



ADVANCING BREEDING AND GENETICS RESEARCH IN ASIA AND OCEANIA FOR 50 YEARS THROUGH SABRAO

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SUMMARY

The Society for the Advancement of Breeding Research in Asia and Oceania (SABRAO) is an international society devoted to basic and applied aspects of breeding research in economically important plant species. The society was formed in 1968, when global food security was a major issue. In 2018, the society is still active as one of the few professional associations focusing on the Asian region. This article reflects on 50 years of history with an emphasis on the official publication of the society called the *SABRAO Journal of Breeding and Genetics*, which was first published in 1969.

Key words: SABRAO, SABRAO Journal of Breeding & Genetics, Asia, Oceania, Crop Science, journal publication, regional cooperation

Key findings: A brief history of SABRAO and the *SABRAO Journal of Breeding and Genetics* is presented with reflections on the past and future.

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INTRODUCTION

The Society for Breeding Research in Asia and Oceania (SABRAO) is a professional association for plant breeders, geneticists and other scientists focusing on the Asian and Oceania regions. The society was founded in 1968, at a time when there were fears about food security and

massive research efforts were underway that ultimately led to the Green Revolution. Importantly at the time, most countries did not have strong government departments for agricultural research or national programs for major crops that exist today. In its heyday, SABRAO was formally invited to assemble teams of experts to evaluate the needs of

national partners or conduct workshops on specific topics.

The society has always been led by a President and Executive Committee. It has had a celebrated history due to several past Executive Committee members such as Sir Otto Frankel (early pioneer warning of dangers of biodiversity loss in the 1960s-70s), Dr. Gurdev Khush (winner of World Food Prize in 1996) and Professor M.S. Swaminathan (M.S.S. Research Foundation and "Indian Father of Green Revolution") being awarded prestigious global awards in agriculture and becoming recognized internationally. Today SABRAO is one of the few professional networks in Asia or developing countries for breeding and genetics research. Since the beginning, SABRAO has been a highly diverse and multi-cultural society, a strength that still exists today.

In this article, we briefly document some of the history of the society for the first time, focusing on the journal, and reflect on the past and future.

An international journal on breeding and genetics research

The society conceived of the idea to publish an international scientific journal on breeding and genetics as soon as it was formed. The first issue of the journal was published in 1969 by the society, but the first five volumes were called the SABRAO Newsletter until 1973. In 1974, the journal was called the *SABRAO Journal of Breeding and Genetics* (abbreviated as *SABRAO J. Breed. Genet.*) or referred to as the *SABRAO Journal* for short. Since the beginning, all articles have been peer reviewed by independent experts in the field.

Initially, topics covered by the journal were broad and included articles on plant and animal species. However, interest in animal breeding and genetics and forest species reduced over time in contrast to submissions on field and horticultural crops (and other economically important plant species), which have increased steadily. Based on this strong trend, the scope of the journal was refined to focus on plant breeding, genetics and related topics relevant to Asia. The journal has always accepted articles involved classical genetics (i.e. to estimate gene number, gene action, trait heritability) and practically any general topic in breeding. More recently, the scope of the journal has been refined to include molecular genetics and breeding (especially genetic diversity analysis and marker-assisted selection), quantitative trait loci (QTL) mapping and validation, trait research and phenotyping methods relevant to breeding programs, and multi-environment trial analysis. We also welcome commentaries and unconventional types of articles such as opinions, reflections and case studies. Original research articles have by far been the most popular types of articles although short communications and review articles have been regularly submitted. In our view, the journal caters for important applied research articles and plant breeding that ultimately concern food security in Asia and Oceania, which will be a critical topic in the 21st century.

For most of its history, the journal was published once or twice each year. In recent years, there has been a strong increase in the number of manuscripts submitted to the journal.

