

What does perennial ryegrass have in common with pinot noir?



The South Island of New Zealand is known for its stunning scenery, but it is also becoming notorious for its stunning wines.

Dr J explores whether grass species matter in respect to injury, all whilst discussing the makings of a good wine.

When I was a teenager growing up in Melbourne, my Dad was a bit of a wine buff and introduced me to the major great wine varieties of the world. In the French tradition I tasted these well before I was 18. The most fascinating were the great red wines of France and Dad taught me the difference between the Bordeaux and the Burgundy regions. The first difference I learnt was the shape of the bottles, the second was that the Bordeaux wines were made from a grape called cabernet sauvignon and the Burgundies were made from pinot noir. The third, which made the Bordeaux wines seem

the most impressive of all, was that you weren't meant to drink them straight away, or even for a few years and that they actually tasted better if they were kept on their side in a cool dark cellar for 10 or even 20 years! As an adult I learnt that Burgundy red wines were indeed pure pinot noir, but the grape information about Bordeaux wines was only partially correct, in that whilst the main grape variety was cabernet sauvignon, it was invariably mixed with others like merlot, cabernet franc and malbec. French wines generally didn't bother to include this information on the bottle with the region of Bordeaux and quality of the vineyard being considered the more important information.



Perennial ryegrass has no lateral growth and therefore it doesn't develop a 'thatch' layer that traps football studs. By contrast couch (Bermuda) grass and the other warm-season grasses tend to develop a heavy thatch layer due to stolons (lateral growth) above the soil.



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As a kid I didn't get nearly as much instruction about grass varieties, but got to play cricket on a lawn in our backyard. Like the fact that many wine drinkers don't care about grape variety as long as the stuff tastes good, the vast majority of lawn or turf users only care about whether the grass looks green and is soft and lush. We take it for granted that grass is plentiful, but when we see subcontinent fielders who seem fearful diving for a catch, we forget that they may have grown up playing cricket on a dustbowl. This also might explain why they are better spin bowlers than most Aussies who grew up with grass everywhere. With the benefit of hindsight I'm sure that the lawn in my family home was a blend of many grasses (including clover) and that perennial ryegrass was one of them. There had to be a cool-season grass in the mix, as the lawn was green all winter in Melbourne, but I remember my Mum having to water the lawn everyday in summer to stop it dying, which would be typical for ryegrass. I think I actually first found out that grasses had 'types' when I visited my cousins' farm in Yarrawonga, a couple of hours further north and with a drier climate, where they had a back lawn of buffalo grass.

This is the same grass we have in our current lawn in our small backyard in Sydney and as a child I would have asked someone something like *“Why is this grass scratchy?”* compared to the one at my own home. I remember the answer being that it was *“Buffalo grass”* and maybe someone explained that the leaves were coarser and that there were hard 'runners' or stolons underneath the leaves but above the soil. My lawn at home didn't have these.

“The winemakers have worked out the places and the ways to grow the best grapes to give outstanding bottles of pinot noir. There is a challenge for turfgrass science and sports injury prevention experts...”

I first started to get really interested in grass varieties when I was in my early thirties. We had been doing AFL injury surveillance for enough years to work out that a player was significantly more likely to tear an ACL playing in a match in the 'northern states' compared to Victoria. The first thought was that maybe the grounds were harder because of the warmer weather up north, but after a year or two of measurement the data coming back was that, if anything, Melbourne grounds were at least as hard as those further to the north. It started to dawn on us that the grass types were different at the different venues around Australia and that maybe this could explain why ACL injuries are more likely in the north. We also observed

that there were far more ACL injuries early in the season, especially in the pre-season competition. I had grave fears in the year 2000 as the AFL season was starting a month early to accommodate the Olympics in September that year, thinking that there would be even more ACL injuries than usual. However, the opposite occurred and, in hindsight, for very interesting reasons. The entire pre-season competition in the year 2000 was played at Waverley Park, a ground which was condemned but, in the absence of cricket, was available during February 2000. Because it didn't host any cricket and, also, because it was situated in the Melbourne rainbelt, Waverley Park used an exclusively ryegrass surface whereas almost all of the other grounds had a summer base of couch (Bermuda) grass that was oversown with ryegrass in the autumn. Even matches played much earlier than usual in summer on ryegrass failed to give rise to the handful of ACL injuries we expected in the preseason competition every year.

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In the 2000s there were major trends in the Australian and world wine industry occurring. People were abandoning Chardonnay and Riesling as their preferred white varieties for Sauvignon Blanc and of the red varieties, Pinot Noir was starting to be held with the same reverence as Cabernet and Shiraz blends. The focus of wine growing in Australia was moving southwards, with the Yarra Valley, Tasmania and New Zealand starting to become the new shining lights of Antipodean wine production. In 2009 I was visiting Linköping in Sweden to give a talk, which included my research on grass varieties and ACL injury risk, to Jan Ekstrand's research group. My wife Jess and I were staying at Jan's house and he stopped off at a government-run (isn't everything in Sweden?) liquor outlet to get us a bottle of wine for dinner. He declared himself a big fan of Australian wines which the government monopoly importer was kind enough to offer Swedish citizens at a very attractive price. However, he sheepishly admitted to me that he had become an even bigger fan of New Zealand wines, although he was worried that this might sound like an outsider confessing to him that he preferred Norway over Sweden because of the superior fjörds. I actually agreed with him and also admitted that in general I thought that the New Zealand wines were blowing away many of the traditional Australian offerings, but suggested that he lean on the Swedish alcohol importer to start trying some wines from Tasmania, especially their

