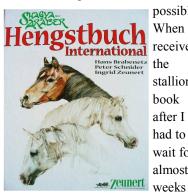
#### By Denis Atam:

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When the Stallionbook Shagya-Araber Hengstbuch

International was released in August, 2008 by Hans Brabenetz, Peter Schnider, and Ingrid **Zeunert**, the Shagya-Community worldwide-and as far as I know for the first time—had a global compilation of currently living Shagya stallion information. Everyone who is only slightly involved with Shagya-Arabians will understand that this undertaking itself is a major accomplishment and we all have to be thankful to the ones who helped to make this



possible. When I received the stallion book after I had to wait for almost 6

(mail delivery time from Europe)—I was very excited and first browsed through, but then read all the sections & pages. The book is a great documentation of Shagya bloodlines, Shagya pedigrees and also gives a great snapshot of the current status & development of the stallion population of each country.

Of course it is always a challenge to collect data at such a scale and in a

multicultural environment. Also the time this project took for the collection, compilation and verification of all the data might be a fact that not all information is 100% up-to-date or current. However the analysis and observations I made are based on the assumption that the population of the stallions, which were missed and therefore are not part of this Stallionbook (e.g. Israel, Spain) have a similar statistical distribution. The small margin of error is accepted here, especially when looking into general trends only.

Note: It was not possible to exactly convert metric units (cm for example) into US "hands". The resulting values in "hand" are calculated as close as possible.

A total of **287 stallions** are listed in the stallion book. Here are the number of stallions & percentages broken down by country:

Austria	AUT	51	18%
Bulgaria	BUL	5	2%
Czech Republic	CZE	19	7%
Denmark	DEN	9	3%
France	FRA	18	6%
Germany	GER	72	25%
Hungary	HUN	26	9%
Norway	NOR	11	4%
Romania	ROM	10	3%
Slovakia	SLO	20	7%
Sweden	SWE	4	1%
Switzerland	CHE	12	4%
USA	USA	24	8%
Venezuela	VEN	6	2%

Currently the majority of the stallions are in Germany, which translates to 1/4 of the global stallion population.

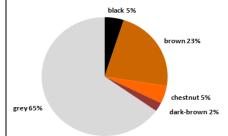
Some minor inconsistencies exist. For example, the horses from Italy are included in the numbers for Switzerland as the Swiss are doing the registrations for those horses. Also in some cases the death of a stallion was overlooked (for ex. the stallion Amurath Sammurai deceased in 2007).

### Color:

First I did some general stats like the distribution/percentage by color. As expected the color grey dominates (with 65%), but I thought it was interesting so see that the color brown with 23% was second.

Note: In a few cases the color of the stallion (stallion picture) did not match to the reported color (pg. 455, 459, and 469). After verifying with the author those errors where corrected. (however there might be still a few other errors, which have not been noticed and corrected yet).

#### **Color Distribution**



I also did some research on the Internet about genetics & color distribution as comparison.

I am referring to a publication issued in 1992 by Christine Schuster (data analyzed from Shagyas between 1949 and 1990).

The color distribution and average height of the Shagya stallions is as follows (1949 and 1990):

78.6% were grey with an avg. height of 156.4 cm (15.1 ½+ hands)

13.3% were brown with an avg. height of 158.1 cm (15.2 \( \frac{1}{4} \) hands)

The remaining 8.1% account for the colors black, chestnut and dark-brown – unfortunately no detailed data was available for those colors.

I found it very interesting that such a shift towards the color **brown** from **13.3% to 23%** occurred and the percentage of stallions with the color **grey** declined from **78.6% to 65%** (Christine Schuster data 1949-1990 compared with the data from the 2008 Stallionbook, Zeunert).

#### Height:

Across all stallions (at the time of the "Koerung") the average height is 157.8 cm (15.2+ hands). Some stallions had a second measurement of their height at a later stage (usually slightly taller), but in order to apply the most consistent analysis across all stallions I only considered the height, which was measured/recorded at the time of the "Koerung".

