The Role of Inbreeding in the Racing of Pigeons and the Foundation of Families

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Agenda:

- Background and Intent
- Factors that Affect the Outcome of a Race
- What Inbreeding Does
- An Effective Strategy for Racing & Breeding
- Practical Tips
- Discussion

Background and Intent:

I am here to share what I have come to believe after 36 years of intense study and practice in the field of animal breeding.

I am not here to make converts. There is plenty of room in the sport for many approaches. Use the one that work best for you.

There are no “silver bullets” in this business. Every successful approach takes a plan, patience, and hard work.

Background and Intent:

The laws of nature apply to all species with amazing consistency. Genetics works virtually the same for bacteria, flies, rabbits, sheep, swine, and pigeons. The details vary of course, but they all have genes made of nucleic acids.

Genetic change occurs in the time frame of generations. We can learn a lot by looking at the genetics of species with very short generation times (e.g. 20 minutes in E. coli).

Background and Intent:

Much of the prejudice against inbreeding stems from misunderstandings about how it works and from the failure to realize that what is morally appropriate for a human population doesn’t really apply to an animal population (i.e. we can cull in an animal population).

Factors that Affect the Outcome of a Race:

Body (the physical capacity)

Attitude (the mental capacity & desire)

Fitness (training, condition & form)

Fuel

Luck

Factors that Affect the Outcome of a Race:

Factor:	Determined By:	Hypothetical Maximum Contribution:
Body	Genetics & Environment	6
Attitude	Genetics & Environment	8
Fitness	Environment (pre Widowhood)	6
Fuel	Environment (pre Carbo loading)	4
Luck	Environment	5
		29

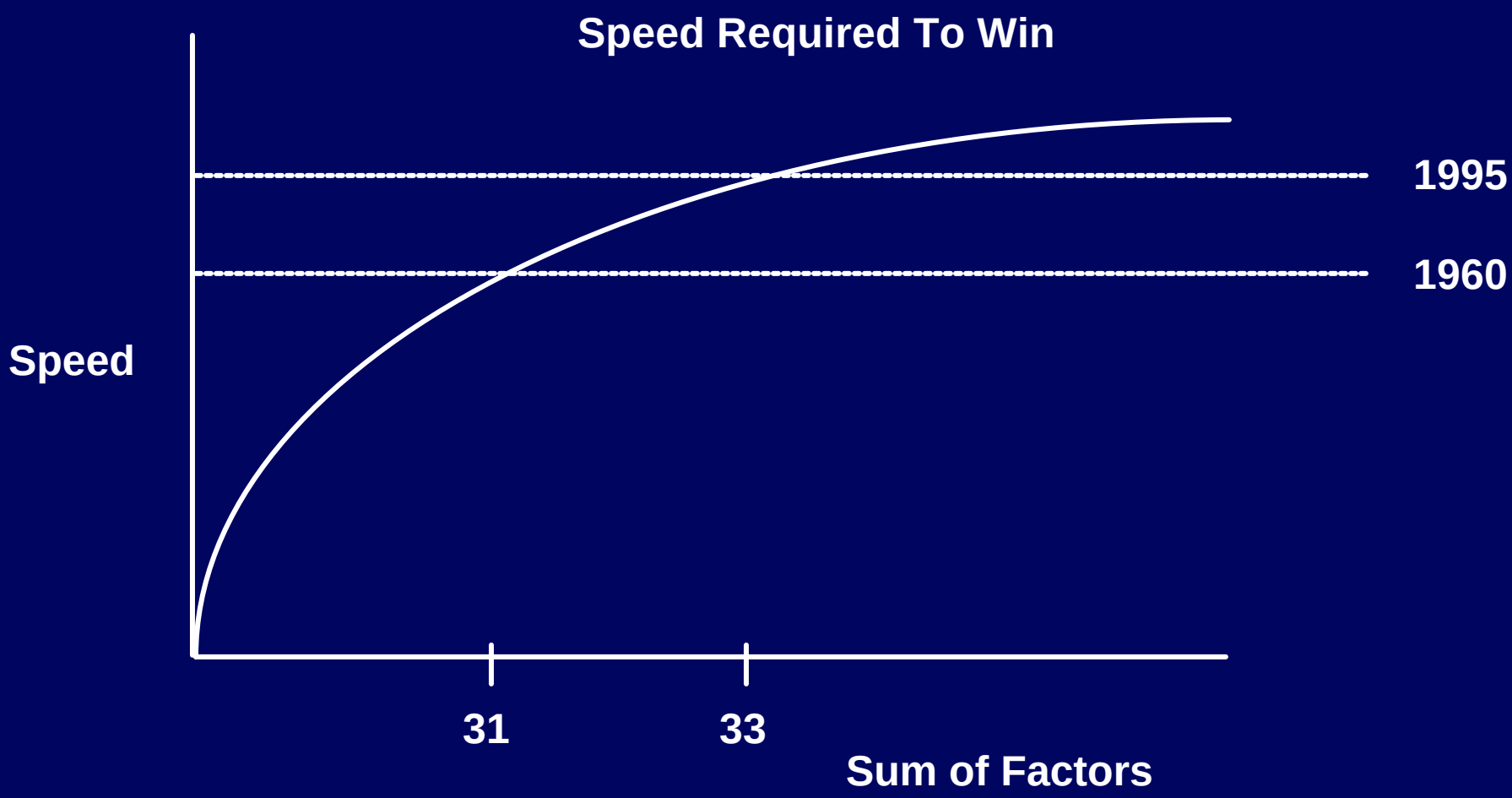
Factors that Affect the Outcome of a Race:

