

## Raising the Awareness of IWYP Science

The challenge in improving global wheat yields to meet estimated consumer demands in the near future is immense. In an effort to boost the genetic yield potential of wheat, scientists in many countries and in many institutions are seeking or creating novel wheat germplasm, discovering molecular genetic markers, developing methodologies and tools to assay important phenotypic and physiological traits and designing breeding strategies for assembling and exploiting genetic variation more efficiently. These efforts are being made to create novel germplasm and wheat lines with significant increases in genetic yield potential. The overall goal is to achieve rates of yield improvement significantly larger than the rates being achieved today. Many of the scientists working on this challenge are affiliated to the International Wheat Yield Partnership ([iwyp.org](http://iwyp.org)).

To promote or publicize more widely the latest and high-quality research from the scientists that are part of the IWYP Science Program, IWYP periodically compiles a list of the Program's peer-reviewed journal publications. This list is available for download from <https://bit.ly/2ybEseT>

These publications cover a range of subjects, including discoveries of germplasm that exhibit:

- Higher rates of photosynthesis
- Increased radiation use efficiency (RUE)
- More rapid response times from light/shade transitions
- lower losses of carbon due to respiration
- Genes and/or genetic markers contributing to the development of larger grains and larger spikes with more spikelets
- Other aspects of improved photosynthesis, carbon metabolism and distribution
- Other physiologically important traits shown to be linked to overall grain yield.

The IWYP international family of funding organizations, research scientists, breeding organizations and companies have established pipelines to incorporate these discoveries into elite germplasm, validate their effect and evaluate their combined potential in commercial style agricultural yield trials. The improved germplasm provides novel genetic inputs into spring and winter wheat breeding in the public and private sectors and is being used to create new higher yield varieties and to have impact in farmers' fields.

Article

### Water friendly phenotyping

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#### ABSTRACT

The word phenotyping can nowadays invoke visual assessment or collecting high-resolution data sets on a wide array of traits using sensor technology and data processing. Nonetheless, there is much to offer in breeding as well as research. Within three main domains: (i) the 'minimum data set' for phenotyping is paramount, visual assessment often being preferred for most breeders, and requiring significant resources and a steeper learning curve than the minimum data set typically customized for a set of traits associated with a specific trait. While having been the subject of debate for some time, the use of high-resolution data sets is now becoming more widely accepted for phenotyping in wheat breeding.

