



International **W**heat **G**enome
Sequencing **C**onsortium



2020

Annual Report

MESSAGE FROM THE EXECUTIVE DIRECTOR

2020 was an exceptional year, to say the least, that has impacted us greatly in our ability to travel, meet, and network. But, as the year progressed, we adapted to new ways to connect and continued moving forward, albeit more slowly, with our activities and projects.

The closure of laboratories and placement of other limitations on access to labs and field sites around the world since last spring greatly impacted many wheat projects. While virtual communications expanded greatly in 2020, the inability to meet in person hampered collaborations, strategy meetings, and conferences. IWGSC activities have been affected as well and several projects were delayed. Nonetheless, we were able to make progress in some areas thanks to the dedication of IWGSC projects leaders and the continuous support of IWGSC sponsors.

In 2020, we continued updating the reference sequence of bread wheat, IWGSC RefSeq, by integrating new datasets to improve super-scaffolding, resolve ambiguities, close gaps, and increase the contiguity of the reference genome. The annotation team has been busy annotating the updated genome assembly and integrating manually curated genes submitted from the wheat community. Both new resources are expected to be released in 2021.

We continued our collaboration with Arbor Biosciences and progress was made in designing a promoter capture array that will be available in 2021. Plans and efforts are also underway to develop add-on modules for the exome panel.

Although we were delayed significantly in our plans for the IWGSC Wheat Diversity project aimed at sequencing at least eight landraces to characterize the breadth of genetic diversity in bread wheat, we were able to obtain quotes for platinum quality sequencing of the core

landraces and further refine our strategy for the project. We will continue to seek collaborators, partners, and funding for the project in 2021.

It was fortuitous that we began organizing webinars in January 2020 to expand our outreach to the scientific community beyond major meetings such as PAG as, once all meetings ceased, we were prepared to continue bringing the latest advancements in wheat genomics to the scientific community. With everything shut down, the webinar series also proved to be a valuable tool to keep the community connected and engaged. During 2020, we organized ten well attended webinars and received very positive feedback. The series will continue in 2021 with a great lineup of speakers and topics.

In June, Arbor Biosciences became a sponsor of the IWGSC, joining BASF, Florimond Desprez, INRAE, the Kansas Wheat Commission, Limagrain, RAGT and Syngenta in supporting our activities. We were informed that Limagrain will no longer sponsor the Consortium in 2021, as they are focusing their future activities in another direction. Sponsors are an essential part of the IWGSC and their support is essential to ensure continuation of activities. Beyond their financial support, they help shape the IWGSC priorities, strategic plans, and activities as members of the Coordinating Committee. They are, indeed, a critical component to ensuring that our strategies will accelerate wheat improvement in the future.

As we are entering 2021 with a better outlook for the pandemic in the coming months, we look forward to working with all of you to continue providing resources for the wheat community and hope to meet you in person yet this year.

In the meantime, stay safe and healthy.

Kellye Eversole, Executive Director

ABOUT THE IWGSC

The IWGSC is an international, collaborative consortium, established in 2005 by a group of wheat growers, plant scientists, and public and private breeders.

The IWGSC provides tools and resources that serve as a foundation for the accelerated development of improved varieties and that empowers all aspects of basic and applied wheat science.

VISION

Enhance wheat breeding through an increased understanding of the molecular basis of traits and their allelic diversity.

GOALS

Lay a foundation to accelerate wheat improvement

Increase profitability throughout the industry

IWGSC 2.0

Following the publication of the reference sequence of the bread wheat genome, IWGSC RefSeq v1.0, in the journal Science in August 2018, the IWGSC moved into Phase II and focuses its efforts on:

- **IWGSC Gold Standard Reference Sequence:** gap filling and integration of manual and functional annotation to IWGSC RefSeq v1.0 and subsequent versions.
- **IWGSC-Arbor Biosciences Collaboration** to develop tools for the community such as exome array, promotor capture panel, etc.
- **IWGSC Wheat Diversity project** to characterize the breadth of worldwide wheat diversity.



BOARD OF DIRECTORS

The Board establishes the overall vision and mission of the Consortium and ensures the implementation of the strategic decisions made by the Coordinating Committee, a group comprised of 52 representatives of universities, research institutions, governmental agencies, and grower organizations, as well as small, medium, and large wheat breeding and seed companies.



Kellye Eversole

IWGSC Executive Director
Chair of the Board of Directors



Rudi Appels

University of Melbourne & AgriBio
Australia



Ute Baumann

University of Adelaide
Australia



Hikmet Budak

Montana BioAg Inc
USA



Etienne Paux

INRAE
France



Sébastien Praud

Limagrain, France
Resigned end 2020

2020 HIGHLIGHTS

IWGSC RefSeq Assembly and Annotation Updates

Following the release of IWGSC RefSeq v2.0 in July 2019, the IWGSC teams continued updating and improving the reference sequence assembly and annotation by incorporating additional datasets, with new de novo annotation of transposable elements and mapping of key marker sets, as well as integration of manually curated genes submitted from the wheat community.

Updated versions of the wheat genome reference sequence assembly (IWGSC RefSeq v2.1) and annotation (IWGSC RefSeq annotation v2.1) will be available to the community at the IWGSC data repository hosted by URGI-INRAE in 2021.

IWGSC Wheat Diversity Project

The project aims at sequencing and characterizing the worldwide wheat diversity.

To that end, a core set of eight landraces will be sequenced at high quality. Elite and founder lines, sequenced to varying levels of quality, as well as publicly available sequences, will be added to the dataset.

The IWGSC team obtained quotes for sequencing and assembling of the eight landraces at high quality and has been seeking funding for the project, while putting together an analyses team.

IWGSC – Arbor Biosciences Collaboration

Arbor Biosciences and the IWGSC worked on the design of a promoter capture that is scheduled to be released in the spring of 2021.

Plans to develop add-on modules for the exome panel, incorporating the updated and annotated IWGSC RefSeq v2.1 and genome-wide SNPs, are underway but have been delayed due to lab closure in 2020.

In June, Arbor Biosciences joined the IWGSC as a sponsoring partner, further strengthening the collaboration between the two entities.

IWGSC Workshops and Webinar Series

The IWGSC organized two workshops and a business meeting at PAG2020 in January.

The IWGSC began organizing webinars in January 2020 to connect more widely with the wheat community beyond those who attend PAG.

The webinars showcase research results, tools, and resources. They are free to attend, and the recordings are posted on the IWGSC YouTube channel to allow access for people who cannot attend the live event.

The IWGSC organized 10 webinars in 2020, with a record attendance from all over the world.



THE YEAR IN NUMBERS



MEMBERSHIP

3,200 Members

884 Institutions

71 Countries



REFSEQ CITATIONS

239 Articles

47% About traits

23% About Breeding



WEBSITE

67,935 Page views

18,780 Users

28,760 Visits



34,525 Visits

34,236 Downloads

82,968 BLASTs



111 Tweets

+25% Followers

241,700 Impressions



WEBINARS



3,600 Registrations



4,290 YouTube views



FINANCES

The IWGSC is financially supported by sponsors - private companies, research institutions, and grower organizations.

REVENUES



EXPENSES



2020 SPONSORS



CONTACTS & LINKS

WEBSITE

www.wheatgenome.org

EMAIL

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DATA REPOSITORY AT URGI-INRAE

<https://wheat-urgi.versailles.inra.fr>

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