

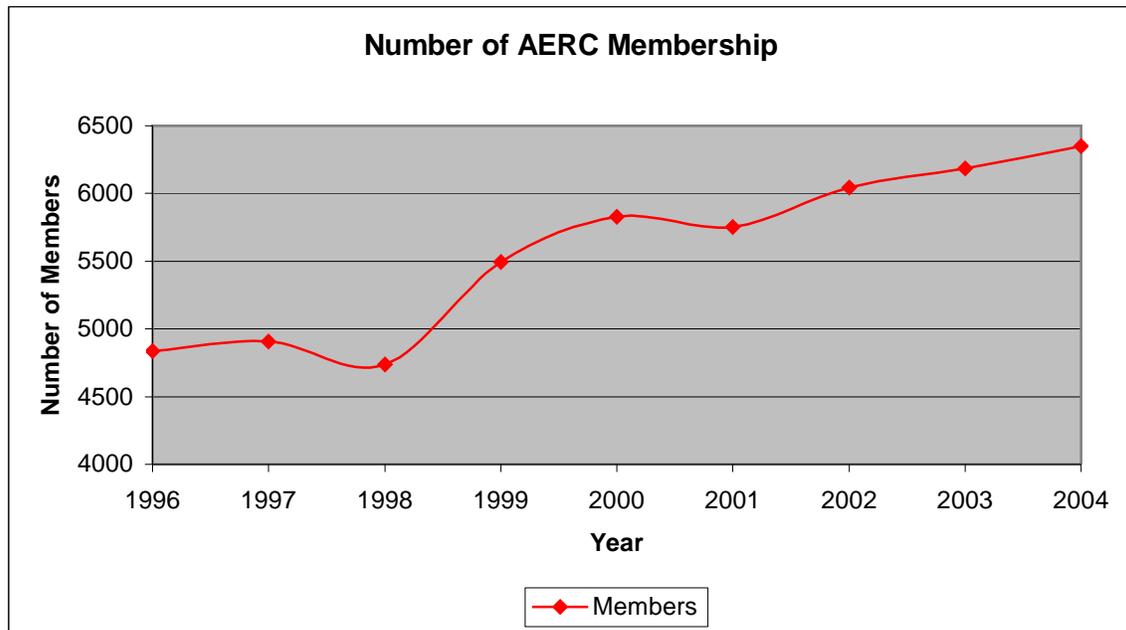
## Trends and Profiles of the Years 1996 Through 2004

*While the data comes from official AERC records – the analysis and conclusions below are not officially sanctioned by the AERC.*

**1. Introduction:** In this paper the analysis of long terms trends with in the AERC is presented. By long term we mean from 1996 through 2004 – with the exception some of the analysis on 100-mile rides that goes back to 1990. The starting point 1996 was selected because of current database is only accurate back to that point of time. Both trends in membership and in the distribution of events are presented. Since there has been some discussion that the 100-mile data has was “biased” because of an “abnormally” large number that might be represented by the 1996 end point, some of the 100 mile analysis was performed on data back through 1990. The data from 1990 through 1995 was supplied by the AERC office. I would like to thank the AERC office for their support in this work.

**2. Trends in the AERC Membership:** The AERC membership has grown significantly during the analysis period. This is a reflection of the growth in the popularity the sport has experienced during the analysis period – to be discussed in section 3.

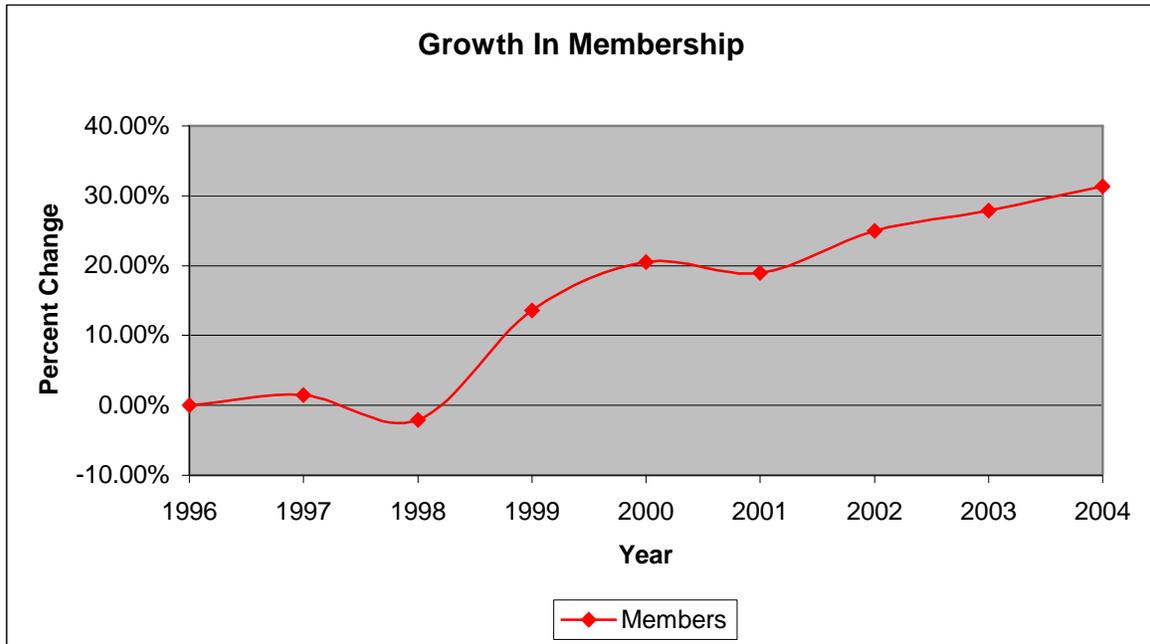
Figure 2.1 shows the AERC membership over the past 9 years.



AERC Members over the Past Nine Years

Figure 2.1

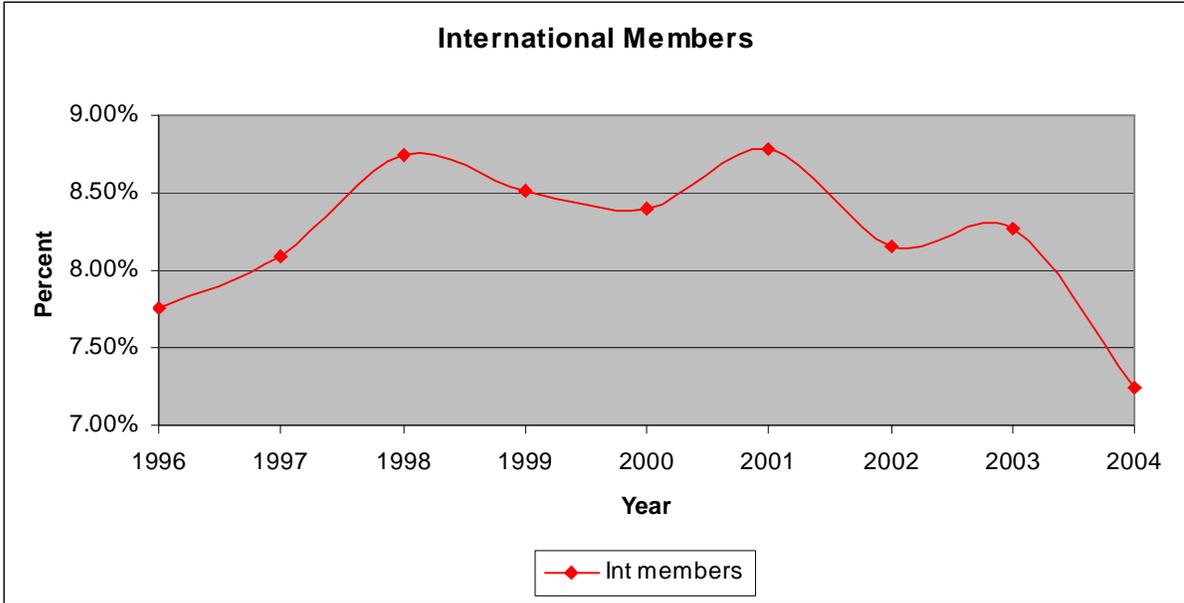
Figure 2.2 shows the growth in the membership as a percentage over the 1996 membership. The growth was particularly strong in the years 1999 and 2000 and the years 2002, 203 and 2004. The over all growth in 2004 compared to 1996 was 30%.



