Changes occurring in the breed composition of U.S. dairy herds

Joint Interbull ADSA Meeting - Cincinnati, OH
June 23rd, 2019
Fiona Guinan, H. Duane Norman and João Dürr
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• **Pedigree based** breed composition of Dairy Herd Improvement (DHI) herds investigated from 1990-2018

• Breed – Animals’ recorded breed code (mandatory Sire ID)

• **Crossbred** – Animals’ breed code assigned as ‘XX’ or ‘XD’

• Year – Calving year

• Breed – AY, BS, GU, HO, JE, MS, XX-XD

• All remaining breeds
Number of DHI Cows with Sire ID

Calving Year

No. of Cows

Cows (Millions)
Breed Composition of DHI Herds by Year (Scale 6.0)

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Breed Composition of DHI Herds by Year (Scale 6.0)

Percentage of Herds (%)

Calving Year

Milking Shorthorn

- ≥ 1 Cow
- 10%
- 25%
- 50%
- 75%
- 90%

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Breed Composition of DHI Herds by Year (Scale 13.0)
Breed Composition of DHI Herds by Year (Scale 13.0)

All Other Breeds

- ≥ 1 Cow
- 10%
- 25%
- 50%
- 75%
- 90%
Breed Composition of DHI Herds by Year (Scale 37.0)
Breed Composition of DHI Herds by Year
(Scale 37.0)

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Jersey

Calving Year

Percentage of Herds (%)

0,0 5,0 10,0 15,0 20,0 25,0 30,0 35,0


≥ 1 Cow 10% 25% 50% 75% 90%
Breed Composition of DHI Herds by Year (Scale 37.0)
Breed Composition of DHI Cows
All DHI Cows of Other Breeds

Breed Composition (Excluding Holstein & Jersey) (%)

- Ayrshire
- Brown Swiss
- Guernsey
- Milking Shorthorn
- Norwegian Red
- Red & White
- Crossbred

Calving Year

Percentage of Animals (%)
UNRECORDED Sires & Dams of All Cows

Unknown Sires & Dams of All Cows (%)

Calving Year

Percentage of Animals (%)

0,0 5,0 10,0 15,0 20,0 25,0 30,0 35,0


UNRECORDED SIRES %  UNRECORDED DAMS %
Unrecorded Sires & Dams of Individual Breeds in 2018

Unrecorded Parents in 2018

Breed (Cow)

- Ayrshire
- Brown Swiss
- Guernsey
- Holstein
- Jersey
- Milking Shorthorn
- Norwegian Red
- Red & White
- Crossbred

Unrecorded Parents (%)

- Unrecorded Sires %
- Unrecorded Dams %
• Investigated the parents of each breed
• Graphed parents (≥0.1%) in 2018
• Interesting results for Norwegian Red and Red & White
• Crossbred discussed in next section
Parents with same breed as progeny in 2018

% of Sires and Dams of the same breed as progeny in 2018

<table>
<thead>
<tr>
<th>Breed (Progeny)</th>
<th>SIRES %</th>
<th>DAMS %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ayshire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown Swiss</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guernsey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holstein</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jersey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milking Shorthorn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norwegian Red</td>
<td></td>
<td></td>
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<tr>
<td>Red &amp; White</td>
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<td></td>
</tr>
<tr>
<td>Crossbred</td>
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</tr>
</tbody>
</table>

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Dam Composition of Norwegian Reds’ 2018

**Dam Composition of Norwegian Reds' in 2018**

<table>
<thead>
<tr>
<th>Breed (Cow)</th>
<th>DAMS (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holstein</td>
<td></td>
</tr>
<tr>
<td>Jersey</td>
<td></td>
</tr>
<tr>
<td>Norwegian Red</td>
<td></td>
</tr>
<tr>
<td>All Other Breeds</td>
<td></td>
</tr>
</tbody>
</table>

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Sire Composition of Red & Whites’ 2018

Sire Composition of Red & Whites' in 2018

<table>
<thead>
<tr>
<th>Breed (Cow)</th>
<th>Sire &amp; Dam of Same Breed (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holstein</td>
<td>100</td>
</tr>
<tr>
<td>Red &amp; White</td>
<td>0</td>
</tr>
<tr>
<td>All Other Breeds</td>
<td>0</td>
</tr>
</tbody>
</table>

SIRES
Crossbred - 5.2% of Population
Crossbred Summary

2018

Sires
1. Holstein 51.3%
2. Jersey 33.6%
3. Montbeliarde 3.9%

Dams
1. Crossbred 54.6%
2. Holstein 25.8%
3. Jersey 18.0%

Maternal Grand Sires
1. Holstein 57.7%
2. Jersey 25.6%
3. Montbeliarde 4.8%

Maternal Grand Dams
1. Crossbred 60.6%
2. Holstein 34.1%
3. Jersey 2.7%
Sires of Crossbreds

Maternal Grand Sires of Crossbreds

Calving Year

Sires (%)

Maternal Grand Sires (%)

- Holstein Sires
- Jersey Sires
- Montbeliarde Sires
- All Other Sires

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• Purebred breed associations for providing pedigree data
Acknowledgements

- [https://www.flickr.com/photos/l_iam/4706853263](https://www.flickr.com/photos/l_iam/4706853263) (Ayrshire cow)
- [https://www.worldguernseys.com/the-current-position-of-the-guernsey-breed](https://www.worldguernseys.com/the-current-position-of-the-guernsey-breed) (Guernsey cows)
- [https://culturecheesemag.com/farm-animal/brown-swiss-cows](https://culturecheesemag.com/farm-animal/brown-swiss-cows) (Brown Swiss cows)
- [https://www.wideopenpets.com/everything-need-know-holstein-cow/](https://www.wideopenpets.com/everything-need-know-holstein-cow/) (Holstein cow)
- [https://www.progressivedairy.com/topics/people/prigel-family-creamery-plays-african-serengeti](https://www.progressivedairy.com/topics/people/prigel-family-creamery-plays-african-serengeti) (Jersey cows)
- [https://www.askideas.com/cow-closeup-face-funny-picture/](https://www.askideas.com/cow-closeup-face-funny-picture/) (Funny cow)
THANK YOU FOR YOUR ATTENTION!

QUESTIONS?