# Maturity Pattern in Simmentals

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Maturity pattern is one of the most important traits in selecting replacement breeders, as it has a large bearing on the marketability of their progeny.

This article aims to provide answers to some commonly asked questions about Maturity Pattern in Simmentals. It may also be of value in your herd selection program.

The information is drawn from an analysis of the 1997 Simmental Breedplan Sire Summary of 867 published sires. These included 237 sires with EBV's published for both 600 day weight and P8 fat depth. 21 published sires had Frame Scores.

## 8 Commonly Asked Questions about Maturity Pattern

### (1) What does the term "Maturity Pattern" mean?

> **A bull's "Maturity Pattern" is an assessment of the age his progeny will be when they reach a desired fat cover.**

**Early Maturing** sires produce progeny that fatten at a younger age.

· Desirable if early turnoff is required, although this often means lighter turnoff weights. Also a desirable trait where nutrition limits fattening rates.

**Late Maturing** sires produce progeny that take longer to reach the same fat cover.

· In some cases this also means heavier progeny at this older age.

· Care must be taken that progeny are not too heavy for the market by the time they reach desired fat cover.

### (2) What tools are available to Assess a sire's Maturity Pattern?

**P8 or Rib Fat EBV: The best genetic measure of Maturity Pattern.**

· Sires with Higher Fat EBVs are expected to produce fatter progeny at a given age.

· These EBVs are derived from a combination of live scan and actual carcase fat measurements of a sire, his progeny and other relatives.

**Frame Score: The next best indicator of Maturity Pattern.**

· However, frame scores may vary due to environment

· At this stage a Frame Score EBV is not available to remove this variation and hence allow genetic comparisons of sires across the breed for Frame Score.

### (3) Do Low P8 fat depth EBV sires produce Later Maturing progeny than High P8 fat depth EBV sires?

**YES**

To answer this question, sires were ranked from low to high P8 fat EBV. Theneach was compared with the average P8 fat EBVs of his sons when they were sires.

Diagram 1 shows the correlation between sire and sons for P8 fat EBV is high, indicating P8 fat EBV is highly heritable and an excellent indicator of a sire's maturity pattern.

**Diagram 1. Sire versus sons' performance for fattening ability (P8 fat EBV)**.
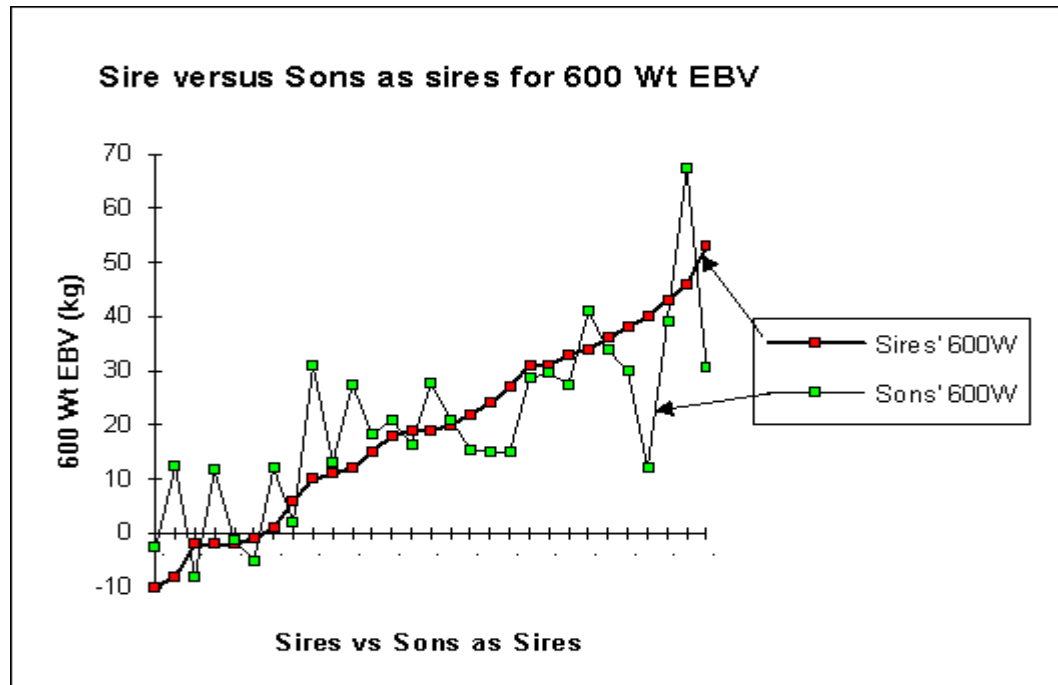