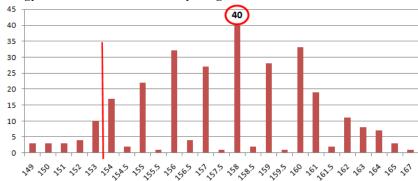
Comparing the data a slight increase in size is noticeable: 1949–1990 avg. is 156.46 cm (15.1 ½+ hands) and the data from the Stallionbook shows an avg. of 157.8 cm (15.2+ hands).

One interesting observation was that there were three stallions with only 149 cm (14.2 ½+ hands):

And one stallion was listed with 167 cm (16.1 <sup>3</sup>/<sub>4</sub> hands):

Stallion Name:	Height	Country	DOB
Hosam I	149 cm	SLO	1988
3599 Shagya XXVII	149 cm	SLO	1986
Shagya Jet AF	149 cm	USA	2004
Arshan	167 cm	NOR	1993

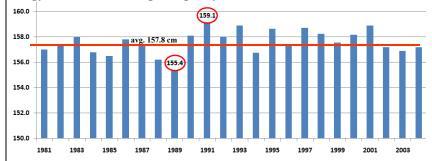
### Shagya-Stallions: Distribution by Height



This chart shows a distribution by height, which peaks with 40 stallions (14%) of having a height of 158 cm (15.2+hands). This number is fairly close to the group average, which is 157.8 cm (15.2+hands). The red line at 154 cm (15 ½ + hands) shows the minimum height requirement for stallions in order to receive breeding approval ("Koerung"). This rule was defined & established during the foundation of ISG (between 1978 and 1982, but not all countries implemented the rule during that timeframe).

Out of the current Shagya stallion population 23 (8%) are smaller than 154 cm (15  $\frac{1}{2}$  + hands) and 17 (6%) are right at 154 cm (measured at the time of their breeding approval/"Koerung"). Interesting is that 84 (30%) of the stallion population is 160 cm (15.3 hands) or taller.

### Shagya-Stallions: Average Height by Year of Birth



A jump in the average height can be noticed from the year 1989 with 155.4 cm (about 15.1 1/4 hands) compared to the year 1991 with 159.1 cm (15.2 3/4 hands).

This is an average increase in height of 3.7 cm (almost 1 ½ inch) in only 2 years. After sharing and discussing my analysis and observations with recognized & knowledgeable Shagya people from around the world, the explanation for this increase in average height might be based on the fact that the ISG studbook rules were revised during that timeframe and the minimum height requirement for stallions was reinforced in Europe.

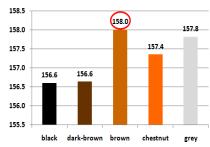
Here is another observation I made: From my personal experience I know that there is a lot of focus from Shagya-Breeders on the size/height of a stallion (the same applies also for Shagya mares). There is a lot of discussion in the Shagya community about the size/height of a Shagya and some people even fight over the height and the fraction of a cm/inch, when their Shagyas are inspected/approved for breeding.

Assuming size/height is really that important or even a driving factor, then we should expect to see the average size/height of the Shagya stallion population slowly increasing over time. The available data however does not support such a theory. The average size even declined in 2002, 2003 and 2004. One possible explanation for this phenomenon is that size/height is not a dominant factor (at least not the only one), when it comes to approve Shagya stallions for breeding.

### Shagya-Stallions: Average Height and by Color

Remarkable are two observations: The brown colored stallions have an

average height of 158.0 cm (15.2+ hands = tallest group) and the black colored stallions have the smallest average height of 156.6 cm (15.1 ¾ hands). This is 1.4 cm (more than ½ inch) difference on average between the black and brown stallions.



From my own experience and also from conversations with Shagya

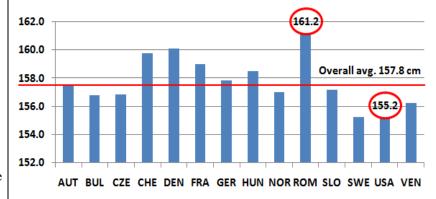
experts, one possible explanation is that black Shagya stallions are so few and rare that even "smaller than average" black Shagya stallions are promoted/approved, which might not be the case if they had a different color, e.g. grey.

