

PRESS RELEASE



29th June 2020

The International Wheat Yield Partnership (IWYP) Announces New US Winter Wheat Breeding Innovation Hub

The USDA [National Institute of Food and Agriculture](#) (NIFA) has awarded a US\$1 million grant to Kansas State University (KSU) to lead the IWYP US Winter Wheat Breeding Innovation (WWBI) Hub. Formation of this new Hub marks the discovery successes made in many laboratories around the world during the past 5 years that are ready to be further developed for incorporation into winter wheat breeding programs. This US-based Hub will add increased capabilities to the pipeline operating at the Spring Wheat Hub in Mexico that serves many other global markets. The Hub is structured as a public-private partnership and granted NIFA funds will be supplemented by its partners. The initial funding phase of the Hub will be four years with the potential of continuation pending successful results.

A press release was recently issued by Kansas State University:

<https://www.ksre.k-state.edu/news/stories/2020/06/kstate-chosen-for-winter-wheat-breeding-research-hub.html>

Background

The IWYP program is based on an innovative model for public funding and international scientific collaboration to address the global grand challenge of food, nutritional and economic security for the future. The model employs public-private partnerships to scale and drive its research innovations for impact. Operations require active coordination of the international research and development teams whose discovery research focuses on complementary and overlapping sets of potentially high impact novel trait targets deemed likely to underpin yield increases, such as the regulation of photosynthesis, optimal plant architecture, plant biomass distribution, and grain number and size. As the results emerge, it is possible to envisage how to combine them and therefore simultaneously remove multiple constraints affecting yields in farmers' fields.

The IWYP Winter Wheat Breeding Innovation Hub at KSU

The IWYP US Winter Wheat Breeding Innovation (WWBI) Hub will focus on the development of discoveries for higher yielding winter wheats for the US wheat market. The Hub will capitalize on the state-of-the-art infrastructure, equipment and widely recognized technical expertise of the KSU and USDA wheat scientists located at KSU. KSU wheat geneticist Dr. Eduard Akhunov will serve as the Project Director and in collaboration with the KSU and USDA ARS wheat breeding and genetics teams will coordinate the Hub activities. Selection of trait targets to transfer (that have been developed in the international IWYP research program) into a set of regional elite winter wheat lines is being managed by a public-private team to ensure that the developed products will have the highest potential commercial and economic value for the US wheat industry.

Following the IWYP model and in alignment with NIFA expectations, the WWBI Hub at KSU was purposely designed as a public-private partnership, with private partners including private seed companies and state wheat commodity boards. The current list of partners includes the Kansas Wheat Commission, Kansas

Department of Agriculture, Kansas Wheat Alliance, Heartland Plant Innovations, Colorado Wheat Administrative Committee, Nebraska Wheat Board, Oklahoma Wheat Commission, Texas Wheat Producers Board, National Association of Wheat Growers, BASF, Syngenta, Corteva Agriscience, KWS, Limagrain and representatives of the U.S. winter wheat public breeding programs.

The IWYP Hub Network

The IWYP WWBI Hub will be one of three IWYP Hubs. These Hubs are an important and distinctive feature of the IWYP initiative. Hubs are centralized technical pipelines that validate and develop the novel traits discovered by the IWYP research program into pre-products for adoption by varietal breeding programs, both public and private, in richer and poorer countries. The establishment of such Hubs is crucial because it broadens the utility of IWYP's discoveries and facilitates the critical steps of downstream validation and pre-breeding development that are typically lacking in most discovery research programs around the world.

The first and largest IWYP Hub at the [International Maize and Wheat Improvement Center](#) (CIMMYT) in Mexico has been exploiting the novel genetic resources discovered in the IWYP program to convert elite spring wheat lines into pre-products that are being disseminated globally to breeding programs. Building on this success and recognizing there are a substantial number of geographies where winter wheat markets are more significant, IWYP took a decision to establish Winter Wheat Hubs in the US and Europe to accelerate the development of IWYP innovations in these two distinct germplasm groups. Research innovations from the IWYP research projects may feed directly into these new Hubs or may be transferred directly from the IWYP Hub at CIMMYT following validation and pre-breeding into an elite spring wheat "chassis".

