THE UNIVERSITY OF ARIZONA
Race Track Industry Program

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NEW TRACK SURFACES

Moderator:
David Yount, Executive Officer; Iowa Racing and Gaming Commission

Speakers:
Bill Casimaty, Managing Director; StrathAyr Turf Systems
Michael Dickinson, Trainer, Tapeta Farm
David Hawke, General Manager, Planning & Infrastructure; Racing Victoria, Ltd.
Nick Nicholson, President & CEO; Keeneland Association, Inc

MS. WENDY DAVIS: I think we're ready to get started with "New Track Surfaces." I know Bill — I know we've been in a lot of these panel sessions with the track surfaces, boy, for the last what, 10 years? What was the average attendance in the room?

MR. BILL CASIMATY: About a quarter of this.

MS. DAVIS: What's really exciting for me, because I'm usually the person who introduces this panel, and along with Bill, there's probably others of you who've made each one. It's really gratifying to see so many people in the room, especially the middle of the afternoon on the last day, and that the track surfaces have reached a point where a lot more people than just those directly involved have found out and know how important they are.

So I think we have a fantastic panel put together for you this afternoon, and at this point I'm going to turn it over to David Yount, the executive director of racing operations of Evangeline Downs.

And from an operator's perspective, David knows what happens when your track isn't working for you. So he has a little different perspective maybe from the other gentlemen. And I think he's the perfect person to lead this discussion.

So David, thank you and appreciate you being here.

(Applause)

MR. DAVID A. YOUNT: Thank you. Good afternoon. It a pleasure to be here, and it is quite shocking to go see how many people are still here on Thursday afternoon. When I was asked to speak and moderate this panel thoughts immediately went through my head as to what in the world the Symposium would want me to moderate. Food and beverage? Interfacing computers with the racing world? Maintaining, moving and opening a new racetrack in a racino environment? Or better yet, what's going next door, "Handling Negative Publicity and Crisis Communications?"

Well, all of that I could talk about; but no, they asked me to talk about racing surfaces. And when they said that the past year of my life was flashing in front of me.

During construction of our new facility I would visit my future track almost daily, not only on the inside but in the barn area and on the racetrack itself. In fact, in early winter I drove on the soil after a 10-inch rain and it was like driving down the interstate.

The actual track was installed while I continued operating the existing operation, and the first of this year we moved into our new home, Evangeline Downs Racetrack and Casino; opening night February 5th, had unbelievable results for our first night of live racing.

We caused a huge traffic jam and actually tied up the interstate. It all started off really, really well; not to mention not only with the morning workouts but during live racing as well.

However, when it did eventually rain portions of the track became very slimy, almost like a pea soup. I really don't know how else to describe it. We had some breakdowns, but not any more than usual. After the first quarter horse meet had concluded we turned the barn area over and brought in the thoroughbreds.

Once again, all began as usual. However, a local newspaper reporter picked up that horses were being injured and being euthanized. To the common public this would seem a horrific event. But as we all know it's just part of our business. The reporter wanted to make a name for herself and just wouldn't let this thing go.

Once her story hit it created an onslaught of negative publicity and began feeding upon itself. Negative perception can be the cancer that takes over and festers and grows, and once it spreads it's over.

Were there issues with the track? Yes.

Was it unsafe, was it an unsafe racing surface? In my opinion, no. In fact, once the season was over we planned to research and correct any issues that were not right. However, we were not afforded that.

The jockeys and some local members of the HBPA were convinced that the base was compromised and they refused to ride, so we were forced to officially shut down the racing operation. We had to now remove all the entire racing surface from the main track so we could examine the soil cement base.

At this time I was in desperate need of professional help. I called both Joe King and Dennis Moore. I knew either man could come to my rescue. Joe was nice enough to evaluate our track composition but was unable to come due to previous obligations. I caught up with Mr. Moore when he was in England and he was able to schedule a stop on his way home and come to see me.

We found that the base was fully intact, with no signs of compromise. However, after Mr. Moore shot the base with the laser he found the base to have some waves in it. The installers of the track shot the grade every 100 feet as they do when they install highways, not every 50 feet as Mr. Moore does when he installs racetracks.

The results, peaks and valleys, not exaggerated ones but enough to cause inconsistencies and drainage problems. These inconsistencies were removed and a product mix change of the sand, silt and clay was ordered. These materials were thoroughly mixed and screened, which had not been done before.

At the same time, Dennis applied a six-inch cushion of crushed, or base of crushed limestone and had it compacted to 90 percent. The limestone serves as a filter strong enough to withstand equipment but porous enough to allow drainage.

The limestone was installed from the outside of the rail to the bottom of the inside drainage ditch. The next step was the addition of the track material itself.

He first laid six inches of the screened cushion and compacted it to 90 percent. Once again, this 10 percent allows for drainage. Next came the final three inches of screened material that serves as our top cushion. This results in a great, well-draining, safe racing surface, the type of track that now shines with very positive perception and one that no longer needs defending.

It's kind of funny now that I stand here in front of you to introduce to you professionals that are going to suggest just the opposite of what I did eight months ago. So with that being said — actually Mr. Nicholson asked me that the other day.

Our first speaker, Nick Nicholson, is the sixth president of Keeneland, executive director of The Jockey Club — or had been, I'm sorry, helped form the NTRA and was the first chief operating officer, he also was the executive vice president of the Kentucky Thoroughbred Association and the Kentucky Owners and Breeders, he also serves on the board of the NTRA, TRA, TOBA, Equibase, TRPB and the University of Kentucky Equine Research Foundation.

With that, Mr. Nick Nicholson.

(Applause)

MR. NICK NICHOLSON: Thank you, David. I first met David when he was doing all that computer stuff that he talked about, indeed he was very good. Wendy, if the horses could have a vote, if horses could be a delegate here at this convention I promise you this would be the most heavily attended conference, because there is nothing more important to horses than what we're about to talk about for the next couple of hours.

I see it every day; every morning horses absolutely flourish on this surface, and I think it's so good that you all are setting aside time to continue to talk about this important issue.

I could stand up here and tell you that these new surfaces that you will hear about can solve all the problems in the world and can look over every unanticipated happening that could happen to you, and you walk out of here you'll find out that tonight there are six inches of snow coming to the Cincinnati area, the Boone County, Kentucky, sheriff has said, "Close the roads," and said, "No businesses should be open tonight," so Turfway Park's not going to have racing tonight.

So we were going to end my presentation with a live shot of showing you what this looks like, and unfortunately we can't do that. I'd like to introduce our talk by just starting at the beginning.

If you believe that short fields and premature retirement of injured horses, horses perhaps being injured maybe more than is absolutely necessary, and if you believe that the industry staying attuned with the latest innovations of science and doing what's best for the horse is important, it's exactly where this next panel starts.

That's the foundation for everything that you're going to hear, not only from me but from these other fine gentlemen as well. We were tired of going to this panel and hearing these same things year after year, and so Keeneland decided that we were going to try and do something about it.

One of the great things about working for Keeneland is that primarily because of the Keeneland sales — people come from all over the world to buy yearlings or buy broodmares or weanlings at Keeneland, so we are — those people that work here are exposed to many of the greatest horsemen in the world.

And Rogers, Jeffrey, Russell, Harvey, all the people that work at Keeneland, when these people come will say, "Well, what's going on in your part of the world? What's the most exciting thing happening? What's the greatest innovation that's going on in your part of the world? What's the best racing surface in your part of the world?"

And that's where we first met Polytrack. We heard about Polytrack through those contacts. Rogers immediately went to England and began to explore. We brought some back, we put a track out or a square out in the back of our track, literally in the backyard of our track superintendent and watched it for a year, all four seasons.

And Rogers and our track superintendent went back and saw Lingfield, went to Newmarket and walked the gallops at Newmarket and that's how we became such rabid sponsors and so excited about this, so let's get right to it.

I'm going to try and do a general overview of a Polytrack surface; we're going to show you the Keeneland and Turfway installations. We had a lot of questions about that, I know you're interested in it so we're going to show you what we did, tell you what we did.

We're going to show you generally. We're very young into this, we're much younger into this than the other people on the panel, but show you what we've learned so far, and then we've done some market research from trainers asking their opinion about what's going on.

What is Polytrack? Simply, Polytrack is an entire system comprised of a unique top surface and a specially-designed vertical drainage system, all of which work in tandem to create a safer, more consistent racing surface; how's that for a definition?

Let's start with the top layer. You've got several inches of sand, synthetic fiber, recycled rubber. All of these materials are weighed to a recipe when they're put in and mixed, and then they're given a wax coating; that's very important. It changes the way that the tracks drain.

I'm letting you read all this so I won't just read to you all the way through. And then the combination of materials provides a safer, more secure footing. It builds confidence in horses, they become very trusting of the surface because the surface is worthy of their trust.

Underneath the surface that you see is a critical part of all of this, and that is a vertical drainage system. This is one of the major differences in these synthetic surfaces than the traditional dirt surfaces that we've all raced under for so many decades.

The system is comprised of a layer of porous macadam and then some clean stone base, drainage pipes that use the pieces together along the cross drains every few hundred yards which capture the water just as you would with a storm sewer system, and manages the water, takes the water away.