*(4) Do High Frame Score sires produce Later Maturing progeny than Low Frame Score sires?*
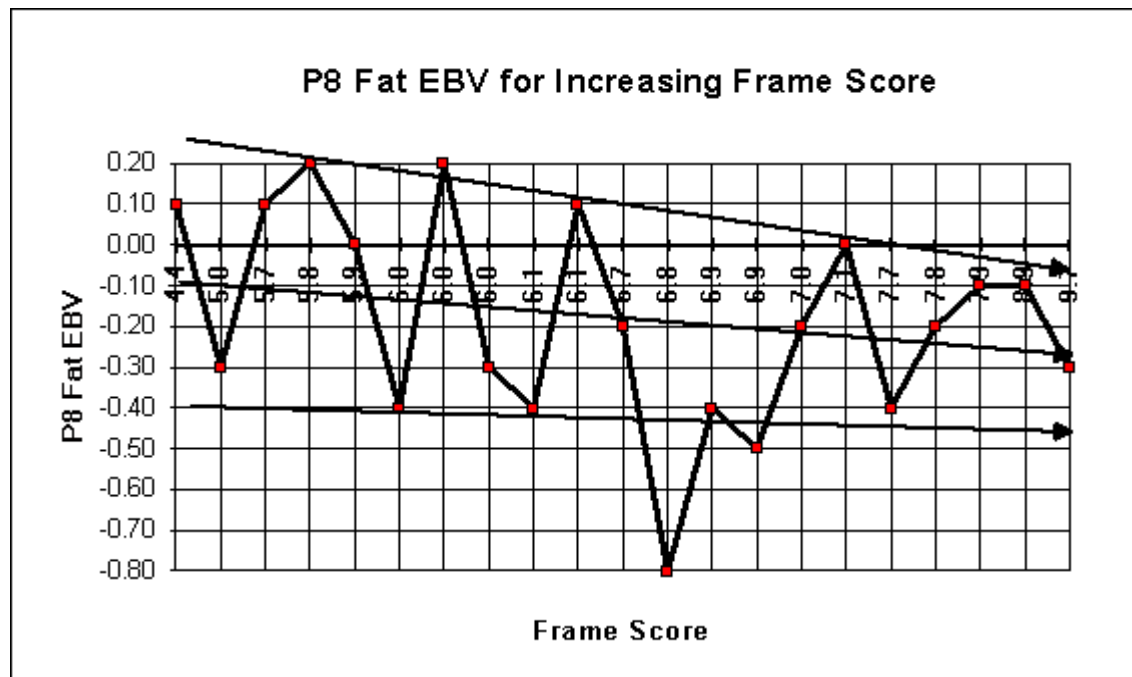
**Generally YES**

This relationship has been well established by international research. Analysis of frame scores for sires in the ASBA Performance database showed that as Frame Score increases:

· **Maturity becomes later and**

· **Fat cover at the same age tends to decline.**

BUT · **Some larger framed sires have higher P8 fat EBVs**

**than some smaller framed sires**

**So,** there is scope to **select for better Fat cover "Within" a Frame Type**.

**P8 Fat EBV for Increasing Frame Score**

*(5) Do High Frame Score sires produce Heavier progeny?*

**Generally YES**

As Frame Score increases, **Weight at the same age tends to increase.**

**However** There are both High and Low Weight EBV Sires Within each Frame Type

There is plenty of scope to select for **better Weight** for age **"Within" a Frame Type**.

