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# CHARACTERIZATION OF SOME PRODUCTIVE AND REPRODUCTIVE TRAITS OF SYRIAN SHAMI AND HOLSTEIN COWS UNDER SYRIAN CONDITIONS

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## SUMMARY

*The objective of this study was to evaluate the productive and reproductive performances of Shami and Holstein cows under the Syrian conditions. In this study, 2654 and 4289 records were collected on 569 Shami and 1669 Holstein cows, respectively during the period from 1978 to 2015 of two experimental stations, Ministry of Agriculture and Land Reclamation, Syria. Data were analyzed using the General Linear Model (XLSTATE. 2020). Age at first calving (AFC), calving interval (CI), total milk yield (TMY), daily milk yield (DMY), and lactation period (LP) were significantly affected (p<0.01) by the breed. The least-square means for AFC, CI, TMY, DMY, and LP were 31±0.14 months, 442±2.83 days, 1587±34.89 kg, 9.1±0.09 kg and 165±2.0 days in Shami breed, respectively, compared to 28.1±0.10 months, 432±3.34 days, 5494±41.21 kg, 16.7±0.11 kg and 332±2.36 days in Holstein breed, respectively, under Syrian conditions. The present study revealed that Shami cows performed less estimates in all studied traits compared to the Holstein cows under the Syrian conditions. Successful management and genetic improvement for Shami cows could enhance their productive and reproductive performances.*

***Keywords: Productive, Reproductive, Syrian Shami, Holstein***

## INTRODUCTION

The improvement of Animal production performance depends on the genetic structure of the animal. Providing the proper feeding, appropriate management and adequate veterinary services allow the animal to express its genetic potential and consequently obtain the highest yield. While unfavorable environmental conditions cause decreasing in the productive and reproductive performance of farm animals (Ansell, 1981).

Local breeds are characterized by less efficiency and late maturity compared to the Holstein cows. But it is necessary to maintain and conserve the local breeds because those breeds can tolerate the harsh environmental conditions for a lot of hundreds of years. sides, Holstein cows suffer lacking adaptability in unfavorable environmental conditions (Rojas-Downing *et al*., 2017).

Age at first calving (AFC) reflects the growth rate of heifers. Reducing AFC contributes to genetic progress by reducing the generation interval (Pirlo *et al*., 2000). Decreasing AFC can provide a lot of anumber of calving and milk production from cows during their lifespan and reduces high replacement costs. The typical AFC should be around 24 months (Sawa *et al*, 2019).

Delayed AFC raises the rearing costs and reduces total milk yield during productive life and leads to a loss of the income of dairy farms. The main reason for delayed the AFC is inappropriate feeding for heifers that causes late sexual maturity (Duplessis *et al*. 2015).

Calving interval (CI) is a crucial factor in determining the reproductive performance and income of dairy production (Alemayehu and Moges, 2014). Typical CI results in an increased number of calvings and reduces drying off periods that lead to getting more milk produced from cows during their productive life. Most authors reported that the optimum CI ranges between 365-380 days (Azizunnesa, 2002). Calving interval has low heritability, so it can be reduced through feeding and successful management. Milk production level and persistence are important factors for determining the proper calving interval (Mukasa-Mugerwa *et al*., 1991).

The lactation period of dairy cows contributes to determining the total milk production, daily milk yield, and persistence. The standard lactation period should be around 305 days. Generally, local cows have a short lactation period compared to Holstein cows (Mulugeta and Belayneh, 2013).

The present study was designed to characterize some the productive and reproductive performances of Syrian local Shami and Holstein breeds under the Syrian conditions.

## MATERIALS AND METHODS

### *Data:*

Data used in the present study were collected from two farms under Syrian conditions and covered 38 years (1978-2015). The first farm contains 2654 records for 569 Syrian local Shami cows belonging to the Deir al-Hajar station. The second farm contains

4289 records for 1669 Holstein cows belonging to the Fedio dairy station.

***Herd management:***

Animals in the two farms were reared under a free housing system in semi-closed sheds. Feeds were offered twice a day. Water was available. In the first farm (Shami), heifers were naturally inseminated for the first time when they reach the age of 18 months taking into account the weight of the heifer. In the second farm (Holstein), heifers were artificially inseminated when they reach the age of 13-15 months taking into account the weight of the heifer. All cows in the two farms were machine milked twice a day at 06.00 a.m. and 6.00 p.m.