The vertical drainage system really requires that you begin to think totally different about so many of the basic structures of track management and track superintendents than you have before. This is what I said earlier about how we found Polytrack.

We found it by asking people questions, and Rogers' trips to England, his visits with Martin Collins and Peter Amos, who some of you may know, who's played such a

dramatic, important role in the evolution of track surfaces in England, particularly in Newmarket. We also visited a number of other places.

Martin Collins is the inventor of Polytrack and he's our partner in this in the United States. He's been involved in this for 30 years. He's a consumate tinkerer and has been certainly one of the worldwide leaders in this movement.

Let's talk a little bit about what we learned and what we did at Keeneland and Turfway. The first thing we learned is that you've got to plan this and you've got to pay attention to weather, pay attention to climate when you're building a new installation, don't just go into it without thinking about that.

The expense, we're learning, varies. The largest ingredient in these materials is sand, so the number one question of cost is, "How much does sand cost delivered?"

And so there's some variance.

Also, with these days of fluctuating oil prices the wax can vary some, too. We set up a temporary facility to make the top layer in addition to the drainage systems. And then there's a difference depending on what you're trying to accomplish with your track. And we found that you can do this, give or take, in 10 weeks.

We did the Keeneland track, as you'll see, in a little less and the Turfway track in a little more. We started the Keeneland track on June the 30th, we finished it on September the 4th. Eight full days were lost to weather and other interruptions, and parts of 13 other days, so you get an idea. That's about nine weeks with some interruptions.

We began Turfway on May the 6th of this year, we finished it on August the 3rd. We actually finished it a little bit before that, but horses were on it August the 3rd, started racing in September. And so if you go from May to June it's about 12 weeks that you see.

The first step in one of these is the removal of the existing surface. That's what you see there on the left. On the right is the picture of us making the material on the backside of Keeneland.

On the first morning that this crane was producing this material, about the left-hand third of this was up on that night, looked like a pyramid, it had peaked and was just coming off the thing.

I was so excited; it was the first day we'd done it. I was so excited about it. I went home, Susan and I talked about how great it was and all that; and then one of these Kentucky storms came up like they can come up, and the wind blew and it rained all night long.

And every time I'd wake up it was thundering and lightning and the wind was blowing; you could hear that howl, and I knew we'd lost everything we'd made the first day. And I knew it would be scattered all over.

And I said, "Well, we've lost the first day and we'll just have to see what happens."

I couldn't wait until dawn to rush out to Keeneland to see what it looked like. And I will never forget coming over that hill and looking, and there was the pyramid. I couldn't believe it.

And then as I got closer to it it hadn't even washed away. There weren't any crevices, there weren't any ridges, there was no washout at all. And that's the day where I just became convinced this stuff is the real deal and it's amazing stuff.

And it still holds. After you get the base down we start with the dense grade aggregate, that's what you see there on the left. We then put in the drainage around; you see some of it goes around and then it will cross; on top of that we'll have a layer of clean stone and then the porous macadam.

David's right; if you talk about laser, every inch of this is lasered. These straightaways are dead flat. One of the great things about vertical draining as opposed to horizontal draining is that you can have dead straight flat straights, and when the water drains vertically the track is extremely consistent rail to rail, you're not constantly trying to manipulate the moisture to the inside or outside drainage.

And then the macadam goes over the top of the clean stone. We were cynics a little bit, I must admit, so we pulled the water truck out and tested it; and we were also happy campers when we saw the water pouring through the drains in the middle of the track. Took about four minutes from the water truck to the drain.

Then on top of all that goes the Polytrack surface itself. We stored it in the middle of the track, you get an idea of the size of the way these dumps truck worked. And then horses began to run, to train on it almost immediately.

What we have learned. We've learned that the long-term results from Europe where this surface has been tested, and the short-term results from what we personally know, we feel very confident saying that this surface is much, much, much safer for horses, and if it's safer for horses it's safer for their riders.

We have a few specific facts. From the time that Turfway opened on August the 3rd until five minutes ago — I asked Bob on the way in here if it was still true, it hasn't had any ambulance runs during training yet, there were no catastrophic breakdowns during the September meet or so far this one, and then the DNFs, for whatever reason, across the board were reduced 50 percent. So that's the first meet that this has been under.

Each Polytrack installation is unique; you can't just make one size fits all on this. You have to take in elements of the climate, where you're building it and what the primary purpose and usage is.

The Keeneland training track, which is a five-eights of a mile training track, has a very different use than the Turfway Park racetrack or Keeneland's racetrack or any other racetrack, so you have to be aware of all this and plan from the very beginning.

Safety is always one of the primary reasons, the primary reason we're doing this: The Turfway Park surface was built for this winter racing season. Those that have tried to keep a track during January or December, January, February and March in a northern climate know just how difficult that is, and that was our primary goal for Turfway's track from a climate point of view.

Recognizing that Kentucky has four distinct seasons and its use as a training track, which is different than Turfway's, was our main goal at Keeneland.

Here's something that's very important. Polytrack is easier to maintain than a conventional dirt track. I say that without fear of contradiction. But I think that we may have overstated that sentence or simplified that sentence.

It's extremely important to understand fully that that does not mean that it's maintenance-free or that does not mean that you need a competent track superintendent and a very competent staff that's paying attention to this.

Yes, it's easier, but a good track superintendent is critical to the success of a Polytrack surface, just as it is any other surface. We're learning that Polytrack has much more continuity, is much more stable in varying different kinds of weather.

We know that it takes less manpower, we know it takes less equipment for grooming during the races, we know it requires fewer materials for maintenance and upkeep, and we know that it does require some special equipment.

You don't use the same harrowing equipment that you do on a dirt track on this, and so you need to know that going in. So while it is less, it is not maintenance-free and the track superintendent is still the critical person going forward, and his competent staff, in maintaining this.

The cost. One of the first questions we always get is, "What's it cost?"

And we all would like to just say, just give you a number and cookie cutter it, but these are not cookie cutter projects, and so the costs vary, in our opinion. And it's all due to materials and of course labor, but due primarily to the cost of materials.

Turfway Park, in taking a very narrow definition of ROI, expects to pay for its surface in about five years based on reduced maintenance, but also based on the

number of days saved. I feel a little silly saying that today up here. But that's sort of our projection.

You also can redefine ROI, you can have a broader definition of ROI or a little more aggressive one that would include increased handle, if it's true that increased size of fields begets increased handle, so far at this meet Turfway's field size is up almost two full horses compared to where it is right now.

Bob is averaging 11.4 horses, numbers that he hasn't seen in a long time, and he's up double digit handle increases. So that would be one way to broaden an ROI is that if it's true that the field sizes would be larger, the races will be better, more people will bet on it. We'll see.

We will all watch all that together this winter, but that's where we are as of Thursday afternoon. We also think — Keeneland thinks that it's fair to define ROI in even a broader perspective, and that is what's good for the horse.

If we can save horses' lives, if we can make owning thoroughbreds a little more economically sensible, if we can keep horses from prematurely retiring, so that our champions can get longer amounts of time inside their fans, we think that's a reasonable ROI, although it will be hard to document on one track the specific bottom line, but as an industry as a whole will get an ROI through this surface, through these types of things as well.

So far at Turfway, it's been very competitive racing, is a conclusion that we've been able to reach from September and the first few days of December. So you combine competitive racing and safety, that's a good one-two punch.

We thought you might be interested in some statistics that we've learned so far at Turfway and Keeneland. If you take the last, the early returns at Turfway based on horses that are training on Keeneland's training track, they made 25 percent more starts and won 80 percent more races than the same stalls did the previous 12 months.

I'll have to tell you that I didn't believe those numbers, and when they started coming back I kept saying, "Check them and recheck them and recheck them." And those are the real numbers.

The field size for September went from 8.5 to nine, the average field size as of December 4 is 11.2; as we sit here today it's 11.4. We had 200 entries on Saturday.

Bias. Looking at that, eight different post positions had at least 11 winners. And as you see from front runners to deep closers, there's a reasonable mix, much different mix. Turfway has been historically a very, very speedy racetrack.

Sprint races, the same thing. Five different post winners had 10 winners, five different posts had 10 winners at the same 31, 49, 17, same kind of closings.

As an overview, we think it's fair to say that we've had very encouraging results. We should also remind you that these are considered test sites. We're going to continue to monitor them closely. I should say — back at the beginning I should have said from day one among the criteria that we placed on ourselves when we were looking around the world is we wanted a surface that had been tested in public, that had had horses racing on it in public, that both the press, the media, horsemen, trainers, jockeys could all scrutinize the system, and we wanted to do our laboratory, if you will, and our experiment in exactly the same light.

We told the industry what we were going to do, we told them where it was. We didn't put a fence around it, it's open 24 hours a day. We've invited people to come and we're all going to learn together. But we knew if it flops we were going to flop in public; we were all going to look and learn at this together.

We want to do that so that everyone is able to see and come to the same conclusions we do, and that also we want input; we want ideas, and the more people that look at this we think the better.

And that's why we're approaching this as an experiment and ongoing learning. We did some research. We employed the Matrix Research Group because we knew if we went to trainers we might get biased fans, so we went to a third party at the end of September and asked the Matrix Group to ask the trainers what they thought.

And as you know, sometimes when you ask trainers what they think, they'll tell you.

