The 2005 growing season will be remembered

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Abstract
Looking back at the 2005 growing season, I think it will be a season that many of us will remember for a long time. Many growers have been frustrated with soybean yields for a while and have talked about a yield plateau in soybean. Now I hope that many growers have started to reconsider if we have reached that yield plateau with soybean. During the past two years, we have harvested the third largest and the largest soybean yield per acre on record in Iowa, and many farmers were able to make equal or more money on soybean than on corn in 2005. Our record soybean yields were estimated by the United States Department of Agriculture to have averaged 53 bushels per acre across the 10.1 million acres of soybean in Iowa.

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Crop Production

The 2005 growing season will be remembered
by Palle Pedersen, Jason De Bruin, and Adriana Murillo-Williams, Department of Agronomy

Looking back at the 2005 growing season, I think it will be a season that many of us will remember for a long time. Many growers have been frustrated with soybean yields for a while and have talked about a yield plateau in soybean. Now I hope that many growers have started to reconsider if we have reached that yield plateau with soybean. During the past two years, we have harvested the third largest and the largest soybean yield per acre on record in Iowa, and many farmers were able to make equal or more money on soybean than on corn in 2005. Our record soybean yields were estimated by the United States Department of Agriculture to have averaged 53 bushels per acre across the 10.1 million acres of soybean in Iowa.

Did you know?

Multi-colored Asian lady beetles, also known as Harmonia, are voracious predators of soybean aphids. A colony of hibernating beetles is shown. (Marlin E. Rice)

In the last two years, Iowa soybean growers have harvested the third largest and largest yields per acre on record. (Rich Pope)
So why were our soybean yields so high? There are many reasons. It all started in April when the dry topsoil encouraged many growers to get their corn planted early. Then a cold period followed, and some farmers hesitated to plant soybeans because the soil was not 55 °F; however, most farmers went ahead and followed our suggestions to plant at the optimum time because of the good seedbed conditions. The planting date is extremely important for high soybean yield. We have conducted 18 experiments over the last three years and 15 of them have showed a positive linear response to planting date. Optimum planting date is the last week of April for the southern two thirds of Iowa and the first week of May for the northern third of Iowa. There are risks associated with planting early. Except for a late spring frost, most of them can be managed.

Timely rainfall then followed for most of us throughout the season. We know that soybean and other plants with taproots like alfalfa don’t like to have “wet feet.” This definitely helped the plants develop good lateral roots. Eastern Iowa had one of its worst droughts in many years and only received 5 inches of rainfall from early April to mid-August. I think we can all agree: farmers in eastern Iowa were lucky that they picked up some “timely” rainfall at the end of August. I know for sure that our friends in Illinois appreciated the rain they got in August. It could have been much worse, but as we have seen so many times before, rainfall during seed filling in August can have a significant impact on our final yield since the seed size on the few seeds that are set can increase yield significantly.

Throughout the season, only a few foliar diseases were observed in our fields, which is very common for Iowa. Bacterial blight and Septoria brown spot were the two most commonly observed. Bean leaf beetles were observed early in the spring but not many fields reached threshold. Soybean aphids, on the other hand, showed up in early June in northeast Iowa. It is estimated that approximately 2.1 million acres were sprayed in Iowa. Yield loss from soybean aphids is assumed to be minimal since fields were scouted intensively, and many were aware of the threshold and pulled the “trigger” at the right time. On the other hand, we again lost yield from soybean cyst nematode (SCN). For years, Greg Tylka, an extension plant pathologist who specializes in plant-parasitic nematodes, has warned us about the yield loss this nematode represents, but we still don’t seem to get the message across. From our high yield studies in 2005, our top eight or nine varieties at each location all had resistance to SCN—that is also the case where SCN was not a significant problem! Yield drag is no longer associated with SCN-resistant varieties. Many farmers learned it the hard way this year because the largest yield loss associated with SCN is observed in dry years. Yield loss from SCN was estimated to be around 50 million bushels in 2004. Who wants to take a guess on 2005?

Last year was a good year for soybean producers. Hopefully, it restored some promise that we can achieve high yields. I think that many will start to realize that it is not impossible to get high soybean yields, but it takes a lot of effort. It is not as easy as plant a “random variety,” spray a herbicide, and then harvest it 3 months later and expect a bumper crop. It takes a lot more. Variety selection is the foundation, and we just can’t afford to compromise on it anymore. After that, fundamental agronomics should be optimized. Finally, scouting frequently and following integrated pest management guidelines will help ensure that no pathogens, weeds, or insects are limiting yield.

Palle Pedersen is an assistant professor of agronomy with research and extension responsibilities in soybean production. Jason De Bruin and Adriana Murillo-Williams are graduate research assistants in the Department of Agronomy.