***Studied traits:***

***a- Productive traits:***

1-Total Milk Yield (TMY, kg): milk production through lactation period.

2- Daily Milk Yield (DMY, kg): total milk yield /lactation period.

3- Lactation Period (LP, days): number of days in milk, from calving date to dry off date.

***b- Reproductive traits:***

1- Age at First Calving (AFC, month): The number of days between date of birth and date of the first calving of a cow divided by 30.5.

2- Calving Interval (CI, days): The period of time elapsed between two consecutive parturitions.

***Statistical analysis:***

Data were subjected to statistical analysis of variance as repeated measurements, using the General Linear Model of (XLSTAT 2020.3.1.27 program). The effect of farm is not included in the following statistical model, because each farm contains one breed only. The two statistical models used were as follows:

*The first model for age at first calving trait:*

$Y_{ijkl} = \mu + B_i + Y_j + S_k + e_{ijkl}$

Where:

$Y_{ijkl}$=the observation of age at first calving trait,

$\mu$ = the overall mean,

$B_i$= the fixed effect of $i^{th}$ breed (i=1, 2,), where 1= Syrian Shami cows, and 2=Holstein cows,

$Y_j$= the fixed effect of $j^{th}$ year of birth(j= 1,2,3), where 1=1978-1989, 2= 1990-2001, and 3= 2002-2013,

$S_k$= the fixed effect of $k^{th}$ season of birth(k=1, 2, 3, 4), where 1= winter, 2= spring, 3= summer and 4= autumn, and

$e_{ijkl}$=the random error assumed N I D (0, $\sigma^2$ e)

The second model for the other studied traits:

$Y_{ijklm} = \mu + B_i + Y_j + S_k + P_l + (B \times P)_{il} + e_{ijklm}$

Where:

$Y_{ijklm}$=the observations of productive and reproductive traits,

$\mu$ = the overall mean,

$B_i$= the fixed effect of $i^{th}$ breed (i=1, 2,), where 1= Syrian Shami cows, and 2= Holstein cows,

$Y_j$= the fixed effect of $j^{th}$ year of calving (j= 1,2,3), where 1=1980-1991, 2= 1992-2003, and 3= 2004-2015,

$S_k$= the fixed effect of $k^{th}$ season of calving (k=1, 2, 3, 4), where 1= winter, 2= spring, 3= summer and 4= autumn,

$P_l$ =the fixed effect of $l^{th}$ parity, where (l=1, 2, 3, 4, ≥ **5),**

$(B\times P)_{il}$ = the effect of the interaction between $i^{th}$ breed and $l^{th}$ parity, and

$e_{ijklm}$ =the random error assumed N I D (0, $\sigma^2$ e).

## RESULTS AND DISCUSSION

***a- Productive traits:***

The results in this study showed that the breed and year of calving affected significantly all studied productive traits. While the season of calving had no significant on all studied productive traits. The effect of parity was highly significant on total milk yield (TMY) and daily milk yield (DMY). The interaction between breed and parity had a significant effect on the lactation period only (Table 1). These results in the current study agree with those of Toure *et al* (2019) in Mali, Basak and Das (2018) in India and Abera (2016) in Ethiopia.

**Table 1. Level of significance (p<) of the factors affecting the productive traits**

| Source of variation | P< | | |
|---|---|---|---|
| | Total milk yield (kg) | Daily milk yield (kg) | Lactation period (day) |
| Breed | 0.0001 | 0.0001 | 0.0001 |
| Year of calving | 0.0001 | 0.0001 | 0.0001 |
| Season of calving | 0.169 | 0.452 | 0.122 |
| Parity | 0.0001 | 0.0001 | 0.808 |
| Interaction between breed and parity | 0.287 | 0.0084 | 0.0005 |

***1- Least-square means of the studied productive traits as affected by breed:***

The total milk yield (TMY) of Holstein cows (5494 kg) was significantly higher than that of Syrian Shami cows (1587 kg) as shown in Table 2. It could be mainly attributed to the difference in genetic potential between the two breeds, management practices, and feeding system in the two farms. These results were in accordance with those of Mekonnen and Selam (2020) who reported that the effect of breed on total milk yield was clear enough, they found the TMY was 3311 kg of Holstein cows compared to

771 kg in purebred cows under Ethiopia conditions. Likewise, Ali *et al* (2019) found that milk production was higher in Holstein Friesian (2678 kg) compared to (594.4 kg) of Achai cows in Pakistan. Also, Ghoneim *et al* (2018) reported that the total milk yield in Holstein Friesian was (7024.41 kg) higher than that (2761.47 kg) in local cows in Egypt, they attributed the difference in milk production among breeds to difference in udder conformation scores and milking characteristics among breeds (Busato *et al*., 2000).

