

Row Width Effects on Winter Wheat and Red Clover Establishment

Purpose:

To evaluate the impacts of various row width configurations on the yield of wheat and the establishment of under seeded red clover.

Methods:

Two replicate randomized field length trials were planted in the fall of 2005, with red clover applied early in the spring of 2006. Row width configurations included 7.5", "1 in 4" (1 row blocked, three rows on, or 75% of the rows on), "1 in 3" (1 row blocked, 2 rows on, or 67% of the rows on), and 15" (50% of the rows turned on). Populations were kept as equal as possible, regardless of row width configuration. Clover was applied by the grower using whatever was the normal practice on that farm. Nitrogen rates were maintained at full rate across the trials. Weed control was applied as needed, or as per the farms normal practice. Yields were taken from the wheat at harvest 2006, with subsequent clover counts one month after harvest.

Results:

Wheat yield results are shown in Table 1 below, with the summary data presented in Table 2. At both the Shady and Thorndale location, the 7.5" rows were planted with a drill, while the 15" rows were planted with a planter. At all other locations all treatments were planted with a drill and rows were simply plugged. Yield data was lost at the Woodstock 2 site.

There is a definite trend to decreased yield as row configurations moved away from the standard 7.5" configuration, but the trend is not exactly consistent. It is interesting to note that the latest planted site (Woodstock), which had very little fall growth and no fall tillering, showed by far the least effect of row widths. Whether this is an impact of spring tillering, low yield potential, or just a random effect, is unclear.

If wider row spacing indeed results in a 5 to 7% yield drop as these initial results indicate, this would have a major impact on the economics of clover, even if these wider row configurations did result in improved stands.

Clover stand counts are shown in Table 3. While there is a slight numeric trend toward increased clover stands with wider row widths, there is such variability in the data that no conclusions can be drawn. Some of this variability may be due to the wet fall experienced, and the amount of small clover plants that started to grow after wheat harvest. Red clover was extremely stressed by dry conditions through much of June and early July, which coupled with high wheat yields, resulted in poor stands in many fields. Early indications, however, would suggest that light penetration by wider row widths of wheat will not answer the clover establishment dilemma.

Table 1: Individual Data 2006 Row Widths

Location	7.5"	1 in 4	1 in3	15
		(75%)	(67%)	(50%)
	Yield (bu/ac)			
Woodham	98.4	84.5	84.5	74.8
Woodstock	69.7	69.5	72.4	69.1
Lucan	97.0	95.9	93.7	93.1
Perth	72.8	72.0	70.0	62.7
Elgin	97.3			95.2
Shady	104.5			106.8
Thorndale	112.8			106.2

Table 2: Summary Data 2006 Row Widths

Site #'s	7.5"	1 in 4	1 in3	15
	Yield (bu/ac)			
4 trials	84.5	80.5	80.2	74.9
7 trials	93.2			86.8

Table 3: Clover counts per 6 sq. ft.

Location	7.5"	1 in 4	1 in3	15
		(75%)	(67%)	(50%)
	Yield (bu/ac)			
Woodham	18.9	19.2	18.4	21.1
Woodstock	18.9	17.4	21.0	17.8
Woodstock 2	16.1	16.9	14.3	15.8
Lucan	6.2	8.0	9.5	11.2
Perth	15.7	13.9	18.6	22.3
Average	15.2	15.1	16.4	17.6

Summary: Widening row widths reduced wheat yields by 5 to 7% on average, and increased clover stand counts from 0 to 14%. However, clover stand count data was extremely variable, and while a trend may exist, no conclusions should be drawn. This study will run for a second year in 2006/2007.

Next Steps: 5 locations have been planted in the fall of 2006, to continue with the second year of this study.

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