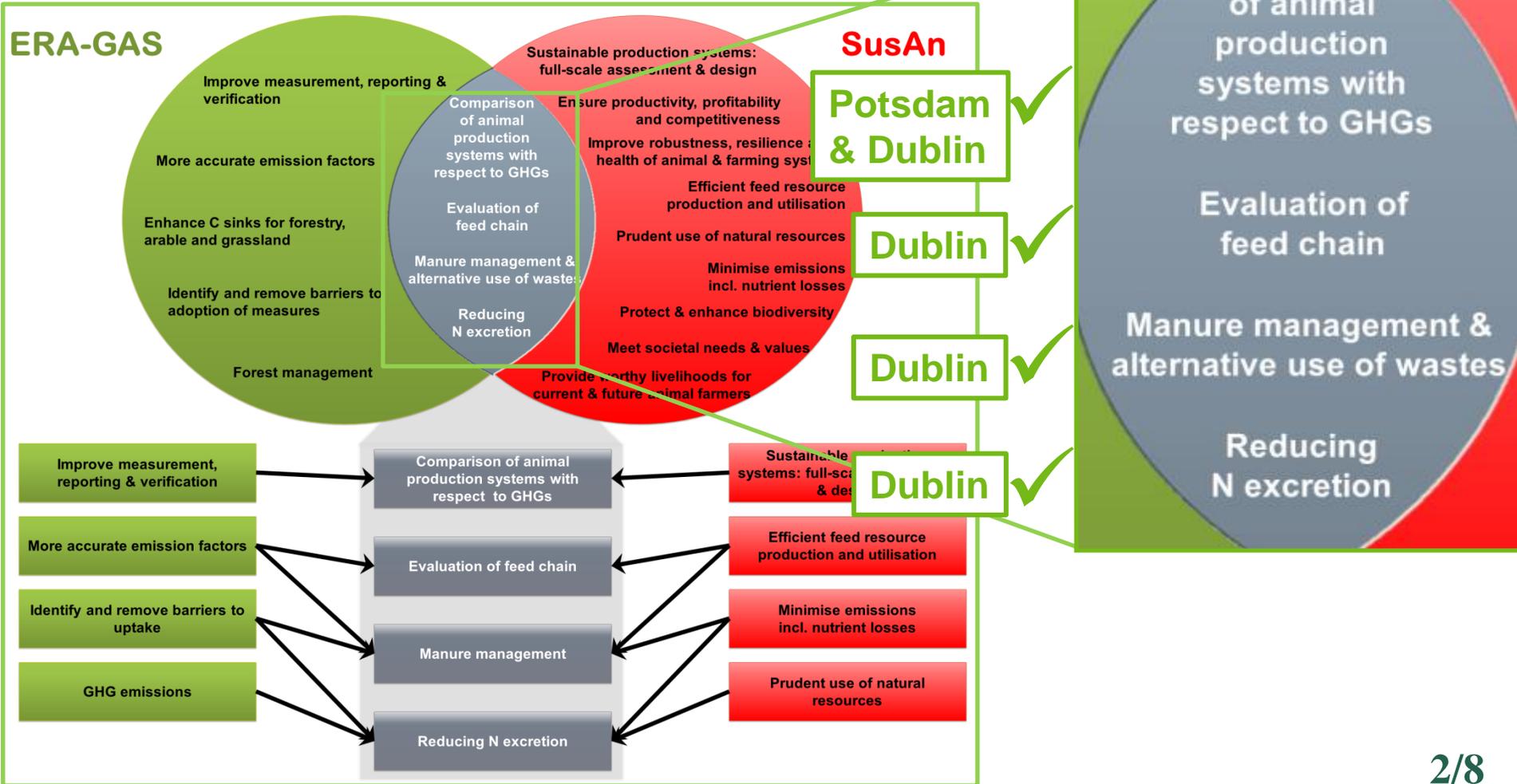# Results of the first joint workshop of
SusAn, FACCE ERA-GAS & ICT AGRI
in Potsdam, Germany, 29/30 November 2016

Elke Saggau, Federal Office for Agriculture and Food, BLE, Germany
Raymond Kelly, Teagasc, Ireland

Dublin, 28 February 2018

Cross-cutting areas

First joint WS in Potsdam (2016)

- **Aim of workshop**
Identifying research topics for joint call

- **Participants**
Funding agencies
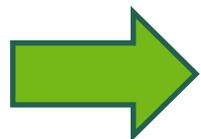Scientific experts

- **Topics**
Production technology
Management
Breeding
Physiology
Feed & Nutrition

With respect to both, ruminants & monogastrics

There were two Breakout-Discussions:

1.) Production technology & management
1a) Ruminants
1b) Monogastrics

2.) Breeding, physiology, feed & nutrition
2a) Ruminants
2b) Monogastrics

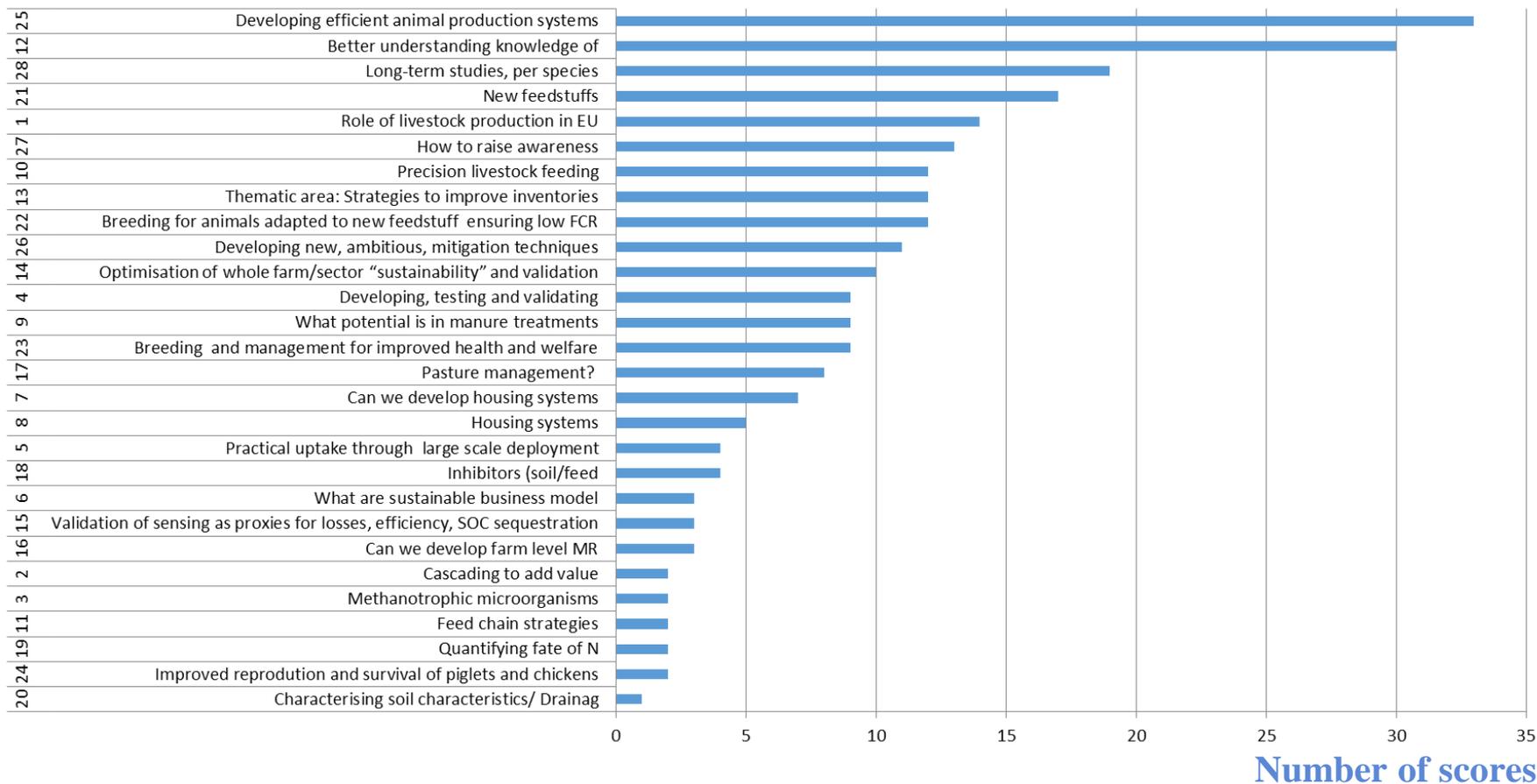# Three key questions were addressed:

1.) What are the most urgent **challenges** in production technology and management?

2.) What are the most promising **strategies** to meet these challenges?

…and can the expected effects (e.g. estimated reduction of emissions) be quantified?
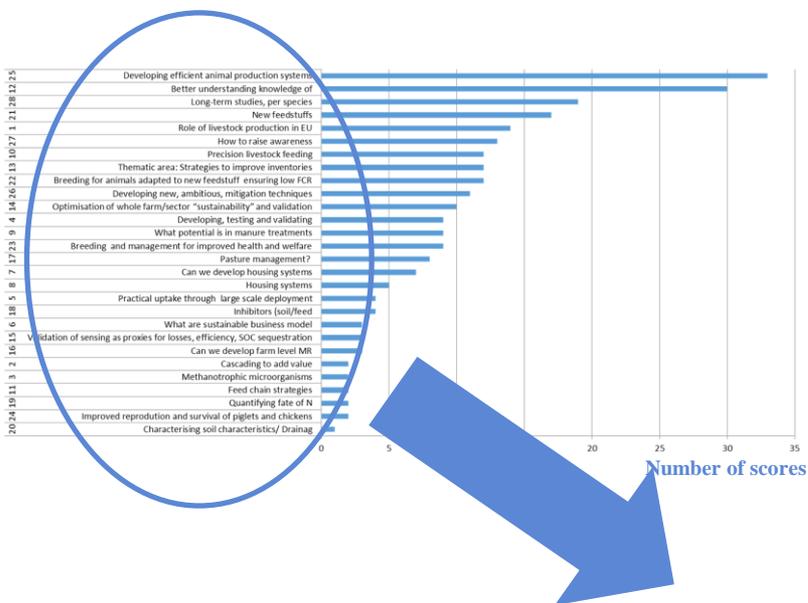
3.) What are the **burning research questions** & thematic research areas and what type of research will be most promising?

