The Dairy Sustainability Framework monitors and reports the sustainability progress of the global dairy sector. The DSF accounts for approximately 30% of global milk production and measures progress through 11 sustainability (economic, social and environmental) criteria and associated indicator metrics.

Data included in this report is from the 2020 calendar year and reported by DSF members in 2021. The process by which the DSF manages and processes the data is audited by the University of Nottingham (UK).

Estimated global milk production (all species) in 2020 (Source: FAO Dairy Market Review, April 2021) is 906 million tonnes. Of this, 871 million tonnes (846 billion litres) is the global dairy cow (85%) and buffalo milk (15%) production that are used for the DSF calculations.

### 2020 Highlights

#### Sector Sustainability Performance
1. DSF milk volume grew by 17 billion litres in 2020, 9.7 billion litres coming from new DSF membership
2. Greenhouse Gas Emissions and Animal Care continue to be the most prioritized criteria
3. Biodiversity prioritization grew substantially with an additional 40,000 farms during the reporting period
4. Soils, Working Conditions (on farm) and Market Development all saw considerable growth in farm prioritization during the reporting period

#### DSF Development
1. DSF 2020-2025 Strategic Plan published
2. Eleven DSF webinars plus the Annual Members Meeting - Connecting and aligning DSF members
3. External review of DSF Communications strategy undertaken with recommendations adopted
4. DSF implementation of DSF pilots in emerging markets Kenya, Rwanda, Vietnam, and India with the support of the International Fund for Agricultural Development and Global Dairy Platform

### New DSF members in 2020

<table>
<thead>
<tr>
<th>Component</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farms</td>
<td>225,000</td>
</tr>
<tr>
<td>Cows</td>
<td>1.5 million</td>
</tr>
<tr>
<td>Processing Plants</td>
<td>536</td>
</tr>
<tr>
<td>Farmers</td>
<td>23,540</td>
</tr>
<tr>
<td>Member Employees</td>
<td>4,100</td>
</tr>
<tr>
<td>Litres Milk</td>
<td>9.7 billion</td>
</tr>
</tbody>
</table>

### 2020 Snapshot - Total Membership

<table>
<thead>
<tr>
<th>Component</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farms</td>
<td>2.24 million</td>
</tr>
<tr>
<td>Cows</td>
<td>44.3 million</td>
</tr>
<tr>
<td>Processing Plants</td>
<td>3,037</td>
</tr>
<tr>
<td>Farmers</td>
<td>2.3 million</td>
</tr>
<tr>
<td>Member Employees</td>
<td>2.1 million</td>
</tr>
<tr>
<td>Litres Milk</td>
<td>242 billion</td>
</tr>
<tr>
<td>Hectares</td>
<td>&gt;28 million</td>
</tr>
</tbody>
</table>
DSF and Global Milk Production - 2020

Global Milk Production: 846 Billion Litres*
DSF milk volume: 242 Billion Litres

41% Informal Milk Market**
Milk sold through unstructured, unprocessed channels or consumed directly in the home

59% Formal Milk Market**
DSF represents 48.5% of the Formal Milk Market

2020 DSF Milk Volume, Priorities and Reporting

Milk Production in Billion Litres

- Greenhouse Gas Emissions*
- Animal Care
- Biodiversity
- Product safety & quality
- Soil nutrients
- Rural Economies
- Market Development
- Soil quality & retention
- Water Efficiency - processing
- Work Conditions - processing
- Water Quality - farm
- Work Conditions - farm
- Waste - processing
- Waste - farm

Prioritized and Progress Reported
Prioritized but not yet reported

*Reporting for entire global dairy sector provided by FAO analysis.
Water, Working Conditions and Waste Criteria have two indicator metrics as they cover both farm and processing levels of the dairy value chain.
**Action on Priorities**

The Covid-19 pandemic clearly created challenges for farmers and dairy organizations in execution of their sustainability programs. The DSF greatly appreciates the attention of its members in the timely production of their annual reports.

**Key**

1. **Criteria:** e.g. GHG Emissions
2. **Strategic Intent:** When prioritized this is the members focus.
3. **Indicator Metric:** Members provide this annual reporting to the DSF
4. **The progress report:** 2020 aggregated reporting and new baseline
5. **Supporting information:** Additional information supporting the reporting.