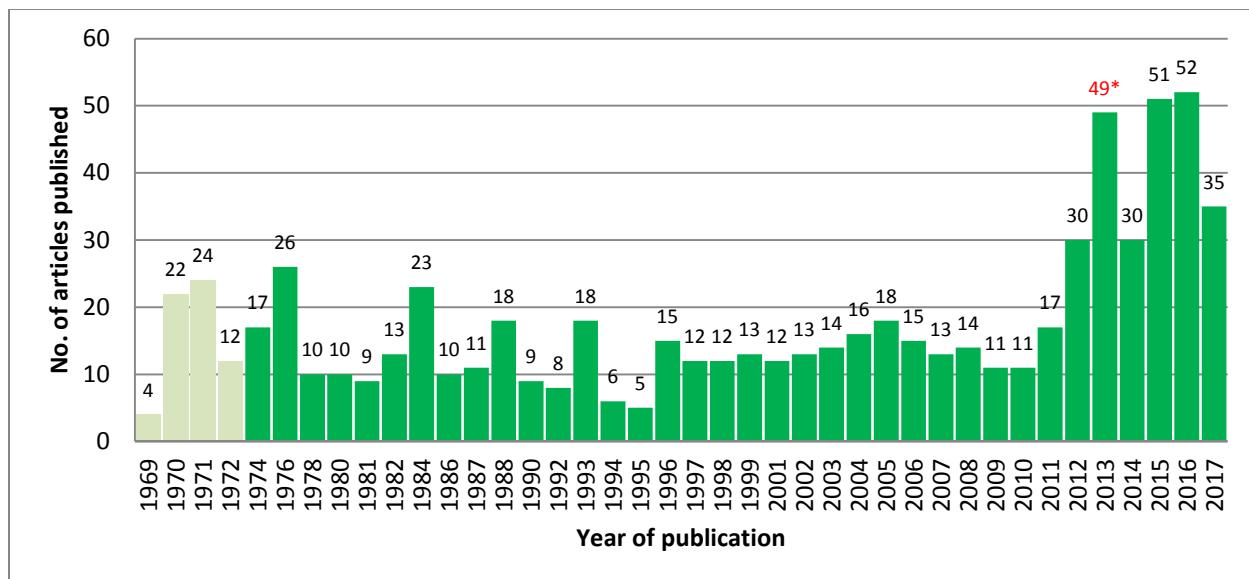


Figure 1. Articles published in the *SABRAO Journal of Breeding and Genetics* spanning nearly 50 years. The early years, shown in light green colour, indicate when the journal was called the *SABRAO Newsletter*. Records were not available for all years and every effort has been made to ensure accuracy. Articles published in 2013 included 14 articles from a special issue.

This is reflected in the marked increase in number of articles published each year (Figure 1). In 2015, there were so many submissions compared to previous years that we needed to double the number issues published each year from two to four; issues are now published quarterly, March, June, September and December. Since the beginning, the vast majority of articles have been submitted by South and Southeast Asian scientists. Articles have also increased in length over time. In our experience, the dramatic increase in published articles reflects the greater pressure of researchers, especially students, to publish their research. It is worth noting that from the start, the journal supported graduate students of plant breeding and genetics in many Asian countries by publishing the results of their dissertation, a requirement for graduation in these countries. In

addition to articles, the journal also publishes news and important announcements for the society (including notable congratulatory remarks), book reviews, news about conferences and obituaries of members. However these types of reports have diminished in the last decade. Key SABRAO contact information (Executive Officers, Regional Secretaries) and minutes of general meetings were also published, indicating the importance of the journal for internal communication and information dissemination in the days before email. Official SABRAO statutes were published in Volume 13 (1) 1981 and reprinted in Volume 44 (1) 2012.

