

6-4-2007

Planting and replanting scenarios

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Recommended Citation

Pedersen, Palle, "Planting and replanting scenarios" (2007). *Integrated Crop Management News*. 1050.
<http://lib.dr.iastate.edu/cropnews/1050>

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Planting and replanting scenarios

Abstract

Currently, we have the whole spectra of growing conditions in Iowa. Northern Iowa probably has the best conditions they have seen for awhile; everyone was able to get their crop planted at a decent time. In central and southern Iowa, excessive rainfall during the past six weeks left many thinking about buying a canoe instead of a four-wheeler for their scouting. I know that I have been frustrated by all this, but Mother Nature's actions are beyond our control. Remember that a little bit too much rainfall is better than no rainfall at all.

Keywords

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Planting and replanting scenarios

by Palle Pedersen, Department of Agronomy

Currently, we have the whole spectra of growing conditions in Iowa. Northern Iowa probably has the best conditions they have seen for awhile; everyone was able to get their crop planted at a decent time. In central and southern Iowa, excessive rainfall during the past six weeks left many thinking about buying a canoe instead of a four-wheeler for their scouting. I know that I have been frustrated by all this, but Mother Nature's actions are beyond our control. Remember that a little bit too much rainfall is better than no rainfall at all.



Flooding is a common problem in central Iowa. (Palle Pedersen)

Eastern Iowa has been on the dry side, but with the rain they received last week, they should be in a good shape.

For the farmers in southern and central Iowa who haven't been able to plant yet, there are a few things to take into consideration. Many fields are now very weedy, so be sure to have a clean field prior to planting. Since soybeans now are planted so late and the yield potential already has dropped off by 30-50 percent in some areas, the crop can't tolerate a lot of stress and competition from weeds. Seeding rate should be the same as in late April; the final stand should be about 100,000 plants per acre at harvest. It is recommended to plant the "original" variety unless replanting is beyond mid-June in northern and central Iowa and beyond late June in southern Iowa. Row spacing is another question that arises. Through checkoff-funded research conducted over the last three years, it was concluded that less than 30-inch spacing yields greater than 30-inch rows.

Replanting is another issue right now. There is some speculation on how soybean responds to

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water logging or poor aeration associated with floods. Standing water in low-lying fields can result in significant soybean yield reduction and can last many days due to lack of soil permeability or surface drainage. It is generally recognized that soybean prefer adequate soil oxygen for maximum productivity. Research from Minnesota shows that flooding for six days or more may result in significant yield loss or losses of the entire crop. However, temperatures during flooding determine the recovery rate of soybean. Soybean plants may only survive a few days with current high temperatures because higher temperatures cause the plants to deplete stored energy more quickly. Research from Ohio showed that plants in flooded fields are injured from a buildup of carbon dioxide, which is up to 50 times higher in flooded soils than in nonflooded soils, and concluded that plants are injured from the buildup of carbon dioxide and not from lack of oxygen. Cool, cloudy days and cool, clear nights increase the survival of a submerged soybean crop.

Finally, it is important to remember that fields that have been subjected to flooding are more susceptible to nitrogen and other plant nutrient deficiencies and to some root rot diseases, including Phytophthora root rot.

Accurately estimating soybean plant population is important before making replant decisions. Plant population should be based on an accurate stand count along with factors such as yield potential of the existing stand, date of replanting, and the true cost of replanting. The existing stand should be determined by evaluating uniformity of stand and overall health of plants. Only some areas of the field may require replanting if the majority of the field seems to have enough viable plants remaining. This is the reason why multiple locations in a field should be used to evaluate the uniformity of the stand count. Previous studies from Iowa State University have shown that a final stand as low as 73,000 plants per acre have consistently yielded more than 90 percent of the optimum plant population. The reason is that the soybean plants can compensate for missing plants by branching out to make up for a thin stand. Keep in mind the lower the stand count, the more weeds will become a problem due to less shading, especially later in the growing season. If a reduced stand is saved, weed control must be a priority.

More information on soybean replant decisions is available at www.soybeanmanagement.info.

Palle Pedersen is an assistant professor of agronomy with research and extension responsibilities in soybean production.

This article originally appeared on page 169 of the IC-498(13) -- June 4, 2007 issue.

Updated 06/06/2007 - 12:18pm