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## Tamarillo CLONED!



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Tamarillo and  
(inset) his  
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# Tamarillo has

Brilliant, elegant and quirky, Tamarillo won Badminton and Burghley and represented Britain three times with William Fox-Pitt. Now, his genetic double has been created to extend his breeding line. **Martha Terry reports**



Tamarillo's owners MW and Finn Guinness (l and r)

**A** three-month-old colt skitters round a field. A flashy bright bay, he scoots off then spins back to suckle his mother – a big-boned palomino, who is clearly no blood relation.

Workers at the farm stop what they are doing to watch as the flamboyant colt floats past. He is so clearly sensational; the whispers grow that he must be the clone of a great horse. But who?

The Hon Finn and MW Guinness have managed to keep Tamarillo's clone under wraps until today. Even those at his current New Jersey farm – where he is staying until "he comes home" to Biddesden Stud where Tamarillo himself was raised – are in the dark.

"We've been talking about cloning Tamarillo for years," says MW Guinness, whose husband Finn has a PhD in epigenetics and tried to clone mammals himself in the 1960s, 30 years before Dolly the sheep finally appeared. "We kept it secret because we wanted to wait until the foal was on the ground."

#### 'An animal of exceptional merit'

THE Guinnesses bred Tamarillo, out of MW's Anglo Arab Master Spiritus mare, Mellita, who shattered a hock shortly after her only son was weaned.

"I always knew Tamarillo was going to be exceptional because his mother was the best horse I ever sat on. I used to whisper to him that he'd win Badminton and Burghley," says MW. "Mellita proved a fantastic eventer, and



A national favourite: William Fox-Pitt piloting Tamarillo to victory at Burghley in 2008

**“I need William to keep riding because he's not going to anyone else”**

MW Guinness

the moment I said I was going to breed from her Finn had her covered by his favourite stallion [Tarnik]. He was right, of course."

And so was MW, as Tamarillo became one of the very best event horses of his era. Unfortunately for his breeding owners, he was castrated young.

"He wasn't the straightest mover – he dished – which is undesirable in a stallion," says Finn, who breeds up to 10 horses each year, as well as chickens and cows. "Ordinary breeding is wonderful, but not for us breeders who have struggled for years to produce an animal of exceptional merit and, having

finally found it, it's been castrated.

"It's enormously exciting to build on that rather than go back, try to find the same bloodlines, some of which will have died out. Tamarillo's genes have been proven to have special merit. He is a big mover, with great agility and adjustability, stamina – and found the biggest tracks in the world so easy."

Tamarillo's clone – who is likely to be named Tomatillo, also a type of tomato – does indeed look like the 100% genetic match his makers claim he is. He even has a left-hind white sock – although apparently markings don't necessarily replicate. Finn believes he looks more thoroughbred than he remembers the original.

The buxom surrogate, Blondie, was specifically chosen for her size as it was thought the extra room in the womb would give the best chance of the clone's legs being straight and produce a larger foal. The foal's farrier already pays particular attention to keeping his feet absolutely level to ensure

Pictures by www.trevor-meeles-photography.co.uk



# been cloned!



The cloned foal definitely moves straighter than Tam, believes William Fox-Pitt

“You see this little boy darting around while all the other horses are standing still – he’s a clown, just like Tam. Tam’s still like that at 21”

William Fox-Pitt  
After watching video of Tam's Clone

MW's farm because she doesn't like her youngstock grazing chemically fertilised fields. He will be handled frequently and shown as a young horse. He will probably persistently jump out of his field and worry his handlers sick with his antics – he has a precedent.

And while MW emphasises that William's skill in bringing out the best in Tamarillo was crucial to his achievements, she also believes he has a better make-up than other horses.

“His genetics played the biggest part in his success,” she says. “But William also made him what he is. Tamarillo was too clever for most people.”

#### Will he compete?

THE dream for Tamarillo's legion of admirers would be to see his brilliance repeated 20 years after we

Tamarillo's faults are not repeated.

Tamarillo's rider, William Fox-Pitt, says that it was “uncanny” seeing pictures of the cloned Badminton-Burghley winner.

“He's a phenomenal foal,” says William. “It's spooky how like Tam he is. Maybe it's because of his huge mother, but he looks like he will be bigger, and he's definitely straighter than Tam. But you see this little boy darting around while all the other horses are standing still – he's a clown, just like Tam. Tam's still like that at 21.”

#### How cloning is done

THOUGH Tamarillo's connections had discussed cloning, the prohibitive cost deterred them.

The first horse clone, Promothia, was born just a decade ago, and the cost has decreased from the initial £250,000. By 2010, when William met up with Kathleen McNulty, who runs US cloning facility Replica Farm, the dream was back on the drawing board.

Kathleen proposed gathering a syndicate to share the \$165,000 (£104,000) cost of the project. These stakeholders will earn a percentage of the clone's future stud fee, but the Guinnesses will keep him and decide his future.

“They liked Tamarillo because of his compelling story,” says Kathleen of the anonymous shareholders. “He had everything it takes to win the Olympics, and then injured his stifle. This foal is phenomenal, and the shareholders are excited to be associated with

such a famous horse.”

Replica Farm, Texas, has cloned more than 50 horses since 2007. In simplest terms, a tissue sample is taken from the neck and a nucleus from one of those cells is put into an unfertilised egg that has had the DNA removed. This is stimulated with a small electrical shock to develop it into an embryo. It is then transferred into a recipient mare and follows a normal gestation, with the foal being a 100% genetic match to the original.

