 600 acre (243 ha) operation is responsible for collecting pollen from a wide range of common allergy inducing plants.

"Our company has been a leader in allergy diagnosis and treatment since the 1920s," says Helmke. "The pollens we collect here are then used in the treatment of allergies via immunotherapy. Immunotherapy is decreasing

sensitivity to allergens that after leads to lasting relief from allergy symptoms, according to the American Academy of Allergy, Asthma & Immunotherapy."

For Helmke and the other employees at the Plummer farm (their offices are located in nearby Post Falls), it's highly rewarding work.

"Even though this is a farming operation, we all remain aware that what we do here plays an important part in helping people overcome their allergies. It's always nice to come to work and enjoy your job, but it means even more

when you know that you are making a difference in the world. There are even some people within our own facility who are benefiting from ALK's products."

Altogether the operation collects pollen from over 30 different species of grasses, flowers and weeds such as meadow foxtail, Kentucky bluegrass, canola, dandelion and Russian thistle. The largest pollen crop they collect is from Timothy-grass, for which they have hundreds of acres allocated, but they also have a few acres devoted to birch trees, which also produce allergic reactions in many people.

As you might imagine, harvesting a crop that can be as small as a few microns across is an exacting and specialized business.

"We have several different methods we use to harvest pollen," says Helmke. "Our preferred method for species that pollinate heavily, such as Timothy, is to drive large tractors through the fields during pollination season with vacuums mounted on the front of them."

"For grasses that we only grow on a small scale, we use hand sickles to cut the grass before it pollinates, and then place it in water to continue the plant's life cycle through the pollination period. This allows us to conduct collection in a controlled environment."

The third method, typically used for trees, requires the flowering or pollen bearing portion of the plant to be removed to a desiccation environment where the plant can be dried until the pollen is ready for removal.

To help preserve the product and maintain potency levels once it is collected, the pollen is stored in freezers until it is needed by ALK, or an order is placed by a customer. The required amount is then transferred to the facility in Post Falls for further processing and shipment.

Working with pollen in such high concentrations is not without its hazards, and equipment operators are required to wear respirators, and workers are requested to be gowned whenever prudent. Dedicated uniforms are even provided to the workers that perform the pollen collection, so they don't contaminate their clothing and possibly expose family members and others to the potential allergens.

"We try to enforce as much protective equipment as we can and it can be uncomfortable when it gets very hot," says Helmke.

Helmke's team faces unique differences compared to typical farmers. For example, many of their "harvests" occur not in the

summer or fall, but in the spring when the plants are in bloom. Here, timing is critical as many of the plants they farm have a fairly narrow bloom window.

"With most of these grasses you will have a progression of bloom that can last over multiple days, depending on the weather. If it is really warm the bloom can be sped up, and cool weather can slow it down. A major rain or hail can also affect the yield."

Adding to the harvest stress is that many of these plants are blooming within days of each other. That can lead to contamination during the collection process if more than one type of plant is blooming in a field at the same time. ALK however, takes special precautions to ensure materials are segregated and cross-contamination does not occur.

"Mostly we try to avoid that by timing the blooms of our crops. That is probably our best tool. Even with that, coordinating pollen collection between the various crops can still be somewhat complicated in terms of logistics and having personnel available."

"...WE GROW SEVERAL OF OUR CROPS ORGANICALLY SIMPLY BECAUSE THERE ARE NO EPA REGISTRATIONS TO SPRAY ON THOSE CROPS."

Another thing they must watch carefully is their use of herbicide or other pesticides during the growing process. Because they are producing a product for pharmaceutical application, it is critical that trace chemicals be kept to a minimum.

"One of the main differences between a regular farm operation and ours is that we are bound by EPA regulations on the concentration of chemicals that we can use on our crops.



Timothy crop on the ALK farm.

To ensure the safety of the patient we perform a lot of additional testing over what a typical farmer would to show that there is no residual herbicide or other pesticide inside our final product," says Anthony Bratsch, PhD, Agricultural Specialist.

"In fact, we grow several of our crops organically simply because there are no EPA registrations to spray on those crops. This is especially the case with several of the weed species that we grow where there are simply no registered herbicide or other pesticide that we can use."

