

THE DEPTH OF DISASTER: THE ECONOMIC IMPACT OF MRLS
ON HARNESS HORSE BREEDING IN KENTUCKY 2001 AND
BEYOND

*Dr. Richard Thalheimer - University of Louisville Equine Industry
Program*

Dr. Thalheimer: It is a pleasure to be here today and I want to thank you for the opportunity to give some results of a study that Bob Lawrence and I recently completed through the Department of Equine Business at the University of Louisville.

The study was undertaken at the request of the Kentucky Governor's Office to determine the economic loss created by the loss of foals from two separate foal crops due to the 2001 event labeled Mare Reproductive Loss Syndrome or MRLS. The crux of this disaster was that a large number of mares unexpectedly lost or aborted their foals in 2001 and created a crisis in the horse industry—in all breeds, not just thoroughbreds and standardbreds.

The cause of MRLS was not conclusive at the time this study was undertaken. The governing theory at the time was that it was somehow connected to unusual hot and cold weather coupled with an onslaught of tent caterpillars, especially those in wild cherry trees located in pastures frequented by broodmares. The theory went that the fecal matter from the caterpillars, when they hit the ground, was ingested by grazing broodmares and that this waste matter contained highly toxic cyanide poisons from the ingested cherry tree materials.

There has been much study subsequent to this original theory and the latest finding is that MRLS may have been the result of ingested poison hemlock plants in the pastures. Due to the weather conditions in the spring of 2001, these plants temporarily carried higher than normal amounts of toxic poison. Unfortunately at this point doubt remains as to the cause of MRLS.

One thing we do know is that there was a huge economic loss to the equine breeding industry in Kentucky. This disaster affected two separate foal crops, not just one. There were mares who were bred in 2000, the prior year, who came up with late-term foals born dead or those that were born were affected by this syndrome and lived for only a few days before dying. Those

were foals from 2001 from mares bred in 2000 and would have been yearlings this year. That loss was for this year, as those foals would have been sold this year and the revenues from that sale would have covered the expenses required to produce those foals. The second crop that was affected was foals from mares bred in 2001. Many of these mares aborted their fetuses in 2001, which reduced the foal crop that was expected for 2002, this year.

So you have two separate foal crops, two separate racing crops that have been affected by this disaster, which affects racing horses two and three years down the road. There will be no revenue to cover these losses. It's not like corn or wheat where you can replant the same year and recoup that loss. This loss is a forever one-time loss from this disaster.

As I said, the loss covers a three-year period, it doesn't occur in just one year. The first step in the process, the production process if you will—the factory being the broodmares—is the broodmares that had been bred the prior year in 2000. The factory produced the output—the resulting foal and yearling—in 2001 and 2002. Start with the year 2000. You have to maintain the broodmares including the annual replacement cost, because

these broodmares are capital outlay. Each year the breeder has to set aside a certain amount of money so that the mare can be replaced at the end of her productive cycle. You have the maintenance expenses of the mare, the daily board bill, vet, van—all of those expenses plus the replacement costs already incurred for eight months in the year 2000. Then in 2001 the mare hopefully would have produced a foal, but in this case the foal was born dead and so there the breeder incurred four months of broodmare expenses up to the foaling date. There was no foal so there were no expenditures for the resulting foal, so for that reason horse farms suffered, sales companies suffered, vets, vans, farriers—all support industries suffered because of this loss of the foal. In the year 2002 those same yearling maintenance expenses would be lost and the sale revenue not forthcoming, so none of the three years of lost expenses are recovered. This is a true loss to the equine industry in Kentucky.

Losses for the 2001 foals, the late-term foals that never arrived or arrived dead, is also a three-year cycle. The same cycle occurs for the foals that would have been born this year from mares bred last year. The cycle starts in the year 2000 and the loss is suffered all the way until 2003.

The sectors of the industry already affected by the loss of the foals are horse breeders because there are no revenues to them to pay for the cost of maintaining the mares. There are no stud fees for stallion owners. Horse farms operations will get no daily board bill. Horse sales companies will get no conditions from the sales of these lost foals, horse sale agents same thing. It goes on to veterinarians, farriers, equine transport operations and other supporting services.

In order to measure this impact we developed a survey to get at the cost required to maintain or produce a foal through the yearling sale. We surveyed six breeds, which accounted for 96 percent of all the registered foals in Kentucky. The breeds included thoroughbred, standardbred, quarter horse, paint horse, saddlebreds and Tennessee walking horse, but the two commercial breeds are thoroughbreds and standardbreds. Of course Central Kentucky has a huge population of thoroughbred horses, about 10,000 registered foals. While the standardbred population is much smaller, it is large in terms of the economic impact relative to their size. They are commercial breeds while the other four breeds were more pleasure and lower maintenance.

We sent out about 1,000 surveys and we got a 28 percent response rate, which is a good response rate for horse surveys. The sampling units were Kentucky horse farms for all breeds except quarter horses and paints, which were individual breeders because we did not have any sort of farm information.