**Table 1. 600 day Wt EBVs for Different Frame Types.**

|  | Frame Score | No |  | 600 day EBV | |
|---|---|---|---|---|---|
|  | Range | Sires | **Average** | Max | Min |
| Small Frame | 4.4 to 6.0 | 8 | **8.6** | 31 | -25 |
| Medium Frame | 6.1 to 6.9 | 6 | **22.5** | 61 | -18 |
| Larger Frame | 7.0 to 9.7 | 7 | **26.6** | 43 | 1 |
| Average | 6.7 | 21 | **18.6** | 61 | -25 |

*(6) Do the Higher Weight EBV sires produce Later Maturing progeny?*

**LITTLE DIFFERENCE**

Sires, when grouped into 600 day weight EBV (percentiles), showed little differences in their P8 fat depth EBV.

**Table 2: P8 Fat EBV for Sires in 600 day Wt EBV Percentile Groups.**

|  | **EBV** | EBV | EBV | No | 600W | 600W | 600W |
|---|---|---|---|---|---|---|---|
| 600Wt Percentile | **P8 Av** | P8 Max | P8 Min | Sires | EBV Av | EBV Max | EBV Min |
| Top10% | **-0.04** | 0.8 | -0.9 | 43 | 44.0 | 78.0 | 34.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Top 11 - 25% | **-0.11** | 2.0 | -0.8 | 34 | 29.5 | 33.0 | 26.0 |
| Top 26 - 50% | **-0.09** | 0.9 | -0.8 | 48 | 21.1 | 25.0 | 17.0 |
| Top 51 - 75% | **0.10** | 0.8 | -0.7 | 30 | 12.3 | 16.0 | 10.0 |
| Top 76 - 90% | **-0.08** | 0.7 | -0.7 | 19 | 5.8 | 8.0 | 2.0 |
| Below 90% | **-0.08** | 0.9 | -0.8 | 63 | -8.0 | 1.0 | -38.0 |
| Totals/Aver | **-0.05** | 2.0 | -0.9 | 237 | 16.4 | 78.0 | -38.0 |

**This means that bulls with high, medium or low 600 day weight EBV's could have similar P8 fat EBV's/ maturity patterns.**

Bulls can be selected both for high 600 day weight EBV **AND** for high P8 fat depth EBV.

### *(7) Do the Fatter EBV sires produce Lighter Weight for Age progeny?*

**LITTLE DIFFERENCE**

Again, there was little difference in average 600 day weight EBV **between** the fatter sires and the leaner ones, based on their P8 fat EBV percentile groupings.

However, there is a wide variation in weight EBV **within** each P8 fat EBV percentile.

**Table 3: 600 day Wt EBV for Sires in P8 Fat EBV Percentile Groups.**

| P8 Fat  Percentile | **600**  **Av** | 600 Max | 600  Min | No  Sires | P8  Aver | P8  Max | P8  min |
|---|---|---|---|---|---|---|---|
| Top 10% | **20** | 68 | -17 | 49 | 0.5 | 2.0 | 0.3 |
| Top 11 - 25% | **13** | 78 | -38 | 22 | 0.2 | 0.2 | 0.2 |
| Top 26 - 50% | **15** | 60 | -25 | 45 | 0.0 | 0.1 | 0.0 |
| Top 51 - 75% | **16** | 43 | -8 | 20 | -0.1 | -0.1 | -0.1 |
| Top 76 - 90% | **13** | 51 | -20 | 22 | -0.2 | -0.2 | -0.2 |
| Below <90% | **17** | 69 | -31 | 79 | -0.5 | -0.3 | -0.9 |
| Totals/Aver | **16** | 78 | -38 | 237 | -0.1 | 2.0 | -0.9 |

· **Genetically Fatter sires have as much chance of having High or Low Weight for Age EBVs as genetically Leaner sires.**

· **Selection for Wt EBVs can be treated separately to selection for Fat cover.**

· **Both can be improved simultaneously.**

### *(8) Do sires with a Larger Difference between two Weight EBVs produce Later Maturing progeny? (eg. 200 and 400 day Wt EBV)*

**NO The Opposite Usually Occurs**

Some sires display EBVs for 200, 400 and 600 day weights that are on an increasing trend, (eg 200 EBV = + 10, 400 EBV = +20, 600 EBV = +30). Are these later maturing sires?

