

# Wheat

## 4972951

1. 4972951 (FA9S10-0015R) is a hard red spring wheat developed by the Monsanto LLC.
2. In early generations of 4972951, single spikes were selected based on agronomics and disease resistance. Later generations were selected based on yield, quality, and disease resistance.
3. 4972951 is adapted to the hard spring wheat growing regions of the Northern Plains, including parts of Montana, the Dakotas, and Minnesota.
4. Preliminary data indicates that 4972951 may be moderately resistant Stripe Rust.
5. Identifying characteristics – insert the descriptive term from the Objective Description (pages 3-5) except where indicated:

1. Kind:	<u>Hard Red Spring</u>		
If common, provide appropriate kernel characteristic: (Hard Red, Soft Red, Hard White, Soft White)			
2. Seasonal Growth Habit:	<u>Spring</u>	16. Awn Type:	<u>Awned</u>
3. Coleoptile Color:	<u>Red</u>	17. Awn Color:	<u>Tan</u>
4. Juvenile Growth Habit:	<u>Semi-Erect</u>	18. Glume Color:	<u>White</u>
5. Leaf Color at Boot:	<u>Blue-Green</u>	19. Glume Length:	<u>Short</u>
6. Flag Leaf at Boot:	<u>Recurved, Twisted, Waxy</u>	20. Shoulder Shape:	<u>Oblique</u>
7. Auricle Color:	<u>White</u>	21. Shoulder Width:	<u>Narrow</u>
8. Days to 50% Heading:	<u>182 (Julian)</u>	22. Beak Shape:	<u>Acuminate</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S.M.L.VL):	<u>Long</u>
10. Anthocyanin:	<u>Absent</u>	24. Glume Pubescence:	<u>Absent</u>
11. Plant Height (cm):	<u>73.7</u>	25. Seed Color:	<u>Red</u>
12. Internodes:	<u>Hollow</u>	26. Seed Shape:	<u>Ovate</u>
13. Spike Shape:	<u>Tapering</u>	27. Cheeks:	<u>Rounded</u>
14. Spike Density:	<u>Middense</u>	28. Brush Size (S,M,L.):	<u>Short</u>
15. Spike Curvature:	<u>Nodding (Recurved)</u>	29. Avg 1,000 Kernel Wt (g):	<u>26</u>

### 30. Physiological/biochemical Traits:

Variants and frequency: A variant that is similar to 4972951 but has white seed occurs at a frequency of up to .2% (20 out 10,000 seeds). A variant that is similar to 4972951 but is 15cm to 20cm taller occurs at a frequency of up to .2% (20/10,000). A bronze head variant may occur at a frequency of .1% (10/10,000). An awnless variant may occur at a frequency of .1% (10/10,000).

6. Recognized classes of 4972951 are breeder, foundation, registered, certified, quality assured and non - certified. Monsanto Company will maintain the variety by the head-row purification method to produce breeder seed as needed and all foundation seed. Royalty fees and/ or licensing agreements are anticipated.
7. Commercial seed of 4972951 will likely be ready for commercial sale by the spring of 2015.
8. Application for a Utility Patent, PVP is anticipated for 4972951. Title V option will not be taken.
9. Application of certified seed production acreage cannot be published.

Date this application was submitted: Jan 10, 2015

Date recommended by the VRB: May 04, 2015

