A 'direct' way to deal with soil wind blow

HIGH WINDS and blowing soils are a fact of life for many arable farmers in the East of Scotland, many of whom rely on plough-based crop establishment systems.

But an increasing number, such as Michael Johnston, who farms on the shore of the Moray Firth, in Aberdeenshire, are turning the tables on nature by changing to strip seeding.

Having witnessed the high cost and disruption caused by soil blow for many years, he has adopted strip seeding on his 260 acres at Balnamoon Grange, near Keith. Changing to the patented Claydon system, he says, will not only eliminate soil loss but also significantly improve its structure, as well as providing faster, cheaper establishment.

The cost of soil blow to farming can be significant. The loss of topsoil and soil organic matter reduces rooting potential and silt deposition can also increase the need for ditch clearing, make sites more prone to flooding and have a wider detrimental impact on the aquatic environment.

The PEPFAA (Prevention of Environmental Pollution From Agricultural Activity) code advises farmers in areas which are prone to wind erosion to take steps to reduce the risk of soil loss during the spring by maintaining crop cover, using coarse seedbeds, shelter belts or nurse crops, or other appropriate measures with an equivalent effect.

According to the Scottish Environment Protection Agency (SEPA), soil quality is at risk from a number of man-made and natural pressures, including the removal of protective vegetation cover by farming, over-grazing, down-hill ploughing and soil compaction.

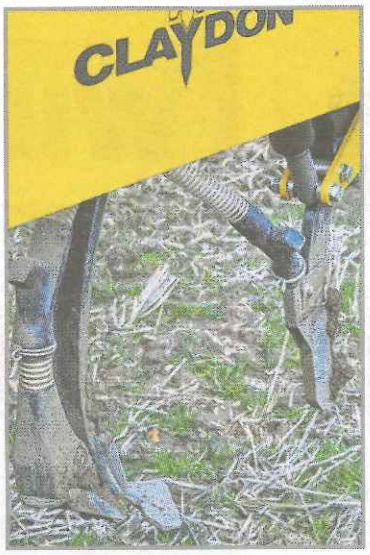
Preventing soil blow and ensuring the long-term productivity of his farm was Mr Johnston's primary reason for making the change to strip seeding in 2013.

"In this area, we have high rainfall during the winter, often 1-1.5-inches at a time, followed by 40-50mph gales during the spring," he said.

"The high wind speeds encouraged us to become one of the first in this area to get into renewable energy 15 years ago, when we installed a wind turbine that now supplies the farm's electricity. People thought we were mad to do it, but now everyone is.

"It's rather the same situation with strip seeding. While most others still seem to be wedded to the plough, we have changed completely to strip seeding and I believe its potential in reducing soil erosion, cutting costs and producing better crops is beginning to be recognised," he adds.

"The high winds in this area help us to generate renewable energy, but are something of a double-edged sword, because soil blow can be fierce and without proper management topsoil can end up in the Moray Firth. Most farmers are very traditional and stay with a plough-based system because that's what they've always done and what they understand.



THE PATENTED twin-tine system uses a leading tine for digging and forming a shallow trench of loosened soil, followed, in-line, by a second tine fitted with lateral wings which is used to plant the seed in the trenches formed by the leading tine

THE CLAYDON drill is the focus of what we do and essential in preventing soil blow, says Michael Johnston

"Because a fully-cultivated surface is exposed, the wind whips up light sandy soil and it's like a snowstorm. Sand drifts two to three feet deep are common in this area and if you're out driving during a blow you can hear the particles being blasted against the vehicle's windscreen.

"Now that the right equipment is available, a few are starting to achieve much better results than with a plough. A number of farmers in this area have seen what we are doing with the Claydon system and are considering changing."

Mr Johnston is part of Ringlink (Scotland), the country's largest machinery ring, which has more than 2700 members. Through it, he contract drills using his Claydon Hybrid, enabling others to try the concept for themselves.

