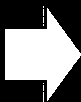


## **SMARTsig Confidential 9.09, September 2002**

### ***In this month's issue . . .***

- |           |  |                     |
|-----------|--|---------------------|
| <b>2</b>  | <b>Up Front - A Little Fire In All of Us</b>     | <b>SMARTsig</b>     |
| <b>8</b>  | <b>Widening The Net</b>                          | <b>John Norris</b>  |
| <b>11</b> | <b>Novice Chasers Placed Into Handicaps</b>      | <b>Ray Hooper</b>   |
| <b>14</b> | <b>5-Year NH Trainer &amp; Favourite Records</b> | <b>Peter May</b>    |
| <b>23</b> | <b>In-Depth Race Analysis [1]</b>                | <b>David Renham</b> |
| <b>30</b> | <b>Sharp, Sharper, Sharpest</b>                  | <b>John Jackson</b> |
| <b>36</b> | <b>KISS #1 - Forecast Favourites</b>             | <b>Russell Hart</b> |
| <b>47</b> | <b>National Hunt Profiler</b>                    | <b>SMARTsig</b>     |
| <b>48</b> | <b>NH Race Profiles for September</b>            | <b>Peter May</b>    |
| <b>51</b> | <b>ARCHIE Consolidated</b>                       | <b>Steve Tilley</b> |
| <b>61</b> | <b>SMARTsig SWAP-SHOP</b>                        |                     |
| <b>62</b> | <b>KISS #2 Carrying A Penalty</b>                | <b>Jim Streek</b>   |
| <b>65</b> | <b>Forecast Methods for Horseracing XV</b>       | <b>Peter May</b>    |
| <b>76</b> | <b>Subscription Rates / Back issues</b>          |                     |

**NEXT  
ISSUE**



*October 2002, issue 9.10, is scheduled  
for posting on 3rd October 2002*

# SMART UP FRONT

*The intelligent choice*

## **A Little Fire in All of Us**

*(Although it burns brighter in some than in others)*

**O**kay, we are all quite aware that the best way to maintain long-term profits from betting is by stealth. We aim for a little more coming back than we put out, Dickens expressed the process so succinctly in *David Copperfield* where Wilkins Micawber offers this advice to David;

*“Annual income twenty pounds, annual expenditure nineteen nineteen six, result happiness. Annual income twenty pounds, annual expenditure twenty pounds ought and six, result misery.”*

We merely replace the words income & expenditure with investment & return, or stakes & winnings - same principle fits all. Taking  $x$  steps forward and  $y$  steps back is the way we build our bank - so long of course you ensure  $x$  is greater than  $y$  over the long run.



There is however a little *gambling* devil in us all which, to one extent or another, drives our fascination with thoughts of the massive win from a very small stake. During the latter part of the twentieth century it was the football pools in the UK that fired the dream of many, their passport to out of the

low wage, long hours, treadmill culture perhaps? Even though Viv Nicholson famously proved it was no guarantee of happiness.

The football pools 'dream' has since been usurped by the National Lottery where millionaires are now created almost weekly. And, as the Lotto publicity frequently reminds us all, if you don't play you can't win it - and somebody will win. Statistics however remove the gloss and give a clearer picture, telling you that you've a better chance of being murdered on the way home from registering your numbers, than you have of being a million or so richer come 9:00pm.

The actual mathematical formula for calculating the chance of picking the correct 6 numbers from the choice of 49 is;

$$49!/(6!(49-6)!)$$

... which puts your chance at exactly 1 in 13,983,816.

In simpler terms your first number is any one from 49, your second any one from the remaining 48, and so on. So,  $49 \times 48 \times 47 \times 46 \times 45 \times 44 = 10,068,347,520$ . But that huge number reflects the chances of picking the numbers in exactly the same order as they are drawn, whereas in reality the order is not important. So we need to bear in mind that six numbers can actually be drawn in any one of  $6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$  different orders. Chance of the correct 6 then is  $10,068,347,520 \div 720 = 13,983,816$

The stark realities of chance tends to leave too many players with losing tickets on too many occasions though, the initial unrealistic expectations and over enthusiasm wanes - and as with so many things before it, Lotto participation has significantly dwindled since its launch - and continues to struggle despite the best efforts of the promoters with new games and even a new name. All this at a time when gambling spending is on the increase too.

So is this decline just down to a realisation of chance - or is the Lotto missing something? Pre-Lottery, the football pools phenomenon did not suffer from anywhere near the same fall-off in popularity, in fact they and their revenues blossomed with a steady year-on-year growth. Was it perhaps that in filling out the weekly coupon offered the player at least a glimmer of being able to use skill & judgement in order to crack the big prize?

There will always be the 'lucky numbers' brigade about - so Lotto, Premium Bonds and the like will always have a hard core of followers. But for those looking for a chance of a big pay-out, who also want to exercise their prediction skills, what opportunities are there?

Racing fans looking to become half-millionaires or better from small stakes can look to Tote Jackpot roll-overs or the *Scoop6* - again where rollovers can take prize funds to dizzy heights. And the chance of finding the winner from six, 15-runner races is far better than the 'bare mathematics' of  $15^6$  ( $15 \times 15 \times 15 \times 15 \times 15 \times 15$ ) suggests. Your experience, skill and judgement can narrow the field very quickly by simply eliminating the no-hopers as a first step. (or is that far easier to say than to do?)

Tote pools though do have one problem in common with the Lotto. The prize for a winning ticket is not fixed, is a share of the prize fund, which itself depends upon the number of players. So we're faced a conundrum - by eliminating the no-hopers I increase my chance of winning but - the skill & judgement of other canny players will lead many of them to the same conclusions. Too many winners sharing the prize and it's not going to make me a half-millionaire! Better then to pick at least one of the aforementioned no-hopers, so fewer are sharing the prize money? . . . but by so doing I'm also reducing my chances of winning. We're almost getting back full-circle here and making a case for lucky numbers?

According to early reports from Camelot, around 10,000 Lottery ticket entries each week were for the numbers 1, 2, 3, 4, 5 & 6. This sequence is of course just as likely to be drawn as any other 6-ball combination, but imagine the dashed hopes of each of these 10,000 if their numbers come up! Even with a generous £10 million first prize pool, each winner would receive the princely sum of £1,000. Not bad for £1 I know, but could the disappointment ever be measured?

Perhaps better then for the horse-player to avoid pools when going for the big-hit? An accumulator on six 9/1 shots will produce odds of one million-to-one. If they all do come in, that payout is dependant upon the odds alone, so you're not sharing or dividing between any others. But even this tactic runs into snags - you can't know for certain what the market SP's will be beforehand, so your whole plan is based upon conjecture. You can get a reasonable estimate before racing from the betting forecasts, but such forecasts are based upon facts prevalent at the time they were calculated.

Your bet was presumably placed with a bookmaker who could offer the high payout limit. Five bets in, and you're sitting on five winners to date - and they all made the target 9/1 figure. Your initial £1 stake is now a rolling £100,000 riding on selection number 6. Any bookie worth his salt has systems in place which keep track of his liabilities, and such an amount on a single runner, take it from me - is one hell of a liability!

Their preferred option would be to make contact with you now, and discuss a hedging position (always the bookies preferred option), otherwise they'll need to ensure they're covered by sharing the burden and laying off some of the potential liability. This in turn will have an effect upon the market price of your selection, the price will shorten as a result.

Remember Frankie Dettori's great day through-the-card? Check out the SP of those later runners in comparison with the betting forecasts and you'll see market forces in action. Less to do with he's 'hot' today, than it was to do with the weight of accumulated liability from multiples struck much earlier in the day.

### ***Fixed-Odds***

An area where non-pool, multiple betting with pre known odds is available is on the bookmaker's fixed-odds football coupon. Back a six-fold accumulator of 9/1 shots here and that's exactly what you'll get, 1 million to one.

A few years back I advocated an alternative small-stake, big-return bet using accumulators with 1-0 scores, and a saver bet with a good chance of money back for a couple of hits. I remember it particularly well because the Racing Post refused my ad when I wanted to proclaim the idea as "*Win a million - or your money back*". In effect I was being no more devious than many other advertisers, the claim was true . . . just incomplete . . . for perfect accuracy it should have ended . . . "*or not.*"

1-0 was chosen as a frequently occurring score with a better than most scores chance of stringing a few together and hitting the 'big one'. Using the most common score of all, 1-1, was prohibited under the bookies rules - maximum number of draws was restricted back then, something to do with anti-competition clauses with football Pools companies.

Whether it's because the Pools companies have less muscle, post-Lottery, I'm not sure but Ladbrokes at least have amended the rule to now accept unlimited draws in a single line.

### ***Rationale behind the bet***

Drawn games are notoriously difficult to home in on, and almost no matter what handicapping method is used the percentage of draws stays pretty steady throughout. If there is any bias at all, it tends to show

itself as more 'draw-friendly' at the away-team-favoured end of the ratings. Now 1-1 is the most common soccer score, averaging around 12% or so of all games played. Simply by using the bookies coupons though, and selecting the lowest away/highest home win odds the percentage strike can be jacked up ever so slightly - but occasionally to the 15%, sometimes 16% range.

1-1 is almost universally are offered at 11/2 (equivalent to 15% ish) so no particular long-term edge either way for singles bettors - but what about those who enjoy the big-return punt? Going for a half-million to one shot, when your chances are close to the same figure is a more worthwhile tactic than any odds that Camelot can offer.

One suggestion is, highest 8 home game odds on the coupon. Perm any 7 from 8 @ 10p. 80p total stake wins close on £50,000 if 7 correct, £400,000 if you can drop on all 8.

Little chance?- well sure! But a better chance than many other routes to big pay-outs. If you also cover with any 2 from 8, 28 doubles, again @ 10p then any pair correct will ensure a 41/1 pay-out which will recoup the entire stake. Drop lucky with three 1-1 scores and the doubles will return enough to cover three coupon entries!

### **WIN A HALF A MILLION - Or Your Money Back (or not?)**

Using the weekend or midweek football coupons;

Mark 8 matches to finish correct score of 1-1

Instructions:

Perm any 2 from 8, 28 lines @ 10p = £2.80 staked

Perm any 7 from 8, 8 lines @ 10p = £0.80p staked

Total stake £3.60

Guarantees: Any 2 correct = 1 double minimum return £4.22  
 7 correct = one accumulator correct, min return £49,022.00  
 8 correct pays at least £392,178 plus the doubles!

***Rather go for a bigger payout? Leave the doubles at 10p, but up the stakes to 15p on the 7-folds. Total stake now £4.00, full coupon stakes still recovered with just 2 correct. - But check your bookmaker's coupon limits!!***

Using my suggested selection method of the eight highest priced home wins have started the season as follows;

### Week ending 10 August 2002

Match	Actual score
Aberdeen v Celtic	0-4
Walsall v Ipswich	0-2
Bradford v Wolves	0-0
Cheltenham v Wigan	0-2
Boston v Bournemouth	2-2
Northampton v Crewe	1-1 ♦
Swindon v Barnsley	3-1
Dunfermline v Livingston	2-1

*Wipeout - Total loss*

### Midweek 13/14 August 2002

Match	Actual score
Stockport Co v QPR	1-1 ♦
Grimsby T v Wimbledon	0-0
Bristol R v Hull C	1-1 ♦
Rotherham U v Norwich C	1-1 ♦
Chesterfield v Swindon T	2-4
Lincoln C v Rochdale	2-0
Stoke C v Leicester C	0-1
Gillingham v Derby Co.	1-0

*Three correct, returning £12.66 (to 10p doubles)*

### Week Ending 17 August 2002

Match	Actual score
Grimsby T v Derby Co.	1-2
Aston Villa v Liverpool	0-1
Charlton Ath v Chelsea	2-3
Exeter v Hull C	3-1
Partick Ths. v Livingston	2-2
Queen o' Sth v St.Johnstone	0-0
Caley Ths v Falkirk	1-2
E Stirling v Albion Rov.	0-3

*Total loss*

The second bet repaid the cost of all three coupons. So, as hoped, chances for a big, big payday, without costing anything up to this point. (in fact we've even made a slight profit)



***When looking at covering multiple selections, our old friend John Norris is never too long in suggesting alternatives from his 'reduced guarantee perm' repertoire***

**WIDENING THE NET**

***John Norris***

**A**lways interested in looking at ways to make a football killing. Your half-million or money back strategy seems fine, but why not cover more than eight?

My first thoughts are to cover 10 in 5 columns, offering an 8 together if 9 occur . . . Very tight cover . . . do 9 separate 10's instead of 1 set of 10 for the same price but a much better chance..

1	1	1	1	2
2	2	2	3	3
3	3	4	4	4
4	5	5	5	5
6	6	6	6	7
7	7	8	7	8
8	8	9	9	9
10	9	10	10	10

Or a bit looser (well - quite a lot looser) cover. Here's a quick and dirty "combination" perm covering your favoured best 12 in just 3 columns of 8

1	1	2
2	3	3
4	4	5
5	6	6
7	7	9
8	8	10
9	11	11
10	12	12

For those interested it is constructed thus;

Any 2 from first 3 with any 2 from second 3 placed directly underneath to give a 3 line 2 if 3 and 3 if 4 guarantee in lines of 4 from 6



Directly underneath that is a 3 line 4 from 6 block covering 2 if 2, 3 if 4, and 4 if 5 in lines of 4 from 6

The overall guarantees from this are..

2 if 2, 3 if 4, 4 if 5, 5 if 7, 6 if 8, 7 if 10

e.g. Any 6 from 8 and all 8 in each column  $28x3 + 3 = 87$  @ whatever stake

Alternatively, allow for the (inevitable?) errors on the 8 top home odds by means of a permuted entry with more than the 1 score per position.. like this perhaps . . . any score you like in column 2.

1	1-1	2-1
2	1-1	2-1
3	1-1	2-2
4	1-1	2-2
5	1-1	2-3
6	1-1	2-1
7	1-1	2-1
8	1-1	2-0

Perm up to  $x$  alternatives on 8 games

( $x=1$  needs 9 bets)

( $x=2$  needs 37 bets)

( $x=3$  needs 93 bets) etc, up to the point of no return . . .

After a little more thought, I've been looking at correct scores with renewed interest.

The potential for profit is certainly there, but at a cost and complexity which may not be to everyone's taste - especially the complexity, which on some types of bet require a few coupons/slips.

If I ever get a round to it would you care for another little article? It would consist mostly of long-shot perms. (now there's a surprise!)

Here's a sample, covering 8 games

Select 3 scores per game, preferably 6 different scores per pair, and bracket into paired groups, (consecutives shown) so that you have 4

groups of 3 scores in each of 2 games...

Call the groups A,B,C,D and set them out thus to avoid confusion in checking . . . not that such a thing ever happens with my perms, of course!

	A	B	C	D
1	1-1 1-0 2-1			
2	0-0 0-1 1-2			
3		1-1 1-0 2-1		
4		0-0 0-1 1-2		
5			1-1 1-0 2-1	
6			0-0 0-1 1-2	
7				1-1 1-0 2-1
8				0-0 0-1 1-2

Add the instruction.

Perm each pair in either order in each of groups A,B,C,D and combine ABCD for any 2 blocks from 4 blocks for 216 four-timers  
(6 x 6 x 6 = 216 bets @ *your stake*)

*Looks like John will be back to expand upon one of these themes in a future issue.*



## SMARTsig results-on-disk

**National Hunt 2000/01 results  
available NOW**

**10** seasons of **NH** (1992/1993 – 2001/2002)

&

**10** seasons of **Flat** (1992 –2001)

PC comma separated text files only £31 post paid per season.

