


## A Breeding Program – Developing the Wheat Innovations of Tomorrow



**A**dvances in wheat breeding have the potential to increase yields and improve grain quality. Technologies such as Double Haploid, molecular markers and seed chippers will help bring new wheat products that add incremental, long-term value to the wheat supply chain, from growers to end users.

Improvements in the breeding and testing of WestBred wheat varieties from Monsanto are just the beginning. The future holds the promise of incorporating specific agronomic traits that have the potential to address critical issues such as water availability, fertilizer efficiency, disease resistance, and yield improvement that could effectively benefit all wheat acres and wheat classes.



### More Insight

*“Using advanced breeding tools, we’re confident we will be able to greatly improve the yield potential of wheat,” said Dr. Kristin Schneider, Monsanto Global Wheat Breeding Lead.*

*“In fact, we are already seeing efficiency and accuracy gains from the implementation of new equipment into our breeding programs and are confident that these and other new technologies have the real potential to revolutionize wheat production in the United States.”*

## Double Haploid Technology Advancing Wheat Breeding Efforts

One of the advanced breeding technologies being deployed by Monsanto to support the development of new WestBred brand wheat varieties is Double Haploid technology. Double Haploid technology improves plant breeding by generating inbred lines with 100 percent purity significantly faster than conventional breeding alone. Using Double Haploid is accelerating Monsanto's wheat breeding pipeline by decreasing the number of generations required to produce inbred lines. In wheat it only takes one generation to produce a Double Haploid inbred as opposed to conventional breeding that takes several years.

"By using Double Haploid technology we are able to screen for improved yield, as well as resistance to challenging diseases like fusarium and stripe rust significantly faster," said Maria Mendoza, Monsanto wheat Double Haploid Lead. "We'd have to grow wheat crosses in the field for many years to achieve the same results if we were using conventional breeding efforts alone. This is exciting technology and one that – along with other advanced breeding tools – will help improve the productivity of wheat."

The Monsanto wheat Double Haploid team is making strong progress in its efforts to support the development of improved WestBred wheat varieties. Last year, the team generated more wheat inbred lines using double haploid technology since the program was established and expects another increase in 2013. Improved WestBred varieties using Double Haploid technology are expected to be commercialized in the coming years.



With more than 13 years experience in the agricultural industry, **Maria Mendoza** leads the Monsanto wheat Double Haploid team.



The Monsanto wheat Double Haploid team is focused helping the Monsanto wheat breeding team in developing new products that will meet the needs of wheat growers. Team members include from left: **Brandy Gowdy, Vibin Harilal, Linda Pathammavong, Emily Anderson, Maria Mendoza and Brandy Long.**



The Monsanto wheat **Double Haploid** facility is located in Wichita, Kansas.



## Nathan Blake Named New Wheat Commercial Regional Manager

**Nathan Blake** has joined Monsanto as the Wheat Commercial Regional Manager in Northern Idaho, Northern Oregon and Washington. He is responsible for the business relationship between WestBred's wheat business and our seed partners. Prior to joining Monsanto, Nathan worked at Connell Grain Growers, where he managed the seed stock production and sale of wheat and barley seed, which included many WestBred brand varieties. Nathan has also worked for the Oregon State University – USDA/ARS Club Wheat Breeding Program and the OSU Statewide Variety Testing Program. After graduating from Washington State University with a B.S. degree in Crop Science, Nathan began his career in vegetable seed production and research for Seminis Vegetable Seeds. Nathan and family will continue to reside in Moses Lake, Washington.

Nathan is replacing **Kevin Hodges**, who assumed a new role as a US Wheat Marketing and Licensing Manager.





# WestBred Varieties to Meet Your Spring Planting Needs

## Pacific Northwest



**WB-1035CL+ (SWS)**  

- Good Yield Potential Under Dry Conditions
- Excellent Hessian Fly Tolerance
- Early Maturity
- Very Good Test Weight




**WB-PALOMA (HWS)** 

- Excellent Disease Tolerance
- Very Good Test Weight
- Early to Medium Maturity
- Excellent Protein Potential

## Montana



**WB9879CLP (HRS)**  

- Sawfly Tolerance Clearfield® Variety
- Good Milling & Baking Quality
- Very Good Yield Potential
- 2-gene Clearfield Plus Technology



**WB-GUNNISON (HRS)** 

- Excellent Yield Potential
- Sawfly Tolerance
- Broadly Adapted
- Medium Maturity

## Northern Plains



**WB-MAYVILLE (HRS)**

- Excellent Yield Potential
- Excellent Protein Potential
- Outstanding Standability
- Medium Maturity



**VANTAGE (HRS)**

- Outstanding Protein Potential
- Very Good Yield Potential
- Excellent Standability
- Uniform Plant Height

For more detailed information on these and other WestBred products, visit [WestBred.com](http://WestBred.com) and/or contact your local WestBred Seed Suppliers. (The list of Seed Suppliers can be found on your respective regional page of our website.)

## Tips for the Upcoming Spring Planting

### For Dryland Regions in Northern Plains

By Howard Goodfellow, Agronomist at Midstate Agronomy

"In our area of South Dakota, anticipating the optimal planting date is very important. In 2013 we are currently looking at an early planting range in order to capture the current spring moisture. For spring acres, we recommend seed treatments that contain both fungicide and insecticide.

A new exciting spring wheat for this year is **WB-MAYVILLE**, this variety is high yielding and has good protein. We are also planting **SAMSON** (from WestBred), which has done excellent in this area. We have seen high yield potential and excellent standability."

### For Irrigated Regions in Northwest

By Paul Hobson and Rick May, Agronomist and Production Manager at Land View Inc.

"In our irrigated farming ground in southern Idaho, we really focus on having the ideal soil moisture conditions at the time of planting. Another key is having good seed to soil contact, so naturally seed placement is very crucial.

We have seen over the years that the highest yields are accomplished when the seed is planted to the shallowest depths required, based on the existing soil moisture levels. Depending on conditions, that may be as shallow as 0.5" or as deep as 1.5". We have found that depths of 2.0" and greater generally result in reduced yields.

If a grower has high or excessively wet soil conditions, this can cause the drill row to not close the seed furrow or the press wheel will compact the soil resulting in reduced emergence. Based on our observations, added Rick May, - "Hard White Spring varieties in our area replace at times the Hard Red Spring ones, since they yield well and are not as demanding on the inputs."



*" I think the competition is going to get very stiff in the future. Looking at WestBred and the resources at Monsanto - with the wheat chipper and their experience in molecular markers and the Double Haploid lab - I think they are in a good position to get their varieties on these acres today, but even more so in the future."*

*Steve Reinerstsen  
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