Compared again with historical data (1949-1990) from the Christine Schuster analysis, the combined analysis (color & height) gives the following result:

The average height of grey stallions increased from 156.4 cm to 157.8 cm, which is a net increase of 1.4 cm on average, while the brown stallions almost remained at the same height (a drop from 158.1 cm to 158.0 cm, 0.1 cm less in height). However the absolute average height of brown stallions today is still 0.4 cm more compared to the grey ones.

## Shagya-Stallions: Average Height by Country

I did another analysis about the average height by country and made the following observations:



Romania seems to have the Shagya stallion population with the tallest average height of 161.2 cm (15.3 ½ hands), while the USA seems to have the

smallest average height of 155.2 cm (15.1 ¼ hands). A possible explanation is that in the USA stallions are approved for breeding often before the age of three, which is contrary to the ISG Studbook rules.

Note: Stallions even as young as a little over 2 year are approved in the USA, e.g. Rio Bravo AF was only 2 years and 2 month, when approved,, Evanescent Star AF, Shagya Jet AF, Sterling Silver AF just to name a few. At that young age those stallions are not yet mature and therefore smaller in size. In the USA stallions are also approved for breeding, which are below the ISG required minimum height (e.g. Rio Bravo AF with only 150 cm and Shagya Jet AF with only 149 cm).

Note: There are also different ways to measure the height of a horse ("Stockmass" and "Bandmass"). For the purpose to compare "apples with apples" I only considered those horses, where the "Stockmass" height data was available.

# **Sire-Lines & Mare-Families:**

I also decided to do an analysis about the sire lines and mare families in relation to their color & height to see whether any observations can be made here.

Note: For this analysis I only looked at the top six sire-lines and top six mare-families, as the number of representatives for the remaining lines/families, were getting too small in order to be statistical meaningful (For example in case there is only I representative for one sire-line and that representative is black—it would give 100% black for that sire-line, which is definitely not correct/meaningful). Therefore I considered / analyzed only groups, which had at least 10 or more representatives.

The table on the right side shows the absolute numbers of stallions for

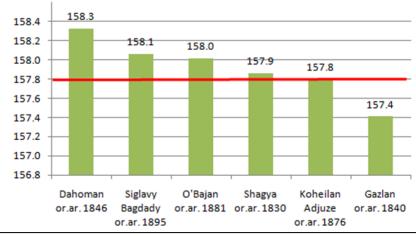
### Frequency of Sire-Lines in Stallion Population

Sire-Line	#	%	avg. height in cm
Gazlan or.ar. 1840	72	25.1%	157.4
Shagya or.ar. 1830	54	18.8%	157.9
O'Bajan or.ar. 1881	46	16.0%	158.0
Koheilan Adjuze or.ar. 1876	25	8.7%	157.8
Dahoman or.ar. 1846	15	5.2%	158.3
Siglavy Bagdady or.ar. 1895	14	4.9%	158.1
Hadban or.ar. 1891	8	2.8%	158.4
Saklawi I or.ar. 1886	8	2.8%	156.1
Mersuch or.ar. 1898	7	2.4%	161.1
Jussuf, AV 1869	5	1.7%	156.6
Bairactar or.ar. 1813	4	1.4%	158.5
Kemir, AV 1905	4	1.4%	157.3
Krzyzyk or.ar. 1869	4	1.4%	155.0
El'Sbaa 1920	3	1.0%	160.7
Ibarahim or.ar. 1900	3	1.0%	158.7
Kuhailan Hafi or.ar. 1923	3	1.0%	156.0
Gamil El Kebir, or.ar. 1870	2	0.7%	152.5
Kuhailan Afas or.ar. 1930	2	0.7%	161.5
Kuhaylan Zaid or.ar. 1931	2	0.7%	152.5
Latif or.ar. 1903	2	0.7%	156.0
Hami or.ar. 1851	1	0.3%	157.0
Kuhaylan Afas or.ar. 1930	1	0.3%	160.0
Souakim db, 1894	1	0.3%	157.0
Zubeyni or.ar. 1844	1	0.3%	158.0

each sire-line, the percentage, and the average height in cm of the stallions for that particular sireline. There are 24 sire-lines in total.

