Oak and Stihl...

...go together like bread and butter

Reasonable parcels of standing oak are rarely offered in Mid-Wales nowadays, and it has been my experience that when they are sold, even when the timber quality is questionable, the price tends to be greater than makes reasonable business sense.

A couple of years ago I was asked to bid on a stand of 35 oaks in a fairly exposed spot a few miles out of Builth Wells. As is often the case with people who are not directly involved with the timber trade, the landowner had an inflated idea of the timber's worth. It was, after all, oak, and oak is so often viewed as a special, luxury timber, no matter how it has been managed.

I walked the wood and worked out an estimate of the standing volume, made my cautious offer and heard nothing back from the seller. Typical of the small patches of broadleaved woodland scattered across the farms of Mid-Wales, it had received no perceivable management. Edge trees leaned out to gain light because the canopy had obviously been completely closed for decades, and there was considerable dieback of branches both up the stems and within the crowns. Several of the stems showed what I've always assumed to be signs of severe shake – cracked scar tissue in the bark, running from the stump several metres up the stem.

John Evelyn, the author of *Sylva* (a 17th century treatise on forest management), had said of buying oak: "There is not in nature a thing more obnoxious to deceit, than the buying of trees standing, upon the reputation of their appearance to the eye, unless the chapman be extraordinary judicious; so various are their hidden and conceal'd infirmities, till they be felled and sawn out."* I couldn't agree more.

We shouldn't be surprised that old foresters knew well the fickle nature of the oak. After all, the tree was the mainstay of the British shipbuilding trade right up to the early phase of the industrial revolution. Over the centuries, generations of woodcutters learned the conditions under which they would be likely to find the best oak stems. The consensus held amongst many earlier writers, including Evelyn, was that moist clay subsoils, preferably overlaid with a rich loam, yielded the finest oaks.

Some of the largest and best quality oaks I've felled have grown on this type of ground. About 25 years ago I was hired to bulldoze out some massive oak stumps that had been left from felling during the late 1940s in the Wye Valley, just north of Builth Wells. Even after breaking the roots to around six feet down in the heavy, damp clay, and pushing out a slope on opposite sides of one particular stump, it took my twelve-ton Cat and another smaller bulldozer to push it out. It must have been an impressive tree, and there are rumours that several farms in the Wye Valley were bought using the proceeds from selling the best oaks off the holdings.

The latest literature, although there's not that much, agrees that clay soils produce the best oak trees. Peter Savill of the former Oxford Forestry Institute wrote a paper on shake in oak in 1986 which compared historical literature with modern research. The paper demonstrated that the older writers knew from experience what science confirms today; soils over erratic, variable water tables will produce higher proportions of shaky oak. Savill examined cross-sections of oak in detail and was able to correlate ring shake with the occurrence of larger-diameter vessels in oak earlywood. Oak vessels are visible to the naked eye within growth rings and appear as a few rows of little holes of varying size. They are the 'pipes' through which water is conducted, and the larger they are, the more susceptible to ring shake (and possibly infections) the oak appears to be.

Anecdotally, Dutch oak, which was imported to the UK during the early days of reafforestation, has had the reputation of suffering bad shake, and so it comes as no surprise that this oak tends to have large earlywood vessels.

I've tended to think that scar tissue and cracks running up the stem in the bark of oak indicate star shake, but Savill reckons that this isn't necessarily the case. Another writer, Kulber, relates star shake to tension in the heartwood, making it more likely to split radially. The sapwood is normally in compression and so drought or frost is thought to split it.

Thicker stems are more susceptible to shake, possibly because of a large difference in tension between the pith and outer heartwood

* Evelyn adds: "A timber-tree is a merchant-adventurer, you shall never know what he is worth till he be dead."

Stihl Contra advertisement, early 1960s.

zones.

Whatever way shakes are caused, it is disappointing (to say the least) when, after carefully preparing a large oak for felling, you get that rush of brownish, frothy liquid with a slight buttery scent coming out of the gob. It's a sure sign of shake or other problems, but you know you've still got to delimb and tidy after getting the tree down safely on the floor.

At least we've got chainsaws nowadays. The idea of doing all that work with an axe and cross-cut saw certainly seems daunting from a modern perspective. And how did fellers get leaning trees down without the option of boring that modern chainsaws bring to the task? Did they use the axe to hollow out the back of the gob as much as possible to minimise splitting, or did they just fell them sideways?