Growth From 1996 in Membership  
Figure 2.2

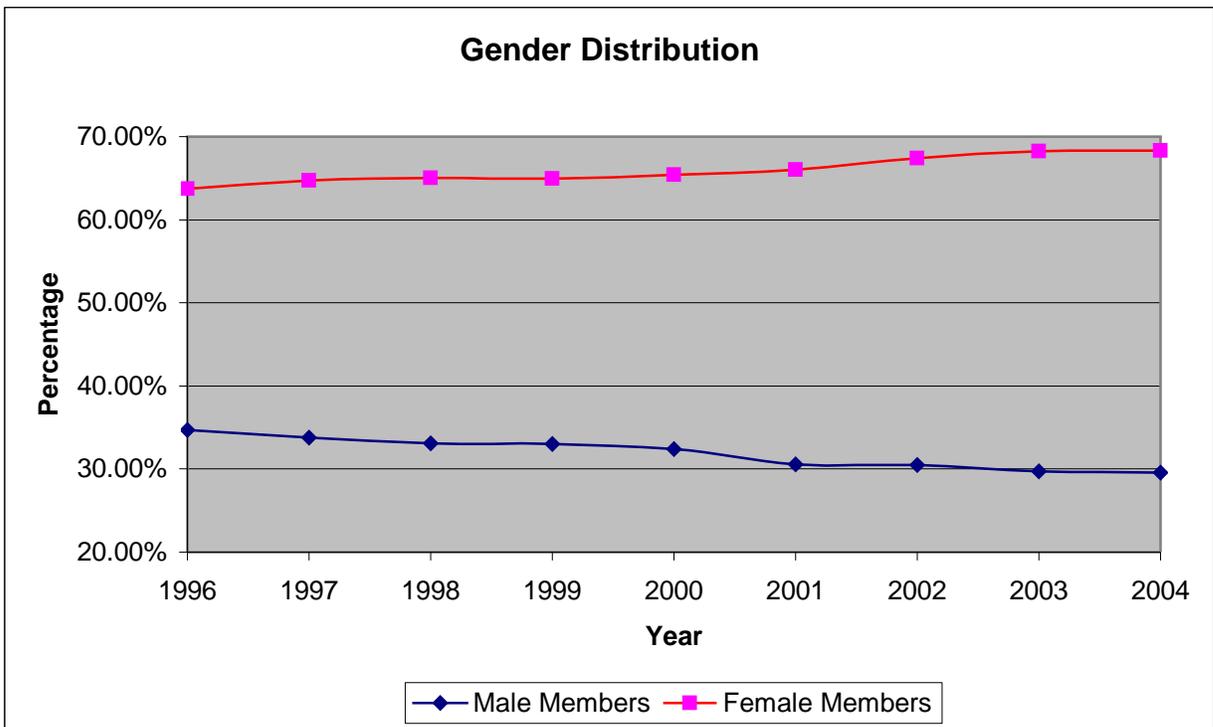
The AERC membership falls into two categories based on being or not being an AERC International member. AERC International is a small segment that plays a significant roll in the AERC 100-mile rides (as will be seen in section 3). In Figure 2.3, the percentage of the number of AERC International members to the total number of the AERC membership is shown. The AERC International membership has been small over the 1996 to 2004 period, and reached a little over 500 in 2001 and 2003. Both these years the Pan American Endurance Championship was run in the United States (Vermont and Washington) which would account for the increases in AERC International memberships those years.

Percentage wise it has consistently been between about 7.5% and 8.5%, except for 1998 and 2001 where it was 8.7% with the lowest point of the period being in 2004 at 7.2%



Percentage of International Membership to Overall Membership  
Figure 2.3

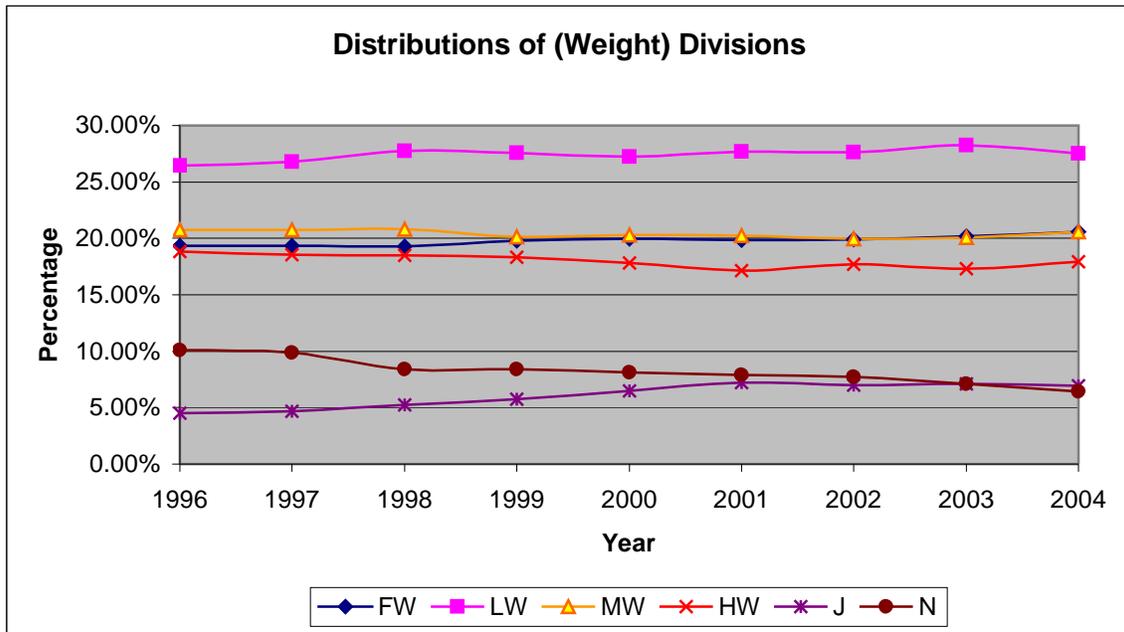
There are more women members than men members – by a large margin. This margin is has been consistently growing over the analysis period with men falling from 35% to 30% and women increasing from 65% to 70.



The distribution of Gender in AERC Membership  
Figure 2.4

The final analysis on the membership is the divisions (weight divisions and juniors). This is shown in Figure 2.5. There are 7 possible divisions. Of those only 5 were considered since the other 2 have numbers only in the single digits and not a significant factor.

The weight divisions have remained fairly flat over the analysis period. The Lightweight division is the larger (27%). The Featherweight, Middleweight and Heavyweight are very close at between 18% and 20%. The Junior division has been increased consistently over the analysis period from 5% to 7.5% of the membership. The division specified by “N” which represents no *division indicated* has decreased consistently from about 10% to 7.5% over the analysis period.