79% of the current Shagya stallion population belongs to one of these top 6 sire-lines.

Looking into the average height (chart below) it is interesting to see that the top 6 sirelines, which are represented the most (with 79%) also build the group of the six – on average – tallest stallions, while the order is slightly different.



For each of this six sire-lines I also looked into the color distribution and found a high degree of variation between the different sire-lines.

The first number is the number of stallions with that color, the second number is the percentage within the sire-line and the third number is the comparison to the overall stallion population. Because some of the numbers are fairly small even a few representatives more or less in one

	#of Stallions	% in Sire- Line	% across all Stallions
Dahoman or.ar. 1846	Stallions	Line	Stallions
	40	670/	070/
brown	10	67%	23%
chestnut	1	7%	5%
grey	4	27%	65%
Gazlan or.ar. 1840			
black	8	11%	5%
brown	14	19%	23%
chestnut	2	3%	5%
dark-brown	3	4%	2%
grey	45	63%	65%
Koheilan Adjuze or.ar. 1876			
brown	7	28%	23%
chestnut	1	496	596
grey	17	68%	65%
5'-1		00,0	0370
O'Bajan or.ar. 1881			
black	1	2%	5%
brown	6	13%	23%
dark-brown	1	2%	2%
grey	38	83%	65%
Shagya or.ar. 1830			
brown	9	17%	23%
grey	45	83%	65%
Siglavy Bagdady or.ar. 1895	_		
brown	3	21%	23%
chestnut	3	21%	5%
grey	8	57%	65%

color could give a different result, I was just looking into high-level observations/general trends. I high-lighted the numbers in yellow I found remarkable.

This is what I found:

- 1. There is a higher percentage of brown Shagya stallions going back to the Dahoman 1846 sire-line with 67% (in comparison: the overall group average is at 23%). At the same time the percentage of grey colored Shagya stallions of that sire-line is only at 27% compared to the overall group average of 65%. It seems that the conclusion is possible/valid that Shagya stallions going back to the Dahoman 1846 sire-line have a higher affinity to the color brown. They are more often brown and less likely to be grey, which is a true observation for the knowledgeable Shagya breeder.
- 2. Related to the Gazlan 1840 sire-line it seems that this line has the highest percentage of black colored stallions currently living (11% and in comparison the group average is 5%). Something similar can be observed with the sire-line Siglavy Bagdady 1895 which has a higher percentage of chestnut stallions currently living (21% while the group average is only at 5%).
- 3. Both sire-lines O'Bajan 1881 and Shagya 1830 have a higher than the group average affinity for grey (O'Bajan 83% and Shagya 83% while the group average is only 65%).

#### Frequency of Mare-Families in the Stallion Population:

			avg. height
Mare-Family	#	%	in cm
74 Tifle or.ar. 1810	43	15.0%	157.2
215 Moldauerin, 1782	18	6.3%	156.8
370 Moldauerin, 1783	18	6.3%	157.7
40 Lady Sarah, xx 1850	12	4.2%	156.7
542 Ungarin 1790	12	4.2%	157.3
216 Semrie or.ar. 1896	10	3.5%	158.9
30 Maria xx, 1842	9	3.1%	158.1
627 Ungarin, 1787	8	2.8%	157.9
257 Ungarin, 1791	7	2.4%	159.4
638 Moldauerin 1785	7	2.4%	159.9
759 Moldauerin, 1804	7	2.4%	159.3
81 Kohaila or.ar. 1881	7	2.4%	158.2
Milordka 1810	7	2.4%	159.4
253 Moldauerin, 1783	6	2.1%	157.9
449 Moldauerin, 1781	6	2.1%	157.7
59 Siebenbuergerin 1786	6	2.1%	156.2
592 Gratiosa, 1803	6	2.1%	158.8
794 Moldauerin, 1784	6	2.1%	158.2
Kadisza Mloda, 1902	6	2.1%	156.7

I did a similar analysis for the mare-families across the stallions from the Stallionbook.

As there were a lot more mare-families (a total of 61) than sire-lines I am only listing the top ones were there were at least six or more stallions going back to that mare family (see left table).