For most of its history, the journal was printed and distributed to members by post and deposited in institutional libraries. Regular members of the society received complimentary copies while academic institutions and other interested

parties filed subscription on an annual basis. The development of the SABRAO website containing articles in 2010 was a major landmark for the society. Previously, articles were hosted on the website of the International Rice Research Institute (IRRI) Philippines by goodwill and due to the strong membership and senior roles of IRRI staff in the SABRAO Executive Committee for many years. Articles became available electronically which greatly increased access far more quickly than before. In 2016, the journal decided to only publish articles electronically. This provided more rapid access to articles and saved considerable resources that would have been diverted to printing and postage costs. We recall that in 2015, postage costs were more expensive for the society than printing costs! This also followed the trend of large online publishers who have very popular and esteemed electronic-only journals. A website for the society also provided a far more convenient and effective way to communicate information. At the time of writing, a new website is being developed to include an improved article archive and improved general features (<http://sabraojournal.org/>, due to be completed in 2018).

We currently operate on a not-for-profit basis and provide open-access for all articles from 2010. Authors are charged a relatively low publication fee to cover processing, editing and publishing costs. This fee is considerably cheaper than most other journals and is deliberately kept as low as possible to enable scientists and students from developing countries to publish. A discount is offered to members to encourage membership. We operate on a not-for-profit basis and based on our

philosophy regarding scientific publishing, we will strive to keep charges as low as possible for as long as possible in the future.

Congresses

During the past 50 years, conferences have usually been held usually every four years in a different country in conjunction with a national breeding society or association. Apart from hearing about the latest developments in the region, this has represented an extremely useful opportunity for networking with SABRAO members and the host country.

In the past, workshops were held in conjunction with the conference. Often proceedings of these workshops were published separately (Table 1). Selected papers from the 12th SABRAO Congress were published as a special issue of the journal in 2013 (Collard *et al.*, 2013).

Editors and Editorial Boards

The journal has been largely driven by the main Editor (i.e. Editor-in-Chief) since the beginning. In some of the early years, the Editor was formally supported by an Assistant Editor (Table 2). Around 2012 when large numbers of articles started to be submitted, a small publication fee was established and several assistants were formally employed on a casual basis for formatting articles and editing. Payment of their services was largely funded by the publication fee.

The Editorial Board was formally established in 2012. The main duty of associate editors was processing of manuscripts for publication in the journal. This involves finding reviewers, communicating with authors, examining completed

evaluations of manuscripts, checking revisions are thoroughly performed, and editing. Each Associate Editor is acknowledged as the "Communicating Editor" for the relevant article when it is published. Other minor duties include being a contact point for SABRAO members in their respective countries, providing new ideas for the

journal, and assisting in the preparation and compilation of special issues and conference proceedings. It is noteworthy that all members of the Editorial Board (including the Editor-in-Chief) have worked on a voluntary basis.

Table 1. List of proceedings/special issues from workshops or congresses published by SABRAO.

Year	Title	Additional details (if available)
1992	The Impact of Biological Research On Agricultural Productivity: proceedings of the SABRAO International Symposium	Editor: Liu, Ta-chiang.
1980	Animal Genetic Resources in Asia and Oceania: Proceedings of a workshop of the Society for the Advancement of Breeding Researches in Asia and Oceania (SABRAO), held at University of Tsukuba, Tsukuba Science City, September 3-7, 1979.	Published in conjunction with University of Tsukuba
1994	Toward enhanced and sustainable agricultural productivity in the 2000's: breeding research and biotechnology: Proceedings of SABRAO seventh International Congress and WSAA Symposium held at Academia Sinica, Nankang, Taipei, Taiwan, R.O.C., November 16-20, 1993.	
1972	Proceedings of the joint symposia for the advancement of forest tree breeding of Genetics Subject Group, the International Union of Forest Research Organizations, and Section 5, Forest Trees, the Society for the Advancement of Breeding Researches in Asia and Oceania.	Section 5 - Forest Trees. IUFRO Genetics-SABRAO Joint Symposia, Tokyo)
1985	New Frontiers of Breeding Researches. Proceedings of the 5 th International Congress of SABRAO, Bangkok, Thailand	
1989	Breeding research: the Key to the Survival of the Earth: Proceedings	International SABRAO Congress Tsukuba-machi, Japan)
1988	Plant Breeding and Genetic Engineering: Proceedings of the International Symposium and Workshop on Gene Manipulation for Plant Improvement in Developing Countries held at Kuala Lumpur, Malaysia, 30 November-3 December 1987	
1994	Toward Enhanced and Sustainable Agricultural Productivity in the 2000s: Breeding Research and Biotechnology: Proceedings of SABRAO seventh International Congress and WSAA Symposium held at Academia Sinica, Nankang, Taipei, Taiwan, R.O.C., November 16-20, 1993.	
1997	Harmonizing agricultural productivity and conservation of biodiversity, breeding and ecology. Proceedings of the 8 th SABRAO Congress, Seoul, Korea.	Co-published with the Korean Breeding Society.

