

CLIMATE'S INPUT INTO

PERFORMANCE



Efficient is a superb Kiwi stayer



Editor-at-large Renee Geelen investigates the theory that climate plays a significant role in distance aptitude.

Typically, when talk turns to Melbourne Cup-type horses, more often than not it is the New Zealand-bred horse that comes to mind. In recent times, the NZ-bred horse has won only 2 of the last 10 Cups (2001 - 2010) but this does not stop them gathering favour with punters or trainers.

Leading Sydney trainer Gai Waterhouse has had plenty of success with tried New Zealand stayers, for example Te Akau Nick, Hula Flight, Electronic, Coco Cobanna, Descarado and Herculan Prince. Her husband and well-known racing identity Robbie (who specialises in form assessment) has a strong belief that it is the colder climate in NZ that produces horses more suited to stamina contests.

Quoted in the UK's Racing Post after Royal Ascot, Rob Waterhouse says: "Australian sprinters are so outstandingly good because of the environment in which they develop. Australia's climate is conducive to the production of sprinters. Across the Tasman, in the cooler climes of New Zealand, development is slower, hence that country's high reputation as a producer of stayers."

Waterhouse also declares: "I contend that the view that Australian breeders have developed sprinting bloodlines and New Zealanders staying ones is flawed. In fact, New Zealand breeders have been forever trying to inject more speed into their bloodlines. Along the same lines, Kiwi breeders avoid acquiring dour mares."

"By contrast, Aussie breeders would love the horses they produce to stay more – most of Australia's valuable Group races are middle distance and staying tests. Among Australian breeders, Oaks-

winning mares are prized for the same reason. I think it would be more accurate to state that the different distance preferences of progeny from the two countries are in spite of the pedigrees, rather than because of them."

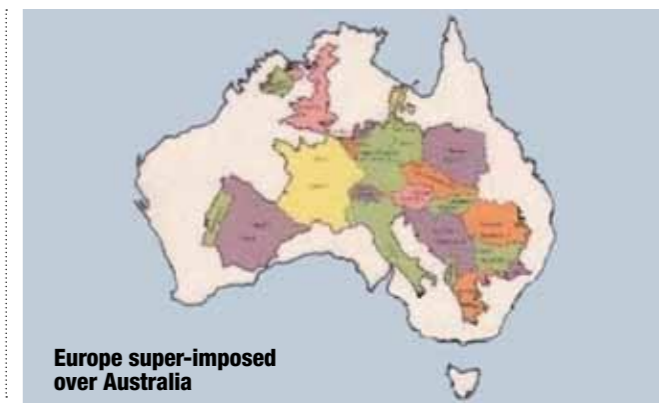
MELBOURNE CUP WINNERS 2001-2010

Year	Winner
2010	AMERICAIN (USA) 2005
2009	SHOCKING (AUS) 2005
2008	VIEWED (AUS) 2003
2007	EFFICIENT (NZ) 2003
2006	DELTA BLUES (JPN) 2001
2005	MAKYBE DIVA (GB) 1999
2004	MAKYBE DIVA (GB) 1999
2003	MAKYBE DIVA (GB) 1999
2002	MEDIA PUZZLE (USA) 1997
2001	ETHEREAL (NZ) 1997

But can this idea of climate affecting stamina be quantified? First we need to see if there is a correlation between race-winning distance and place of birth, and then investigate further to see if the correlation lines up with the Waterhouse prediction of stamina and colder climes.

As many Australians purchase staying stock from New Zealand, there is an element of pre-selection in regards to their performance in staying races in Australia. Similarly, many New Zealand trainers buy their 2YOs and sprinters from Australia, providing some further fuel for the sprinter vs stayer idea. By combining the racing across both countries, this should eliminate this pre-selection as much as possible. The use of stakes races will remove the complication of ability from the equation.