(Laughter)

Sometimes they'll tell you even if you don't ask them.

(Chuckles)

We talked to 47 trainers, so that's the set in here. We did first week in operation and the experts say they're 93 sure it's probably minus 8.3, whatever that means.

We asked the question to the trainers, the drivers, "Do you feel Turfway's Polytrack surface is safer than other racetracks' surfaces?"

Eighty-six percent said, "Yes."

That was our first, "Wow."

And in some of the verbatim comments that were taken of this: "It's a very safe track,"

"It's a uniform track."

"Reacts well to weather."

"Takes some of the unique equations out of racing."

"It's safe."

We have to see if it holds up through a freeze."

Well, we'll find that out tonight, Bob.

"It's good on horses, they last longer and don't get injured."

"It's easier on your horses."

"It lowers your vet's bill."

"Allows more starts."

Those were the quotes from the trainers.

We asked them another question: Do you feel the Turfway Polytrack surface is bias-free? Ninety-four point-seven percent said yes, and that — if we asked the question this time last year on Turfway's, it might have been 94 percent, but it would have been no, not yes. So this was another amazing, we felt, endorsement.

We think that one of the interesting things will be, and Michael certainly has a head start on the rest of the American trainers on this, but how will you change the way you get a horse ready to run on Polytrack?

We suspect — I want to ask this question a year from now and see. I think this answer will change, but right now they say — 70 percent said no, they're not going to change the way they are, 30 percent said yes, they are going to change. I bet that number will change but that's where we are today.

Of the 30 percent who have changed, they said they're galloping for longer distances. They don't miss training due to track conditions. We think that's going to be a big deal. They train their horses harder on them, work them once a week instead of once every 10 days. You see that kind of thought process beginning to evolve.

We asked for negatives; you've always got to be negative and you've got to stay objective about this. This is still a learning process. What don't you like or what do we need to improve?

One of the comments is that there's more kickback than expected, and some of you may have that same opinion or heard that same talk. There's been quite a bit of talk about that. We probably start with looking in the mirror on that. We have oversimplified and oversold this whole kickback issue ourselves and blame it on

ourselves a little bit. We think that the kickback issue will evolve. It's a situation that is a combination of a new track, a combination of weather, combination of learning how to work the track which is critical to get that experience.

I can't emphasize enough how important the track crew is in all this. But that was one thought. And then they also believe that it would tighten up in the very near future with rain, additional watering and so on. September in Kentucky was the driest September in decades, and this is a brand new track surface and it had no time to settle whatsoever before horses were running.

So by and large we felt like the overall feedback was positive. We were happy with the emphasis on safety, 86 percent felt the Polytrack surface is more favorable than a conventional dirt tack, and 95 percent felt it was bias-free so that their horses had the best chance to be themselves, to give of their best no matter what their style, and 86 percent felt it was safer.

It's hard to get 86 percent of trainers to agree on Christmas.

(Chuckles)

So with that I thank you very much for your attention. We're going to continue the experiment. You're each invited to Keeneland, you're invited to Turfway. We're very committed to continue to stay on top of science, to do the very best that we can to provide better and better surfaces for the safety of these great thoroughbreds that race with us.

Thank you very much. Thank you.

(Applause)

MR. YOUNT: Thank you, Mr. Nicholson. I should have told you when we first started, we're going to have the first hour for dirt and the second half for turf. Mr. Nicholson, since due to the weather has to jump on an airplane, and so instead of waiting to the end when he won't be here to answer any questions, if there would be a couple questions for him to answer?

MR. NICHOLSON: Must have been a brilliant presentation.

MR. YOUNT: Thank you very much.

MR. NICHOLSON: Thank you all very much.

MR. YOUNT: Next I'd like to introduce to you a gentleman who was originally from Great Britain; Andrea's going to kill me because she'll have to knock him down on the way back, but I have to read what I have to read.

This gentleman is a champion amateur steeplechase rider, a champion steeplechase trainer for three consecutive years. He was elected in 1993 into the Steeplechase

Hall of Fame. He is in the Book of Guinness World Records four times, including the most wins in one day, 12.

Since coming to America he has won the Breeders' Cup Mile twice, he's a member of TOBA, Sports Turf Managers' Association, Sports Turf Research of the United Kingdom and is involved in the Maryland Equine Development Association.

Ladies and Gentlemen, Mr. Michael Dickinson.

(Applause)

MR. MICHAEL DICKINSON: Very, very impressive statistics there from Polytrack.

Basically the trainers are in 85 percent agreement on this next set. That's very difficult. It was once said you couldn't get four trainers round the table to agree that a black cow might give white milk.

(Chuckles)

And to have an 85 percent success rate is brilliant. Tapeta is the Latin name for carpet. Tapeta Farm is our farm in Maryland, and the Tapeta Footings, Incorporated is run by my wife, Joan, and Andrea. And they produce synthetic surfaces for racetracks and indoor and outdoor arenas. We're halfway between New York and Washington, D.C., and we train 40 thoroughbreds, and we're on the north end of the Chesapeake Bay.

We're just training some grass horses, we train 40 all together. And outside Tapeta we're the track. We put this down in March of 1998, so it's been down eight and a half years. And you'll see there's very little kickback, and the horses are comfortable on it. They stride out, they enjoy it. It gives them comfort.

If there's one word I would describe it between the horse and the Tapeta track it's confidence. That's just our barn early in the morning. What's wrong with dirt tracks? Well, I want to start by praising the track superintendents. I don't know how many there are here.

We have actually one of the most famous track superintendents in the world, Joe King, and we're very honored to have him here in our audience. But I know a lot of these track supers, and they're terrific people. They do a good job, they work very hard, they're very competent, but they still get a lot of criticism.

And in just about in every instance it is not justified. They're just having to work with a track which is basically using technology from a hundred years ago. Farming in the last 20 years has had to re-invent itself, even Las Vegas has re-invented itself over the last few years. So those are all the problems we deal with on a day-to-day basis.

I have here actually five pages of quotes from owners, trainers, jockeys, scientists and veterinarians that all say tracks are bad news. I've got three pages of quotes from track superintendents, one here from Lord Joe King himself. A further complication is that there are few formulas that can be followed religiously. And that's it.

They're so unreliable. You have a perfect track one day, nothing changes and you get the next day it's a different track. In the perfect world we should chop Joe King up into a hundred little pieces and have him managing each track, but we can't divide him up into a hundred pieces to do that. But it does take an awful lot of managing. And even with a really good person we still have bad tracks.

Now I'm going to put on my lawyer's hat and call witnesses. And these are famous people who say dirt tracks are bad news. Now I'm putting on my scientist's hat and producing statistics that a lot of injuries are track-related.

There's some fairly horrific things, I'll just go through the track side. And unfortunately this was this year, 55 horses euthanized in 10 months. We've got to do better than that. The modern thoroughbred is delicate. We're always going to get injuries but we must try and cut them down.

These are just studies monitoring injuries. Joe, there's one of your tracks there and your track actually came out very well. But we do tend to have more injuries on dirt tracks, even when you've got a brilliant track superintendent. The studies there? Japan, Australia and the U.K. will show that there are less injuries in other parts of the world.

So fortunately we have a solution. It's not a revolution, it's evolution. These are the advantages of Tapeta, and they're many-fold. You see on the third group down there is toe grabs. I'm sure you've seen this, I tried to show this around the audience before, I'm sure you can see these are toe grabs and stickers.

If you were a jockey lying on the ground in a race, do you really want these knives sticking into you? And of course you don't.

In England, Ireland and France even oversized nail heads are prohibited for the safety of the jockey. A lot of the American trainers believe we have to use these on dirt tracks because the horses slip. But with Polytrack or Tapeta, we don't need these.

So number one, we're making it better for the jockey. There they are, you can see them, hopefully. On the second is there are papers out in California by Sue Stover and Dr. Albert King, all saying that toe grabs and stickers cause three times more injuries than plain shoes, and are 16 times more likely to hurt a suspensory.

I was a trainer. One of the worst injuries we can get is a suspensory. So it would be my wish when the tracks do change to modern synthetic surface that we just go for plain shoes. But all we want is a safe track and a level playing field.

That's just a cross-section; we have seven inches of Tapeta on top of a porous membrane, lots of drains and pipes. It drains very, very well. So you need big pipes and lots of pipes to take that water away.

The next thing is, I've told you all the good, what about the bad? Where's the catch, Michael? Nothing's all good. Well, there are three things, there are three problems. The Tapeta surface will not make a slow horse fast. A slow horse is a slow horse is a slow horse.

The next thing is it will not eliminate injuries. Forget that, we all have injuries. But it will definitely reduce injuries. And if it can reduce injuries by 10 or 20 percent, that's huge.

And the third is, although we call them all-weathers, we can't handle an ice storm. If there are big icicles on all the trees and all the fences and that gets into the track, we can't do it. We've had it down now for seven years and we've missed about six days in seven years. So we don't miss as much as a regular dirt track but we do occasionally when it's really cold and we have those ice storms, we do miss the odd day.

My father said, "Never say never, never's a long time." This is just last month we did a dressage arena, a jumping stadium, and this is a training track we're doing in Pennsylvania.

There it's the blacktop, obviously for drainage, open textured, and they were putting the six inches of our cushion on the track there. That's our old track, and that's been down now for six and a half years, seven years, whatever it is. And it's still in good condition.

