Multi-color genomic *in situ* hybridization analysis of a root metaphase cell in a wheat x *Aegilops mutica* introgression line. The introgression is shown in bright green (white arrows). This line has been shown to have increased heat tolerance aiding yield stability.

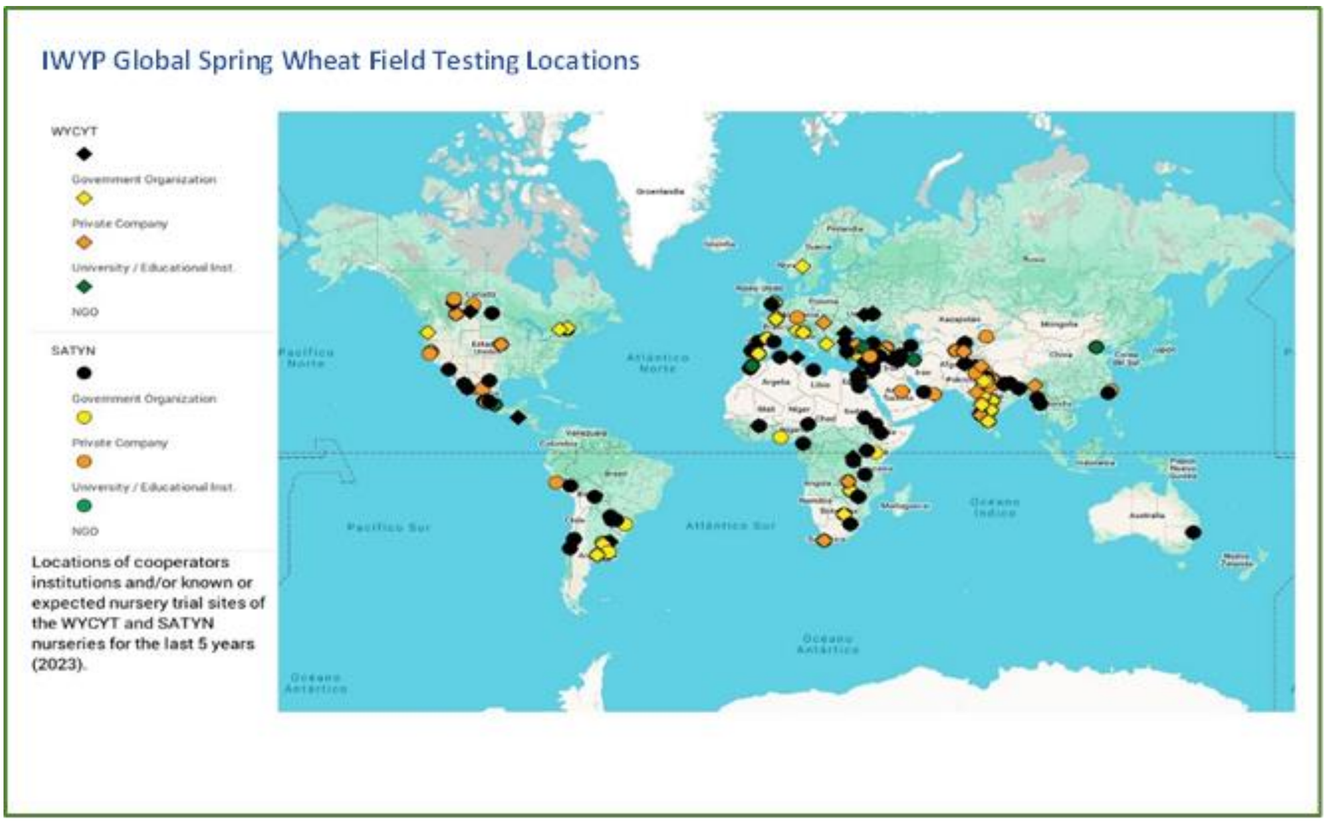
International Wheat Yield Partnership

ANNUAL REPORT 2022-23

IWYP | International Wheat Yield Partnership

Research to Deliver Wheat for the Future

Contents



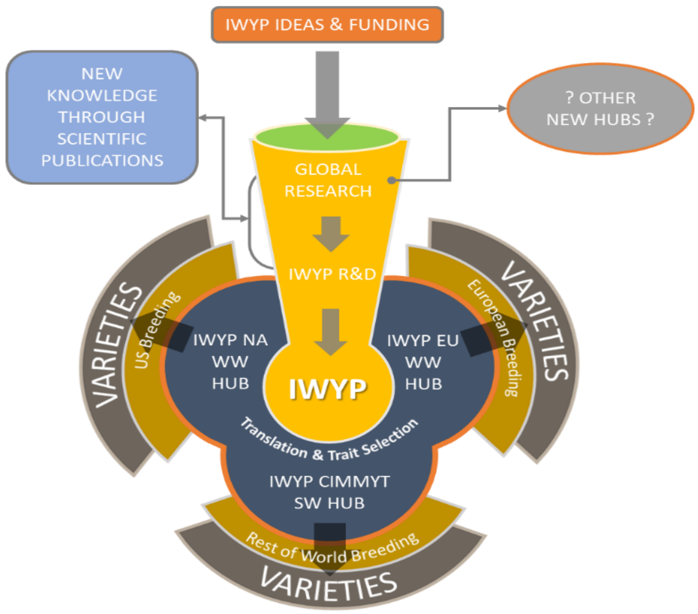
IWYP Global Spring Wheat Field Testing Locations
WYCYT
Government Organization
Private Company
University / Educational Inst.
NGO
SATYN
Government Organization
Private Company
University / Educational Inst.
NGO
Locations of cooperators institutions and/or known or expected nursery trial sites of the WYCYT and SATYN nurseries for the last 5 years (2023).

Executive Summary

The past year IWYP has continued to generate many kinds of value and impacts important to its stakeholders.

Given that IWYP was in its ninth year, the Science and Impact Executive Board (SIEB) of IWYP assessed IWYP relative to its achievements and its potential future programs. It was concluded that IWYP should continue as an international integrator of innovations and information pertaining to enhancing grain yields under both good and stressful conditions, targeting those stresses likely induced by climate change. Most importantly, it should continue to translate knowledge gained internally and externally into improved traits in elite germplasm validated through its Translational Hub Network and to distribute them to breeders around the world, both public and private.

The IWYP Global Discovery to Delivery Platform Creates Value and Impact



The IWYP Spring Wheat Hub at CIMMYT continued to deliver novel high yielding lines and have them tested in the field in many parts of the world. New lines have achieved per annum yield gains exceeding 2% in a range of growing environments, from good to poor. Six new varieties have been produced from IWYP lines in 4 countries since 2016. Research results confirm that crops with higher Radiation Use Efficiency (RUE) have enhanced overall yield potential. This makes RUE at different stages of crop development a primary target for breeders. The highest yielding lines exhibit more balanced "source" and "sink" dynamics with high biomass at canopy closure and maturity, high sustained RUE rates across the growth season, faster Non-Photochemical Quenching (NPQ) activation mechanisms, greater stomatal conductance rates and lower canopy temperatures with their high Harvest Index (HI) driven by more and larger grains that help boost sink-driven photosynthesis.

The Winter Wheat Hubs in the US and UK are nearing completion of their first cycle of trait introgressions and are planning multi-location field trials for next year to assess their effects in elite lines.

