

# U Of Ark. Researcher Probes The 100-Plus Bushel Secrets Of Missouri's Soybean King

LITTLE ROCK, ARK.

If there is a Babe Ruth of soybean production, it would be Kip Cullers. At a time when the Arkansas state average yield in 2011 was 38 bushels per acre, Cullers, of Stark City, Mo., consistently knocks yield numbers out of the double digits and well past the century mark in the smallish, minimum-two-acre test plots outlined by contest rules. Take a look at his stats in the last few years:

- 2006 – 139 bushels per acre
- 2007 – 155 bushels per acre
- 2008 – 117 bushels per acre
- 2010 – 161 bushels per acre
- 2011 – 109 bushels per acre

These yields have made him a multi-year winner in the Missouri Soybean Association Yield Contest. Arkansas, too, has its 100-bushel challenge, and growers are closing in on the goal. The highest yield reported for the 2011 Arkansas Soybean Association Yield Contest was 94 bushels per acre, and four additional Arkansas producers attained 90-plus bushels per acre.

Here's where Ryan Van Roekel, Ph.D. student at the University of Arkansas, comes in. Working with Larry Purcell, U of A professor and Altheimer Chair for Soybean Research, Van Roekel has made a study of Cullers' winning plots in 2011.

The researcher visited "Mr. Cullers' contest field with the intent of documenting crop growth characteristics that would result in these yields," Van Roekel said. The researchers also wanted to study yield potential of soybeans under intensive management on a large scale with strip trials in eastern Arkansas, and set up test plots at England and near Helena-West Helena.

However, 2011's heavy rain, severe hail and record heat conspired to limit yields. In England, where heavy rain and hail battered the crop, yields averaged 69-74 bushels per acre. In Helena-West Helena, the average yield was 77-83 bushels per acre. By contrast, county average irrigated yields from 2006-2010 were 37 bushels at England and 44 bushels at Helena-West Helena.

"Many of Mr. Cullers' practices are focused on maximizing yield, which does not necessarily maximize profitability or sustainability," Van Roekel said. However, of those practices, Van Roekel said early planting, excellent pest management, timely irrigation and selection of the right varieties and paying close attention to soil fertility and plant nutritional needs are the ones that can be applied directly to Arkansas soybean production.

"If these five management goals are accomplished, we have demonstrated that yields can average more than 80 bushels per acre across a whole field in our strip trial research," he said.

Other research found unusual characteristics in Cullers' field as well, including "high growth and nitrogen accumulation rates, and abnormally slow seed fill rates over a longer seed fill period," Van Roekel said.

There is one "tough love" tactic Cullers used

in the past that has been widely discussed: use of a Cobra herbicide to injure the soybean crop early in the season.

"Some farmers would comment on how it seemed like injured soybeans would yield a little better rather than worse like you would think," Van Roekel said. "We felt it was something we needed to at least look into."

"While it is possible that stressing the plants early can allow them to come back stronger, it is likely that the potential yield benefit will be small," Van Roekel said.

Previous research results on this practice have been unpredictable, with inconsistent yield increases, he said.

"While our first-year data did show a potential yield increase, we do not recommend burning the soybean crop as part of a producer's standard management practices," Van Roekel said.



Photo of a 100-bushel-an acre soybean field. This is one of the plots at Kip Cullers' farm in Stark City, Mo. Photo courtesy Ryan Van Roekel

Lanny Ashlock, former extension soybean specialist and now assistant vice president-special programs for the University of Arkansas System Division of Agriculture and coordinator for the Arkansas Soybean Promotion Board, is a fan of Van Roekel's work.

"Striving to increase soybean grain yield has long been the goal of many Arkansas farmers, and the recent successes of Mr. Kip Cullers in southwest Missouri has certainly renewed excitement for this endeavor in the state," Ashlock said.

"The Arkansas Soybean Promotion Board is funding a multiple-objective Soybean Maximum Yield Project within the state, and we appreciate the cooperation from Mr. Cullers and the efforts of Mr. Van Roekel, and that of his major professor, Dr. Larry Purcell, as they attempt to determine those management practices or combinations of management factors that account for the outstanding soybean yields that Mr. Cullers attains."

For more information about crop production, visit [www.uaex.edu](http://www.uaex.edu) or see Van Roekel's article in its entirety at [www.arkansas-crops.com/2012/02/10/student-researches-recipe-for-record-setting-soybean-yields/](http://www.arkansas-crops.com/2012/02/10/student-researches-recipe-for-record-setting-soybean-yields/). Δ

**AGROTAIN**

Link Directly To: **AGROTAIN**



Link Directly To: **VERMEER**