**SAVE!** purchase any 5 seasons or more at the one time and qualify for 20% discount (5 seasons @ £124 post paid - 10 seasons @ £248 etc.)

Only available through SMARTsig, PO Box 44, Hayle. TR27 6YH  
Credit/debit cards `phone/fax 01736 754400 or email stef@smartsig.com

***Less so these days, but years ago many systems were sold through the racing press and by direct mail. Often they were passed around between friends becoming rather dog-eared in the process and many of them losing the connection with their originator. Perhaps the following falls into this latter category?***

A new member, Ray Hooper wrote to me enclosing a system for jump racing asking if the ideas promoted had be examined by SMARTsig before. The system was neatly typed, with the simple heading of "System", but no authors name was in evidence. I'm not sure therefore exactly whose work it is, Ray does not claim it as his own in his accompanying, hand-written letter.

One thing is certain, inasmuch the work is several years old and the 'results from last February' can be traced to 1995.

Anyway, on with the 'System'.

## **NOVICE CHASERS PLACED INTO HANDICAP COMPANY**

***Submitted by: Ray Hooper***

**N**ovice chasers who are tried in handicap company (not just novice handicaps) do incredibly well at this time of year. There are probably only 2 to 3 qualifiers each week but if you look at the winning list for February last year (*see note above - actually 1995! - ed*) you can see how good this system is.

The system is logical in that the trainer knows he has an improving chaser, who will have had some experience in novice/novices handicap chases (usually 2 to 3 runs) and will be well handicapped with older horses especially in lower grade races.

Some of these older horses are on the downgrade but over-rated by the betting public who remember their former glories. The novices are totally unexposed and the betting public continually under-estimates their ability.

Trainers who think their novice chasers are good enough for handicap company should be followed especially at this time of year.

## NOVICES WHICH WON HANDICAP CHASES LAST FEBRUARY

DARK OAK	11/8	(J Curtis)	(11-13)
WOODLANDS BOY	5/1	(R Hoad)	(11-1)
ANOTHER DYER	2/1	(I, Lungo)	(10-7)
MAAMUM	15/8	(C Broad)	(10-2)
ALI'S ALIBI	2/5	(Mrs M Reverley)	(11-10)
RAINHAM	7/2	(D McCain)	(10-6)
SPROWSTON BOY	9/4	(M Chapman)	(10-2)
FAIR BROTHER	5/2	(G Balding)	(11-2)
DEAR DO	6/1	(N Henderson)	(10-6)
SOUND REVEILLE	7/2	(C Brooks)	(11-10)
INTEGRITI BOY	11/4	(N Tinkler)	(10-6)
GREY POWER	5/4	(Mrs M Reverley)	(11 -9)
ROMANY CREEK	20/1	(G Balding)	(10-0)

The overall situation is remarkably similar to the Flat. In particular, returns for non-handicaps are clearly superior to those for handicaps. Two types of race stand out: non-handicap hurdles with a winning percentage of 45% and long distance non-handicap chases with 40%.

As is the case with the Flat, the basic percentage can be improved by studying the returns for different tracks. Here is a breakdown showing the best courses for non-handicap hurdle favourites over the five year period:

## FAVOURITES IN NON-HANDICAP HURDLES

1.	TOWCESTER	62%
2.	UTTOXETER	56%
3.	WINDSOR	48%
4.	CARLISLE	46%
5.	FOLKESTONE	45%
6.	LINGFIELD	45%
7.	WETHERBY	44%
8.	DONCASTER	43%
9.	MARKET RASEN	43%
10.	SANDOWN	43%
11.	WARWICK	43%
12.	WOLVERHAMPTON	43%

These figures include returns from novice hurdles about which many racing experts are extremely cautious. Certainly there can be surprising results in

this kind of race inexperienced horses with little form in the book are not always the most reliable investments.

On the other hand, it is not difficult to spot a good novice hurdler and the racecourse market has a habit of getting these races right. An intensive analysis revealed that a large number of winning favourites in novice hurdles are winners or seconds last time out. I would not go so far to say that everything else should be ignored, but it will certainly pay to concentrate on their previous outing.

As far as non-handicap steeplechases of three miles or more are concerned, prospects are even brighter for certain courses where some very high winning percentage are recorded:

#### FAVOURITES IN NON-HANDICAP CHASES OF 3 MILES OR MORE

1.	KELSO	60%
2.	HAYDOCK	57%
3.	ASCOT	56%
4.	TAUNTON	52%
5.	AYR	51%
6.	KEMPTON	51%
7.	DEVON AND LEICESTER	50%
8.	SANDOWN	50%
9.	WORCESTER	50%
10.	CATTERICK	40%
11.	SEDGEFIELD	49%
12.	WINDSOR	49%

There are not a great many races of this type in the course of a season and the number is cut still further by concentrating on the top dozen courses for favourites, but it is clear that returns are especially good. Moreover, starting prices are usually quite reasonable - the 40 to 60% winning rates do not stem from strings of odds on chances. In short this type of favourite is a very sound proposition indeed.



*I can't readily bring to mind that SMARTsig has ever examined this particular avenue before - any comments from other members would be welcomed. But, in the meantime, our annual look at the national hunt statistics provided by Peter May (. . next page . .) at least brings some of the above figures right up to date.*

*- Stef*

***Peter May's course-specific trainer performances and favourite strike rates have proved popular in previous issues. It looks set to become a regular feature, so printed here are the up-to-date figures for the forthcoming jumps season.***

## **FIVE-YEAR COURSE-SPECIFIC TRAINER & FAVOURITE RECORDS**

### **part [I] - Aintree to Lingfield**

***Peter May***

**T**here are two sets of tables which can prove invaluable to the trend-conscious punter. The historical record of exactly how well (or poorly) trainers perform at specific courses and particular race types.

Combine this knowledge with an appreciation of how favourites have fared and you will be better placed than many to spot the potentially favourable indicators- or to recognise when to exercise caution.

Statistics are from the last five full jumps seasons (1997/98 - 2001/02) In the tables [RaceType] should be self-explanatory, other columns show wins, runs, percentage wins and 1 point betting return. The final column is expressed as ***Return per 1 point stake***. So, 0.00 indicates dead level or break-even (zero profit returned for each 1 point staked). Anything above 0.00 is a profitable series, negative values show a loss.

### **AINTREE**

<b>Trainer</b>	<b>RaceType</b>	<b>Wins</b>	<b>Runs</b>	<b>%</b>	<b>Ret</b>
JJONEILL	HcpChs	4	11	36.4	0.94
PJHOBBS	NovHdl	4	11	36.4	2.23

#### Favourites

CondHdl	2	6	33.3%	-0.44
NovHdl	17	37	45.9%	-0.07
HcpHdl	9	29	31.0%	-0.10
CondChs	2	9	22.2%	-0.44
NovChs	5	12	41.7%	-0.02
HcpChs	15	45	33.3%	0.24
NHF	4	9	44.4%	0.50

## ASCOT

Trainer	RaceType	Wins	Runs	%	Ret
MCPIPE	CondHdl	6	21	28.6	0.70
MCPIPE	HcpChs	11	37	29.7	0.76
MPITMAN	NovHdl	5	15	33.3	1.94

### Favourites

CondHdl	6	16	37.5%	-0.24
NovHdl	15	52	28.8%	-0.42
HcpHdl	12	45	26.7%	0.03
CondChs	2	5	40.0%	0.10
NovChs	13	36	36.1%	-0.03
HcpChs	21	56	37.5%	0.13
NHF	5	10	50.0%	0.42

## AYR

Trainer	RaceType	Wins	Runs	%	Ret
ACWHILLANS	HcpHdl	9	29	31.0	0.64
ACWHILLANS	HcpChs	6	21	28.6	2.39
GMMOORE	NovHdl	4	16	25.0	0.48
MRSSCBRADBURNE	HcpHdl	5	19	26.3	0.92

### Favourites

NovHdl	33	66	50.0%	-0.07
HcpHdl	19	63	30.2%	-0.15
NovChs	18	37	48.6%	-0.07
HcpChs	25	79	31.6%	-0.06
NHF	6	23	26.1%	-0.39

## BANGOR

Trainer	RaceType	Wins	Runs	%	Ret
JJONEILL	NovHdl	6	22	27.3	0.49
JJONEILL	HcpHdl	6	20	30.0	1.20
MCPIPE	HcpChs	4	14	28.6	0.79
NATWISTONDAVIES	HcpChs	5	20	25.0	0.26
PJHOBBS	NovHdl	4	16	25.0	1.49
PRWEBBER	NovHdl	4	12	33.3	0.42
RLEE	HcpChs	5	20	25.0	0.27

### Favourites

NovHdl	31	72	43.1%	-0.15
HcpHdl	24	89	27.0%	0.01
NovChs	17	40	42.5%	-0.22
HcpChs	24	81	29.6%	-0.19
NHF	5	20	25.0%	-0.18

## CARLISLE

Trainer	RaceType	Wins	Runs	%	Ret
FERDYMURPHY	HcpChs	4	16	25.0	0.22
JJONEILL	NovHdl	8	29	27.6	0.18
LLUNGO	NHF	5	14	35.7	0.21
MRSMEVELEY	HcpChs	6	19	31.6	0.63
NBMASON	HcpChs	5	20	25.0	1.17
PBEAUMONT	HcpChs	4	16	25.0	0.39

### Favourites

NovHdl	23	50	46.0%	-0.05
HcpHdl	21	69	30.4%	-0.05
NovChs	12	37	32.4%	-0.41
HcpChs	22	74	29.7%	-0.11
NHF	9	26	34.6%	-0.11

## CARTMEL

### Favourites

NovHdl	14	32	43.8%	-0.00
SelHdl	2	5	40.0%	-0.19
HcpHdl	10	34	29.4%	-0.29
NovChs	4	13	30.8%	-0.46
HcpChs	7	25	28.0%	-0.37

## CATTERICK

Trainer	RaceType	Wins	Runs	%	Ret
FPMURTAGH	HcpHdl	4	16	25.0	2.91

### Favourites

NovHdl	26	58	44.8%	0.01
SelHdl	3	12	25.0%	-0.34
HcpHdl	22	78	28.2%	0.01
NovChs	18	35	51.4%	0.11
HcpChs	15	49	30.6%	-0.06
NHF	6	18	33.3%	-0.05

## CHELTENHAM

Trainer	RaceType	Wins	Runs	%	Ret
MCPIPE	NovChs	8	22	36.4	0.35
MISSHCKNIGHT	NovChs	5	16	31.3	0.81
MISSHCKNIGHT	HcpChs	4	16	25.0	0.59
MISSVWILLIAMS	CondHdl	4	12	33.3	0.29
MPITMAN	NovHdl	5	11	45.5	5.23
NJHENDERSON	NovChs	4	10	40.0	1.08



## CHELTENHAM (continued)

Trainer	RaceType	Wins	Runs	%	Ret
NJHENDERSON	HcpChs	7	26	26.9	0.88
PFNICHOLLS	NovHdl	5	15	33.3	1.00

### Favourites

CondHdl	13	27	48.1%	0.31
NovHdl	23	65	35.4%	-0.14
HcpHdl	25	71	35.2%	0.25
CondChs	9	30	30.0%	-0.15
NovChs	15	41	36.6%	-0.17
SelChs	0	6	0.0%	-1.00
HcpChs	31	91	34.1%	0.33
NHF	4	16	25.0%	-0.05

## CHEPSTOW

Trainer	RaceType	Wins	Runs	%	Ret
DRGANDOLFO	HcpHdl	4	12	33.3	2.58
MISSWILLIAMS	HcpChs	5	19	26.3	1.27
PFNICHOLLS	NovHdl	11	27	40.7	0.47
PFNICHOLLS	NovChs	11	26	42.3	0.46
PFNICHOLLS	HcpChs	18	62	29.0	0.32
PJHOBBS	HcpHdl	8	30	26.7	0.22
RHALNER	HcpChs	5	20	25.0	1.30

### Favourites

CondHdl	4	11	36.4%	-0.31
ClmHdl	3	5	60.0%	0.85
NovHdl	32	74	43.2%	-0.15
SelHdl	4	10	40.0%	-0.10
HcpHdl	20	78	25.6%	-0.26
NovChs	15	38	39.5%	-0.27
HcpChs	27	77	35.1%	-0.07
NHF	6	22	27.3%	-0.27

## DONCASTER

Trainer	RaceType	Wins	Runs	%	Ret
JJONEILL	HcpHdl	4	12	33.3	0.92
KCBAILEY	HcpChs	5	10	50.0	2.60
MRSMEVELEY	NovChs	4	11	36.4	2.22
NBMASON	HcpChs	5	13	38.5	1.91
TDEASTERBY	HcpChs	4	13	30.8	1.69

### Favourites

NovHdl	27	49	55.1%	0.17
SelHdl	1	8	12.5%	-0.79

**DONCASTER (continued)**

## Favourites

HcpHdl	12	41	29.3%	-0.23
NovChs	16	38	42.1%	-0.07
HcpChs	12	55	21.8%	-0.26
NHF	1	17	5.9%	-0.91

**MUSSELBURGH**

Trainer	RaceType	Wins	Runs	%	Ret
FMURPHY	NovHdl	6	12	50.0	1.74
LLUNGO	NovHdl	4	11	36.4	0.25
LLUNGO	HcpChs	5	12	41.7	1.58
MRSMREVELEY	HcpHdl	7	27	25.9	0.83

## Favourites

NovHdl	26	49	53.1%	0.01
SelHdl	3	6	50.0%	0.50
HcpHdl	18	63	28.6%	-0.21
NovChs	11	25	44.0%	-0.03
HcpChs	11	46	23.9%	-0.35
NHF	4	20	20.0%	-0.55

**EXETER**

Trainer	RaceType	Wins	Runs	%	Ret
JCTUCK	HcpHdl	8	29	27.6	1.05
JRPAYNE	HcpHdl	5	16	31.3	4.94
PRRODFORD	HcpHdl	4	11	36.4	2.09
RJHODGES	HcpHdl	5	15	33.3	1.68

## Favourites

NovHdl	35	71	49.3%	0.09
SelHdl	6	18	33.3%	-0.37
HcpHdl	38	135	28.1%	-0.21
NovChs	24	54	44.4%	-0.19
HcpChs	29	86	33.7%	-0.05
NHF	7	13	53.8%	0.43

**FAKENHAM**

Trainer	RaceType	Wins	Runs	%	Ret
HALEXANDER	HcpHdl	4	11	36.4	5.73
MRSPLY	HcpChs	6	15	40.0	1.56
OBRENNAN	HcpChs	4	10	40.0	2.15

## FAKENHAM (continued)

### Favourites

NovHdl	15	32	46.9%	-0.10
SelHdl	3	6	50.0%	0.04
HcpHdl	17	59	28.8%	-0.06
NovChs	13	23	56.5%	0.12
HcpChs	15	46	32.6%	-0.18
NHF	6	13	46.2%	0.13

## FOLKESTONE

### Favourites

NovHdl	29	59	49.2%	-0.02
SelHdl	5	11	45.5%	-0.09
HcpHdl	20	66	30.3%	-0.13
NovChs	19	32	59.4%	0.15
HcpChs	24	70	34.3%	0.07
NHF	11	25	44.0%	-0.08