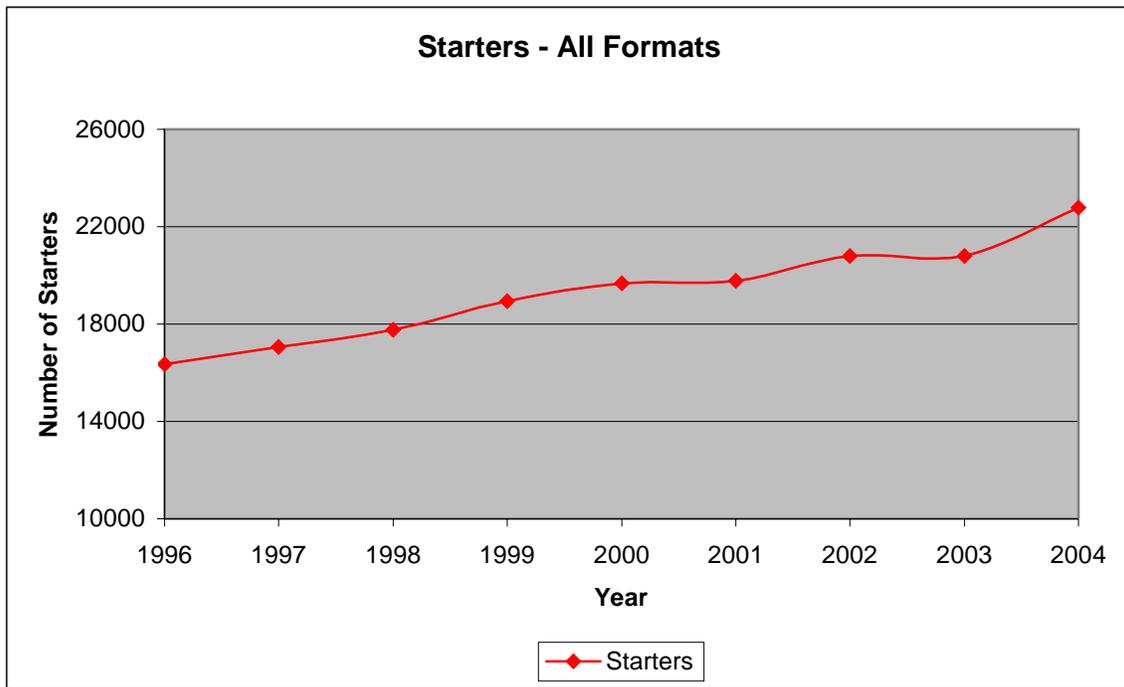


Distribution of Divisions  
Figure 2.5

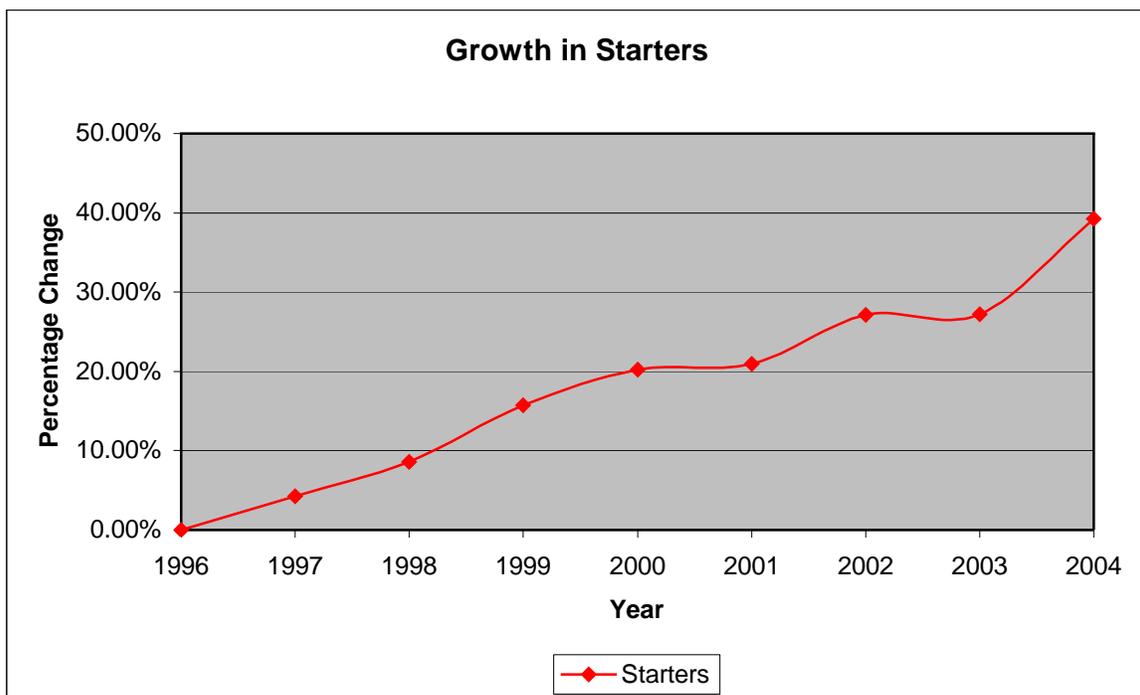
**3. Ride Trends:** During the analysis period there was significant growth in the popularity of endurance riding. In the analysis of rides, three categories were examined. They were Limited Distance, Intermediate and the One Day 100. Only rides that were AERC sanctioned were used in this analysis. “Intermediate” includes all rides from 50 through 95 miles. The vast majority are 50 miles to 60 miles. There were a few 75 mile rides but these numbers were statistically insignificant in relation to the total number of rides and hence the inclusion into “Intermediate.” The two-day 100 was not considered since they have all by disappeared from the landscape. While there are some rides at are two days, the number of entries in the two day 100 event not significant in the determination of trends.

In Figure 3.1 the number of starts in AERC riders over the 1996 to 2004 analysis period is given. In Figure 3.2 the growth over the number of starts in 1996 is shown. The charts speak for themselves and show a consistent linear trend in the increase in the number of

starts. In 2004 there was a 40% increase in the number of starter over 1996. Wonder why the rides seem more crowded – they are?