Compounding the challenge in this bizarre, upside-down world of farming where weeds are the crop, is the lack of agricultural best-practices for the ALK team to follow for many of its crops.

"With weed pollens, you kind of have to go through a reverse thinking; how do we grow this weed instead of how do we kill it?"

Continued



Standing in front of the Windrower are (L to R) Frank Phillips, Brendan Richards, David Rowles, Julian Helmke, Kevin Lamphere, Elena King, Josh Beamer, Nick Sandahl and Jake Borgford.

Helmke says that it is essentially like growing a new crop from start to finish, applying normal agronomic practices every step of the way.

“We consider all the things that regular farmers consider: irrigation, fertility, pests and diseases. Using wheat as a cover crop we’ve discovered that we can increase our ragweed yields, so now we are looking at varying densities of the wheat crop and how that affects germination. We’re also looking at varying the fertility levels of the wheat, trying to lessen the wheat competition in favour of the ragweed.”

Thankfully, the ALK team doesn’t have to reinvent the wheel with all of the plant types it farms. With crops like canola, corn and Timothy-grass, regular farming practices can generally be followed. The same is true when it comes time to knock down the crops at the end of the season, when regular harvesting practices can also be applied.

“After we have collected the pollen from our timothy crop it is grown to maturity and harvested. We then sell our hay, which is great for us because we also reap the benefits of additional revenue from a second crop.”

To cut their Timothy, the ALK team recently sold their old swather and bought a new

MacDon® M205 Self-Propelled Windrower with a 16’ (4.9 m) R85 Rotary Disc Header.

“Our old sickle swather just wasn’t cutting it anymore. In coming to MacDon® we’re looking to double our speed and cut our hay harvesting time in half. With our old sickle head we were cutting at 4.5 to 5 mph (7.2-8.1

It’s also easier to drive on the road, because you can turn the seat around. The ability for us to just switch out a blade in the event of a cut failure or maintenance issue is also big. Finally, we haven’t had a lot of maintenance issues with it. With our old one (competitor model) it seemed like every week we would have to put two or three hydraulic seals in.”

“YOU KIND OF HAVE TO GO THROUGH A REVERSE THINKING; HOW DO WE GROW THIS WEED INSTEAD OF HOW DO WE KILL IT?”

km/h), but when we tested the MacDon® we were doing 9.5 mph (15.3 km/h) through the field. The R85 disc blades should also be a lot better for getting underneath the grass than our old sickle style,” says Pollen Technician Nick Sandahl.

While the ALK team has yet to do much harvesting with their new MacDon® M205, they are none-the-less very pleased with their decision.

“There’s a lot that we like about it. First, the cab is a lot more comfortable and quiet.

In addition to these immediate benefits, Helmke says there were other reasons they came over to MacDon®.

“Not only does MacDon® have a lot higher rating than the competition, they also beat everyone in price by quite a bit. Plus, a lot of the guys around here already run MacDon® windrowers, and even the shop where we buy our equipment recommended them. For us it was a really easy decision.”



R1 EXPLAINED.

MACDON'S RICHARD KIRKBY DISCUSSES THE NEW PULL-TYPE DISC MOWER.

The first quarter of 2016 will see the all new R1 Pull-Type Disc Mower start production at MacDon's manufacturing facility in Winnipeg, Manitoba, Canada. It is the result of more than three years of intensive research and design, and will replace MacDon's current Pull-Type Disc Mower, the R85. In creating the R1, MacDon® engineers were given a free hand in its design which has resulted in a number of impressive features including an all-new cutterbar, conditioner and float system, plus a patented Road Friendly Transport™ option that will allow the operator to switch from cutting to transport mode in about 30 seconds without leaving the cab. In anticipation of the new product launch, Performance Magazine (PM) was able to sit down with MacDon's ever busy Product Manager for Hay Equipment, Richard Kirkby (RK), to get an inside look at some of the key features of the new machine.

PM The R85 has proven to be a very successful and reliable disc mower for MacDon®; so, why the R1?