pinot noirs and sparkling wines. Like the gold standard sparkling wines from Champagne, the Tassie ones are usually a mix of Chardonnay and Pinot Noir grapes. White sparkling is usually pinot noir with the skins peeled off whereas in pink sparkling, which is even harder to do well, the skins are left on for a period of fermentation to give the wine a pinkish tinge. The Blanc de Blancs variety of sparkling wine (Chardonnay only without the pinot noir) is easier to grow in many regions of the world, as the Chardonnay grape is very agreeable to most temperate climates around the world. Chardonnays grown in a warmer drier climate like Margaret River can be outstanding but with a different character to the cooler more humid climates like Burgundy in France (or New Zealand). In the movie *Sideways*, the main character Miles Raymond, who is a shocking wine buff, stated famously that he refused to drink Merlot but loved pinot noir, partly because the grape was so thin-skinned and fussy (fitting in with the character's own personality). The fussiness meant that whilst it could be grown in less than ideal climates, it was highly prone to disease and poor output, but in a cool-cold temperate climate with year-round high rainfall and humidity and a long but medium warm summer, it produced a flavour that perhaps was better – in some subjective opinions – than all other wine varieties. The outstanding climate in Europe is of course the northern Burgundy region of France, but elsewhere there are climates which mimic these ideal characteristics, with the small islands of Tasmania and the south island of New Zealand perhaps being equally ideal. Because of the fussiness of the grape, no good bottles of pinot noir (nor sparkling wine) are cheap, but world experts are starting to feel there is better value to be had in Tasmanian and New Zealand pinots as their iconic status hasn't yet reached that of Burgundy, even though the quality actually may have.

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Perennial ryegrass is thought of as an English grass, but it grows in many countries of the world and ironically, it is probably the climatic conditions I have just described with respect to pinot noir that ryegrass is most suited to. Although almost all EPL grounds use perennial ryegrass as the primary species, the fact that they almost all use underground heating to keep it alive and able to withstand



Central Otago pinot noir is the closest rival to the traditional great wines of Burgundy. Some of the Bay of Fires sparklings from northern Tasmania cost as much as a bottle of non-vintage Moët, but there are many wine experts who will tell you that it represents better value for money.

the traumas of a football match in winter, suggests that the English winter is not in fact the ideal growing conditions for this grass. Maybe with underground heating you could also produce a good pinot noir wine in England as well, but since it might cost a few hundred a bottle it would be unlikely to turn anyone's head away from those produced in Burgundy.

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Most groundsmen who manage a football playing surface of natural grass are not working to the key performance indicator of trying to prevent players from tearing ACLs, but instead are trying to make the surface as green, soft and lush as possible. It turns out that if you are doing this in Tasmania or the south island of New Zealand or in central France, the grass you should be using is perennial ryegrass, without any blend of other grass species at all as the rye will grow so well. If you are looking after a ground in a slightly warmer climate, then a couch (Bermuda) base in summer, plus a rye oversow in winter as it gets cooler, is probably the preferred combination. In a really warm climate (e.g. north Queensland), you might use couch grass and not need to oversow it with ryegrass at all. As the weather gets colder, underground heating is needed in winter

to keep the grass alive. If the climate is humid (wet) ryegrass might still be the best option, but if it is drier then Kentucky Bluegrass is preferable and often it is best to mix these two grasses together.

Does grass species matter with respect to injury? In my opinion the answer with respect to ACL injury is definitely yes, although it is hard to prove due to all of the confounders involved in the genesis of an ACL injury.

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The strongest evidence is the raw epidemiological data and it gets stronger when you add a few close up pictures of the different types of grass, showing that ryegrass leads to a lot less grip than the warm-season grasses (and even Kentucky Bluegrass). In Australia we have the highest published rate of ACL injuries in the world, with Tasmania clearly having the lowest rate, followed by Victoria. The AFL ACL data map follows the same trend as the general population. New Zealand, France and England, all of which tend to have ryegrass on their football grounds, have far lower rates of ACL injury than Australia. In Europe, southern Europe, with a Mediterranean climate that uses warm-season grasses as a base, the rate of ACL injuries is double that of northern Europe, where ryegrass



is the preferred grass. In the USA, where Kentucky Bluegrass is used a lot more because of the colder drier winters, there doesn't seem to be a north-south bias for ACL injuries.

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The fascinating conclusion I have come to with respect to climate is that where pinot noir grapes thrive, perennial ryegrass thrives,

and ACL injury rates tend to be lower. The winemakers have worked out the places and the ways to grow the best grapes to give outstanding bottles of pinot noir. There is a challenge for turfgrass science and sports injury prevention experts to get together and try to replicate the low ACL risk characteristics of cool-climate ryegrass surfaces around the world and try to eliminate the plague of ACL injuries that is seen in places like mainland Australia.

Dr J

The opinions expressed in Dr J are the personal opinions of the author.



Grapes and vines in the Chateauneuf du Pape region of southern France, which climate-wise is more similar to the Barossa region in South Australia. Syrah (shiraz) is preferred here to Pinot Noir due to the warmer Mediterranean weather.