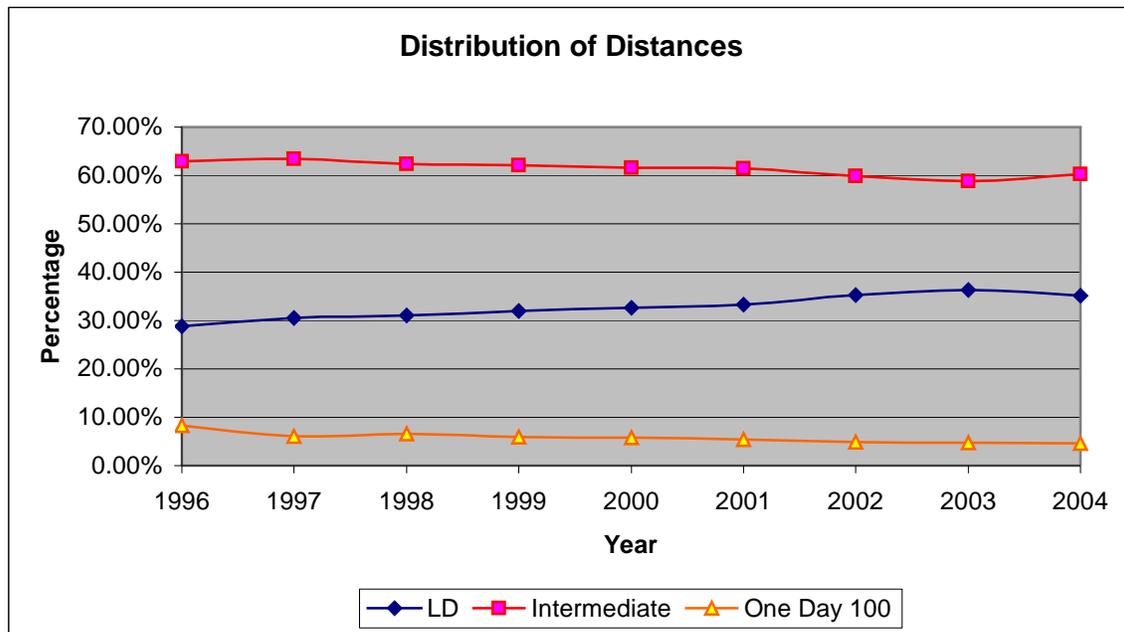


Number of Starters  
Figure 3.1



Growth in Starters over 1996  
Figure 3.2

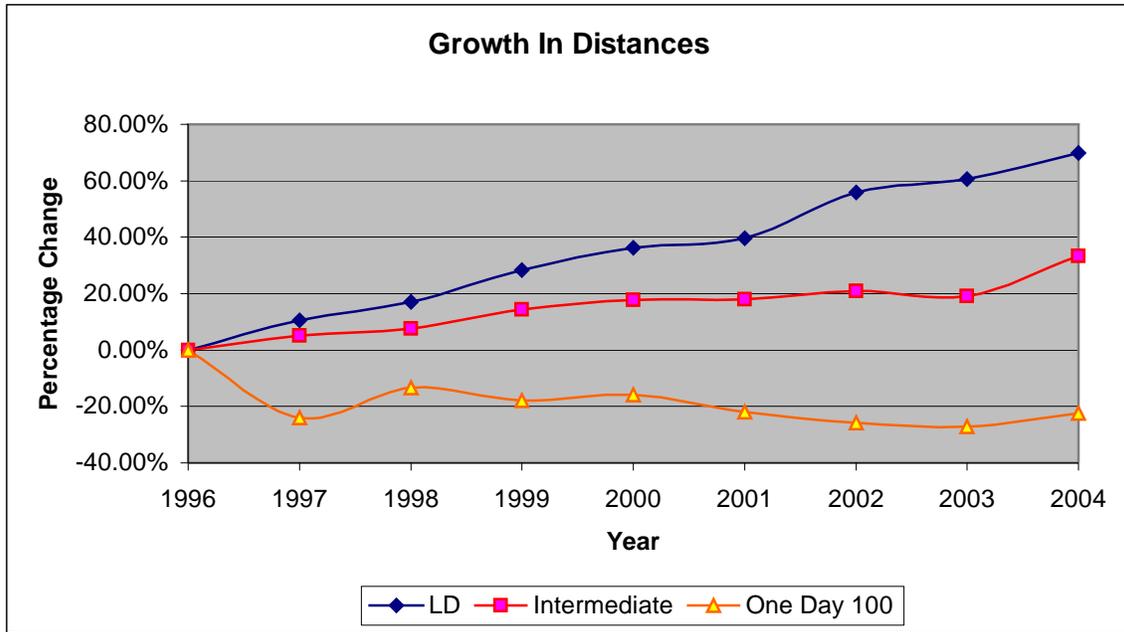
In Figure 3.3 the distribution of the starters are broken out into the distances. The Limited Distance rides have consistently increased over the analysis period from 28% of the starts to 35% in 2004. The Intermediate rides have remained fairly steady with a little decrease (from 63% to 60%) during the analysis period. However, as has been discussed, the 100-mile distance has undergone a decrease over the period from 8.3% to 4.6% of the number of starters.



Distribution of Starters by Distance  
Figure 3.3

In Figure 3.4 the growth in the number of starters (or decline in the case of the 100-mile distance) is shown relative to the status in 1996. These charts are based on the absolute value of the number of starters and not on the percentage of starts in a distance category to the total number of starts. Hence a decline is a decline in the number of starts not the percentage of starts.

The Limited Distance starts have increased consistently over the analysis period by 70%. The Intermediate starts have increased consistently (with a flat period in 2000, 2001 and 2002) by 30% over 1996 with a big jump in 2004. The 100-mile starts have contracted by about 22.4% over the analysis period with a low point in 2003 of less than 1000 starters (3/4's of the number of starters in 1996).