The above results can confirm the highly significant effect of breed on total milk yield in different countries.

Daily milk yield (DMY) in the present study of Holstein cows (16.7 kg) was and highly significantly greater than that of Shami cows (9.1 kg). It may be attributed to the total difference in genetic structure between the breeds. This result was in agreement with that of Toure *et al.* (2019) who found that the DMY was 5.13 kg of Holstein crossbred compared to 3.17 and 3.05 kg in local Azawak zebu and local Peul and Maure, respectively, in Mali. Also, Manzi *et al* (2020) reported that the local pure Ankole cows had a lower daily milk yield (1.8 kg) compared to 4.6 kg in the crossbreds (Ankole × Friesian) in Rwanda. Tadesse and Dessie (2003) reported that the Holstein Friesian breed produced daily milk yield (9.43 kg) higher than the local Barca breed (2.98 kg) in Ethiopia. Mamun *et al* (2015) found that the daily milk yield was higher in the Holstein Friesian crossbred (7.64 L) compared to (1.75 L) in local cows in Bangladesh. Ghoneim *et al* (2018) reported that the daily milk yield in Holstein Friesian was (20.78 kg) higher than that (10.97 kg) in local cows in Egypt.

The Holstein breed in the current study had a lactation period (332 days) longer than Shami cows (165 days) (Table 2). This is mainly attributed to the genetic structure of breed and also milk yield in Holstein cows was higher than Shami cows. Sides, Holstein breed had high persistency compared to the Shami breed. This result was similar to Mekonnen and Selam (2020) who observed that local cows had a shorter lactation period (198) days than that of Holstein cows (335 days) under Ethiopia conditions. Hermiz and Hadad (2020) reported that the Simmental had a higher lactation period (302.95 days) comparing with Friesian (296.81 days) and Bokane (293.24 days) under Iraqi conditions. Tadesse and Dessie (2003) reported that the Holstein Friesian breed had a lactation period (362 days) longer than the local Barca breed (279 days) in Ethiopia. Ghoneim *et al.* (2018) reported that the lactation period in Holstein Friesian was (347.63 days) longer than (254.83 days) in local cows in Egypt.

**Table 2.Least-square means and standard error (LSM±SE) for studied productive traits as affected by breed, year and season of calving and parity**

| Source of variation | Total milk yield (kg) | Daily milk yield (kg) | Lactation period (day) |
|---|---|---|---|
| **Breed** | | | |
| Shami | $1587^{a}$±34.89 | $9.1^{a}$±0.09 | $165^{a}$±2.0 |
| Holstein | $5494^{b}$±41.21 | $16.7^{b}$±0.11 | $332^{b}$±2.36 |
| **Year of calving** | | | |
| 1980-1991 | $3478^{b}$±57.53 | $13.2^{b}$±0.15 | $242^{a}$±3.29 |
| 1992-2003 | $3329^{a}$±33.10 | $11.8^{a}$±0.08 | $258^{b}$±1.89 |
| 2004-2015 | $3814^{c}$±38.65 | $13.8^{c}$±0.10 | $246^{a}$±2.21 |
| **Season of calving** | | | |
| Winter | $3515^{a}$±44.18 | $12.9^{a}$±0.11 | $245^{a}$±2.53 |
| Spring | $3564^{a}$±49.60 | $13.0^{a}$±0.13 | $251^{a}$±2.84 |
| Summer | $3478^{a}$±47.91 | $12.8^{a}$±0.12 | $247^{a}$±2.74 |
| Autumn | $3604^{a}$±44.34 | $13.0^{a}$±0.11 | $252^{a}$±2.54 |
| **Parity** | | | |
| 1 | $3160^{a}$±37.37 | $11.3^{a}$±0.10 | $249^{a}$±2.14 |
| 2 | $3513^{b}$±44.36 | $12.7^{b}$±0.11 | $251^{a}$±2.54 |
| 3 | $3635^{bc}$±54.57 | $13.4^{c}$±0.14 | $250^{a}$±3.12 |
| 4 | $3746^{c}$±70.90 | $13.7^{c}$±0.18 | $249^{a}$±4.06 |
| ≥ 5 | $3648^{bc}$±73.0 | $13.5^{c}$±0.19 | $245^{a}$±4.18 |

Means followed by different superscripts are significantly different ($p<0.05$), Means followed by same superscripts are not significantly different.