## FONTWELL

Trainer	RaceType	Wins	Runs	%	Ret
GLMOORE	NovChs	5	12	41.7	1.40
LWELLS	HcpChs	4	11	36.4	2.07
MCPIPE	SelHdl	8	12	66.7	1.20
MISSVWILLIAMS	NovChs	7	14	50.0	0.26
PFNICHOLLS	NovChs	21	44	47.7	0.79
PJHOBBS	HcpChs	7	28	25.0	0.54
RHBUCKLER	HcpHdl	7	24	29.2	2.40

### Favourites

ClmHdl	8	19	42.1%	-0.11
NovHdl	47	114	41.2%	-0.14
SelHdl	6	13	46.2%	-0.15
HcpHdl	26	125	20.8%	-0.38
NovChs	36	65	55.4%	0.13
HcpChs	35	105	33.3%	-0.15
NHF	6	18	33.3%	0.05

## HAYDOCK

Trainer	RaceType	Wins	Runs	%	Ret
FJORDAN	HcpHdl	4	14	28.6	0.54
MCPIPE	NovChs	5	10	50.0	0.43
MISSVWILLIAMS	NovHdl	7	11	63.6	0.45
MISSVWILLIAMS	NovChs	7	10	70.0	0.91
MRSMEVELEY	HcpHdl	9	36	25.0	0.44

**HAYDOCK (continued)**

Trainer	RaceType	Wins	Runs	%	Ret
SABROOKSHAW	HcpHdl	6	15	40.0	2.58
WJENKS	HcpChs	5	13	38.5	0.81

## Favourites

CondHdl	4	15	26.7%	-0.48
NovHdl	27	52	51.9%	0.12
HcpHdl	23	66	34.8%	-0.09
NovChs	13	28	46.4%	-0.08
HcpChs	18	64	28.1%	-0.22
NHF	5	13	38.5%	-0.09

**HEREFORD**

Trainer	RaceType	Wins	Runs	%	Ret
HDDALY	NovHdl	5	15	33.3	0.32
KCBAILEY	NovChs	5	10	50.0	0.98
MISSHCKNIGHT	HcpHdl	6	13	46.2	5.25
MISSVWILLIAMS	HcpChs	4	14	28.6	0.31
MJMEVANS	HcpChs	5	10	50.0	1.64
NJHENDERSON	NovHdl	6	12	50.0	0.22
PGMURPHY	HcpHdl	7	20	35.0	0.49
RDICKIN	HcpHdl	5	19	26.3	0.84
SABROOKSHAW	HcpChs	4	13	30.8	1.60
TRGEORGE	HcpHdl	4	11	36.4	2.18

## Favourites

NovHdl	51	85	60.0%	0.29
SelHdl	15	40	37.5%	-0.26
HcpHdl	37	108	34.3%	0.07
NovChs	28	55	50.9%	0.03
HcpChs	22	96	22.9%	-0.31
NHF	5	20	25.0%	-0.32

**HEXHAM**

Trainer	RaceType	Wins	Runs	%	Ret
FMURPHY	NovHdl	4	12	33.3	0.65
LLUNGO	HcpHdl	9	33	27.3	0.62

## Favourites

NovHdl	33	62	53.2%	0.07
SelHdl	6	15	40.0%	0.23
HcpHdl	27	82	32.9%	-0.02
NovChs	10	33	30.3%	-0.30
HcpChs	15	64	23.4%	-0.23
NHF	6	15	40.0%	0.10

## HUNTINGDON

Trainer	RaceType	Wins	Runs	%	Ret
CJMANN	NovHdl	6	19	31.6	0.44
IANWILLIAMS	HcpHdl	6	22	27.3	1.50
IANWILLIAMS	HcpChs	5	20	25.0	0.79
KCBAILEY	HcpHdl	6	24	25.0	0.40
MPITMAN	HcpHdl	4	10	40.0	0.33
NJHENDERSON	HcpChs	4	11	36.4	0.62
NJHENDERSON	NHF	5	17	29.4	0.32
PRWEBBER	HcpChs	4	13	30.8	0.23

### Favourites

ClmHdl	4	7	57.1%	0.30
NovHdl	42	87	48.3%	0.03
SelHdl	8	10	80.0%	0.69
HcpHdl	27	112	24.1%	-0.15
CondChs	3	8	37.5%	-0.22
NovChs	35	68	51.5%	-0.01
HcpChs	37	119	31.1%	-0.15
NHF	8	37	21.6%	-0.46

## KELSO

Trainer	RaceType	Wins	Runs	%	Ret
CPARKER	HcpHdl	5	16	31.3	0.48
FPMURTAGH	NovChs	4	10	40.0	0.82
JJONEILL	HcpChs	6	22	27.3	0.49

### Favourites

NovHdl	34	66	51.5%	0.06
SelHdl	3	13	23.1%	-0.39
HcpHdl	32	80	40.0%	0.07
NovChs	22	45	48.9%	0.03
HcpChs	14	47	29.8%	-0.16

## KEMPTON

Trainer	RaceType	Wins	Runs	%	Ret
CJMANN	HcpChs	4	12	33.3	1.04
MISSECKNIGHT	NovChs	4	15	26.7	0.28
NJHENDERSON	NovChs	12	22	54.5	0.65
NJHENDERSON	NHF	4	12	33.3	1.00
PFNICHOLLS	CondChs	4	10	40.0	2.38
RHALNER	NovChs	4	13	30.8	0.87

### Favourites

CondHdl	2	9	22.2%	-0.60
NovHdl	25	55	45.5%	0.12

## KEMPTON (continued)

### Favourites

HcpHdl	14	53	26.4%	-0.01
CondChs	2	7	28.6%	-0.54
NovChs	24	50	48.0%	0.02
HcpChs	22	62	35.5%	0.14
NHF	1	11	9.1%	-0.77

## LEICESTER

Trainer	RaceType	Wins	Runs	%	Ret
CJMANN	HcpHdl	5	10	50.0	1.51
JMACKIE	HcpHdl	6	17	35.3	2.91
MCPIPE	SelHdl	7	11	63.6	0.72
MCPIPE	NovChs	6	14	42.9	0.33
MISSHCKNIGHT	HcpChs	5	19	26.3	0.28
RDICKIN	HcpChs	4	13	30.8	2.58

### Favourites

ClmHdl	3	7	42.9%	0.04
NovHdl	18	40	45.0%	-0.18
SelHdl	11	15	73.3%	0.82
HcpHdl	14	50	28.0%	-0.07
NovChs	19	39	48.7%	0.23
HcpChs	12	63	19.0%	-0.46

## LINGFIELD

### Favourites

NovHdl	15	23	65.2%	0.20
HcpHdl	4	24	16.7%	-0.60
NovChs	9	16	56.3%	0.01
HcpChs	8	20	40.0%	0.10
NHF	1	7	14.3%	-0.59

*We've run out of space this issue so next month, to complete the full run-down we'll be publishing part II of FIVE-YEAR COURSE-SPECIFIC TRAINER & FAVOURITE RECORDS detailing courses Ludlow to Worcester*



**SMARTsig confidential.**  
**Pro betting & systems monthly**

***Seeing just how another person sets about analysing a big race can be quite useful. Here, David Renham - co-author of Sprintline 2002 racecourse draw analysis - records his step-by-step thought processes when tackling a big sprint handicap.***

## **IN-DEPTH RACE ANALYSIS [1]**

***David Renham***

***Unravelling a big sprint - The build up to the Great St Wilfrid, 6f handicap at Ripon***

**T**his article follows my preparation for one of the big sprints of the year - the Great St Wilfrid sprint at Ripon (on Saturday August 17<sup>th</sup> 2002).

Like the Wokingham (Ascot) and the Stewards Cup (Goodwood) I love trying to unravel these big field sprints. One good thing about this type of race is that you know that all the horses will be trying (well the majority of them!!). I decided to devote much more time than usual to trying to find the winner, starting work five days before the race.

This is a diary with my thoughts and findings :

**Date: Tuesday 13th August**

I decided that it would be worthwhile studying a variety of race trends for this race. This has not been a lucky race for me, and so more hard work than normal would be required.

Historically, some races I find easier than others - for some reason the Stewards Cup has been “kind” to me over the years having picked two winners and two seconds in the past five seasons. The best I have managed in this race has been 4th. Let us start with my favoured area - the draw :

### **[1] THE DRAW**

This has played a major role in the recent history of the race (draw positions in brackets).

<b>2001 - 1<sup>st</sup> (17);</b>	<b>2<sup>nd</sup> (23);</b>	<b>3<sup>rd</sup> (1);</b>	<b>4<sup>th</sup> (14)</b>	<b>- 23 ran</b>
<b>2000 - 1<sup>st</sup> (4);</b>	<b>2<sup>nd</sup> (1);</b>	<b>3<sup>rd</sup> (9);</b>	<b>4<sup>th</sup> (21)</b>	<b>- 22 ran</b>
<b>1999 - 1<sup>st</sup> (17);</b>	<b>2<sup>nd</sup> (21);</b>	<b>3<sup>rd</sup> (22);</b>	<b>4<sup>th</sup> (18)</b>	<b>- 23 ran</b>
<b>1998 - 1<sup>st</sup> (2);</b>	<b>2<sup>nd</sup> (21);</b>	<b>3<sup>rd</sup> (19);</b>	<b>4<sup>th</sup> (18)</b>	<b>- 22 ran</b>
<b>1997 - 1<sup>st</sup> (19);</b>	<b>2<sup>nd</sup> (5);</b>	<b>3<sup>rd</sup> (4);</b>	<b>4<sup>th</sup> (7)</b>	<b>- 21 ran</b>
<b>1996 - 1<sup>st</sup> (2);</b>	<b>2<sup>nd</sup> (3);</b>	<b>3<sup>rd</sup> (7);</b>	<b>4<sup>th</sup> (9)</b>	<b>- 17 ran</b>

As you can see, the draw has played a massive role in the outcome of the race over the past six years. If we look at the winners first we get the following breakdown if we roughly split the draw into “thirds” :

drawn	17 to 23	- 3 wins
drawn	8 to 16	- 0 wins
drawn	1 to 7	- 3 wins

If we extend this research further to the winners and placed horses (2nd, 3rd and 4th) we get the following breakdown :

drawn	17 to 23	- 3 wins,	8 places
drawn	8 to 16	- 0 wins,	3 places
drawn	1 to 7	- 3 wins,	7 places

This illustrates the bias even more strongly. Of the 54 horses drawn between stalls 8 and 16 since 1996, only 3 have been placed - they have one 3rd place and two 4th places to their name.

Thus, it would seem sensible to cross out any horse drawn 8 to 16. This leaves us with a 14 runner race to dissect rather than a 23 runner race (cannot do that yet of course!).

Before we move on from the draw bias theme, this season has seen lower draws dominating the sprints (on the whole). I do not think however, we can totally rule out higher drawn horses.

In the 2000 race, high numbers were expected to dominate (as they have done since 1996 in big field sprints until this season), but contrary to virtually every pundits' opinion, low draws held the advantage on that particular day.



This is a race I feel that you should back at least one horse drawn either side of the track.

## [2] WEIGHT CARRIED

A variety of weights have won this race in recent years :

9st 3 lbs or more	- 5 wins
8st 6 lbs to 9st 2lbs	- 3 wins
8st 5 lbs or less	- 2 wins

Higher weights seem to have had a slight edge over the years.

If we look at the placed horses though, the picture is not so clear (places include 4<sup>th</sup>).

9st 3 lbs or more	- 5 wins,	3 places
8st 6 lbs to 9st 2lbs	- 3 wins,	13 places
8st 5 lbs or less	- 2 wins,	4 places

If we look at these stats, it seems that you would prefer to be carrying at least 8st 6lbs.

## [3] AGE

Let us look at the results of the past ten years :

3-y-olds	- 2 winners,	7 places
4-y-olds	- 3 winners,	10 places
5-y-olds	- 1 winner,	9 places
6-y-olds	- 2 winners,	2 places
7-y-olds or more	- 2 winners,	2 places.

A slight preference for 4-year-olds perhaps?

That concluded my findings for Tuesday.

The draw I knew would be important, but unfortunately the trends were less clear for weight carried and age.

**Date: Wednesday 14th August**

Today I turned my attentions to “form” and “running style”.

#### **[4] FORM**

I have looked into recent form and season’s form in this section. Let us look at the profile of the winners first.

Of the last ten winners, eight had performed creditably on their last run finishing fourth or better (three had won last time out, one had come second, one had come third and three had come fourth).

When looking at their record over the season, only five had one a race that year, while another three had finished 2nd at least once.

Moving onto horses that were placed 2nd, 3rd and 4th, eight of the thirty had won last time out. Meanwhile twenty one of the thirty had won a race that previous season.

#### **[5] RUNNING STYLE**

This a factor that is important at Ripon. Horses that race up with the pace in sprints at Ripon have a much better overall record than hold up horses. I have therefore looked back at the running style of the winners and the horses finishing 2nd and 3rd.

Winners - eight of the ten winners raced prominently, earning comments such as;

- “prominent”,
- “led”,
- “made all”,
- “disputed lead”,
- “chaser leaders”,
- “tracked leaders”,
- “with leaders”.

Only two horses came from behind, midfield or off the pace.

Of the horses finishing 2nd and 3rd, thirteen of the twenty raced prominently, with seven being held up. We seem therefore to have another area to concentrate on - running style does seem important and the research points to those horses that run prominently.

<b>Thursday 15<sup>th</sup> August</b>
--

With two days to go, I started to collate some notes on some of the leading ante post candidates :

## **[6] ANTE-POST THOUGHTS**

These were my thoughts on some of the leading candidates on Thursday before the final declarations were made :

### **Bond Boy**

- winner of the Stewards Cup. Still seems on the upgrade. Trainer unsure of whether the horse will run due to the likely firm ground, with Ayr Gold Cup more likely target. Has shown different running styles in career.

### **Halmahera**

- loves these big field handicaps. Goes on all ground, but perhaps marginally better with "cut". Trainer very bullish in the week and has been backed accordingly. Excellent 2<sup>nd</sup> in the Stewards Cup from a poor draw. Races up with the pace which is a plus at this course.

### **Budelli**

- on a roll this season. In cracking form and seems to be holding form well. Four wins in last five starts. Acts on all going, but perhaps best on good to firm. Off 90, last win off 86. Races up with the pace which is a positive.

### **Tom Tun**

- would prefer cut. Would expect this one to be a leading player in the Ayr Gold cup next month. Trainer has stated that the horse will not run if ground too firm. His style of running varies - can race prominently, but also can be held up.

### **Tayif**

- would have thought the Ayr Gold Cup would be the real target for this one. Seems to like big field handicaps though and acts on most surfaces. Tends to come from behind.

### **Good Girl**

- bit disappointing at the start of the year, but decent run at Royal Ascot from a poor draw saw a return to form. Followed that up with a decent 2<sup>nd</sup> at Doncaster over 5f. May be a little high in the weights still, but acts on good or firmer and races up with the pace.

**Doctor Spin**

- well handicapped and well fancied for Wokingham this year.  
Likes good to firm ground and 6f trip is ideal. Races prominently with is a plus.

**Boangeres**

- in great form early part of the season, although form has tailed off since.  
Likes a fast pace and so this type of race will suit.  
Ran well at Ripon last year when 5<sup>th</sup> from a poor draw.  
Back to a mark of 85. Tends to run more over 5f, but close up 6<sup>th</sup> last year in Ayr Gold Cup over 6f.