Arion Pedigrees provided *Breeding&Racing* with all the stakes races



STAKES-RACES BY DISTANCE CATEGORIES

Location	Distance	Gr1	Gr2	Gr3	L	Total	%
Australian Stakes Races	1799m and under	85	151	182	481	899	75%
	1800m +	55	36	72	139	302	25%
	Total	140	187	254	620	1201	100%
New Zealand Stakes Races	1799m and under	32	24	46	108	210	70%
	1800m +	14	22	24	30	90	30%
	Total	46	46	70	138	300	100%
All Stakes Races	1799m and under	117	175	228	589	1109	74%
	1800m +	69	58	96	169	392	26%
	Total	186	233	324	758	1501	100%

ORIGIN OF 'BEST' RACE WINNERS

Distance	NSW	VIC	QLD	WA	SA	TAS	NZ	ACT	NT	GB	IRE	SAF	USA	Total
1799m & under	461	131	116	83	49	22	235	7	2	0	0	2	1	1109
1800m plus	110	31	17	34	18	6	159	3	2	2	8	0	2	392
Total	571	162	133	117	67	28	394	10	4	2	8	2	3	1501

ACTUAL VERSUS EXPECTED RESULTS

Distance	NSW	VIC	QLD	WA	SA	TAS	NZ	Expected Result
1799m & under	81%	81%	87%	71%	73%	79%	60%	74%
1800m plus	19%	19%	13%	29%	27%	21%	40%	26%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Just by looking at the number of races split into two distance categories, there is already a difference between the two countries. In Australia, 75% of the stakes races are run at 1799m or less; while in New Zealand this figure is 70%. Interestingly, the New Zealand Gr1 races retain the 70/30 split, while in Australia our Gr1 races shift towards the stamina side of the equation with only 61% of the best races being run at 1799m or shorter.

With a base established, the Arion data was sent to the Australian Stud Book who provided the place of birth of all 922 winners. The accuracy of the place of birth data only goes as far as the state, not the postcode, but this should provide enough information to make some generalised conclusions. The postcode of birth was only introduced by the Stud Book after the Equine Influenza crisis of 2007, so the majority of horses in this data set are too old to have this level of detail recorded about them.

Of the 1501 races, only 29 went to horses born in the ACT, Northern Territory, England (GB), Ireland, South Africa and America (USA). Drawing a conclusion from such small numbers is difficult, so the next phase of this investigation will look only at the states (plus New Zealand) that have sufficient winners to provide the possibility of connection between climate and stamina.

The 'expected result' is the percentage of races available at the two different distance measurements. This table shows how the results for each location of birth differ from the 'expected result'. The majority of states in this table show a move away from the 'expected result' with only WA and SA being near enough to say that they produce stakes winners in line with the ratio of stakes races.

New Zealand shows a fairly strong swing towards the stamina (1800m plus) races, which is notable since the data includes their entire domestic stakes racing. Queensland, on the other side of the coin, shows the strongest swing towards producing sprinters. NSW and Victoria also show a bias towards producing sprinters over stayers. And while Tasmania's figures show the same trend, their raw numbers are too low to draw any decent conclusion from their percentages.

So, yes, there does appear to be a loose connection between place of birth and stakes-winning distance.

Let's take this idea further by looking at the climate data from each region: most keen weather observers will tell you that the climate within each state is quite varied, and after all, each state does cover a large piece of land.

With such vast areas of land to cover and many different micro-climates on offer, there had to be some compromise on determining the 'climate' for a state. By taking the localised region around the

major stud farms in each state and using climate data from the Australian Bureau of Meteorology, B&R could determine some basic climate figures for each state. The NZ climate data comes from the New Zealand National Institute of Water and Atmospheric Research (NIWA).