***2-Least-square means of the studied productive traits as affected by year and season of calving:***

The effect of year of calving on all studied productive traits was significant as shown in Table (1). The differences in studied traits between periods could be attributed to variations in management conditions, climate, and feed quality and system. Similar results to the present study were also reported by Manzi *et al* (2020) of cows in Rwanda. On the contrary, Chaudhary *et al* (1996) found that year of calving was no significant effect on the daily milk yield of the Holstein Friesian cows in Pakistan.

The effect of season of calving on TMY, DMY, and LP was non-significant (Table 2). These findings agree with those of Bayou *et al* (2015) on Sheko cattle in Ethiopia. On the contrary, Ayeneshet *et al* (2018) showed that the highest DMY occurred(2 and 1.75 L) during Jun-Aug and Sep-Nov respectively, and the lowest (0.73 and 0.28 L) during Dec-Feb and Mar-May, respectively, on local dairy cows in Ethiopia. Cilek and Bakir (2010) observed that the LP was prolonged in cows calved in winter, due to increased milk production combined with the availability of quality feed in Brown Swiss cows in Turkey.

***3-Least-square means of the studied productive traits as affected by parity:***

The results showed that there was an increase in the TMY and DMY with the progress of the parity and up to the fourth parity (3746 and 13.7 kg, respectively), then decreased after that (Table 2). This could be due to increase the capacity of feed intake compared to the cows of the first parity, and full development of the mammary glands, which led to an increased of the TMY and DMY. While decreased TMY and DMY after the fourth parity might be due to increased mortality of secretory cells with advancement of age. Likewise, Manzi *et al* (2020) reported that the cows in the fourth parity produced highest milk yield and the lowest was that of the first party in Rwanda. On the other hand, Bahashwan (2020) found that the effect of parity on TMY was nonsignificant. Chaudhary *et al* (1996) reported that no significant effect for the parity on the daily milk yield in the Holstein Friesian cows in Pakistan.

The effect of Parity was nonsignificant in the lactation period (Table 2). Similar results were observed by Kumar *et al* (2003) in Ongole cattle. Conversely, Basak and Das (2018) indicated the shortest LP was in the first parity compared to other parities on Deoni cows in India. Hermiz and Hadad (2020) found that LP was reduced significantly from 306 days in the first parity to 290 days in the fourth parity in Iraq. While Cilek (2009) found the LP was longest in first parity (315 days) and shortest in fifth parity (285 days) of Holstein cows in Turkey.

***b- Reproductive traits:***

***1- Age at first calving (AFC):***

The results in this study showed that breed had a significant effect on age at first calving, but the effect of year and season of birth was nonsignificant on age at first calving (Table 3). These results are in agreement with those of Abera (2016) in Ethiopia and Ardicli *et al.* (2019) in Turkey.

**Table 3. Level of Significance (p<) of the factors affecting age at first calving AFC**

| Source of variation | p< |
|---|---|
| **Breed** | **0.0001** |
| **Year of birth** | 0.241 |
| **Season of birth** | 0.154 |

***a-Least-square means of the age at first calving (AFC) as affected by breed:***

The difference between the least-square means in the two breeds under this study for age at first calving was highly significant. The lowest age at first calving was observed in Holstein cows 28.1±0.10 months and the highest was in Shami cows 31.0±0.14 months (Table 4). This might be attributed to reduced growth rate and delayed sexual maturity due to the low level of feeding in Shami heifers. The results of this study agreed with the findings of Mulugeta and Belayeneh (2013) who reported that the AFC was 47.16 ± 8.7months for local cows compared to 37.95 ± 9.4 months for crossbreed cows in Ethiopia, and they explained the variation in AFC between local breed and crossbreed was probably due to difference in genetic potential and difference in management policy and nutrition conditions. Hermiz and Hadad (2020) reported that the Friesian breed had a shorter AFC (27.301 mo.) than Bokane cows (28.6 mo.) in Iraq.

Mamun *et al* (2015) found that the AFC was lower in the Holstein Friesian crossbred (36.43 months) compared to (40.07 months) in local cows in Bangladesh. Whereas, Ali *et al* (2019) found that the AFC was longer in Holstein Friesian (34 months) compared to (32.6 months) in Achai cows in Pakistan.