He explains that it was experience gained working on farms all over the world, from Australia and China, through Eastern Europe to Canada, that provided him with the knowledge to appreciate the thinking behind the new system and the confidence to adopt it.

"I have followed the evolution of direct drilling over the years and experienced the benefits first-hand. My brother David lives in Canada and I have watched how this technology has developed during the last 15 years or so," he points out.

"The same arguments against direct drilling were raised there when they started and most farmers said it would never work. No-one there now uses the plough and I see that being the case over here once farmers realise the benefits.

"I have studied direct drilling for years, but in my view it only became viable in Scotland when Claydon introduced the fertiliser placement option on their Hybrid drill last year. Drilling seed and fertiliser together ensures that the crop goes off like a rocket."

Developed by Suffolk farmer Jeff Claydon, the drill incorporates a patented seeding technique which allows farmers to establish many different types of crops direct into stubble, min-tilled or fully-cultivated soils. It has become one of the most sustainable one-pass seeding technique in Europe, avoiding unnecessary and expensive pre-cultivations.

The latest design allows liquid, granular and/or micro-granular fertiliser to be placed directly into the seeded strip. Liquid fertiliser can be placed below the seed, granular fertiliser below or with the seed, while micro-granular fertiliser can be delivered with the seed.

"During the last 12 months, the number of arable farmers in Scotland who are looking to place fertiliser with seed whilst drilling has increased dramatically," explains Charlie Eaton, the UK and Ireland manager for Claydon.

"In that time our sales in Scotland have increased by 270%. A key reason has been the addition of a fertiliser placement option to the range."

A CROP of direct drilled winter barley established on Michael Johnston's farm in Aberdeenshire

Michael Johnston uses a 3m Claydon Hybrid drill to establish winter and spring barley, together with kale and forage rape. He states: "We operate a lean, mean system and hire in tractors to save having capital tied up in expensive equipment which is only used for a short period of the year.

"The Claydon drill is the focus of what we do because it enables us to establish crops much more quickly, at much lower cost than with a traditional plough-based system, as well as eliminating soil blow.

"It is not cheap in terms of its capital cost, but is certainly much less expensive than a plough, power harrow and drill, and establishment costs are about one-third that of traditional establishment.

"A key benefit is greatly improved soil structure. With the Claydon system you quickly achieve strong, healthy soils which are strong, more supportive and as totally eliminate blow, which was previously the big issue for us. With it we only have to drill once, and that's it. The whole exercise has been quite an eye-opener.

"If you can significantly reduce your costs of establishment then a number of elements in farming become much more viable. In addition to the arable land, we keep beef cattle and sheep, so the Claydon system enables us to produce forage crops cheaply, which is essential to make money."

Forage rape is drilled after a previous crop of hay or silage has been taken in June, the grass sprayed off with glyphosate and the land sub-soiled. Drilling straight into pasture provides a cheap, reliable method of establishment and low-cost feed for the sheep, he says.

Pasture which is coming to the end of its rotation is used to over winter cattle, then in the spring the grass is sprayed off and the turf direct drilled with kale, a crop which Mr Johnston says will become much more important in the future to achieve cropping diversity.

When establishing kale, the trick, says Mr Johnston, is to get phosphorous down with the seed, which is where the Claydon drill is so good. It delivers fertiliser exactly where needed and when the fertiliser kicks in 'the crop goes off like a rocket'.

When establishing winter barley after silage or hay has been sprayed off with glyphosate, the land is sub-soiled and the Claydon Hybrid used to drill straight into the turf. The entire operation is fast, efficient and cost-effective, reducing establishment costs to a fraction of what they would be with a plough-based system

"You have to be a little earlier in autumn drilling and later in spring with the Claydon system than a conventional plough/power harrow/drill system, but the thing is that it is so fast that you've got everything in the ground before you'd have finished ploughing the first field, much less all the other work involved."