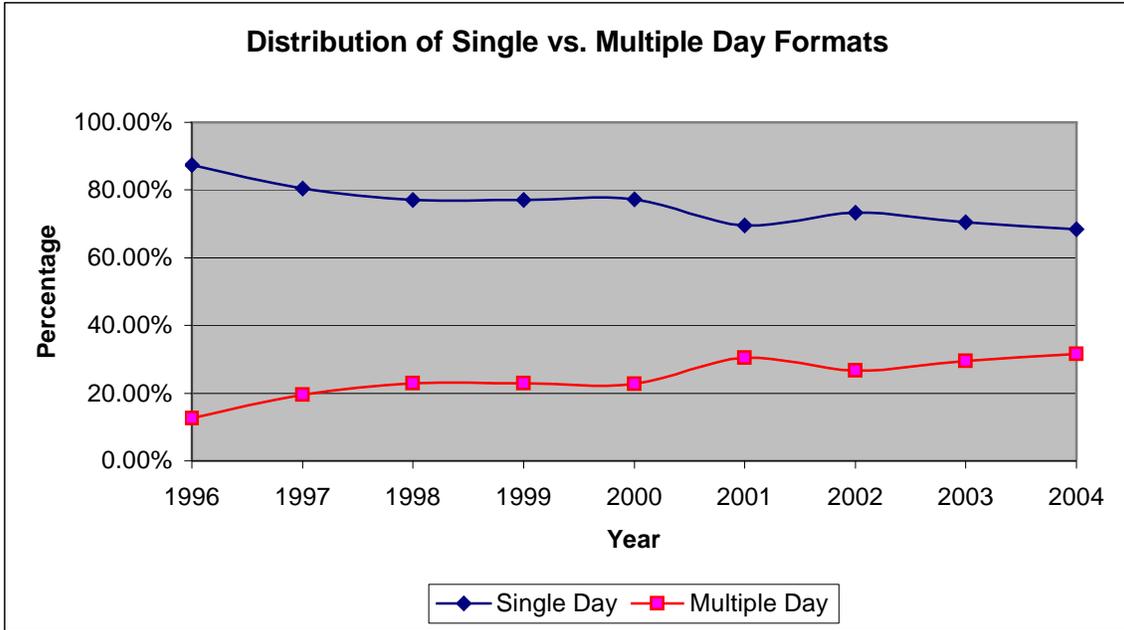


Growth in Starters by Distance  
Figure 3.4

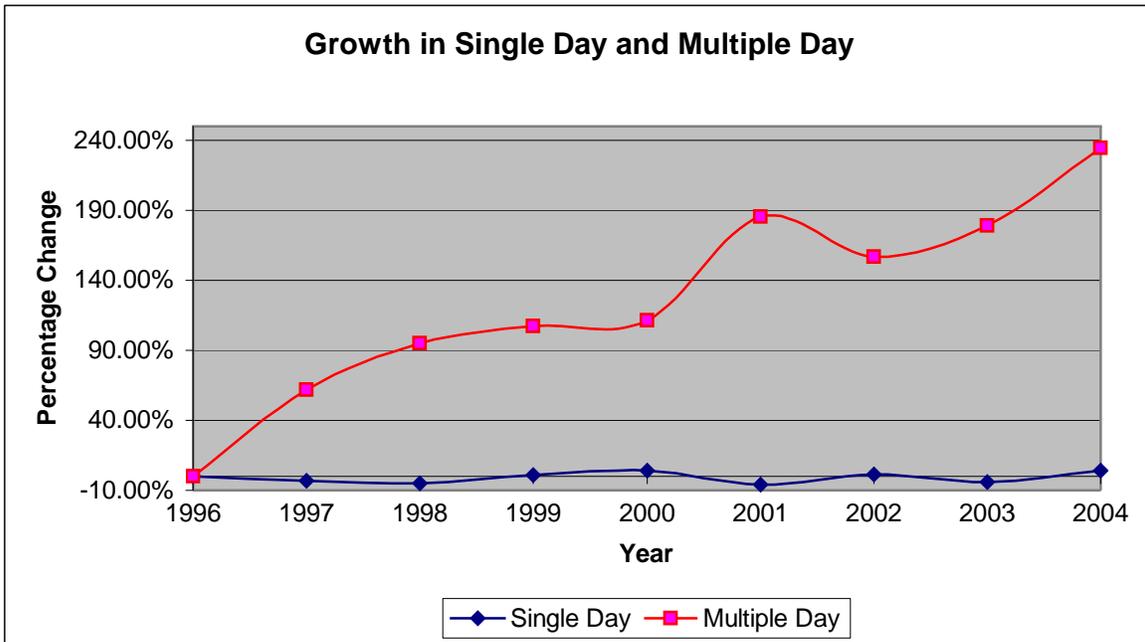
Included in the Intermediate rides are two formats. They are the single day rides and rides that take place over multiple days. It is difficult to separate these two categories – although they are specified differently in the database – since they are not independent categories. For example a multiple day ride can be ridden as a single day ride, multiple single day rides or as a Pioneer ride. The multiple day rides are sanctioned as single day events with the possibility of Pioneer points being earned if all are finished by the same rider and horse. That notwithstanding, these two formats of intermediate rides were compared and the comparison supplies some interesting information.

In Figure 3.5 the distribution of single day rides vs. multiple day rides is given. Notice the consistent decline in the single day format and increase in multiple day format. In 1996 multiple day rides comprised of only about 15% of the starts while single day rides produced 85% of the starters. In 2004 multiple day rides accounted for 30% of the starts with single day rides accounting for 70% of the starts.

In Figure 3.6 the growth over the 1996 state is given. This shows the dramatic growth in the multiple day format. The single day format has been flat in number of starters over the period while the number of starters in the multiple day format has increased by 240% over the period. The peak in 2001 was from the 2000 mile XP ride and it is to be expected that 2004 will also be a peak because of the 2004 1000 mile XP ride. That notwithstanding and even if there is a dip in 2005 as there was from 2001 to 2002, the multiple day starts will be up on the order of 200% - That is three times as many riders starting in multiple day rides in 2005 as in 1996.



Distribution of Single Day vs. Multiple Day Starts  
Figure 3.5



Growth in Starters Compared to 1996  
Figure 3.6

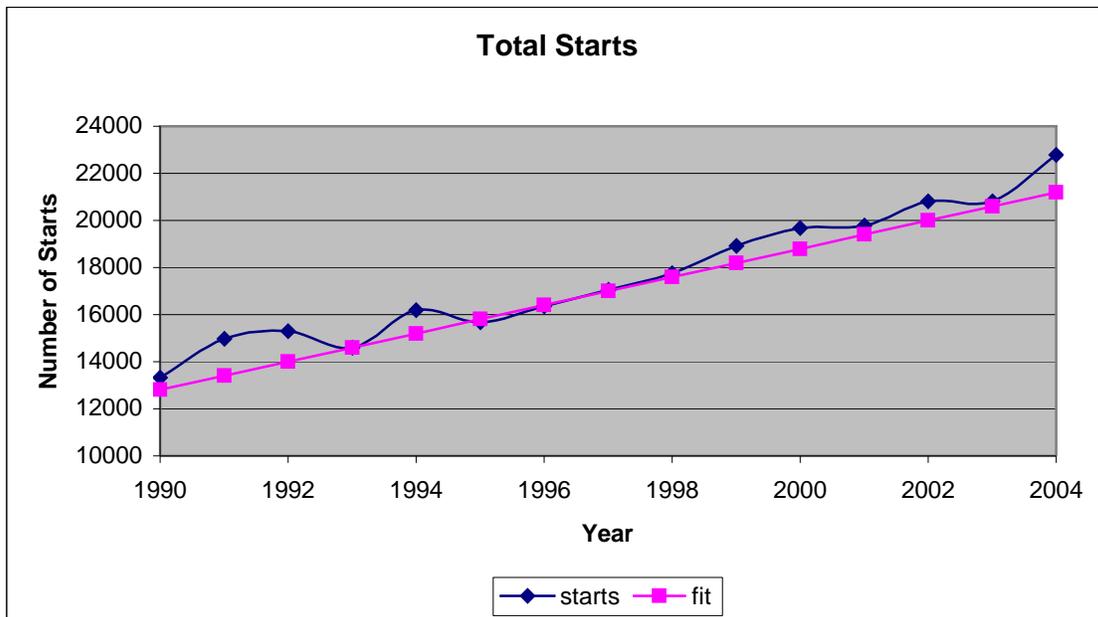
The final part of the analysis concentrated on the 100-mile distance. The 100-mile distance has not enjoyed the same prosperity and popularity as the other distances over the reporting period. While all other factors are up, AERC membership, number of starters, *etc.*, the number of starters in 100-mile rides – not only normalized to the number

of starters, but also in absolute terms – is down. To address this issue in more detail additional analysis was preformed.

First additional data was obtained from the AERC office to extend the period of analysis. Secondly analysis was performed on make up of riders participating in 100-mile rides. In this analysis other statistics were calculated in order to hopefully shed some light on trends and mechanisms at work.

The first set of charts look at the total starts and 100-mile starts over the 15 year period from 1990 through 2004. The AERC office supplied the data from 1990 through 1995. The data from 1996 through 2004 was pulled from the AERC database.

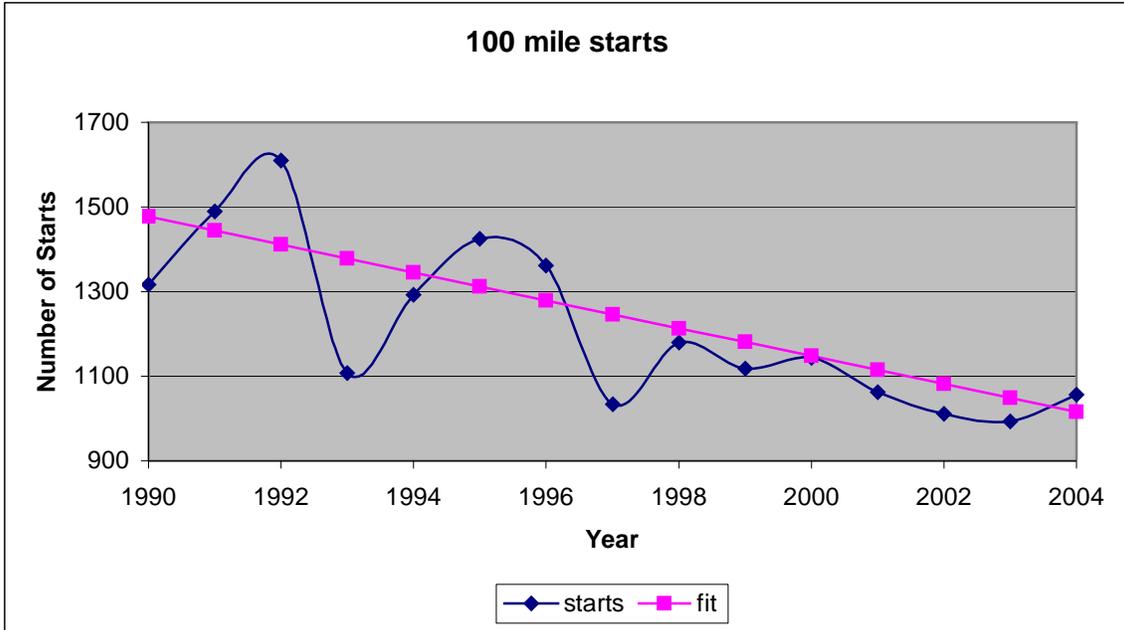
Figure 3.7 shows the total number of starts for the period. The blue line is the actual number of starts and the pink line is the line describing the linear fit to this data. Linear regression shows an average growth of 600 riders per year over the period.



