



## PARTNERS IN PROGRESS

# 2022 WHEAT RESEARCH

Supported by the Oklahoma Wheat Commission and Oklahoma Wheat Research Foundation

The [2022 Partners in Progress Wheat Research Report](#) is a collaborative effort among scientists in Oklahoma State University Agriculture, who specialize in biochemistry, entomology, molecular biology, plant pathology and plant and soil sciences. These interdisciplinary scientists also serve as members of OSU's Wheat Improvement Team, which supports the Oklahoma wheat industry through genetic research of winter wheat.

## 2022 WHEAT RESEARCH SUMMARY

- The latest research on [wheat variety development](#) placed four elite candidates on the variety launch pad. Three lines elevate the quality of hard red winter wheat to levels never experienced in the Great Plains. The fourth line, OK18510, is now named High Cotton and is a good fit for Oklahoma from intensive grazing situations to intensive management for high yields.
- [Variety testing and information exchange](#) provided stakeholders with timely and non-partisan results from 12 Oklahoma locations encompassing 2,300 field plots from three pairs of management systems.
- Long-term investments in [wheat pathology](#) research have produced a steady flow of elite lines confirmed in 2022 to feature multiple forms of resistance to the primary fungal diseases in Oklahoma and highly effective resistance to the common viral diseases. Even a new target, spot blotch disease, has been met with resistance in breeding these lines.
- [Adaptive introgression research](#) led to the discovery of two novel disease resistance genes called Lr81 and Pm351817 that confer resistance to the dominant leaf rust and powdery mildew races in the U.S., particularly in Oklahoma. This pre-breeding effort fortifies the germplasm base of the Wheat Improvement Team variety development pipeline.
- [Molecular genetic research](#) was headlined by the discovery of TaCol-B5, a gene critical to spikelet formation that enhances wheat yield and our understanding of molecular mechanisms that control yield traits. This work was published in the prestigious journal, Science.
- Seven years of [precision nutrient management](#) research clearly shows that the optimum application timing for nitrogen is between winter green-up and two weeks past jointing. Pre-plant nitrogen has little value in a winter wheat system sown in October to November.



For the full report, visit [agresearch.okstate.edu/research/wheat-report](https://agresearch.okstate.edu/research/wheat-report)