A global project has been initiated to sequence the genomes of large numbers of wheat lines from the IWYP Hub and couple the information with large phenotypic datasets. This will produce a wealth of information on new genes, alleles, SNPs and haplotypes and will contribute to data driven crossing and selection models.

Requests for new IWYP lines containing defined traits for validation in trials across the world continue to be high. Similarly, the requests from private and public breeders for trait-enhanced germplasm continue to provide evidence that IWYP's approaches and outputs provide value to local breeding programs.
In 2023, a total of over 200 scientific journal publications since the founding of IWYP recognizing IWYP support and input was achieved. These publications have made a huge contribution to wheat science and breeding. IWYP "Science Briefs" were published every month to inform the wheat community of the technical progress and new ideas of IWYP. IWYP continued to enhance its presence on social media to deliver its message and progress to a wider audience.

IWYP has continued to operate from a mixture of contributions from its Partners. Total investment in IWYP to date (2014-2023) is around US$83M with US$5.5M in 2022-2023.

Message from the IWYP Board Chair

I am once again pleased to report that IWYP has progressed well along its path of impact and value creation for wheat breeders of the world. This past year IWYP-associated research has generated a very much enhanced understanding of traits that control grain yield and is reporting new scientific strategies for how to enhance yields. New trait-enhanced lines have been created that exceed local modern checks in high yielding and low yielding environments. Radiation use efficiency, and its sub-traits, have been shown to be particularly important for increasing yields and modeling experiments have shown this trait to hold much promise for enhancing yields further. In 2023, IWYP peer-reviewed publications exceeded 200. IWYP's released novel germplasm with enhanced traits (more than 300 lines) has been requested and used by public and private breeders in their programs and is creating value as defined by them, our major stakeholders, who supply farmers with the means to feed the world. Six new varieties have been produced from IWYP lines in 4 countries since 2016.

The Board of IWYP has been assessing IWYP and planning its next phase. This has involved consultations with stakeholders and the international wheat scientific community. IWYP will continue with its mission of finding the ways to progressively raise yields through provision of knowhow and trait-improved, validated germplasm to breeders around the world, especially where conditions for wheat growing are challenging in the face of climate change. New funding commitments will be required to sustain IWYP and its mission. These commitments therefore must remain a priority for the IWYP Board.