The saw chain was actually invented way before the internal combustion engine, in the early 1780s. Two Scottish doctors, John Aitken and James Jeffray, claimed to have independently conceived the innovation for getting around and cutting diseased bones in order to minimise damage to surrounding tissue. 50 years later a German doctor invented the 'osteotome' – a hand-cranked chainsaw relying on a sprocket to drive the tightened chain around a rudimentary bar. But it was a hundred years later again that the power-driven chainsaw was conceived. In 1926, during difficult political and economic times in Germany, Andreas Stihl built an electrically-powered cross-cutting saw, and by 1929 had built his first petrol chainsaw.

However, the saw that older-generation woodcutters regard as legendary is the Stihl Contra or Lightning, introduced in 1959 and arguably one of the finest chainsaws ever built. This came out at a time when steam locomotives were still being built, before the Mini, the miniskirt and the Beatles, yet it was beautifully modern, ergonomic, efficient, and it didn't run on coal.

The biggest model was the 137cc Contra S. Developing 12hp, it was offered with bars up to 41" long. However, the Contra S is capable of driving a 72" bar and there are several YouTube videos showing saws thus equipped in action. Although I've heard fallers complain about their weight, actually, at just over 11kg without bar, they were only 1kg heavier than their modern counterpart, the MS880. However, I guess the addition of a six-foot bar makes you grunt a little when picking up a Contra S.

For years I had used Husky chainsaws, but was never quite happy with them. Possibly it was my clumsy tuning, but looking back and comparing them with the Stihl saws I use now, I remember them as not so reliable.

It was a major decision for me when I bought my first new Stihl 066 on borrowed money, but I never regretted it. It paid its way, mostly cross-cutting and trimming larger logs ready for my sawmill, and it was the first saw I'd owned which somehow felt right for me – the weight, the balance, but mostly the torque, especially when 'feeling' the way through large hardwood logs. And planning the direction of fall was a piece of cake using the felling direction marks cast into the chainsaw covers.

The only time it let me down was my own fault for not finding the time to clean out the air filter.

I sold the 066 only a couple of years ago, not because it had any problems, but I'd bought a new MS 660 which six years later has never given me any trouble, so the back-up wasn't needed.

My brother and I felled a few big, boney, open-grown Douglas firs a few years ago and he suggested I try his MS 460 for trimming the big limbs, and again I was right at home with this saw. The power-to-weight ratio, at 1.5kg/kW, although not quite as good as the MS 660 at 1.4kg/kW, gives this saw a beautifully balanced feel. Although it's less than 1kg lighter than the MS 660, it somehow makes a lot of difference, especially when you're feeling a bit jaded later in the afternoon.

Many of the reviews on internet forums are very positive about the power-to-weight performance of the MS 460. Anyway, I decided to try out the saw properly on a felling job, so when I got the go-ahead to buy the standing oak near Builth, the ideal opportunity presented itself.

Oak and Stihl, for me the words go together like bread and butter nowadays. I wouldn't consider felling with anything else, unless you've got a laser saw to offer me. So, as I anticipated starting to fell biggish sticks for the first time in a few years, although I was slightly daunted, I was looking forward the notion of getting to work on some decent-sized timber again.

Starting on some easier trees with the MS 660 just to get into the swing, I was soon realising the fickle nature of oaks as so eloquently described by John Evelyn. Amongst the first few trees felled, only one was reasonably sound – one was shaky, and one was suffering from brown rot which had taken out most of the heartwood all the way up to the crown. I got

Skidding with the JCB 410M.

Felling with the MS 660.

that sinking feeling. How many merchantable sticks would I get from this stand?

I decided to cheer myself up the following day by picking out some of what looked to be the best trees and getting them on the floor first. Already the academic stuff I'd been reading on shake in oak seemed to be confirmed in practice on this site. The biggest, best stick in the stand was growing on the edge at the lowest part of the wood where the soil was deeper, lying over more clay. It was leaning out for light and split into two main forks only a few metres up the stem, and I'd have to fell it sideways to the lean to avoid felling it onto one of the massive limbs leaning out of the fork.

I used the MS 460 for trimming the flares and then the MS 660 for cutting the birdsmouth and back cuts.

I was pleased and relieved to get the oak down without shattering it. Around a metre in diameter at the butt after trimming, it measured just over 100 hoppus feet to the first limbs, which then cut some decent second lengths. Perhaps not exceptional down country, up here in Mid-Wales, good planking grade oaks free of shake like this one aren't particularly common on exposed upland sites. I used the MS 460 with a 25" bar for limbing and crosscutting it. The saw was excellent, even at the top of the first length where I was cutting through about a metre of crotchwood, so I reckoned it was time to try felling a biggish oak with it.