Outcome: ranked list of topics/questions

#	Topic	Number of scores
25	Developing efficient animal production systems	33
12	Better understanding knowledge of	30
28	Long-term studies, per species	19
21	New feedstuffs	17
1	Role of livestock production in EU	14
27	How to raise awareness	13
10	Precision livestock feeding	12
13	Thematic area: Strategies to improve inventories	12
22	Breeding for animals adapted to new feedstuff ensuring low FCR	12
26	Developing new, ambitious, mitigation techniques	11
14	Optimisation of whole farm/sector "sustainability" and validation	10
4	Developing, testing and validating	9
9	What potential is in manure treatments	9
23	Breeding and management for improved health and welfare	9
17	Pasture management?	8
7	Can we develop housing systems	7
8	Housing systems	5
5	Practical uptake through large scale deployment	4
18	Inhibitors (soil/feed	4
6	What are sustainable business model	3
15	Validation of sensing as proxies for losses, efficiency, SOC sequestration	3
16	Can we develop farm level MR	3
2	Cascading to add value	2
3	Methanotrophic microorganisms	2
11	Feed chain strategies	2
19	Quantifying fate of N	2
24	Improved reproduction and survival of piglets and chickens	2
20	Characterising soil characteristics/ Drainag	1

Number of scores

Outcome: ranked list of topics/questions

Number of scores

Ranked List of topics identified during the workshop

25) Developing new, ambitious, mitigation techniques, affordable and implementable by the livestock farmers.

12) Better understanding knowledge of rumen microbiome, soil microbiome, manure microbiome/ Microbiome (improvement of nutrient utilization and health and reduced emission)

28) Long-term studies, per species (comparing systems within a species), addressing several synergetic aspects at once, such as combined breeding and feeding strategies. Holistic research approach and modular 'tailor-made' to national/regional specificities, considering the diversity of livestock sector in Europe

21) New feedstuffs: New European protein sources (European/locally produced)(legumes, grass based proteins, products from biorefineries of biomass, aquatic/marine resources, insects, annelids, former foodstuff)

1) Role of livestock production in EU related to world food challenges

27) How to raise awareness of farmers and society for the need to decrease GHG's ? And how new technique should be better communicate with farmers, public and all stakeholders? Thematic area – farmer uptake and wider societal impacts

10) Precision livestock feeding, (real time, individual, group feeding)/ Precision livestock farming including precision livestock feeding – for optimal utilization of nutrients

13) Thematic area: Strategies to improve inventories

- How to best share experience

- Methodologies

22) Breeding (traditional, genomic selection, NBT) for animals adapted to new feedstuff ensuring low FCR – (identification of new traits)

26) Developing new, ambitious mitigation techniques

14) Optimisation of whole farm/sector "sustainability" and validation

4) Developing, testing and validating: Measurement techniques (low cost, IOT based, big data analytics …) for creating awareness for farmers; High throughput low-cost technologies

9) What potential is in manure treatments? microdigesters, (local /central) or drying and upgrade of manure, Application of manure via injectors

23) Breeding and management for improved health and welfare (20% productivity loss due to diseases)

17) Pasture management? Improving pasture sustainability (use of sensing)

7) Can we develop housing systems that are good for the environment and animal welfare – what AW requirements do we want? Re)design of production systems?

8) Housing systems: indoor climate, ventilation strategies, flooring systems, innovative materials Housing – better EFs and mitigation

5) Practical uptake through large-scale deployment, use in management systems, large scale monitoring for policy makers (adoption is integrated), adoption of precision livestock farming (PLF) concepts. (License to produce is embedded)

18) Inhibitors (soil/feed)

6) What are sustainable business model? (Technology, economically, socially?)

15) Validation of sensing as proxies for losses, efficiency, SOC sequestration

16) Can we develop farm level MRV?

2) Cascading to add value (bioeconomy)

3) Methanotrophic microorganisms

11) Feed chain strategies: Feed chain – impact of feed quality across whole chain

19) Quantifying fate of N

24) Improved reproduction and survival of piglets and chickens. Developing efficient animal production systems:

a) Accurate measurements in livestock on individuals and on group levels, data interpretation, big data, machine learning, PLF, sensors, signal processing, caring the smallest production unit.

b) Feed efficiency and diet design towards lower GHG while elevating production, health, reproduction, sustainability and economics measures of performances.

c) Manipulating the rumen microbiome, including early life intervention, (e.g. Feeding strategy for chickens in the first days of life)

20) Characterising soil characteristics/ Drainage – impacts on nutrient cycling

Results
1ˢᵗ Common Activity – Common Workshop in Potsdam, November 2016

Thank you for attention