The Board of IWYP continues to be grateful to all stakeholders, including scientists, who seek to deliver the mission of IWYP. The IWYP Board also thanks all those who have invested their time and money into this important task of learning how to provide enough wheat for future generations.

Message from the Program Director

The International Wheat Yield Partnership was founded to enable wheat breeders to achieve increases in productivity at a rate faster than is seen today by providing breeding programs with novel germplasm, optimized traits and new breeding tools that are sorely lacking. These new genetic resources encompass traits, coupled with the tools to track them, that breeders do not have the resources to discover or the infrastructure, equipment or expertise to translate and develop on their own.

IWYP started with the goal of learning how to achieve gains in genetic yield potential of 50% by 2035. Data from the translation pipeline suggests that the level of genetic gains needed to reach this goal are in close reach. IWYP retains this ambitious goal based on the belief that new science, technologies and knowledge gained can expedite a step change in wheat yields above the significant gains made over the past 50 years. Strategically, IWYP seeks new ways of making improvements based on hypotheses, many of which are defined within the "Wiring Diagrams for Yield" publications generated by IWYP. IWYP has seen successes in pushing beyond climate resilience *per* se by not merely safeguarding current yield levels but also raising them when presented with stresses associated with changing climatic conditions.

Over the past 9 years, IWYP has generated great value. Its science has produced a wealth of new scientific knowledge as evidenced by the large number of high quality scientific publications resulting from IWYP research. More than 200 new scientists have been trained. IWYP's research outputs have filled unique and highly efficient translational pipelines to assess the new innovations and have delivered over 300 new higher yielding lines with novel traits to breeding programs. I firmly believe that IWYP have much to be proud of by applying scientific innovation and global collaboration to advance food security in a changing climate.

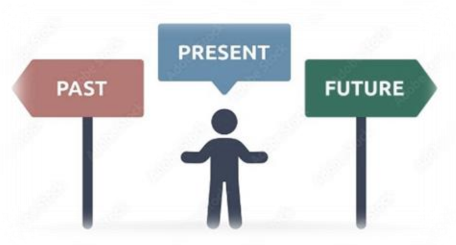
Wheat is the most widely grown crop and supports the basic qualities of life for so many in the world. Shortfalls in production are predicted to increase over the coming decades. IWYP therefore was founded to provide value to wheat production systems by learning and teaching how to increase yields faster and by delivering needed improved germplasm and the associated knowledge to public and private breeders, in both the Global North and Global South. IWYP's activities therefore transcend the value chain from discovery into plant breeding and occasionally into variety production through its many partners.

Wheat improvement is the goal of many scientists and breeders. The comparative advantage of IWYP comes from its international Partnership structure comprised of private and public breeding organizations and government agencies that support plant science. This generates its ability to embrace, translate and distribute innovative science originating anywhere in the world. A special feature of IWYP and the means to deliver on its mission are the Translational Hubs at CIMMYT (MEX), Kansas State University (USA) and the National Institute of Agricultural Botany (GBR). These Hubs provide access, evaluation and distribution systems to breeding programs around the world for both spring and winter wheats.

IWYP's value and impacts updated through 2023 are many and varied. While the outputs in publications and training have high value in the research scientific community, it is the release of information and assays on traits, assessed and validated in elite germplasm, that are of major value for the breeding community. Because the latter are the route to farmers and harvested wheat yields around the world, these outputs and impacts are now the more important outputs for IWYP, given its mission and strategy. That is why requests by breeders for the new IWYP trait-enhanced lines, the yield results in many different environments around the world and the relevance of the lines to creation of new varieties are of increasing importance to IWYP and its stakeholders (see **Tables 1 and 2** page 9). It is here where future outputs and impacts of IWYP will be particularly important for assessing the ongoing value of IWYP for helping improve harvested yields of one of the world's largest crops.

