

Can soybean yield loss associated with wide rows be “won back” with intensive management?

Some growers prefer 30” rows because of reduced seed costs and reduced white mould pressure. But it’s known that wide rows yield less, especially in northern climates. A number of research trials were conducted in 2022 and 2023 to determine if applying both starter nitrogen (N) and fungicides along with early planting could close the yield gap between wide and narrow rows.

The simple answer

The inherent yield loss associated with 30” rows can be mitigated with the use of starter N, foliar fungicides and early planting. Starter N fertilizer and the application of a foliar fungicide reduced the yield gap of 30” rows to only 1.3 bu/ac for the first planting date and 2.2 bu/ac for the second planting date. Keep in mind that in every comparison in this study, 15” rows yielded more than 30” rows. From an economic perspective the untreated 15” rows were clearly the best.



A little more information

Previous Ontario research has shown a yield reduction of 4 bu/ac when comparing 30” rows to 15” or 7.5” rows. The main reason 30” rows yield less is because of slower canopy closure and bare ground between rows, so not all available sunlight is captured by the crop early in the growing season. Starter N can help “fill” the canopy sooner with faster vegetative growth. Foliar fungicides keep leaves healthier and delay senescence which could further aid wide row performance. Timely planting can also improve wide row yields because plants have additional time to capture sunlight.

The full story

Six trials were conducted to improve wide row performance in 2022 and 2023. Trial locations were Tavistock, Stratford, Elora and Winchester. In 2022, the N starter treatment was 10 gallons/ac of 28% UAN surface applied in a stream on top of the row. In 2023 this was changed to a broadcast application of 87 lb/ac of urea broadcast at planting. The foliar fungicide applied was DELARO Complete applied at growth stage R2.5. Two planting dates were used. In 2022 the variety was Cyclone R2X. In 2023 Viper R2X was used.



Figure 1. The larger rows on the right side of the picture received 10 gallons/acre of 28% N. These rows were darker green in colour and filled the canopy 5 days earlier. June 30, 2022. Tavistock, ON

The yield loss associated with wide rows could largely be “won back” with a combination of starter N fertilizer and a foliar fungicide. The untreated 30” rows planted in early May yielded 74.3 bu/ac compared to the 15” rows which yielded 78.0 bu/ac (loss of 3.7 bu/ac). The 30” rows yield was increased to 76.7 bu/ac with the addition of starter N and a foliar fungicide for a yield loss of only 1.3 bu/ac compared to the 15” untreated rows. It must be noted that the 15” rows also increased in yield with the addition of inputs resulting in the highest overall yield of 80.4 bu/ac.

The June planting date results were similar although the overall yield potential was reduced in all cases compared to the early May date. Most of the yield gain came from the foliar fungicide not the starter N. When comparing the two planting dates the untreated 30” rows yielded the same as the 15” untreated rows seeded three weeks later. This shows that early planting is an important factor in getting the most out of wide rows. This study has demonstrated that wide rows can perform well but 15” rows still outyielded 30” rows in every comparison when planted on the same day.

Table 1. Soybean response to starter N and foliar fungicides.

	Row width	Treatment*	Seeding rate	Planting** date	Yield bu/ac	Loss of 30” rows compared to 15” untreated (bu/ac)
1	15"	Untreated	165	Early May	78.0	
2	30"	Untreated	140	Early May	74.3	- 3.7
3	15"	N	165	Early May	78.4	
4	30"	N	140	Early May	74.9	- 3.1
5	15"	N + Fungicide	165	Early May	80.4	
6	30"	N + Fungicide	140	Early May	76.7	- 1.3
7	15"	Untreated	165	Late May	73.4	
8	30"	Untreated	140	Late May	69.1	- 4.3
9	15"	N	165	Late May	72.8	
10	30"	N	140	Late May	70.6	- 2.8
11	15"	N + Fungicide	165	Late May	76.7	
12	30"	N + Fungicide	140	Late May	71.2	- 2.2

*N = 10 gallons/ac of 28% UAN applied on soil surface at planting streamed on the row in 2022. 87 lb/ac of urea broadcast in 2023.

Fungicide = DELARO Complete at growth stage R2.5.

**Early May = the first planting window when the soil was fit. (May 7-16) Late May = (May 30 – June 2).

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