

Critical timing for soybean desiccation

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Growers with early-planted, indeterminate soybeans in the field need to be thinking about when to defoliate for harvest. Paraquat (Gramoxone) is a common and effective harvest aid that will thoroughly desiccate and kill the plants. However, paraquat has a 15 day pre-harvest interval for soybeans. Risk of harvest loss and shatter may increase if growers wait until the majority of pods are brown before spraying, and then have to wait 15 days to comply with the label before harvest.

Furthermore, wet and humid conditions this year may be slowing down the drying. For example, the soybeans pictured below (at Tifton) are past physiologic maturity R7 (Photo 1), although they don't appear to be mature from the road (Photo 2). There are mature beans in green pods that are not drying down efficiently (Photo 3). As wet and humid conditions persist, they may germinate in the pod (Photo 4). High levels of sprout like this can reduce the quality of the entire crop.



Photo 1. Soybeans are physiologically mature (R7) when at least one pod is brown and mature among the upper nodes of the plant.



Photo 2. Soybeans well past growth stage R7 are only showing slight signs of maturity from a distance (Tifton, GA 8/18/2017).



Photo 3. Green soybean pod (left) split open (right) to see the beans are mature and only need to dry down.



Photo 4. Soybeans sprouting in the pods while they are still green.

It is important to scout fields frequently and pay close attention to these details. From a distance, the soybeans may not appear mature enough until it is too late to optimize harvest potential. Refer to the soybean reproductive growth stages (Table 1). **When soybeans reach R7 (and certainly if sprout is occurring) harvest aid needs to be applied.**

Paraquat can be applied at the maximum rate labeled for soybean harvest aid. Be aware that some products contain two pounds of the active ingredient per gallon, while others contain three pounds per gallon. Examples include Gramoxone SL (2 lbs/gal) vs. Parazone 3SL (3 lbs/gal). Encourage growers to always check the label to ensure they know exactly how much they are applying. Paraquat should be applied with a crop oil/surfactant, and high spray volume (at least 20 gal/acre) is recommended to achieve ample coverage and thorough desiccation of the plants.

Table 1. Reproductive growth stages of soybeans.

| Reproductive Stages | | Description |
|----------------------------|--------------------|---|
| R1 | Beginning bloom | One flower present on the plant, which will generally appear towards the bottom of the plant. |
| R2 | Full bloom | Flower present at a node immediately below the uppermost node with a fully unrolled leaf. Usually occurs 1 day after R1. |
| R3 | Beginning pod | Pods ($\frac{1}{4}$ inch in length) can be observed at any one of the four uppermost nodes. Typically occurs 10 to 12 days after R2. |
| R4 | Full pod | Pods at any one of the four uppermost nodes are $\frac{3}{4}$ inch long. Typically occurs 8 to 10 days after R3. |
| R5 | Beginning seed | Seeds in the pods are $\frac{1}{8}$ " long at any one of four uppermost nodes (can be felt when the pod is squeezed). Typically occurs 9 to 11 days after R4. |
| R6 | Full seed | Pod containing full size green seeds at one of the four uppermost nodes (seed are likely touching in the pod). Typically occurs 13 to 17 days after R5. |
| R7 | Beginning maturity | At least one pod can be found on the plant which is mature (brown or tan in color). Pods and leaves beginning to "yellow" during this stage. At this point the plant has reached physiological maturity. Typically occurs 17 to 21 days after R6. |
| R8 | Full maturity | 95% of pods mature (brown or tan in color). Typically occurs 9 to 11 days after R7. Beans are close to being harvest ready. |