

Provide the right stuff for 200 bu. per acre wheat

Treat wheat as a real crop, not just for rotations anymore

Posted Dec. 24th, 2015 by [Barb Glen](#)



A former wheat specialist says growers in some areas are reaping only 50 percent of wheat yield potential.
WP File photo

A wheat crop in Lincolnshire, England, yielded 246 bushels per acre this year.

It broke a record set previously in New Zealand of 233 bu. per acre.

Peter Johnson thinks prairie farmers set their sights too low when it comes to wheat yields.

“Wheat is the most responsive crop we grow to management, and yet it’s the crop that we manage the least,” said Johnson, a former wheat specialist with Ontario’s agriculture ministry.

“Across the world it’s just kind of a rotation crop.... Wheat, you just put it in the ground, you expect a good yield and if it doesn’t do that, you’re mad at it.”

Johnson told the Dec. 8-9 Farming Smarter conference that England and New Zealand have maritime climates with longer growing seasons, but he doesn’t believe water limits are the reason for lower wheat yields on the Prairies.

“It does need water, I don’t argue with that, but boy, it does not need as much water to get high yields as what a lot of people think,” he said.

He said the real key is to manage for high yields and cultivate a mindset that wheat is a real crop that can yield 200 bu. per acre if given the right conditions.

Those conditions begin with variety selection. In the United Kingdom, development of dwarf varieties was key to yield increases. So was the arrival of improved fungicides that increased the crop’s nitrogen use.

In Canada, wheat breeders were once handicapped by the need to maintain kernel visual distinguishability, said Johnson.

“They had to breed in handcuffs because of the quality parameters that they had to fit. I think you should worship the ground that (Agriculture Canada wheat breeder) Ron DePauw walks on.”

In a later speech about wheat breeding, DePauw agreed that new rules have made a difference.

“That has certainly freed up our abilities, our resources, to target other traits.”

Cereal yield has three components: heads per sq. metre, grains per head and the weight of each kernel.

Even minor improvements to any one of these will increase yield, but the biggest gains can be made if the crop has optimum conditions at the head-filling stage.

Johnson said he doesn't consider seeding rate to be as important as other factors. A low rate simply increases tillers for the same number of heads per sq. metre.

He also believes in splitting nitrogen applications. Properly timed nitrogen can increase tillers, and one more tiller means 35 more kernels per sq. foot. If fertility leads to one more seed per head, that's 65 more kernels per sq. foot.

"(At anthesis), if I go from 35 to 48 or to 54 seeds per head, man, the yield potential is unbelievable," he said.

Johnson said growers in southern Alberta see 50 percent of potential wheat yields.

"That really stinks. We could do a lot better."

Ideal temperatures for wheat are 18 C during the day and 10 C at night, and those conditions aren't uncommon in the region.

He recommended early planting so there is more grain fill during lower temperatures and less in the highest heat of summer.

"The earlier we can get it to head, the more yield potential we're going to have."

He said fungicide timing is also a key yield driver. Small plot data indicates an eight to 10 percent yield increase from fungicides, and the later they are used, the greater that increase.

DePauw said numerous promising new wheat varieties are in development, and there is already potential for 100 bu. per acre yields of hard red spring on dry land and 150 bu. under irrigation.

He said wheat breeding is entering a new and exciting era.

"I wish I was starting my career over again" because of the potential that exists in wheat improvements.