The scientists make many embryos, which go into surrogates and are flushed out and graded before around three top-quality ones are inserted into three recipients. Of these it is rare that more than one will produce a live, healthy foal – although the client can purchase this at a small price if it happens.

“Cloning technology is not weird science, but a very advanced breeding tool,” says Kathleen, who also offers a gene banking service for \$1,600 (£1,012) for those who want to retain the option to clone further down the line. “I've been breeding for 30 years and understood the need for this technology. It's expensive, but if you've spent a lifetime finding one special horse, you can reproduce that genetic package.”

“Life experiences will still mould the clone,” adds Kathleen. “But the exciting thing for Tamarillo's clone is that his upbringing will be the same.”

This will entail eating organic grass at

A striking likeness:  
Tom unmistakably  
looks like Tam





## Feature Meet Tamarillo's clone

See Tamarillo's career in pictures online @ [horseandhound.co.uk/tamarillo-pictures](http://horseandhound.co.uk/tamarillo-pictures)  
[horseandhound.co.uk](http://horseandhound.co.uk)



# How 'Tom' came into the world

### Cloning landmarks

**1996:** first mammal, Dolly the sheep, cloned  
**2003:** first horse, Promotha, cloned  
**2006:** clone of top showjumper ET FRH born  
**2007:** FEI bans clones from competition  
**2008:** clone of top showjumper Gem Twist born  
**2010:** first polo pony clone born  
**2011:** first event horse clones produced, from Ecuadorian horse Che Mr Wiseguy  
**2012:** FEI allows clones to compete in Olympic disciplines, after scientists found that clones were only 98% copies of their originals  
**2013:** American Quarter Horse Association allows clones to be registered



Created in a laboratory in Canada, and carried in a surrogate mare, Tom was foaled in San Antonio, New Mexico.

He and the mare have since been moved to New Jersey, where he will stay until he travels to his owners' Biddesden Stud in Hampshire.

### Tamarillo factfile

16.2hh, by Tarnak out of Mellita  
 Age: 21  
 Total BE points: 1,636

- Won Burghley 2008
- Won Badminton 2004; second 2002 and 2005
- Team silver, 2006 Aachen World Equestrian Games
- Team gold and individual silver, 2005 Blenheim European Championships
- Team silver, 2004 Athens Olympics

watched him skip across country with his trademark pricked ears and uplifted tail, disdaining the biggest courses in the world as hunter trials. But will that ever happen?

The jury is out. Finn says no; MW wavers. Kathleen says she knows the syndicate would love to see him compete.

"Our aim is very modest; we just want to be able to breed from Tamarillo [genes]," says Finn. MW's twinkle betrays that she hasn't ruled out competing the clone.

"I need William to keep riding because he's not going to anyone else!" she says. "Maybe Tamarillo wouldn't be the horse he is if he had not been castrated. It seems the demands of the three disciplines of eventing are too much for many stallions to cope with the hormones as well."

William insists it has "never crossed his mind" that he might compete the clone. Indeed, the FEI rules prohibiting clones from competition only changed around the time the clone was made last year.

"The possibility of a clone felt so far-fetched, I never believed it would happen," said William. "But who knows? I can't wait to sit on him — it will be emotional. But if he does compete with

me, he'll have to be a lot steadier than Tam for my old age."

### The ethical questions

TAMARILLO at his prime would have been worth half a million pounds. Surely £100,000 for an exact replica is a sound investment? Hundreds of polo ponies are now being cloned, and one sold at auction in 2010 for \$800,000 (£506,000).

Showjumpers and dressage horses, too, are increasingly replicated. But it hasn't caught fire among eventers, where perhaps nurture has the biggest influence. Will Tamarillo be a landmark case that opens the floodgates?

But the ethics are still holding people back. Even though there is no guarantee that a clone will reach the giddy heights of his original, the concept — supernatural though it seems — misses something of the magic of breeding. How much fun would it be watching 10 Franks line up for the Derby? Finn finds eventers are wary.

"I've asked several event riders of outstanding horses and they seem confused about cloning," Finn says. "They're not keen to do it with their great champions — but then people



William Fox-Pitt at his Dorset yard with Tam, where the horse still lives

“Our aim is very modest, we just want to be able to breed from Tamarillo”

Finn Guinness

were like this about AI and embryo transfer. I think it will grow in popularity."

Kathleen says its price and complexity will ensure it remains the preserve of elite horses. Yet there are now "a few hundred clones" on the ground, mostly produced for breeding, many of them high-value polo ponies and quarter horses.

"We don't want Xerox copies — if we distributed 50 Tamarillos indiscriminately they would not be of value," says Kathleen, who receives "regular calls asking if people can buy Gem Twist clones. We want exceptional horses, owned and trained by an exceptional team."

William believes the cost means it "will never become the norm".

"And it's very contentious — I don't even know what I really think about it," he says. "But in this day and age, it's extraordinarily exciting. It's a personal dream for all of us rather than aiming to make a breeding or winning machine. Imagine the fun to be had with this colt."

Whatever our views on cloning, it will be fascinating to see if the baby Tamarillo grows into the horse that captured so many hearts. Time will tell — and that's one thing technology can't sort out. H&H