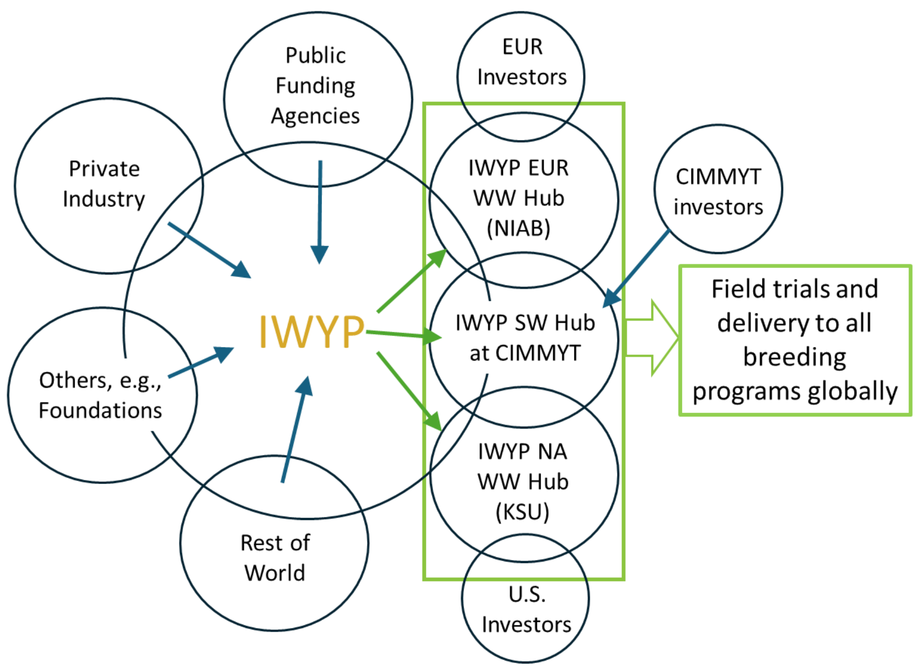
Defining IWYP's Next Steps to Accelerate Impact

Over the last year, the Science and Impact Executive Board (SIEB) of IWYP has been assessing IWYP and planning its next phase. This has involved evaluation of technical progress as well as consultations with stakeholders and the international wheat scientific community. IWYP was founded to boost the translation of discoveries into breeding programs around the world and thereby impact food and nutritional security. This makes its three Translational Hubs central to its ongoing mission of enhancing global food security because they find the ways to progressively raise yields through provision of trait-improved, validated germplasm to breeders around the world, especially where conditions for growing wheat are challenging in the face of climate change.



Since the initiation of IWYP, the sciences underpinning knowledge of plants and crops, driven by digital technologies, have opened up many more opportunities for translation of knowledge into forms relevant to and needed by wheat breeders. IWYP is therefore looking forward to sifting through the world's new crop science discoveries and technologies and translating the best into impact for wheat yield improvement and climate resiliency. IWYP Hubs will continue to grow not only as state-of-the-art translation vehicles to benefit wheat crop improvement, but also as role models for application in other crops. The Hubs will plan and share more, potentially including technical steps, to become individually and collectively more efficient and impactful for their respective stakeholders. IWYP will continue to be nimble and reactive to new opportunities, in line with the urgent needs for learning how to generate crops better suited to the needs of the future. New funding commitments will be required to sustain and enhance the mission of IWYP, and to generate the impact we seek in the fast changing world of science. These will remain an ongoing priority for the IWYP Board.

- Global network of experts from academia coordinating research on wheat genetic improvements
- Validation and translation of promising discoveries in realistic breeding contexts
- Dissemination of novel technologies as international public goods



WW = winter wheat
SW = spring wheat
KSU = Kansas State University
NIAB = National Institute of Agricultural Botany
CIMMYT = International Maize and Wheat Improvement Center

The Traits and Phenotypes that are Associated with Higher Yields

In this past year, IWYP has drilled down further on how to improve wheat yields in both good and stressful growth conditions. Yield is an end-of-life phenotype, dependent on a large number of sub-traits that interact throughout the crop's life cycle. Successions of traits therefore need to be optimized for higher yields. Last year, IWYP-associated teams published two seminal papers that defined some 50 steps in wheat crop development (the "Wiring Diagrams"), each of which can have a significant influence on final yield. The interconnected pathways of traits during crop development were linked by "wires" to show how sub-traits underpin yield during crop development. This framework is the most advanced yet published for wheat and provides integrated sets of targets for breeders.

IWYP has helped define how the shape and body plan of a crop are the result of continual trade-offs between growth and growth-inhibiting stresses which can be generated internally (e.g., through mismatched genetic systems) and externally by environmental factors. Over the years, the IWYP Hub at CIMMYT has put emphasis on physiological mechanisms that generate the potential for growth, most notably radiation use efficiency (RUE) over different stages of crop development. The last 2 year's results have confirmed that crops with higher RUE that also benefit selected sub-traits (see **Box 1** below) have enhanced overall yield potential. This makes RUE at different stages of development a primary target for breeders. Close examination of the high performing selected lines during the last two years has provided much information on the sub-traits that underpin overall RUE and their relationship to spike and grain traits (see **Box 2** below).

Because of the continual trade-offs between stresses and growth during crop development, lines with higher yields have presumably shifted the balance between stress susceptibility and growth in favor of growth. Yield trials of selected lines with higher overall RUE have confirmed that the lines with higher yield potential often perform better than their parents and lines with lower RUE, under both good and stressed conditions.

