IFCN
Dairy Data · Knowledge · Inspiration

Outcome of the 19th IFCN Dairy Conference

Special topic:
“FARM TECHNOLOGY: PAST, PRESENT AND FUTURE”

Cork, Ireland
9 - 13 June, 2018

Organised by:

IFCN Dairy Research Network
Kiel, Germany
Contact: info@ifcndairy.org

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SCOPE OF THE CONFERENCE

The IFCN Dairy Conference is a key annual platform for the IFCN Research Network of dairy economists and experts to discuss sector developments, farm economic analysis, research methods and special topics.

On June 9-13, 2018 the conference, themed “Farm technology: past, present and future” brought together over 80 participants representing 40 countries from all continents. The institutions delegating their representatives encompassed universities, research centers, dairy boards and associations, private and public sector representatives, consultants and farmers.

This outcome paper and a press release can be found here: https://ifcndairy.org/press/

Mon. June 11 Dairy World Status	Tue. June 12 Farm Technology	Wed. June 13 Dairy Outlook
• Conference opening • Status and trends in the dairy world • Panel discussion	• Challenges and opportunities for the Irish Dairy Industry • Farm technology by innovative companies • IFCN Survey results	• Future economic and environmental sustainability of EU dairy production • IFCN Outlook 2030

• Key drivers for the dairy world
  ○ Quota policies
  ○ Processors
  ○ New technologies
	• The IFCN Research Network – values and benefits
	• Workshop on farm technology
		• IFCN Outlook 2018/19
		• IFCN Network 2019
		• Closing

Lunch	**Lunch**	**Lunch**
• Farm economics • Sustainability and resilience	• Workshop on farm technology • IFCN Research Partner presentations – poster session	
Social activity	**Farewell evening**	

IFCN OUTLOOK on the dairy market

During the conference, IFCN has presented forecasts on key dairy numbers. The entire article can be found under https://ifcndairy.org/press/

Long-term milk price level: As a key result, a long-term world milk price of 41 USD/100kg milk (ECM 4.0% fat, 3.3% protein) is estimated. At this price level, it is predicted that world milk demand and supply will balance out. Compared to the average milk price level in 2017 this level is 15.5% higher. Nevertheless, this level is comparable to the average world milk price of 40 USD/100kg milk in the time frame 2007 to 2014.

The dairy growth story is expected to continue: In the last 13 years milk demand and supply increased from 636 to 864 mill t ECM, which corresponds to a growth of 36%. (24% from 2007 – 2017). IFCN predicts, for the next 13 years, a similar growth of 35% with an expansion of milk production to 1168 mill t ECM. According to this, 304 mill t more milk will be produced and consumed.

Population growth and higher per capita consumption drives future demand. Until 2030, global population will increase by 16% to 8.7 billion people, so 1.2 billion more consumers will demand milk products. Global per capita consumption will increase by 19 kg ME to 135 kg ME per person. The highest increase in per capita consumption will take place in South Asia (+40%) up to 196 kg ME per person. Main factors for urbanization and the preference for processed food and increasing purchasing power.

Farm technology: past – present – future

Farm mechanisation enters the digital age now, creating unprecedented amounts of data and new decision-making capabilities. With a survey, IFCN tries to define annually the status quo of current developments and catch a glimpse into the future of dairy farming. The 2018 results of the survey (n=131, 48 different countries) show that:

- The highest density of robotic milking systems can be found in Western Europe.
- One third of all analysed farms uses pedometers for heat detection and one quarter uses automatic calf feeders.
- Replacing labour with technology is an important issue for dairy farms of all sizes. However, certain technologies are more relevant for larger herd sizes.
- Levels of dairy farm mechanisation, which are connected to labour productivity, are spread unequally between the Northern and Southern Hemisphere.

Workshop results: farm technology innovation in the future

In working groups, the conference participants discussed the future developments that will happen on dairy farms worldwide in their specific region. Overall, technology plays an important role everywhere but on different levels. Therefore, the main focus areas varied depending on different parts of the world:

- Big data play an important role in Europe and the USA. Many data are already collected but interfaces and proper technology to combine the mass of data from different sources and to analyse these is still missing.
    - **Germany:** Better use of information would help to advise farmers better in terms of breeding, feeding and farm management and therefore improve the profitability.
    - **Canada:** Big data will improve farm management; the implementation should be driven by the industry.
- In general, better milking machines are seen as impactful technology to influence farm profitability, e.g. in Colombia and Bangladesh. Milking robots are the ideal milking system for smaller farms (50-200 cows), while rotary platforms are more common on bigger farms.
    - **Switzerland:** Robot milking might improve farm profitability on smaller farms, especially if second hand robots are used. Mobile robot-milking is useful in full grazing systems.
    - **Austria:** The distribution of Automatic Milking Systems on larger farms should be driven by the industry.
- In countries with hot climate like Mexico, Iran and Jordan, cooling of cows and milk plays an important role for future technology development.
- In developing countries, the focus lies on fodder production and quality improvement.
    - **Zimbabwe:** Improved harvesting equipment and high-tech equipment (e.g. irrigation systems) would help to improve efficiency and productivity.
    - **Jordan:** Better feeding and water use technologies are seen as most impactful.

In every country, the trend is moving towards better milk quality, better fodder and higher labour productivity, however the levels of technology are very diverse.

E-voting results

The workshop on farm technology concluded with an e-voting. In this opinion survey, the audience answered questions by choosing one of several pre-defined options. The e-voting gave interesting insights, how the audience judged the drivers and limitations of farm technology development.

61 researchers participated in the voting on future developments in farm technology. They represented all world regions: Europe + CIS countries (48%), America (23%), Asia (11%), Africa and Middle East (9%), Oceania (5%) and other (3%). A selection of corresponding charts can be found below.

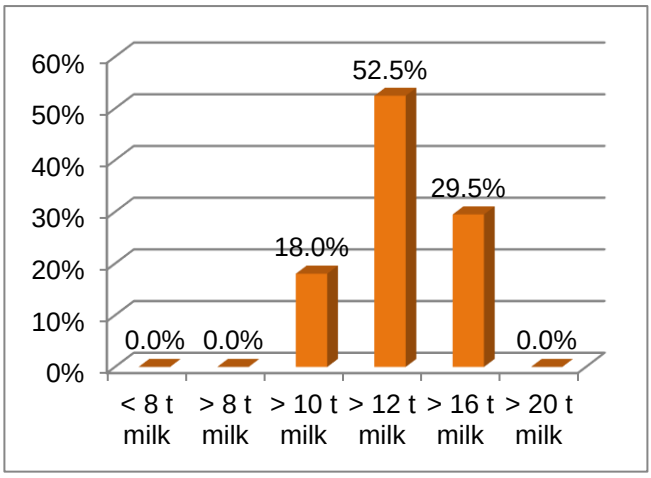
Farm technology in 2030:

1. As an outcome of the voting, milk production *in the US* is foreseen to increase further to over 12 t/cow/year in 2030 continuing the trend of the last two decades. Also *India* will face an increase of milk production to ca. 2 t/cow/year in the same period.
2. The voting showed that researchers' opinions on "traditional" milk production from animals differ: Half of the participants thought that the share of milk from animals will be less, the other half thought that the share will be more than 80%.

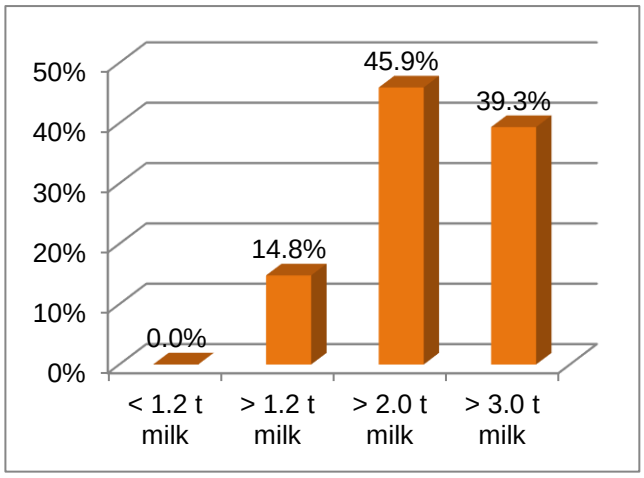
Farm technology in 5 years:

3. The most important technology breakthrough in *developing* countries happens in feed production/formulation and dairy farm management according to participants' voices, in *developed* countries Information Technology plays the most important role.
4. Both in *developing* and *developed* dairy regions, Information Technology will have the biggest impact on dairy farm management.
5. Access to funding/capital limits mostly new farm technology in *developing* regions, lack of overall strategy and regulations regarding climate/environment are considered as most limiting factors in *developed* regions.
6. About one quarter of participants thought that stakeholders' coordination groups should lead the farm technology development in *developing* regions, while global companies, innovative companies (start-ups) and stakeholders' coordination groups were seen to lead development in *developed* regions.

