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# Soybean Replant Decisions from Hail Damage and Flooded Fields

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# Soybean Replant Decisions from Hail Damage and Flooded Fields

## **Abstract**

After talking to many agronomists and farmers around the state today (May 30) it seems that many will have to replant a few fields because of the extensive rainfall that we have received over the last week. Looking at the weather forecast for Iowa today, it just does not seem to give us any relief with chances of rain pretty much every day during the next week. In several of those heavy rainfall areas hail also occurred. This adds a whole new dimension to crop injuries when making replant decisions. Fortunately, most soybean fields were planted 3 weeks later than we would like to see and therefore the plants were barely out of the ground when the storms came through Iowa.

## **Keywords**

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## **Disciplines**

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# Soybean Replant Decisions from Hail Damage and Flooded Fields

ICM News

*June 1, 2008*

**By Palle Pedersen, Department of Agronomy**

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### **Hail damaged soybean plants**

Hail damage early in the growing season often looks worse than it really is and flood damage is often more detrimental than hail damage in the beginning of the growing season. That does not mean that we should ignore hail damage. As soon as the soybean plant emerges the growing point, located in the cotyledons, is above ground. This makes soybean particularly susceptible to damage from hail, frost, insects (such as bean leaf beetles), or anything that cuts the plant off below the cotyledons early in its life.

The soybean plant is considered dead if it is in the cotyledon stage and it is cut off below the cotyledons, or if it is damaged by hail to such a degree that there is no remaining green leaf tissue or regrowth. The reason is that nutrients and food reserves in the cotyledons supply the needs of the young plant during emergence and for about seven to 10 days after emergence, or until about the V1 stage (one fully-developed trifoliolate leaf). Cotyledons are the first photosynthetic organs of the soybean seedling and also are major contributors for seedling growth.

Stand reductions are therefore likely to follow hailstorms. After V1, photosynthesis by the developing leaves is adequate for the plant to sustain itself. Accurately estimating soybean plant population is important before making replant decisions. Plant populations should be based on an accurate stand count, along with factors such as yield potential of the existing stand, date of replanting and the real cost of replanting. The existing stand will 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.

It is important to wait several days (three to five) after a crop has been damaged (or has emerged) before replanting. Injury can look very serious the day after the event but recovery may be possible.

Previous ISU studies have shown that a final stand as low as 73,000 plants per acre has consistently yielded more than 90 percent of the optimum plant population. That is a little bit more than two plants per foot of row in 15-inch row spacing and a little bit more than four plants per foot of row in 30-inch row spacing. That may not sound like a lot but it is. The reason is that soybean plants can compensate for missing plants and reduced stands 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 top priority.

There also are some secondary problems associated with flooding and hail damage. Pathogen problems may increase and further reduce stands since plants that have been damaged or wounded are more susceptible to infection from plant pathogens such as *Phytophthora root rot* and *Pythium spp.*

In addition to all this, seed quality was a serious issue in Iowa this year and flooding and pathogens will have a greater impact when poor-quality seed is used than when the seed is not mechanically damaged and is free of seedborne pathogens.

Soybean plants that have torn stems should be watched closely in the coming weeks for evidence of pathogen infection. Lesions around the base of the stem and plant wilting are often good indicators. If this is the case, it will be necessary to estimate the number of viable plants in the field again, and make a decision concerning replanting. However, it is difficult to assess this type of injury soon after flooding or a hail event. Therefore, if the field has a history of pathogen problems and if it continues to rain, loss of wounded plants will probably increase.

Remember that yields will not necessarily be reduced just because plant stand has been reduced. When it is possible to get back into the fields, take plenty of time to visit each of your fields and take the time to make a good estimation of the number of viable plants in the stand where flooding or hail has occurred.

A replant decision based on a quick look at a field may therefore underestimate the existing plant population. It is recommended to plant the "original" full season variety until June 20 in northern and central Iowa and early July in southern Iowa. More information on soybean replant decisions can be found at

<http://www.soybeanmanagement.info/>

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