Public and private breeders around the world are using the new IWYP developed lines as parents in their local breeding programs to introduce novel genetic variation for higher RUE and other yield potential traits into their varietal pipelines. To make this easier, the IWYP Hub at CIMMYT has been developing various sub-trait assays to aid selection of the necessary combinations of sub-traits for overall RUE. The combinations of sub-traits of RUE are necessarily genetically complex so many genetic markers are needed to facilitate effective genomic selection. As a first step to defining the genetic basis of the sub-traits of RUE and others, lines have been fully sequenced in collaboration between the Agricultural Genomics Institute at Shenzhen in China, CIMMYT in Mexico and the John Innes Center in the UK via a very important large project that began last year. Adoption of these sub-traits assays and markers by breeders should aid selection of higher yielding lines.

Spike and grain development are dependent on trade-offs between growth and stress, including the availability of nutrients to drive spike growth and grain development. Thus, lines with higher RUE have the potential to enhance spike development as well as canopy growth and are therefore important sub-traits for breeders to exploit further.

Box 1: IWYP-Associated Research Outputs Continue to Define Traits that Boost Yield

- Step-change yields gains have been shown to be possible if the wheat plants can improve the efficiency with which they fix carbon at the right time and convert the fixed carbon into more, better-filled grains
- Photosynthetic performance is a critical driver for optimized crop growth and development, and the IWYP Hub at CIMMYT has developed faster and higher throughput proxies for measuring it
- Radiation use efficiency (RUE) is essential, but not sufficient, for increased grain production - it is necessary to couple RUE increases with optimum spike development, high fruiting efficiency, high spike photosynthesis and high sugar conversion to grain carbohydrate
- RUE efficiencies vary between varieties during crop development and in different organs of the plant and RUE has been shown be a major driver of step-change yield gains by the IWYP Spring Wheat Hub
- The product of RUE (biomass) is significantly correlated with tolerance to heat stress
- New genetic variation introduced from wild relatives can additionally boost RUE
- Defined genes of major effect that determine the timing and duration of the flowering and spike development increase yield, when deployed in the "right" combinations for specific environments
- Trehalose-6-Phosphate plays a critical role in regulating the conversion of sucrose to starch throughout crop development and in particular during spike development, a major factor in yield determination
- Leaf angles that allow the maximum amounts of light to be captured and also penetrate lower into the canopy are important to gain optimal yields
- Root system architecture and function influence wheat yields
- A Global Genomics to Breeding (G2B) project is sequencing ~1000 new lines from IWYP, HeDWIC and CIMMYT, then plans to use genomics-enabled genetics to quantify and harness gene/trait effects to develop new toolkits for research and breeding

IWYP Spring Wheat Translational Hub at CIMMYT

The program at the IWYP Spring Wheat Hub at CIMMYT assesses many traits introduced from research that are likely to influence yield and its subcomponents to validate their effects. To link combinations of traits with yield, it introduces the best traits into elite lines and then makes selections based on many traits to produce new lines with different sets of traits. The IWYP Hub has continued to create large numbers of these selections using combinations of differently traited parent lines and assesses yields of the selections in a range of environments. The new high yielding lines are then deconstructed to understand which combinations of traits influence yield the most and how they interact. The traits associated with highest yields are summarized on the next page (see **Box 2**). When combined with knowledge of the DNA sequences, haplotypes, GWAS studies, SNP markers and phenotyping protocols, they enable specific predictions to be given to breeding programs around the world on how to introduce relevant combinations of traits into their local breeding programs and thereby create impacts for societies.

Sets of these new higher yielding lines are sent out to over 200 requestors per year for them to evaluate the new lines in their local environments (see **Map on page 1**). Many of these collaborators return field trial data which informs what traits and combinations are boosting yield and in what environments enabling the Hub to adjust its translation strategy accordingly. These collaborators can select lines to use as parents in their local breeding programs or even develop them further into varieties as shown in **Tables 1 and 2** below.

The Highest Yielding IWYP Lines have Specific Combinations of Optimized Traits

Using data from all international field trial locations, Genetic Trend Analyses over the last few years indicate that **new lines from the IWYP Hub have achieved per annum yield gains exceeding 2%**, in contrast to typical yearly gains of ~1% or less typically seen in most breeding programs. Yields of new lines have often exceeded those of recent cultivars with some lines doing exceedingly well in stressed environments.

The IWYP Hub at CIMMYT has concluded that the highest yielding lines developed with new optimized yield potential traits exhibit **more balanced "source" and "sink" dynamics**. These lines are characterized by having **high biomass** at canopy closure and maturity, **high sustained RUE rates** across the growth season, **faster Non-Photochemical Quenching (NPQ) activation mechanisms**, **greater stomatal conductance rates** and **lower canopy temperatures**. Their **high Harvest** Index coupled with **more and larger grains** help boost sink driven photosynthesis. Strong associations between biomass 10 days after heading and increased photosynthetic activity, associated with **increased canopy light interception and pigment concentration**, highlight the importance of light harvesting efficiency and RUE.