2009	11 th SABRAO Congress, held in conjunction with the 14 th Australian Plant Breeding Conference on August 9-14, 2009 at the Cairns Convention Centre, Cairns, Queensland, Australia.	Papers from this conference were published in a special issue as a CD-ROM.
2013	Selected papers from the 12th SABRAO Congress on Plant Breeding towards 2025: Challenges in a Rapidly Changing World (An International Conference to Celebrate His Majesty King Bhumibol's 84 th (7th Cycle) Birthday Anniversary) Chiangmai, Thailand, January 2012	Citation: <i>SABRAO J. Breed. Genet.</i> Vol. 41 Special Supplement, August 2009.
2015	Contribution of Breeding Research for Sustainable Agricultural Production under Changing Environment to Food Security in Asia and Oceania. Proceedings of the 13 th SABRAO Congress, September 14-16, 2015, Bogor, Indonesia.	<i>SABRAO J. Breed. Genet.</i> 45 (1) March 2013 (Special issue, 14 articles)

Table 2. SABRAO Editor-in-Chiefs.¹

Years	Name	Institution	Country of Editorial Office	Editorial support
1969-1974	H.I. Oka	National Institute of Genetics, Misima	Japan	Y.E. Chu (1972) and H.P. Wu (1974), Institute of Botany, Academia Sinica, Taiwan
1978-1980	R. Knight	Waite Institute, University of Adelaide	Australia	-
1981-1984	K.M. Graham	Dept. Genetics, Universiti Kebangsaan	Malaysia	-
1986-1988	C. Mak	Dept. Genetics and Cellular Biology, University of Malaya,	Malaysia	Assistant editors from Malaysia (1987-88)" A.C.Soh, Applied Agricultural Res. Sdn. Bhd., T.K. Mukherjee, University of Malaya,
1989-1993	W.N. Chang	Dept. Horticulture, National Chung-Hsing University	Taiwan	Editorial Committee: D.J. Liu (TARI), C. Liu (NTU), T.M. Chu (NCHU), J.C. Yang (TFRI), S. Shanmugasundaram (AVRDC), R.T. Opeña (AVRDC)
1993-2001	R.N. Oram	Plant Industry Division, CSIRO	Australia	P. Srinives, Assistant Editor Editor, Kasetsart University, Thailand
2002-2009	E.D. Redoña	PhilRice, IRRI	Philippines	P. Srinives, Associate Editor (2002-2005), Kasetsart University, Thailand
2010-2016	B.C.Y. Collard	IRRI	Philippines	Editorial Board formed in 2012. Currently active
2016- present	N.U. Khan	Khyber Pakhtunkhwa Agricultural University	Pakistan	

¹records unavailable from 1975-1977

Databases

Journal databases are critical resources for scientists of all disciplines, as they enable efficient integration of a huge amount of information. *SABRAO Journal* has been included in most of the main agricultural or scientific journal databases, or specific regional ones including:

- CAB abstracts (CABI)
- Scopus (Elsevier)
- Google Scholar
- EBSCO Information Services
- ASEAN Citation Index

Previously, *SABRAO Journal* was included in the prestigious 'Web of Science' database from 2009 to 2011 and was issued with a journal impact factor (IF) in Journal Citation Reports (JCR); and via affiliated databases after 2011, but was not part of core journal collection. In 2017, *SABRAO Journal* was included in Web of Science's "Emerging Sources Citation Index (ESCI)". The journal has also been covered by other national databases (e.g. National Academy Agricultural Sciences India, and AGRICOLA) for various periods of time.