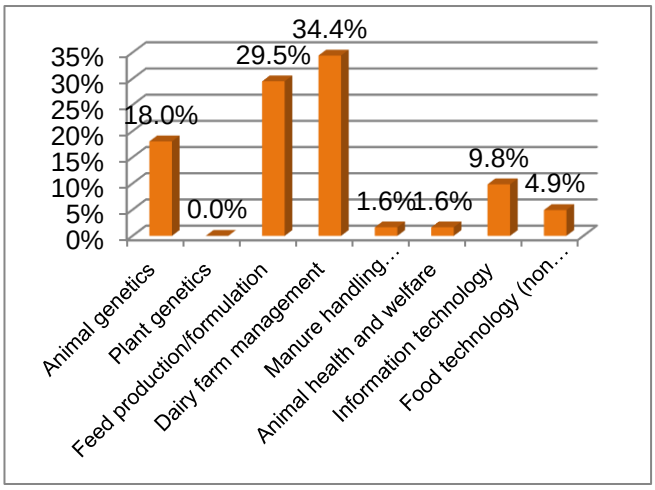
1. a) How much milk will an average cow in US produce per year in 2030?
(today 10.06 t milk/cow/year)



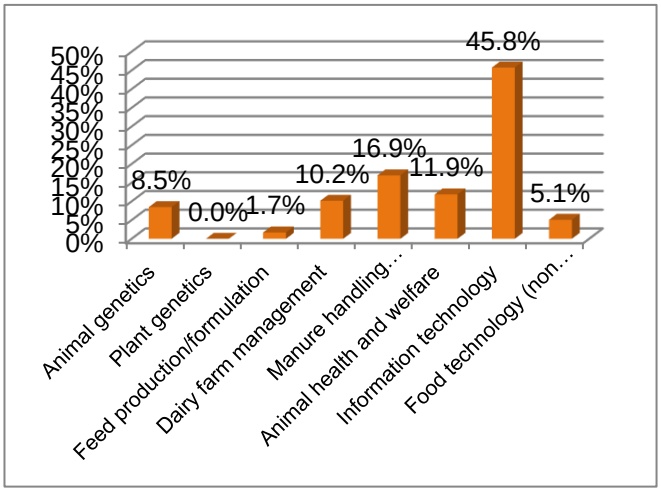
1. b) How much milk will an average cow in India produce per year in 2030?
(today 1.36 t milk/cow/year)



3. a) In which area will be the most important technology breakthrough in developing regions?

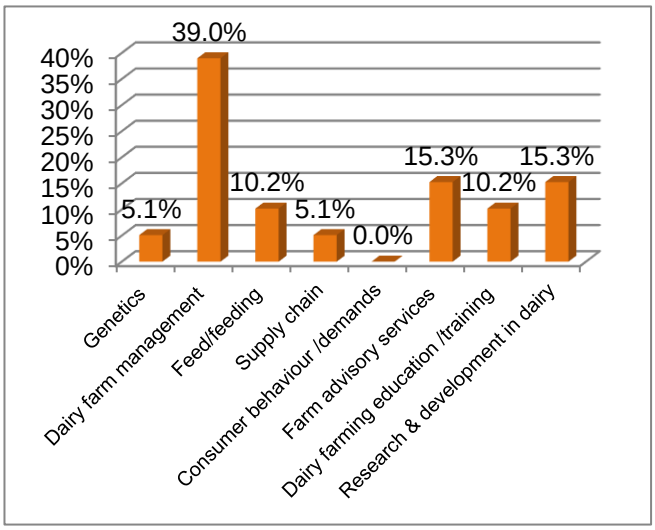


3. b) In which area will be the most important technology breakthrough in developed regions?