RK The Pull-Type version of the R85 has been a very good product for us in our traditional hay markets of the Western US and Canada where alfalfa and alfalfa-grass mixes are the norm. But when we were looking to expand our footprint into the eastern Canada and US—in states like Ohio, Iowa, Kentucky and Tennessee—we knew that we needed a cutting and conditioning system that could also handle the finer grass stemmed hay crops found in these markets. Essentially, we wanted a disc mower that could give owners a reliably clean cut and high quality conditioning regardless of the crop or conditions they were in.

PM Let's start with the new cutterbar;

what prompted the design team to go to something different?

RK With disc mowers it's always been a trade-off between capacity and cleanness of cut. Capacity is achieved by having as many crop streams as possible feeding crop back to the conditioner rolls. On a typical 16' mower you will have 10 discs working in pairs, with each set rotating towards each other, to create five crop streams. That gives you maximum capacity, and it was the way we had the R85 set-up. In moderate to heavy crops, where it's easy to get a good wall of crop in front of the blades, that configuration works well. The challenge comes when you are cutting lighter or finer stemmed crops. The strong pulling action caused by inward rotation of each set of discs means that there is a corresponding

Continued



R1 Series features conditioner roll options for all crop conditions.

pushing of air towards the front of the machine as the weak side of each disc rotates forward. That airflow can blow light or fine crops forward causing the blades to contact higher in the stem. That usually results in a shaggy or uneven cut. So in lighter crops you want to have the ability to reduce the amount of crop streams, and therefore the amount of air blowing forward. This we have done on the R1 by making provisions to orientate the disc rotation in several rotational patterns.

PM What crop stream configurations are possible on the R1?

RK The R1 Series cutterbar can be configured in any one of four crop streams from a single stream configuration with all discs rotating towards the centre for the cleanest cut to four crop streams which provide optimum capacity. The R1 will leave the factory set up for three streams, which delivers good all around performance for the majority of crop conditions, but the farmer or dealer can easily change the configuration without any additional parts.

PM We understand the R1's cutterbar drive system is also different.

RK If you look at the R85 and pretty much all pull-type disc mowers, drive power enters at one end of the cutterbar via either an idler gear or a disc and is then transferred along the cutterbar, alternating between idler gears and cutting discs. The challenge with that method is that each disc, which usually has smaller gears, carries the drive load for all other (cutting) discs down stream on the cutterbar. This can cause extra wear on the spindles (discs) because spindles one and two would also be driving spindles three through eight. But with the R1, each disc is independently driven by its own idler gear, so they all receive the same amount of power. We've also made these idler gears larger, with bigger teeth, so they not only turn slower but can handle a lot of load. Plus, larger gears have allowed us to move the centre of the (cutting) discs further forward in relation to the cutterbar, so the discs can cut closer to the ground without the need to tip the blades, which can cause scalping of the crop. This too promotes a cleaner cut.

PM Is there anything else about the cutterbar that's notable?

RK Yes. We've built into each spindle a sheer pin type protection mechanism that, when the

sheer pin breaks, the connected disc rotates upwards out of the path of the adjacent disc, protecting it from damage. That is quite a unique feature.

PM That should help reduce damage from field debris and obstacles...

RK Definitely. Wear and tear on the machine will also be reduced thanks to its light footprint, something we've achieved both by reducing the machine's weight and by adding a responsive float system that's unique to MacDon®. With any disc mower it's important to stay in close contact with the ground, because as soon as the discs start to rise up, even a little bit, you are getting into a weaker part of the plant stem. The plant is then more likely to get pushed away and you don't get that clean cut that everyone is looking for. With this system, when an obstacle is encountered, the machine not only moves up, but also back a little, allowing it to return to cut height much faster than traditional float systems. As such you are always maintaining a good, constant stubble height. But more than a clean cut, a float system this responsive is also reducing wear on the machine.

PM What about conditioning; does the R1 offer any advantages there?