**Tommy Smith**

- has excelled this year.  
Best on good to firm ground, but 5f is really his trip.  
Likes to lead.

**Abbajabba**

- 3<sup>rd</sup> in this race last season.  
Would prefer some give in the ground.  
Trainer has made positive noises this week, but has stated the need for good ground or softer to be seen at his best.  
Runs especially well when drawn near to a rail. Is generally held up which is a negative.

**Ptarmigan Ridge**

- seems to prefer good ground or on the soft side of good, but has run two cracking races on firmish ground this year - 3<sup>rd</sup> at Musselburgh and 3<sup>rd</sup> at Newcastle in big handicaps. Looks better at 5f though.

**Artie**

- trainer think a lot of this horse and feels there is a major prize to be won over the next couple of months.  
Would not like it firm, and is probably best on soft. Front runner is a plus.



**Manorbier**

- unlucky this year - combination of poor draws & average jockeyship have not helped. Acts on all going.

Tends to race midfield and come from behind.

**Currency**

- getting back to his best. Likes firmish ground and 6f so this should be ideal. Off a mark of 79 so will need a career best effort to win this, but now the horse has struck form who knows.

Tends to race prominently.

**Amaranth**

- back to form with a success on Weds over 7f.

Effective over 6f and loves fast ground. Races prominently on the whole - interesting.

**PRE - FINAL DECLARATIONS THOUGHTS**

The general feeling is that the weather is to stay reasonably fair and on Thursday the going was good, good to soft in places. With 2 dry days I would predict that good to firm ground is likely.

This would put several leading contenders at a disadvantage - Tom Tun, Abbajabba and Bond Boy must be doubtful starters at this stage. The Ayr Gold Cup would be a more likely target for these three perhaps. All three handle firmer ground, but will struggle to win on it.

At this stage, I have a shortlist of;

- Halmehera
- Budelli
- Manorbier
- Boangeres
- Doctor Spin
- Amaranth
- Artie.

In the next issue, I will talk you through the last two days - how the final declarations and the draw made a difference to my thoughts (if any), and more importantly, discuss the outcome of the race and my post race thoughts.

***Are you of the 'little & often' school, short odds betting with high strike and minimal losing runs? The 'big hitter' who goes for the infrequent high pay-outs? Or somewhere in between? Whichever category matches your style you inevitably need to balance your stakes to fit your gain versus risk assessment.***

## **SHARP, SHARPER, SHARPEST**

***John Jackson***

**L**et's see if we can sharpen our view of the central principle of gambling. We'll practise on the traditional formula for dutching bets, which I hope to show is rather aimless and only does half the job.

Moreover a quantifiable statement of this principle will guide the way for hedging, simultaneous bets on multiple events, permutations, covering bets and arbitrage. It unifies the method for all calculations ... but may produce casualties in the utilities areas of many gambling web sites.

### ***The Central Principle***

There appear to be only two important quantities to consider when gambling: the edge of a bet and its volatility.

However we feel intuitively that it may be right on occasion to accept a lower return for the sake of minimising risk: we hedge or we make covering bets. Let us think of edge as 'gain per bet' and volatility as 'risk per bet'.

I suggest that the central principle underlying all gambling is to achieve the **BALANCE** between gain and risk. This is what we are trying to do when we hedge. It feels right.

But we need to take this one step further, we need to quantify this balance - by calculating the ratio of the edge to the volatility. We should always be striving to find:

<b>MAXIMUM (edge, volatility)</b>
-----------------------------------

This fraction is called the Sharpe Ratio in Quantitative Finance. ‘Maximum profit per unit of risk’ *sounds* like the right answer, if nothing else.

### **Picturing Volatility**

To visualise risk (volatility) let us consider the usual suspects of an EVENS favourite offered at 11/10 and an outsider with winning chance of 6/1 offered at 7/1.

How much have we at risk in making these two types of bets?

Well, we expect an idealised sequence on the evens favourite to run something like LWLW and so on.

Similarly LLLLLLWLLLLLLW for the long-shot.

If everything goes according to plan then we risk 1 stake as opposed to 6 stakes before we have our first winners. If these first winners don’t materialise to order then we have 3 stakes versus 13, if two winners miss out

5 v 20, then 7 v 27,  
9 v 34,  
11 v 41,  
13 v 48,  
15 v 55, . . . and so on . . .

You can see that approximately three times as many stakes are required to sustain us through a long losing run on the outsider.

NB: even though you win a whole stake at 7/1 this does little to offset the loss of 7 during a bad run. Safe betting is, in general, controlled more by the volatility of a wager than its edge.

The odds-makers usually arrange things so that the edge can be at best small while the volatility is invariably large;

e.g. the design of the football performance spread bet is not by accident! They cater to the general wish for an infrequent big payout. The expert gambler desires the opposite: a frequent small payout.

***“Safe betting is, in general, controlled more by the volatility of a wager than its edge”***

## **Errors and Omissions**

The most notable omission in the traditional calculation methods is that they have no idea what their target should be. They have no concept of maximising profit per unit of risk.

For example many a dutching calculation will be set to return a convenient fixed amount whichever contestant wins. This will rarely lead to the fastest bank growth.

Ironically many hedging recommendations try to attain the maximum profit for a favourable outcome while breaking even for an unfavourable result, when in fact the best option is to win a smaller amount both ways.

I have yet to see a single utility that recalibrates stakes based on the fact that the overall wager is much safer than any of the individual bets. This is the case where multiple favourable selections are available in the same race.

The whole idea of manipulating risk is to permit a larger wager, not to make things safer (they were safe enough already). Taken to its logical conclusion this leads to the arbitrage bet - where you cannot lose and would wish to have your shirt on.

## **The Calculation Method**

It will be easier, though perhaps somewhat daunting initially, if I show a big example and work through it. Here is a hypothetical race constructed around our EVENS and 6/1 shots. (*See Fig 1 opposite*)

‘Horse’ 1 is our EVEN money runner, ‘real prob(ability)’ 0.500, offered at ‘Odds’ of 1.1 (=11/10).

We propose to ‘Wager’ £64.10 on him from a ‘Total Wager’ of £100, summed at the bottom in the row below Horse 9.

Should he win then our ‘Net’ increase will be £64.10 x 1.1 minus the amounts wagered on the other animals (£10.77 and £25.13) i.e. £34.61.

Having worked out the returns for each of the possible outcomes we then multiply by their respective probabilities and add to produce the overall wager edge of 6.33.



							Ruin Tolerance	Sharpe Ratio	Bank Units Required
<b>Total Wager</b>	100						5.0%	0.0970	1028
							<b>Growth</b>	0.62%	9.7%
Horse	Real prob	Odds	Wager	Net	Volatility	Skew	OR	Fraction	
1	0.500	1.1	<b>64.10</b>	34.61	1197.64	41446.68	0.476	6.2%	
2	0.147	5.5	<b>10.77</b>	-30.00	899.73	-26988.04	0.154	1.0%	
3	0.143	7	<b>25.13</b>	101.05	10211.58	1031903.84	0.125	2.4%	
4	0.050	12	<b>0.00</b>	-100.00	10000.00	-1000000.02	0.077	0.0%	
5	0.040	16	<b>0.00</b>	-100.00	10000.00	-1000000.02	0.059	0.0%	
6	0.040	16	<b>0.00</b>	-100.00	10000.00	-1000000.02	0.059	0.0%	
7	0.040	16	<b>0.00</b>	-100.00	10000.00	-1000000.02	0.059	0.0%	
8	0.025	20	<b>0.00</b>	-100.00	10000.00	-1000000.02	0.048	0.0%	
9	0.015	33	<b>0.00</b>	-100.00	10000.00	-1000000.02	0.029	0.0%	
	<b>1.000</b>		100	6.33	4290.01	-45832.93	1.085	9.7%	
					<b>1st</b>	<b>2nd</b>	<b>3rd</b>	<b>Over-Round</b>	<b>Total Bet</b>
					<b>Return</b>				
					<b>Moments</b>				

*Fig. 1 True Hedge*

The volatility and skew entries are simply the ‘Net’ values squared and cubed.

The over-round (OR) for Horse 1 is 0.476, meaning that it contributes 47.6% to the race over-round total, again added up in the row below horse 9.

We also add up the ‘Volatility’ entries weighted by their probabilities to get 4290.01: this represents the square of the overall risk for the race.

We can now calculate the ‘Sharpe Ratio’ from the overall edge and overall volatility as  $6.33/\text{SQRT}(4290.01)$  or 0.0970.

Where did the figures 64.10, 10.77 and 25.13 come from?

Since these formulae are all in a spreadsheet I instructed EXCEL SOLVER to produce the maximum value for the ‘Sharpe Ratio’ by varying the amounts in the ‘Wager’ column. I also specified that the sum of the wagers must be 100.

I chose the ‘Total Wager’ of 100 to see what proportion to allocate to each selection. However each assignment of stakes modifies the edge and volatility of the overall bet - which won’t bear any resemblance to the edges and volatilities of the component wagers.

We now use these overalls, a ‘Ruin Tolerance’ of 5% and the ‘Bank Units Required’ formula from *The Gambler’s Ruin* article (*SMARTsig 9.07, July 2002*) to decide what proportion of the bank this 100 units should be: giving finally 9.7%.  
Split 6.2%, 1%, 2.4% across the three favourites.

## **Surprised?**

There are several points to note:

- [a] One couldn’t guess how these numbers were going to come out in advance.
- [b] We bet most on the favourite. Even though its edge is a third that of the 7/1 shot we still bet more than twice as much on it. The reason of course is that its contribution to overall volatility is so much lower.

- [c] The total amount wagered is nearly 10% of the bank.  
The allocations to each runner are much higher than if they had been bet on their own (where they would have been 3% at EVENS, 1.2% at 7/1 and nothing on the 2nd favourite!).
- [d] We make a bet on horse 2 at unfavourable odds i.e. we cover.  
However if you change horse 2's odds to 5/1 you will see that this is not recommended.  
The calculation for this horse is on a knife-edge. So, I suspect, is the whole operation of covering bets.

### **What To Do?**

Can I suggest you download the Excel spreadsheet from the email group home of *smartgroups* and experiment with it?  
(editor's note: also available direct from the SMARTsig website at [www.smartsig.com/files/jacko.zip](http://www.smartsig.com/files/jacko.zip))

Try seeing how sensitive the answers are to edge and SP fluctuations.

Try different race compositions.

Try seeing if you can pick a configuration of stakes where the Sharpe Ratio achieves its maximum by dutching to return the same amount on each selection ('t will be difficult!).

I am not suggesting for an instant that we are going to wager £64.10 on anything, but the results of your experiments may act as a better general guide than the current calculators which operate on purely arbitrary figures.

### **The Rest of the Iceberg . . .**

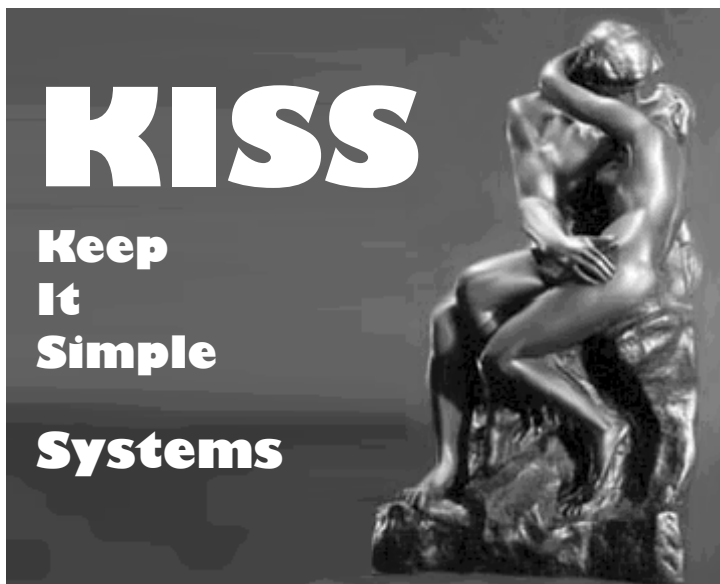
. . . will be in the vicinity of your calculating vessels soon.



**GIVE US  
A KISS!**



**Send SMARTsig  
YOUR simple  
system for  
publication!  
(or even those  
more complex  
ones)**



***Racing systems with just two simple rules are very few & far between. But here's one that brought home the bacon . . . and with an interesting story & analysis attached.***

**KISS#1**

## **FORECAST FAVOURITES**

***Russell Hart***

**T**hey don't come much simpler than this! Selection is running again within three days of its previous run and is forecast favourite in the Racing Post (or whichever paper you take - our analysis is based on the 'Post)

- Forecast Favourite
- Running 1, 2 or 3 days since its last run

### ***Win or Lose – Summary***

I think it is only fair to start and end this with quotes from Steve B who had the courage to issue a challenge, play an active part in it and summarise the outcome fairly.

On the SMARTsig email group, 4<sup>th</sup> July 2002, **Steve B** posted a message, an extract from which is reprinted below;

*“My point in all of this is that I believe systems are too fragile to rely on in the long term. By the time a trend has been established it becomes just another piece of information to be used in conjunction with all the other bits of information.*

*Whilst I do not think people who follow systems are stupid, I do think they are blinkered and removing those blinkers will improve their overall profit. e.g. a system selects a horse running in a 20 runner 5 furlong handicap at Beverley from stall 1, now is a systemite betraying his system or is he using his common sense by refusing the bet?*

*A good race analyser will not only be aware of the obvious things like the Beverley draw bias but also factors that will go by unexplored by the systemite. Furthermore, the form student will probably be aware of the impact of each individual ingredient that makes up a systemite’s system.*

*Now I’m an open-minded guy and the day I stop learning will be the day I die, but in all the time I have been interested in horseracing. I have only come across ONE system that has stood the test of time. Despite being unable to understand why this system works, because it requires using a national newspaper’s ratings who will not divulge to me how their ratings are produced, I have nevertheless managed to greatly enhance the profits by eliminating certain qualifiers.*

*So in summary, I say I can improve the profits of any system over a reasonable number of bets and I also say no system can do the same to my bets. I guess it’s a bit like people with regular jobs there are those that strive for promotion and those that are perfectly happy with their lot. And there’s a great deal to be said for being happy with your lot so please don’t get me wrong I’m not having a go.”*

**SteveB**

For almost a month, there followed over 40 separate discussions with about 340 messages posted. The contributors included PJ, Malc S, Steve B, Ivan L, Dave W, Alan T, Michael R, Lee T, Patrick W, Rod B, Ross F, Simon O,

**System  
followers  
are  
blinkered -  
and I’ll  
prove it!**

Michael D, Dave C, Mark K, Graeme and Chris PW. All of whom I would like to thank for their support and effort.

## **The Response**

As a response, I picked the simplest system I could find:

1. The first or second favourite in the Racing Post Forecast
2. Running within 1, 2 or 3 days of last run.

I then posted the daily qualifiers for anyone in the group to comment on.

The idea was to see what the group and individuals would do compared with the system's performance. Now Steve B expressed a desire to concentrate on handicaps, which is where he specialises, so we had further debate about the rules of the system and the exercise. In the end, I stuck with the rules as posted above; that's the mind of the system follower. It was understood that Steve and others did not have to post a response to each and every qualifier.

We also had to modify the rules for the comments posted, I originally set up two options Win or Lose. The feedback suggested more, so the option of 'Bet' was added to accompany Win - there were those who might want to 'Bet' on a horse they did not think was the most likely winner (the *value* approach). I then also added 'No Bet' to accompany Lose, for those that thought the horse would but would not bet on the fact.