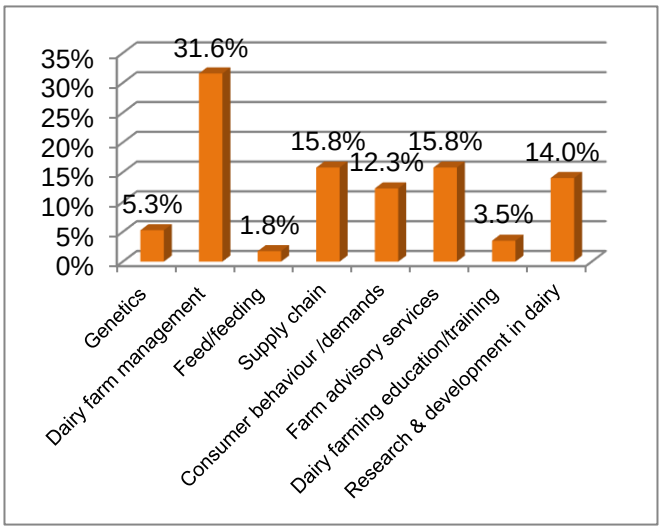


* Manure handling /emission (utilization, climate, environment impacts)
* Food technology (non animal dairy products/substitutes)

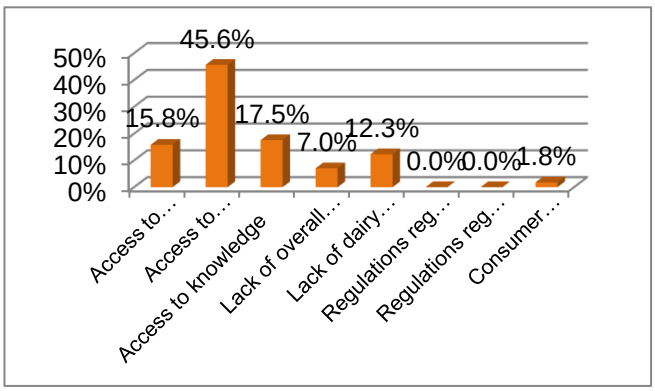
4. a) Where will be the biggest impact by IT / Big Data in developing dairy regions?



4. b) Where will be the biggest impact by IT / Big Data in developed dairy regions?

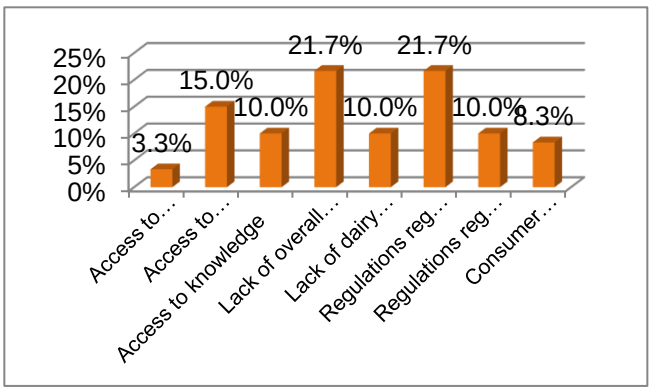


5. a) What limits mostly new farm technology development in developing regions?



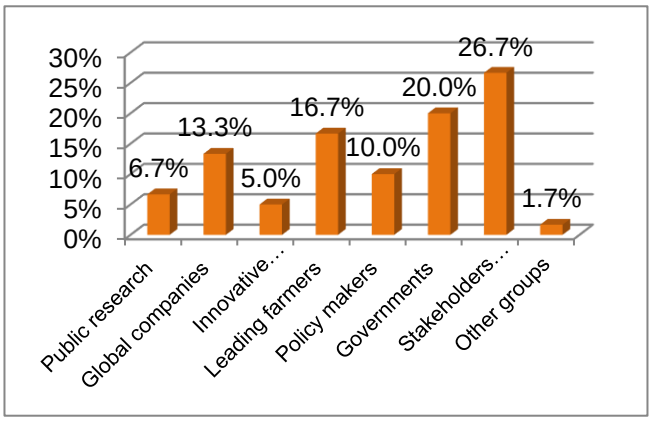
* Access to resources (land, water, feed…)
* Access to funding/capital
* Access to knowledge
* Lack of overall strategy

5. b) What limits mostly new farm technology development in developed regions?



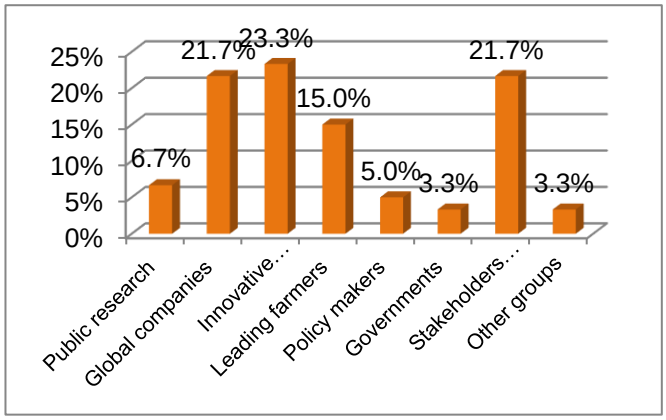
* Lack of dairy stakeholder coordination
* Regulations reg climate/environment
* Regulations reg animal health&welfare
* Consumer expectations & perceptions

6. a) Who will/shall lead the development in developing regions?