As the difference between 200 to 400 day Wt EBVs increases:

· **P8 fat EBV also tends to increase.** However, this increase was not great.

· **Sires displaying increases between the Weight trait EBVs (200, 400 and 600 days) are not necessarily Later Maturers.**

· **Such sires could be fatter than sires with either static weight EBVs or declining differences between these EBVs.**

· **So selection to improve Wt EBVs can be simultaneous to selection for Fat.**
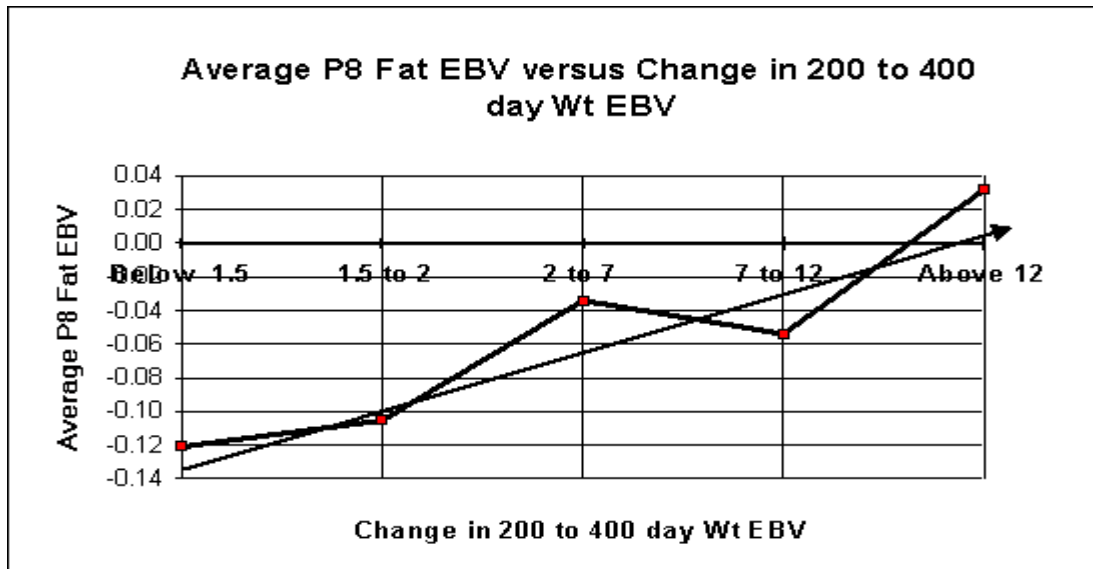


### OVERALL CONCLUSIONS

If one of the stud's breeding objectives is to produce earlier maturing Simmentals without sacrificing weight gain, this can be achieved by:

**1. Select a Frame Type to suit Market and Environment Requirements.**

**2. Objectively Select for increased Fat Cover**

**3. Objectively select for increased Weight at the appropriate market age.**

**HOW:**

> **Place major emphasis on sire selection,** as sires have a much greater impact on a herd's genetic progress than female selection**.** (Home bred, purchased or AI sires).

**Select replacements within the desired Frame Score Type (eg 6.0 to 7.5)**

Measure hip height of all progeny in groups at 15 to 18 months of age.

Submit these measurements with other data for Breedplan Analysis.

**Within the Frame Type use Weight EBVs as part of the selection program.**

Weigh all progeny in groups at approximately 200, 400 and 600 days of age.

Also try to weigh as many at birth as possible.

Submit these weights progressively for Breedplan Analysis.

**Within the Frame Type use Fat & EMA EBVs as part of the selection program.**

Scan yearling bulls and heifers for fat, EMA and marbling.

Collect any available progeny "actual" carcase data.

Submit these scans and actual carcase data for Breedplan Analysis.

**NB. In the future, collected marbling data may generate marbling EBVs.**