WA's results are almost bang on average (71/29 compared to 74/26). Thoroughbred Breeders Australia Honorary Treasurer and WA representative Sally Oakes says the studs there are quite widely distributed within a five hour drive of Perth. Mungrup Stud is the biggest stud in WA and is probably the furthest away down south in a cooler climate at Narrikup near Albany. Oakes has horses there and brings her young ones north towards Perth in August so they mature

faster for the sales. Heytesbury Stud is near Perth while to the north in warmer regions are Yarradale and Durham Studs. This spread of studs and respective climate differences is presumably why the WA figures reflect the expected result.

NSW, Victoria and Queensland, and their bias towards sprinter production, all have higher temperatures as well as longer daily sunshine hours (and less wet days).

Queensland breeder Basil Nolan

says it is economic suicide to stand a staying sire in Queensland, the only time anyone wants to own a stayer is Melbourne Cup day! Nolan couldn't rule pedigree out of the equation but he concedes that climate has an impact as well, and it is hard to single one out over the other. There is also the possibility it is more a training issue, as the



Australian studs: a sprinter-producing bias

"IT WOULD BE MORE ACCURATE TO STATE THAT THE DIFFERENT DISTANCE PREFERENCES OF PROGENY FROM [AUSTRALIA & NZ] ARE IN SPITE OF THE PEDIGREES, RATHER THAN BECAUSE OF THEM."



Crack NSW sprinter Northern Meteor

REGIONAL TEMPERATURES

Statistics	NSW (Score)	VIC (Euroa)	Qld (Beaudesert)	WA (Narrikup)	NZ (Waikato)
Mean maximum temperature (°C)	24.1	21	26.5	20.1	18.8
Mean minimum temperature (°C)	11	9.4	12.6	9.4	8.6
Mean annual rainfall (mm)	645.1	650	905.4	729.2	1190
Mean daily sunshine (hours)	7.3	5.9	7.4	6.4	5.5
Mean Wet Days (>=1mm)	65.3	81	70.4	101.3	129

hotter climate at the main metropolitan training tracks in Queensland means horses can't be worked as hard and thus trainers can't get them to stay. Further to this, the warmer climate does seem to have a positive effect on racehorses that spend the winter spelling in Queensland, as these horses appear to have an advantage during Victoria's spring carnival.

On the other hand, New Zealand's Waikato region (home to Cambridge Stud, Windsor Park Stud, Waikato Stud, etc) is cooler, wetter and has a lower daily sunshine hour figure – and a higher than expected ratio of horses that win over stamina trips with a 60/40 sprinter/stayer split compared to 74/26 opportunity.

NZTBA's Michael Martin told B&R that he thinks climate and feeding regime are linked, and feeding may also have an effect on precocity as much as climate. He acknowledges that Australian horses get a kinder climate, but he thinks they are also fed more and it is the combination that produces an earlier type. It is kind of like growing an Oak tree – it takes longer in New Zealand and, Martin says, this patience translates into the people as well. Further to that, the economic situation in New Zealand allows horsemen to be more patient. The lower cost of training and agistment means

that it is cheaper to develop a stayer in NZ. Martin observes, "Rob Waterhouse has done well buying late 3YOs and early 4YOs from New Zealanders who have put the required patience into them for him, and thus given a horse much needed time that may not have the same chance in Australia's more expensive environment."

While it is difficult to draw concrete conclusions from quite generalised data there appears to be enough evidence that Rob Waterhouse's theory on climate has some validity. In general, horses born in colder climes have a tendency towards better performance at the longer race distances. However there are many further variables that may impact on this including where they were raised,

where they are trained, what they eat, their pedigree and even what the people are like. The art of breeding a racehorse is not a simple thing and many factors go into the end result.

Every location we looked at was capable of breeding both stayers and sprinters; while we haven't proven that climate conclusively impacts on distance aptitude, the above analysis does offer food for thought; in any event, there is already a pre-existing perception that it's horses for courses- irrespective of the reason!

"THE LOWER COST OF TRAINING AND AGISTMENT MEANS THAT IT IS CHEAPER TO DEVELOP A STAYER IN NEW ZEALAND."