

7 Wonders Of Corn Yield:

How Management Factors Influence Yield

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Dr. Fred Below, a professor of Crop Physiology at the University of Illinois, has developed a concept of how management factors influence yield perspective.

“I call this concept the seven wonders of the corn yield world and I am trying to get growers to think about management factors in the decisions that they make every year,” said Below.

“These factors, can have a positive or sometimes negative impact on their yield. It’s a sort of a little game that I play that allows me to rank the factors in the order of importance and assign a bushel per acre value to them,” said Below.

“I do not consider weed control a seven wonder, because weeds do not add yield,” said Below, “The presence of weeds only decreases yield. I don’t diminish weed controls importance, but I only look at things that can impact yield.”

“With the excellent chemistries on the market today, there is almost no excuse not to control weeds. Weed control is a fair bit easier than it used to be, so I view weed control as a prerequisite “ states Below.

“Adequate P and K and the proper soil ph are also important, but they are not one of the seven wonders either. This is because it is easy to take a soil test to determine if the conditions are inadequate and there are well established guidelines to correct it,” said Below.

“By today’s standards, you have to have adequate weed control and proper soil fertility to start with. If you have that, then the seven wonders can impact your yield every year. Unfortunately, the first wonder of the corn yield world is the one that growers have the least control over, the weather,” said Below.

“Weather is the number one wonder of the corn yield world. You can get every other factor right and weather can still affect yield,” said Below.

“The second wonder of the corn yield world is the one I have spent most of my research career on,” stated Below, “and that is nitrogen.”

“Nitrogen interacts with weather and the weather either causes nitrogen to be lost, available, non available, available at the wrong time, or it hinders the application process,” said Below.

“This causes a nuance to the seven wonders,” said Below, “They interact with each other and the higher you are on the wonder list the more control you exert on the wonders below. Hence weather can influence all the seven wonders.”

The third wonder of the corn yield world, ac-

ording to Below, is the one growers have the most influence on that is most likely to change, a hybrid.

“Hybrid selection is crucial,” stated Below, “When we take lead hybrids and grow them at our sites under good optimal conditions, we see that there is a fifty bushel difference in yields.”

“I don’t think growers realize how important hybrid selection is and how much more important it is going to become in the future because of biotechnology traits,” said Below.

“An example of this is the RW trait that we had seen in our preliminary studies,” states Below, “It gives a substantial improvement in yield even in the absence of root worm beetles or even when the root worm beetles are controlled with insecticides.”

“Hybrid selection is by far the most important factor for every year,” says Below. “Factors that the farmer can control in the fourth wonder of the corn yield world is previous crop. We say that when the farmer decides to go corn on corn in his field as opposed to rotating the corn, there is a yield penalty that averages about 25 bushels,” states Below.



“Unfortunately, the first wonder of the corn yield world is the one that growers have the least control over, the weather,” says Dr. Fred Below, a professor of Crop Physiology at the University of Illinois.

Photo by John LaRose, Jr.

“The fifth wonder of the corn yield world is plant population,” states Below, “What we see is plant populations that are above 28,000 plants per acre. Between 28 and 40 thousand plants makes very little difference, but today’s modern hybrids have an unbelievable ability to flex their ear at high populations.”

“The sixth wonder of the corn yield world would be tillage,” said Below, “Both the timing of the tillage and the type of tillage interacts to influence corn yield.”

“The seventh wonder of the corn yield world would be a catch all category that I call chemicals,” stated Below, “An example would be the green effect that often occurs following a foliar fungicide application.”

“All these seven wonders add up,” said Below, “and if you can total and estimate the potential impact that they can have on yield, it is a concept that we can use to try to teach growers how their management decisions impact their yields in a positive and negative way.” Δ