First, a little background from the track record of the system. Results generated from RSB over the last six years are as follows:

Winners	Runners	Strike Rate %	Level Stakes Profit	LS Profit %
399	1337	29.84	267.56	20.01

Each year has been profitable and the system even survived the Foot and Mouth impact in 2001.

During this current exercise, there were 50 qualifiers of which 20 won for a level stakes profit of 20.119 points. So the system outshone its historical record during the course of the month for which it ran. For the purpose of this article, I am going to divide the qualifiers into groups of ten.

## **The Greater Good**

Now the system started with 5 winners from 10 runners, well above the five-year average performance, which was more than the group or an individual could cope with; the best two rival “human” competitors stood at 4.5 and 1.75 points profit. The balance sheet to this point read as follows:

Races	Winners	Runners	Strike %	LSP	LSP %
1 to 10	5	10	50	11.50	115.0

The next set of 10 runners provided figures that were at least as twice as good as the five-year average, with 7 winners out of 10. The best two competitors stood at 6.0 and 8.46 points profit, having swapped positions on their leader board. The grouped system balances were as follows:

Races	Winners	Runners	Strike %	LSP	LSP %
11 to 20	7	10	70	14.91	149.1
1 to 20 (all)	12	20	60	26.41	132.1

## **The Bad**

The system was beginning to look invincible; system was triumphing over method by a factor of three. Then the wheels came off this particular system’s wagon (as they inevitably do!?!); 1 winner from the next 10 runners.

The best two human adversaries stood at 6.0 (wisely not wanting to bet on anything during this period) and 2.46 (who found 6 of the nine losers) points profit, having swapped positions on the leader board yet again.

Races	Winners	Runners	Strike %	LSP	LSP %
21 to 30	1	10	10	-8.20	-82.0
1 to 30 (all)	13	30	43.33	18.21	60.7

Another batch of ten races produced three winners, but two of these were odds-on – one of them at the mouth-watering (not!) price of 1/5. The system was approaching the five-year average and the system bettor was full of gloom and doom.

Races	Winners	Runners	Strike %	LSP	LSP %
31 to 40	3	10	30	-3.09	-30.9
1 to 40 (all)	16	40	40	15.12	36.3

### **The Good**

Just when it seemed that things could not get any worse, they did not. Despite the last four selections losing there were four winners in the first six. Once more the system was working well and the system bettor was showing the best form of the comparison.

Races	Winners	Runners	Strike %	LSP	LSP %
41 to 50	4	10	40	5.0	50
1 to 50 (all)	20	50	40	20.12	40.24

### **The Analyses**

A good few analyses from group members were submitted early on in the exercise. The following is just an extract from the views members were sharing regarding *American Cousin*, the first time it ran as a system qualifier.

Patrick's view was LOSE

*“Best draw no good for a hold up horse and sometime slow starter, needs a sharp 5f, very poor wins-to-runs ratio, has become a thinker, needs good to firm, has regularly been turned out quickly to no effect, can't win 0-70's let alone this event. A good example of a well handicapped horse on the downgrade. At the likely odds I'd much rather be with Beyond The Clouds. Flak Jacket is the obvious favourite on the figures but a difficult horse to catch right - no bet.*



***But . . . wouldn't be the first time D.Nicholls makes a fool of me."***

Steve B disagreed saying BET. Although liking the look of *Beyond the Clouds*.

***"Taking Mel's points onboard about systems producing turn-over I think it would be wise of me to not simple dismiss selections just because I personally wouldn't bet them, especially as yesterdays did so well.***

***Anyone operating a system that throws up a horse with the plum draw at Beverley is surely duty bound to back it aren't they?"***

Malc went with Patrick saying LOSE - NO BET

***"Any horse running from the outside stall in the 5 furlong at Beverley has to be strongly considered. This stall, if the going remains the same, will produce 36% more winners than 'true'. In five furlongs this has to be considered.***

***The horse, to be fair, has problems winning. Rising in class for today's race (92 lbs to 97 lbs) and even with other recent plum draws (Thirsk 5:20 on the 18th May) fails to show. I expect it to be thereabouts coming in about 2 lengths behind the eventual winner, whoever that may be.***

***Who could win this one? Not sure but I do like the look of My American Beauty (20/1) to come in the places.***

***A race to avoid with the Education Secretary's bargepole. Right, having said that, done my bets for the day, I'm off up a mountain to have a look at more sheep and slate. See you all later and to see, no doubt, that I am proven wrong yet again."***

Rod sided with Patrick and Malc saying LOSE

***"but I'd want 4 against the field, Mungo Park, My American Beauty, Beyond the Clouds and Soaked, and reckon I'm still only on even money for the winner."***

Dave Wilson joined the dissenters saying NO BET

***"David Nicholls used to do very well with QRs, but his record over the last 12 months has been lamentable.***

***AC owes his position in the forecast more to being highest drawn more than anything else, yet Peter May's (absolutely invaluable) draw tables indicate there is little to choose between the superiority of the highest five draws.***

***That said, record so far: System = 3.25 Me = 0"***

So we had 1 for and 4 against . . . and American Cousin won at 5/1. Dave Renham summed it all up the next day.

***"Nicholls seems to make a fool of punters regularly, Patrick - American Cousin winning by 5 lengths in a 5f sprint. I didn't get the chance to write yesterday and this is not being wise after the event, but there were plenty of things in American Cousin's favour –***

- 1 The draw. I agree a good draw is not so important for a hold up horse, but it is still a help.***
- 2 The horse was very well handicapped despite appearing to be on the downgrade. Had run some fair enough times / races to suggest the horse was capable of winning off such a low mark.***
- 3 I disagree with what you said about having 'regularly been turned out quickly to no effect' - his record before yesterday when returning to the track within seven days saw 4 wins from 8 attempts - a 50% strike rate.***
- 4 He had run some of his best races at Beverley from poor draws - just 3 races ago he had come 7th beaten only 2 lengths from an impossible draw.***

***So several positives - on the negative side - I agree the ground was a concern; his wins to run ratio was poor as you say; had disappointed in last two races when reasonably well fancied; and the race looked competitive and difficult!***

***As it turned out American Cousin was a qualifier from a system I use and hence I backed it anyway. I had personally backed it in its last two losing runs (so Nicholls had made a fool of me twice in reverse!!), so was pleased the system bet factor took out all the thinking! It was a very difficult decision to make - lots of positives and lots of negatives. I wonder who else backed it?"***

American Cousin ran a few days later and was beaten through not being able to get a run. The winner was Strensail at 7/1. The two met later in the month

and the result was the same with the winner at 20/1. Neither was a system qualifier that day.

This also added to a debate on method versus system. Here was the simplest of systems outperforming expert users of methods, but it took courage whichever school you belonged to.

## **The Staking**

To add a little more spice - and to maybe answer a few questions, the exercise was also used for some real-time testing of alternative staking plans which were as follows:

- [1] Level Staking with a £100 bank and a £10 fixed stake
- [2] Proportional Staking with a £100 bank and a 5% of the bank per bet
- [3] BB + SR with a £100 bank, £10 Base Bet plus the Square Root of the profit. (see SMARTsig issue 9.06 June 2002)

After the first 10 races, the position was as follows:

	Level stakes		Proportional		BB + SR	
Races	Stakes	Bank Growth	Stakes	Bank Growth	Stakes	Bank Growth
1 to 10	100	115.00	71	70.25	174	173.25

After 20 races, the position was as follows:

	Level stakes		Proportional		BB + SR	
Races	Stakes	Bank Growth	Stakes	Bank Growth	Stakes	Bank Growth
11 to 20	100	149.09	97	150.59	249	378.23
All	200	264.09	168	220.84	423	551.48

All three systems doing well, with some spectacular growth of banks. And now for the bad news. After 30 races, the position was as follows:

	Level stakes		Proportional		BB + SR	
Races	Stakes	Bank Growth	Stakes	Bank Growth	Stakes	Bank Growth
21 to 30	100	-82.00	134	-114.20	307	-256.60
All	300	182.09	302	106.64	830	294.88

And then some more bad news. After 40 races, the position was as follows:

	Level stakes		Proportional		BB + SR	
Races	Stakes	Bank Growth	Stakes	Bank Growth	Stakes	Bank Growth
31 to 40	100	-30.90	91	-32.81	248	-88.96
All	400	151.19	393	73.83	1078	205.92

As Mrs Thatcher was fond of proving in her abuse of statistics, the rate at which things are getting worse was getting better. And then back to the good. After 50 races, the position was as follows:

	Level stakes		Proportional		BB + SR	
Races	Stakes	Bank Growth	Stakes	Bank Growth	Stakes	Bank Growth
41 to 50	100	50.00	106	41.50	271	116.00
All	500	201.19	499	115.33	1349	321.92

The banks never got back to their all-time highs again. If after 20 bets, your bank had grown 5.5 times, would you have pulled the plug, taken your profit and started again? After 50 bets, the banks had trebled, doubled and quadrupled, still a good return when surviving a 4 winners from 20 run.

## ***Developments***

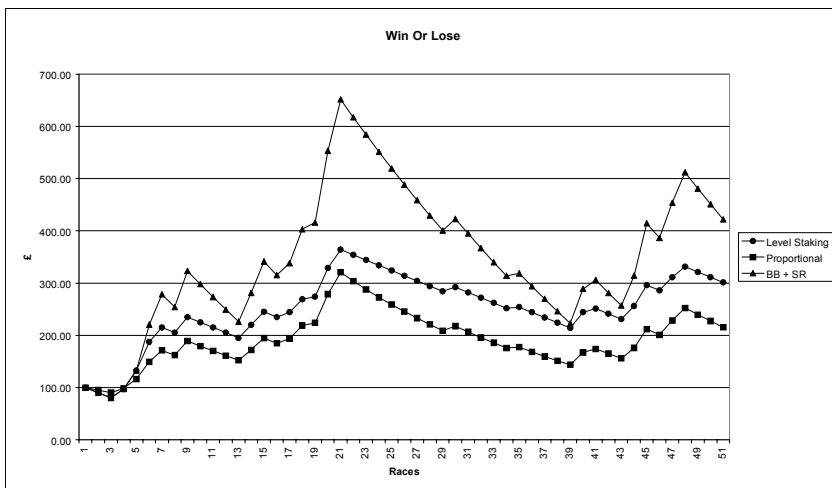
The system was very simple and there are ways to develop it. The following options also work, with a profit in every one of the last six years:

Option	Winners	Runners	Strike %	LSP	LSP%
1 <sup>st</sup> forecast favourite starting at any position in market	258	731	35.29	149.16	20.40
1 <sup>st</sup> forecast favourite starting at 1 <sup>st</sup> two in market	248	667	37.18	142.66	21.39
1 <sup>st</sup> and 2 <sup>nd</sup> favourites starting at 1 <sup>st</sup> four in market	396	1301	30.44	273.16	21.03
1 <sup>st</sup> to 3 <sup>rd</sup> forecast favourites starting at 1 <sup>st</sup> six in market	488	1857	26.28	340.19	18.32
1 <sup>st</sup> to 4 <sup>th</sup> forecast favourites starting at any position in market	564	2371	23.79	424.82	17.92
1 <sup>st</sup> to 4 <sup>th</sup> favourites starting at 1 <sup>st</sup> four in market	538	2097	25.66	441.32	21.05

Other options appear to suggest missing certain months of the year, certain types of going and types of race.

### Full Listing of results (with 3 separate bank/bet types shown)

Date	Course	RaceType	System Selection	Res	SP	Level Stakes		Prop.Stakes		BB + SR staking		Stake	Bank
						Stake	Bank	Stake	Bank	BB	SR		
05/07/02	WRW	Hcap	Fourth Dimension	5	3.500	10	90.00	5	95.00	10	0	10	90.00
05/07/02	SLS	Hcap	Minihaha	8	1.750	10	80.00	5	90.00	10	0	10	80.00
05/07/02	BVR	Hcap	Scotts View	1	1.750	10	97.50	5	98.75	10	0	10	97.50
05/07/02	HYD	Hcap	Stroke of Six	1	3.500	10	132.50	5	116.25	10	0	10	132.50
06/07/02	BVR	Hcap	American Cousin	1	5.500	10	187.50	6	149.25	10	6	16	220.50
07/07/02	BRG	Hcap	Talldarkandansom	1	2.750	10	215.00	8	171.25	10	11	21	278.25
08/07/02	MSS	Sell Hcap	Eastern Venture	2	3.000	10	205.00	9	162.25	10	14	24	254.25
08/07/02	MSS	Sell Hcap	Sharp Secret	1	3.000	10	235.00	9	189.25	10	13	23	323.25
08/07/02	MSS	Hcap	American Cousin	0	3.000	10	225.00	10	179.25	10	15	25	298.25
11/07/02	STH	Hcap	Columbine	3	6.500	10	215.00	9	170.25	10	15	25	273.25
11/07/02	STH	Hcap	Madame Jones	5	6.000	10	205.00	9	161.25	10	14	24	249.25
11/07/02	FLK	Hcap	Lively Lady	9	6.500	10	195.00	9	152.25	10	13	23	226.25
11/07/02	STH	Sell Stakes	Shadowblaster	1	2.500	10	220.00	8	172.25	10	12	22	281.25
11/07/02	EPS	Hcap	Suave Performer	1	2.500	10	245.00	9	194.75	10	14	24	341.25
12/07/02	WLV	Hcap	Waltzing Wizard	8	4.000	10	235.00	10	184.75	10	16	26	315.25
12/07/02	BVR	Hcap	Kings Crest	1	0.909	10	244.09	10	193.84	10	15	25	337.98
12/07/02	CHP	Hcap	Flying Romance	1	2.500	10	269.09	10	218.84	10	16	26	402.98
12/07/02	CHS	Stakes	Scotts View	1	0.500	10	274.09	10	223.84	10	16	26	415.98
13/07/02	ASC	Hcap	Brave Burt	1	5.500	10	329.09	10	278.84	10	15	25	553.48
13/07/02	ASC	Nursery	Steelaniinch	1	3.500	10	364.09	12	320.84	10	18	28	651.48
15/07/02	AYR	Nursery	Illoveturtle	4	3.000	10	354.09	17	303.84	10	24	34	617.48
15/07/02	AYR	Stakes	Adobe	4	2.000	10	344.09	16	287.84	10	23	33	584.48
18/07/02	HML	Hcap	Birdwatching	0	2	10	334.09	15	272.84	10	23	33	551.48
18/07/02	DNC	Hcap	Sunrise Girl	3	6.5	10	324.09	14	258.84	10	22	32	519.48
19/07/02	CRL	Hcap	Da Wolf	0	7	10	314.09	13	245.84	10	21	31	488.48
19/07/02	CRL	Hcap	Blue Mantle	5	1.625	10	304.09	13	232.84	10	20	30	458.48
19/07/02	NWB	Hcap	Funny Girl	8	2.25	10	294.09	12	220.84	10	19	29	429.48
19/07/02	PNT	Stakes	Amused	0	2.5	10	284.09	12	208.84	10	19	29	400.48
19/07/02	HML	Hcap	Kings Crest	1	0.8	10	292.09	11	217.64	10	18	28	422.88
20/07/02	RPN	Sell Stakes	Bee Healt Boy	0	4	10	282.09	11	206.64	10	18	28	394.88
20/07/02	LNG	Hcap	Anyhow	4	5	10	272.09	11	195.64	10	18	28	366.88
20/07/02	LNG	Hcap	Kilcullen Lad	5	6	10	262.09	10	185.64	10	17	27	339.88
22/07/02	AYR	Sell Stakes	Oriental Mist	0	3	10	252.09	10	175.64	10	16	26	313.88
22/07/02	AYR	Stakes	Montecristo	1	0.2	10	254.09	9	177.44	10	15	25	318.88
22/07/02	AYR	Stakes	Party Ploy	2	5	10	244.09	9	168.44	10	15	25	293.88
22/07/02	WND	Stakes	Compton Dinamo	3	2.25	10	234.09	9	159.44	10	14	24	269.88
24/07/02	SND	Stakes	Fruit of Glory	4	4	10	224.09	8	151.44	10	14	24	245.88
26/07/02	SLS	Hcap	Pie High	0	2	10	214.09	8	143.44	10	13	23	222.88
26/07/02	CHP	Hcap	Fly More	1	3	10	244.09	8	167.44	10	12	22	288.88
27/07/02	NTT	Hcap	Wixoe Express	1	0.71	10	251.19	9	173.83	10	14	24	305.92
29/07/02	YRM	Sell Stakes	Robbo's Rocket	0	2	10	241.19	9	164.83	10	15	25	280.92
29/07/02	WND	Hcap	Mammas FC	0	2	10	231.19	9	155.83	10	14	24	256.92
29/07/02	YRM	Hcap	Sharp Secret	1	2.5	10	256.19	8	175.83	10	13	23	314.42
30/07/02	GDW	Hcap	True Night	1	4	10	296.19	9	211.83	10	15	25	414.42
31/07/02	CRL	Hcap	Sharp Secret	2	1.5	10	286.19	11	200.83	10	18	28	386.42
02/08/02	GDW	Stakes	Darasim	1	2.5	10	311.19	11	228.33	10	17	27	453.92
02/08/02	GDW	Hcap	Flak Jacket	1	2	10	331.19	12	252.33	10	19	29	511.92
02/08/02	GDW	Hcap	Zuhair	2	7.2	10	321.19	13	239.33	10	21	31	480.92
03/08/02	NWM	Nursery	No Time	5	6.5	10	311.19	12	227.33	10	20	30	450.92
04/08/02	CHS	Hcap	Kings Crest	5	3.5	10	301.19	12	215.33	10	19	29	421.92



