

Figure 4.Effect of drill-applied P on T1 and T2 tiller initiation by spring wheat at six sites of differing soil test levels. North Dakota, 1990-1992.

The graph shows that at low soil test levels . . . less than 12 parts per million (ppm) . . . there was a great improvement in T1 and T2 initiation with drill-applied P. However, even at high soil test levels, there was still a 10 to 20 percent better initiation of T1 and T2 tillers with P fertilization.

The principle demonstrated in **Figure 4** agrees with the observation that there is a starter effect of P in spring wheat, even at high soil test levels. It was observed long ago that there can be early growth responses and modest yield increases to drill-applied P even with high soil test P levels. A modest improvement in T1 and T2 tillering with P fertilization at high soil test levels could account for much of this starter effect on grain yield.

Summary

Spring wheat grows for only a very short time between emergence and head differentiation. The main stem and only two tiller positions, the T1 and T2 tillers, account for virtually all of the grain yield of this crop. Phosphorus fertilizer, preferably banded with or near the seed, is usually needed for complete initiation of these critical tillers, even on high P testing soils. ■

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