Agronomic Alert

Soybean Pod Shattering

- Pre-harvest pod shattering is more likely to occur when dry pods are rehydrated.
- Four seeds per square foot on the soil surface is equal to about one bushel per acre of lost yield potential.[1]
- Combine adjustment, timely harvest, and product selection should be considered to help reduce potential yield losses.

Causes for Pod Shatter

Weather Conditions. Drought conditions during pod maturation may result in a weak pod structure. A pod has one shell which encloses the central cavity where the seeds are contained. Along the length of the pod are seams (sutures) on both sides, where the pod opens when maturity is reached. If mature pods are rehydrated from precipitation and dry again, they may open more easily because the seam attachment breaks down with the cycles of drying and re-wetting. Also, hail earlier in the season may lead to empty, twisted pods at harvest.

Other Factors. Pod shatter may occur in areas of the field with poor fertility or severe pod-feeding from grasshoppers and bean leaf beetles. Also, late-season spider mite infestations can accelerate soybean senescence and increase pod shattering.

Harvest Delay. Ideally, seeds are harvested at 13 percent moisture content and pods will not shatter until they have matured. Shattering may occur if there is a long interval between maturation and harvest. In cases where the same soybean product was planted across numerous fields and all are ready for harvest at the same time, the risk of shattering increases each day for those fields which are harvested weeks after they have matured. A loss of four seeds per square foot on the soil surface equals about one bushel per acre yield loss.

Management

Early Harvest. When pre-harvest pod shatter is an issue, harvesting the soybean field as early as possible may be the best approach. To reduce pod shattering during harvest, start harvesting somewhat earlier in the day when plant material is moist. Harvest as much of the crop as possible before the moisture level falls below 11 percent moisture in order to reduce splits and cracked seed coats.

Combine Adjustment. Slowing down harvesting speed can reduce shatter and stubble losses. At high speeds, soybean pods can be stripped from the stalk, shatter, and drop to the ground. Reducing speed can help decrease these losses. Always refer to the manufacturer's manual before performing any maintenance and to confirm the correct settings are being used to minimize harvest losses.

Seed Product Selection. Product characteristics for tolerance to shattering should be reviewed if shattering has been a regular occurrence. Soybean product selection should be based on the shattering response of a product when left in the field about two weeks after maturity or about one week later than the optimum harvest time.

Figure 1. Soybean pod shatter.

Select products with relative maturities (RM) that vary by three days for every week of harvest time required for your operation. Therefore, if soybean harvest takes two weeks, planting three or four different maturities, that vary collectively in maturity by six days or more, is recommended. This process may allow for your collective soybean crop to mature over time, thus not all acres are ready to be harvested at the same time. This practice may help reduce the risk of pod shattering due to overmature pods.

Summary. Several factors can affect the potential for soybean pod shattering. While issues including weather, fertility, or insect damage are more difficult to manage, early harvest and equipment adjustments may help reduce some potential yield losses.

Sources: [1] Lindsey, L. 2012. Watch out for shattering soybeans. The Ohio State University. Ohio's Country Journal. http://ocj.com/2012/10/watch-out-for-shattering-soybeans/ [2] Hanna, M. 2012. Combine settings for drought. Integrated Crop Management News. Iowa State University. www.extension.iastate.edu. [3] Soybean shatter discussion. 2013. Technology Development and Agronomy. http://www.channel.com/Agronomics/Pages/Soybean-Shatter-Discussion.aspx. [4] Conley, S. 2012. Drought-induced shatter of pre-harvest soybeans. University of Wisconsin. http://ipcm.wisc.edu/blog/2012/09/drought-induced-shatter/. [5] Schapaugh, W.T. 1997. Selection of soybean varieties. Soybean Production Handbook. C-449. Kansas State University. http://www.harper.k-state.edu/ [6] Hellevang, K. 2013. Soybean maturity, moisture variations may pose problems. North Dakota State University. www.ag.ndsu.edu/. Web sources verified 07/31/15

For additional agronomic information, please contact your local seed representative.
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