

ESN rate ¹	Time of N application			2008		2009		2010	
	8-leaf	12-leaf	Early silk	Non-irr	Irr	Non-irr	Irr	Non-irr	Irr
lb N/a	lb N/a			bu/a ²					
180	-	-	-	162.7	189.5	93.2	127.6	43.3	129.7
180	30	-	-	169.3	191.1	106.1	155.4	51.2	140.7
180	60	-	-	167.0	195.0	100.8	167.9	56.6	148.2
180	-	30	-	167.4	196.0	99.7	142.3	40.3	143.2
180	-	60	-	166.1	203.0	101.8	156.3	52.4	142.7
180	-	-	30	160.9	191.8	94.3	147.5	47.7	133.8
180	-	-	60	169.1	194.0	94.4	152.0	48.8	140.3
210	-	-	-	165.1	194.1	108.1	143.1	47.1	138.7
240	-	-	-	166.4	202.8	106.0	147.3	52.3	149.1
270	-	-	-	170.7	194.5	108.4	163.5	51.0	157.7
Average				167.3	194.9	101.3	150.3	45.7	129.8
LSD (0.10)				NS	7.7	6.8	6.2	10.2	7.8

Table 2. Influence of N rate and time of application on corn yield in non-irrigated and irrigated plots on Sharkey clay at St. Joseph for three years.

1Applied at about the 2-leaf growth stage.

2For the no-N control, yields were 12.1 bu/a in non-irrigated and 20.3 bu/a in irrigated plots in 2008, 15.6 in non-irrigated and 22.3 bu/a in irrigated plots in 2009, and 1.4 bu/a in non-irrigated and 3.9 bu/a in irrigated plots in 2010.

Program 5CR-2

► Impact And Management Of Diseases And Mycotoxins In Corn

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Management of foliar diseases and mycotoxins in corn has become an important factor in production with increased acreage and expansion of the current planting window in Arkansas. For foliar disease, fungicides are often utilized to protect the crop. One of the major limiting factors for this control strategy is a lack of information for the proper usage and timing of fungicide applications, especially in later planted corn. Also, limited information is available regarding resistance to southern rust and other important corn diseases on currently planted hybrids.

Beyond foliar diseases, aflatoxin contamination remains the most important disease-related problem in Arkansas corn production. Once contaminated, there is no easy or practical answer for dealing with the grain, from a farmer standpoint. So preventing aflatoxin contamination is key. Aflatoxin can reduce the value of corn from 50 – 100%, depending on US corn supply current market conditions. In an epidemic year, like 1998, it affected up to 50% of Arkansas' corn acreage costing our growers an estimated \$15,000,000 in direct losses. One potential option for growers in managing aflatoxin development may be usage of the newly available microbial antifungal crop protection product Afla-Guard. Afla-Guard contains a naturally-occurring, non-toxic fungus that reduces the development of the fungi that produce aflatoxin in grains, nuts and oil seeds through competition. Although Afla-Guard is registered for use in corn, little research has been conducted in Arkansas regarding the effectiveness of non-toxic fungus to reduce the aflatoxin development in our environment, optimum application methods, timing of application, and economical benefit or return of this bio-control agent.

Research efforts in Arkansas have concentrated on the most effective usage of fungicides and bio-control products to lessen the impact of major foliar diseases and mycotoxins. However, to control corn diseases and mycotoxins effectively these products need to be utilized in combination with other management strategies including resistance, hybrid adaptability, planting