RK We've improved conditioning two ways. First, we've widened the conditioner rolls to 129" (327.7 cm) over the 118" (299.7 cm) rolls on the R85, dramatically increasing the percentage of roll width to cut width. Wider rolls thin out the mat of material which results in a more even conditioning of the plant material. Second, we're providing farmers with more options on the type of conditioning they can have. Of course we're still offering our steel on steel intermeshing rolls that have been our "go to" conditioner. But now we've also added a new finger conditioner as well as a poly-roll conditioner option with wider lugs for better crush action on the plant stem. Finally, we're offering a fourth option of having no conditioner at all installed on the machine,

saving farmers the added expense and weight in areas like Florida where the grass is very dry and doesn't need to be conditioned when cut. You can order the machine with any one of those four options, or the rolls can also be swapped out or removed by the dealer after purchase.

and the drivers. So we looked long and hard at that to see if we could find a better way; if we could make the transport system easy and convenient to operate, then the operator is more likely to use that feature, especially when they only have to go a few miles down the road.

the road and look back you will notice the wheels of the carrier are tracking pretty closely to the wheels of the tractor. Also the transport mechanism ties in directly with the carrier frame of the mower and the hitch. As such, it is not placing any additional load onto the mower, which further enhances the durability of the machine. Farmers who have trialed the system say they not only appreciate it for its road travel, but also for things like moving it in and out of their sheds or taking it back to the dealer for servicing. We think that it is an option most farmers will want.

“OUR SOLUTION...ALLOWS THE OPERATOR TO REDUCE THE WIDTH OF THE MACHINE FROM 13' OR 16' WIDE DOWN TO 9' WIDE IN ONLY ABOUT 30 SECONDS”

PM That brings us to one of the most exciting features on the R1, its new Road Friendly Transport option.

RK Machine safety has always been important at MacDon®, so when we knew we were designing a new machine, one of the first places we looked at was improving the ability to move the mower from field to field. Farming areas are becoming more built up with more traffic on the roads. Many of these drivers are not familiar with the size of the equipment coming down the road and how quick it is moving. It's a safety issue for both producers

PM So what did you come up with?

RK Our solution is the Road Friendly Transport option that allows the operator to reduce the width of the machine from 13' (4 m) or 16' (4.9 m) wide down to 9' (2.7 m) wide in only about 30 seconds. Essentially, the farmer gets the transportation advantages of a smaller machine, and the capacity and efficiency advantages of a larger one with this transport package. When engaged, the system lifts the whole mower up and rotates it ninety degrees so that it travels directly in line with the hitch behind the tractor. When you're going down

PM Speaking of field trials, how has the R1 performed?

RK Very well. I think now that we have seen it succeed in a wide range of crops and conditions, we can truly appreciate the quality of the work of the machine's design crew. The ability to reconfigure things like crop streams and conditioning to different situations on the R1 is proving to be a real benefit, something we know that farmers, and dealers, will like. It's a win-win product from many perspectives.



Operator Garry Clark with the
MacDon M155 SP Windrower.



SCOTLAND THE BRAVE.

MACDON® WINDROWERS PLAY THEIR
PART ON ONE OF SCOTLAND'S MOST
INNOVATIVE FARMING OPERATIONS.

Raising hogs is a messy business. With each finishing pig producing up to 18.5 gallons (70 liters) of slurry a week and sows even more; pork producers are constantly challenged with what to do with all that muck.

The easiest solution for most producers has always been to spread the untreated slurry on nearby fields as an easy and inexpensive fertilizer. But what if spreading your slurry is no longer an option? That's exactly the dilemma that was facing Scotland's Gask Farm in 2001 when impending legislation by the Scottish government was going to outlaw the use of untreated animal by-products in this way.

"At the time we were using our pig slurry as well as waste from local abattoirs, to fertilize our fields," said Andrew Rennie, part owner of Gask Farm with his parents John and Monica. "New legislation was coming in and the local environment agency wasn't prepared to sign off on our continued use of waste from local abattoirs as fertilizer in this manner. The manure would have to go for further processing and treatment before it could be used on our fields, so that's when we started looking for options."

Their search took them to Germany where a new process was being used to treat animal

waste and reduce a farm's carbon footprint. Called anaerobic digestion (AD), the concept features the installation of a large tank on the farm, into which manure and other organic waste products are fed. Bacteria inside the tank then break down the material in the tank's oxygen free environment. The result is a methane rich biogas which can then be used to generate electricity for the farm, while the spent tank material, laden with nutrients, can be employed as a mineral fertilizer replacement.

After visiting several German farms where anaerobic digestion was being used, the Rennies were convinced and decided to

pioneer the idea back in Scotland. At the time, only one farm in England, and none in Scotland, were employing anaerobic digestion so they had to work closely with government agencies to get them onboard with the concept and obtain the necessary paperwork.