*Chart illustrating the progress of bank growths*

### Conclusions

Many thanks to the man who prompted the exercise in the first instance and gives us a quote to use as a fitting epilogue. For the final words on the subject, we return to Steve B who summed up as;

*“For me the exercise:*

- *Surprised me that such an uncomplicated idea could perform so well albeit over a short period of time.*
- *Has rekindled my interest and appreciation of the systematic approach to horserace betting.*
- *If a system works (historical evidence) don’t try to fix it, i.e. assessing a qualifier’s chances is just as likely to hinder as improve the overall profitability of the system.*
- *Confirmed that individual shrewd bettors reach different conclusions when asked for their opinions.*

*I learnt that systemites can feel uneasy about the shelf life of a system and need to use a portfolio of systems to spread their risk.”*



## A handy little software utility from one of our most prolific contributors.

# NATIONAL HUNT PROFILER

**SMARTsig**

**I**magine being able to instantly view the statistics for any or all of 20 race types, of variable distances, and differing field sizes, of a specific class, in any month of the year, over any or all going conditions at any or all of our National Hunt courses.

Further imagine that with a simple click of the mouse you'd then be presented with the best trainers for these conditions, and separate strike-rate listings for horse ages, BHB ratings, weight carried, days since last ran, success rate and position last time out.

Top all this off with reports on the performance of favourites, of previous course winners, of distance winners and how those who have previously won on this going have fared.

And finally, even if you're unable to interpret the tables thoroughly, there's a panel summarising all the significant points in just a few lines.

### National Hunt Race Profiler

Set Race Constraints [\[Help\]](#) [Table Notes](#)

Race Grade  Racecourse  Time Of Year  Going

Race Distance  No Of Runners  Race Class

**Profiles**

Top Trainers	Age	BHB	Weight	Days	SP	Success Rate	Pos LT	Summary
MCOPIE 2-11 £0.45	Age	Prop	Win	Runs	Wins%	Ret/£1		5-7yos account for 90% of all races. Horses which have raced between twenty-nine and sixty days have won 40% of races in recent seasons. Horses rated 120-129 by the BHB have won 50% of races. Runners priced 13-2 to 10/1 have the best record winning 40% of races. Last time out winners have a good follow-up record.
	3yo	0%	0	0	0.0%	0.00		
	4yo	0%	0	1	0.0%	-1.00		
	5yo	20%	2	11	18.2%	-0.23		
	6yo	60%	6	21	28.6%	1.75		
	7yo	10%	1	28	3.6%	-0.61		
	8yo	10%	1	14	7.1%	-0.21		
	9yo	0%	0	9	0.0%	-1.00		
	10yo	0%	0	6	0.0%	-1.00		
	11yo	0%	0	3	0.0%	-1.00		
	12yo+	0%	0	1	0.0%	-1.00		

The absolute favourites won 3 of the 10 races, returning an average profit of £0.13 to a level £1 stake.

Course Winner: 2-15 -£0.58

Distance Winner: N.A.

Going Winner: N.A.

According to the software Author, Peter May, the options available amount to a cool 1.3 billion possibilities. I'm not about to check that claim, there's certainly enough to keep the most ardent percentages fan happy for more than a few minutes. . . and who's going to quibble over the odd few million here or there?

The package for Windows PC is available to SMARTsig members for just £20 - and that includes all future updates. Outstanding value for money. Purists may bemoan the fact that many of the variables are banded (much like RSB) but if you start digging too deep with individual data items the samples get far too small to have any meaning.

As a taster, Peter gives a sample output from the program for September's national hunt racing. But you can now get all this, and the billion other possibilities from Peter at [www.pjm racing.com](http://www.pjm racing.com) or by calling 01865 820167.

. . . and for those of you reluctant to shell out £20 all at one time for something unseen, there's even a free demo version available.



---

## NH RACE PROFILES FOR SEPTEMBER

*Peter May*

**A**lthough September is not known for top class Jumps racing, there is always an interesting meeting at Perth towards the end of the month which is worth consideration.

Normally the meeting includes a couple of novice hurdle races, novice chases, the usual handicap hurdles and chases. Each of these are profiled below for all tracks and Perth in particular:

### ***Novice Hurdle Races***

In the early season races a recent run is not necessary since during the past few seasons 33% of races have been won by horses returning from a long course absence. Of more significance, horses rated 80-99 by the BHB have won 53% of races, returning a profit of 13p/£1.

With respect to price, odds-on shots have the best record winning 28% of



racers returning a small profit. Last time out winners have an excellent follow-up record taking 36% of all races, with those placed first to third last time accounting for 67% of all victories. Horses that failed to complete on their latest start have a very poor follow-up record.

For Perth in particular, horse rated 80-99 by the BHB won 75% of races at a strike rate of 50% and returned a huge level stake profit. Horses that finished in the frame last time out took 14 of the 17 races and returning a significant profit.

Previous course winners also do well in these races, though favourites show a loss of 23p/£1 staked.

### ***Novice Chase Races***

The profile for all early season races is similar to novice hurdles, though with respect to age 59% of races were taken by 6 and 7 year olds. For Perth this percentage rises to 67 and runners in the 9/4 to 4/1 price range have the best record winning 44% of races.

A recent run is not necessary and a previous course win does not appear to be significant. Favourites again do poorly returning a heavy loss.

### ***Handicap Hurdles***

5-6-y-olds account for 47% of all victories, and horses rated 80-109 by the BHB 72% of races.

Runners in the 9/4 to 4/1 price range have the best record winning 28% of races but odds-on shots returned a good profit and a success rate of over 60%. Last time out winners took one third of races but returned a slight loss at SP.

Ian Williams is a good trainer to follow. For Perth, 6-y-olds have taken 39% of all races with horses rated 80-99 by the BHB winning 74% of races.

Runners with SPs in the range 9/4 to 6/1 took 61% of recent races. Last time out winners have an excellent follow-up record winning 35% of races and returning a profit of over 31p/£1 staked..

Previous course winners do very well in handicap hurdle races here but favourites should be avoided based on past form.

## **Handicap Chases**

Over the last few season, 8-y-olds won 26% of all early season handicap chases. A recent run is not necessary for this race since 35% of races have been won by horses returning from a long course absence. Runners carrying between 11-8 and 12-0 took 30% of races.

Horses rated 80-99 by the BHB have won 38% of races. Runners in the 9-4 to 4/1 price range have the best record winning 32% of races.

Peter Hobbs and Nicky Richards are trainers to follow. For the Perth meeting, runners carrying between 11-8 and 12-0 took 31% of races and horses rated 80-99 by the BHB won 69% of races.

Runners in the 9/4 to 4/1 price range have the best record winning 50% of races returning a good profit. Previous course winners do very well here taking nine of the last 35 races returning a profit of over 40p/£1 staked at SP.

Favourites have a dreadful record.

*These analyses and 1.3 billion others are available from an easy to use piece of software available from [www.pjmracing.com](http://www.pjmracing.com) (demo version available free of charge). The cost to SMARTsig members is just £20.00 for the full version of the package and this includes all future upgrades of the program.*



### **SMARTsig Members-Only Email Discussion Group**

Join in the discussions

Ask a question

Answer a question

Find out what others are thinking . . .

Open EVERY day, we never close . . . Join up at [www.smartsig.com](http://www.smartsig.com)

***The ARCHIE formula for testing whether your system's results could be mere chance is frequently used by many SMARTies and referred to in their articles. We first published the idea in April 2000, so it's about time we show new subscribers what it's all about and bring older members up to date.***

## **ARCHIE CONSOLIDATED**

***Steve Tilley***

**T**his article puts all the information in previous articles about the Archie formula together and answers some of the questions that have come up since the original article.

### ***The Basics***

The object of the Archie formula is to get a simple statistical measure as to whether a set of results could have occurred by chance.

The formula is as below;

$$\text{Archie} = \frac{\text{runners} \times (\text{winners} - \text{Expected})^2}{\text{Expected} \times (\text{runners} - \text{Expected})}$$

It contains three component, runners and winners, which are self-explanatory and Expected. Some of the problems that occur using Archie concern this value so I'll go through the simple version first.

If a horse has a given SP then this in turn gives an "implied probability of winning". This will be known as IP. This is simple to calculate. Let us take the SP as being X/Y then

$$\text{IP} = \frac{Y}{X + Y}$$

So a 2/1 shot has an IP of  $0.3333 = \frac{1}{2 + 1}$

Also we can find the IP if we have tote odds or betting exchange odds

$$\text{IP} = \frac{1}{\text{tote\_odds}}$$

These figures come up in discussions of dutching and other aspects of betting.

The Expected term in the Archie formula is the sum of all these IP's for all the bets we are considering. If we bet on horses at odds other than SP then we can use these odds but for the rest of the article SP's will be referred to.

Before we get to calculate Archie we must see if we have enough bets to make a sensible assessment.

### **Rule of the Expected.**

If the expected value is less than 5 you should not use Archie and should get more data.

This is derived from the underlying statistics of the Archie formula.

Example. We have a system with 24 bets all at 2/1. The IP for a 2/1 shot is 0.3333 so 24 bets gives an Expected of  $24 \times 0.3333 = 8$

### **A worked example**

Now lets look at a system. This has 166 runners 22 winners and an Expected of 14.78. We can plug these numbers into the formula to get

$$\frac{166 \times (22 - 14.78)^2}{14.78 \times (166 - 14.78)} = 3.8717$$

Clearly we had more winners than we "expected" but could this be due to luck? In other words if we took a set of bets like this what is the chance of us getting 22 winners or more?

Happily we can use the Archie table to calculate this. This table works for

all systems not just this one so feel free to take a copy.

**Table 1 Archie Table.**

Chance of getting this number of winners or better	As 1 in ....	Archie score
50%	2	0.00
40%	2.5	0.06
33%	3	0.19
20%	5	0.71
10%	10	1.64
5%	20	2.71
2.5%	40	3.84
2%	50	4.22
1%	100	5.41
0.5%	200	6.63
0.1%	1000	9.55
0.020%	5000	12.53
0.010%	10000	13.83
0.005%	20000	15.13

So our score of 3.87 suggests our chance of getting this number of winners by luck is about 2.5% or 1 in 40. This indicates we've a good chance of having stumbled across something that may be profitable in the future.

Another number that we can calculate which is very useful is the estimated advantage or EA. This is merely  $EA = \frac{\text{Winners}}{\text{Expected}} - 1$

In our example this is  $\frac{22}{14.78} - 1 = 0.49$

Over a large number of bets the level stake profit will approach the EA so over a large number of bets this system if keeps on going we would expect about a 49% level stake profit.

We can also calculate out of interest the average odds we are betting at.

$$\text{Average odds} = \frac{(\text{runners} - \text{expected})}{\text{expected}}$$

$$\text{For our example this is } \frac{166 - 14.78}{14.78} = 10.23$$

So our bets in this system are around the 10/1 price.

### **Short Cut to expected by way of Percentage Level Stake Profit**

The calculation of the Expected value is straightforward but can be tedious if you have a large number of bets. You can use the fact that the LSP and the EA converge over a large number of bets to get the following

$$\text{Expected} = \frac{\text{Winners}}{(\text{LSP}\% + 1)}$$

You can use this to assess a system where you don't have access to all the original bets. For example you could get a set of results

160 bets 35 winners 30 points profit on level stakes.

$$\text{LSP}\% = \frac{30}{160}$$

$$\frac{35}{\frac{30}{160} + 1} = 29.4737$$

Putting Expected = 29.47 in the Archie formula gives

$$\frac{160 \times (35 - 29.47)^2}{29.47 \times (160 - 29.47)} = 1.272$$

From Table 1 this could have occurred due to chance about 15% of the time.

Using this approximation should be done with care as you can get led astray if there are a lot of long priced winners or short priced losers. Before getting serious you should calculate the Expected value from a list of bets for that system.

### **Short cut to Expected for RSB users**

For those who use RSB you can use a variation of the above formula which gives a much better approximation to the true Expected value than using LSP%.

$$\text{RSB\_Expected} = \frac{1}{1 + \text{VSP\%}}$$

Where VSP% is the value given by RSB for the percentage profit using “variable” stakes. Without going into the intricacies of the mathematics it turns out that the difference between the Expected and the RSB\_Expected are very small and so the above can be used happily.

Example From RSB

Winners	Runners	Strike Rate	LSP	LSP%	VSP%
69	281	24.56	164.92	58.69	37.02

RSB\_Expected is

$$\frac{69}{0.3702 + 1} = 50.3576$$

**Watch out!** You must make sure the VSP% is made into a proper decimal.

$$\frac{281 \times (69 - 50.36)^2}{50.36 \times (281 - 50.36)} = 8.4058$$

We have an Archie of 8.4, which from table 1 should only occur less than 1 time in 200 due to chance.

**A very important word of caution here.**

Having seen the result above does that mean this system should be followed? NO! The reason is you have no idea how I selected the bets. For example if I just worked through RSB weeding out losing groups I would end up with a group such as the above. It would have a high Archie score but that would be due to backfitting.

### ***Hampered in Running?***

Another valuable use for Archie is to assess a system that is being currently followed. All systems have bad runs but Archie allows us quantitatively decide when a system is falling apart.