Growth in Total Starts

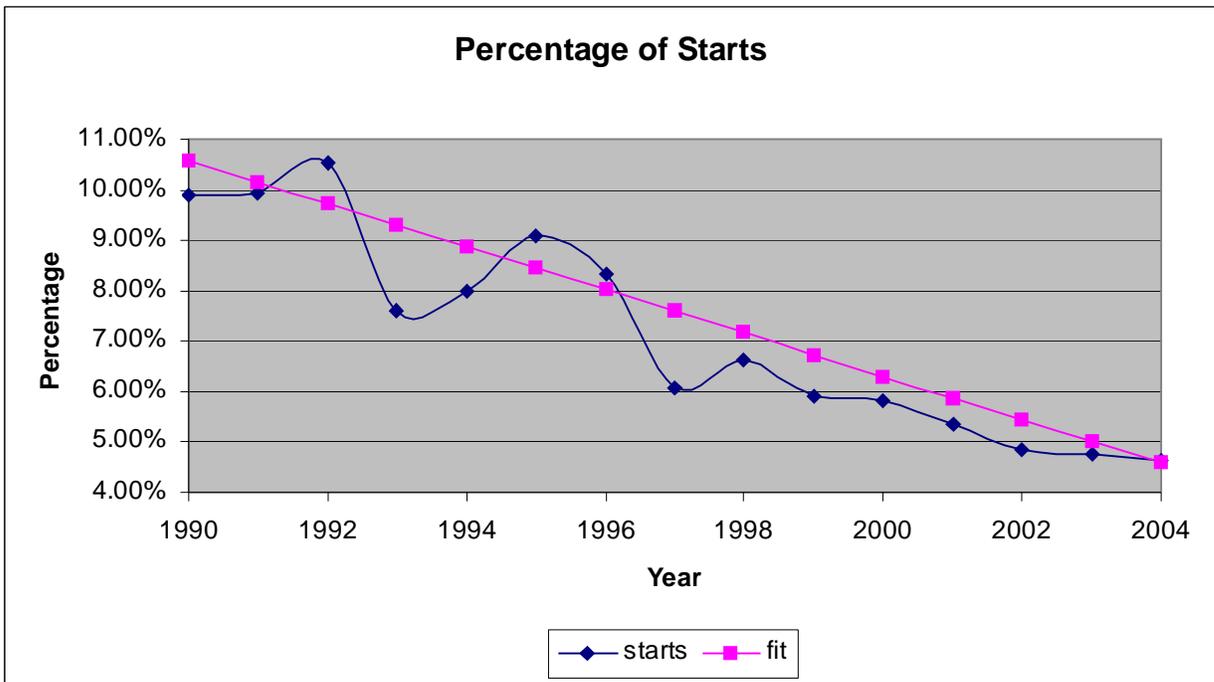
Figure 3.7

Figure 3.8 shows the number of 100-mile starts (and the linear fit) over the 15-year period. While there is some oscillation in the number of starts during this period from 1990 through 1997, there is a general linear trend in the data. The oscillations tend to damp out from 1997 through 2004. Linear regression (pink line) shows an average decline of 33 starts per year in the 100-mile starts.



100-mile Starts  
Figure 3.8

The 100-mile starts, weighted to the total number of starts, are show in Figure 3.9. The oscillation in the early part of the period is still clear – as is the damping of the oscillation in the later part of the period. Linear regression (pink line) shows an average decline of 0.43% per year.

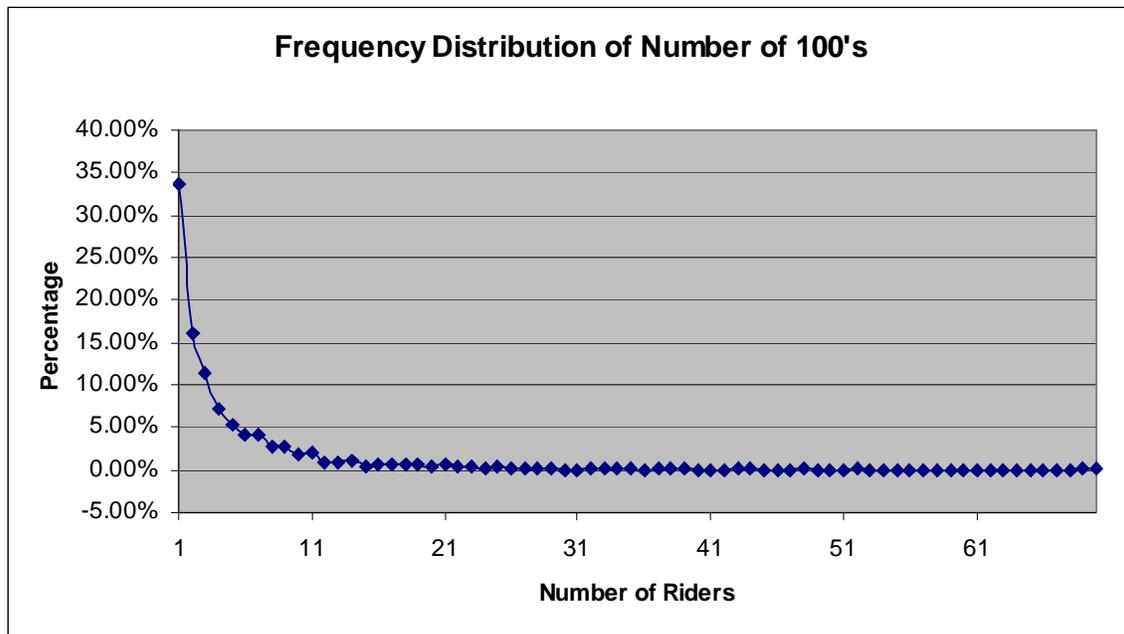


Percentage of 100-mile Starts to Total Starts  
Figure 3.9

What this shows is that when the analysis period is expanded back to 1990, the decline in the 100-mile starts is even more dramatic than over the analysis period over the 1996 through 2004 period. The decline in 100-mile starts is not a short term trend, but can be traced back over 15 years. It also shows that 1996 was not an “abnormally” high end point. This is particularly clear when the starts are weighted to the total number of starts.

Additional analysis was performed to try to understand some trends in the 100-mile event during the 1996 through 2004 analysis period. First - all riders that started a 100 during the analysis period were identified and the number of 100-mile rides they started during the period calculated. This analysis did not consider the rides that were started by non AERC members. There were approximately 600 starts by non AERC members over the period. The maximum starts by any single person during the analysis period was 70. There were 2059 unique riders (AERC members) that have started a 100-mile ride during the analysis period.