"We spent four years in the design of the system and getting all of the licenses and permits in place. When we were finally ready to build at the end of 2005, it only took a few months to install the digester, plus a few more to get the bacteria up and running and producing electricity."

Now a little more than eight years on, the Rennie's initial £2M (approx. \$3.1 M US at today's exchange rate) investment in the digester is paying big dividends for both their farm and the surrounding area. Not only does it handle all of the slurry from the 280 sows and 6,500 pigs they fatten annually, they're also taking on organic waste from nearby abattoirs, fisheries and even bakeries.

"We currently contract with 12 local companies to receive their organic waste, diverting it from local landfills. About 75% of the digester's throughput is from third party sources."

But the benefits of the system don't stop there. Thanks to the digester, Gask Farm is producing a remarkable 500 KW/hour of electricity year-round. Of this, only 12% is retained

for farm needs and the remainder is sold into the national grid, providing the farm with additional revenue and the national grid with an important source of green energy.

"We're operating at full capacity right now in terms of the amount of electricity we can sell to the national grid. We could produce more but a number of windmills have gone up around here in the last five years, and they take up all the capacity."

In this remarkably efficient system, waste heat captured from electricity generation is then used to pasteurize the spent material, or digestate, that is removed from the tank, rendering it safe to spread on Gask Farm's cereal crops. Altogether, their digester is able to produce 15,000 tons (13,608 mt) of digestate a year, supplying 95% of the farm's nitrogen and 85% of the P & K requirements for its crops. All fields are GPS mapped by Soyl Precision Farming. The extra P & K requirements are applied in granular format and spread using a variable rate applicator to the parts of the fields that require it.

"Normally raising pigs leaves a fairly hefty carbon footprint, but we've actually managed to go carbon negative employing this anaerobic digestion system, even taking into consideration the extra fuel that's consumed transporting waste from the abattoirs and bakeries to us."

"It's all part of our drive to be as eco-friendly as possible, which sees all of our crops fed to our pigs and then their manure turned into both electricity and fertilizer for the crops. That's our green circle of life."

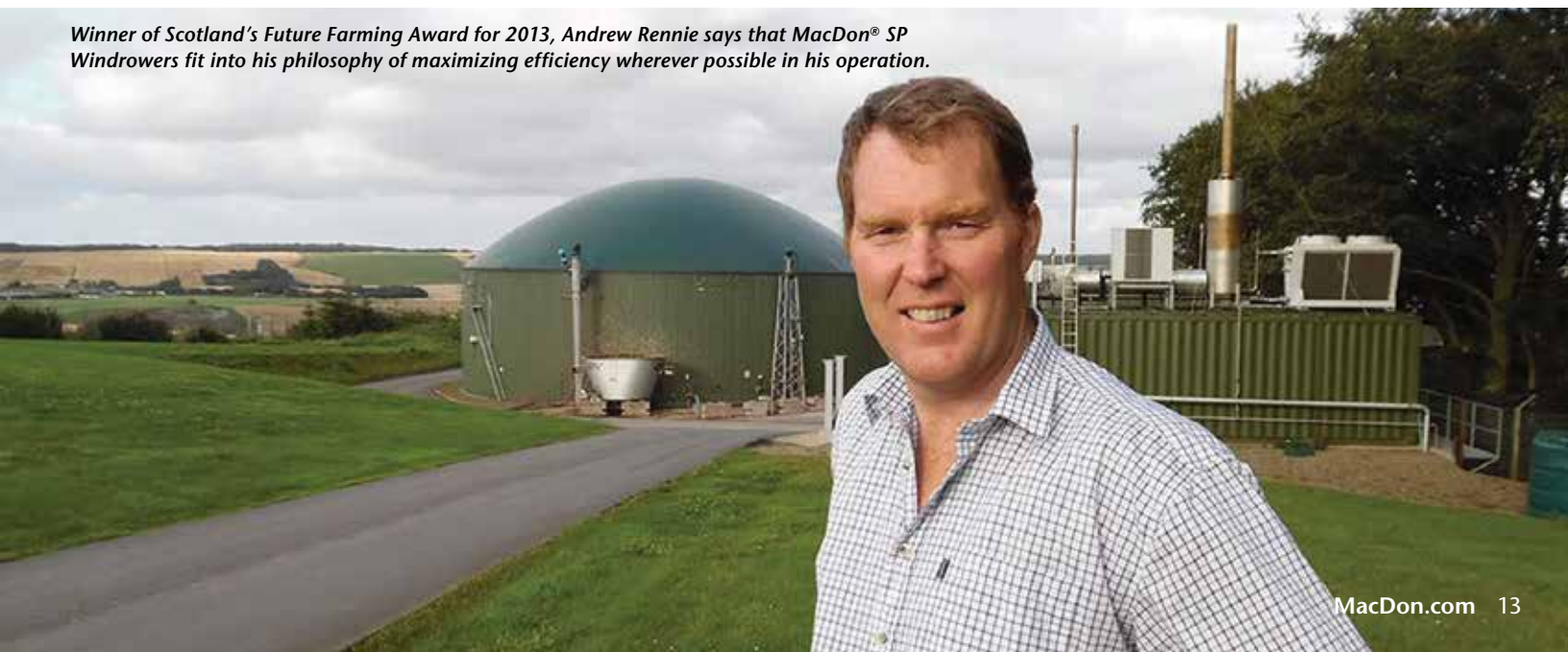
Crop production at Gask Farm consists of 100 acres (40.5 ha) of rapeseed (canola), 100 acres (40.5 ha) of wheat and 450 acres (182.1 ha) of barley. While the Rennies direct cut their cereals, like other farmers in the area, they have found swathing the best practice for their rapeseed. In addition, they also custom windrow another 3,500 to 4,000 acres (1,416.4 to 1,618.7 ha) of rapeseed for farms within a 30 mile (48.3 km) radius.