All of these databases require considerable effort and dedication to ensure that records are always up-to-date and complete. SABRAO members have additional privileges to search digital records using the Mendeley reference management system (Zaugg *et al.* 2011).

Future outlook

Due to anticipated challenges to obtain global food security in the 21st century, we believe that the topics covered and the scope of the journal is

even more relevant today than they were when the society was formed (Godfray *et al.* 2010; Stamp and Visser, 2012; Tester and Langridge, 2010). Like all other agricultural science journals, *SABRAO Journal* will need to continually and quickly adapt to the changing needs of scientists and modern publishing. Since running a journal is a considerable operation, new ways to improve efficiency will be important. Many journals have implemented online electronic manuscript submission systems and we certainly hope to do this, although current systems are expensive for not-for-profit organizations to implement.

The *SABRAO Journal* also needs to ensure that it keeps up-to-date with digital publication process and that all records and journal metrics are carefully recorded and managed. Ultimately SABRAO must always ensure that we adhere to the underlying principles of providing a desirable journal for scientists and students from Asia and developing countries to publish. We will always strive to keep costs as low as possible and ensure that publication of research is not cost prohibitive.

With limited resources, the *SABRAO Journal* and Society has numerous achievements in its 50 years. These achievements also highlight the potential of the journal. Sustainability of the current not-for-profit business model will be a critical issue. With continued and even stronger support from the Editorial Board, Assistant Editors and SABRAO Executive committee in the future, we are optimistic that the journal and society will continue to grow and prosper.

ACKNOWLEDGEMENTS

There are many people we must thank. Firstly, we acknowledge the countless hours contributed by past Editors of the journal. They built a solid foundation from which all new things grow. Secondly, we thank the Associate Editors of the Editorial Board (past and present) and the unwavering support by Dr. Sanun Jogloy (Deputy Editor-in-Chief) and Dr. Peerask Srinives, Thailand over many years. In particular, we would like to highlight the countless hours of work by several Assistant Editors since 2012, especially Ms. Lea Licong, Mr. Joseph ("Otep") Vicente and Mr. Joseph Beredo. Recognition of Ms. Marlyn Rala and Ms. Ludy Nicar (IRRI) for a wide range of duties for many years is also gratefully acknowledged. The excellent services provided by the web manager, Ms. Ella "Kaye" Domingo must also be highlighted. We certainly express our gratitude for Regional Secretaries and Executive Committee, especially the current president Dr. Sang-Nag Ahn (Republic of Korea), for their crucial support. Finally, we thank the hundreds of authors and reviewers over the years who have generously provided their time for the advancement of science.

REFERENCES

- Collard BCY, Jogloy SS, Lertrat K, Redoña, E, Srinives P (2013). The 12th SABRAO congress on plant breeding. Towards 2025: Challenges in a rapidly changing world. *SABRAO J. Breed. Genet.* 45: 1–5.
- Godfray HCJ, Beddington JR, Crute IR, Haddad L, Lawrence D, Muir JF, Pretty J, Robinson S, Thomas SM, Toulmin C (2010). Food security: The challenge of feeding 9 billion people. *Science* 327:812–818.
- Stamp P, Visser R (2012). The twenty-first century, the century of plant breeding. *Euphytica* 186: 585–591. doi: 10.1007/s10681-012-0743-8
- Tester M, Langridge P (2010). Breeding Technologies to Increase Crop Production in a Changing World. *Science* 327:818–822. doi: 10.1126/science.1183700
- Zaugg H, West RE, Tateishi I, Randall DL (2011). Mendeley: Creating communities of scholarly inquiry through research collaboration. *Tech Trends* 55:32–36. doi: 10.1007/s11528-011-0467-y