There were 501 thoroughbred farms. In 2001, based on the survey response, we estimated there were 516 thoroughbred foals lost—about 5 percent, which is not a terribly large loss. For the 2002 crop, foals that would have been born this year but whose mares aborted last year, it's almost 3000 foals—30 percent of the thoroughbred foal crop, which is a huge economic loss. Foal losses for thoroughbreds were much greater for the early-term fetal losses in 2001. These are foals that would have been born in 2002.

There were 28 standardbred farms and 718 registered standardbred foals in the state in the year 2000. Even though there are fewer standardbreds the percentage loss was very large, about 20 percent for each of the standardbred foal crops. Standardbred breeding operations lost a very large amount of their 2001 foal crop as well as the 2002. The overall foal loss from all the different breeds, but dominated by the thoroughbreds, was about a nine

percent loss for last years foal crop and a little greater than 25 percent for this year's foal crop.

Given this sort of background information, here is what we found the economic loss to be. First in order to construct the economic loss, we looked at the cost to produce a yearling. Included are broodmare expenditures—annualized mare replacement, maintenance, extra vet cost due to MRLS—stud fees, foal and weaning costs the next year and the yearling cost through the yearling sale in the third year of the cycle. Since there is no yearling sale revenue to cover any of these costs, they all represent losses to breeders, as well as to other sectors of the equine breeding industry in Kentucky.

The cost to produce a thoroughbred yearling over the three-year cycle is \$85,000, a standardbred yearling costs \$46,000—both very high maintenance, high cost operations. The total loss is computed by taking the loss expenditures, by the industry into the economy, for one foal and multiply it by the total number of lost foals. The loss to the thoroughbred industry was \$300 million. The loss to the standardbred industry was \$13.5

million. The standardbred loss is really larger relative to the 718 foals spread over 28 farms.

The losses in 2000 are about \$21 million, relatively small because that's the year the mares were bred but there were no weanlings or yearlings expenses. In 2001 the loss is from two separate foal crops. The loss is \$123 million, which includes expenditures for mares bred in 2000 to carry 2001 foals, the resulting expenses for those foals, as well as eight months of expenses for mares bred or rebred in 2001 carrying 2002 foals.

The loss for 2002 is \$137 million and includes expenses of two foal crops—yearling expenses, including sale costs for foals of 2001, mare, foal and yearling costs of 2002.

The projected loss for 2003 drops to \$55 million and include yearling expenses but does not include mare costs.

I extracted some standardbred information from our analysis that will break down the costs of raising a standardbred foal to sale. It costs about \$15 a day to board a standardbred mare and about the same to board a weanling or

yearling. There is an additional \$5 charge if the mare has a foal by her side. The charge for prepping a horse for a sale is another additional \$9 a day. We gathered numbers from actual market sale value and found that broodmare value is about \$39,000 and the yearling sale price is about \$34,000. Stud fees average about \$7,800. The cost for maintaining a broodmare is around \$11,500 and about 25 percent of the cost of producing a sale yearling. The annual depreciation of the mares and replacement cost is another 25 percent, so half of the cost of producing a sale yearling is in the factory, is in the broodmare. Stud fee is another 17 percent. The MRLS vet costs were \$700, which were incurred because of this disease to determine what was wrong and how they could get the mares back in foal for the next year, but most of the mares that suffered this syndrome didn't get back in foal. The foal/weanling cost is about \$4,500. To get a yearling to the sale is around \$10,000. So the total cost to raise a standardbred foal through a Kentucky yearling sale is about \$47,000.

As a businessperson, you want to look at the revenue that you get from your operation relative to the cost. The yearling revenue for Kentucky standardbred horses is about \$34,000 and it cost \$47,000 to produce a yearling so it doesn't look real good in terms of profit. In fact, the revenues

cover about 72 percent of the cost. In an ideal situation, you're going to get 72 percent of your cost back for selling the yearling, in this case you get zero. There will be no return on these foals.

To summarize, looking at the overall Kentucky picture for all the breeds that we surveyed—nine percent of the 2000 foal crop and 26 percent of the 2001 foal crop were lost. The total impact on all breeds in the Kentucky equine breeding industry was \$336 spread over four years, most of it occurring in the middle years—2001 and 2002. The Kentucky standardbred breeders lost 21 percent of each foal crop and the resulting impact on those breeders and the breeding industry was \$13.5 million spread over four years—truly a catastrophic event to the industry.

A few final comments. There are going to be fewer yearlings—that's an irrefutable fact, they can't be replaced. Because there are fewer yearlings the sale price for those yearlings may be higher at the sales. That might offset, to some extent, the loss. On the other hand, we don't know what caused this yet so breeders may be hesitant to send their mares to Kentucky to be bred. If that's the case, this could exacerbate the loss. The loss could be larger than anticipated. I was just reading that, for the thoroughbred

breeders, there has been far fewer foreign horses sent to Kentucky this year to be bred because of this fear of the event re-occurring since the case hasn't yet been established.

The University of Kentucky is undertaking research—there's a large grant to undertake this research—to isolate this cause. But if the cause isn't found, this loss could be a far greater than what we've estimated because it can go more than this four year cycle. People could just stop sending their mares. It may be less of a problem for the standardbred industry because of AI, but still a problem because you have to maintain those mares. Thank you very much.