I mean, the thing that's really surprised us is it's actually got better with age. We top it off with a tiny little bit twice a year. When we put it down we loved it but we didn't know what it was going to be. And it has actually got better with age, not worse.

And you see the horse stays moving, he's flitting his toe on, he's happy, he's confident, he's almost moving like a dressage horse. Easy to maintain. That hoe we use, we don't even need a tractor as big as that. That's too big. You want a smaller tractor with flotation tires so we'll get compaction.

And there's the harrow, it's simple, straightforward. I only have a narrow track, I have a narrow harrow. If I had a wider track I'd always have a wider harrow. And that's all it is. Straightforward, simple. We don't need all the heavy artillery that we need for an old fashioned dirt track.

This is important, this is on the 14 percent grade. And never has it washed, however many hurricaines we've had it's never washed; this is front for lake front,

because we're going to talk about banking turns. That's — I hope you can see clear enough, it's not really a hill but it is an incline. And that's never moved once.

This is Dr. Pratt from MIT, I'm sure most of you are familiar with him. He's been working on racetracks for 25 years; and that's just a little bit about Dr. Pratt. And this is what he said about Tapeta.

We'll just go to the top and, "Fantastic, it's like living on a living room rug," and there's a whole lot of science. And if you want any specifics, if you go and see Andy afterwards at our booth, if you give her your business card she'll mail you all these things.

At the bottom horses working on the Tapeta surface will experience one-half the impact compared to horses working on a conventional surface, so that's just the summing up of it.

Banked turns. There's no doubt at all it's much safer for a horse on a straightaway than around the turn. So obviously we can't just race on straightaways so we have to go around turns. This is an amazing slide for one fact, and that's the date, 1946.

New Zealand, to the best of my knowledge, have never sent anybody to the moon. It's thought that we're the greatest nation on this earth; 60 years later and we're still talking about banking turns. We refer to it as a banked turn, surveyors like to call it superelevation. This is actually a turf track and it's been a big success.

This is Dr. Pratt's comments on banking turns. Let's just go to the last, the last sentence there. "When you have a non-uniform loading base you're on the road to ruin."

And it's easy. How much do we bank a turn? There's a well-known formula, an old one; you have to give them, the scientist is given the radius and the speed at which you want to go around the turn.

And we have Joe King again. I didn't know you were coming, Joe, you've been quoted about four times in my speech. This is comments from famous people. Joe King says banking is a safety issue. We all knew about banking turns in the early '80s; George Pratt and some other scientists said you must bank the turns. They said at the moment, "Never once is a horse breezing on the perfect grade." The straightaways should be up so they're perfectly level.

Now we can't have them level at the moment because we have to tilt them to drain, so most of the straightaways should be perfectly flat; but they are three percent top drainage.

The turns should be banked about 14 percent. But we can't do that. You know, if we bank them 14 percent, after the rain all the cushion would wash to the inside rail. So we knew we should bank our turns but we just couldn't do it.

These are all old quotes from people telling us to bank the turns. This is a turn we did 17 years ago in England. About that top corner is the subsoil which we graded, and that's the sort of nearly when it's finished, and we banked it up, I think, 12 feet higher on the outside than the inside.

That's my mentor Jeffrey standing on the top of the turn there. And that's the finish turn.

Now we were told to do this bank 14 percent. We only did it eight, because we were nervous, we didn't want to go over the top. We felt eight percent would be better than nothing. I didn't want to go — we weren't just brave enough, but we were told to do it 14 percent and we did it eight.

That's been a huge success. The horses just float around it, you don't have — the jockey doesn't have to yank them round. The jockeys love it because the horses feel comfortable and it's easy for them. And the track super loves it because there's hardly any divots.

We all know that turf tracks get more dug up on the turns because of all the torque, so this was just proof that there was less torque on the banked turn than there is on the straightaway. So about eight percent. But we should theoretically do it in 14 percent.

So if we accept that dirt tracks maybe aren't perfect, what proof have I got for you people that Tapeta is better?

Well, I've got three things. One is Tapeta — sorry. One is Dr. Pratt. We've got the scientist there who's measured it. What was the first one, Andrea? The three reasons.

One is Dr. Pratt. How else can I prove to you that it's good? I want you to go to our booth and your hands and your feet hopefully will give you the right vibes. If you stand on it, it feels good, it feels stable, but it feels forgiving.

And when you pick it up in your hands it's — you're all horsemen — I believe that you'll feel that this feels good. Don't take my word for it, you go and run on it yourself and play with it.

So by your hands and feet, we've got Dr. Pratt, and we've got the most important witnesses of the lot. These are horses who were trained on dirt tracks, and by good trainers, but they were basically claiming horses. And we started training them on the Tapeta and they just improved.

The bottom horse there, Jackson Zack. Forty-four losses, consecutive losses. Have any of you had a horse that's lost 44 races? You know, not many of us have. And he was a lovely old horse but he'd lost his confidence.

He came to the farm, he started three times and he won two of them.

Sick As A Parrot, the second horse on the bottom. Not a very nice name but a lovely horse, lost 17 races consecutive before he came to the farm and been running at $10,000 claiming races, and his first race for us he won a stake.

So those are — there's my evidence. Is Tapeta better than a dirt track? And I thought so. This is our weather for the last eight years since we've been there. We had 12 weeks without rain, and we never watered the track. In fact, we've never watered it in the eight years that we've been there.

The most telling statistic is in the middle of the green, 12 inches of rain in 12 hours, Hurricane Floyd, and the track was fast; and the temperature range. Some of you people approached me about putting this down in the desert, you know, how would it handle?

Well, we go to 110 and we go down to minus 17. But before I put it down I did four years of research and Andy and Joan have done another six months of research this year.

But when we try our new samples we stick them in the oven at 200 degrees for a week. And then we take them out and we stick them in the deep freeze for a week. So we do lots of testing. So I'm very confident if we put it down in the desert it's not going to be a problem. The only problem would be I'm dead scared of snakes.

(Chuckles)

Finally, a lot to read here. These are 5-year-olds in Europe training on kinder surfaces who won graded stakes. We have 8-year-olds over here winning, but usually stakes horses; the ones as good as they are, they're winning a $10,000 claimer.

The only thing you really need to study here, this right-hand column where it says five-five-five. That means that a 5-year-old beat a 5-year-old beat a 5-year-old. Go all the way down to the bottom and this is a grade one sprint. A 9-year-old beat a 7-year-old beat a 3-year-old. This is so important, Nick mentioned earlier, for fan interest.

They love these old horses that they know; so often we have a new superstar, he wins three races. We all write him up, we all say, "Wow, he's good." And then he's retired. These are more horses. These are five years old or older who won graded stakes. The bottom one there, the Irish entry is a Grade One; a 7-year-old beat a 9-year-old beat a 7-year-old. These older horses are really popular with the racegoers.

And these are 10-year-olds. Ten. I mean, we occasionally have a 10-year-old but not performing at the top level. The list of runners is striking only from an American perspective.

This is the norm in Europe, a parallel list of all the winners of graded stakes in the U.S.A. will contain only a fraction of the names. The blame lies with the American training and racing conditions that lead to unsoundness in the horse. Harder surfaces cause greater concussion. Few American runners win graded stakes because few can stay sound in our much tougher conditions.

Bloodlines are completely international at this point so it's the same breed running across the globe. But we seem to have a virtual monopoly on unsoundness. Just ask any American trainer about his daily battle with the conditions and subsequent injuries.

The good news, we now have the technologies necessary to make significant and permanent improvements to U.S. racing. I'd be delighted if you want to visit Andrea at the booth and she can give you the hurricane test where we just dump gallons of water on it and anything you want.

Thank you very much.

(Applause)

MR. YOUNT: That you, Mr. Dickinson. The next gentleman you will hear from is a general manager of planning and infrastructure at Racing Victoria, Limited, the principal authority for racing in the State of Victoria, Australia.

He has been with Victoria since 1996 and as of 2002 is responsible for the infrastructure spending on the 56 racetracks throughout the state. He heads up the research and development program on new track surfaces and maintenance techniques.

Ladies and Gentlemen, David Hawke.

(Applause)

MR. DAVID HAWKE: Thank you for that introduction, David. And it's really great to be here in Tucson. It's a conference that I've heard a lot about over the years, and this is my first visit. And it really is great to be part of it.

I'd also like to thank you for the opportunity to talk about an important, expensive and always controversial issue, and that of course is the tracks that we race and train our horses on.

A little bit of background on Racing Victoria. As David alluded to, we're the principal authority for racing in the State of Victoria. Fifty-six racetracks, 40 training centers, we have about $200 million in revenue streams that we distribute to our 55 race clerks in Victoria.

I just want to put in context one of the key differences with racing in Australia is that I'm probably one of the few people in the room that works for a not-for-profit

organization, but it is a key theme that you'll probably see flowing through the presentation and a key issue in our philosophy.

But proprietary racing is illegal in Australia, unlike the U.K. and the U.S., where it is the norm. So there are no privately owned racecourses.

And that gives us I suppose a slightly different philosophy in the way we approach this particular issue.