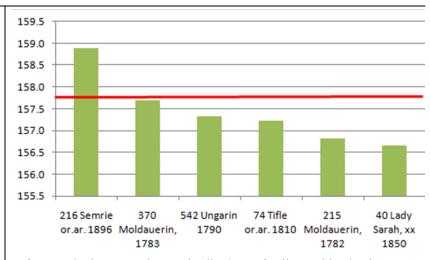
The top six mare-families represent 39.4% of the mare-families, which means 39.4% of the stallion population (based on the Stallionbook, Zeunert) are going back to one of those six mare-families.

The 74 Tifle or.ar. 1810 line is the one which can be found most often (15% of the time). When analyzing whether any of the mare-families shows a statistical trend of interest in regards to average height only the stallions going back to the marefamily 216 Semrie or. ar. 1896 are taller with an avg. height of 158.9 cm (15.2 ½+ hands) than the group average with 157.8 cm (15.2+ hands) (see chart on the right side).

In regards to any significant variation related to color—except for 74 Tifle or.ar. 1810 with a slightly higher percentage than the group average for black no observations or conclusions were possible.

	#of	% in Sire-	% across all
	Stallions	Line	Stallions
74 Tifle or.ar. 1810			
black	5	12%	5%
brown	7	16%	23%
chestnut	2	5%	5%
dark-brown	1	2%	2%
grey	28	65%	65%

I could not find a stallion in the Stallionbook Zeunert out of a combination of the Dahoman 1846 sire-line and the 216 Semrie or. ar. 1896 mare-family. Those sire-line/mare-family seem to have the biggest influence in regards to the height of a stallion today, but no stallion data was available to prove any theory here.



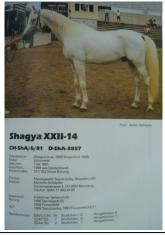
Unfortunately there was also no sire-line/mare-family combination between the four tallest sire-lines and mare-families. It also would have been interesting to understand, why breeders did not pair (more often or recently) between those sire-lines/mare-families in the past.

Only a few representatives exist of stallions going back to the O'Bajan sireline, who have one of the six previously mentioned mare-lines in their pedigrees (see below):

Stallion	Country	DOB	Height	Sire Line	Mare Family	Color
Obi Wan	GER	1988	159	O'Bajan or.ar. 1881	216 Semrie or.ar. 1896	grey
Osiek	GER	1995	160	O'Bajan or.ar. 1881	216 Semrie or.ar. 1896	grey
Zetan	GER	1987	154	O'Bajan or.ar. 1881	216 Semrie or.ar. 1896	grey
Or-Khan	AUT	1997	159	O'Bajan or.ar. 1881	370 Moldauerin, 1783	dark-brown
4553 O'Bajan XVIII-7	HUN	2000	161	O'Bajan or.ar. 1881	370 Moldauerin, 1783	grey
Murad	USA	1996	156	O'Bajan or.ar. 1881	370 Moldauerin, 1783	grey

As there are only three representatives for each of the combinations the sample size is too small to draw any conclusions.

Picture on the right shows **Shagya XXII-14** born in 1981 (the "oldest" Shagya stallion recorded in the Stallionbook Ingrid Zeunert).



#### Age:

The average age of all stallions is 12.8 years. 1995 represents the year where the largest number of stallions were born (24), which later received "approved" status (Koerung). Due to certification rules/requirements the Stallionbook does not and cannot contain stallions before the age of three.

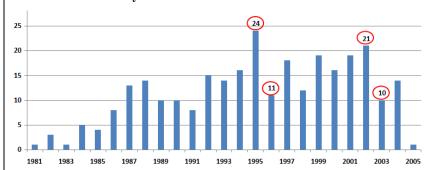
Note: This minimum age rule is according to the ISG General Studbook Guidelines & Regulations, however as already mentioned before, there are several exceptions—primarily stallions from the USA, which were approved for breeding prior to reaching the age of three.

Also into consideration has to come the fact that not all stallion owners present their stallion at the age of three (earliest possible date according to ISG rules/regulations). There are some stallions out there, which will be approved in the future (at a later age), therefore those are not part of the Stallionbook and their data is not reflected in the analysis/ findings of this report. From my point of view the data related to the age (number of stallions by birth year) needs to be looked at very carefully and probably is slightly off for the years 2005, 2004 and probably partially also for 2003.

