



ZÜRICH, SWITZERLAND

14•15 NOVEMBER 2017



ifa 2030

Survey Results



Overall results*

- In September, the IFA2030 Survey was sent to IFA's Members and to a select group of IFA's non-member interlocutors.
- **400+ Members** submitted answers: *thank you!*
- More than 130 non-members also responded, bringing nuance to our industry perspective.
- Survey divided into the five STEEP categories: Society, Technology, Environment, Economy, Policy.



Societal
Dietary changes resulting from increased incomes
Likelihood: Low
Impact: Low

Environment
Effects of climate change: increase in temperature and weather events impacting production, broader distribution of crop cultivation
Likelihood: Low
Impact: Low

Technology
Exponential advances in information technology and robotics
Likelihood: Low
Impact: Low

Economic
Feedstock supply issues (i.e. price volatility, more limited access to feedstock, reserves and...)
Likelihood: Low
Impact: Low

Part 1 - About You
Company (voluntary)
Name (voluntary)
Title/Position (voluntary)
Region
IFA Membership Category
IFA Affiliation: Board of Directors, IFA Ambassadors, Ag Committee member, PIT Committee member, Tech Committee member, CFA Committee member, Young Professional (Up to 35 Years of Age), Other

Likelihood: Low, Medium, High
Impact: Low, Medium, High

* As of 27 October 2017

Some Reactions to the survey

Great initiative to compile industry scenarios with all stakeholders involved!

Continual degradation of soil health, subsoil water and environment on account of indiscriminate and imbalanced use of nutrients and mining of micro-nutrients will have a serious impact on socio-economic fabric of the farming community if not corrected immediately.

Technology, Reach, Trust and Timing of product placement will define Fertiliser Business in 2030 with higher premium.

You pose some food thought-provoking questions- thank you for including me in your survey.

The industry is facing a number of challenges and more research will have to be developed to link fertilizer production to farming requirement, including soil analysis and mapping, and to adequately diversify product offering.

The fertilizer industry, as a critical component of food production systems, needs to keep that as its focus.. Efficient, effective manufacturing and use of nutrients. Too much time and effort is spent chasing the tails of “Other” agendas. Doing what we do best will prove its benefit... and produce full justification. In short, it seems the industry is trying too hard to show its worth.

Great initiative, well structured. Congratulations

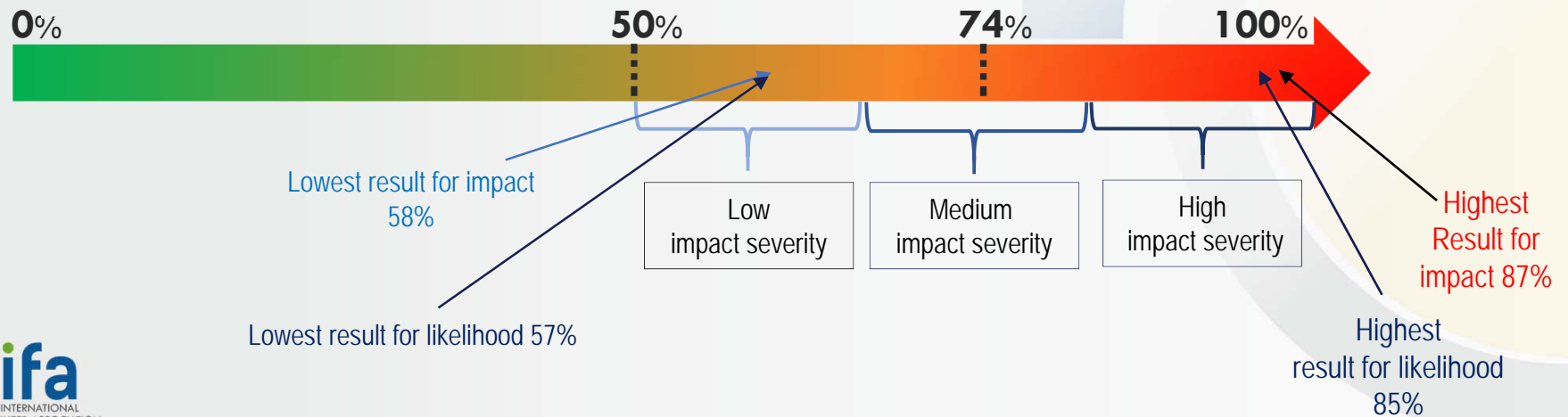
Results calculation

The probabilities of the survey results have been calculated, to give an better understanding of the scenarios' degree of likelihood and impact severity