Nick gave a fantastic presentation earlier and he's obviously had some important moments in the last few months with racing commencing on the Polytrack. We just recently started racing on our synthetic track. This is the first race on ThoroughTrack, which is our product, our synthetic racing product in Australia. They jump to the right, they go righthanded in Canberra.

This is a track we built for the Canberra Racing Club. And this is an interesting case study because this is the main day of the year's Canberra Cup Day. And the turf track actually failed on this particular day. The turf track came up a bit too high.

They had a shower of rain in the morning and the meeting was postponed; the last two races of that meeting were postponed. We put this track in for Canberra because they were going to reconstruct the course proper, the turf track.

And you'll see the horses coming around the hind turn here, and you'll get a good view of the kickback, which is very, very low indeed. When we put this track in in preparation for the reconstruction of the course proper, and while the course is going to be reconstructed, they're going to be racing on this surface throughout the duration of that reconstruction.

You'll get another view of the finish in a minute. And you'll just get another view of coming around the hind turn which gives you a better view of the kickback and the way the track works.

The ThoroughTrack is a sand-based track, it incorporates a wax coating and an elastic fiber. We buy the highest quality components that we can source worldwide. Doesn't use any waste products, satisfies all environmental protection authority requirements, requires minimal maintenance, very similar to the other two products that you've seen today.

No watering. And as you've seen on the video, virtually no kickback. The track is highly uniform, recording uniformity modes in excess of 80 percent; and provides a safe and comfortable surface for horses.

It measures in the range of 60 to 80 gravities by Clegg hammer, and that's an impact hammer. And I'll explain a bit more about that later on. And that equates to a turf track that is on the yielding side of good. So it equates to the ideal track.

So that was the video. This is our first ThoroughTrack that we built at a track called Seymour, one of the country venues, and this is a training track. It's about a mile oval, about 20 feet wide.

This track has been down, this is our first track we built and this has been down now for about 20 months, and it has only had basic maintenance since being laid. It's measurement performance in terms of hardness, sheer strength and moisture content is the same now as when it was installed.

The surface is laid with a paving machine to ensure uniform depth and consistency. This is the finished product ready to ride. And that's up close to the surface.

We only use one type of elastic fiber in this track, which is produced to our specifications to make sure that we get the most homogenous mix possible. We tested a number of different types of fiber, including rubber of varying sizes, other recycled materials, and in the end we determined that this particular fiber was the best for our conditions.

I stress, as Nick did earlier, that these tracks really need to be tailored to the conditions that they're going to be used in. So I guess the question, first question is, "So why have we gone to the trouble of developing our all-weather track?"

And I guess like most racing jurisdictions, we've had a long and sometimes painful history of buying and testing just about every available track on the market and ultimately being disappointed with their performance in at least some areas. At least doing it this way we've only got ourselves to blame if we don't get it right.

But principally I guess it's due to the following factors: The high cost of commercially available products, limited supplies, and a lack of genuine competition in the marketplace.

Now, luckily this is rapidly changing. But it was certainly a factor in our thinking two or three years ago. We were paying up to $70 a square meter for some synthetic tracks and yet we built our own track with superior quality components for less than $50 a meter. So that's the fundamental reason why we went this way.

The lack of performance warranties and more crucially a lack of understanding of the fundamental performance parameters of tracks by some of those companies that were selling them. Essentially you're being asked to buy the magic pudding without getting the secret formula.

So we weren't satisfied with that approach and I'm glad to see that that is changing now with the modern tracks coming through. The performance, track record and staying power and supplies varies considerably; many arrive quickly and disappear just as quickly.

In our experience performance is generally oversold and maintenance costs undersold. By building our own track we can tailor the product to our own unique circumstances and not have to accept the generic product.

So I guess the keynote message from me is to use, to invest in expertise. Your own expertise, not someone else's. Each jurisdiction has a different story about how its tracks have evolved. Many racing jurisdictions are examining alternative surfaces to turf and dirt because of a variety of reasons. These include weather, cost of maintenance, concerns about the impact different racing surfaces have on the horse, and the overall viability of racing itself. Others are looking at the diversity of program offering an alternative surface can deliver and the attractiveness of the racing product.

So let's take a look where some of those jurisdictions are headed in respect to alternative racing surfaces? In the UK and the East Coast of the U.S., consistent year around racing on turf is not possible. Most Asian Racing Federation countries do have favorable conditions for turf racing, and the driver for all-weather track racing in Asia, particularly Australia, is principally economic, but also horse welfare concerns about some of the training surfaces that we use, and also water shortages due to drought conditions are the main factors driving change.

Look first at the UK, an all-weather track racing commenced at Lingfield in 1999, firstly on Equitrack, which I think you might have had some experience with here in the U.S., and then from 2001 on Polytrack.

Wolverhampton started with five percent in '93 and then changed to Polytrack in 2004. And a number of other venues are planning to install all-weather tracks for racing in 2006; although whether these go will ultimately depend on the allocation of enough fixtures to ensure their viability.

In the UK it was interesting to see how all-weather track racing has become an accepted part of the fixture and subsequently grown in popularity both with trainers, jockeys and the wagering customer. It now comprises a quarter of flat racing fixtures with field sizes growing from 9.8 to 11.5.

And the Europeans have also developed an all-weather championship at various locations throughout Europe.

Many better horses are now doing their early preparation on these surfaces prior to the turf season commencing in late March and early April. In the U.S. while I'm sure you're pretty familiar with the story, we heard it from Nick earlier on. I was at Turfway Park last Saturday, I attended the training in the morning and I attended the races that afternoon.

In talking to the trainers and jockeys, they're certainly enjoying the surface, and I guess you'll know more at the end of February when it's made it through the winter. But certainly the feedback is very positive at the moment.

In Asia the ThoroughTrack you've already seen, but it is very early stages for synthetic races in Australia. These surfaces are mostly used for training at this point in time, and virtually a hundred percent of their racing is on turf. So what we're in the process of doing at the moment is completing a feasibility study into twilight synthetic track racing.

But I don't think long term, it's not likely to ever be more than about 10 percent of our racing. And there you can see the mix of surfaces that are in use throughout Asia. Sand, sand and dirt, but predominantly turf.

In terms of cost comparison, this is the results of a review we conducted recently on some of the tracks we've installed over the years. And it provides some interesting reading. We incorporate installation costs, annual maintenance costs and refurbishment costs and frequency over a 10-year period.

While grass is not the most expensive surface it has quite considerable utilization constraints which raises the effective price quite considerably. Sand is the cheapest surface but it's the hardest on the horse, and uses a significant amount of water which is a key concern for us in Australia, and one of the key factors driving the installation of more synthetic tracks.

For the same reasons, which is it was a difficult surface to manage in Australia. The amount of water required throughout summer is too much for us to cope with, U.S. dirt is the most expensive in Australia due to the maintenance time and the water required. That leaves the ThoroughTrack, which at the moment is delivering value, it's the most cost effective when asset life, utilization levels and horse health is considered.

We live by a saying that racing Victoria, and it's the same that you'll be familiar with, and that's if you can't measure it you can't manage it. And I can't emphasize this point enough.

But the key to demystifying synthetic track product is to be able to measure every possible aspect of its performance. And at the end of the day when you've written out the check and paid for your track, it is the only way that you'll be able to keep your supplier honest as well.

I have one full-time member of my staff whose sole responsibility is the measurement of tracks and the collation of data, and this is a key input to R and D exercise. In the main, we look at hardness, shear strength, moisture, and temperature, which are the top four there.

We measure hardness and gravity, shear strength in kilograms of force and moisture in volumetric percentage, but the bottom three are actually the most important as they reflect the consistency of a track, and that is the critical issue.

If you're sitting back relying on averages you will not be getting the whole story. So if you're going to understand these tracks you have to be prepared to learn about them, I just can't emphasize that enough.

In terms of some high-level results, we recently compared a number of our grass, sand and ThoroughTracks and the information is what is in this slide. As you can see from the results, sand is not a great surface, and while I've never measured a dirt track, I would suspect that it is the track that it most closely resembles. And looking at the things that Mark was showing earlier I think that holds true.

So it is extremely hard, the sand track is extremely hard, has minimal sheer strength and is not very consistent. So you can see the low, virtually zero sheer. Hard gravity is 110 to 150 gravities, that's a very hard track. And down to 60 percent for coefficient of variation, which means it's got a pretty irregular construction.

ThoroughTrack compares most favorably to a good turf track with similar hardness measures in the ideal range and a similar high level of consistency. The only major deviation is in sheet strength, which is about half that of turf. So that's just some high level results from the work that we've been doing.

Some key issues for the U.S. market. The U.S. is quite unique, and I'm just coming to terms with it now, really. But it is quite unique in the way you utilize your tracks. I can't think of anywhere else in the world where you train and race on the same tracks to the level that you do here. It doesn't happen anywhere else. And to be honest it's a pretty brutal set-up you've got here.

So if you look at where the synthetic tracks are in use around the world, if you look at a place like Lingfield where the Polytrack is there, I think I'm trying on get Lingfield. And I think they probably have about 70 to 80 race meetings a year, so that track at Lingfield would be used probably 70 or 80 days out of 365 for racing only.

So that track would get seven or 8,000 gallops on it a year, whereas one of your dirt tracks would get seven to 8,000 gallops a week. So there's a big difference into how these tracks are being used elsewhere.