- Members report the number of farms they represent
- *Assumption: 1 plan per farm

*2020 performance against the 2019 baseline is reported in the first doughnut in blue.

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**GHG Emissions**

GHG emissions across the full value chain are quantified and reduced by all economically viable means.

GHG emissions are measured by using the IDF methodology / FAO analysis.

**FAO "Climate Change and the Global Dairy Sector" report, 2005-2015:**

![Image of GHG emissions chart]

**Animal Care**

Dairy animals are treated with care and are free from hunger, thirst, discomfort, pain, injury and disease and are able to engage with relatively normal patterns of behavior.

*Arithmetic mean of somatic cell count across the reporting period.*

<table>
<thead>
<tr>
<th>Volume of milk reporting (billion litres)</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>Change from 2019 to 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>213.3</td>
<td>188.8</td>
<td>200.5</td>
<td>+11.7</td>
</tr>
</tbody>
</table>

**Average annual weighted (by milk volume) SCC**

| Average annual weighted (by milk volume) SCC* | 201,000 | 183,539 | 182,108 | -0.8% |

*Organizations who prioritized this criteria have remained static.

*The milk volume of those reporting this criteria increased by nearly 12 billion litres.

*Reducing Somatic Cell Count (SCC) is a positive indicator of cattle health.*
Biodiversity

Direct and indirect biodiversity risks and opportunities are understood and strategies to maintain and enhance it are established.

A Biodiversity plan (BP) is implemented to preserve, restore and improve biodiversity on-farm and across the supply chain - number of Biodiversity plans implemented.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Farms Implementing Biodiversity Plans</th>
<th>Change from 2019 to 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>341,533 farms</td>
<td>+39,966</td>
</tr>
<tr>
<td>2020</td>
<td>381,499 farms</td>
<td></td>
</tr>
</tbody>
</table>

Prioritizing

5.0% of farms implementing Biodiversity Plans in 2020

6.9% of farms implementing Biodiversity Plans in 2020 are as a result of new membership prioritizing this criteria and able to report existing biodiversity plans.

Product Safety and Quality

The integrity and transparency of the dairy supply chain is safeguarded, so as to ensure the optimal nutrition, quality, and safety of products.

Implementation of a product safety and quality recall plan (PS&Q) and how many public product recalls during the reporting period.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Members</th>
<th>Change from 2019 to 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>16 members</td>
<td>+2</td>
</tr>
<tr>
<td>2020</td>
<td>18 members</td>
<td></td>
</tr>
</tbody>
</table>

Prioritizing

81.3% with a recall plan in place in 2019

83.3% with a recall plan in place in 2020

Soil Nutrients

Nutrient application is managed to minimize impacts on water and air, while maintaining and enhancing soil quality.

Implementation of a Nutrient Management Plan (NMP) to enhance production and reduce water and air pollution - number of NMP's implemented.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Farms Implementing Nutrient Management Plans</th>
<th>Change from 2019 to 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>345,103 farms</td>
<td>+39,662</td>
</tr>
<tr>
<td>2020</td>
<td>384,765 farms</td>
<td></td>
</tr>
</tbody>
</table>

Prioritizing

16.2% of farms implementing Nutrient Management Plans in 2020

15.6% of farms implementing Nutrient Management Plans in 2020

Rural Economies

The dairy sector contributes to the resilience and economic viability of farmers and rural communities.

Total annual payments made to farmers for milk.

<table>
<thead>
<tr>
<th>Category</th>
<th>2019</th>
<th>2020</th>
<th>Change from 2019 to 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk volume reporting (billion litres)</td>
<td>138</td>
<td>172</td>
<td>+34</td>
</tr>
<tr>
<td>Total annual payment made to farmers in US $ (Billion)</td>
<td>$59.28</td>
<td>$71.75</td>
<td>+12.47</td>
</tr>
</tbody>
</table>

- Additional milk volume from 2019 prioritization - 4.6 billion litres
- Milk volume prioritized from new prioritization in 2020 - 8.4 billion litres
- The average milk value is around $0.42/litre.
**Water Availability and Quality - Processing Level**

Water availability as well as water quality is managed responsibly throughout the dairy value chain.