For their swathing, the Rennies have relied on MacDon® SP Windrowers since the early 1990s, even though their machines are a little more challenging to acquire due to limited distribution in the UK. Despite their relative scarcity, Andrew says that seeking out MacDon® built machines has been worth the extra effort.

"We would travel the earth to find the equipment we want. MacDon® has always been ahead of the game compared to their competitors. The nice even swath that they leave makes it easier to come along and pick it up afterwards."

Continued

Winner of Scotland's Future Farming Award for 2013, Andrew Rennie says that MacDon® SP Windrowers fit into his philosophy of maximizing efficiency wherever possible in his operation.





Despite being located near Scotland's Speyside region, famous for its distilleries, none of the barley produced on Gask Farm is used in whisky production. Instead, all of the farm's crop production is used as feed for its animals.

They're also simple to drive and easier to operate and manoeuvre in the fields compared to others. That's one of the reasons we've stuck with them."

"Our swathing season lasts between 10 to 15 days, and during the middle of the season the machines are running 24 hours a day. If something happens to the machine and you have to wait a few days for parts, then you've lost a big percentage of the season. We therefore look for equipment that is strong, reliable and robust. It must also have a good dealer standing behind it as well."

Currently, Gask Farm is using two MacDon® Self-Propelled Windrowers in its operation; a brand new M155 mounted with a 20 foot (6.1 m) D65 draper header and an older 9352i SP Windrower equipped with an 18 foot (5.5 m) 972 header that were both modified for local growing conditions.

"Our new M155 was the first of its kind in the UK. We went to Agritechnica in Hanover, Germany, where we saw it for the first time and decided to import one through our local dealer, Ravenhill Ltd. It was very important for us to keep the local dealer involved."

While Andrew says that he has always liked the performance of his MacDon® Windrowers in canola, what he has seen with the new M155 has really impressed him.

"Our rapeseed crops are very high and dense around here, and we sometimes struggled with our older windrowers getting enough clearance between the cut swath and the machine. However, with the bigger M155 we haven't had a problem yet, and we can cut a lot more acres in a day with it. For our needs it's far superior."

"About maybe 10 years ago a lot of people decided to move away from swathing their rapeseed and just going with desiccation because they were buying newer and bigger combines which could consume the crop faster when standing. Unfortunately, we do get a lot of wind in this area and some farmers that were using desiccation were losing 50%,

"WE WOULD TRAVEL THE EARTH TO FIND THE EQUIPMENT WE WANT. MACDON® HAS ALWAYS BEEN AHEAD OF THE GAME COMPARED TO THEIR COMPETITORS."