In Melbourne, at the biggest training center we run in Victoria we have about 700 horses. Those 700 horses have five different tracks to choose from. And Newmarket, you've got about 3,000 horses in training in Newmarket in the UK; they have probably 10 of these synthetic tracks to choose from. And there's not racing at either of those two venues where they train.

So you need to think about, when you're thinking about how you're going to use these synthetic tracks in the future, I think you really ought to be very careful about thinking about how you currently use your tracks, because it is completely different to the way these tracks are being used around the world.

So be conservative about your asset life, and refurbishment assumptions in your business cases. And I think the last point there, whether or not you can simply replace dirt with synthetic and keep going about business the same way you're going about business, I'm not sure. I don't know whether you will be able to do that, hopefully you will.

But you may need to look at a few alternatives, because if you want to improve the racing surface and get the absolute best performance out of your racing surface you may well need to think about how you use these tracks in the future.

The future landscape? Finally, looking at the synthetic track market, I think that as long as you do the investigative work the product will quickly become demystified. What we are doing here is not rocket science. Okay? We're not putting a man on the moon, we're not performing brain surgery, we're just building a highway for horses. And this is basic, this is a basic civil construction exercise, and if you know what you're doing you can do it.

And I think as the knowledge levels of track owners goes up, I think it is inevitable that the price of these tracks will come down, the margins will diminish, and most everyone out there might be saying that they have the magic formula; at the end of the day there's a worldwide market for all these things, and you're free to enter that market any time you like.

And I think with increasing understanding of this product, it will inevitably fall back on those who have successful design and measurement methodologies to deliver the product, and that's where you need to be investing your time. You need to be measuring these tracks, learning about them, playing with them, and understanding them and it will evolve for you pretty quickly.

Thank you for your time.

(Applause)

MR. YOUNT: And to think that we have the opportunity, the possibility to race 21 straight months now that we have the other racetracks from around Louisiana coming our way.

Lastly, the next gentleman — we're going to move a little bit into the turf courses — is the founder and managing director of StrathAyr Turf Systems. He has developed the world's only natural turf system for all-weather racing and football. He is instrumental in the company's development of a number of new turf systems including a modular sports field installed at Houston's Reliant Stadium as well as a low-cost irrigation system for racetracks.

He has chaired national and international producers' organizations and has addressed meetings of racing executives in Australia, New Zealand, Ireland and most recently, San Diego, California. Ladies and Gentlemen, Mr. Bill Casimaty.

(Applause)

MR. BILL G. CASIMATY: Thank you, Mr. Chairman. Ladies and Gentlemen, if you don't mind I'll take my jacket off. I lost my jacket during this trip while I was traveling, and the only thing with my shape that I could buy at the Dallas Airport the other day wouldn't fit me very well. So sometimes when it's been cold I've had to put it on back to front; but like, you can't do that.

Anyway that reminded me of a neighbor of ours in Tasmania. There's a very windy ride near our form, and this fellow and his younger brother were on this Harley-Davidson motorbike going up over the hill when the brother on the back complained about the cold. So they stopped and he put his army coat on back to front, the way they do it. And went up around the corner.

Got to the top of the hill and George found his brother wasn't there. He turned around, he went back down the hill found him. And there was lights of the ambulance were looking after him. And he said, "How is he? How is he?"

"You know he didn't seem too bad until we turned his head around the right way."

So excuse me. Getting off the subject for a moment. After being involved for many years in actual turf work, came into the racing industry from a sub growing and turf growing background.

The point I'd like to make from the start is that there is a lot of science in natural turf, and because people who have lawns and whatever else that's often overlooked. So we try to put science into practice and we believe there's a lot more stroke to do that with the natural turf.

And we're pleased that many of the objectives we set out to demonstrate have now been realized. We've been in business many years and involved in lots of different things, as mentioned.

These are our target objectives for racing and we believe we've achieved them all, and we'd like to know what the industry wants beyond those. And we're not talking about what we're going to do, we're talking about documented records of 17 years in Hong Kong, 11 in Melbourne and six in Singapore, where those features have been proven.

And we recently conducted a benefit-to-cost study which I'll be happy to send anyone if you give me details at the end of the session. All of those Southern Hemisphere World Cup events are held on air tracks, these sand mesh tracks, and the details of those tracks will be provided. Very cost effective, and the report came out very strongly.

And of course one of the things is we've never had a wet weather cancellation; in 17 years one race only in Hong Kong; the last race one night was called off from

track conditions, but otherwise there's been no problem at all, despite the fact that often five, six, seven, eight inches of rain in Singapore, Hong Kong, these areas.

Reduced maintenance cost and the longevity, with tracks up to 17 years and no sign of any problems with compaction, which is the cancer of racetracks, we believe, we're confident of achieving well, well over the target of 30 years, in fact more like very indefinite periods of the basic construction.

In actual fact, in Melbourne there's been times when every other track in the town including American dirt and synthetics have been closed and the Moonee Valley Track has been opened for racing.

Longevity. As I mentioned, that's an extract out of that recent report, so some of those estimates are from various parties within the industry, and certainly that's given us very effective, cost effective result.

Consistency, we believe, is everything. Horse must know what it's going to land on each time it puts a hoof down, and the fact that we don't get lots of wet tracks which cause scratches, etcetera, is important.

That's the basic profile. There's a lot of science in that. I hope — I haven't got time to describe; the root depths just depend on the hydraulic properties of the sand itself and the gravel layer's carefully worked so as to have a water table at the interface, which helps us with the deep root system. And deep roots means less divoting and means healthier grass, because we water infrequently, and with a deep root system you can do that.

Basic thing is, of course, we're using reflex mesh elements which enables us to use very free drainage sands and that's the difference. In the normal tracks you have a conventional construction, you choose between heavy infiltration rates, reduced, because you want stability in the soil to carry horses.

We don't have to try to draw that line in between those two extremes. Certainly it gives us a cushioning, too. I'll talk more about that, we've never ever — never ever had a hard surface in 17 years of racing; and low breakdown rates. We can't give any figures, but certainly all the trainers know or they often say that horses with weak legs come to our tracks.

That's the way the — when the compaction is resisted. When a horse goes over it, it forces the mesh in curves and opens up the airways, and then when the load is taken off the thing springs back.

And we've got civil engineering tests for this with tracks where we can put down compactors and then it draws back and as it sucks back up, as it rises back up it sucks the air into the root zone. So in actual fact the horses are actually helping cultivate the depths of the matrix. And you can use verti-drains, but basically there's never any need to, the horses are doing it for you.

That's just showing how the mesh reinforces the sand. Of course, without the mesh it wouldn't even stand up like that. I must say, by the way, that one of the reasons we're only just really getting active in the U.S. market now is that many years ago before we were involved, mesh was used at Santa Anita, and it didn't work out.

But we had the advantage of seeing that and seeing the videos, we still have those videos, of construction. And we had to develop specialized machinery to overcome the problems we witnessed there.

This machinery we can traverse gravel without problems, whereas in that case they tried to put a two-inch gravel layer over the top of a coarse cover layer using scrapers, graders and all other modern large equipment, and we believe that was very much part of the problem. And so now we ship this equipment around the world wherever we work.

I don't want to go into too much detail, but mixing the magic mix of sand and soil I've yet to see — it's a lovely theory, but with sand root zones, you're trying to get a sand of similar particle size. You mix soil with it it increases the particle size range and you get the increased compaction. It's been proven through a lot of university research and field work over many years.

So we're talking about something that's actually been around a long, long time and it has stood up to the test of time. We worked, we have our own laboratory to achieve all the required parameters. We're looking for the hydraulic properties of the sand and all these things.

I'll quickly go through these various tests we do, but this is where the science comes in very much to achieve, to maximize drainage. But what we're really trying to do is moisturize turf greatly. At the end of the day the amount of raking you can conduct on natural turf racetracks depends on the rate of recovery. After use it's damaged. So all of these tests are all going to the equation; and despite the fact that it's a high-sand, well-drained root zone, we use less water. But I haven't got time to explain that technology as to how that's achieved. But we certainly do use less water and that's important.

And we can use low quality water because with the free draining, if there's any salt build-ups we can over-irrigate and flush them out, and so it's quite an advantage to be able to use low quality water. And that's just repeated because to explain that that can act like a sand filter if there is a water quality problem.

You buy a motor car you expect to know what performance you're going to get. Until now we don't believe it's been available, but now we can give a performance specification for a racetrack before it's constructed, and we believe that's moving into the scientific area that we need to approach for this industry.

Safety. There's no doubt about that. Reduced breakdowns. Never having had a fast surface we have trouble getting figures, but those figures out of Singapore tell the

story. The change from the old track to the new track, they dropped 55 percent in their non-catastrophic injuries.

I'll mention water savings. Increased wagering. In Singapore, they found there's 30 percent better handle on the turf races so they virtually eliminated racing on the synthetic. They're running now 72 turf meetings a year with about 10 races per day, with fields of 10 or 11. So it's a huge — we believe that's a world record for natural turf racing.

I should have mentioned they take measurements during the meeting which actually further enhance their betting turnover. Look at that, over two and a half meters of rain, over three meters for the 2003 year, and certainly no sign of — no chance of any wet weather cancellations.

