

LACTOFEN DOES NOT ENHANCE SOYBEAN YIELD

Soybean producers are always looking for ways to increase seed yield. One such input that has been touted for this purpose has been the early-season application of lactofen herbicide [Cobra, a Group 14 diphenyl ether herbicide] for non-weed control purposes. Fomesafen [Reflex, Flexstar] and acifluorfen [Blazer] are in the same [class of herbicides](#), but only Lactofen has been attributed the supposed yield-enhancing effect. All of these herbicides are registered for use in soybean, but they are known to cause varying degrees of leaf burn or leaf necrosis when applied to soybean at early vegetative stages.

Three published reports of research that was conducted to test whether or not application of Cobra does in fact increase soybean seed yield are summarized below.

The first report is from a study that was conducted in Kentucky in 2013 and 2014, and the results are reported in an article titled “[Early-Season Lactofen Application Fails to Increase Soybean Yield Under Weed-Free Conditions](#)”.

- The objective of the study was to quantify the effects of early-season lactofen application on soybean seed yield.
- The research was conducted using MG IV varieties AG 4130 [2013] and AG 4135 [2014] that were planted in May to early June and not irrigated.
- Treatments were 1) untreated control, 2) Lactofen applied at 0.214 lb a.i./acre at V1, V2, V3, and V4 stages, and 3) Fomesafen applied at 0.535 lb a.i./acre at V1, V2, V3, and V4 stages.
- Results and conclusions are 1) soybean yields from the fomesafen treatment were similar to yields from the untreated control, 2) soybean yields from the lactofen treatment were either slightly below or similar to yields from the untreated control, 3) soybean producers should not apply lactofen to early-vegetative soybean solely to increase yield, and 4) when diphenyl ether herbicides are necessary for post-emergence weed control in soybean, the results suggest that fomesafen should be used instead of lactofen.

The second report is from a study that was conducted during 2013 and 2014 at Stoneville, MS, and the results are reported in an article titled “[Growth Regulation with Lactofen Does not Affect Seed Yield of Irrigated Soybean](#)”.

- Objectives of the study were to 1) determine the effect of early-season application of lactofen on seed yield of irrigated soybean, and 2) determine if the effect of the lactofen application on seed yield varied by planting date.
- The research was conducted using MG IV variety Progeny 4819LL that was planted on 15 April, 1 May, 15 May, and 1 June and irrigated each year.
- Treatments were 1) Untreated control, and 2) lactofen applied at 0.196 lb a.i./acre at the V2 stage.
- Application of lactofen at the rate and timing used in the study did not increase soybean seed yield above that from the untreated control in any of the irrigated plantings.

When coupled with the results from the first cited study which was not irrigated, and since lactofen application did not increase seed yield in the high-yield environment provided by irrigation in the second cited study, it appears that application of lactofen for soybean growth regulation is not beneficial or necessary regardless of potential yield level.

The third report titled “[Effect of Cobra Herbicide on Soy Yield in the Absence of White Mold](#)” gives results from a Pioneer study that was conducted in 2012-2014.

- The objective of this research was to determine the effect on yield of Cobra applied at the V3 to V4 developmental stage of soybean.
- The research was conducted at multiple locations in Iowa, Illinois, and Wisconsin in each of the 3 years.
- Three to six adapted Pioneer varieties per location were planted each year from late April through mid-May.
- Treatments were 1) untreated control, and 2) Cobra applied at 8 oz/acre [0.125 lb/acre] at the V3 to V4 stage of development.
- The untreated control outyielded the Cobra



treatment in 20 of the 23 site-years. Averaged across locations and years, the untreated control outyielded the Cobra treatment by 11.5% [8 bu/acre].

- In the absence of white mold and weed pressure, Cobra applied in the above treatment scheme was significantly detrimental to soybean yield.

The above body of evidence makes one thing perfectly clear. Soybean producers should not apply lactofen herbicide to soybean in the early season with the expectation of a yield enhancement effect.

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