

# Corn Row Spacing and Seeding Rate

## RFR-1767

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### Introduction

Corn plant populations have increased at approximately 400 plants/acre per year over the last two decades. Seeding rates now are commonly in the 32,000 to 38,000 seeds/acre range. Additionally, grain yields are increasing at 1.8 bushels/acre per year since 1996. Because corn plant populations and grain yields are increasing, there has been renewed interest in looking at corn row spacing and seeding rate.

### Materials and Methods

These trials were conducted beginning in 2017 using two Dekalb hybrids (DKC51-38 and DKC54-38) in one trial and two Pioneer hybrids (P0157 and P0339) in the second trial. These trials were not designed to compare brand genetics. Each trial was set up as a randomized complete block design. Seeding rates of 30,000, 34,000, 38,000, and 42,000 seeds/acre at 20-in. and 30-in. row spacing were used for each hybrid.

### Results and Discussion

In the DeKalb trial, the main effects of hybrid and row spacing on yield were significant at a 95 percent confidence level (Table 1). DKC 54-38 yielded 10 bushels/acre more than DKC 51-38. The 20-in. row spacing yielded 7.4 bushels/acre more than the 30-in. row spacing. There were no significant interaction effects in this trial.

In the Pioneer trial, the main effects of row spacing and seeding rate were significant (Table 2). The yield for the 20-in. row spacing was five bushels/acre more than the 30-in. row spacing. Seeding rate was significant at  $P = 0.0138$  with 30,000 and 34,000 seeds/acre being significantly higher yielding than 42,000 seeds/acre. Interaction effects were not found to be significant in this trial.

### Acknowledgements

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**Table 1. Corn grain yields for the DeKalb hybrid x seeding rate x row spacing trial in 2017.<sup>1</sup>**

	<b>DKC 51-38</b>	<b>DKC 54-38</b>	<b>30,000 seeds/ac</b>	<b>34,000 seeds/ac</b>	<b>38,000 seeds/ac</b>	<b>42,000 seeds/ac</b>	<b>20-in. row</b>	<b>30-in. row</b>
grain yield (bushels/acre)								
DKC 51-38	213.2							
DKC 54-38	<u>223.1</u>							
	P = 0.0025							
30,000 seeds/ac	211.3	220.3	215.8					
34,000 seeds/ac	217.1	225.5			221.3			
38,000 seeds/ac	210.5	221.6			216.1			
42,000 seeds/ac	213.7	225.0					219.4	
	P = 0.9795		P = 0.5158					
20-in. row	219.1	224.6	218.9	222.9	219.1	226.4	<u>221.8</u>	
30-in. row	207.3	221.6	212.7	219.7	213.0	212.4	214.4	
	P = 0.1567		P = 0.6276		P = 0.0203			

<sup>1</sup>P-values within boxes are used to compare yields of the main effects or interaction effects within each box. Underlined yields are significantly higher at P < 0.05.

**Table 2. Corn grain yields for the Pioneer hybrid x seeding rate x row spacing trial in 2017.<sup>1</sup>**

	<b>P0157</b>	<b>P0339</b>	<b>30,000 seeds/ac</b>	<b>34,000 seeds/ac</b>	<b>38,000 seeds/ac</b>	<b>42,000 seeds/ac</b>	<b>20-in. row</b>	<b>30-in. row</b>
grain yield (bushels/acre)								
P0157	217.1							
P0339	213.7							
	P = 0.0589							
30,000 seeds/ac	220.1	218.4	<u>219.2</u>					
34,000 seeds/ac	218.9	214.4			<u>216.7</u>			
38,000 seeds/ac	216.7	212.9			214.8			
42,000 seeds/ac	212.6	209.1					210.9	
	P = 0.9533		P = 0.0138					
20-in. row	219.0	216.8	221.7	219.7	216.6	213.5	<u>217.9</u>	
30-in. row	215.2	210.6	216.7	213.6	213.1	208.3	212.9	
	P = 0.4836		P = 0.9588		P = 0.0076			

<sup>1</sup>P-values within boxes are used to compare yields of the main effects or interaction effects within each box. Underlined yields are significantly higher at P < 0.05.