The Archie formula is the same as the previously but we can now alter the Expected value.

Let's take the first system we looked at this system had an EA of 0.49. In other words if we have a series of bets and we get a given Expected then if the systems working we should get 49% more winners than the Expected.

We'll call this the EAExpected.

We run our system for another 100 bets and we find we have an Expected of 10 and only 9 winners.

$$\text{EAExpected} = 1.49 \times \text{Expected}$$

Archie now becomes

$$\text{Archie} = \frac{\text{runners} \times (\text{winners} - \text{EAExpected})^2}{\text{EAExpected} \times (\text{runners} - \text{EAExpected})}$$

$$\frac{100 \times (9 - 14.9)^2}{14.9 \times (100 - 14.9)} = 2.7453$$

A result this bad should occur about 5% of the time.



In other words if you did 20 runs of 100 bets of this system 1 of them would produce 9 winners or fewer. Should you leave the system? That's up to you but it does give an idea about how frequent a bad run like this should be. By quantifying the chance of a bad run you can deal with it sensibly rather than just panicking

## ***FAQ - Frequently Archied Questions***

Now some of the queries that have come up since the original Archie.

### ***Can you use Archie for each way betting?***

The best way to do this is to have two separate Archies one for the win bets and the other for the place parts. To get the IP for a place bet you merely have to include the fraction you are paid for a place.

$$IP = \frac{1}{\frac{SP}{\text{place\_fraction}} + 1}$$

### ***Does it matter if two or more horses are in the same race?***

No you can use Archie as before.

### ***If I'm monitoring a system should I just monitor the recent results or all of them?***

I would suggest just the recent ones. But you should choose a big enough number to help get a meaningful result. There is no nice formula to select this number but my gut feeling is the previous season and up to the present would be fine. The more results you include the less variable the results but the less quickly you will pick up down turns.

### ***How big should the Archie value be before I should bet on it?***

The Archie test allows you to see likely a set of results is to occur. The level of significance depends on you. The happier you are with risk the lower you can set your threshold Archie.

### ***If I've got a system with a high EA and a high Archie can I be sure it will make a profit if I follow it in future?***

No but you've got a better chance than a system with the same EA and a lower Archie or one with a lower EA and lower Archie.

## ***Can I use Archie for laying?***

Yes remembering to set the SP correctly to get the correct IP values

$$\text{IP\_Laying} = \frac{\text{SP}}{(\text{SP} + 1)} = \frac{(\text{tote} - 1)}{\text{tote}}$$

This is the same as saying laying at 5/2 is the same as backing at 2/5. Remember your winners will be the horses that lose the race.

Example. 300 bets layed, 60 payouts total expected 220.  
“Winners” will be  $300 - 60 = 240$

$$\text{Archie} = \frac{300 \times (240 - 220)^2}{220 \times (300 - 220)} = 6.818$$

### ***Where does the Archie table come from?***

This is not the conventional Chi-squared table you get in textbooks as we're generally only concerned with whether a value for winners is either higher or lower than expected. You can generate in Excel by choosing a probability and use the formulae

=CHIINV (probability \* 2,1)

### ***Aren't there better and more sophisticated tests we could use?***

You bet, but the problem is that they require a lot more skill on the users part and are a lot more sensitive to the type of information you put in. This is quick and relatively simple and it doesn't worry too much about the data you give it as long as s Expected is greater than 5.

### ***Anything else it can do?***

Funny you should ask as a special bonus see below.

## ***How Long before a profit?***

Finally a little extra from Archie, by doing a little judicious rearranging which I will not bore you with we devise a formula that let us look at what worst value the EA is likely to have after a given number of bets.

Remember what the EA was?  $\text{EA} = \frac{\text{Winners}}{\text{Expected}} - 1$

This is also an estimate of the level stake percentage profit over a large number of bets.

$$\text{worstEA} = \text{EA} - \sqrt{(\text{avSP} + 1 - \text{EA}) \times \text{EA} \times \frac{\text{Archie}}{\text{runners}}}$$

Scary huh? Take a system that has an average SP or betting odds of 4/1. We are considering 60 runners. Previously the system has managed an EA of 1.2. What this little formula does is let us work out what the worst EA is we're likely to come up against at the end of our 60 bets. Archie lets us set up how likely this worst EA is to occur.

Let's say we want to find the worst EA that will come up 1 time in 100. Looking in table 1 we see that this is an Archie score of 5.41

$$\text{WorstEA} = 1.2 - \sqrt{(4 + 1 - 1.2) \times 1.2 \times \frac{5.41}{60}} = 0.559$$

So 1 time in 100 we could finish with a loss of about 44% (1-0.559). If we ran the system over 200 bets

$$\text{WorstEA} = 1.2 - \sqrt{(4 + 1 - 1.2) \times 1.2 \times \frac{5.41}{200}} = 0.849$$

Notice we are not 99% certain of making a profit even after 200 bets.

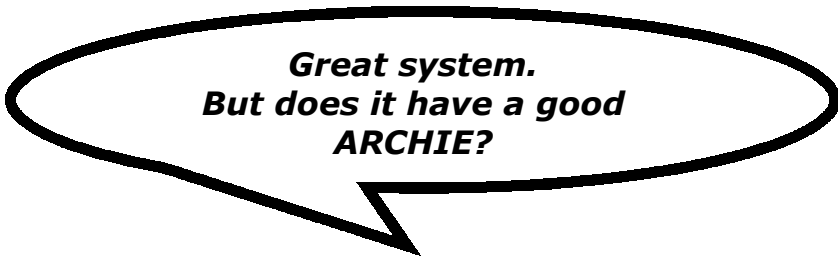
### **How many bets do we need?**

Of course we can obtain a formula for the minimum number of runners we need to be sure of making a profit.

$$\text{minRunners} = (\text{avSP} + 1 - \text{EA}) \times \text{EA} \times \frac{\text{Archie}}{(\text{EA} - 1)^2}$$

Using our example above

$$(4 + 1 - 1.2) \times 1.2 \times \frac{5.41}{(1.2 - 1)^2} = 616.74$$



So we'll need 617 bets to be 99% certain of being in profit. Of course if we were betting on 6/4 shots

$$(1.5 + 1 - 1.2) \times 1.2 \times \frac{5.41}{(1.2 - 1)^2} = 210.99 \blacksquare$$

We would only need 211 bets Of course if we could get our EA up to say 1.3 and still using our 4/1 shots

$$(4 + 1 - 1.3) \times 1.3 \times \frac{5.41}{(1.3 - 1)^2} = 289.134 \blacksquare$$

Much better than 617.

Finally for our worked example

$$(10.23 + 1 - 1.49) \times 1.49 \times \frac{5.41}{(0.49)^2} = 327$$

This last part was just a quick canter for fun and to give you all something new. I'll go through it in more depth if anyone finds it useful. Hopefully Stef will put this article in the vault I can update it if more issues and applications arise.

I would like to thank Russell Hart for helping with the presentation and proof reading.

On a general note I would recommend everyone to get someone else to read your articles prior to submitting them for publication - as another's point of view is invaluable.

***The perfect place to  
recycle your unwanted  
racing books and betting  
paraphernalia.***

***Do your bit to save the  
planet - and do someone a  
favour at the same time!***



**SWAPSHOP is a FREE service to members  
So please make FULL use of this facility**

**FOR SALE:**

Good home required for back issues of SMARTsig Confidential.  
Vol.3 No.2 - Vol.5 No.7. That's February 1996 through July 1998, 30 issues  
still in new condition.

Interested people, say £35 including postage?

***Tony Peterson, 01702 462757 (Southend-on-Sea, Essex)  
tonypeterson@onetel.net.uk***

**FREE TO GOOD HOME:**

I wonder if the following could be included in the next available swapshop:  
Horse in Training 1997, 1998, 1999, and 2000 -  
FREE to anyone who can use them.

***Dave Wilson, 01772 787914 (Preston, Lancashire)  
david.wilson11@btinternet.com***

***Finished with those books? Why let them just gather dust on  
your shelves when someone else could be enjoying them?***

***Looking for something another member might have?***

***Use our SwapShop facility, it's a free member service***

***Jim Streek has long been a champion for the cause of the non-computer user, the group we've christened the "pen & inkers". He brings us up to date with his 5-day-system, offers another KISS targeting penalty carriers and issues a rallying call for others to submit their ideas.***

**KISS#2**

## **CARRYING A PENALTY**

***Jim Streek***

**B**efore I talk about the penalty carrying idea, a little more about my item from last month. It would appear that I did not give enough details when reporting on the progress of the five day plan, so I will put that right.

During the period in question there were 153 selections of which 61 were winners. Flat, NH and AW were included.

Having noticed that many selections that do not conform to the full rules do win on occasions, I am convinced that the main ingredients of the plan are the *Formcast* top rated and number of days since a run.

Those runners that do not conform to 'last-form-figure' or betting forecast rules are being recorded and I'll get back with a fuller report later. But results are very good so far with winners up to 16/1 recently. So far I have checked from 25/6/02 to 13/8/02, the LSP is 37 ½ points. If this stands up to the test of time it will help those who would like more selections.

Watch this space. . . .

***"I am sure that many more SMARTies could give us the benefits of their methods. I do hope so."***

It was good to see more simple systems in the August issue. I am sure that many more SMARTies could give us the benefits of their methods. Perhaps Stef's plea will bring results, I for one do hope so.

Regarding the KISS systems, may I assist 'Longshot' fan, Allan Speedie (issue 9.08) to complete his record. At the meeting he missed, Chester May 9th, Longshot gave one selection on the 7th, unplaced, two on the 8th both unplaced and one on the 9th also unplaced.

## **PENALTY CARRIERS**

As promised in my last letter, my KISS entry this time concerns penalty carriers. The results for this plan are from my records of several years ago, but there is no reason why it should not perform well today.

### **FLAT RULES**

Time period: 1st May to End of September

- [1] Note all handicaps 5-15 runners.
- [2] Exclude nurseries, sellers, apprentice, ladies and amateur races.
- [3] Select penalty carrier (up to 7lbs) that won its last race (current season).
- [4] Must be in top half of the handicap.
- [5] 5-7 runners, must be in first 3 in betting forecast.  
8-15 runners, must be in first 6 in forecast.
- [6] There can be more than one penalty carrier in a race providing only one qualifies under the rules.

### **NATIONAL HUNT**

Time period: November to the End of March

- [1] Note all handicaps with 4-16 runners.
- [2] Exclude novices, sellers, ladies and amateurs.
- [3] Select penalty carrier (no limit of penalty) that won last time out.
- [4] Must be in top half of handicap.

[5] 4-5 runners, must be in first 3 in betting forecast.  
6-16 runners must be in first 5 in betting forecast.

[6] As flat rule 6

## RESULTS

1989 Flat:

22 won 33 lost Level Stake Profit: 22 points  
Longest Winning Sequence = 4 Longest Losing Sequence = 6

1990 Flat:

24 won 36 lost Level Stake Profit: 63 points  
Longest Winning Sequence = 4 Longest Losing Sequence = 7

1989/90 National Hunt:

29 won 18 lost Level Stake Profit: 36 points  
Longest Winning Sequence = 6 Longest Losing Sequence = 4

1990/91 National Hunt:

19 won 26 lost Level Stake Profit: 24 points  
Longest Winning Sequence = 4 Longest Losing Sequence = 5

All results are from/using the Daily Mail.

I kept the rules as simple as possible and the results above strictly adhere to them. It is a good idea though to get an extra edge by also considering the following: -

- Use caution if selection forecast over 10/1.
- Chases are better than hurdles.
- Watch for those running again within nine days or so.
- Runners dropped in class or trained by a top trainer.

Finally, my thanks to SMARTie Mark Adams for his enthusiasm and in reminding me of this method.



*What's your KISS system? - Or have you adapted another?*

*Let SMARTsig know about it . . . Contact details as always on page 76*



***AI and Neural Networks applied to horseracing.***

***Chapter seven moved into the mathematical territory of designing & building your own artificial neural network.***



*Artificial intelligence horserace prediction*

## **AI FORECASTING METHODS (XVI)** *Peter May*

### ***Chapter 7 (continued) - Neural Network Development***

**T**here are four distinct steps in developing a neural network:

- data processing
- design of the network architecture
- network training/testing
- ... and finally ...
- validation.

Data processing may involve feature extraction and other pre-processing techniques previously discussed, before conversion of the data into a form acceptable to the network.

Most neural networks use normalised data i.e. data in the range [0,1] or sometimes [-1,1]. Consequently, the minimum and maximum value of each input needs to be determined prior to normalising the data.

The normalisation itself is simply a matter of subtracting the minimum value an input can take for the data item and then dividing by the difference between the minimum and maximum values.

For example, the age input can range from 2 to 15. An input pattern with an age parameter of 10, for example, can be normalised as follows:

$$N(\text{age}) = \frac{\text{age} - \min(\text{age})}{\max(\text{age}) - \min(\text{age})}$$

$$\therefore N(10) = \frac{10 - 2}{15 - 2} = 0.615$$

The performance of a neural network can be very sensitive to the way the data are represented. Consequently, great care needs to be taken with this aspect of network development. Representing categorical, or discrete feature data is relatively straightforward with an input node assigned to each category.

For instance, to distinguish between non-handicaps and handicap races in the network, two input nodes would be required, the first could be set to 1 for non-handicaps (with the other zero) and the reverse pattern used for handicap races.

Real-valued inputs on a continuous scale can also be represented by single units with the complete input range mapped to the  $[0,1]$  range of the unit. Whilst discrete data, such as a scale from 1 to 10, can be represented in the same way, other representations may improve the network's performance. For instance, a binary representation. Naturally, this requires several input nodes to represent the variable but may result in reduced training times.

However, it should be realised that with this approach two similar input values have totally different network representations. An alternative approach is to use a type of *thermometer* coding.

As an example, consider the ages of horses. Although continuous, these values are presented in discrete form, such as 2, 3, 4, and so on. A thermometer code representation of the ages from 2 to 10 would require 9 inputs. For a two-year-old horse the first node would be set to one with the remainder set to zero. For a three-year-old, the first and second nodes would be set to one, and for a four-year-old the first three units would be set to one, with the remainder left at zero.

In figure 7.4 the age of a seven-year-old horse is represented in the thermometer coding style.

<b>Node</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<b>Value</b>	1	1	1	1	1	1	0	0	0

*Figure 7.4: Data representation*

After the data processing and normalising stage the architecture of the network can be determined. The number of input nodes is simply the number required to represent the data in the chosen format.

However, deciding on the number of hidden nodes is not so straightforward. The required size of the hidden layer is dependent on the complexity of the mapping the neural network is attempting to approximate. However, this is unknown prior to training, and hence the required number of hidden nodes is also unknown.

As a guide though, the maximum number of hidden nodes should not exceed twice the number of input nodes, and the minimum number is zero since it is not always necessary to have a hidden layer. Various start points have been suggested such as half (or three-quarters) of the number of input nodes, but it should be remembered that the more hidden nodes used the more time each training cycle will take because there are more weights to update each pass. Consequently, it is possibly best to start with the fewest number considered necessary (zero maybe?) and then to increase the number if the network fails to find an acceptable mapping.

Once the architecture of the network has been decided, the network can begin training. The aim of the training phase is to adjust the internal weights of the network so that relationships are determined between the input patterns and the associated outputs.