Box 2: Traits and Phenotypes IWYP has Associated with Higher Yielding Wheat Lines

- Radiation Use Efficiency (RUE) at different developmental stages is highly correlated with yield. Results indicate that for each 0.1 g MJ^{-1} of RUE improvement in future breeding selections ~ 0.6 ton/ha of yield gains can be expected. When grown under chronic heat stress, yield increases were reduced but showed an extra ~0.2 ton/ha of grain yield. RUE values are not correlated across growth stages suggesting independent genetic control at different times in crop development..

- RUE is positively associated with biomass accumulation, yield and canopy architecture traits such as leaf area index, the fraction of vegetation cover and the fraction of intercepted photosynthetically active radiation. This indicates that physiological pre-breeding selections have improved wheat canopy responses to solar radiation through improving leaf orientation and light transmission throughout the canopy.

- Canopy temperatures at both vegetative and grain filling stages show a negative association with biomass at maturity, i.e., cooler canopies are beneficial to crop growth and yield.

- "Quantum Yield", a parameter associated with protection of cellular biochemistry from excess light damage, aka Non-Photochemical Quenching (NPQ), is associated with grains per spike and biomass accumulation at grain filling, indicating that photosynthesis improvement can be used to increase source and sink strength simultaneously.

- Lines with high expression of NPQ have higher resilience to harsher environments thereby enabling higher RUEs. This emphasizes the value of this trait under conditions that require crop resilience. Also, the negative association between NPQ during grain filling, yield and biomass at maturity indicates that a smaller NPQ relaxation under high yield potential conditions is better for maintaining high levels of photosynthetic capacity, whilst still avoiding photodamage.

- Canopies with the highest yield and biomass accumulation at maturity have the highest chlorophyll content. The positive associations between leaf angle distribution, chlorophyll content, biomass, grain number and yield highlight the importance of the association of canopy pigment content with yield components.

- There is a negative association between canopy temperature at grain filling and yield, biomass and RUE. This highlights the importance of generating cooler canopies to increase yield.

Table 1: Feedback from a Subset* of Collaborators on Uses of New IWYP Lines Selected from IWYP International Field Trials (WYCYT, SATYN) 2023

Public/Private Breeder	# Lines Used	Used For
NARS Nepal	20	Variety selection, breeding parents
NARS Egypt	44	Variety selection, breeding parents
NARS Libya	no info	Breeding parents
NARS Pakistan	20	Variety evaluation
NARS Turkey	10	Breeding parents
NARS India	21	Variety selection, breeding parents
NARS Spain	no info	Variety selection, breeding parents
NARS Uruguay	3 so far	Variety selection, breeding parents
NARS China	4	Breeding parents
KWS	15	Breeding parents
Corteva	no info	Breeding parents
Mahyco	3 so far	Breeding parents
Ajeet Seeds	10	Breeding parents
CIMMYT Breeding	18 so far	Breeding parents

*Note: This is a subset of >200 requestors of new IWYP lines per year

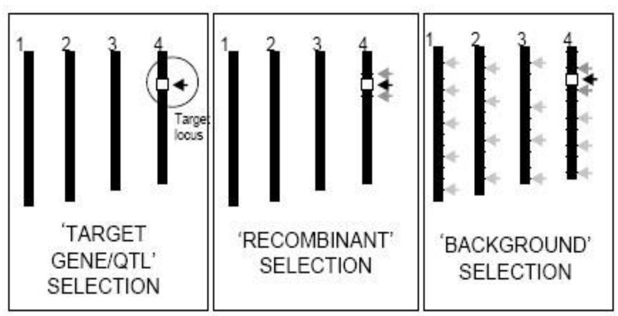
Table 2: IWYP Pre-Breeding Lines Selected by Collaborators from International Field Trials (WYCYT, SATYN) as Varieties

Year	Name	Country	Exotic Germplasm Background
2016	Borlaug-16	Pakistan	Synthetic derivative
2017	Kohat 17	Pakistan	Synthetic derivative
2018	Cascabel	Bangladesh	Synthetic derivative
2020	Kunar 20	Afghanistan	Landrace & Synthetic derivative
2022	Misr 7	Egypt	Landrace derivative
2023	Misr 9	Egypt	Landrace derivative

IWYP North American Winter Wheat Breeding Innovation Hub

The IWYP North American Winter Wheat Hub (NA WW Hub), based at Kansas State University in the US, is funded by a grant from USDA NIFA and also supported by five private companies as well as five US State Wheat Commodity Boards.