* Public research
* Global companies
* Innovative companies (start-ups)
* Leading farmers

6. b) Who will/shall lead the development in developed regions?



* Policy makers
* Governments
* Stakeholders coordination groups
* Other groups

IMPRESSIONS OF THE CONFERENCE

SUNDAY, JUNE 10	
08:00 – 18:00	• Field trip and welcome dinner *(Rochestown Park Hotel)*

MONDAY, JUNE 11 – DAIRY WORLD STATUS *(Moorepark)*	
08:30 – 09:00	• Conference Opening – Anke Heyer, Anders Fagerberg, Torsten Hemme (IFCN)
	DAIRY SECTOR – GLOBAL OVERVIEW
09:00 – 09:35	• Drivers of the world milk price 2017 – IFCN
09:30 – 10:00	• Discussion panel: Country specific insights in national milk markets – IFCN Research Partners
10:00 – 10:30	**BREAK**
	KEY DRIVERS FOR THE DAIRY WORLD
10:30 – 10:50	• Irish dairy sector - pre and post EU milk quota elimination – Trevor Donnellan (Teagasc)
10:50 – 11:10	• Consumers and processors - what are the main stakes today? – Luc Morelon (IFCN Board)
11:10 – 11:30	• Technologies that are changing agriculture and the food supply chain – Robert Walker (Alltech)
12:00 – 13:30	**LUNCH**
	DAIRY FARM ECONOMICS
13:30 – 14:30	• Competitiveness of dairy farming worldwide – Annika Jarrens, Dorothee Bölling (IFCN)
14:30 – 15:00	• Group discussion: What matters most for farmers in your country in 2018?
15:00 – 15:30	**BREAK**
15:30 – 16:10	• Sustainability and resilience in the dairy world – Torsten Hemme, Dorothee Bölling (IFCN)
16:10 – 16:30	• Summing up
17:00 – 19:00	**SOCIAL ACTIVITY**

TUESDAY, JUNE 12 – FARM TECHNOLOGY DAY *(Moorepark)*	
08:35 – 09:05	• Challenges and Opportunities for the Irish Dairy Industry - Importance of Innovation – Pat Dillon (Teagasc)
09:05 – 09:35	• Farm technologies by innovative companies - Case study DSM and its technology to reduce Carbon Emission for dairy cows – Georg Kau (DSM)
09:35 – 10:00	• Mechanisation on Dairy Farms - Outcome of the Year Box 2018 – Elgin Atakli (IFCN)
10:00 – 10:30	**BREAK**
	WORKSHOP
10:30 – 11:30	• The IFCN Research Network - values and benefits of an IFCN Researcher Partnership – Annika Jarrens (IFCN)
11:30 – 12:00	• Workshop on farm technology – Anke Heyer (IFCN)
12:00 – 13:30	**LUNCH**
13:30 – 15:00	• Workshop continues: Reporting and voting – Anke Heyer (IFCN)
15:00 – 15:30	**BREAK**
15:30 – 17:00	• "Bus stop presentations" – IFCN Research Partners
19:00 – 23:00	**FAREWELL EVENING** *(in Douglas/Cork)*

WEDNESDAY, JUNE 13 – Next page

WEDNESDAY, JUNE 13 – DAIRY OUTLOOK DAY *(Rochestown Park Hotel)*	
09:05 – 09:30	• The role of future economic and environmental sustainability of EU dairy production – Thia Hennessy (University College Cork)
09:30 – 10:30	• IFCN Long-term Dairy Outlook 2030 – Katrin Reincke (IFCN)
10:30 – 11:00	**BREAK**
11:00 – 11:30	• IFCN Short-term Dairy Outlook 2018/19 – Łukasz Wyrzykowski (IFCN)
11:30 – 12:00	• IFCN Dairy Research Network in 2019 - the way forward – Torsten Hemme (IFCN)
12:00 – 12:30	• Conference closing
12:30	**LUNCH OR LUNCH PACKAGE**
13:10	**BUS SHUTTLE TO CORK AIRPORT**

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