EXEMPLE – Scenario: "Dietary changes for increased incomes" 279 answers

25: low impact, 121: medium impact, 133: high impact → Aggregate « impact severity »: 74%



1. Societal answers



HIGHEST IMPACT

- 1. Dietary changes for increased income
74% impact severity, 79% likelihood
- 2. Deteriorating socio-political stability impacting trade and access to food
72% Impact, 67% likelihood
- 3. Increasing demands for transparency
69% impact, 75% likelihood
- Low likelihood/ high impact: Deteriorating socio-political stability impacting trade and access to food. Likelihood 67%, impact 72%
- Highest likelihood: Dietary changes from increased incomes - 79% likelihood, impact 74%



BY REGION

- ⊙ **Dietary changes for increased income**
Highest impact in East Asia, Latin America, North America, Europe, South Asia, EECA
- ⊙ **Deteriorating socio-political stability impacting trade and access to food**
Africa, West Asia, Oceania
- ⊙ **Increasing demand for transparency**
Africa

OTHER TECHNOLOGICAL QUESTIONS



- ⊙ Dietary changes from health and environment concerns – 65% impact, 69% likelihood

2. Technological answers



HIGHEST IMPACT

- 1. Advances in plant nutrition product development: 75% impact severity, 80% likelihood
- 2. Advances in precision ag and big data
74% impact, 81% likelihood
- 3. Exponential advances in information technology & robotics
70% impact, 79% likelihood
- Low likelihood/ high impact: N/A
- Highest likelihood: Advances in precision ag and big data - 81% likelihood, impact 74%



BY REGION

- Advances in plant nutrition product development – Highest impact in EECA, South Asia, North America, Africa
- Advances in precision ag and big data
East Asia, Latin America, West Asia, Europe
- Cyber-security threats
Oceania

OTHER TECHNOLOGICAL QUESTIONS



- Advances in bio-economy: 63% impact, 67% likelihood
- Reduction in food waste: 61% impact, 63% likelihood
- Advances in logistics, storage and distribution: 67% impact, 67% likelihood
- Cyber security threats: 58% impact, 64% likelihood

3. Environmental answers



HIGHEST IMPACT

- 1. Water Scarcity
87% impact severity, 85% likelihood
- 2. Climate change effects: increase of temperature and weather events
80% impact, likelihood 82%
- 3. Deteriorating water quality
74% impact, 76% likelihood
- Low likelihood/ high impact: N/A
- Highest likelihood: Water Scarcity
85% likelihood, 87% impact



BY REGION

- Water Scarcity
Highest impact in nearly all regions: East Asia, West Asia, South Asia, Africa, Europe, North America, EECA, Latin America
- Climate change effects: increase of temperature and weather events
Oceania

OTHER TECHNOLOGICAL QUESTIONS



- Climate change effects: focusing on lowering GHGs: impact 69%, likelihood 72%
- Deteriorating air quality: impact 62%, likelihood 67%
- Worsening soil conditions: impact 74%, likelihood 72%
- Increasing nutrient recycling: impact 64%, likelihood 68%
- Rise in renewable energy: impact 66%, likelihood 74%

4. Economics answers



HIGHEST IMPACT

- 1. Feedstock supply issues
76% impact severity, 71% likelihood
- 2. Decline in farmers' purchasing power
75% impact, 62% likelihood
- 3. Drastic changes in fertilizer subsidies
73% impact, 64% likelihood
- Low likelihood/ high impact: Decline in farmers' purchasing power: 62% likelihood, 75% impact; Rising trade restrictions: 62% likelihood, 70% impact
- Highest likelihood: Rising industry consolidation: 74%, impact 66%



BY REGION

- Feedstock supply issues highest impact
South Asia, Europe, Africa
- Drastic changes in fertilizer subsidies
Highest impact in: North America, Latin America
- Decline in farmers' purchasing power
East Asia, West Asia, Oceania
- Rising trade restrictions
EECA

OTHER TECHNOLOGICAL QUESTIONS



- Insufficient infrastructure enhancements & maintenance:
Impact 63%, likelihood 58%
- Rising trade restrictions: impact 70%, likelihood 62%
- Rising industry consolidation: impact 65%, likelihood 74%

