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A SYNTHESIS OF THE 2ND, 3RD, 4TH AND 5TH ISOFAR SCIENTIFIC CONFERENCES: POINTERS TO FUTURE FRONTIERS OF KNOWLEDGE

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Abstract: Globally, basic and applied organic agriculture research projects are not adequately funded thereby hindering the development of innovations that can properly tackle multifarious challenges in the food and agriculture sector. A review of 1,118 scientific papers presented at the last four editions (2nd, 3rd, 4th and 5th) of ISOFAR Scientific Conferences held in 2008, 2011, 2014 and 2017, respectively revealed that 45.8 – 66.6% of papers presented were on agronomy (crop and soil) followed by socio-economics. Very few scientific papers (0.0-4.0%) were based on organic aquaculture, policy issues, health and safety of organic products, and standards and certification. It is recommended that in the nearest future, inter- and transdisciplinary research projects be commissioned to explore the potential of these identified neglected research areas in solving global challenges in the food and agriculture sector.

Introduction: Organic agriculture research is grossly underfunded to adequately proffer solutions to the numerous challenges facing the sector. Despite organic agriculture being recognized as a special and reputable niche in Europe where organic farm land has a share of 2.9% of total global agricultural land (Willer & Lernoud 2019), funds allocated to organic research is < 1% of total public funded agricultural research (Niggli et al. 2017). Africa is even worse affected than any other continent because research funding in organic agriculture is the area with highest perceived level of unmet funding needs (UNCTAD 2016). Consequently, this paper reviewed the distribution of scientific papers presented at the 2nd, 3rd, 4th and 5th ISOFAR Scientific Conferences across 12 research areas and five continents. This is with a view to prompt scientists about hitherto neglected research areas and stimulate research scholarship in order overcome the present and future food global challenges.

Material and methods: The paper appraised all the scientific papers documented in the Book of Proceedings and either presented as oral paper or poster during the 2nd, 3rd, 4th and 5th ISOFAR Scientific Conferences held at Modena, Italy (2008), Namyangju, Republic of Korea (2011), Istanbul, Turkey (2014) and New Delhi, India (2017), respectively. The papers were distributed across 12 broad research areas as follows (i) Agronomy (crops and soil research areas including plant health, plant breeding, fruits and vegetables cultivation, cropping systems and techniques, rotation studies, soil fertility, nutrient and weed management) (ii) Livestock (animal production, breeding and genetics, and health) (iii) Socio-

economics (organic consumers, farm economics of production and marketing, agricultural extension and analysis of production systems (iv) Food Systems and Quality (changing food systems, food quality studies that compared organic and conventional foods (v) Standards and Certification (cost of certification, compliance with standards, appraisal of PGS scheme etc (vi) Policy issues including legislation of organic production, promulgation of policies etc (vii) Aquaculture (fish and shrimp production) (viii) Agro-Forestry, Environment and Biodiversity (agroecology studies, impact assessment of organic agriculture on the environment, green house gas (GHG) emission studies, crop diversity studies) (ix) Knowledge transfer and dissemination (studies on knowledge transfer to end users) (x) Cross disciplinary and Participatory Research Methods (multi and trans-disciplinary studies) (xi) Research Methodology (novel methodologies in organic agriculture) and (xii) Health and Safety of organic products (nutrition and food safety studies). Furthermore, the papers were divided into six continents from which they emanated (Africa, Asia, Australia, Europe, North America and South America), excluding Antarctica where no human being lives. The papers were counted and expressed in percentages across research areas and continents.

Results: A total of one thousand one hundred and eighteen (1,118) papers were reviewed in this exercise. The 2nd ISOFAR Conference at Modena, Italy recorded the highest (378) number of papers during the four Conference editions under review. Total number of papers accepted for oral and poster presentation decreased from 2008 to 2011 by 31.7%, increased slightly by 15.9% from 2011 and 2014 only to decrease markedly by 38.8% in 2017 (Table 1). Agronomy (crops and soil research areas) recorded the highest number of papers across the four ISOFAR Conference editions, followed by papers on Socio-economics and livestock research. The research areas with the least number of papers are policy issues, aquaculture and health and safety of organic products. In fact these three areas did not record any paper at the 2nd and 5th ISOFAR Conferences held in Modena, Italy and New Dehli, India in 2008 and 2017, respectively. (Table 1). Contributions from Europe have been consistently dominating the Science track followed by Asian scientists, except in 2011 when South Korea hosted. Contributions from Africa increased from 5 in 2008 to 11 in 2011, 24 in 2014 and decreased slightly to 18 in 2017. Paper contribution from Australia was the least at the 2nd, 3rd and 4th Conferences and no contribution was recorded in 2017 from the continent (Table 1).

Table 1: Distribution of scientific papers across research areas and continents during 2nd, 3rd, 4th and 5th ISOFAR Conferences

Research areas	2nd ISOFAR Conference (2008)		3rd ISOFAR Conference (2011)		4th ISOFAR Conference (2014)		5th ISOFAR Conference (2017)	
	Papers	%	Papers	%	Papers	%	Papers	%
Agronomy	173	45.8	172	66.6	140	46.8	100	54.6
Livestock	44	11.6	10	3.9	44	14.7	15	8.2
Socio-economics	62	16.4	24	9.3	44	14.7	38	20.8

FS & Q	4	1.1	10	3.9	6	2.0	8	4.4
S & C	11	2.9	5	1.9	9	3.0	3	1.6
Policy issues	0	0	0	0	3	1.0	0	0
Aquaculture	0	0	2	0.8	3	1.0	0	0
AAE&B	30	7.9	12	4.7	6	2.0	14	7.7
KT & D	4	1.1	0	0	7	2.4	0	0
CD & PRM	17	4.5	14	5.4	23	7.7	2	1.1
Research Methodology	18	4.8	7	2.7	8	2.7	3	1.6
H & S	15	4.0	2	0.8	6	2.0	0	0
Total	378	100	258	100	299	100	183	100
Continents	**Papers**	**%**	**Papers**	**%**	**Papers**	**%**	**Papers**	**%**
Africa	5	1.3	11	4.3	24	8.0	18	9.8
Asia	27	7.1	141	54.7	41	13.7	60	32.8
Australia	4	1.1	4	1.6	4	1.3	0	0
Europe	302	79.9	85	32.9	213	71.3	89	48.6
North-America	29	7.7	10	3.9	10	3.3	9	4.8
South-America	11	2.9	7	2.7	7	2.4	7	3.8
Total	378	100	258	100	299	100	183	100

FS&Q - Food Systems and Quality, S&C - Standards and Certification, AAE&B - Agroforestry, Agro-ecology, Environment and Bio-diversity, KT&D - Knowledge Transfer and Dissemination, CD&PRM -- Cross-disciplinary and Participatory Research Methods, H&S - Health and safety of organic products

Discussion: The spread of scientific papers across research areas in the last four editions of ISOFAR Science Conferences revealed that the papers have been largely skewed towards agronomy (crop and soil), socio-economics and livestock management. Very limited number of papers have been presented on organic aquaculture, policy issues, health and safety of organic products, and standards and certification. If the organic sector of agriculture must make impact, there is the need to legislate proven findings to enable prospective practitioners adopt such technologies. Intra- and transdisciplinary research studies should also be encouraged to fast track a broad adoption of organic agriculture as a production system across the continents in the world as suggested by Niggli et al. (2017). It is therefore recommended that the lull of research activities in organic aquaculture, policy issues, and health, safety of organic products, standards and certification should be redressed in the nearest future.

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