This just quickly is Moonee Valley in Melbourne; Hong Kong where two of the world series races are held at Sha Tin; there's Happy Valley. Canberra I've mentioned a couple of times. Joe King was also involved with that project, with the geometry, etcetera.

This is the Reliant Stadium, we've developed a new concept there to overcome shade, we moved the turf out in modular form and that's where they staged Super Bowl and the one made famous by the bare boob incident you might recall. And that's in use, pretty solidly.

Some of the Olympic projects; top of the baseball, main stadium at Sidney's interesting. We put that turf over the running track which enabled them to have all their pre-Olympic sellout events, and that may help the smooth running of the Olympics, because they had several hundred-thousand crowds through by being able to play football and other football cards and then we take turf away for them to have their pre-Olympic athletic events, backwards and forwards.

And then later on we developed the modular system, that's what we were doing that with, and we used that for tunnel recently a couple years ago at Flemington so it enables racing immediately. We can put that down and we can race horses straight off. That's the Flemington tunnel.

Irrigation systems were developed to enable wider tracks to be constructed if necessary. And to reduce water usage.

Turf. We came into the industry from the sod-growing turf side of it and we hear all the time that people agonize over the turf selections and give not much consideration to everything else.

We submit the turf choice is the easiest because you can always change your mind over the years. And Singapore's already changed from all zoysia to a common coach, hopefully at virtually no cost. So what we're saying is that the base — like most things, the foundation, the base, the drainage, the growing medium, it's air. We believe the reason our tracks have such high usage rates is that the aeration,

roots on aeration, the natural aeration is so great that the growth is so much greater and with most tracks you can get air and you can get fertilizer and water to a plant's roots, but the air usually with compaction of horses usually means you end up with a shallow-rooted plant which then means frequent watering, and then means all other — disease and all the other problems.

Maintenance is now very simple. We found it's very easy to just put out a small amount of fertilizer all the time and not worry too much, because some track managers worried about the change from managing conventional clay-lined tracks to sand, and we found this is the better answer just to get to what regular fertilizing means. I won't go into any detail there.

But I'll repeat in closing, that we have got a lot of information that's come out from these years. We believe we've got the only proprietary sort of specialized system that has been, certainly in the natural turf, but even it's been around a lot longer than the synthetics.

Also, we believe that racing on turf is preferred by the industry, it is the Rolls Royce, but science has to be applied or otherwise its decline may continue. And we've seen a bit of a decline in turf racing now in this country, I believe.

So in summary I'm saying that the science is there. The performance and the records are now available for you if you'd like to look at them, and we believe that we'll be keeping our policy of trying to put science into practice, because we can only go forward from here.

But we're not talking about things that might happen, we are talking now of a solid, proven track record that will stand up to scrutiny, and we're finding that the jockeys and trainers who travel the world, the industry's become very nationalized in the last few years, and they are now spreading the word around Europe and around the world from those Asian tracks, and we look forward to becoming involved in the United States as well.

Thank you very much, Mr. Chairman.

(Applause)

MR. YOUNT: Thank you, Mr. Bill. We have about 15 minutes left. I'm going to turn it back over to Michael.

MR. DICKINSON: Not all my audiences are quite as well educated as you people, especially on Mother Nature and on country matters, so I have to start with the basics.

But I'd say it's easy today because I'm talking to a group of elite intellectuals. So you're an easy audience, so we can skip the first slide.

Sometimes we have to revert to basics to explain the basics of nature. European racetracks. That's Newmarket. If that looks a long way, it is. Nearly all the Grade One tracks in England have a straight mile. Newmarket has a straight 10 furlongs.

They do this for two reasons. One is so they can have bigger fields, it's very common. They used to have 40-horse fields but now they've just cut down to 35-horse fields.

And the second is — as much as the safety for the horse and rider being on the straightaway — the second is it's safer for the horse going on a straightaway. You can see the advertising, they've still got some more turf track to use. The advertising on the inside of the rail, that's all to be used at a later date.

This is another shot of Newmarket, and they've got another hundred feet of turf to use later on. And as somebody said earlier, "The more turf we have the better."

This is a crossing at Ascot.

There's a large infield Ascot Racecourse which is an excellent viewing area, a big parking lot and some great champagne parties. So you see there the cars driving in before the first race, and then just before the first race on the left-hand side the turf track moves on the hydraulics and slides into a perfect seam, and there are the horses 10 minutes later racing over it.

This one of my favorite slides. In America we think 12 runners is a full field. Well, my jockeys come out to me, "Oh, what are we going to do? We got to keep out of trouble, Mr. Trainer, there's a full field."

Well, I've run in the Grand National, there are 40 of us. Somewhere I'm right in the middle in blue and green. So a different perspective. This is a brilliant example of excellent turf management. This is at Cheltenham, England, had four days racing in March when the going is usually yielding and the weather's cold, that's 468 runners.

No sprints obviously. The shortest race is two miles and the longest race is four miles. And that's taken a week after the race meeting. And there's hardly a mark, that's a credit to it.

This is arguably the second best training center in the world, this is at County Tipperary where Dr. Vincent O'Brien trained 40 champions. He won the Epsom Derby six times and he won a Breeders' Cup.

It has 500 acres, four different types of all-weather surfaces and lots of grass surfaces. These are some more shots of the turf tracks; just up a slight incline, most of them. Those are the old-fashioned wood chip tracks. This was taken some time ago. And they served him very well.

Dr. O'Brien was the person who invented the modern wood chip shavings track, although he's not given credit for it, but he was; that was 30 years ago.

This is probably the most important slide for you racetrack operators in this presentation. They have five people replacing the divots. Horses are bound to make them, bound to tear up the turf tracks. They use a mixture of sand, soil and peat with pregerminated grass seed, and they have two teams like that.

After racing it's boring, it's expensive, but it has to be done. I told you about the races that Dr. O'Brien won, Vincent O'Brien, but the most staggering statistic is in 28 years — my friend Johnny worked primarily with his head man for 20 years. They had two horses break a leg. In 28 years. Which was staggering. And not many people know that.

This was arguably the best training center in the world and it is in the south of England a hundred miles west of London. And that was a turf track when we took it over and the right-hand corner hadn't been used for 12 years. It was all dead and yucky; and that was my mentor in turf, Jeffrey Davidson, who's now aged 87, he just retired.

But he's excellent; and he taught me a lot on grass. And that was the track six months later. This is the old Derby Gallop which we hadn't used since 1930, and not even the thistles would grow in the left-hand corner.

And that was it six months later, and another shot of the Derby Gallop. This one was an old turf track and someone was trying to grow a forest, so we upped all the forest and killed all the weeds and we resodded it like that.

The most important picture here is the right-hand column, the right-hand one. It's important for two reasons. First of all, we're measuring the roots and they go down six inches; I'm sorry, 12 inches or more.

And the other thing is we're holding the grass from the top, not the bottom. And that's to demonstrate the fantastic root structure we had holding all the grass together to try and prevent divots, because if we have too many divots we failed.

The top picture on the other side of the rail is obviously the training area. We have six chutes, a straight mile around course. We can go a mile and six without going over the same course twice. That's just the new track we put in for the 2-year-olds just to teach them how to go fast.

I've shown you some terrific pictures of Manton, it's a beautiful training facility. This is the most striking slide of the Manton.

This is the injuries. One hundred seventy horses, no broken legs, no catastrophes. And apart from the four tendons all those horses should come back to full working and winning racing potential. Sore shins, no big deal. They're over that in six weeks; splints, I mean, they've over that in 10 days. A pelvis, absolutely incredible, considering most of them are 2-year-olds, the majority of them were 2-year-olds.

The verification of that, two people who worked for me. I didn't want the trainers' statistics, I wanted independent statistics; and there's their phone numbers, you can verify that at the bottom.

Now fast forward, I moved across the Atlantic to Maryland. I have three turf tracks, I have a much, much easier job than Joe when you were in charge of the turf tracks. I have more turf tracks, more room and only one trainer to satisfy. You have a hundred people to satisfy and you're not going to win.

We have Noah's Ark, we have 40 seats on Noah's Ark for wet weather, and we had 12 inches of rain. We're on the grass the next day. We have the sun track for the drought conditions. And when we have the normal weather 60 feet on the right.

So those are the three turf tracks. They all look the same but they're not. On the right is Noah's Ark, in the middle is the drought and on the left is the normal weather.

The one I'm most proud about is the top right-hand corner, and in front of Jones' house there. This is a drought in 2002 where we didn't have rain for 12 weeks and everywhere for a hundred miles was brown. And those are the horses working on the grass, and the grass was lush and green and the track was always perfect. I think anyone can produce good ground when the weather's in your favor. But this was under difficult circumstances.

Some horses. Picture on the right for you racetrack people, that's me in the SUV, sticking out the roof there. When I go back to England I ride around on the inside of the track with the vet or the doctor, and itself unbelievable, and really see during the race an inside of the racetrack.

My visitors just love watching the breezes from the cars because they are 20 feet from the horse. And they freak out there. So they love it. Well, a race must be 10 times moreso, more exciting. So if I ran a racetrack I would have the moving vehicle on the inside with all the seats facing the horses.

And that would do two things. It would give us some very happy fans and bring them closer to the action, and it would also make me money. So if anybody wants a good idea I won't charge you for it.