Water use efficiency for production and processing is measured - average volume of water (litres) per volume of product (kg).

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>Change from 2019 to 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighted average water</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>efficiency (litres water</td>
<td>4.52</td>
<td>5.50</td>
<td>5.48</td>
<td>-0.02</td>
</tr>
<tr>
<td>to produce kg product)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1 - 14.9</td>
<td>2.1</td>
<td>0.77</td>
<td>0.68</td>
<td></td>
</tr>
<tr>
<td>14.9 - 38.37</td>
<td></td>
<td>0.68</td>
<td>22.6</td>
<td></td>
</tr>
</tbody>
</table>

- 36% of DSF members milk volume are prioritizing this criteria in 2020, +3% from 2019.
- 13% of DSF Members milk volume prioritized and reported in 2020, +4% from 2019.

**Soil Quality and Retention**

Soil quality and retention is proactively managed and enhanced to ensure optimum productivity.

Soil quality is maintained or improved by good management practices defined in a Soil Quality Management Plan (SQMP) - number of SQMP’s implemented.

- 2019: 328,728 farms prioritizing SQMP’s
- 2020: 370,327 farms prioritizing SQMP’s

- 12.4% of farms implementing Soil Quality Management Plans in 2019
- 12.3% of farms implementing Soil Quality Management Plans in 2020

**Market Development**

Members along the dairy value chain are able to build economically viable businesses through the development of transparent and effective markets.

Process in place to inform producers of market opportunities and challenges.

- 9 members prioritizing in 2019
- 9 members prioritizing in 2020

- 99% farms reached in 2019
- 90.5% farms reached in 2020

- 313,641 farms prioritizing in 2019
- 355,209 farms prioritizing in 2020

- How did DSF members communicate with their supplying farmers during 2020 about market opportunities (total number of activities)?

  - 50.4% Newsletter
  - 18.7% Webinars
  - 8.5% Farmer Meetings
  - 5.4% Informal publications
  - 17% Other (videos, on-line Q and A, weekly market updates in website portal)

- 78% of organizations had a process in place to inform farmers of market opportunities and challenges in 2019
- 89% of organizations had a process in place to inform farmers of market opportunities and challenges in 2020

- Percentage of organizations that had a process in place to inform farmers of market opportunities and challenges.

- 36% of DSF members milk volume are prioritizing this criteria in 2020, +3% from 2019.
- 13% of DSF Members milk volume prioritized and reported in 2020, +4% from 2019.
**Working Conditions – Processing**

Across the dairy value chain workers operate in a safe environment, and their rights are respected and promoted.

A Facility Safety Plan (FSP) is implemented to ensure worker safety - number of FSP’s implemented.

- **2019**: 1,619 plants
- **2020**: 1,620 plants
- **Change**: +1

**Water Availability and Quality – Farm**

Water availability as well as water quality is managed responsibly throughout the dairy value chain.

An Effluent Management Plan (EMP) is adopted to minimize impacts to water quality - number of EMP’s implemented.

- **2019**: 262,220 farms
- **2020**: 284,604 farms
- **Change**: +23,604

**Working Conditions – Farm**

Across the dairy value chain workers operate in a safe environment, and their rights are respected and promoted.

A Farm Safety Plan (FSP) is implemented to ensure worker safety - number of FSP’s implemented.

- **2019**: 255,573 farms
- **2020**: 299,933 farms
- **Change**: +44,360

**Waste - Processing Level**

Waste generation is minimized, and where unavoidable, waste is reused and recycled

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>Change from 2019 to 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of processing plants</td>
<td>323</td>
<td>327</td>
<td>+4</td>
</tr>
<tr>
<td>Mass of waste to landfill (tonnes)</td>
<td>45,181</td>
<td>48,211</td>
<td>+3,030</td>
</tr>
</tbody>
</table>

**Waste - Farm Level**

Waste generation is minimized, and where unavoidable, waste is reused and recycled

Implementation of a Waste Management plan (WMP) - number of WMP’s implemented.

- **2019**: 210,604 farms
- **2020**: 241,077 farms
- **Change**: +30,473

DSF Members who have prioritized Waste at farm level are yet to have systems in place to enable the required reporting.