5. Policy answers



HIGHEST IMPACT

- 1. Stricter government allocation of resources: 75% impact severity, 68% likelihood
- 2. Rising environmental regulations and incentives: 74% impact, 79% likelihood
- 3. Tighening regulatory frameworks for the industry: 73% impact, 78% likelihood
- Low likelihood/ high impact: Stricter government allocation of resources – 68% likelihood, impact 75%
- Highest likelihood: Rising environmental regulations and incentives 79%, impact 74%



BY REGION

- Stricter government allocations of resources: highest impact in Africa, East Asia, Latin America, South Asia
- Rising environmental regulations: North America, West Asia, Europe
- Tightening regulatory frameworks for the industry: EECA, Oceania

OTHER TECHNOLOGICAL QUESTIONS



- Adoption of carbon taxes/ emissions trading schemes: Impact 65%, likelihood 66%
- Drastic changes to biofuels mandates: impact 63%, likelihood 57%
- Rising renewable energy mandates: impact 64%, likelihood 69%

Young Professionals

38 young professionals took part in the survey
Predominantly from Africa (34%) and Western and Central Europe (21%)



HIGHEST IMPACT

- 1. **POLICY** - Tightening regulatory frameworks for the industry
88% impact, 79% likelihood
- 2. **TECHNOLOGY** - Advances in plant nutrition product development
83% impact, 86% likelihood
- 3. **ENVIRONMENT** - Water Scarcity
82% impact, 83% likelihood



LOWEST IMPACT

- 1. **ECONOMIC** - Insufficient infrastructure enhancements & maintenance
59% impact, 53% likelihood
- 2. **POLICY** - Rising mandates in renewable energy
63% impact, 60% likelihood
- 3. **TECHNOLOGY** - Cyber security threats
65% impact, 65% likelihood

○ Low likelihood/ high impact: Stricter government allocation of resources, 67% likelihood 77% impact

○ Highest likelihood: Advances in plant nutrition product development 86% likelihood, 83% impact

Outside the industry

135 non-Members took part in the survey

The majority were from business (32%), research (27%) and government (14%)



HIGHEST IMPACT

- 1. **ENVIRONMENT - Water scarcity**
87% impact, 87% likelihood
- 2. **ENVIRONMENT - Climate change effects: increase of temperatures and weather events:** 81% impact, 85% likelihood
- 3. **TECHNOLOGY - Advances in precision ag and big data:** 81% impact, 84% likelihood
- Low likelihood/ high impact:** Drastic changes in fertilizer subsidies: likelihood 63%, impact 76%
Stricter allocations of government resources: likelihood 66%, impact 73%
- Highest likelihood:** Water Scarcity 87% likelihood, 87% impact



BY SECTOR

- Business:** Water scarcity, Advances in plant nutrition product development
- Farmers' Orgs:** Decline in farmers' purchasing power
- Government:** Water scarcity
- Intergovernmental Orgs:** Exponential advances in information technology & robotics
- Media:** Advances in precision in ag and big data, Drastic changes in fertilizer subsidies
- NGOs:** Advances in precision ag and big data, water scarcity, Rising industry consolidation
- Research:** Water scarcity
- Others:** Water scarcity, worsening soil conditions

Top 3 Across STEEP

MEMBERS

- 1. ENVIRONMENT: Water Scarcity
Impact 87%, Likelihood 85%
- 2. ENVIRONMENT: Climate change effects: increase of temperatures and weather events
Impact 80%, Likelihood 82%
- 3. ECONOMIC: Feedstock supply issues
Impact 76%, Likelihood 71%



NON-MEMBERS

- 1. ENVIRONMENT: Water Scarcity
Impact 87%, Likelihood 87%
- 2. ENVIRONMENT: Climate change effects: increase of temperatures and weather events
Impact 81%, Likelihood 85%
- 3. TECHNOLOGY: Advances in precision ag and big data
Impact 81%, Likelihood 84%

Concluding remarks

Water scarcity stands out the issue with the highest impact for both members and non-members.

- Cyber-security threats: least impactful issue for members and non-members (slightly higher for Young Pros)
- Reduction of food waste: also a low impact scenario across all survey answers
- **Low likelihood/high impact: for Members mostly in the Economic sphere**: Decline in farmers' purchasing power; Drastic changes in fertilizer subsidies; Insufficient infrastructure enhancement & maintenance, Rising trade restrictions
- **High likelihood/ lower impact: for Members** - Advances in bio-economy, rise in renewable energy, rising renewable energy mandates, rising industry consolidation