During training each pattern in the training set will be presented in turn to the network and the difference between the calculated output and the target output deduced. This difference is then used to modified the weights. A *cycle* (or *epoch*) is completed when all the patterns in the training set have been presented.

Neural network training will often involve many training cycles (sometimes thousands, see the following example) which can make the process very time consuming.

After each cycle an error term is updated to provide a means of determining how well the network is converging to a minimum, or how well the network mapping is classifying the patterns.

This normally takes the form of the mean squared error which is simply the average of the squared differences between the calculated output and target output for each training pattern. As training progresses and the network mapping function improves, this value will gradually decrease.

Alternatively, a measure of the system's progress can be determined by using a *test* set of patterns. The test set contains patterns which differ from those in the training set and is used to determine how well the network generalises to previously unseen examples. Once the network performs to a satisfactory degree on the test set, or the mean squared error has reached a sufficiently low level, the network can be validated on a third, distinct, set of examples.

### **Neural Network Development: Example**

This example uses one of the most popular learning problems in the neural networks field: the exclusive OR problem.

The exclusive OR, or XOR, data set contains only four patterns, presented in figure 7.5. The aim of a neural network trained on this data set is to discriminate between the two classes of output vector, and associate the input pairs with the value of zero, when  $x_1 = x_2$  and one when  $x_1 \neq x_2$ .

The network architecture for this problem consists of two input nodes, two hidden nodes and one output node (2-2-1). A sigmoid activation is used together with the back-propagation learning algorithm, and a learning rate set at 0.1.

Input $x_1$	Input $x_2$	Target Output
1	1	0
0	1	1
1	0	1
0	0	0

*Figure 7.5: The XOR data set*

Network training starts with weight initialisation. This process randomly assigns a set of weights to the network.

It is normal practice to use a randomisation method which generates low weights (i.e. [-1, 1]) since large weights can saturate the hidden nodes producing hidden node values of close to 1 for any input pattern. Consequently, this can seriously inhibit the training process. For this problem the initial weights are given in figure 7.6.

From Input:	To Hidden Node $h_1$	To Hidden Node $h_2$	From Hidden:	To Output Node
node $x_1$	+0.85	+0.09	node $h_1$	-0.14
node $x_2$	-0.50	-0.99	node $h_2$	+0.21
bias	-0.29	-0.37	bias	-0.50

*Figure 7.6: Initial weights for XOR network*

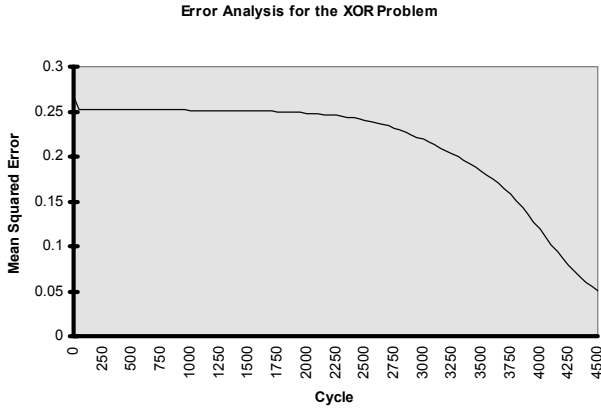
It is possible to calculate the mean squared error for the network before training starts by checking how well the random weights classify the patterns. This analysis is given in figure 7.7, where the total squared error is given as 1.0597. Therefore the mean squared error is 0.265 (i.e. 1.0597/4).

$X_1$	$X_2$	Target Output	Network Output	Difference <sup>2</sup>
1	1	0	0.3715	0.1380
0	1	1	0.3774	0.3876
1	0	1	0.3779	0.3870
0	0	0	0.3836	0.1471
<b>Total:</b>				<b>1.0597</b>

*Figure 7.7: Network performance before training*

After 4,500 training cycles the network error has reduced to 0.05 at which point training is terminated.

The reduction in the mean squared error is shown graphically over the page in figure 7.8. It can be seen that many cycles are required before the network begins to converge, however after 2,500 cycles the error reduces rapidly, and a low level of error is soon achieved.



**Figure 7.8: Mean squared error by training cycle**

When training is complete the weights have changed significantly, which can be seen from figure 7.9. These changes are due to the training process and represent the *knowledge* learned by the network from the examples.

It is interesting to note the degree of symmetry about the weights which is in agreement with the symmetrical form of the training patterns and network architecture.

<b>From Input:</b>	<b>To Hidden Node <math>h_1</math></b>	<b>To Hidden Node <math>h_2</math></b>	<b>From Hidden:</b>	<b>To Output Node</b>
node $x_1$	3.40	4.40	node $h_1$	-4.17
node $x_2$	-3.07	-4.50	node $h_2$	4.98
bias	1.37	-2.77	bias	1.68

**Figure 7.9: Weights for trained XOR network**

For the XOR problem the entire data set is used to train the network.

This is unusual, in real world applications only a part of the data set is used for training with the remainder used for testing and network validation.

Consequently, testing the network with the training patterns is of limited value, however, it does show the capabilities of the network. Furthermore, it is possible to supplement these *test* vectors with other patterns which comprise real numbers and differ from the initial training set.

Figure 7.10 presents the test vectors and the associated network output.

Input $x_1$	Input $x_2$	Known Output	Network Output
1	1	0	0.17
0	1	1	0.74
1	0	1	0.85
0	0	0	0.21
0.50	0.50	-	0.19
0.95	0.05	-	0.80
0.05	0.95	-	0.70

*Figure 7.10: Network performance before training*

From figure 7.10 it can be seen that, if presented with the pattern (1,1) the network would respond with a value close to zero (i.e. 0.17).

An input pattern of (1,0) produces an output of 0.85;

and the pattern (0.95,0.05) returns a value of 0.8.

For this last pattern there is no correct response, however, given its closeness to the (1,0) input pattern an almost equal response seems to be a reasonable output. Although this is a very simplistic example, it is easy to see how these training patterns, on a larger scale, could represent the profiles of horses and the target values the race results with the network generating the necessary knowledge to produce reliable forecasts of future races.

As a second example, consider the data presented on the following page in figure 7.11.

Essentially, the network needs to determine a mapping for one input such that when the input is 0, 0.5 or 1 the output is near zero, and for input values of approximately 0.25 and 0.75 the output should be near one.

A 1-12-1 feedforward network was trained on these data patterns, using a learning rate of 0.1, the back-propagation algorithm and sigmoid activation function.

Training was halted at 1,000, 2,000 and 5,000 cycles and the network

performance checked against a second data set. The results of these tests are given in figure 7.12.

Input $x_1$	Target Output
0.00	0
0.05	0
0.20	1
0.25	1
0.30	1
0.45	0
0.50	0
0.55	0
0.70	1
0.75	1
0.80	1
0.95	0
1.00	0

Figure 7.11: Training data for one input network

Clearly, as the number of cycles increases the closer the mapping gets to the training data. After just 1,000 cycles the output approximates a quadratic, whereas for 2,000 and 5,000 cycles the mapping is clearly more complex.

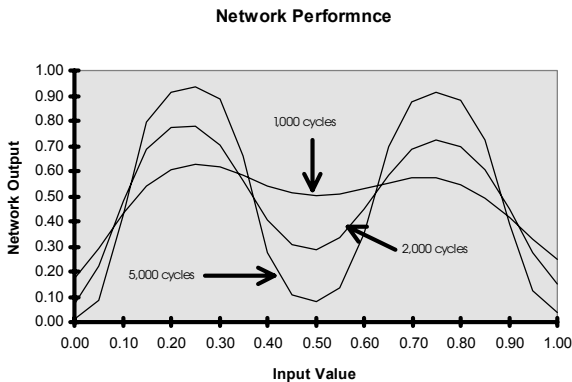


Figure 7.12: Test output from the three networks



This demonstrates how the network can be used to approximate complex non-linear mapping functions.

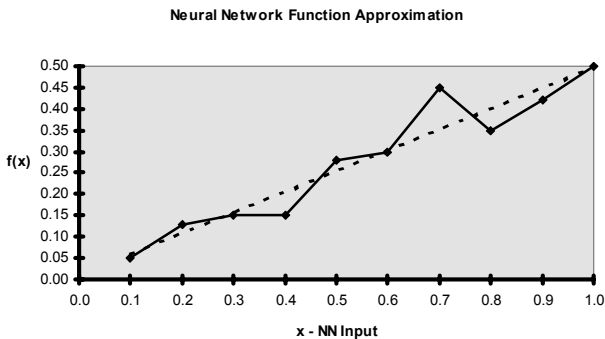
Although the four training patterns of the XOR example are relatively easily learned by the network, there can be problems with the training phase. The aim of gradient descent methods (used in back-propagation) is to locate the *global minimum* of the error function, this is the point where the function most closely matches the training vectors.

However, there are cases where a *local minimum* is encountered which effectively halts training since progress can only be made if the error is reduced which is not possible in the neighbourhood of a local minimum. In such cases training needs to be restarted from a different set of initial weights, or possibly a new network architecture used.

A second problem with network learning is overtraining. If a network is overtrained it tends to *memorise* the training pattern - target output pairs, and as a result does not create a general mapping of the vectors. Consequently, it does not perform well when presented with previously unseen patterns.

As an example of overtraining consider a one input network trained to approximate the function given by the data presented in figure 7.13. With sufficient hidden nodes the network is able to exactly classify each of the 10 training patterns, as indicated by the solid line.

However, the underlying function, represented by the dotted line would be the desired mapping and would result in better generalisation performance.



**Figure 7.13: Over-fitted data**

In summary, feedforward neural networks consist of many weighted connections which link the input layer, via the hidden nodes to the output layer.

The *knowledge* possessed by the system, gained from training, is represented by these weights together with the activation function, which constitute the mapping from the input patterns to the outputs and is therefore distributed.

Consequently, these networks are not easy to interpret, and explanation is not readily available, and, unlike linear regression models (which also represent knowledge in numerical values), the non-linearity introduced by the activation functions adds further complexity to the form of the network.

However, they do provide an effective means of establishing non-linear mappings.



### ***Next month: Why Use Neural Nets for Forecasting?***

*The desire to predict future events coupled with the integration of computing technology in business environments, led to an explosion of forecasting techniques throughout the second half of the 20th century.*

## **SMARTsig Confidential October 2002**

### **Already 'in the can' for next issue . . .**

*Robert Ford examines;*

- How far away from their 'optimum' distance can a horse still excel?

*David Renham concludes;*

- Post race analysis, what can be learned?

*Mike Dove checks out;*

- Hurdlers and chasers returning to the track quickly.

*The second part of Peter May's*

- 5-Year Trainers & Favourites records by course.

## The Karl Dennis Raceletter

Hors racing specific direct-mailed monthly.

Hors racing specific direct-mailed monthly. News, interviews, tipsters & systems investigated, future prospects, etc.

Subs from £9.90 per month, free sample available

KZ Racing, 54 Oaklands Rd, Rodley, Leeds LS13 1LQ

01274 532290 email: racing@karl.tele2.co.uk



## NOMADIC PRESS

Profile Books and Software researching Horses, Trainers, Courses and Sires.

SMARTsig members qualify for 15% discount off the retail price on the software and £3 per book.

*"The racing statisticians Kama Sutra"*

www.nomadicpress.co.uk

info@nomadicpress.co.uk

01275 475275

### Soccer results on disk, weekly results & odds by email

Weekend odds service, soccer results files and almost every other up-to-the-minute soccer statistic you can think of - all at realistic, value for money prices.

#### Mabels-Tables

PO Box 14555, Dunfermline KY11 4WA  
Tel: 01383 721 729 bill@mabels-tables.co.uk  
www.mabels-tables.com

SMARTsig members qualify for a further 10% discount . . . even on top of existing discounts.

### GAMBLING BOOKS from SMARTsig www.smartsig.com

the SMARTsig web site now has a direct link with Gambler's Book Store. Simply -click- on the bookstore link on our web site home page for the best selection of betting books around.

**Look out for the frequent special offers!**

## HOOF Ratings

Hors racing Optimum Odds Forecast

NH value ratings on the Internet  
". . . simply in a class of their own . . ."

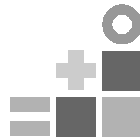
www.hoof.demon.co.uk  
email: tony@hoof.demon.co.uk

Tel: 01873 811427

## RacingSystemBuilder

SMART members qualify for 10% discount RSB software packages.

Racedata Modelling Ltd.,  
Upper Buckenhill  
Farmhouse, Fownhope,  
Herefordshire HR1 4PU  
Tel: 01432 860 864



## SMARTsig Hors racing Results

comma separated PC files on CDdisk.

Archived, full, comprehensive UK & Irish racing results. Previous 10 years for both flat & NH at just £31 per season.

Full details of data fields on our web site or call for information.

www.smartsig.com

### We can help you beat the bookies if you have a computer or have access to one.

*" . . . depth of information provided by the newsletter (and its contributors) for a paltry £9, keep up the good work" DW of Scotland, Dec '00*

#### PLEASE WRITE FOR DETAILS TO:

P J A Kirby F.F.A., The Gambling Software Users Group,  
Martello House, Ivy Terrace, Tralee, Co Kerry, Eire  
or call (from the UK) 00353 6671 85903

email: [pjakirby@eircom.net](mailto:pjakirby@eircom.net)

Membership £9 per year

All advertisements are published in good faith, and do not imply any recommendation. SMARTsig members should satisfy themselves as to the suitability of a product/service before proceeding.

**SMARTsig member benefits are for subscribers only.** Payment by cheque, money order or credit/debit card. Card payments can be made by telephone or fax (01736 754400)

Tick (✓) box	UK & N. Ireland	Irish Republic & other European	Rest of the World
3 months	£13.00	£14.05	£15.58
6 months	£25.00	£27.10	£30.16
12 months	£45.00	£49.20	£55.32

*Please enrol me as a subscriber, every issue hot off the press, by first class mail.*

<b>Name</b>		<b>Telephone</b>
<b>Address</b>		
<b>Post Code</b>		(Please PRINT)

**Card number**

**Expiry Issue no (Switch) Signature**





**EASY PAYMENTS!**

Subs can be paid by bank standing order at only £3.75 monthly (UK customers). Call for details.

**BACK ISSUES:** £3.75 each whilst stocks last. (Single issues add 50p postage, order of 2 or more, post free) We are no longer able to reprint out-of stock issues. However, work is underway to publish back issues in electronic book format in 12-issue volumes.

**SMARTsig Confidential**

Published by: **SMARTsig, PO Box 44, HAYLE. TR27 6YH**  
**Telephone 01736 754400 Fax 0870 7066258**  
**email sm@rtsig.co.uk Internet: www.smartsig.com**

The opinions expressed herein are not necessarily those of the Editor or publisher, but are often taken directly from members contributions. **SMARTsig** does not accept any liabilities for inaccuracies within the content of the magazine, nor for any consequences thereof. We will always endeavour to print replies and/or corrections by or on behalf of parties who may feel they may have been misrepresented in any way. **SMARTsig** encourages and welcomes contributions from its members but is unable to accept any responsibility for loss or any damage of any material, solicited or otherwise.

Everything published in done so in good faith, and is the copyright of either **SMARTsig**, the contributor, or both - subject to it not having been published elsewhere beforehand. This Journal, nor any of its contents must not, in whole or part, be copied, duplicated, loaned or distributed without the written permission of the copyright holder(s).

We recommend you exercise caution with any contacts established through our group and never speculate with money you cannot afford to lose.

© 2002 **SMARTsig**

**ISSN 1476-6779**