For the first cycle of new trait introgressions, 11 elite recipient lines were selected to include all winter wheat classes in the US. Eight different IWYP yield traits, several disease resistance loci and gene variants derived by gene editing have been introduced by backcrossing. The seeds of many of the introgressed lines are now being increased. Field trials are expected to begin in late 2024 to test the effects of the new genetic variants in each of the elite genetic backgrounds. Introgressions of another set of 6 traits have been initiated in 2023. Additional traits are likely to be added in mid-2024.



IWYP European Winter Wheat Hub

To serve the European winter wheat market areas, the IWYP European Winter Wheat Hub is based at the National Institute of Agricultural Botany (NIAB) in the UK and funded by a group of IWYP private industry partners.

The first cycle of trait introgression began in 2021 by the selection of two target traits relating to hybrid seed production. These traits are being introgressed into several UK, French and German elite wheat varieties. Seed of lines converted for these traits will be made available for field evaluation and validation in late 2024. A second cycle of trait introgression began in 2022 when 3 different source and sink traits were selected. It is planned that converted lines could be made available for field evaluation towards the end of 2025.

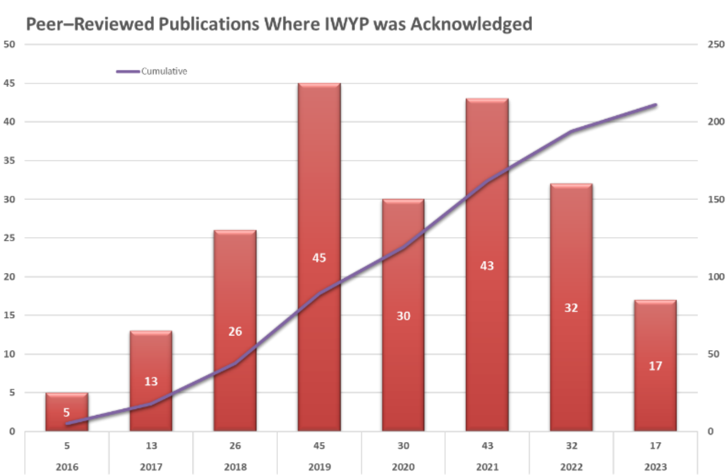
Communicating the Role and Progress of IWYP

IWYP Science Briefs

IWYP continued to publish its monthly Science Briefs last year. Each 1-page Brief provides an update on technical progress from IWYP research projects, Aligned Projects or the IWYP Translational Hubs as well as other special topics. This past year's topics included building climate resilience into wheat, optimizing wheat breeding with technology, the IWYP trial network, Wiring Diagrams for designing more productive crops, IWYP's pre-breeding strategies, the role of radiation use efficiency to boost yield potential and mining for yield determining alleles in wheat relatives, and several others. All Science Briefs can be downloaded from https://iwyp.org/iwyp-science-briefs/

IWYP Research Publications

In mid-2023, the number of publications published in major scientific journals emanating from studies carried out by IWYP-associated scientists and institutions exceeded 200. Assessment of the 200+ papers provides a robust picture of IWYP's scientific emphases and achievements. Collectively they represent leading edges of wheat research over the past 8 years. They make a powerful collection and illustrate how wheat research has been transformed and positioned to launch the next decade's breakthroughs. The full list is available on the IWYP website (https://iwyp.org/publications/).



Underlying this impressive number of publications is the large numbers of people working together collaboratively in international teams, with many being trained early in their careers (more than 200 to date). This is a significant feature of the international coordination and research integration behind the IWYP initiative.