**Table 4. Least-square means and standard error (LSM±SE) of age at first calving as affected by breed**

| Source of variation | LSM ±SE |
|---|---|
| **Breed** | ** |
| Shami | $31.0^{b}\pm0.14$ |
| Holstein | $28.1^{a}\pm0.10$ |

** (p<0.01), Means followed by different superscripts are significantly different (p<0.05)

***b-Least-square means of the age at first calving (AFC) as affected by year and season of birth:***

The results in Table (5) showed that there is no significant effect for the year of birth on age at first calving. This result agreed with that of Sadek *et al.* (1994) on Friesian cows in Egypt. On the other hand, Kumar *et al* (2015) found a significant effect for the year of birth on Frieswal cattle in India. They referred it due to changes in feeding, managerial systems that practiced from one year to another.

Also, the current results indicated that the effect of season of birth on age at first calving was not significant (Table 5). This result is in accordance with Sattar *et al.* (2005) of Friesian cows in Pakistan. Otherwise, Almasri (2010) found that the lowest age at the first calving was in autumn (28.36 months) and the highest in the spring (29.85 months) on Holstein Friesian cows in Syria, the author attributed that to differences in climatic conditions and feeding types during those seasons.

**Table 5. Least-square means and standard error (LSM±SE) of age at first calving as affected by year and season of birth**

| Source of variation | LSM ±SE |
|---|---|
| **Year of birth** | **NS** |
| 1978-1989 | 29.3±0.18 |
| 1990-2001 | 29.6±0.13 |
| 2002-2013 | 29.7±0.13 |
| **Season of birth** | **NS** |
| Winter | 29.8±0.16 |
| Spring | 29.6±0.17 |
| Summer | 29.3±0.16 |
| Autumn | 29.6±0.16 |

NS = not significant.

***2- Calving interval (CI):***

The present study showed that the breed, season of calving, and interaction between breed and parity affected significantly calving interval. While the year of calving and parity had a highly significant effect on calving interval (Table 6). These results agreed with those of Wondossen *et al.* (2018) in Ethiopia.

**Table 6.Level of significance (p<) of the factors affecting calving interval**

| Source of variation | p< |
|---|---|
| **Breed** | **0.015** |
| **Year of calving** | **0.0001** |
| **Season of calving** | 0.05 |
| **Parity** | **0.001** |
| **Interaction between breed and parity** | **0.028** |

***a-Least-square means of the calving interval (CI) as affected by breed:***

Table (7) showed that the Holstein breed had a shorter calving interval (432 days) than the Shami breed (442 days). This result was correspondent with Cherkoes and Mekuria (2018) who found that the CI was lower significantly in crossbreds (525 days) compared to the local breed (611.9 days) in Ethiopia, and they explained that this difference could be attributed to the variations of management policy (feeding, heat detection, and housing) between the two breeds and farmers gave special attention to crossbred cows. On the other hand, Saleem *et al.* (2012) found the CI was longer in Holstein Friesian (567.8 days) compared to (464 days ) in the Sahiwal breed in Pakistan. The lower reproductive traits in the Holstein breed could be due to the high milk production for Holstein cows which led to reducing reproductive efficiency compared to local breed or crossbreed, since there is a negative correlation between productive and reproductive traits.

**Table 7.Least-square means and standard error (LSM±SE) of calving interval as affected by breed, year and season of calving and parity**

| Source of variation | Calving interval (day) |
|---|---|
| **Breed** | ** |
| Shami | $442^{b}$±2.83 |
| Holstein | $432^{a}$±3.34 |
| **Year of calving** | ** |
| 1980-1991 | $456^{b}$±4.67 |
| 1992-2003 | $431^{a}$±2.69 |
| 2004-2015 | $425^{a}$±3.14 |
| **Season of calving** | ** |
| Winter | $437^{ab}$±3.59 |
| Spring | $444^{b}$±4.02 |
| Summer | $438^{ab}$±3.8α9 |
| Autumn | $430^{a}$±3.60 |
| **Parity** | ** |
| 1 | $450^{c}$±3.03 |
| 2 | $441^{bc}$±3.60 |
| 3 | $434^{ab}$±4.43 |
| 4 | $427^{a}$±5.75 |
| ≥ 5 | $435^{ab}$±5.92 |

* * (p<0.01), Means followed by different superscripts are significantly different.