Factor:	Determined By:	Hypothetical Maximum Contribution:
Body	Genetics & Environment	6
Attitude	Genetics & Environment	8
Fitness	Environment (pre Darkening)	8
Fuel	Environment (pre Carbo loading)	4
Luck	Environment	5
		31

Factors that Affect the Outcome of a Race:

Factor:	Determined By:	Hypothetical Maximum Contribution:
Body	Genetics & Environment	6
Attitude	Genetics & Environment	8
Fitness	Environment (today)	9
Fuel	Environment (today)	5
Luck	Environment	5
		33

Factors that Affect the Outcome of a Race:



Factors that Affect the Outcome of a Race:

Surely we will continue to improve our techniques, but remember that once a new technique is widely known, it stops being an advantage and becomes a requirement.

As sophisticated as racing is today, we may well be close to the point where we have maximized all the environmental factors. When this day comes, genetics will be the only area (outside of random luck) where one may forge an advantage.

Factors that Affect the Outcome of a Race:

"... I asked him, 'What methods do you use to get those kinds of results?' Mr. Van Loon looked at me sternly and said, 'Remember this, there is only one thing that is important - good pigeons, nothing else.' "

Tony Rossi, "Louis Van Loon: The Miracle Man from Poppel", The Racing Pigeon Digest, October 15, 1995.

What Inbreeding Does:

1) Increases predictability by narrowing the gene pool. (This also means that it decreases the variability that will be seen in the offspring)

2) Decreases the effect of heterosis

What Inbreeding Does:

Inbreeding is just a tool.

Like any tool, its results depend upon how it is used. My son once used a hammar to cut a board in half. Jack Benny played the violin, but not like Issac Stern!

What Inbreeding Does:

Here are two rules you must never forget:

1) Inbreeding should only be done with world class animals. If you inbreed with average animals you will develop a line that is only capable of producing average animals.

2) When used properly, it can not be over done. I have done as many as 8 consecutive generations of brother-sister, father-daughter, and mother-son matings.

What Inbreeding Does:

There are essentially two disadvantages:

1) The decrease in the positive effect of heterosis can actually become a negative effect in the case of extremely close inbreeding (this is called inbreeding depression).

2) Previously existing but largely unexpressed Undesirable Recessive Traits (URT) will be expressed in greater frequency.

What Inbreeding Does:

Key areas affected by heterosis/inbreeding depression:

- Development
  - In the Egg
  - Hatching to Weaning
  - Weaning to 1 Year
- Reproduction
- Race Performance
- Recovery & Viability
- Stress Resistence

An Effective Strategy for Racing & Breeding:

- Maintain straight bred parental lines (do not breed from the crosses)
- Use proven F1 Yearlying hens on proven outcross cocks for the race team
- Performance test all parental lines. Use contemporary groupings to minimize non-genetic variation.
- Always maintain at least two generations in the stock loft. Sometimes progress is measured in two steps forward and one step back.
- Boldly experiment, but reject if results do not represent genetic progress.

An Effective Strategy for Racing & Breeding:

To develop a family:

- Assure all desired genes are in the gene pool
- Linebreeding is usually the method used for establishing new families, while inbreeding is used for maintaining and improving existing families.
- Consider developing two families based upon the cock and hen of a "golden couple"

Practical Tips:

- Develop accurate selection criteria
- Test fairly and consistently
- Always select around the weakness of the line
- Cull more (not less) when you use inbreeding
- Maintain detailed and accurate records
- Selection is a three stage process:
  - The 1st cut is based on the bird's potential
  - The 2nd cut is based on actual performance
  - The 3rd cut is based on the performance and/or breeding of the progeny