Social Media

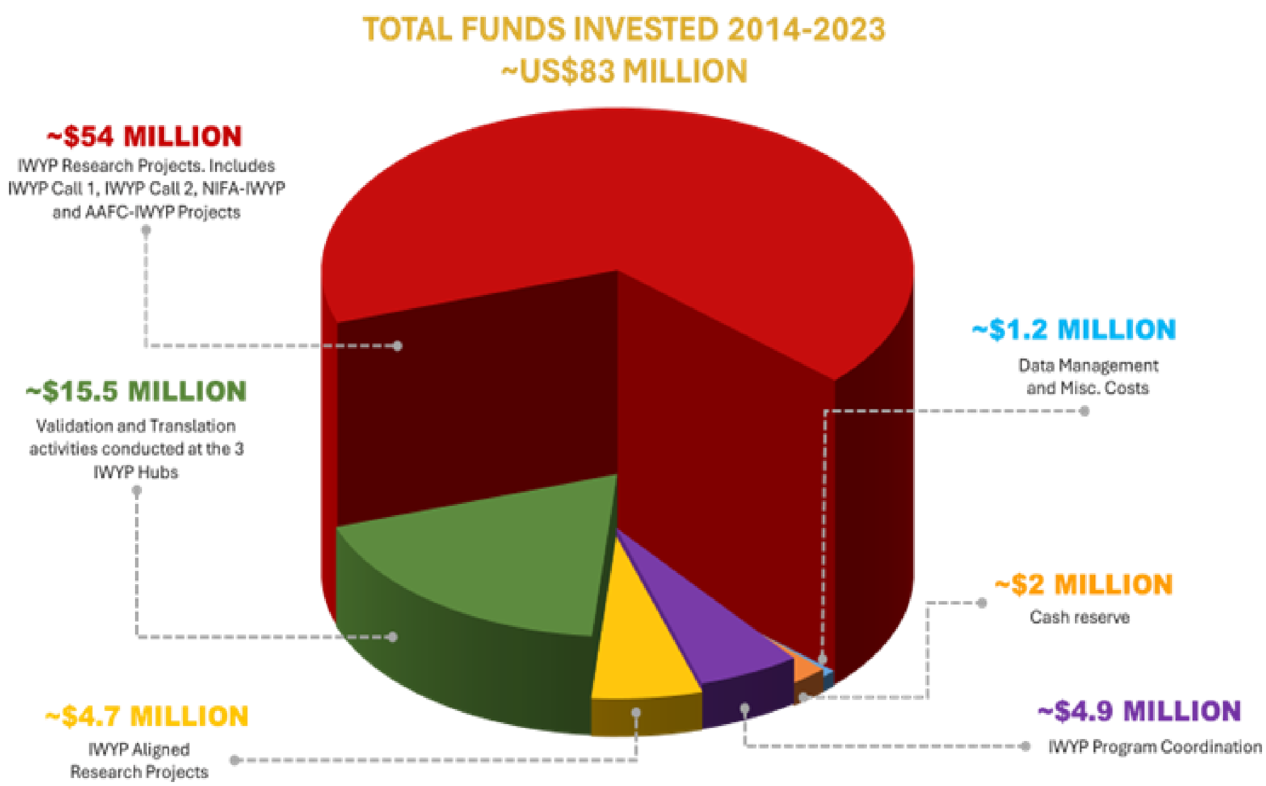
IWYP continues to use social media to spread information about the IWYP Program and its scientific achievements. During last year we recorded over 2100 X (formerly Twitter) followers, 1612 Facebook followers and 126 LinkedIn followers and the number continues to grow regularly.

IWYP Program Conference

The annual IWYP Program Conference was held online in September 2023. Over 80 scientists from many parts of the world attended and interacted during the two day Conference. Topics included updates from IWYP research projects, progress and technical updates from the IWYP Hubs, a detailed overview of the global Genomics-to-Breeding project and discussion/debate sessions. The active participation in the IWYP Program Conferences signifies that the global wheat scientific community remains connected and interested in the IWYP Program.

Since the initiation of IWYP operations in 2015, the working model of coordinated and integrated scientific research tied to centrally coordinated pipelines of downstream development has been managed via a centralized accounting system.

The IWYP Science Program has been funded mostly by a group of IWYP Partners (BBSRC, USAID, GRDC, USDA-NIFA, SFSA and AAFC). IWYP also accounts for the large in-kind contributions made by a variety of activities within the Program. The total investments made by the range of partners, directly or indirectly since the inception of IWYP, amounts to ~US$83M. Over the period 2022-23 the total funds invested in IWYP were ~US$5.5M. During this past year, funds have continued to be spent on NIFA-IWYP grants and the AAFC Aligned Call (AAFC, BBSRC, GRDC), a few Aligned Research Projects, the Spring Wheat Hub at CIMMYT (USAID, BBSRC, private members), The North American and European Wheat Hubs, and the value-adding coordination, scientific management and communication activities. About $2 million remains in reserve for next year. This reserve, with additional pledged funds and new funds that must be raised during the coming years will support the continued validation, translation and scaling up of the current research discoveries into significantly higher yielding wheat germplasm and breeder-friendly tools for transfer to varietal breeding programs globally.



Partners and Funders

IWYP was founded on a collaborative approach bringing together public and private research organizations from many countries. Importantly, IWYP is a formal "Partnership" between public funding agencies and the private sector who collectively are critical to the success of IWYP and play multiple roles in the organization. These include defining strategic direction through to active engagement in the utilization of IWYP outputs and working together to bring new wheat varieties to farmers containing IWYP innovations via the IWYP Translational Hubs. The benefits and value creation have flowed to and from both the private and public sectors. The public institutions have provided financial support for research and development, generated new scientific knowledge via research, and delivered novel traits, germplasm and tools for breeding. The private sector has been key in guiding IWYP activities so that they remain commercially relevant and is investing in their product development pipelines to bring IWYP innovations to farmers. As of 2023, IWYP relies on support and strategic direction from 14 public funding and research organizations and 11 private industry partners.

Public Partners

Private Partners

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Research to Deliver Wheat for the Future