***b-Least-square means of the calving interval (CI) as affected by year and season of calving:***

Table (7) showed that there is a highly significant difference in calving interval between the year of calving periods. It could be attributed to variation in management and environmental conditions. Similar results were also reported by Ayeneshet *et al.* (2018) in local cows in Ethiopia and Sanad and Hassane (2019) in crossbred Friesian cattle in Egypt and they explained that the difference could be due to the number of cows used and the emergence of new generations during the period of calving. Meanwhile, no significant effect of year of calving on CI was reported by Basak and Das (2018) of Deoni cattle in India.

The effect of season of calving was highly significant on CI. The longest CI was in the spring season 444 days (Table 7), it might be due to the cows calved in the spring season where inseminated in the summer season where the temperatures were high and there was a shortage in the available green folder, which led to a decrease in the reproductive efficiency of these cows compared to other seasons. The present finding was in agreement with that reported by Mekonnen *et al* (2011) on Horro cows in Ethiopia. Hermiz and Hadad (2020) reported that the cows calved in winter and spring had CI shorter than those calved in summer and autumn in Iraq. Conversely, Almasri (2010) reported that there was no significant effect of season of calving on CI of Holstein Friesian in Syria.

***c-Least-square means of the calving interval (CI) as affected by parity:***

The effect of parity on CI in the present study was significant. The calving interval was reduced with increased parities until the fourth parity (Table 7). It might be cows in early parities need high feeding requirements for growth, milk yield, and maintenance of life. This result agreed with that of Wondossen *et al* (2018) who indicated the shortest CI was in the third parity (443.4 days) and the longest in the first parity (492.9 days) in Holstein Friesian cows in Ethiopia.

On the contrary, Bahashwan (2020) indicated that the parity did not exert any significant effect on CI of Dhofari cows in the Sultanate of Oman.

## CONCLUSION

The results showed Shami cows performed less efficiency in all studied traits compared to the Holstein cows under Syrian conditions. So, providing high quality management conditions and applying the best appropriate genetic improvement methods for Syrian Shami cows could result in conservation of local genetic resources and improving the economic traits.

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## توصيف بعض الصفات الإنتاجية والتناسلية للأبقار الشامية السورية وأبقار الهولشتاين تحت الظروف السورية

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هدفت هذه الدراسة إلى توصيف الأداء الإنتاجي والتناسلي للأبقار الشامية السورية وأبقار الهولشتاين تحت الظروف السورية. في هذه الدراسة، تم جمع ٢٦٥٤ و ٤٢٨٩ سجلًا لـ ٥٦٩ بقرة شامية و ١٦٦٩ بقرة هولشتاين، على التوالى خلال الفترة الممتدة من ١٩٧٨ إلى ٢٠١٥ من محطتين تجريبيتين، وزارة الزراعة واستصلاح الأراضي، سوريا.حللت هذه البيانات وفق النموذج الخطي العام باستخدام برنامج ( XLSTATE. 2020).

تأثر كلاً من العمر عند أول ولادة (AFC) والفترة بين الولادتين (CI) وإنتاج اللبن الكلي (TMY) وإنتاج اللبن اليومي (DMY) وطول موسم الحلب (LP) معنوياً ( Pاقل من٠.٠١) بالسلالة.

بلغ متوسط أقل مربعات لكلاً من العمر عند أول ولادة والفترة بين الولادتين وإنتاج اللبن الكلي وإنتاج اللبن اليومي وطول موسم الحلب ٣١ ± ٠.١٤ شهرًا ، ٤٤٢ ± ٢.٨٣ يومًا، ١٥٨٧ ± ٣٤.٨٩ كجم، ٩.١ ± ٠.٠٩ كجم و ١٦٥ ± ٢.٠ يومًا في سلالة الأبقار الشامية، على التوالي، مقارنة بـ ٢٨.١ ± ٠.١٠ شهر، ٤٣٢ ± ٣.٣٤ يوم، ٥٤٩٤ ± ٤١.٢١ كجم، ١٦.٧ ± ٠.١١ كجم، ٣٣٢ ± ٢.٣٦ يوم في سلالة أبقار الهولشتاين، على التوالي، تحت الظروف السورية.

أظهرت الدراسة الحالية أن أداء الأبقار الشامية كان أقل في جميع الصفات المدروسة مقارنةً بأبقار الهولشتاين تحت الظروف السورية وأن تحسين ظروف الرعاية وإجراء التحسين الوراثي للأبقار الشامية يمكن أن يعزز أدائها الإنتاجي والتناسلي.