The establishment of the new IWYP Winter Wheat Hub for Europe is under development with plans to launch later this year.

Comments

Dr. Eduard Akhunov at KSU states: "This is an excellent opportunity for and great fit to the KSU wheat science team. We believe that our selection for this award is a testament to the successes in wheat breeding and genetics that this team and our predecessors have produced. We have been involved in a few of the IWYP research projects and are delighted to elevate our contributions in this initiative. Bringing innovation to the US wheat industry that enhances the ability of farmers to economically produce our food is our primary goal."

Dr. Jeff Gwyn, IWYP Program Director comments: "This new IWYP Hub for the development of US winter wheat germplasm enables IWYP to bring its already successfully demonstrated discovery and development network much closer to commercial impact in a larger geography. Our mission of addressing future global food, nutritional and economic security is an urgent one and we work to coordinate our international research partners as a focused team, who together, can attain the goals and objectives in the fastest and most efficient ways. This new public-private partnership for the US Hub is another important milestone in the international funding and research partnership that IWYP is based upon. The project selection by USDA NIFA, and the participation of private companies and wheat commodity groups, is further testament that IWYP is creating novel value for the global wheat industry through bringing global discoveries into pipelines that generate proven products."

Dr. Richard Flavell, Chair of the IWYP Science and Impact Executive Board states: “The future looks both exciting and promising. However, to achieve the greatest impact, we must build the “right trait and germplasm combinations” and validate them on the road to new variety production. For this, we must continue to build and finance downstream IWYP Hub translation pipelines such as this that USDA NIFA is supporting. It is exciting to see that the private sector members of IWYP have been particularly active in establishing the Winter Wheat Hubs. IWYP’s ongoing success continues to illustrate that IWYP is an exemplary model for stimulating crop improvement where current progress is too slow, investments are too low, and/or the links between discovery and translation into variety production are too weak to meet future global needs”.

Ends

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ABOUT IWYP

Globally, wheat is the most important staple crop, providing ca. 20% of daily calories and protein. Due to population growth and changing diets, wheat demand is expected to increase by at least 70% by 2050 from 2014 levels. To meet this demand, annual wheat yield increases must grow from the current level of below 1% to nearly 2%. These urgent global needs have provided the motivation for the formation of IWYP by major agricultural research funding organizations in many countries with the goal of raising the genetic yield potential of wheat by up to 50% by 2035.

IWYP is an independent research activity that also responds to a major priority of the G20 sponsored Wheat Initiative (<https://www.wheatinitiative.org>). It will help the Wheat Initiative to fulfil its mission to “coordinate wheat research and contribute to global food security”. IWYP is a long-term global endeavour that utilizes a collaborative approach to bring together funding from public and private research organizations from a large number of countries. All partners of IWYP are committed to transparency, collaboration, open communication of results, data sharing as well as improved coordination to maximize global impact and eliminate duplication of effort.

Current partners include the UK Research and Innovation’s Biotechnology and Biological Sciences Research Council of the United Kingdom (UKRI BBSRC), Grains Research and Development Corporation of Australia (GRDC), United States Agency for International Development (USAID), United States Department of Agriculture’s (USDA) Agricultural Research Service (ARS) and National Institute of Food and Agriculture (NIFA), Department of Biotechnology of India (DBT), International Maize and Wheat Improvement Center (CIMMYT), Agriculture and Agri-Food Canada (AAFC), Institut National de la Recherche Agronomique of France (INRA), Syngenta Foundation for Sustainable Agriculture (SFSA) and Ministry of Agriculture and Rural Development Mexico (SADER). Over the first five years, the growing list of partners have invested approximately US\$70 million in the IWYP research and development activities.

Further details can be found at <https://iwyp.org>