The oldest (at the time of the Stallionbook publication) living stallion is 27 years (see below).

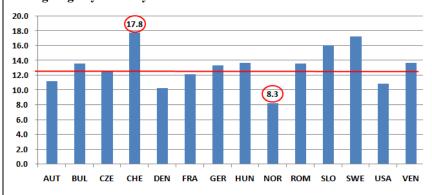
Stallion Name: Country DOB Shagya XXII-14 Swiss 1981

## Number of Stallions by Birth Year:



This chart shows what normally can be expected. The curve is flattening out at the end (left side) where the stallions are older, the majority of the stallions can be found in the middle section and towards the front (right side). Interesting is that a "high number year" of stallions – birth year 1995 and also 2002 – is followed by a low number of stallions born (and later approved) the following year. There was no supporting data available to draw any conclusions or whether this is just a variation caused by Mother Nature.

#### Average Age by Country:



The second chart provides a more insight view about the age structure of the stallions by country. Switzerland (CHE) has the "oldest" Shagya stallion population with an average age of 17.8 years, while Norway has the "youngest" Shagya stallion population with an average age of only 8.3 years.

A more in-depth analysis is probably required to identify the influencing factors here, but from personal conversations I had with breeders in Switzerland I know that it became quite expensive to raise a stallion there and to develop a young colt to the level where the colt will be approved (or not). It also would also be interesting to find out what the driving factors are for the younger Shagya stallion population in Norway. One thought is that there might be a more favorable and growing/future market for Shagyas there.

### **Grouping of Stallions by Age:**

After I did my initial analysis I thought whether grouping some of the stallions by age and then analyzing the data would give any additional insight.

One challenge is that the entry age for stallions is 3 years and therefore not all stallions are included in the Stallionbook as mentioned earlier, because some stallions might be approved at a later stage/age. On the other hand I wanted to group the data in a way which I thought would be meaningful. I acknowledge that a different grouping might create slightly different results.

My decision was to divide the stallion data into the following three groups (the age was determined at the of the Stallionbook publication—means age of the stallions in 2008):

a) Group 1: age 3-9 years

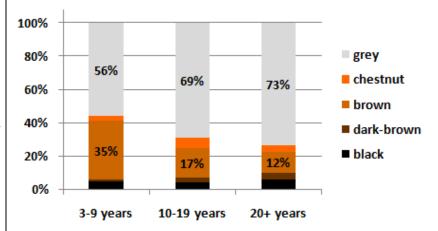
b) Group 2: age 10-19 years

c) Group 3: age 20 years and above

Group	#	%
3-9 years	100	35%
10-19 years	138	48%
20+ years	49	17%

Then I wanted to see whether the factor color is of any significance between the three groups compared it with the overall color distribution of the entire group.

	3-9 years	10-19 years	20+ years	Group
black	5%	4%	6%	5%
dark-brown	1%	3%	4%	2%
brown	35%	17%	12%	23%
chestnut	3%	7%	4%	5%
grey	56%	69%	73%	65%



One interesting observation was the increase in the number of brown stallions (from 12% to 17% to 35% from the oldest to the youngest group). Obviously/subsequently the percentage of the grey stallions is declining at the same time. The percentages for the other colors pretty much is stable across all three groups. This could lead to the conclusion that color is (or has become) an increasing decision factor for either breeding or stallion approval related decisions (means other colors than grey became more "attractive").

When I looked into the average height for each of the three groups I got the following results:

3-9 years	10-19 years	20+ years	Group avg.
157.8	158.0	157.0	157.8

However the comparison of the average height across those three groups did not provide any new insights or conclusions.

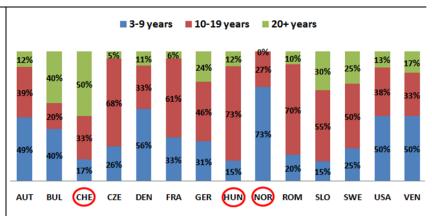
# **Grouping of Stallions by Age and by Country:**

The following analysis (chart on the right side) looks into the age distribution for each group and by country.