Only ten yards uphill, using the MS 460, I felled the shakiest oak I'd seen in a long time. I wasn't surprised; it had plenty of scars running up the bark and as I bored at the back of the gob, out streamed the beery fermenting juice which announces that you you're cutting for little profit. Peter Savill, in his paper, noted that on UK sites between a third and half of oak trees may be badly affected by shake, and this site certainly reflected that statement.

As the oaks in this stand were pedunculate, (growing acorns with long stems) it seems quite likely that they were of a distant provenance. For sure they didn't seem particularly well adapted to this site, and the high proportion of rotten stems, both brown and white rot being present in the stand, possibly reinforces that notion.

(Left) A clear example of white rot.
(Below) The best butt, and the view over Garth Bank.

Oak provenance trials carried out by Forest Research in 1990 actually ranked Builth Wells oak second highest in respect of survival, being particularly hardy even in frost-prone sites (of which Builth Wells has plenty). I wonder if the oak from the site I was cutting could be of the poorly performing Dutch provenance?

Has the unreliability of British oak exacerbated the massive decline in felling volumes over the past few decades? According to the Forestry Commission's 2011 forestry statistics, in 2010 UK sawmills only processed 75,000 green tonnes of hardwood, although 400,000 tonnes were used for woodfuel. Ten years previously, 183,000 tonnes were milled and only 150,000 tonnes went to woodfuel, with the remaining 209,000 tonnes going to pulp mills.

There are 223,000 hectares of oak in the UK, and only allowing a mean yield class 1 gives a potential total of 223,000 tonnes of oak available every year. Allowing the same yield across the whole of the British broadleaved forest resource would give us nearly 1.4 million tonnes of hardwood logs altogether.

We actually harvested 535,000 tonnes in 2011, and from that we only produced 48,000 cubic metres of sawn hardwood (whilst we imported 470,000 cubic metres). Perhaps it's not that surprising then, that FC list only ten sawmills remaining which specialise in milling hardwoods, and when it comes to oak, most of the logs milled in this country are from Europe anyway.

Despite all the focus on 'green' living and utilisation of local resources, the UK hardly uses one of its biggest, immediately available renewable resources; its broadleaved forest resource. We have nearly a quarter of a million hectares of oak forest in the UK which appears to be incapable of supplying the few hardwood sawmillers still working.

Of course there's more to oak than commercial value alone. From Ireland to Russia, oak has had special symbolic and religious significance; oak groves were used for worshipping by our pagan ancestors. Some writers even see the vaulted interiors of Gothic churches as derived from the vaulting branches of the oak grove. Oaks also tend to be included amongst nationalistic icons, for instance an oak appears on some Latvian banknotes and 'Oak Apple Day' celebrates the restoration of Charles II. Even Stonehenge, that most famous of British stone monuments, was at certain phases in its long history made up of circles of massive oak posts before they were replaced with the sarsens and Welsh bluestones we see now.

At Navan in Ireland a huge oak post was erected at the centre of a 40-metre diameter timber circle, and at another Irish site, Dún Ailinne, an oak circle was aligned in a manner that suggests it was linked to May Day sunrise. Both of these Irish sites appear to have been ceremonially burnt.

In 1998, a timber circle appeared in the sands near to Holme-next-the-sea, Norfolk, with an inverted oak stump at its centre. The media immediately labelled it Seahenge. When English Heritage moved the circle to a safe site for preservation, latter day Druids turned up and demonstrated against its removal.

My own experience of the difficulty in removing large oak stumps with a bulldozer in the Wye Valley causes me to feel a great deal of admiration for those men who, in prehistorical times, felt compelled to build massive oak monuments with nothing but muscle power. Frankly, using an ex-military JCB 410 loading shovel to skid out the oak stems from the Builth Wells site felt like an accomplishment to me. It's hardly possible to contemplate the effort needed to cut down, dress and transport the massive oak logs that early Europeans used to create their timber circles. How long would it have taken to make the cuts using only stone axes?

Although I wouldn't mind trying a stone axe just out of curiosity, I'm drawn back to the Stihl. Both the MS 660 and MS 460 suit me just fine; and better not to compare them to that archetypal British symbol of strength and stability, the oak. They're far more reliable.

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