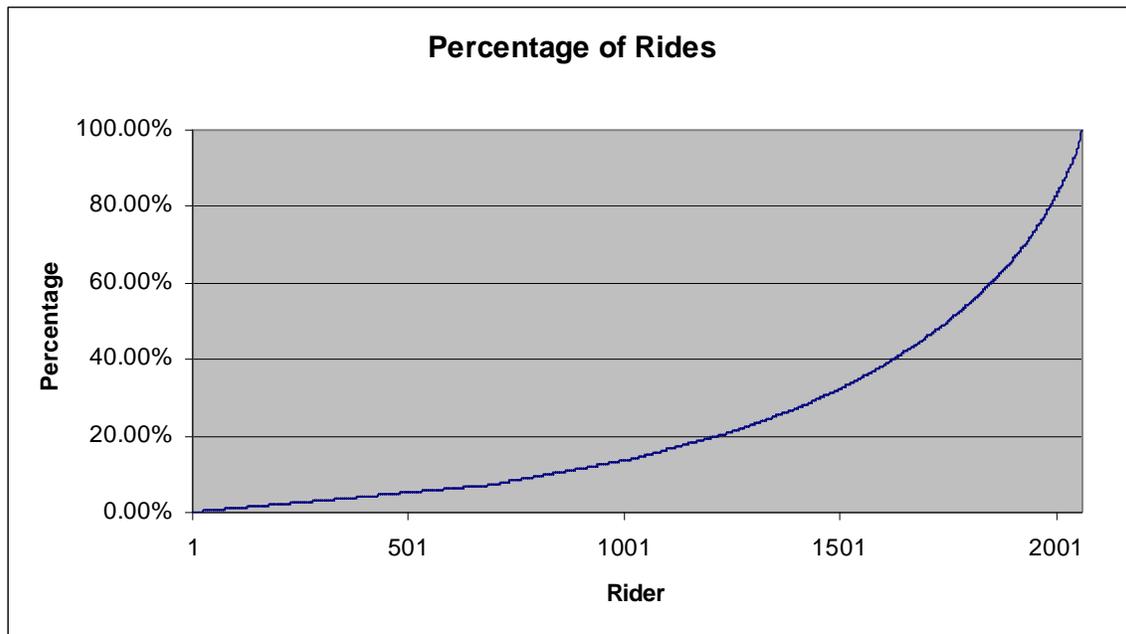
Figure 3.10 shows the percentage of riders as a function of the number of starts. From this it can be seen that 33% of the riders that started a 100-mile ride had only one start during the period, 16% had exactly two starts, *etc.* Notice how this tails off very rapidly. From this it can be concluded that almost 50% of the riders that started a 100 during the period started two or fewer.



Frequency Distribution Riders vs. Number of Rides  
Figure 3.10

The next analysis of the 1996 through 2004 data was to calculate the distribution of number of rides as a function of the riders. In order to accomplish this the list to riders were sorted by number of 100-mile ride starts with the riders with the least appearing first

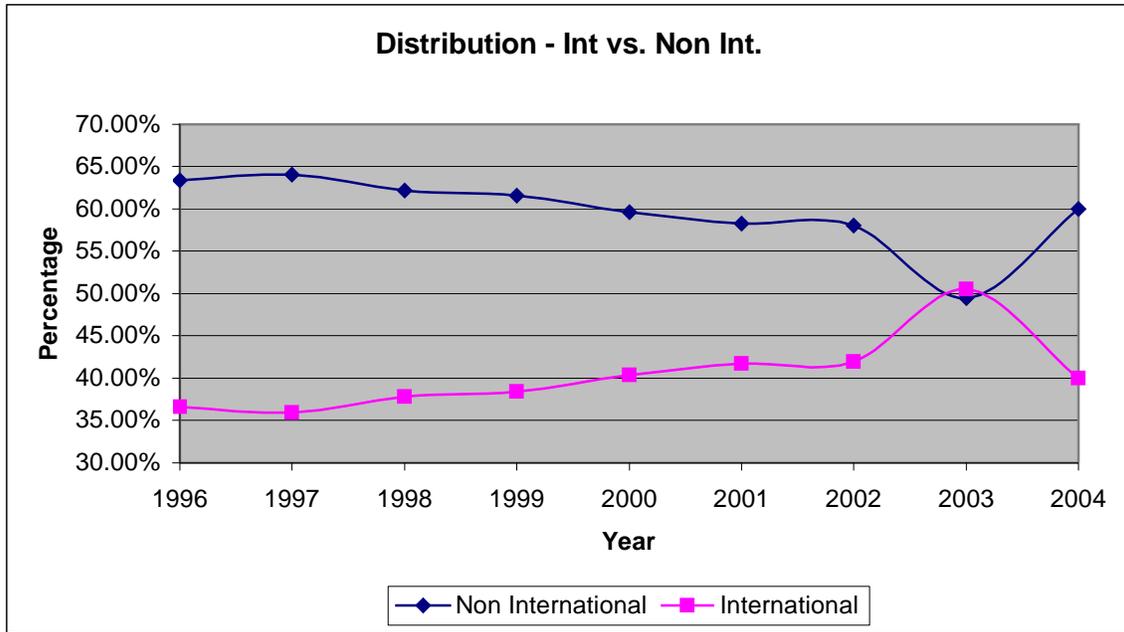
(one the left hand side of the axes in Figure 3.11). Then the cumulative number of rides was calculated as a function of rider. This curve is shown in Figure 3.11. This represents the percentage of rides done by a rider plus all the riders that come before him in the sorted order. The thing to note about this curve is how steep it becomes at the right. The active riders ( on the right hand side of the axes) are a small minority of the number of riders that have done a 100-mile ride over the period but they are very active. The 50 percent point of this curve is at rider 1749. That is the 310 riders above this point account for 50% of the 100-mile starts. In other words 15% of the riders account of 50% of all the 100 miles starts over the past 9 years. Of those 310 most active riders, 204 (or 65.8%) are AERC International members and can be assumed to be interesting in FEI riding.



Cumulative of Starts vs. Rider  
Figure 3.11

The final analysis on the 100-mile rides over the 1996 to 2004 period was to correlate the 100-mile starts to riders that are members of AERC International. In Figure 3.12 the distribution of 100 mile starts is shown for the two categories (AERC International members and AERC members that are not International members).

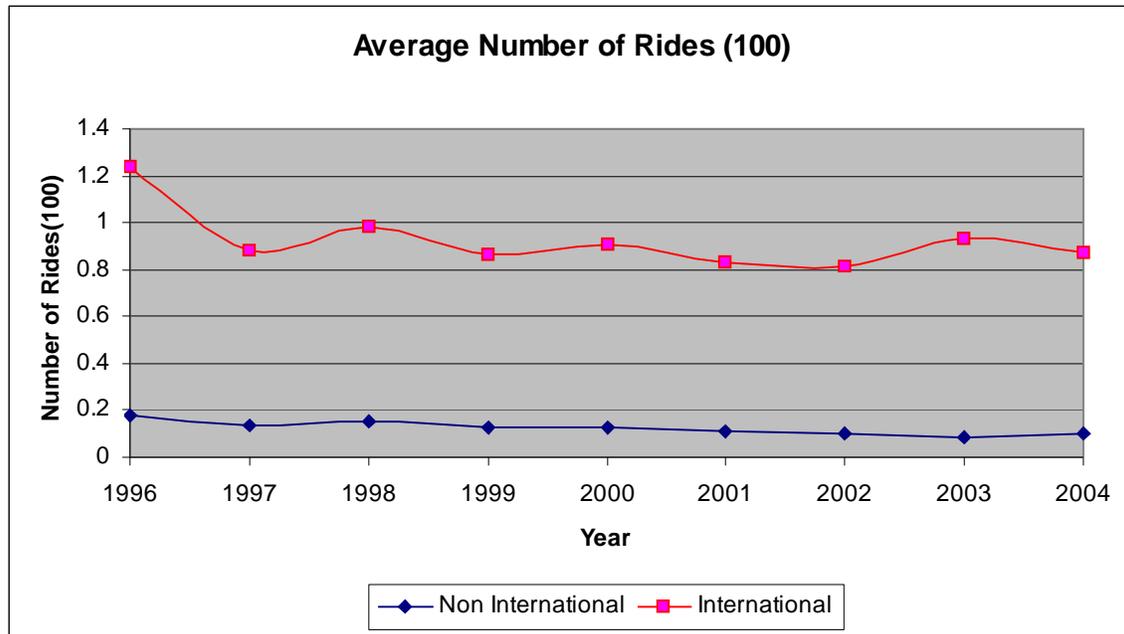
Since 1996 the percentage of 100-mile starts accounted for by non-International members has consistently fallen while the number accounted for by International members has risen. This crested in 2003 when International members accounted for more 100-mile starts than non-International members. The trend reversed in 2004, but this could have more to do with the 50<sup>th</sup> running of the Tevis than a reversal in the trend.