I want to highlight the following countries, where I think something interesting can be seen: Hungary HUN and Norway NOR—they are also shown side by side at the chart. As the knowledgeable Shagya owner/breeder knows Hungary/ Babolna has faced quite some challenging times during the last couple of years. With the economic & political uncertainties it is not a surprise that the "age pyramid" in Hungary does not show a higher or more favorable number of approved stallions in the stallion age group of 3-9 years. Why would someone breed & approve Shagya stallions with the uncertain situation Hungary & Babolna was faced with?

The high percentage of the stallions in the youngest stallion group from Norway (avg. age of their stallions is 8.3 years) might again support the conclusion that the market conditions for Shagya stallion are more favorable there and/or that there is an expectation for a growing and future market there.

Another observation is the age distribution for Switzerland, which shows the highest percentage (50%) of "old" Stallions (3<sup>rd</sup> age group 20+ years), with an average of 17.8 years. I already explained earlier possible influencing factors here.



### **Number of Off-Springs:**

The Stallionbook also contains information about the number of female & male off-springs, however I realized that the information was not up to date in many cases and therefore no representative statistical analysis could be done here. Therefore I only want to mention the 4 stallions with the largest number of off-springs (mentioned/recorded in the Stallionbook):

Stallion	Country	DOB	# offsping	Color	Height
Shogun (Shagya I, F)	FRA	1986	110	grey	160 cm
Mefistofel	BUL	1988	90	brown	160 cm
Dahoman XXXIX	ROM	1988	85	brown	160 cm
3023 Koheilan Kenitra	HUN	1992	85	brown	161 cm

The stallion Shogun leads the list with 110 off-springs. What I found remarkable was the fact that three stallions were brown, which might be an indicator that the color of a stallion becomes a factor when making breeding decisions. However—as mentioned before—I was missing most of the off-spring data from the majority of the stallions and therefore a final conclusion cannot be made here. Also this analysis will shift as the stallions, which are younger, haven't produced as many off-springs (yet) as their older fellows.

Picture on the right shows **Arshan** born in 1993 (he is the "tallest" Shagya stallion with 167 cm recorded in the Stallionbook Ingrid Zeunert).

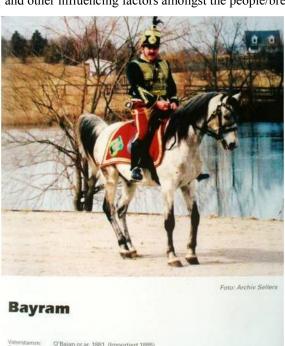


### **Closing Statement/Summary:**

In closing my report and analysis I want to outline that I used all diligence to analyze the data in the most accurate way. The accuracy of the data itself however is still a factor and I cannot guarantee the correctness of the data taken from the Stallionbook. I also cannot guarantee that no errors have occurred with my own data collection & analysis (while I double & triple checked everything). For the interested reader – please consider the conclusions and findings only as *general observations* and look at them more to identify & highlight trends rather than absolute facts/data.

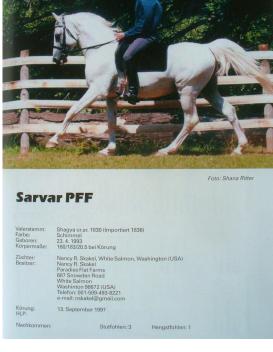
With this report and my personal conclusions/observations I hope I can provide some interesting aspects about our current living Shagya stallion population and help the Shagya community to understand the trends that might exist and in which direction the breed seems to develop.

At the end of the day it is the breeders/owners decision to which stallion he/she will breed his/her mare and whether it is a 16.1 hand grey stallion or a 15.1 hand brown or black stallion. It also depends on opinions & likes/dislikes, reputation, perceptions and other influencing factors amongst the people/breeders.



š. 8. 1991 155/187/18.2 bei Körung

na M. Sellers / Elisha Wille Morehead



### Sources/References:

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Araber Journal, Mai/Juni 2008 Betty Finke

This article/analysis can also be found at: www.shagyaregistry.com or www.shagya.us