On turf tracks, how many races can we get a year? Well, Bill, you're in the top half of that. Basically, our turf tracks in America are 30 years old. It's no one's fault. Thirty years ago when they were built no one could have foreseen how important they were.

Obviously, we know a lot more about turf now than we did, but we didn't know in the old days, you know, we didn't have much turf racing. So if you have a modern turf track you can get about 240 races a year. I think Bill can get more. This is what we're doing at the bottom. One track had 69 races and the other had 58; so we need to update all the turf tracks.

That's my very basic, simple thing for drainage. The basics of that I actually saw in a museum in London, I copied what the Romans did in B.C. 55 when Julius Caesar invaded Great Britain, and it's simple.

It's basic, seven feet between the pipes. If you want to save a bit of money you can make it longer between the pipes, but that's a basic simple, very simplistic drainage system. Bill's is somewhat similar, Bill's is excellent. He has pipes in the bottom and there are similarities between the two designs.

The Golden Rules for turf track, I don't know. We verti-drain an awful lot of time. Verti-drain is a terrific aerator. They cut the grass regularly, replace the divots, irrigate.

Most of the racetracks have very insufficient irrigation systems, they just can't put enough water on them. So they need to bring themselves forward into the 21st century.

Fertilize, reseed. We love reseeding. Reseed, reseed, reseed. What's the best time to reseed? Today, the next day, whenever.

Mowing. A lot of you look at mowing as a chore. We love to mow. We mowed every day for weeks in the spring. The more you mow it the more it grows; the more it becomes dense the more it loves it.

Grasses. You guys in the desert, I suppose you have to go with your Bermuda. As a horseman I don't like Bermuda, it doesn't give me enough cushion.

Bluegrass. Some of you have Bluegrass. It's great for the horses to eat. I don't think it has anyplace in the modern racetrack. You know, it just doesn't take any wear. We just love the tall fescues. I'm not a tall fescue salesman, I don't have shares in any seed company in Oregon, but that's my recommendation.

This is my pet peeve. This is a turf track on the East Coast. I'd like to tell you it was at the end of the meet. But it was actually six weeks before the meet was due to begin. And surprise, surprise, the grass isn't growing.

Why? Because he's just rolled the hell out of it. You, me and grass, we need moisture and air to survive. And they just roll the hell out so there's no air in there, no oxygen and no moisture. They seeded it, but it didn't grow.

What harm does it do? Rolling compresses the undamaged part, it doesn't replace the divots, reduces growth, and it increases the risk of injury.

When is a good time to roll? Well, there's never a good time to roll. If the weather's dry and the track gets firm, if you roll it it will be hard. And as a trainer the last thing I want is a hard track.

Worse case scenario if the track is, shall we say firm, we have a slight amount of rain, if it's been rolled before it will be really slippery. The water will sit on top and the horses will start sliding everywhere.

If we roll the track today it's going to rain tomorrow we've just destroyed our drainage; it can't get down to the drain. So there's never a good day to roll.

If you turn to C-Span on next Thursday, the Senator from Maryland is introducing a bill into Washington, D.C., in the Senate which will prohibit the rolling of pyramid tracks for whatever reason, and we're going to monitor all you rollaholics.

We've got the spy in the sky up there. Number one, were looking for Bin Laden; and number two, were looking for all you guys rolling your turf tracks. And this is going to be the penalty, we're going to put your head on a spike.

(Laughter)

Leif Dickinson, my cousin, is arguably one of the turf track superintendents in America, just goes to the bottom with no air and water, fill, concrete; and that's what you get if you roll.

So what should we do? You know I shout, scream at the track supers; and they say, "Well we have a lot of racing; we've got to repair it. So if we don't roll, what do we do?"

Well we tread in the divots, replace the divots with the sand; and we saw those guys in Ireland going around. We use a hand fork, we fill in the holes.

We've done that. The verti-drain, we're going to come to that. And the guy who inspects all the courses in England, "The roller is the tool of the devil."

This is the verti-drain system. It stands like an adverse verti-drain. I wish I could tell you they pay me a huge amount of money for promoting their material; but they don't, the opposite is true.

I've given them fortunes over the years. This is an aerator. But it just doesn't go in and out. As you know, we're punching holes all the time in the grass. So this goes in, it tilts 10 degrees and it lifts, it lifts the whole sod about an inch or two.

The only problem with the verti-drain is it's slow. We have a one-turn mile and the track goes one mile an hour. My track superintendent, Robert, hates verti-drain because it's so fricking boring.

So the only way — my track is next to my house, so every time he passes my house I run out with two bottles of Budweiser beer; say, "Just give it another turn."

But that's expensive in labor. So I've now come up with Plan B.

(Laughter)

And you know that the pipe is going into the tractor cab, not the tractor engine.

(Chuckles)

Okay. Just going back to the verti-drain, that's the whole secret to it. No good just poking holes in the ground and coming out. There are a few — tines we use are about 14 inches, but they soon get worn down; we try to get about 10 inches down.

There are a few on the market, I know some of you have got them, these 3-inch aerators. That's a complete and utter waste of time, a 3-inch aerator on a turf track, because we get a compaction about four inches down.

And if anyone's under 21, any of you girls, just close your ears. But basically a 3-inch aerator is like a 3-inch penis; it just doesn't get the job done.

(Laughter)

Amy, where's Amy? Hope that doesn't make The Blood-Horse.

So how can we pay for the new turf tracks? I want you to all have a new turf track so you'll be happy, the fans will be happy, less injuries, reduced injuries, bigger fields, horses run more often, and your allies, the track superintendents, is the mutuel manager.

That's the end of — this is an entirely different speech on how I would run a racetrack, but I'm a farm boy from Maryland so I won't take you any more than that. If I was having a racetrack I'd have a straight mile, and once a week I'd have a 35-runner race. And it wouldn't be for the best horses, obviously. And I'd call it the Arizona Jackpot Race.

Wouldn't be the best horses but it would be the only race in America with 35 runners; and people would bet on my race; not because it's the best horses, because they would freak out with 35 runners. So with 35 runners we can't go round the turn, so we'd have a straight course there.

And this is Ascot, the new course Joe has been at many times. I was at Belmont and the head of NYRA said, "We need to get more people into the boxes on the balcony at Belmont."

I said, "Well, they aren't boxes, those are sheep pens. I used to take my sheep 40 years ago to England to market and they're exactly the same as your boxes, except they didn't have a color television; but everything was the same."

This is a box. We need to get more people racing, should have a viewing stand out there, food, television, betting, and alcohol. Great place to have a party. "Instead of having a party at my house, we're going to go racing, take some people."

These people bet a zillion times more than the average guy on the apron. We need to get more affluent people to the races to bet more, and this is what we've got to do. You take Ascot, they built, you know, they put some track, put some boxes in. I think some American tracks have put in 20. Ascot have put in 700.

The income is conservatively for one year, just the rental alone for the boxes, was over $8 million. And that's just a rough guess and I can't verify that, but it's a lot of money. But we're getting rich people to go racing and enjoy themselves, and the most expensive boxes got snapped up right away and they've got a waiting list of a hundred.

So it's now been the guys who were in area D all want to be C and all the C's want to be B's and all the B's want to be A's. And this is the way to sell our sport, that's it.

An artist's rendering of the new track at Ascot. The Queen — traditionally they rebuild Ascot every 50 years and they're doing it this year, and it's going to be a tremendous racecourse. And we've just got to look after our clients better.

We have great product, but are we just going to give them sheep pens and concrete? We want to look after them and it doesn't matter.

Thank you very much.

(Applause)

MR. YOUNT: Any questions?

MR. JEFF EWALT: Jeff Ewalt. On the mesh, is that one contiguous sheet across the track?

MR. CASIMATY: No, this is four inches by two inches; millions of them mixed randomly through the upper six inches of the root zone. And this is where, just to be controversial, I'll differ with Michael on a couple of things.

Because the mesh can be compressed and springs back, you can roll the track if you want to. I hope my head doesn't end up on one of those spikes.

(Laughter)

And so there's lots of management factors like that that — likewise we don't need the verti-drain. We like to shallow core only about an inch, inch and a half deep.

But there are, just to answer your question, millions of pieces that lock together; and they're totally different from any other root zone reinforcement product, because the stress is transferred from one piece of this to another; and even if you worked out the soil there's still our structure there.

That structure is giving you the load bearing and the ability to spring back.

MR. CASIMATY: Any horizontal reinforcement of any sort, I believe, is very bad, but the sort of difference is, for instance we talked about cambered bends at one stage. We can ensure that the movement of water is vertical, so what you have in Moonee Valley is a seven and one half percent combined bend, and there's no problem with water going into the running. Whereas other tracks who have cambered bends, it may still rain and the horses still be running the puddle.

So there's lots of advantages in being able to ensure, guarantee vertical drainage. We're always had a vertical drainage concept from day one, but — I hope that answers the question.

MR. YOUNT: Jeff, the way Bill showed me is those pieces ball up like that, and they're not stacked but they're like this. And then when the horses hit it, it gives, and then it comes back up.

Is that right?

MR. CASIMATY: Yes.

MR. YOUNT: We want to thank you for hanging with us. We appreciate your coming and have a safe trip home. Thank you very much.

(Applause)