Distribution of 100-mile Starts for International Members and non-Members  
Figure 3.12

In Figure 3.13 the average number of starts for each category is calculated. That is in 1996, there were 1.2 100-mile starts for each AERC International member while there were less than 0.2 starts for each non-International member. Over the analysis period, the number of starts per member for International has been between 0.8 to 1 start per members with the exception of 1996 where it was a little over 1.2.

On the other hand the average number of starts for non-International members has decreased in a linear fashion from the peak of 0.17 in 1996 to 0.10 in 2004 with a low point of 0.08 in 2003.



Average Number of Starts for Each Category  
Figure 3.13

**4. Observations:** In this section some observations will be made. Care should be exercised in not drawing drastic conclusions based on this data alone. Also care should be used in applying any analysis of data and trends to crafting “solutions” to a perceived problem. However, long-term trends, especially those over a decade or more will provide valuable insight into the trends in the underlying population (AERC members in this case). Some of the trend analysis of the 100-mile distance used 15 years of data. This time period is sufficient to detect long-term generational trends. With these caveats some observations will be made.

4.1 AERC Membership Trends: The AERC is a growing organization. The weight divisions are flat and fairly uniform compared to the population. The Lightweight division is a little larger than the rest – but not significantly so. The junior population is growing faster than the population as a whole. The AERC membership is taking a swing toward the female side with 70% of the members in 2004 female.

4.2 Overall Ride Trends: We have seen a lot of the data on rides. I have posted reports as has Mike Maul supported by Bob Morris. The observation to be made from this data is the AERC is growing – all starts are up by 40%. The LD is the format that has grown the most. Similar analysis of the SE region has shown how growth in LD’s eventually translates in to additional growth in the Intermediate distances – but not necessarily the 100-mile distance. LD’s have been an integral part of endurance in the SE for a considerable time – time enough for any transient effects to be damped out and a steady state reached. Hopefully we are seeing the lag that is associated with the damping of transient effects and this happens in the nation as a whole.

The Intermediate rides are holding their own – when normalized to the growth in starts. However, there seems to be a shift in the type of rides. While the single day 50 is still the bread and butter, the multiple day ride format has enjoyed significant growth while the single day ride has remained flat in absolute numbers and actually declined when normalized to the growth in number of starts of Intermediate distance rides.

Some have suggested that the multiple day format has had a negative impact on the 100-mile ride and has added to the pressures that have led to the decline in the 100-mile starts. While that cannot be determined from looking at the database (member polls would be required), the multiple day format does appear to have wide appeal with the riders.

4.3 Fifteen Year 100-mile Ride Trends: The 100-mile ride is the foundation of the AERC. It all started with the 100-mile ride. “One day, one man, one hundred miles” has often been repeated when one describes an endurance ride. But the 100-mile ride has not enjoyed the fruits of the expansion of the AERC membership or starts. In fact it has declined in absolute numbers while all other factors are expanding. As far as 100-mile ride analysis was performed on two data sets. The first analysis considered the starts for the period of 1990 through 2004. The second, looked in more detail only at the period 1996 through 2004 – a period that the current database will support.

There was some concern that only looking back to 1996 in the 100-mile distance would bias the outcomes – what if 1996 was an abnormal year? In order to address this issue, the analysis was extended by to 1990 with the AERC office supplying the data. This is a 15 year (or  $\frac{3}{4}$  of a generation) of data.

The news for the 100-mile distance doesn't get any better by looking farther back. The peak number of 100-mile starters is 1610 in 1992 when the number of total starts was only 15292. This is compared to the minimum of 993 starts in 2003 when the total number of starts almost 5000 more or 2004 when the number of 100-mile starts was 1056 when the number of starts was almost 50% more (22,772) than in 1992. The percentage of 100-mile starts to total starts has gone from close to 10% during the period 1990 through 1992 to 4.6% in 2004. When weighted to number of starts this is over a 50% decrease. This stands out in both Figures 3.8 (number of starts) and 3.9 (percentage of starts).

The three peak number of starts were 1610 (1992), 1489 (1991) and 1425 (1995), and the minimum number were 1034 (1997), 1011 (2002), 993 (2003). This shows a significant difference in the two periods – prior to 1996 and after 1996 - with a significant decline the number of starts. This also shows that 1996 was not an abnormal year but the values were well in limits that would be expected given the statistically fluctuations of the 100-mile rider starts shown in Figure 3.8.

4.4 100-miler Rider Profile: The one thing that is very apparent is the 100-mile event over the analysis period of 1996 to 2004 is it has been dominated by a small group of very active riders. Of all the riders that started a 100-mile ride in the analysis period, 15% accounted for 50% of the starts. For all the riders that started a 100, slightly over one

third only started one. Ignoring the “boundary effects” this is still a very high number. By boundary effects are those that may have done their last 100 (of many) in 1996 or those that did their first (of many) in 2004). The question that begs to be asked is why so many “one and two timers?”

The FEI has engendered much debate. However, the one observation that seems clear is AERC members interested in international competition are the riders that are providing significant support of the 100-mile rides today. There is close to one 100-mile start from the pool of AERC International members for every AERC International member per year. That is over 5 times greater than the average number of starters per non-International member. Of the 310 most active 100-mile riders that account for 50% of the starts, 204 or 65.8% are AERC International members.

4.5: Concluding Remarks: The following remarks are base on my interpretation of the data, and in no way reflect the opinion of the AERC, or any other organization. The AERC is a healthy growing organization. It also appears to be a changing organization. Some of this change may be transient effects, *e.g.*, the rapid expansion of starts in LD may reach a steady state with the LD being a place to learn (for the most part) and feeding the Intermediate distance rides. This is what has been observed in the SE region (and I suspect the Central region although I have done the analysis for the SE but not for the Central). However, there is no indication that this process reaches into the 100-mile distance in the SE region data. The second thing that is apparent is the popularity in the multiple day ride format.

There is downward trend in the 100-mile ride stars that is apparent over a 15 year period (1990 through 2004). This trend is not an artifact of growth in other areas compared to the number of starts in 100-mile rides– it is observable in the data of absolute number of 100-mile ride starts. This is a long time period and the trend is real.

Over the past year the number of 100-mile starts have been for the most part accounted for by a small percentage of riders that started 100-mile rides. That is a small percentage of the riders (15%) that started 100 mile rides accounted for one half (50%) of the starts. One third of the riders that have started a 100 mile ride during the period only started one. Is this new or is this an artifact of there being no more ROC – hence no reason to do more than one to see how “you like it?”

It is clear that the riders interesting in FEI (AERC International members) support 100-mile rides at a much greater rate than those that are not AERC International members. However, the trend in the decline of 100-mile starts (an average decline of 33 starts/year) is still prevalent. This raises the question as to the ability the FEI rides, by their very selective nature – not many riders can participate in championship rides, to support the number of 100-mile starts that were supported in the period of 1990 through 1996.