Even though it's taken a little getting used to, Andrew says that the M155's DualDirection® feature means that they no longer have to use a loader to transport the windrower from field to field.

"A lot of the roads here are busy with traffic, and very narrow as well. The M155 with its reverse cart system and swivel cab is a massive step forward for us. When it's time for us to move we just unhitch the header, pick up the weight box and then swing round the seat. We're off down the road in five minutes."

Having a windrower that cuts more and transports faster is critical for Andrew and his custom harvesting business, which seems to be more in demand than ever in recent years.

60%, even 70% of their crop in years when the wind blew strong. A lot of these farmers are now coming back to swathing."

Finally, Andrew reports that his MacDon® machines help him achieve the most important thing in his business; the satisfaction of his customers.

"We always try to go back on all our jobs and see how the farmer is getting on. To go down the field swathing is one thing, but you always have to remember that there's a guy who is going down there with a combine to pick it up after you. If we do a bad job laying down the swath, we don't get invited back the next year. Our MacDon® machines help make sure we get invited back."

MACDON'S GENE FRASER "RESCUED" FROM REMOTE ISLAND

The non-profit STARS-Shock Trauma Air Rescue Society got a financial lift from a unique fund raiser held in Manitoba on Tuesday, September 15th. More than \$175,000 was raised by seven community and business leaders, including MacDon Industries Ltd. Vice President of Global Sales and Marketing Gene Fraser, after the group was flown by helicopter to the remote Carter Island near Pinawa, Manitoba.

Once on the island the participants competed against each other to raise as much funds as they could in one day using their mobile phones and personal networks. They would only be "rescued" after achieving their personal fundraising goals.

In addition to calling for donations, each participant was faced with a series of contests, including medical challenges, shelter building and a food tasting challenge.

"Seeing what goes on behind the scenes with the STARS staff was just amazing," said Fraser. "To participate in some of those medical challenges, and see what the nurses,



Gene Fraser with STARS flight nurse Sarah Painter.

paramedics and doctors face out in the field gave us a unique perspective of this life saving program. It's a great cause that provides critical care for our communities, and our dealers and customers in the rural areas when needed."

The donations help STARS continue responding to medical emergencies, and patients with serious traumatic injuries, primarily within rural areas of Alberta, Saskatchewan and Manitoba.

Others involved in the third annual event included a City Mayor, a Farm Management Instructor, the President of Len Dubois Trucking Inc., a former professional player in the Canadian Football League, Chair of the Manitoba Aboriginal Chamber of Commerce,

and a VP with construction company L. Chabot Enterprises Ltd.

"Thank you to all of the brave participants and everyone who pledged their support and donated to STARS," said STARS Manitoba Vice President and nurse Betty Lou Rock. "The donations will help STARS to continue responding to critically ill and injured patients in Manitoba."

The Rescue on the Island fund raiser is just one of hundreds of community-based events that happen across Western Canada every year for STARS.

Thanks to that community support, the charitable organization is able to continue providing rapid and specialized emergency care and transportation for patients in life-threatening condition. STARS flew 3,084 missions last year from its six bases, with many patients involved in agriculture related incidents.

The doctors, nurses, paramedics and pilots at STARS have responded more than 30,000 times since STARS began with one base in 1985. Today, STARS operates 24-hours a day, seven days a week from bases in Regina, Saskatoon, Calgary, Edmonton, Grande Prairie and Winnipeg.

Visit stars.ca to learn more about the STARS program.



Rescue on the Island participants (red flight suits), with STARS flight crew (blue flight suits).

Engineer the future of agriculture.

MacDon is seeking talented design engineers to join our new Product Design Center in Madison, Wisconsin. We have many opportunities available at a wide range of experience levels. So if you grew up or worked on a farm, are passionate about designing farm and heavy equipment, and if you are ready to take your career to the next level... We want to hear from you!

For more information go to MacDon.com/Careers or email [Debbie Tabor Dtabor@MacDon.com](mailto:Dtabor@MacDon.com)



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